



AESOP

TRANS ACTIONS

OF THE ASSOCIATION
OF EUROPEAN SCHOOLS
OF PLANNING

VOLUME 10, ISSUE 2, SEPTEMBER 2026
TIME/LESS URBANISM

TRANSACTIONS OF THE ASSOCIATION OF EUROPEAN SCHOOLS OF PLANNING

Transactions of the Association of European Schools of Planning is an international, bi-annual, peer-reviewed, open-access journal, produced and owned by the Association of European Schools of Planning (AESOP, www.aesop-planning.eu).

It is free of charge to submit a paper and to publish in the *Transactions of the Association of European Schools of Planning*. Accepted papers are accessible online, to everyone, for free.

All papers are subject to a double-blind peer-review process.

Editorial Board

Marco Cremaschi, Editor in Chief, Sciences Po, Paris, France; **Donato Casavola**, Politecnico Torino; **Rebecca Cavicchia**, NMBU Oslo; **Christian Lamker**, Rijksuniversiteit Groningen; **Katarzyna Piskorek**, Wrocław University of Science and Technology; **Ceren Sezer**, WTH Aachen University

Academic Board

Andreas Schulze Baing, University of Manchester, UK; **Ela Babalik-Sutcliffe**, Middle East Technical University, Turkey; **Beata Banachowicz**, University of Lodz, Poland; **Karoline Brombach**, Universität Stuttgart, Germany; **Edwin Buitelaar**, Amsterdam School of Real Estate, The Netherlands; **Juliet Carpenter**, Oxford Brookes University, UK; **Giancarlo Cotella**, Politecnico di Torino, Italy; **Christophe Demazière**, Université de Lille, France; **Alex Deffner**, University of Thessaly, Greece; **Sebastian Dembski**, University of Liverpool, UK; **Xavier Desjardins**, Université Paris-Sorbonne, France; **Andrea Frank**, University of Birmingham, UK; **Amnon Frenkel**, Technion Israel Institute of Technology, Israel; **Ferhan Gezici**, Istanbul Technical University, Turkey; **Athena Yiannakou**, Aristotle University of Thessaloniki, Greece; **José Miguel Fernández Güell**, Universidad Politécnica de Madrid, Spain; **Thomas Hartmann**, Wageningen University, The Netherlands; **Markus Hesse**, University of Luxembourg, Luxembourg; **Nikos Karadimitriou**, University College London, UK; **Christine Lelévrier**, Université Paris Est Créteil, France; **Hannah Mattila**, Aalborg University, Denmark; **Karel Maier**, Czech Technical University in Prague, Czech Republic; **Morten Skou Nicolaisen**, Aalborg University, Denmark; **Frank Othengrafen**, Leibniz Universität Hannover, Germany; **Davide Ponzini**, Politecnico di Milano, Italy; **Frédéric Santamaria**, Université Grenoble Alpes, France; **Sina Shahab**, Cardiff University/Prifysgol Caerdydd, UK; **Paulo Silva**, University of Aveiro, Portugal; **Richard Sliuzas**, University of Twente, The Netherlands; **Olivier Sykes**, University of Liverpool, UK; **Roelof Verhage**, University Lumière Lyon II, France; **Brian Webb**, Cardiff University / Prifysgol Caerdydd, UK; **Karsten Zimmermann**, Technische Universität Dortmund, Germany.

ISSN: 2566-2147

Journal Website : <https://transactions-journal.aesop-planning.eu>

Journal Cover Design : **Cinzia Ferrara**, ferrarastudio design.

Journal Layout Design : **Kırmızı Tasarım**, www.kirmizitasarim.com

Journal Copyeditor : **Bertie Dockerill**, Department of Planning, Property and Environmental Management, the University of Manchester.

For All Correspondence
transactionsaesop@gmail.com

CONTENTS

EDITOR'S NOTE: THE REALTOR'S GEOPOLITICS OF FRAGMENTED URBANISM

Marco Cremaschi _____ i

OUTLOOK: EXPLORING THE VOID BETWEEN PLANNING FROM ABOVE AND PLANNING FROM BELOW

Klaus R. Kunzmann _____ 1-8

INTRODUCTION: TIME/LESS. SENSING, PLANNING, DESIGNING IN COMPLEX CITIES AND REGIONS

Stefano Cozzolino, Christian Lamker, Fabio Bayro Kaiser _____ 9-14

TIME AND TIMELESSNESS IN ALEXANDER'S SEARCH FOR BEAUTY

Yodan Y. Rofé _____ 15-29

COMPLEXITY-INFORMED ANALYSIS IN DATA-SCARCE CITIES: AN EXPLORATORY METHODOLOGICAL FRAMEWORK

Fabio Bayro Kaiser _____ 30-46

BEYOND DICHOTOMIES IN TEMPORARY USE OF SPACE: USING COMPLEXITY TO BROADEN UNDERSTANDINGS

Kobe Tilley, Tim Devos, Angelos Varvarousis _____ 47-61

NAVIGATING POST-GROWTH PLANNING: LEVERAGING COMPLEXITY FOR BEING INTENTIONAL AND UNINTENTIONAL

Christian Lamker _____ 62-75

FROM TEMPORARY TO TIMELESS: WORLD EXPOS AND THEIR IMPACT ON CITIES

Javier Ostos-Prieto _____ 76-88

BEYOND BEFORE AND AFTER: TIME-BASED PARTICIPATORY URBANISM

Ardalan Tayefehhosseinlou _____ 89-102

PLACES

FROM DENSIFICATION TO HIGH-RISE DEVELOPMENT: UNPACKING SUSTAINABILITY TRADE-OFFS AND CONTRADICTIONS IN OSLO

Rebecca Cavicchia, Roberta Cucca, Per Gunnar Røe, Jin Xue _____ 103-116

A CITY RETURNS TO ITS FJORD: REFLECTIONS ON OSLO AND THREE DECADES OF WATERFRONT TRANSFORMATION

Elin Børrud _____ 117-125

EDITOR'S NOTE: THE REALTOR'S GEOPOLITICS OF FRAGMENTED URBANISM

Marco Cremaschi¹

With this second issue of 2026, *Transactions* opens a new chapter in its development. The renewal of the editorial team brings several innovations which we hope will further strengthen the journal's role within the AESOP community and beyond. I thank Donato Casavola, Politecnico di Torino; Rebecca Cavicchia, NMBU Oslo; Christian Lamker, Rijksuniversiteit Groningen ; Katarzyna Piskorek, Wrocław University of Science and Technology; and Ceren Sezer , WTH Aachen University, for accepting such a challenging task.

Before looking ahead, however, the editorial team and I would like to express our sincere gratitude to Olivier Sykes and the other outgoing editors Ela Babalik, Andrea I. Frank, Nikos Karadimitriou. Their commitment and leadership guided the journal through challenging years and significantly contributed to its consolidation and growing international visibility. Thanks to their efforts, *Transactions* is now indexed in major international databases and reaches a far broader readership than ever before. Building on this foundation, we are confident that the journal will continue to appear regularly and offer an increasingly diverse range of contributions to planning research and practice. *Transactions* also retains one of its distinctive qualities: it is an open-access journal, freely available to readers worldwide and supported by an extensive network of planning schools and universities.

This issue illustrates the journal's ambition to diversify both its formats and its intellectual agenda.

In the Outlook section, Klaus Kunzmann argues that regional planning has become the "missing middle" between top-down, market-driven European and national policies and bottom-up, locally based participatory initiatives. Rather than advocating a return to comprehensive regional planning, he proposes a new role for planners as brokers and facilitators, working through temporary regional agencies inspired by the German *Internationale Bauausstellung* (IBA). His contribution also challenges current European cohesion policies by calling for more selective territorial strategies focused on regions strategically important to Europe's future.

The second feature is a special collection devoted to time in planning and urban design; an issue that has become increasingly important as planners confront uncertainty, climate change and long-term societal transformations. Edited by Stefano Cozzolino, Christian Lamker, and Fabio Bayro Kaiser, and following the work of an AESOP Thematic Group, the collection contributes to the emerging "temporal turn" by bringing together debates that have been largely developed in isolation. Rather than proposing a unified theory, it opens an interdisciplinary research agenda that links planning theory, governance, spatial analysis, and urban design through the concept of temporality.

¹ Marco Cremaschi, *L'urbanisme pervers de la « reconstruction » de Gaza*, <https://theconversation.com/lurbanisme-pervers-de-la-reconstruction-de-gaza-268855>

Finally, this issue inaugurates the new *Places* section. It is fitting that the first City Portrait focuses on Oslo, host of this year's AESOP Heads of Schools meeting. Rather than presenting cities as exemplary models or collections of best practices, the two contributions treat Oslo as a laboratory for long-term urban transformation. Together, they combine a systematic analysis of the city's planning model – its achievements as well as its tensions around housing, densification and segregation – with a reflective insider account of the strategic, institutional and political processes underpinning the Fjord City transformation. As the section develops, *Places* has the potential to become a distinctive comparative forum linking the historical evolution of cities and regions with planning institutions, contemporary challenges and transferable lessons.

Taken together, these contributions share a common concern: they all address planning under conditions of profound structural change. Whether discussing regional governance, temporalities of urban transformation, or the evolution of specific cities they invite us to reconsider planning beyond its conventional institutional boundaries.

At the same time, no reflection on planning can ignore the broader context in which our discipline now operates. Europe, and indeed much of the world, is entering a period that is marked by geopolitical instability, military conflicts, renewed security concerns and accelerating geo-economic competition. These developments are increasingly reshaping planning agendas, public investment, infrastructure priorities and urban policies; often displacing long-standing commitments to environmental transition, social inclusion and democratic governance.

Transactions has already begun engaging with these transformations. Two issues ago, the journal explored planning and reconstruction in Ukraine. The previous issue examined the legacy of mega-events and the exceptional governance arrangements which they generate. This issue, centred on urban design, inevitably raises another question: the geopolitics of design itself.

Urban design has never been politically neutral. Increasingly, however, it is becoming intertwined with geopolitical competition, infrastructure diplomacy, security strategies and financial investment. Large-scale urban projects, waterfront redevelopment, logistics corridors, energy infrastructures and housing markets are no longer shaped solely by local planning objectives. Global capital, sovereign investment funds, strategic state interests, and real estate coalitions operating across multiple scales increasingly influence them. Urban form itself becomes part of broader geopolitical strategies, as exemplified by the praised Dubai model or the infamous Trump redevelopment scheme for Gaza .

Recognising these emerging dynamics does not mean abandoning planning's normative ambitions. On the contrary, it reinforces the need for critical scholarship that can understand how democracy, social justice, environmental sustainability and collective urban life can be defended in increasingly fragmented and contested urban landscapes. If planning is to remain relevant, it must continue to examine not only how cities are designed, but also whose interests those designs ultimately serve.

EXPLORING THE VOID BETWEEN PLANNING FROM ABOVE AND PLANNING FROM BELOW

Klaus R. Kunzmann¹

Abstract

This paper argues that regional planning has lost much of its practical relevance as strategic decision-making has become increasingly centralised while participatory governance has shifted attention toward the local scale. Positioned between top-down regulation and bottom-up initiatives, the regional level has become an underexplored arena of spatial planning. Drawing on debates in strategic spatial planning and regional governance, the paper revisits the role of planners as facilitators, moderators, and agents of transformation rather than producers of regulatory plans. It proposes a renewed approach to regional development based on cooperation between actors from above and below, combining public support, civil-society engagement, and experimental governance. Building on examples such as the German Internationale Bauausstellungen (IBAs), the paper advances the concept of regional laboratories as temporary, flexible institutions capable of addressing complex territorial challenges beyond administrative boundaries. Finally, it argues for a reorientation of European cohesion policy toward strategically selected functional regions of European significance, where collaborative experimentation can foster innovation, resilience, competitiveness, and territorial cohesion. The paper concludes that the future of regional planning lies not in restoring traditional hierarchical approaches but in creating institutional spaces that connect strategic vision, local initiative, and transformative action.

¹ Professor Emeritus of Urban Planning, Technical University of Dortmund, Germany
Klaus R. Kunzmann studied architecture and urban planning at the Technische Hochschule München and received his Ph.D. in planning from the Technische Universität Wien, Austria. He was Professor and director of the Institut für Raumplanung (IRPUD) at the School of Planning, Technische Universität Dortmund. He held the Jean Monnet Chair for European Spatial Planning. Kunzmann has devoted his career to comparing spatial planning policies in Europe.
Email: klaus.kunzmann@tu-dortmund.de

Introduction

In the 21st century spatial planning is trapped between rationales and principles of planning from above and planning from below, neglecting the field in between above and below. Regional planning, a traditional field of transformative action in between planning from above and planning from below planning has lost sympathy among planners. Some scholars even assume regional planning to be dead. Though tirelessly praised by academia, strategic regional planning is more and more been hampered by legal regulation and well-meant bureaucratic directives. Accepting that Pan European spatial planning does not find political support and acupunctural cohesion policies do hardly address forthcoming regional spatial challenges, it could make sense to explore options of strategic regional development and planning in the void between above and below. This could also be a chance to replace practised cohesion policy of the EU by focussing on a few regions that are particularly confronted with forthcoming spatial challenges affecting Europe's global competitiveness as a whole. In times of global geopolitical turbulences, slowbalisation, climate change and regional populism yearning for more top-down policies, while insisting on bottom-up traditions, this paper suggests an alternative policy to fill in the void. It aims to encourage spatial planners to take over a new role by becoming moderators in complex regional transformation processes in regions, which are important for Europe, but not hampered by local, regional and national administrative and political boundaries and EU regulations.

Regional Planning, a Forgotten Field in Spatial Planning?

In recent decades, regional planning has lost its original role in developing public infrastructure, influencing the locational choices of private industries, securing access to natural resources, and protecting nature while avoiding urban sprawl. There is abundant literature on strategic regional planning, innovative governance, and targeting planning, yet numerous obstacles and legal arguments hinder efforts to translate theory into action. The regions between the above and the below have become an uncharted territory of spatial planning. This void could be filled by revitalising regional spatial development policies. While the local dimension of development is gaining increasing support among European planning communities, the regional dimension is gradually being neglected, despite the significance of strategic planning and governance in academic research (see, for example, Albrechts 1999/2010, Kunzmann 2000, Martinelli et al. 2013). Many reasons are given for this disregard, although, at least in Germany after 1945, regional planning has been very successful in developing industrial infrastructure, promoting small and medium-sized towns as central places, and controlling urban sprawl. In the European market-led environment, economic, ecological and social regulation to control market forces, protect the environment, and moderate social disparities is increasingly centralised. Though daily conflicts between infrastructure development and ecological concerns are increasingly in the hands of upper tiers of governance. Local governments' willingness to cooperate regionally, in turn, is limited. The growing inclusion of local residents in planning and decision-making processes, favouring the local dimension of development, distracts from regional challenges and tasks. Is regional planning dead? In 2020, John Harrison, Daniel Galland, and Mark Tewdwr Jones explored this question, arguing that high-level control, nostalgia, and job-saving motives within administrations are responsible for the demise of regional planning in Great Britain. They aimed to re-energize planning debates in regional studies and reposition planners as orchestrators and enablers of planning. They rightly argue that a future form of regional planning will have to attach less importance to a physical plan and focus more on aligning different types of spatial intelligence across various organizations. Regional planning should rather center on achieving spatial alignment in a fragmented and highly diffuse landscape. The suggested to explore new approaches to regional problems (Harrison et al. 2020). More reasons could be added to their insights: geographical traditions, a focus on collecting, interpreting, and visualising data, and on writing review papers for publication in international English-language journals, or the distance from political arenas. All these reasons led to the absence of a creative, action-oriented spirit among regional planners within established regional institutions.

Though numerous books and academic publications have promoted the field, it seems that they had not had much impact. As many authors rightly observe, regional planners are often stuck between tradition, linearity and regulation. Louis Albrechts, a fervent pioneer and bridgebuilder between theory and practice who has promoted strategic (regional) planning during his long professional and academic life, argues that strategic planning should be more creative, should *"create a future environment and should be centred on the*

elaboration of a mutually beneficial between top-down and bottom-up local uniqueness" (Albrechts 2010, 21). And he stresses *"embeddedness"* as a crucial dimension of planning, meaning that planning should reflect endogenous social conditions and that planners are embedded in social relations and their connections with the natural environment, characterised by feelings, attachments, and practical concerns. *"Embedded means to be part of something, Embedded planners, as part of an autonomous self-organizing civil society, should be active in making claims, resisting, and struggling on behalf of a fair and sustainable place/community within a framework of democratic institutions"* (Albrechts 2025, 219). In a chapter of the book on *"The Value of Place"* (Moulaert and Mehmood 2025). In the same book Andreas Novy and Nora Dornis suggest a new role for of strategic planning *"Planning without hybris: top-linked governance to empower bottom-up initiatives"* (Novy and Dornis 2025). The diminishing status of top-down spatial planning has prompted the German Academy of Territorial Development in the Leibniz Association (ARL) to explore and propose new perspectives on spatial development in the state (ARL 2022). Analysing the reasons for the decline and in keeping with the spirit of the subsidiarity principle, a revision of practised state planning has been called for, reorganising the division of labour between state and local planning. Instead of hierarchical, top-down planning, both tiers must complement each other. Local governments are asked to cooperate (Weick 2022, 158). Pleading for a more transformative approach, another author on the project recommends bringing together representatives of civil society and economic and political stakeholders (Miosga 2022, 180).

Spatial planning from above or from below?

Planners who are permanently monitoring, articulating and blaming spatial disparities cannot contribute much to closing the growing gap between rich and poor regions. They have neither appropriate non-legal instruments nor the public power and generous budgets needed to reduce spatial disparities. They have to acknowledge that more public intervention and more legal regulations will not change decision-making in a market-oriented environment. Hence, what can planners really do? One field they can explore is acting as moderators of spatial development between directives and incentives from above and complaints, contributions, and actions from below. The business community knows that planning is the basis for success, if only done by private enterprises, not by the public sector. Management students learn that planning from above drives CEO policies, defines visions and goals, and saves time initially, though it overlooks implementation details and underestimates risks, while planning from below, driven by employees, improves accuracy and facilitates risk identification, but is time-consuming and neglects longer-term perspectives and risks. Urban and spatial planners, too, love planning, but they are always meandering between social and ecological challenges and dreams, and the hard economic and political reality that secures their income. They have to decide where and how they wish to realise their dreams, and where they can contribute their competence to just, sustainable and resilient urban and regional development. They have the choice to use their planning competence either to support transformation activities through people-oriented and civil society-oriented planning from below, or to guide and promote transformation from above, arguing that the latter is more effective. Or they consider themselves to be active moderators between the two options, aiming to achieve compromises on strategic action, combining or just moderating between these two options, and, this is particularly important, beyond administrative boundaries. Spatial planning from below is the well-established routine management of planning and decision-making processes, or is just what traditional urban planners do. Their traditional tasks is zoning, land use planning, and urban regeneration, including involving citizens, land owners and investors in planning and decision-making processes. Even in times of AI technologies this will not change. As a rule, planners working in local governments promote local projects which local budgets can support. Though local planners are also focusing on actions, experiments, and new cooperative lifestyles at the local level within a broad regulatory system, by supporting a diverse spectrum of civil society groups. They accept regulations from above or, while generously interpreting top-down directives and using legal leeway to develop local projects, tolerate all kinds of innovative projects proposed by local civil society groups. The number of groups of the civil society that sympathise and experiment with degrowth strategies, promote co-working places in vacant office buildings, operate cooperative three-generation housing, take care of cultural centres, which public budgets can no longer afford, engage in actions to reduce mobility or return to the countryside and start a new life in bio-initiatives (Magnaghi 2010 /2014 Lange et al. 2020). All such initiatives are increasingly visible in Western societies, and more and more books report on the aspirations, rationales, achievements, and failures of these groups. As individuals, planners can engage in local civil society activities or support their aims and actions within the regulatory framework and the local political milieu. It can be expected that the number of civil society members is steadily growing in a capitalist world ruled by authoritarian regimes, supported

by powerful, globally active tech firms in the US and China, and by banks and investment funds that control the flow of surplus money and pension funds. National governments, like the one in Germany, are shifting an increasing share of social duties to local governments, without raising their share of national income, trade, or value-added tax to improve their local budgets. Consequently, local governments increasingly have to rely on civil society's willingness to take over transformation duties for which they have either no funds or only insufficient funds.

Spatial planning from above, respectively policies and programs supporting or regulating or just influencing the transformation in the broad field of urban and regional development at lower levels is practiced by the European Commission, by international organizations, national and regional ministries, advised by a large group of public and private research institutes and influenced by lobby groups that contribute arguments or express vested interests to influence standards and norms in political decision making processes. Planning from above is carried out by the national headquarters of political parties, which set ideological priorities and compel local and regional party members to follow the party's thematic directives to win elections. Though planning from above is done not only by regional and national governments and, increasingly, by the EU Commission, but also by many voices and legal influencers working in a whole range of powerful non-governmental organisations and on social media. They, in turn, are driven by the voices of their respective discourse environments, including countless lobbyists and representatives of interest-led industrial and consumer organisations, who influence and often welcome laws and ordinances made from above. By supporting local projects, they can convince local decision-makers to adhere to their principles and rules. By establishing and financing supranational research programmes, researchers are accepting the underlying priorities and neglecting the concerns of local people. They are increasingly tired of voting for candidates from established political parties.

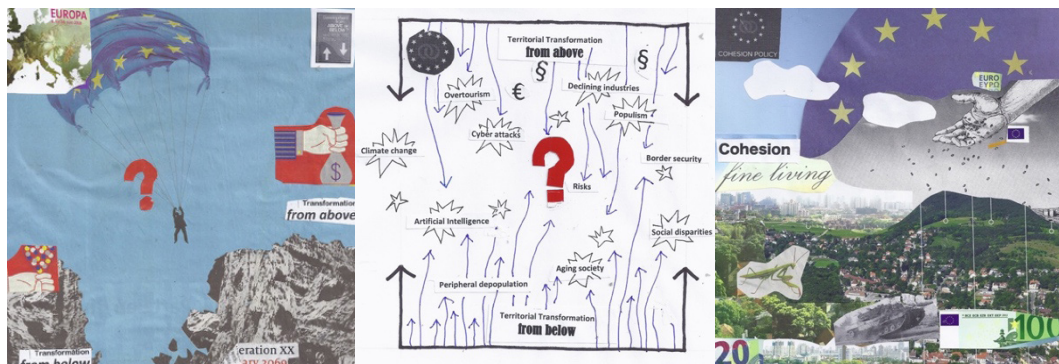


Fig.1, Fig. 2.,Fig. 3 Spatial development initiatives in the void between above and below.
Collages and image by the author

Spatial development initiatives in the void between above and below

Already 45 years ago, addressing efforts in international development aid, Walter Stöhr and Taylor recommended a blend of "top-down" policies and "bottom-up" local development to promote effective regional development (Stöhr/Taylor 1981). Times have changed, but the suggestion earns a revival. In times of rising populism, local-level urban planning is gaining even greater importance to mitigate the implications of market-oriented economic and spatial development. On the other hand, an increasing share of regulatory power is shifting to the European Commission, raising concerns among citizens and national governments. This suggests that it is worthwhile to explore how grassroots actions below could be combined with support from above to address particular challenges in regions beyond administrative boundaries, how regions could benefit from cooperative action of local initiatives and government taskforces. Such task forces could be authorised to experiment in regional laboratories. In the context of an unchallenged market economy they could innovate regional development. This would be a field where spatial planners could act as change agents, as catalysts and moderators. With their broad competence, could they combine the local commitment of civil society groups beyond individual attitudes and values with strategies from actors from above? They could establish and support regional laboratories to test innovative strategies through regional experiments. Independent from established administrative boundaries these regional laboratories could for example :

- Explore neglected potentials of regional transformation,
- Search for windows to revitalise over-regulated regional planning m
- Identify projects which encourage actors from above and from below to join forces.
- Find ways and means to achieve trust between regional actors above and below.
- Except for regional actors temporarily exempt from bureaucratic regulations, assess the implications,
- Allow experiments of intercommunal cooperation beyond the vested interests of political parties.
- Create room for local experiments,
- Streamline regional development processes to accelerate decision-making,
- Build regional information platforms to understand infrastructure deficits.
- Coordinate regional development by information.

Such explorations would require temporally and spatially limited leeways for experimental action and strategic regional transformation. To this end, two IBA initiatives in Germany could serve as templates. Despite the slightly misleading name “International Building Exhibition”, these regional initiatives are not building exhibitions, as they are rather regional laboratories to experiment with innovative approaches to regional challenges, which, for multiple reasons, the established administrative system is unable to handle. During 1989 and 1999, upon initiative of Karl Ganser, and support of Johannes Rau, the prime minister of the state of North Rhine-Westphalia, the IBA Emscher Park, an agency established for ten years only, carried out a regional development project save the industrial heritage of the declining coal and steel region and to realize innovative projects to promote, among others, projects such as housing, landscaping with arts, land and nature reclamation and cultural industries. The internationally much acclaimed ten-year project was deliberately operated in a space beyond administrative local or district boundaries (Kunzmann 2004, Kloke et al. 2023). Another Initiative following the format of an IBA is carried out by a newly established regional IBA agency in the metropolitan city region of Munich, aiming to improve “regional spaces of mobility” (IBA München 2026). By inviting the initiative to the civil society, it is hoped that mobility-improving solutions can be found, approaches which the existing local and regional authorities have not managed. The aim of the initiative is to network committed regional actors and to create templates for future action.

Strategic Spatial Planning in the Void Between Above and Below: A Visionary European Laboratory

Geographical conditions and two thousand years or more of history, of trade and industrial innovations have shaped the present urban system of the European continent, where a few metro-regions are attracting innovative industries and services. Today, they are vigilantly protected by vested national governments. Despite all programs and promises, the European Commission’s morally ambitious yet futile cohesion policy from above can never create balanced spatial development in Europe within a geopolitical environment dominated by liberal market forces. On the contrary, EU economic policies aimed at competing with the US and China will instead strengthen those metropolitan locations, which have the potential to provide the conditions for innovative transformation and attract creative labour forces that secure global competitiveness. European regions, where an increasingly industrialised agriculture dominates the regional economy, will continue to produce basic and specialised food, supported by EU agricultural policies. European regions, where climatic conditions, scenic landscapes and urban heritage attract stressed citizens of metropolitan city regions in Europe and culturally curious tourists from Asia, the Middle East and the US, will continue to be promoted by EU policies and maintain their profiles. These regions will benefit from their endogenous potential and policy support from above, though, in all European states, living conditions in lagging regions differ from those in regions that are more successful at managing transformative processes. The planners’ dream of creating equal living (and working) conditions across Europe will remain a never-ending dream, which even the acupuncture EU Cohesion policy cannot achieve. Instead of the ambitious watering-can approach supports everything from bicycle lanes around Lake Garda to the production of arms in Estonia. Times when the cohesion policy had some political, science-based rationale to win over local governments and autocratic regimes require a revision of this watering-can cohesion policy to make Europe more competitive. To this end, it could make more sense to exclusively support regions in Europe which contribute to its competitiveness. Such a policy could support five types of regions of European importance (Fig.3). Obviously, being aware that any definition of what kind of regions are important is debatable, one such definition could include:

- First, regions that are promising locations for innovative knowledge industries suffer from structural contradictions and internal infrastructural challenges, energy and water resource shortages, and ongoing intraregional political disputes, all of which hinder the development of internal consensus-building strategies.
- Second, regions hit by overtourism, where the interests of a majority of beneficiaries of global tourist flows have a considerable impact on the quality of life of local residents, not directly and indirectly linked to the tourist industry
- Third, semi-urbanised agro-industrial regions beyond metropolitan city regions, where structural transformation processes are blocked by cultural and legal differences along the inner European borders.
- Fourth, peripheral regions in Europe are deliberately left to nature, where the remaining residents, who protect the regional ecosystem, fully depend on public subsidies to remain.
- Fifth., European border regions, which provide security for the European Union as a whole, have to adopt development strategies that balance military and non-military spatial requirements.

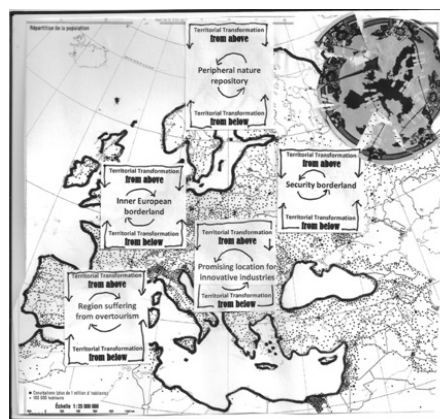


Fig.4 Laboratories of regional transformation in Europe

These regions could be considered particularly important to Europe as a whole. This importance can be much better communicated to the European electorate. Regions identified through in-depth regional studies could be selected as targets for a revised EU cohesion policy. The selection could be based on a few criteria: the region has to be functional, not administrative. In cooperation with representatives of the regionally embedded actors of the civil society, responsible public institutions agree on a functional border, establish and co-finance a regional agency limited for a period (for example for 20 years), appoint a communicative project manager and a small technical support team, as well as political and professional members of a supervisory board, clearly define the focus and the aims of the initiative and confirm the participation from below, who have responded to the call for participation and feel committed to participate in the implementation of the regional strategy agenda, which the responsible project team has prepared, formulated and communicated. All this is organized outside the legal and political responsibilities of local and regional administrative institutions, which are doing routine local and regional development. Support for these regions and the European Commission's approach to their support could convince European and national parliaments, replace the cohesion watering-can policy, and reduce the dominance of the most dominant city regions. Europe, such as Paris, London, Frankfurt, Lombardy, the Oresund, and the capital city regions of Berlin, Madrid, Brussels, Warsaw, or Vienna, does not require support from European cohesion programs. Their development is in the interest of their respective national governments anyway. A spatially defined in-between policy could make European regions with innovative potentials globally competitive. When filling in the uncharted space between planning from above and planning from below, the focus is on cooperation. This would cushion the deficiencies of regions that are important for balanced spatial development on the continent or that require support to ensure security. Successful future-oriented transformation in these regions could serve as demonstration projects for other European regions. It would replace the practised acupunctural policy and give cohesion policies a targeted but hitherto much-neglected spatial dimension.

Conclusion

Replacing practised EU cohesion policy certainly remains an academic dream, though there are arguments for revising the policy to end its acupunctural character and focus on spatial priorities, which are important for making Europe competitive and maintaining the quality of life of regional citizens. For various reasons, individual regions alone cannot manage the challenging transformation processes. Europe needs a spatial vision that is easy to understand, communicate, and widely accepted by the majority of Europeans. Such a European vision could focus on selected territories that are essential to the future sustainable and resilient development of the whole continent. The suggested approach to support the transformation of regions, which for various reasons cannot be managed by regional authorities, aims to establish temporary, locally embedded regional agencies in the political abyss between planning from above and planning from below. Such temporary agencies could benefit from EU political and financial support from above and commitment of local groups of civil society. They could mobilize implementing agency independent from governmental borders, from local, regional and national administrative barriers and independent from opposition from established local and regional parliamentary decision-making bodies. The selection of regions for such an approach would have to be based on careful, data-driven ESPON research, followed by intensive debates in the European Parliament and a call for applications from national governments that are open to such a visionary approach. It would give EU regional policy a new momentum and exempt local governments from excessive EU bureaucracy. Regional planning will not regain relevance by returning to the comprehensive, regulatory models of the past. Its future lies in occupying the neglected space between top-down governance and bottom-up initiatives, where planners can act as facilitators of cooperation, experimentation, and territorial transformation. Rather than producing more plans, planners should help build institutions capable of linking strategic objectives with local capacities. In this sense, the challenge for European spatial planning is not simply to manage territories, but to create the conditions under which regions can collectively shape their own futures.

For communicative spatial planners enthusiastic about driving, as moderators, a people-oriented transformation in regions between the above and the below would be a much-noted field of action. Training spatial planners to become communicative and visionary moderators of regional development, rather than just servants and henchmen of data-driven AI, would be a worthwhile future challenge for planning schools.

References

- Albrechts, Louis (1999) 'Planners as catalysts and initiators of change: The new structure plan for Flanders', *European Planning Studies*, 7(5), pp. 587–603.
- Albrechts, Louis (2010) 'How to enhance creativity, diversity and sustainability in spatial planning: Strategic planning revisited', in Cerreta, Maria, Concilio, Grazia and Monno, Valeria (eds.) *Making Strategies in Spatial Planning*. Heidelberg: Springer, pp. 3–26.
- Albrechts, Louis (2025) 'Embedded planning and planners: Rethinking the role of planning and planners in an era of undefined becoming', in Moulaert, Frank and Mehmood, Abid (eds.) *Exploring Regional Development and Land Use Strategies*. Cheltenham: Edward Elgar, pp. 209–226.
- Albrechts, Louis (2027) 'Strategic planning as a catalyst for transformative practice', in Haselsberger, Beatrix (ed.) *Encounters in Planning Thought: 18 Autobiographical* [Publication details to be completed].
- Harrison, John, Galland, Daniel and Tewdwr-Jones, Mark (2021) 'Regional planning is dead: Long live planning regional futures', *Regional Studies*, 55(1), pp. 6–18. doi: 10.1080/00343404.2020.1750580.
- Kloke, Andreas, Monheim, Heiner and Paetzel, Ulrich (2023) *Karl Ganser: Integriertes Planen und Handeln*. Dortmund: Kettler.
- Kunzmann, Klaus R. (1995) 'Developing the regional potential for creative response to structural change', in Brotchie, John et al. (eds.) *Cities in Competition: Productive and Sustainable Cities for the 21st Century*. Australia: Longman, pp. 286–294.
- Kunzmann, Klaus R. (2000) 'Strategic spatial development through information and communication', in Salet, Willem and Faludi, Andreas (eds.) *The Revival of Strategic Spatial Planning*. Amsterdam: Royal Netherlands Academy of Arts and Sciences, pp. 259–266.
- Kunzmann, Klaus R. (2004) 'Creative brownfield redevelopment: The experience of the IBA Emscher Park initiative in the Ruhr in Germany', in Greenstein, Rosalind and Sungu-Eryilmaz, Yesim (eds.) *Recycling the City: The Use and Reuse of Urban Land*. Cambridge, MA: Lincoln Institute of Land Policy, pp. 201–217.
- Kunzmann, Klaus R. (2025) 'When planners dream: Visions for European spatial development', *disP – The Planning Review*, 61(1), pp. 81–99. doi: 10.1080/02513625.2025.2518863.

- Lange, Bastian, Hülz, Martina, Schmid, Benedikt and Schulz, Christian (eds.) (2020) *Postwachstums-Geographien: Raumbezüge diverser und alternativer Ökonomien*. Bielefeld: transcript Verlag.
- Lever, William and Bailly, Antoine (1995) *The Spatial Impact of Economic Changes in Europe*. Aldershot: Avebury.
- Magnaghi, Alberto (2005) *The Urban Village: A Charter for Democracy and Local Self-Sustainable Development*. London: Zed Books.
- Magnaghi, Alberto (2024) *La Biorégion Urbaine: Petit traité sur le territoire, bien commun*. Paris: Eterotopia.
- Ministerkonferenz für Raumordnung (MKRO) (2016) *Leitbilder und Handlungsstrategien für die Raumentwicklung in Deutschland*. Berlin: Ministerkonferenz für Raumordnung.
- Miosga, Manfred, Dudek, Sebastian and Klee, Andreas (eds.) (2022) *Neue Perspektiven für eine zukunftsfähige Raumordnung in Bayern*. Arbeitsberichte der ARL, No. 35. Hannover: Akademie für Raumentwicklung in der Leibniz-Gemeinschaft.
- Moulaert, Frank and Mehmood, Abid (eds.) (2025) *Exploring Regional Development and Land Use Strategies*. Cheltenham: Edward Elgar.
- Novy, Andreas and Dornis, Nina (2025) 'Planning without hubris: Top-linked governance to empower bottom-linked initiatives', in Moulaert, Frank and Mehmood, Abid (eds.) *Exploring Regional Development and Land Use Strategies*. Cheltenham: Edward Elgar, pp. 262–277.
- Stöhr, Walter B. (1981) 'Development from below: The bottom-up and periphery-inward development paradigm', in *Development from Above or Below? The Dialectics of Regional Planning in Developing Countries*. Chichester: John Wiley & Sons.
- Weick, Thomas (2022) 'Planung wiederentdecken: Raumplanung 2.0', in Miosga, Manfred, Dudek, Sebastian and Klee, Andreas (eds.) *Neue Perspektiven für eine zukunftsfähige Raumordnung in Bayern*. Hannover: Akademie für Raumentwicklung in der Leibniz-Gemeinschaft, pp. 151–162.

INTRODUCTION: TIME/LESS. SENSING, PLANNING, DESIGNING IN COMPLEX CITIES AND REGIONS

Stefano Cozzolino¹, Christian Lamker², Fabio Bayro Kaiser³

Time is a crucial and fascinating topic for spatial planners, but it often remains a peripheral element in both scholarly and practical discourses (De Roo, 2010; Moroni, 2015; Cozzolino & Moroni, 2024). Time is frequently treated as a neutral background condition rather than as an active force shaping cities and regions, as well as their planning approaches. Planners, designers, policymakers, and spatial analysts alike — whether passively or actively — operate at the forefront of these dynamics. Yet, the extent to which time is systematically understood, conceptualised, and actively leveraged remains an open question.

By embedding the debate within the complexity theories of cities (brought forward by, amongst others, Batty & Marshall, 2012; Portugali et al., 2012), this special issue acknowledges that socio-spatial systems dynamically transform over time in ways that are regularly not easy to grasp or understand (Batty, 2005; Marshall, 2011; Moroni & Cozzolino, 2019). Sometimes, across various scales, socio-spatial changes appear to follow linear, predictable patterns; at other times, they emerge spontaneously and unpredictably. Such variability generates fundamental uncertainty (Bertolini, 2010; Salvati & Serra, 2016; Sengupta, Rauws, & de Roo, 2016; Silva, 2016; Rauws, 2017; Wiechmann, 2024; Chang et al., 2025). In short, understanding and working with ‘time’ is central to spatial planning scholars and practitioners willing to engage with the complexity theories of cities.

1 Department of Spatial Planning and Urban Design, ILS-Research Institute for Regional and Urban Development.
E-mail: stefano.cozzolino@ils-research.de. ORCID: <https://orcid.org/0000-0001-8873-1868>.

2 Faculty of Spatial Sciences, University of Groningen.
E-mail: c.w.lamker@rug.nl. ORCID: <https://orcid.org/0000-0002-1541-6952>.

3 Chair and Institute for Urban Design, Faculty of Architecture, RWTH Aachen University.
E-mail: bayrokaiser@staedtebau.rwth-aachen.de. ORCID: <https://orcid.org/0000-0002-4839-5991>.

This special issue shows that the very notion of time — including its uses and challenges — can be approached from multiple perspectives and research questions. Time is a cross-cutting and omnipresent dimension of planning. On the one hand, it is one of the discipline's most practical concerns. Planning is fundamentally a future-oriented activity (Boelens & De Roo, 2016; Portugali, 2020; Moroni, 2023); it sets objectives, establishes timelines, and often materialises in implementation phases: steps, project plans, and even rigid Gantt charts that one can see as symbolic of a desire to exert control over time or gain certainty against temporal flows. On the other hand, it is also a profoundly philosophical issue (Lynch, 1972; Isaacs, 2001). The ways in which time is interpreted and conceptualised, as well as the values associated with it, can fundamentally reshape its role and meaning within planning processes and design interventions (Alfasi & Portugali, 2004; Cozzolino, 2022). In this regard, it is important to emphasise that this special issue is not alone. It has been developed alongside growing recognition of a 'temporal turn' (Parker & Dobson, 2025) in planning theory and practice, as well as an emerging recognition of a collective lack of engagement with time before (Chang et al., 2025; Wiechmann, 2024). This special issue aims to further contribute to such debates and invites readers to join the debate.

Motivated by a broad interest in exploring one of the most fundamental dimensions of planning, the Association of European Schools of Planning (AESOP) Thematic Group *Planning and Complexity* organised a conference between 28 and 29 November 2024 in Aachen (Germany) dedicated explicitly to these considerations. The aim was to advance a more explicit and nuanced engagement with time by situating these reflections within the scientific frame and legacy of complexity science (Weaver, 1948; Jacobs, 1961). The conference brought together contributions exploring time-sensitive dynamics and methodologies, alongside interdisciplinary perspectives proposing innovative analytical, design, and governance approaches. Within this framework, 34 submitted papers and three keynote speakers (see Acknowledgements) engaged with the topic through three interrelated avenues of inquiry: sensing, planning, and designing.

The first avenue, *sensing*, addressed the multiple dimensions through which socio-spatial change is perceived and interpreted, including spatial, corporeal, cognitive, mediated, and technological modalities (Boeing, 2018; Wohl, 2019). Central to this discussion was the question of how diverse rhythms, layers, and dynamics of transformation can be conceptualised, and how they can generate recognisable spatial-temporal patterns. Of particular relevance was the role of emerging data sources, digital infrastructures, and sensing technologies in redefining how urban change is observed, understood, and rapidly reshaped in both reality and perception.

The second avenue, *planning*, focused on developing temporal awareness in both planning theory and practice. It examined how planning interventions can become more responsive to issues of timing, speed, sequencing, unforeseen effects, time-induced uncertainties, and robust yet adaptive long-term scenarios. While planning traditions are often grounded in established practices and institutional frameworks, they are also increasingly challenged by the accelerating and uneven pace of socio-spatial change. This raises critical questions about how planning can engage with transformations that extend beyond and radically challenge dominant and established *modus operandi*. Contributions in this area explored innovative strategies and instruments for spatial governance as well as conceptualisations and roles of planning itself.

The third avenue, *designing*, investigated design processes that foreground time as a constitutive dimension of spatial production (Wohl, 2018; Cozzolino, 2020; Alexander, 2021; Çalışkan & Stolk, 2023; Porqueddu, 2025). It highlighted the tensions that exist between delivering effective short-term solutions and addressing long-term, uncertain, and emergent dynamics. Contributions examined how design logics negotiate such temporal tensions and explored frameworks that accommodate change and complexity. Focusing on both the composition and production of built and natural environments, the discussion reflected on whether contemporary prevailing design ideals and practices may reproduce limitations in how the temporal dimension is understood and operationalised.

This special issue presents six of the many conference contributions. It does not cover the full breadth and depth of the two-day workshop, but it investigates the interplay between time and complexity from multiple facets: beauty, data and spatial analysis, temporary use, post-growth, short-term intervention vs long-term impacts, and participation. The collection includes an elaboration by one of the keynote speakers (Yodan Rofé) as well as five contributions that have been further developed on the grounds of the joint event in Aachen.

In *Time and Timelessness in Alexander's Search for Beauty*, Yodan Rofé explores Christopher Alexander's influential ideas on architecture and complexity, and argues that urban beauty arises spontaneously through processes that unfold over time and are embedded in human life and experience. The article advocates for environments that can adapt and grow with life, memory, and meaning.

In *Complexity-informed analysis in data-scarce cities*, Fabio Bayro Kaiser presents an exploratory framework for spatial analysis in 'data-scarce' environments using Earth observation data. Guided by non-linearity, emergence, and constrained observation, the author applies these concepts to La Paz–El Alto (Bolivia); providing a basis for interpreting spatial evolution and change.

In *Beyond Dichotomies in Temporary Use of Space*, Kobe Tilley, Tim Devos, and Angelos Varvarousis utilise complexity theory to move beyond 'narrow' academic dichotomies regarding temporary (re)use. By analysing cases in Flanders (Belgium), they argue that these practices should be understood as iterative and adaptive components of broader planning processes.

In *Navigating Post-Growth Planning: Leveraging Complexity for Being Intentional Unintentional*, Christian Lamker connects the emerging concept of post-growth planning to complexity theory. In challenging traditional assumptions of linear control, he suggests the intriguing idea of 'intentional unintentionality'. The article draws on Niklas Luhmann's social systems theory and suggests an alternative approach to planning that intentionally reshapes its own roles to more effectively exert "unintentional influence".

Focusing on Expo '92 in Seville (Spain), Javier Ostos Prieto, in *From temporary to timeless: World Expos and their impact on cities*, examines the relationship between ephemeral global events and their permanent urban legacies. The study investigates how short-term interventions shape long-term urban complexity.

In *Beyond Before and After: Time-Based Participatory Urbanism*, Ardalan Tayefehhosseinlou offers a stimulating understanding of participation as 'participation-in-use'. The paper proposes the idea to generate 'minimally intrusive interventions' — reversible, open-ended designs — that allow for continuous learning and adaptation rather than striving for a fixed final state.

Looking across these contributions and the discussions surrounding the development of this volume, we believe that it fulfils exploratory ambitions. Compiling the special issue served as a collective exercise as well as presenting an opportunity to bridge the gap between the practical application of complexity theories of cities and the (understudied but highly intriguing) dimension of time. We shed light on versatile theoretical directions within sensing, planning, and designing for and with complexity; and on how incorporating conceptualisations of time advances thinking. The convergence of diverse disciplinary interests, viewed through shared theoretical frames, has enabled us to advance a dialogue that both rediscovers time as an indispensable foundational factor while also finding common ground in complexity science. We equally hope that strengthening visible engagement with complexity theories within spatial planning will provide grounds to further enrich the relevance and meaning of these underpinnings.

Finally, it was never the intention for this collection to yield an exhaustive understanding of the relationship between time and complexity. Looking back at 20 years of working with planning and complexity since the establishment of the thematic group in 2005, we realise the relevance of time for such discussions themselves, and the many adaptive steps related to advance our collective knowledge. Placing time and complexity at the heart of the discussion has enabled us to move collectively, as a thematic group, toward new knowledge horizons and the formulation of new questions.

Acknowledgements and conference presentations:

We express our gratitude to all presenting, non-presenting, and supporting participants of the 22nd workshop of the Association of European Schools of Planning (AESOP) Thematic Group on Planning and Complexity in Aachen on 28-29 November 2024. Where we mention our discussions in this editorial, we relate to all the following presenters:

Keynotes:

- Juval Portugali (Key Note): Time travel, homo planner and the city
- Filipa Matos Wunderlich (Key Note): Temporal Urban Design: Temporality, Rhythm and Place
- Yodan Rofé (Key Note): Time and Timelessness in Alexander's Search for Beauty

Regular presentations:

- Balázs, Bálint; Alföldi, György; Düll, Andrea: Connecting the spaces and the socio-economic processes of the city: Transdisciplinary approach for better understanding the quality of life in small and medium-sized Hungarian cities
- Bayro Kaiser, Fabio: Exploring the spatiotemporal evolution of urban form with Big Earth Open Data
- Björling, Nils; Rönnblom, Malin; Scott, David Towards planning beyond pain-free politics
- Brownsword, Marlon: Temporal Perspectives and Initial Exploratory Movements of Cybernetics in Spatial Planning
- Can, Aysegül: Slow and Infrastructural Violence in Istanbul: A look at urban megaprojects
- Caramaschi, Sara: The role of temporariness, emptiness and improvisation in uncertain times: Evidence from COVID-19 temporary structures
- Chang, Robin A.: A Kairotic Relationship - The Unfolding and Non-Linear Temporal Dynamics that link Agile and Adaptive Planning
- Cormack, Liam: On the Ruin and Conquest of Nature and the Otherworld
- Cozzolino, Stefano: Planning with and for Emergent Urban Complexity. The Crucial Role of Time.
- Demiral, Gökçe: Dynamics Between Space and Time in Campus Areas
- Farooq, Aysha: Coping with Temporality: Space Appropriation of South Asian Migrants in Muscat, Oman
- Goose, Tom: Sensing with Citizen Science: Legacies of the Curieuz Neuzen project in Antwerp (Belgium)
- Haase, Andrea: Time/Less: Niches for Privacy
- Hågemark, Henrik; de Fine Licht, Karl: A contemporary call for traditional architecture - a temporal complexity in today's urban planning
- Hsiao, Wei-Shan; Huang, Shao-Yu: Rewilding Landscape: Exploring the Relationship Between Spatiotemporal Dynamics and Public Life at the Foothill Mountain in Taipei
- Kahya, Güzin Yeliz: Narrating Temporalities of Urban Landscape: Mount Erciyes in the city of Kayseri
- Kersting, Nicolas: Participatory Urban Design in Bolivia: Navigating Temporal Challenges and Community Dynamics
- Kresse, Klaas: Understanding policy failure through evolving planning-context dissonances – a new institutionalist approach
- Kretzschmar, Maya; Pfaffenbach, Carmella: Temporality of Living: Perceptions of Temporariness and Processes of Homing
- Lamker, Christian: Navigating Post-Growth Complexity: Growth-Less Roles in Time and Space of Planning
- Mancini, Micaela: Stakeholders' co-creation of the 15-minute City: The case of Trondheim, Norway
- Manna, Erna Megawati: Sustainable Smart Islands
- Meyer, Simon: Adaptability in German Land Use Planning

- Nel, Darren; Taeihagh, Araz: Fast tracking the adoption of complexity science in planning and policy: A Delphi study
- Ochoa, Rita: Planning with time. Intermittent Mobility as a promising concept for urban futures
- Ostos Prieto, Javier: Ephemeral urbanism? The Impact of the World Expo on the City of Seville
- Rauws, Ward; Buser, Maaïke; Plazier, Paul: Identifying uncertainties in policy processes: analysing practices of city logistics policy makers.
- Rosner-Manor, Yaara: Jerusalem as an 'accelerated time machine': how can we respond to massive development pressures without destroying the fragile qualities of historic cities?
- Stolk, Egbert; Caliskan, Olgu: A complexity-cognitive view on time in urban design thinking
- Tantoush, Mahmud; Solomou, Solon; Sengupta, Ulysses: Bridging Urban Big Data and Agent-based Modelling: A New Theoretical Framing for Uncovering Complex Patterns and Mechanisms
- Tayefehhosseinlou, Ardan: Dynamic Engagement: An Experimental Approach to Participatory Urban Planning
- Tilley, Kobe; Devos, Tim: Planning with/for temporality: applying a postgrowth lens to four Flemish cases of temporary urbanism
- Tiryaki Kesler, İrem Duygu: Temporal Dynamics in Urban Morphology: Exploring Socio-Spatial Processes
- Vanky, Anthony: Data Anecdotes & the Issues of Embodied Air Injustices

References

- Alfasi, N., & Portugali, J. (2004). Planning just-in-time versus planning just-in-case. *Cities*, 21(1), 29-39.
- Batty M (2005) *Cities and Complexity: Understanding Cities with Cellular Automata, Agent-Based Models, and Fractals*. Cambridge, MA: MIT Press
- Alexander, C. (2021). New concepts in complexity theory arising from studies in the field of architecture: an overview of the four books of the nature of order, with emphasis on the scientific problems which are raised. In Portugali, J. (ed.) *Handbook on cities and complexity*. Cheltenham: Edward Elgar.
- Batty, M. & Marshall, S. (2012). The origins of complexity theory in cities and planning. In J. Portugali, H. Meyer, E. Stolk & E. Tan (Eds.), *Complexity theories of cities have come of age* (pp. 21–45). Berlin: Springer
- Bertolini L (2010) Complex systems, evolutionary planning? In: de Roo G, Silva EA (eds) *A Planner's Encounter with Complexity*. Farnham: Ashgate, pp. 81–98.
- Boeing, G. (2018). Measuring the complexity of urban form and design. *Urban Design International*, 23(4), 281-292.
- Boelens, L., & De Roo, G. (2016). Planning of undefined becoming: First encounters of planners beyond the plan. *Planning theory*, 15(1), 42-67.
- Çalışkan, O., & Stolk, E. (2023). Exploring the temporal dimension of urban design thinking. In Kamalipour H., Aelbrecht P. and Nastaran Peimani N. (eds.) *The Routledge Handbook of Urban Design Research Methods*. London: Routledge.
- Chang, R. A., Wunderlich, F. M., Hutter, G., Wiechmann, T., Schinagl, M., Schroeder, B., Odeleye, N.D., Maidment, C., Şefkatli, P., & Korniyenko, G. (2025). Making Space for Time: Temporal and Time-Sensitive Perspectives in Planning Theory and Practice. *Planning Theory & Practice*, 26(5), 723–762. <https://doi.org/10.1080/14649357.2025.2593809>
- Cozzolino, S. (2020). The (anti) adaptive neighbourhoods. Embracing complexity and distribution of design control in the ordinary built environment. *Environment and Planning B: Urban Analytics and City Science*, 47(2), 203-219.
- Cozzolino, S. (2022). On the spontaneous beauty of cities: neither design nor chaos. *Urban Design International*, 27(1), 43-52.
- Cozzolino, S., & Moroni, S. (2024). *Action, property and beauty: planning with and for emergent urban complexity*. Routledge.
- De Roo, G. (2010). Being or Becoming? That is the Question! Confronting Complexity with Contemporary Planning Theory, in: G. de Roo & E.A. Silva (eds), *A Planners' Encounter with Complexity*, Ashgate, Farnham (UK), pp. 19-40
- Isaacs, R. (2001). The subjective duration of time in the experience of urban places. *Journal of Urban Design*, 6(2), 109–127.

- Jacobs, J. (1961). *Death and life of Great American cities*. New York: Random House.
- Lynch, K. (1972). *What time is this place?* Cambridge, MA: MIT Press
- Marshall, S. (2011). Planning, design and the complexity of cities. In *Complexity theories of cities have come of age: An overview with implications to urban planning and design* (pp. 191-205). Berlin: Springer.
- Moroni, S. (2015). Complexity and the inherent limits of explanation and prediction: Urban codes for self-organising cities. *Planning theory*, 14(3), 248-267.
- Moroni, S. (2023). Distinguishing 'planning' from the 'plan'. Institutional and professional implications of taking urban complexity seriously. *European Planning Studies*, 31(11), 2327-2341.
- Moroni, S., & Cozzolino, S. (2019). Action and the city. Emergence, complexity, planning. *Cities*, 90(2019), 42-51.
- Parker, G., & Dobson, M. (2025). Time and the 'temporal turn' in planning theory and practice: an agenda. *Town Planning Review*, 1-5. <https://doi.org/10.3828/tpr.2025.35> (Commentary).
- Porqueddu, E. (2025). *Designing the Complex City: A Systemic Approach to Spatial Design*. Taylor & Francis.
- Portugali J. (2020). Information adaptation as the link between cognitive planning and professional planning." In de Roo G, Yamu C, Zuidema C (Eds.) *Handbook on Planning and Complexity*. 203 – 219. Elgar Publishing UK
- Portugali, J., Meyer, H., Stolk, E., & Tan, E. (Eds.). (2012). *Complexity theories of cities have come of age*. Berlin: Springer.
- Rauws, W. (2017). Embracing uncertainty without abandoning planning: Exploring an adaptive planning approach for guiding urban transformations. *DisP-The Planning Review*, 53(1), 32-45.
- Salvati, L., & Serra, P. (2016). Estimating rapidity of change in complex urban systems: A multidimensional, local-scale approach. *Geographical Analysis*, 48(2), 132-156.
- Sengupta, U., Rauws, W. S., & de Roo, G. (2016). Planning and complexity: Engaging with temporal dynamics, uncertainty and complex adaptive systems. *Environment and Planning B: Planning and Design*, 43(6), 970-974.
- Silva, P. (2016). Tactical urbanism: Towards an evolutionary cities' approach?. *Environment and Planning B: Planning and design*, 43(6), 1040-1051.
- Weaver, W. (1948). Science and Complexity. *American Scientist*, 36: 536.
- Wiechmann, T. (2024). *Temporality in planning thought – a new turn?* DisP - the Planning Review, 60(2), 64–65. <https://doi.org/10.1080/02513625.2024.2424109>
- Wohl, S. (2018). Complex Adaptive Systems and Urban Morphogenesis: Analysing and designing urban fabric informed by CAS dynamics. *A+ BE| Architecture and the Built Environment*, (10), 1-238.
- Wohl, S. (2019). Sensing the city: Legibility in the context of mediated spatial terrains. *Space and Culture*, 22(1), 90-102.

TIME AND TIMELESSNESS IN ALEXANDER'S SEARCH FOR BEAUTY

Yodan Y. Rofé¹

Abstract

This paper explores Christopher Alexander's theory of architecture and urban planning through the lens of time and timelessness. In so doing it traces his development from early systems thinking to his later metaphysical conception of living structure. It situates his work within the context of 20th-century urban thought and highlights his critique of mechanistic planning in favour of adaptive, participatory, and generated structures. Central to Alexander's philosophy is the belief that beauty arises through processes which unfold over time; thereby aligning built form with human experience. By contrasting traditional and modern approaches to urbanism, the paper affirms Alexander's enduring relevance and calls for a renewed commitment to environments that grow over time with life, memory, and meaning.

Keywords:

Urban Complexity, Urban Design Theory, Natural Philosophy, Building Process, Pattern Language.

¹ Department of Environmental, Geoinformatic and Urban Planning Sciences, Ben-Gurion University, Israel; Building Beauty, Italy.
E-mail: yrofe@bgu.ac.il. ORCID: <https://orcid.org/0000-0003-2655-0839>.

1. Introduction

Christopher Alexander remains a seminal figure in architectural and urban theory, who is renowned for his insistence on the intrinsic connection between built form, life, and human well-being. Over the course of five decades, Alexander developed a profoundly integrative vision that challenges the dominant paradigms of modernist and postmodernist design. His intellectual evolution spans rigorous mathematical logic and human-centred pattern recognition, and culminated in a metaphysical synthesis of order, life, and beauty.

Alexander's early work emerged within a fertile intellectual milieu that included other visionary thinkers of the 1960s including, but not limited to: Herbert Simon, Jane Jacobs, Kevin Lynch, and William H. Whyte. Each in their own way challenged the top-down, technocratic models that dominated mid-century planning and design. Herbert Simon's concept of "bounded rationality" and his development of design as a science of problem-solving directly influenced Alexander's initial analytical approach in *Notes on the Synthesis of Form* (Simon, 1957; Simon, 1969). Similarly, Kevin Lynch's emphasis on the legibility of urban environments in *The Image of the City* (Lynch, 1960) paralleled Alexander's interest in how people perceive and relate to form. It also pioneered an empirical approach to urban planning, based on how people perceive cities. An approach that allows analysis of urban form on the basis of a particular value – that of legibility. Jane Jacobs, in *The Death and Life of Great American Cities* (Jacobs, 1961), emphasised the complexity and organic nature of urban life, and critiqued the sterility of modernist planning; an argument that closely resonates with Alexander's critique in *A City is Not a Tree*. Her description of how the street functions as a social environment which fosters recurring weak relationships that promote safety and civil behaviour, was a precursor to Alexander's idea of socio-spatial *Patterns* as the basis of the built environment (Alexander, 1979). In the last chapter of her book, she extensively cited Warren Weaver's seminal paper "Science and Complexity" (1948) and described the city as a complex problem that requires a different kind of approach from those used by city planners, engineers, and social scientists so far. William H. Whyte's observational studies of public space, especially in *The Social Life of Small Urban Spaces* (Whyte, 1980), further reinforced the importance of empirical engagement with human behaviour and showed clearly how environments encourage or discourage social behaviour.

These thinkers collectively fostered a shift from abstract and idealised models to empirical, participatory, and user-centred approaches in both architecture and planning. Alexander's work, while unique in its metaphysical depth, shared with them a commitment to uncovering the hidden logic that infuses life into environments. He extended their insights into a broader philosophical framework, and sought not just to describe how places function, but also to reveal the timeless principles that underlie their vitality.

Central to Alexander's thinking is the dynamic interplay which exists between time and timelessness. This interplay can be seen to emerge in multiple registers: the unfolding of design over time, the recurrence of successful spatial patterns across history, and the perception of enduring qualities that give environments their life. For Alexander, time is not merely a sequence of events but a dimension through which living structure emerges. Timelessness, then, is not the denial of time, but the expression of spatial and experiential qualities that transcend temporal fashion and are aligned with the fundamental nature of space and human engagement with place.

This essay traces the trajectory of Alexander's evolving thought by examining key milestones in his work: *Notes on the Synthesis of Form* (1964), *A City is Not a Tree* (1965), The theoretical, practical, and application in practice of the Pattern Language approach *The Timeless Way of Building* (1979), *A Pattern Language* (1977), *The Oregon Experiment* (1975) and *The Production of Houses* (1985) – and culminating in his Opus Magnum *The Nature of Order* (2002-2005). It aims to show how his concepts of form, pattern, life, and wholeness are inseparably linked to temporality, and how this relationship challenges prevailing mechanistic models of design and planning. In doing so, this paper also explores Alexander's critique of the modern built environment, his proposed alternative rooted in generating structures through participatory processes, and the philosophical implications of his theories.

Ultimately, this paper shows that Alexander's conception of time and timelessness offers not only a framework for understanding the failures of modern design, but also a hopeful path toward a more humane, adaptive, and living built environment. In the context of accelerating ecological degradation and increasing social alienation, Alexander's insights remain urgently relevant.

2. The Problem of Form: Early Thought

Alexander's early work in *Notes on the Synthesis of Form* (1964) is grounded in systems theory and operational logic; reflecting the influence of post-war scientific and engineering cultures. At the heart of his text lies a desire to bring methodological rigour to the design process; particularly by viewing design problems as sets of interacting variables that can be dissected, analysed, and optimised. In this text, Alexander already demonstrates that design problems are complex and inherently normative, and that a balancing of competing and often contradictory forces is required if a desired (or at least acceptable) fit is to be achieved. Alexander proposed a process whereby the interaction matrix of design variables was decomposed into strongly connected subsystems, with each being simple enough to be addressed intuitively, and thereafter synthesised into a coherent whole. This was a significant attempt to formalise architectural design thinking within the logic of computation and systems analysis.

Alexander began by assessing the failure of modern environments to support human life and well-being; in contrast to the vitality and ease that one can find in many traditional, vernacular environments. In these contexts, design and construction are not separate phases but part of a continuous, adaptive process. Form evolves through feedback from use, climate, social interaction, and material constraints. There is a direct connection between the user and the builder (who are often the same person). The physical and social contexts lead directly to decisions about built form. The vernacular process is inherently temporal: it unfolds incrementally; enabling corrections, accommodations, and layered meanings to accrue over time. Cultural stability is also shown to play a role by offering a shared reservoir of knowledge and patterns that can be passed down through generations.

In contrast, modern design, as Alexander observed, tends to isolate the act of design from its physical and social consequences. The long design phase is abstracted from lived experience and, once construction begins, it often follows a rigid plan that allows for little to no meaningful feedback. Mistakes are corrected only if they are glaring; subtle misalignments between form and use are typically ignored. Time, in this modern paradigm, becomes segmented and devalued: design is a one-time event, and construction is a mechanical execution of the same; with the postscript that is limited in its capacity to adapt to the built form as it emerges.

In response to these shortcomings, Alexander introduced an analytical phase that was intended to better map the complexity of design problems. However, this still retained the essential separation between analysis, synthesis, and execution. He came to realise that such a linear model, while perhaps useful in engineering, was ill-suited to the design of spaces that were meant to nurture human well-being. This recognition marked a turning point in his career, and prompted a shift from the reductive logic of systems analysis toward a more holistic and emergent view of form; a view that would continue to evolve over the subsequent decades.

In retrospect, *Notes on the Synthesis of Form* stands simultaneously as both a foundational text and a point of departure. It illuminates the limitations of a mechanistic worldview while setting the stage for Alexander's later embrace of patterns, process, and wholeness. By highlighting the temporal dimension of vernacular design and the deficiencies of modern abstraction, it began to articulate the core concern that would animate all his later work: how to make buildings and places that are truly alive.

3. Cities and Complexity: A City is Not a Tree

Published in 1965, Alexander's seminal essay *A City is Not a Tree* challenged prevalent models of urban planning that were rooted in hierarchical, and tree-like conceptual structures. It also offers a critique of his earlier work, and explains why it necessarily fails to create life in the built environment. In this essay, Alexander introduced a critical distinction between "tree" structures and "semi-lattices." Tree structures are presented as strictly hierarchical, with each subset belonging to only one larger set, while semi-lattices, although exhibiting hierarchy, also allow for overlapping subsets; thereby reflecting the complex, interrelated nature of real life (Alexander, 1965).

Alexander argued that modern city planning, dominated by zoning, hierarchical street networks, and monofunctional land use planning, tends to impose tree-like structures that inhibit the natural richness and overlap of human activities. Similarly, the graph produced by the analytic process in *Notes on the Synthesis of Form* was tree-like, and the weak links ignored in the analysis are exactly those that are crucial for the creation of living systems. Such planning results in sterile, lifeless urban environments because it fails to capture the genuine complexity of cities as they evolve over time. In contrast, traditional cities – such as the historic centres of towns throughout the world – naturally evolve as semi-lattices that have been and are shaped by countless individual decisions, local adaptations, and layered historical processes (Salingaros, 2005).

The implications of this essay extend far beyond urban form. It acts as a critique of reductionism in urban planning and design, and simultaneously presents a call to embrace complexity and diversity. Alexander's semi-lattice model mirrors developments in systems theory and network science. The semi-lattice is, fundamentally, a temporal construct – it is what emerges when urban form is allowed to grow organically over time through the accretion of uses and forms, rather than being pre-designed from above (Hakim, 2007).

In a deeper sense, *A City is Not a Tree* reaffirms the need for time-aware processes in urbanism. It recognises that the richness of a city cannot be planned but must unfold over time, in layers. This is an early and powerful expression of Alexander's evolving interest in generative processes as well as his shift from abstract systems design to participatory, situated making. The essay remains as a foundational critique of modernist planning and acts as a key bridge between Alexander's early analytical work and his later pattern-based and process-dominated thinking.

4. The Timeless Way of Building and Pattern Languages

After writing *A City is not a Tree*, Alexander began his search for design and building processes that could deal with complexity, make available the vast knowledge of built forms that support human wellbeing, and allow the recreation of the vernacular connection between users and built form in the contemporary world. This work combined research, seminars with graduate students, and the design of urban plans and built projects. The books describing this work began to come out in the second half of the 1970s. In *The Timeless Way of Building* (1979), Alexander shifted his focus from analytical methods to a more intuitive and experiential understanding of the built world. Central to this work is the concept of the "Quality Without a Name" (QWAN); an elusive yet recognisable quality that makes buildings and places feel alive, whole, and meaningful. Alexander argued that environments possessing the QWAN evoke a deep sense of harmony and belonging. This quality, while difficult to define in abstract terms is, according to Alexander (1979), something that humans can sense almost immediately through lived experience.

The title of the work may also be seen to signal Alexander's ambition to identify a mode of building that transcends historical epochs, stylistic movements, and technological change. The "timeless way" is not about replicating traditional forms but about recovering a way of making that is attuned to human life. It reflects a mode of practice that can be observed in vernacular architecture across cultures, and in which builders respond directly to context – climatic, material, social, and spiritual – without recourse to professionalised theory. In this approach, time is not a constraint to be overcome, but a medium through which form matures and deepens in response to functional, psychological, and social requirements.

Alexander's idea of pattern plays a crucial role in this conception. Patterns are recurring spatial configurations that address human problems and/or conflicts arising in particular contexts. These are not rigid templates but adaptable solutions, grounded in empirical observation and human needs. A single pattern, such as "Light on Two Sides of Every Room," may appear across cultures and eras because it reflects a basic human response to light in interior spaces (Alexander *et al.*, 1977). Patterns appear within larger-scale patterns, support similar-scale patterns, and are completed by smaller-scale patterns. Thus, they form hierarchical complex networks (semi-lattice) that cannot be predetermined. When combined into a coherent whole, these patterns form what Alexander calls a "pattern language."

A pattern language is both descriptive and generative: it records the wisdom embedded in successful environments and provides a toolkit for creating new ones that are equally life-affirming. This marked a revolutionary turn in architectural thinking. Instead of designing from scratch or imposing top-down visions, one could draw upon a repository of validated spatial practices, much like language users compose meaningful sentences from a shared grammar and vocabulary.

Time, in *The Timeless Way of Building*, is fundamental. The QWAN emerges over time through use, adaptation, and resonance with human activity. Alexander advocates building in ways that leave spaces open to growth and change; echoing traditional practices in which a structure might evolve gradually, in harmony with its inhabitants. This idea contrasts sharply with the modernist fixation on novelty, finality, and authorship. Alexander's approach instead encourages continuous transformation – a design ethos closer to gardening than engineering.

The use of a pattern language was also intended to democratise the design process. By making design knowledge accessible through clearly articulated and testable patterns, Alexander envisioned the emergence of a modern vernacular in which communities could shape their own environments without relying on professionals. In this sense, the timeless way is not anti-modern, but post-professional: it calls for reclaiming a collective and intuitive human capability that has been eroded by bureaucratic and technocratic models of planning.

Critics have argued that a pattern language risks becoming overly prescriptive or aesthetically rigid. Some have suggested that its emphasis on precedent may stifle creativity, while others have challenged its imposition of a particular normative view (Dovey, 1990). Dawes & Ostwald (2017) conclude that most of the critiques object to Alexander's unique ontological and epistemological positions. His insistence on the objective nature of value in the built environment, and on the empirical nature of the patterns discovered by him and his colleagues. Alexander insisted that patterns were not invented or imposed rules but revealed regularities in the built environment, which were capable of infinite variation when grounded in real human experience. The patterns listed in the book were meant as hypotheses, to be tested and refined by the scientific and professional community. Unfortunately, few researchers have examined the validity of these patterns. One such study found that the presence of patterns was strongly correlated with affect and aesthetic appreciation, and was also associated with relaxation and low arousal (Iwanczak & Lewicka, 2020). Patterns were also not meant to be definitive. In fact, in almost all of Alexander's projects, specific patterns were created, together with the users, to encapsulate people's dreams and wishes for their environment (Neis, 2016); with other professionals and researchers having thereafter used them in similar ways (for example: Felstead and Thwaites, 2024; Hamid, Hanks and Wang, 2024; Zhang and Dimitrijevic, 2025). The structure of a pattern language made the information explicit and easy to understand and became the definition of a shared understanding of the project. Their "timelessness" lies in their ability to respond to recurring conditions of human life, not in their formal repetition (Alexander, 1979).

In sum, *The Timeless Way of Building* and *A Pattern Language* represent a philosophical and methodological pivot in Alexander's work. They reframe design as a participatory, iterative, and life-affirming practice which is embedded in time and open to change. The vernacular process remains the model and inspiration, but the emphasis is less on form and more on process. The idea is that large-scale patterns emerge from many small-scale projects, rather than being imposed by master plans or designs. Over time, pattern languages were written for specific plans and projects, allowing the "building culture" of an institution or place to emerge from the people involved in its writing. While the patterns were intended to be timeless universals, they also allow for infinite local variations in their detailed form. Ironically, though, the whole project was heavily influenced by the place and time in which it was conceived and developed – Berkeley of the late 1960s and early 70s which was a hotbed of the anti-establishment and civil rights movement; a spirit that animated the ideal of extreme decentralisation of government and community structures, and a somewhat utopian world view that prevails in these two books.²

2 See for example the first pattern: Independent Regions, which advocates a world constituted of independent regions each between 3-10 million people in population. This is justified on the need for governmental accessibility and accountability on one hand, and equity of power relations between regions on the other.

5. Applications and Experiments - the incompleteness of A Pattern Language

The theoretical foundations laid out in *The Timeless Way of Building* and *A Pattern Language* were not merely abstract speculations for Alexander; they were intended to be implemented, tested, and refined through practice. Alexander strongly believed that the proof of a theory in architecture lies in its capacity to generate living environments. Consequently, his ideas were tested in real-world contexts; most notably described in *The Oregon Experiment* and *The Production of Houses in Mexicali*.

The *Oregon Experiment* (Alexander et al., 1975) served as an early institutional-scale application of Alexander's principles. The University of Oregon adopted a planning process that prioritised user participation, incremental development, and the use of pattern languages in shaping the built environment. The experiment's guiding principles included six major tenets: organic order, participation, piecemeal growth, pattern languages, diagnosis, and coordination. These principles reflected a break from conventional top-down campus planning, and instead emphasised the lived experiences and mandated participation of users; the adaptation of spaces over time; and the need for design to be an ongoing, evolutionary process.

One of the most notable aspects of the Oregon Experiment was its embrace of "piecemeal growth." Rather than executing large-scale projects that replaced entire sections of the campus in one stroke, the process focused on small, incremental improvements which were informed by direct user input. This approach highlighted time as a medium for achieving organic coherence – order emerged not from a master plan but through successive small interventions that responded to actual use. In this sense, the Oregon campus served as a living laboratory for Alexander's ideas, with timeless principles unfolded across temporal scales. However, not all the principles were maintained in the building of the campus, or retained in the update of the campus plan that occurred during the early 2000s. The level of adherence to the patterns in large building projects also depended on architects' willingness to follow them.³ Nevertheless, the most recent update to the plan (University of Oregon Campus Planning, 2025) still acknowledges the original plan as the foundation of campus planning and its principles, and details the process for adapting it to how university projects are usually administered. It is remarkable that the original plan is still guiding the planning process of the university 50 years after the publication of the original book.

Another important application was *The Production of Houses* (Alexander et al., 1985); a housing project undertaken in Mexicali, Mexico. In this project, local families were empowered to design and build their own homes using a pattern language tailored to their needs and cultural context. Alexander and his team provided technical support and organisational structure, but the design decisions were taken by the residents themselves. The process exemplified Alexander's commitment to democratizing architecture and reviving the tradition of user-generated environments. However, the Mexicali project also exposed limitations and unresolved questions.⁴ The development of a unique building technology, foreign to the local building culture, made it difficult for families to extend their homes, and the buildings stand out in the surrounding self-built context. In addition, the broader idea of establishing a local building yard to provide advice and guidance to families in the surrounding area was not carried through by the housing agency that financed the project, and it remains unused.

These experimental projects illustrate both the strengths and challenges of applying Alexander's theories in practice. On the one hand, they demonstrate that participatory, incremental, and pattern-based design could produce environments more responsive to specific human needs. On the other hand, they reveal the difficulty of capturing the nuanced, often ineffable qualities of traditional architecture without the cultural, material, and temporal contexts that originally shaped them.

In both cases, time played a crucial role – not only in the unfolding of the projects themselves but in the nature of the outcomes. The Oregon Experiment succeeded in large part because it embraced a slow, cumulative process in which feedback loops could operate. In contrast, the Mexicali project, highlights how the absence of cultural continuity and inherited aesthetic knowledge can limit the success of participatory processes, even when guided by pattern languages.

3 For an interesting evaluation of the Oregon Experiment after 20 years see: Bryant (1991).

4 For a review of the houses seven years after their construction see Fromm & Bosselman (1984)

Ultimately, these applications served as crucibles for Alexander's evolving thought. They tested his commitment to living structure against the practicalities of construction, user participation, and institutional inertia. The lessons learned reinforced the central insight that design is not a one-time act but an ongoing, temporally extended process—one that requires sensitivity, adaptability, and a deep understanding of how form and life co-evolve.

Throughout the years of development and publishing of *A Pattern Language*, many buildings were built by owners designing their own homes in the San Francisco Bay Area; many followed its principles. Although the resulting houses reflected the practical needs of their users, and the fact that they were often designed and built by the users themselves proved the book's usability and applicability, Alexander became increasingly dissatisfied with their geometry and spatial coherence. He felt that, despite the use of pattern languages, the resulting structures lacked the deep sense of life and wholeness which he had observed in traditional buildings. This realisation led Alexander to investigate more deeply the nature of geometry and the intrinsic structure of living spaces—an inquiry that culminated in the publication of *The Nature of Order* (2002-05).

6. The Nature of Order: Wholeness, Centres, and Life

With *The Nature of Order*, Alexander culminated decades of inquiry into a comprehensive theory of living structure. This four-volume work builds upon his earlier ideas but shifts from pattern-based design toward a deeper, more formal understanding of spatial order. One which is grounded in the concepts of *wholeness* and *centres*. Alexander sought to identify and define the structures that consistently generate feelings of life, harmony, and beauty across cultures and historical periods. His basic insight was that these structures share similar geometric order; they exhibit both roughness and perfection; they are non-mechanical in the way they are put together; and they have a certain innocence and simplicity. These structures are pervasive throughout the world and include all levels of life: inanimate, organic, systemic, and human. Moreover, these are not just words or metaphors but identifiable physical qualities that can be clearly described and demonstrated in terms of their structure (Jiang, 2019).

At the heart of *The Nature of Order* is the idea of *wholeness*; a field-like property of space where coherent entities, or *centres*, emerge and reinforce one another. A centre is not a fixed object, but a spatial configuration that draws our attention and strengthens the unity of the whole. These centres exist across scales, from the details of a column's base to the layout of an entire city block. According to Alexander, the degree of life in any given environment is proportional to the density, strength, and mutual support of these centres (Alexander, 2002-1).

Alexander identifies 15 *properties* that tend to appear in environments, places or objects with strong wholeness (Figure 1). These include features such as: "levels of scale," "strong centres," "boundaries," "local symmetries," "positive space," and "roughness." Importantly, these properties are not aesthetic rules or stylistic directives, but structural indicators of life in space. They describe how space organises itself when it becomes alive – not in a biological sense, but in a phenomenological one, in which observers experience a sense of their own selves being more alive; whether that be a sense of belonging, stillness, or vitality.

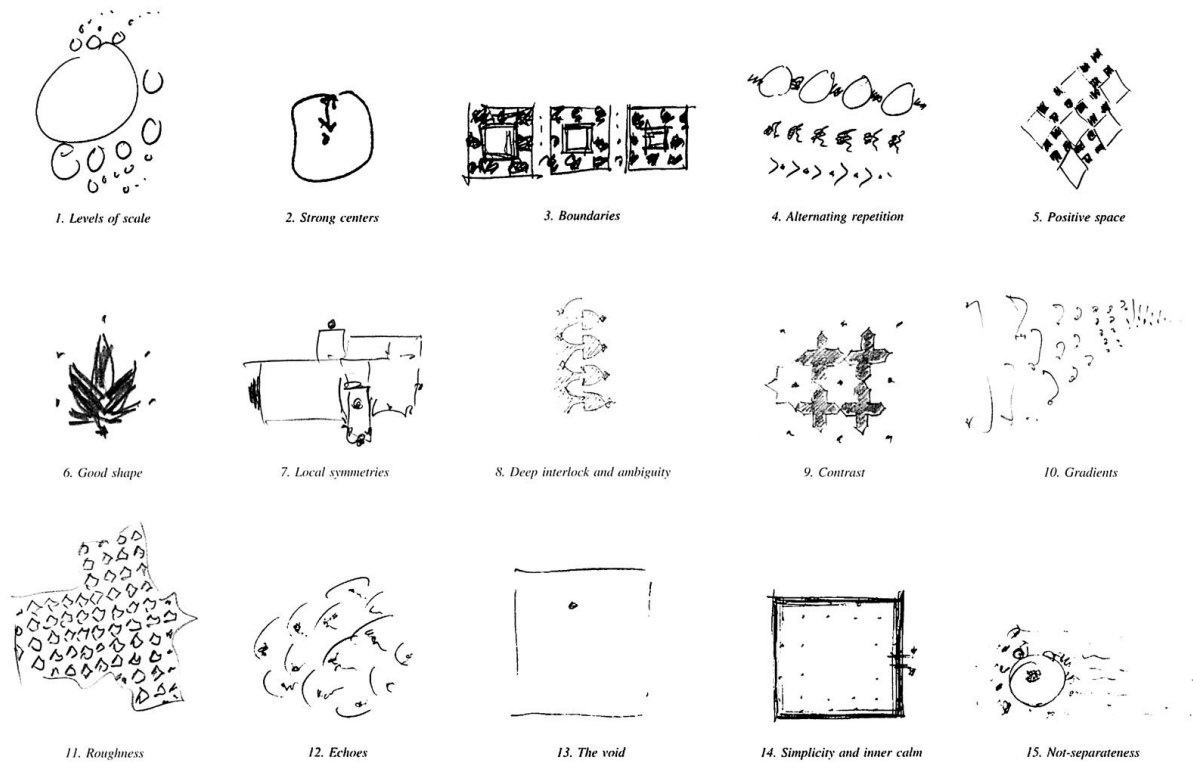


Figure 1: Alexander's original drawings illustrating the 15 properties (Alexander 2002-1, pp. 239-241)

Time plays a critical role in this formulation. A space that feels alive does so because it resonates with lived time; past, present, and anticipated future. Moreover, the creation of a living structure requires time-dependent processes. The centres and their configurations must unfold gradually, with sensitivity to context and feedback. This stands in stark contrast to industrial building processes, which often prioritise efficiency over subtlety and impose form in a single temporal burst, rather than letting it evolve.

Alexander's focus on centres and wholeness also addresses a profound ontological question: how can design be both universal and particular? His answer lies in the recursive nature of centres. While the 15 properties may appear across cultures and periods, their specific configurations vary endlessly. This allows both for rootedness in local contexts and participation in a universal order. His approach resonates with traditions in systems thinking, phenomenology, and even sacred geometry, which emphasise the emergent, relational, and holistic qualities of form (Salingaros, 2006; Johnson, 2018).

Crucially, Alexander asserts that the experience of life and beauty – what he had earlier called the “Quality Without a Name” – is not merely subjective. It can be discussed rationally and empirically in terms of the presence or absence of centres and their properties. This is a radical proposition in an intellectual world often sceptical of universal claims about value. Yet Alexander argues that our inner sense of life in a place, or of contemplating or using an object, is a reliable guide to its coherence. Beauty, in this view, is a measure of a structure's alignment with the living order of the world.

7. Living vs Mechanistic Processes

One of the central dichotomies in Alexander's later work, particularly in *The Nature of Order*, is between mechanistic and living processes. This contrast is not merely a matter of construction techniques, but represents fundamentally different ways of understanding the world and our place within it. Mechanistic processes are linear, goal-oriented, and external to the entities they shape. They belong to a Cartesian paradigm that treats buildings – and, by extension, cities and societies – as machines to be engineered and controlled. In contrast, living processes are open-ended, adaptive, and internally generated. They view built environments as evolving systems whose coherence arises from their capacity to unfold naturally over time (Table 2).

Table 1: Mechanistic process vs Living process

<i>Mechanistic Process</i>	<i>Living Process</i>
Closed	Open
Goal oriented	Not goal oriented - continuous
Designed	Unfolding
Linear	Adaptive
Assembled/Fabricated	Generated
Parts form the whole	Whole governs the parts

Alexander distinguishes between fabricated structures, which are assembled from pre-determined parts, and generated structures, which evolve through recursive acts of differentiation and adaptation (Figure 2). In a fabricated approach, form is imposed from the outside and often lacks contextual sensitivity. Mistakes are common, because there is neither room for feedback nor correction during the process. In contrast, a generated structure grows step by step, with each phase responding not only what has come before but also being guided by the evolving wholeness of the space (Alexander, 2002-2).

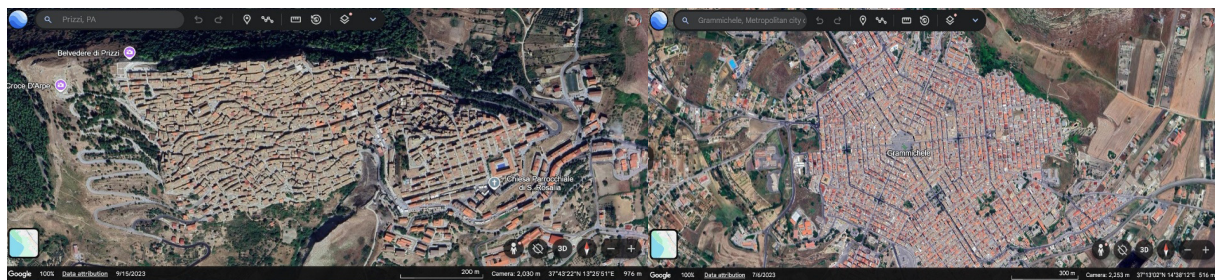


Figure 2: Generated vs Fabricated Structure. The towns of Prizzi (left) and Grammichele (right) in Sicily (Google Earth). Both plans show that the distinction between the two is not clear-cut, as it is obvious that Prizzi contains a planned, fabricated part, while the growth of Grammichele has been gradual and generated at a smaller scale, and its urban extensions have broken the ideal city plan, despite maintaining its latent structure.

This distinction has profound implications for building and development. In mechanistic processes, the design and construction phases are artificially separated, and feedback from use is rarely incorporated into future development. The emphasis is on efficiency, standardisation, and predictability – values that are often at odds with the creation of living environments. Living process, however, requires an entirely different mindset: one that welcomes uncertainty, embraces iteration, and prioritises relationships over parts (Ettlinger, 2023). They mirror natural systems, such as the growth of a tree or the formation of a coral reef, where the whole governs the parts, and form emerges through interactions over time (Hester, 2006).

The key to understanding how the living process operates is the concept of *structure-preserving transformations*. At any given moment, the wholeness of a space contains latent centres; potential structures that have not yet fully emerged. A structure-preserving transformation enhances these latent centres, making them more visible and reinforcing the coherence of the whole. Such transformations are not arbitrary; they are guided by the 15 properties of living structure – now understood as the 15 transformations by which centres can help each other to come to life – and, in the case of human artefacts, by the judgment of those engaged in the process, who use their own feeling of wholeness, self, or life to evaluate and choose between options. Importantly, these transformations are only possible in a temporal framework: they depend on time for their discovery, articulation, and refinement.

Living process operates at two timescales: individual and accretive. Individual processes involve the design and construction of a single, coherent centre such as a room, a house, or a public plaza. Accretive processes, by contrast, describe how larger wholes, such as neighbourhoods or cities, emerge over longer periods through the accumulation of many individual interventions. The distinction between these scales is not hierarchical but temporal. Accretive processes require a culture of continuity and memory, in which each new act of building honours and extends what came before.

This model stands in stark contrast to modern urban development, which often involves abrupt, large-scale interventions that erase historical continuity and suppress local character. In contrast, the living process model aligns with vernacular traditions in which buildings are gradually transformed in response to shifting needs, social dynamics, and environmental conditions. It also resonates with contemporary movements in regenerative design, permaculture, and ecological urbanism, which advocate for systems that evolve in harmony with their surroundings (Mang & Haggard, 2016).

The Nature of Order thus completes Alexander's theoretical arc by integrating scientific observation, aesthetic judgment, and metaphysical speculation into a unified theory of order in nature and human artefacts. It affirms that time and timelessness are not opposites but co-constitutive. Timelessness arises when form resonates with the deep structure of order; a structure that can only emerge over time, through processes attuned to the particularities of place, use, and perception.

Alexander's notion of living process redefines what it means to plan, design and build. It is no longer a matter of achieving a static ideal but of participating in an ongoing dialogue with context, time, and life itself. The goal is not perfection but coherence—the emergence of forms that feel whole, alive, and deeply connected to us and their settings. This orientation requires patience, humility, and a willingness to let go of ego and control. At the same times, it holds the promise of built environments that are not only more beautiful but also more resilient, meaningful, and humane.

In attempting to create a theory of architecture and urban form, Alexander found himself dealing with the nature of order of the universe (Galle, 2020). To counter some of the ontological critiques against his theory of patterns, he shows that the structures he defines as centres exist in the natural world across all scales, and in human artefacts from diverse cultures. Their presence is universal, except in much of the modern world's built environment. Furthermore, he describes a class of processes capable of creating life in space. These processes are inherent in natural processes, and were prevalent in traditional cultures, but have broken down in modernity because of our mechanistic view of the world, and its pervasive impact on most of our social and economic processes. This theme is taken up in his last published book (Alexander *et al.*, 2012).

8. Time and Beauty

Alexander's pursuit of beauty is inseparable from his conception of time. In his work, beauty is not a stylistic feature or a matter of taste but a deep experiential resonance; a feeling of life, coherence, and rightness in space. It is what he originally called the "Quality Without a Name" (QWAN), a term deliberately chosen to resist reduction to conventional categories of aesthetic judgment. This quality, he contends, arises when a structure or environment aligns itself with the deeper order of the world and supports the unfolding of the human self in time.

Time, in this context, is not merely chronological but experiential. It encompasses the rhythms of daily life, the accumulation of memory, and the anticipatory structures of expectation and meaning. A beautiful place is one that welcomes and reflects the passage of time. It contains the potential for stories to be told, relationships to be forged, and lives to unfold. As Alexander writes, buildings and spaces with life invite participation; they adapt, endure, and grow richer through use.

This understanding of beauty stands in contrast to much of modern architecture, which often emphasises novelty, abstraction, and immediate visual impact over temporal depth. Modernist design, driven by innovation and image, tends to ignore or even resist the passage of time. Buildings are treated as finished products, frozen in the moment of completion, rather than as participants in an ongoing dialogue with their inhabitants and contexts. The result, Alexander argues, is often environments that feel sterile, impersonal, or even alienating.

Alexander's view aligns beauty with adaptability, modesty, and responsiveness. A beautiful place is not necessarily grand or formally perfect; it is one that makes people feel more alive, more whole. This effect is cumulative and interactive. A room bathed in soft, natural light; a bench worn smooth by generations of hands; a garden path shaped by countless feet – such elements gain their power through their embeddedness in time. They reflect a continuous interaction between people and place.

This emphasis on temporal experience also explains Alexander's reverence for traditional buildings. Whether a Japanese teahouse, an Italian courtyard, or a North African market street, these environments were not designed all at once by a single author. They evolved slowly, and have been shaped by feedback, adaptation, and collective memory. They support the continuity of culture and offer an architecture of presence rather than spectacle. Their beauty lies not in artistic genius but in their being attuned to the rhythms of life.

Consequently, timelessness is not timeless in the sense of being detached from time, but rather it deeply resonates with all times. It means creating places that feel as though they have always belonged and always will. Such places transcend the fashion of the moment by embodying enduring qualities; qualities that Alexander believes are perceptible and communicable, even if they are not easily measured or theorised in conventional terms.

Moreover, beauty, as Alexander defines it, is inherently democratic. It is not the exclusive province of elites or experts but accessible to all who are willing to observe carefully and respond authentically. Everyone has the capacity to sense when a place feels right, or when it nurtures and uplifts. In this way, beauty becomes a tool not of distinction but of connection; an invitation to participate in shaping environments that support life in all its complexity.

Ultimately, Alexander reclaims beauty from the realm of superficial aesthetics and repositions it as a vital criterion for creating meaningful, enduring environments. It is through beauty that we connect with place, with others, and with ourselves over time. And it is through the patient unfolding of the living process that such beauty comes into being.

Accordingly, in *The Nature of Order*, what Alexander provides is not only a theory of beauty but also an applicable methodology for creating beautiful places in practice. In a contemporary world that no longer takes the time to develop beauty over generations, Alexander provides an approach by which the kind of processes that used to be enabled by the surrounding culture can now be intentionally generated or simulated by building practitioners to arrive at results of an equivalent quality in a shorter span of time. The extent to which this succeeds is directly correlated with the extent to which a project's stakeholders choose to implement this method. Alexander provides a framework for reintroducing timeless qualities through procedures that honour time, and does so in a culture that conceives of time as a commodity and prioritises immediacy.

9. Influence on current urban planning, urban design theory, and practice

Christopher Alexander's influence on contemporary planning and urban design spans several major movements. His insistence on human-scaled environments, participation, and incremental growth offered an enduring alternative to technocratic, master-planned approaches.

The *Congress for New Urbanism* honoured Alexander with the Athena Medal as one of its inspirations. Alexander's focus on walkability, mixed use, and traditional neighbourhood form provided both inspiration and legitimisation for the movement. For example, the movement's *Smart Growth Manual* (Duany, Speck & Lydon, 2009) is structured around interconnected principles which are similar to Alexander's pattern language approach (Talen, 2005).

Placemaking. Alexander's emphasis on lived experience and community participation also influenced the advocacy of Project for Public Spaces, which counts him among its key inspirations. Their work helped elevate placemaking throughout the US and globally, and culminated in the inclusion of public space policy for the first time as an action item in the UN-Habitat Urban Agenda at Habitat III in Quito (2016) - echoing his idea of environments unfolding as living processes (Project for Public Spaces, 2000; Silberberg et al., 2013; UN-Habitat, 2016).

Incremental urbanism. An early, unrelated approach is the practice of urban acupuncture, which was championed by Jaime Lerner and applied in cities such as Barcelona, where small, precise interventions catalysed wider urban transformations (Lerner, 2014; Casellas, 2009; Neuman, 1998). Tactical urbanism likewise embodies Alexander's call for piecemeal, adaptive change that is guided by quick feedback and community response. Tactical urbanism practices such as parklets, pop-up plazas, and short-term interventions illustrate iterative change with long-term impact (Lydon & Garcia, 2015; Hamdi, 2004).

Alexander directly and indirectly influenced the understanding of *informal settlements* and the policy response to them. His own work in Lima (Alexander et al., 1969), Mexicali (discussed above), Santa Rosa, Colombia and Guasare New Town, Venezuela (Alexander, 2005) demonstrated how generative processes could enable community-led housing. This was taken up by others in South America (Salingaros et al., 2020). Dovey's studies of informal morphology reaffirm Alexander's vision of emergent, life-affirming form that is not an aberration, but rather the fundamental way in which people create their living space (Dovey, 2012; Dovey, 2015; Dovey & King, 2011), and Billig (2018) shows it in his analysis of Istanbul's informal settlements. More recent contributions extend this line of work to guide rapid urbanisation processes (Mehaffy et al. 2020, Angel 2012, The Prince's Foundation 2022).

Perhaps Alexander's most significant contribution is to the discussion and debates on city complexity and the appropriate planning responses (Portugali 2024). By framing urban form as a semi-lattice rather than a tree, Alexander anticipated complexity theories of cities and inspired approaches that accept overlapping, adaptive structures. His novel conception of space as a system of centres emerging from the wholeness has informed new approaches to geographical and urban morphological analysis (Jiang, 2021; Dibble et al., 2017). The complexity of cities and the inability to foresee or control their future shapes have spurred growing interest in urban codes as generative frameworks to replace rigid master plans. European theorists have argued that codes, conceived as abstract relational rules, can guide self-organisation while preserving freedom and adaptability; an approach that closely resonates with Alexander's call for living, evolving urban order (Moroni, 2010; Moroni, 2015; Alfasi, 2018, Cozzolino & Moroni, 2024).

10. Conclusion

Christopher Alexander's life work is an invitation to reimagine the built environment as a living field of relationships in which wholeness, beauty, and life emerge over time in dynamic harmony. His theory challenges the mechanistic worldview that dominates much of modern planning and urban design, and instead offers a vision grounded in empathy, participation, and coherence. In Alexander's hands, urban planning and design are not merely a technical discipline or visual art but a moral and ontological endeavour: it is about making the world whole again, one centre at a time.

Throughout his intellectual journey, Alexander progressively deepened his understanding of how time and timelessness interact. From his early systems-based work in *Notes on the Synthesis of Form*, through the empirical richness of *A Pattern Language*, to the profound metaphysical framework of *The Nature of Order*, he argued that environments acquire life not through the imposition of abstract order, but through the sensitive unfolding of form in time. Timelessness, as he defined it, is achieved not by resisting time but by aligning with its deeper patterns; those that resonate with the core of human experience, including awareness of our brief time here on earth.

By emphasising participatory processes, structure-preserving transformations, and generative sequences, Alexander reorients the practice of planning, architecture and building from control to collaboration, from design to evolution. He encourages designers, builders, and users alike to trust their own sense of aliveness, to build with care and presence, and to honour the long arc of human continuity that unfolds through time in place.

In an era of rapid urbanisation, environmental crisis and cultural fragmentation, Alexander's ideas offer more than theoretical insights, they offer practical tools and ethical direction. His legacy prompts us to ask: what kinds of places will help us live more fully, more justly, and more beautifully? How can we restore a building culture that is both deeply rooted and widely shared?

Answering these questions requires us to embrace time not as a constraint, but as a co-creator. It asks us to cultivate beauty not as ornament, but as the measure of life. And it calls on us to recognise that the environments we shape are not separate from us but expressions of our values, our aspirations, and our shared humanity. In the end, Alexander's search for beauty is a search for truth, a timeless task that unfolds with each act of making, dwelling, and becoming.

References

- Alexander Christopher (1964) *Notes on the Synthesis of Form*, Harvard University Press.
- Alexander, Christopher (1965) A City is Not a Tree. *Architectural Forum*, 122(1), pp. 58–62 (Part I), 122(2) pp. 58–62 (Part II).
- Alexander, Christopher (1979). *The Timeless Way of Building*. New York: Oxford University Press.
- Alexander, Christopher; Sara Ishikawa and Murray Silverstein (1977) *A Pattern Language: Towns, Buildings, Construction*. New York: Oxford University Press.
- Alexander, Christopher; Murray Silverstein, Shlomo Angel, Sara Ishikawa and Denny Abrams (1975). *The Oregon Experiment*. New York: Oxford University Press.
- Alexander, Christopher; Howard Davis, Julio Martinez and Donald Corner (1985). *The Production of Houses*. New York: Oxford University Press.
- Alexander, Christopher (2002–2005). *The Nature of Order, Vols. 1–4*. Berkeley, CA: Centre for Environmental Structure. Includes:
- (2002-1) Book 1: The Phenomenon of Life.
 - (2002-2) Book 2: The Process of Creating Life
 - (2005) Book 3: A Vision of a Living World
 - (2004) Book 4: The Luminous Ground
- Alexander Christopher, Hans-Joachim Neis, Maggie Moore-Alexander (2012). *The Battle for the Life and Beauty of the Earth: A struggle between two world systems*. Oxford University Press. New York, NY.
- Alfasi, Nurit (2018). The coding turn in urban planning: Could it remedy the essential drawbacks of planning? *Planning Theory*, 17(3), 375–395. <https://doi.org/10.1177/1473095217716206>.
- Angel, Shlomo (2012) *Planet of Cities*. Cambridge, MA: Lincoln Institute of Land Policy.
- Billig, Noah (2018) *Istanbul: Informal settlements and generative urbanism*, Istanbul: Informal Settlements and Generative Urbanism. Taylor and Francis.
- Bryant, Greg (1991) "The Oregon Experiment after Twenty Years", *Rain Magazine*, XIV, 1. <https://www.rainmagazine.com/archive/1991-1/the-oregon-experiment-revisited> [Accessed 03/01/2025]
- Cozzolino, Stefano, and Stefano Moroni. *Action, property and beauty: Planning with and for emergent urban complexity*. Routledge, 2024.
- Dibble, Jacob, Alexios Prelorondjos, Ombretta Romice, Mattia Zanella, Emanuele Strano, Mark Pagel and Sergio Porta (2017). On the origin of spaces: Morphometric foundations of urban form evolution. *Environment and Planning B: Urban Analytics and City Science*, 46(4), 707–730. <https://doi.org/10.1177/2399808317725075> (Original work published 2019)
- Dovey, Kim (1990). The pattern language and its enemies. *Design Studies*, 11(1), 3–9. <http://www.scopus.com/inward/record.url?eid=2-s2.0-27144458802&partnerID=40&md5=af88c955df172c718630d43185f9cc67>
- Dovey, Kim (2012) 'Urban Design and Informal Settlements: Spatial Practice in the Favelas of Rio de Janeiro', *International Journal of Urban and Regional Research*, 36(1), pp. 241–257.

- Dovey, Kim (2015). *Urban Design Thinking: A Conceptual Toolkit*. London: Bloomsbury.
- Dovey, Kim and King, Ross (2011) 'Forms of Informality: Morphology and Visibility of Informal Settlements', *Built Environment*, 37(1), pp. 11–29.
- Duany, Andrés; Speck, Jeff and Lydon, Mike (2009). *The Smart Growth Manual*. New York: McGraw-Hill.
- Ettlinger, Or (2023). The divided brain and ways of building the world: Parallels in the thought of Iain McGilchrist and Christopher Alexander. *Journal of architecture and urbanism*, 47(2), 183-189.
- Galle, Per (2020). Christopher Alexander's Battle for Beauty in a World Turning Ugly: The Inception of a Science of Architecture? *She Ji: The Journal of Design, Economics, and Innovation*, 6(3), 345–375. <https://doi.org/10.1016/J.SHEJI.2020.03.002>
- Felstead, Aimee and Kevin Thwaites (2024) "A grounded pattern language: testing a methodology for exploring cohousing residents' involvement in shared outdoor spaces," *CoDesign*, 20(4), pp. 531–547. <https://doi.org/10.1080/15710882.2023.2289028>.
- Fromm, Dorit & Peter Bosselmann (1984). *Seven Years Later [Mexicali Revisited]*. Places, 1(4).
- Hakim, Besim S. (2007). *Arabic-Islamic Cities: Building and Planning Principles*. London: Routledge.
- Hamdi, Nabeel (2004). *Small Change: About the Art of Practice and the Limits of Planning in Cities*. London: Earthscan.
- Hamid, Malath, Laura Hanks and Qi Wang (2024) "Extracting a local pattern language: a case study of Khartoum's City Centre," *URBAN DESIGN International*, 29(4), pp. 227–247. <https://doi.org/10.1057/s41289-022-00205-w>.
- Hester, Randolph (2006). *Design for Ecological Democracy*. Cambridge, MA: MIT Press.
- Jacobs, Jane (1961). *The Death and Life of Great American Cities*. New York: Random House.
- Jiang, Bin (2021) 'Geography as a science of the earth's surface founded on the third view of space', *Annals of GIS*, 28(1), pp. 31–43. doi: 10.1080/19475683.2021.1966502.
- Jiang, B. (2019). Living Structure Down to Earth and Up to Heaven: Christopher Alexander. *Urban Science*, 3(3), 96. <https://doi.org/10.3390/urbansci3030096>
- Johnson, Mark (2018). *The Aesthetics of Meaning and Thought*. Chicago: University of Chicago Press.
- Lerner, Jaime (2014) *Urban Acupuncture*. Washington, D.C.: Island Press.
- Lydon, Mike and Anthony Garcia (2015). *Tactical Urbanism: Short-term Action for Long-term Change*. Washington, D.C.: Island Press.
- Lynch, Kevin (1960). *The Image of the City*. Cambridge, MA: MIT Press.
- Mang, Pamela and Ben Haggard (2016). *Regenerative Development and Design: A Framework for Evolving Sustainability*. Hoboken, NJ: Wiley.
- Mehaffy, Michael W., Yulia Kryazheva, Andrew Rudd, Nikos A. Salingaros and Ana Gren (2020). *A New Pattern Language for Growing Regions: Places, Networks, Processes*. Sweden: Sustasis Foundation.
- Moroni, Stefano (2010) 'Rethinking the theory and practice of land-use regulation: Towards nomocracy', *Planning Theory*, 9(2), pp. 137–155.
- Moroni, Stefano (2015) 'Towards a general theory of rules in planning: Realism, idealism, and critical rationalism', *Planning Theory*, 14(2), pp. 174–195.
- Neis, Hans-Joachim (2016). From a Pattern Language to a Field of Centres and Beyond, in Kyriakos Pontikis and Yodan Rofé (Eds.). In *Pursuit of Living Architecture: Continuing Christopher Alexander's Quest for a Humane and Sustainable Building Culture*. Champaign, IL, Common Ground Press. Pp. 161-190.
- Neuman, Michael (1998) 'Does Planning Need the Plan?', *Journal of the American Planning Association*, 64(2), pp. 208–220. doi: 10.1080/01944369808975976.
- Portugali, Juval (2024). Bohm's theory of orders as a basis for a unified urban theory. *Dialogues in Urban Research*, 2(3), 267-289. <https://doi.org/10.1177/27541258241256972>.
- Project for Public Spaces (2000). *How to Turn a Place Around: A Handbook for Creating Successful Public Spaces*. New York: Project for Public Spaces.
- Salingaros, Nikos A. (2005). *Principles of Urban Structure*. Amsterdam: Techne Press.
- Salingaros, Nikos A. (2006) *A Theory of Architecture*. Solingen: Umbau-Verlag.
- Salingaros, Nikos A., David Brain, Andrés M. Duany, Michael W. Mehaffy y Ernesto Philibert-Petit (2020) *Socially-Organized Housing in Latin America: The Experience of Christopher Alexander* [La participación como principio básico en la vivienda social: cómo utilizar el trabajo de Christopher Alexander] 02 ago. 2020. ArchDaily. (Trans. Valencia, Nicolás) <https://www.archdaily.com/944291/socially-organized-housing-in-latin-america-the-experience-of-christopher-alexander> ISSN 0719-8884 Accessed 20/08/2025.
- Silberberg, Susan, Katherine Lorah, Rebecca Disbrow, and Anna Muessig (2013). *Places in the Making: How Placemaking Builds Places and Communities*. Cambridge, MA: MIT Press.

- Simon, Herbert A. (1957). *Models of Man: Social and Rational*. New York: Wiley.
- Simon, Herbert A. (1969). *The Sciences of the Artificial*. Cambridge, MA: MIT Press.
- Talen, Emily (2005) *New Urbanism and American Planning: The Conflict of Cultures*. New York: Routledge.
- The Prince's Foundation (2020) *Rapid Planning Toolkit: Building Better Cities, Faster*. London: The Prince's Foundation. <https://www.rapidplanningtoolkit.org/> Accessed [02/01/2026].
- Whyte, William H. (1980). *The Social Life of Small Urban Spaces*. Washington, D.C.: The Conservation Foundation.
- UN-Habitat (2016) *The New Urban Agenda*. Quito: United Nations. <https://habitat3.org/the-new-urban-agenda/> Accessed [02/01/2026].
- University of Oregon Campus Planning (2025) *Campus Plan 2025 Edition*. <https://cpfm.uoregon.edu/campus-plan> Accessed [02/01/2026]
- Weaver, Dennis (1948) "Science and Complexity," *American Scientist* 36, 536.
- Zhang, Yaozhong, and Branka Dimitrijevic (2025) "Decoding Socio-Cultural Spatial Patterns in Historic Chinese Neighborhoods: A Pattern Language Approach from Chengdu," *Land* 14(9), 1803. <https://doi.org/10.3390/LAND14091803>.

COMPLEXITY-INFORMED ANALYSIS IN DATA-SCARCE CITIES: AN EXPLORATORY METHODOLOGICAL FRAMEWORK

Fabio Bayro Kaiser¹

Abstract

Urban change often unfolds in ways that are difficult to observe and explain, particularly in data-scarce cities. To address this, this paper presents a complexity-informed exploratory framework for spatial analysis using globally consistent Earth observation data. Here, data scarcity refers not to absence but to limitations in validation, temporal continuity, resolution, and proxy alignment. Guided by non-linearity, emergence, and distributed agency, the framework compares multiple indicators: built-up extent, density, vegetation, and land consumption across time and space, and examines their alignment and divergence. It applies explicit stopping rules to bound interpretation and treats ambiguity and non-detection as valid analytical outcomes; illustrated through an application to La Paz–El Alto. The framework establishes a disciplined basis for interpreting spatial evidence and supporting planning-relevant orientation under constrained observation.

Keywords:

Urban Complexity; Data-Scarce Cities; Exploratory Spatial Diagnostics; Earth Observation Indicators; Interpretive Planning Analysis.

¹ Chair and Institute for Urban Design, Faculty of Architecture, RWTH Aachen University.
E-mail: bayrokaiser@staedtebau.rwth-aachen.de. ORCID: <https://orcid.org/0000-0002-4839-5991>.

1. Introduction — Scarcity as constraint and opportunity

In many cities, urban change unfolds through decentralised decisions, uneven feedback, and non-linear dynamics that resist linear explanation. Complexity-inspired thinking has, therefore, become influential in urban studies, and provided conceptual resources for describing emergence, path dependence, and distributed agency in urban systems (Allen, 1997; Batty, 2005; Bettencourt, 2021; Portugali, 2011, 2016; Moroni, 2015). These ideas have informed debates on urban morphology, polycentricity, and self-organisation, and have shaped both theoretical reflection and empirical work (Moroni and Cozzolino, 2019; Pumain, 2018, 2024; Taubenböck et al., 2017; White and Engelen, 1997). Despite this influence, complexity-informed spatial analysis remains difficult to apply in practice, particularly in cities where empirical observation is constrained (Batty and Marshall 2012; Byrne 2003; Portugali, 2011; Pumain 2018).

This difficulty is often framed as a missing-data problem. However, such a framing is increasingly misleading. Over the past decade, Earth observation (EO) technologies have expanded spatial coverage and temporal frequency; enabling consistent observation of built-up form, land cover, and selected structural attributes across much of the globe (Brown et al., 2022; Taubenböck, 2025; Taubenböck et al., 2012; Zhu et al., 2022). Data scarcity today rarely denotes absence. Rather, it refers to an observational condition that is shaped by limited temporal depth, uneven validation, coarse thematic resolution, and imperfect alignment between spatial proxies and underlying urban processes (Kuffer et al., 2020; Taubenböck et al., 2017). These constraints fundamentally shape what spatial analysis can support, even when data is formally available.

Crucially, this form of scarcity is not a constraint but an analytical opportunity. Reliance on globally available EO-derived data makes large-scale and comparative urban analysis feasible (Angel et al., 2016; Taubenböck et al., 2014). Approaches that rely on dense, locally validated datasets typically extend only to a small number of cities. It follows, that scarcity enforces a shared observational baseline and with it, a degree of comparability that would otherwise be unattainable. At the same time, it demands analytical parsimony. Under constrained conditions, extensive indicator sets, complex models, or layered assumptions quickly exceed the (given) data's capacity (Angel et al., 2021). Scarcity shifts the analytical emphasis from completeness to sufficiency: what can be learned responsibly and transparently from the available data.

This shift exposes a persistent tension in complexity-informed empirical work. Non-linearity, asynchronous change, and distributed agency imply that urban dynamics cannot be inferred from a single indicator or a static snapshot (Batty, 2013; Moroni, 2015; Pumain, 2018). Nevertheless, much spatial analysis continues to rely on simplified metrics or aggregate trends; thereby often smoothing over indicator disagreement or temporal instability. Where multiple indicators are combined, interpretive decisions are frequently implicit, and uncertainty is treated as noise to be reduced rather than as an analytical outcome. Although this tension between conceptual ambition and analytical feasibility has been widely acknowledged (Byrne, 2003; Batty and Marshall, 2012), it remains unresolved because complexity is typically applied either at a high conceptual level or within data-rich modelling environments.

For planning-related research, this gap is consequential. Planning routinely engages with partial, provisional, and uneven evidence particularly in rapidly urbanising or informally governed contexts (Rauws, 2017; Colander and Kupers, 2014). In such settings, the primary analytical need is not explanation or prediction, but orientation: problem framing, situational differentiation, and early signal interpretation that can inform reflection and prioritisation without overstating what the evidence supports. Yet spatial analytical outputs are often read diagnostically by default, even when observational conditions do not warrant causal attribution or forecasting. The absence of explicit stopping rules encourages overinterpretation and obscures where inference should end.

This paper addresses this problem by proposing a complexity-informed, exploratory methodological framework for spatial analysis in data-scarce cities. Complexity is used as an analytical influence that disciplines interpretation through non-linearity, emergence, and distributed agency (Portugali, 2006). This entails comparing multiple indicators over time, examining their alignment and divergence, and avoiding linear extrapolation or single-indicator inference. Data scarcity is explicitly treated as an observational condition that shapes indicator selection, temporal comparisons, and interpretive scope. The framework relies on EO-derived data because their consistent spatial and temporal observation regimes are essential for interpreting longitudinal signals. In contrast, crowdsourced or administrative datasets often reflect contributor behaviour (e.g. uneven mapping activity or reporting practices) or institutional processes (e.g. changes in data collection

or classification), which introduce temporal inconsistency and complicate such analysis. Methodologically, the framework emphasises analytical economy: a limited number of interpretable indicators, simple temporal standardisation, and a small set of signal configurations. These choices prioritise legibility, transparency, and the speed of iteration – understood here as safeguards against overinterpretation amid uncertainty.

An instrumental application to the La Paz–El Alto metropolitan region illustrates how the framework behaves under constrained observational conditions (Bayro Kaiser, 2024). The case is suitable because it combines rapid urban change, topographic constraints, and limited validated data. It is used to demonstrate the framework’s methodological performance in structuring interpretation, not to explain urban development trajectories or to claim representativeness.

The paper is structured as follows. Section 2 situates complexity as an interpretive resource and clarifies its implications for reasoning under constraint. Section 3 conceptualises data scarcity as an observational condition and discusses why expanded EO coverage does not automatically translate into analytical adequacy. Section 4 introduces the exploratory methodological framework, and in so doing details its analytical logic, indicator selection, and stopping rules. Section 5 presents the instrumental case application and examines how the framework supports problem framing, situational differentiation, and early signal interpretation. Section 6 discusses what generalises from this approach and where its limits lie. Thereafter Section 7 concludes the paper with suggestions for directions of future research.

2. Complexity as analytical inspiration

Complexity thinking has become a central reference in urban research because it offers a coherent way by which to conceptualise cities shaped by decentralised interactions, feedbacks, and non-linear change (Portugali, 2012). From early work on self-organisation and urban evolution (Jacobs, 1961) to later formulations of cities as complex adaptive systems (Portugali, 2011), such literature has challenged linear and equilibrium-based accounts of urban dynamics (Allen, 1997; Allen and Sanglier, 1981; Batty, 2005, 2013; Bettencourt, 2021). Its conceptual influence is now well established across debates on urban morphology, scaling, and spatial organisation (Bettencourt, 2013). What remains challenging, however, is how these ideas can inform empirical spatial analysis when observation itself is constrained. Without a disciplined reframing, complexity-inspired analysis either remains conceptually abstract or slips into empirical claims that exceed what available evidence can support. Given this, this section positions complexity as an analytical inspiration and clarifies how selected concepts constrain the interpretation of spatial indicators and their temporal behaviour under observational limits.

A first concept with direct analytical relevance is non-linearity. In complex systems, change rarely proceeds smoothly; extended periods of apparent stability may be followed by rapid reconfiguration, while short-lived accelerations may dissipate without structural consequence (Batty, 2013; Scheffer et al., 2012). For spatial analysis, this undermines the plausibility of single-indicator narratives or short temporal windows as reliable evidence of structural change. Empirical studies of urban expansion and densification have repeatedly shown the presence of alternating phases of acceleration, stagnation, and redirection; shaped by the timing of infrastructure, regulatory shifts, or access constraints rather than by monotonic growth (Angel, 2012; Angel et al., 2021; Taubenböck et al., 2014; Seto et al., 2012). Given data scarcity, non-linearity imposes a concrete analytical requirement: urban change must be examined using multiple indicators over time, while linear extrapolation and premature identification of transitions must be avoided.

A second concept is emergence, which emphasises that higher-level urban patterns arise from local interactions, yet cannot be directly inferred from or reduced to them (Jacobs, 1961; Allen and Sanglier, 1981; Portugali, 2004; Moroni and Cozzolino, 2019). Empirically, this implies that no single indicator can be expected to capture such higher-level patterns in isolation. Structural change may become partially visible through alignment across signals, such as concurrent shifts in built-up extent, patch structure, and land consumption (Taubenböck et al., 2014; Gerten, Fina and Rusche, 2019; Zhu et al., 2022). However, such alignment remains indicative rather than conclusive. It follows, that emergence directs attention to synchrony and divergence across indicators as potential expressions of higher-level pattern formation. Importantly, this does not justify holistic claims about system behaviour. Rather, it frames interpretation around signal configurations that are consistent with but do not confirm emergent spatial patterns. This means that under constrained observation uncertainty is not residual error but an expected feature of complex urban systems that must be reported rather than resolved.

A third concept, distributed agency, further conditions analytical expectations. Urban change is produced through the cumulative actions of heterogeneous actors operating across scales – often with weak coordination and conflicting objectives (Moroni, 2015; Slaev et al., 2022). As a result, spatial change is rarely uniform (Reicher, Ostos-Prieto and Bayro Kaiser, 2025). Densification, expansion, and decline may unfold simultaneously in different parts of the same urban region, producing contrasting signals when aggregated (Hall and Pain, 2006; Meijers, 2008; Reicher et al., 2011). In data-scarce settings, distributed agency implies that divergence should be anticipated rather than treated as noise to be smoothed out. Spatial unevenness becomes analytically relevant only if interpretation remains bounded by observational limits.

These three concepts—non-linearity, emergence, and distributed agency—have been deliberately selected for this framework because they have immediate and direct implications for how spatial indicators behave and how they should be interpreted under constrained observation. Broader notions such as resilience, adaptation, or sustainability have been excluded from the framework because they often presuppose evaluative or normative criteria that cannot be empirically supported given data scarcity. Crucially, none of the selected concepts requires treating complexity as a testable theory. Empirical validation of complexity models would require levels of causal attribution, temporal depth, and data completeness that are rarely available outside data-rich settings (Byrne, 2003; Pumain, 2018).

Distinguishing inspiration from operationalisation is, therefore, central to the framework’s methodological logic. Much of the gap which exists between complexity theory and empirical practice stems from attempts to translate abstract concepts directly into indicators or models; a process that has often resulted in conceptual dilution or false precision (Batty and Marshall, 2012). A heuristic use of complexity accepts that non-linearity or emergence cannot be measured directly. Their analytical value lies in disciplining interpretation: shaping expectations about indicator behaviour, encouraging comparison across indicators and time, and legitimising ambiguity and non-detection as outcomes. At no point are these concepts treated as measurable properties or validated mechanisms.

Taken together, these concepts motivate a specific analytical stance. First, urban change should be approached through multiple indicators observed over time; second, alignment and divergence should be examined explicitly; and third, instability or non-detection should be treated as informative rather than as methodological failure. This stance neither resolves the challenges of observing complex urban systems, nor advances complexity theory itself. Rather, it provides a disciplined conceptual foundation for exploratory spatial analysis under constraint. Given this, the next section turns to data scarcity as an analytical condition and examines how observational limits shape indicator behaviour and why expanded EO coverage does not automatically translate into analytical adequacy.

3. Data scarcity as an observational condition

The term data-scarce is widely used in urban research, yet it is often interpreted narrowly as a lack of available data. In practice, many cities are now covered by an expanding range of spatial datasets, including global EO products, volunteered geographic information, and locally produced administrative or survey data. Data scarcity, therefore, does not primarily refer to the absence of spatial data, but to an observational condition in which limitations in resolution, temporal continuity, validation, and comparability constrain what can be inferred from multi-source urban evidence (Figure 1). This perspective shifts attention from data availability to the conditions under which spatial information can be interpreted, and frames scarcity as a defining analytical constraint rather than a residual deficiency.

Recent advances in EO have substantially expanded the empirical basis for urban analysis. Globally consistent datasets now provide information on built-up extent, land cover, vegetation dynamics, and selected structural proxies, often with annual or higher temporal frequency (Taubenböck et al., 2012; Brown et al., 2022; Zhu et al., 2022). These developments have transformed the feasibility of spatial analysis in contexts where systematic monitoring was previously limited (Taubenböck, 2025). EO-derived data, therefore, functions as a primary longitudinal observation regime for exploratory urban analysis. At the same time, expanded coverage does not eliminate observational constraints; instead, it reshapes them, as summarised schematically in Figure 1.

A first constraint concerns spatial resolution and thematic specificity. Global EO products are optimised for consistency across regions and sensors, which limits their capacity to capture fine-grained or functionally

differentiated urban processes. Incremental densification, informal infill, or small-scale vertical extension may be weakly detected or inconsistently represented across time. Comparable issues arise with volunteered geographic data, where coverage and detail often reflect contributor activity rather than uniform urban conditions. These limitations do not invalidate such datasets, but they do constrain the types of questions that they can support and the degree of confidence with which indicator behaviour can be interpreted (Kuffer et al., 2020; Taubenböck et al., 2017). Analytically, this shifts emphasis from absolute values to relative change, and from isolated indicators to configurations of signals.

Temporal continuity constitutes a second constraint. Although many spatial datasets provide nominal time series, continuity is frequently disrupted by sensor changes, algorithm updates, or shifts in data-processing practices. Apparent changes in indicator trajectories may, therefore, reflect methodological adjustments rather than urban dynamics. This complicates short-term trend analysis and renders the identification of structural change sensitive to processing choices, particularly in the absence of independent benchmarks (Seto et al., 2012). Under such conditions, ambiguity and instability are expected analytical outcomes rather than signs of methodological failure.

A third constraint relates to validation capacity. In many urban contexts, locally produced reference data such as recent censuses, building registries, or land-use surveys are incomplete, outdated, or inconsistent. This limits the calibration and verification of EO-derived indicators beyond plausibility checks or indirect comparison (Stevens et al., 2015). As a result, spatial indicators can often support descriptive and comparative analysis, but not precise quantification or causal attribution.

Finally, comparability across space and data modalities introduces further complexity. Indicators derived from EO, volunteered data, and administrative sources may align imperfectly across space and time due to differing definitions, coverage, and update cycles. Similar indicator values can, therefore, reflect different underlying conditions, while similar processes may produce divergent signals across contexts (Angel, 2012; Gerten et al., 2019). Without explicit attention to these misalignments, interpretation risks conflating measurement artefacts with substantive change.

Understanding data scarcity in this way clarifies the scope of the proposed framework. It does not aim to compensate for missing data, resolve measurement uncertainty, or establish causal explanations. Instead, it treats observational constraints as a defining analytical condition and focuses on how spatial indicators can be interpreted cautiously and coherently within those limits. This framing aligns with planning-related analysis in which engagement with partial and heterogeneous evidence is the norm. On this basis, the following section introduces an exploratory methodological framework that has been designed explicitly for such observational regimes.

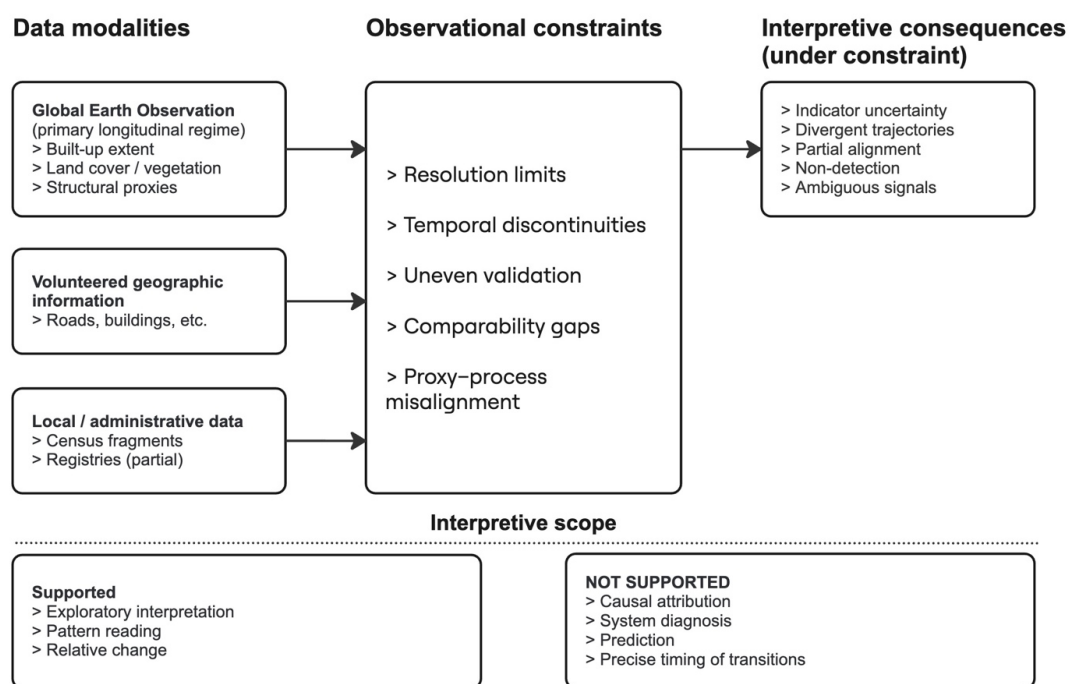


Figure 1: Data scarcity as an observational condition in multi-source urban analysis. Source: own representation.

4. An Exploratory Methodological Framework

The methodological framework proposed here is designed to support complexity-informed spatial orientation under explicit observational constraints. Its purpose is not to explain urban change, detect transitions, or validate complexity theory. Instead, it provides a disciplined structure for organising, comparing, and interpreting EO-derived spatial signals when inference is limited by resolution, temporal continuity, or validation capacity. The core idea of the framework is to formalise interpretive restraint as a methodological design feature, rather than treating uncertainty and non-detection as residual shortcomings to be minimised.

A substantial body of research has demonstrated the analytical potential of EO-derived indicators for describing urban expansion, densification, fragmentation, and structural change across scales (Taubenböck et al., 2012; Angel et al., 2016; Seto et al., 2012; Sirko et al., 2023; Zhu et al., 2022). Comparative approaches have further shown that consistent indicator sets can reveal broad morphological regularities across cities (Demuzere et al., 2022; Gerten et al., 2019; Fleischmann and Arribas-Bel, 2022). At the same time, this literature has repeatedly exposed persistent challenges: sensitivity to scale and delineation, temporal instability, proxy-process misalignment, and limited opportunities for validation, particularly in data-scarce contexts. While recent contributions have increasingly acknowledged uncertainty (Kuffer et al., 2020; Demuzere et al., 2022), indicators are still commonly treated as inputs to be refined or aggregated, often with the implicit aim of improving explanatory or predictive power.

The framework presented here takes a different stance. It treats observational constraints as a defining analytical condition and examines how spatial evidence can be interpreted coherently without exceeding what the data supports. Its contribution lies not in proposing new indicators or techniques, but in structuring interpretation through parsimony, explicit limits, and transparent decision points.

4.1 Purpose and positioning

The framework is positioned as an exploratory analytical scaffold. Complexity concepts inform expectations about indicator behaviour such as non-linearity, uneven spatial expression, and partial alignment. Data scarcity is addressed not by compensating for missing information, but by shaping how evidence is selected, compared, and interpreted. The intended output is orientation: a structured account of how spatial signals align, diverge, or remain ambiguous over time.

This positioning differentiates the framework from optimisation-oriented analytics, simulation-based modelling, and monitoring systems that are aimed at diagnosis or evaluation. For planning-related analysis, this form of orientation is particularly relevant in early analytical phases, when the task is to frame problems, spatially differentiate situations, and identify areas that require closer investigation, rather than supporting decisions or prescribing interventions.

4.2 Framework logic and analytical phases

The framework unfolds through four analytical phases which are understood as a logic of interpretation rather than as a data-processing pipeline. Figure 2 visualises this logic visually, emphasising decision points and stopping conditions.

The first phase defines the analytical context. This involves delineating the spatial extent, identifying a temporally stable observation window, and characterising dominant data constraints. Context definition establishes expectations regarding which indicator behaviours are plausible and which interpretations are untenable from the outset.

The second phase concerns inputs and uncertainty. Indicator families are fixed at the framework level, while specific indicators are selected, justified, or excluded at the case level based on availability, temporal stability, and plausibility under local conditions. The framework distinguishes between a broad data universe and the subset of datasets that actively structure inference in a given application. While multiple EO-derived and ancillary datasets may be available in principle, their inclusion is conditional on temporal coverage, proxy stability, and alignment with the observational regime. Exclusion at the case level is treated as a methodological

decision that is governed by the framework, not as a limitation or data deficit. Vertical signals are treated as conditional and may be excluded where EO-derived height proxies are unreliable or inconsistent across time.

The third phase focuses on relational diagnostics. Indicators are examined through their temporal trajectories and cross-family behaviour, rather than as isolated measures. Attention is directed to alignment, divergence, volatility, and lag across indicator families. Iteration is possible at this stage through indicator selection or exclusion but remains bounded and pre-interpretive.

The fourth phase introduces an explicit interpretive decision. As shown in Figure 2, signal coherence across indicator families may support a cautious analytical orientation, whereas persistent divergence or instability can lead to non-detection as a valid outcome. Crucially, both paths terminate at explicit stopping points, reinforcing the idea that inference does not extend beyond what the evidence can sustain.

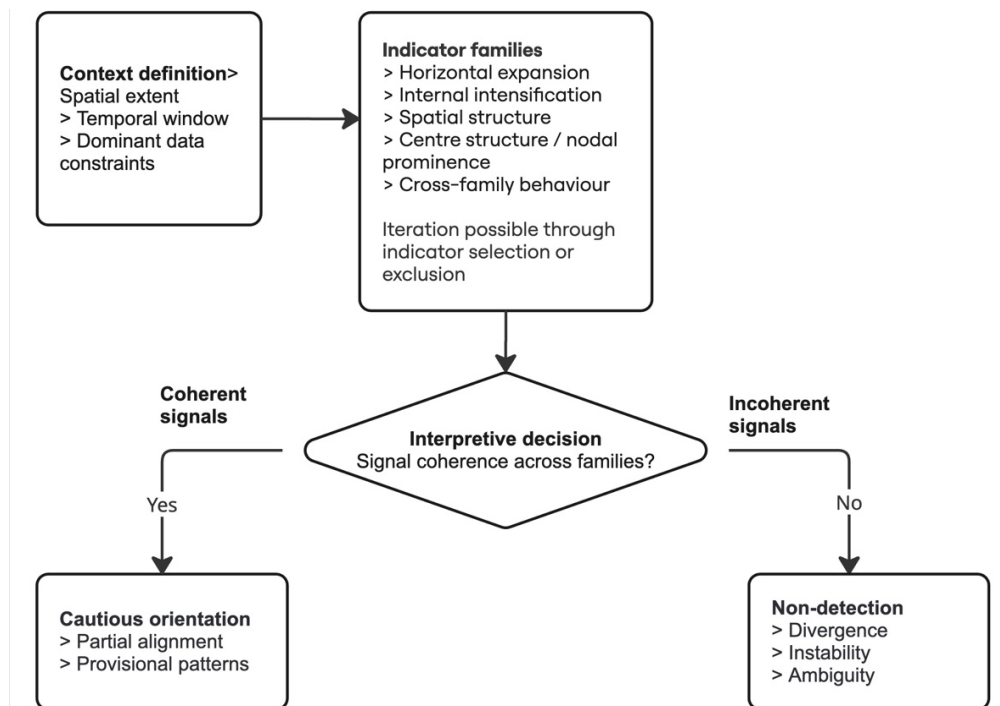


Figure 2: Exploratory methodological framework for spatial orientation under data scarcity. Source: Author's own representation.

4.3 Indicator families and signal configurations

The framework employs five indicator families. These are summarised in Table 1, and together capture analytically distinct dimensions of spatial change. These families are deliberately limited in number. They represent dimensions that: first, can be observed consistently using EO-derived data; second, respond differently under nonlinearity and distributed agency; and third, minimise redundancy under data scarcity. Expanding the framework with additional families such as functional land-use or socio-economic proxies would increase interpretive ambiguity without improving inferential capacity under the stated constraints.

Horizontal expansion indicators describe the outward growth of the built-up footprint and are widely used in global urban studies (Angel, 2012; Seto et al., 2012; Taubenböck et al., 2014). Within the framework, they are interpreted as signals which are consistent with decentralised expansion dynamics, rather than as measures of growth drivers. Internal intensification indicators capture changes within the (given) existing footprint, including density proxies and, where reliable, vertical signals. Their analytical value lies in highlighting reallocation within constrained space, not in identifying saturation thresholds.

Spatial structure indicators, such as dispersion or fragmentation metrics, reflect spatial unevenness and coherence. Prior work has shown that they are sensitive to scale and resolution (Dovey and Pafka, 2014), which limits their diagnostic utility. Within the framework, they are interpreted as expressions of uneven signal

distribution consistent with distributed agency. Centre-structure indicators address relative dominance and nodal patterns, and thus builds on research into morphological polycentricity (Meijers, 2008; Hall and Pain, 2006), while avoiding functional interpretations that would require flow or institutional data.

Analytical emphasis emerges from cross-family behaviour. Alignment across families may suggest coherent spatial reorganisation, while divergence or volatility signals ambiguity. For example, when built-up extent, land consumption, and NDVI shift in a consistent direction within the same area, this may indicate outward urban expansion; whereas if built-up extent increases while density and vegetation remain unstable or move in opposing directions, the signal remains ambiguous. In both cases, interpretation remains provisional and bounded.

Indicator family	Spatial dimension captured	Complexity principles engaged	What signal alignment may indicate	What cannot be inferred
Horizontal expansion	Outward change of built footprint	Non-linearity; distributed agency	Spatial extension consistent with decentralised growth dynamics	Growth drivers; permanence; causal mechanisms
Internal intensification	Reallocation within stable footprint (horizontal or vertical proxies)	Non-linearity; emergence	Increasing use of existing urban space	Saturation thresholds; adaptive strategies; socio-economic causes
Spatial structure	Distribution and continuity of built form	Distributed agency; emergence	Increasing or uneven dispersion of development	Functional fragmentation; governance dynamics
Centre structure / nodal prominence	Relative dominance across space	Emergence; feedback processes	Redistribution of spatial prominence	Functional polycentricity; flow reorganisation
Cross-family behaviour	Relational alignment across families	All principles	Coherence, divergence, volatility, or non-detection	System states; transitions; predictive claims

Table 1: Indicator families and interpretive scope. Source: Author's own representation.

4.4 Uncertainty, non-detection, and stopping rules

Uncertainty is not treated as residual but as a produced analytical outcome. The framework formalises conditions under which interpretation must stop. Interpretation is halted when indicator trajectories diverge persistently across families; results hinge on a single unstable indicator, or signal configurations change materially under minor parameter variations. In such cases, synthesis is withheld rather than forced.

Non-detection—the absence of stable or interpretable signal configurations—is considered a valid result. It indicates that, under the given observational conditions, spatial change cannot be confidently interpreted. By embedding stopping rules directly into the analytical logic, the framework clarifies not only what can be inferred but also when inference must end.

In summary, the framework builds on a substantial body of EO-based urban science while addressing its persistent interpretive gaps. It should be evaluated not by the richness of its outputs, but by the transparency with which it exposes uncertainty, limits, and interpretive choices. Table 1 provides the analytical matrix which links indicator families, complexity-informed expectations, and interpretive scope, while Figure 2 visualises how this logic is enacted in practice. The following section applies the framework instrumentally to the La Paz–El Alto metropolitan region, and demonstrates how it structures interpretation under constraint without exceeding what the data supports.

5. Instrumental Case Application: La Paz–El Alto

5.1 Instrumental positioning and observational regime

The La Paz–El Alto metropolitan region (GAMLP, 2017) is used instrumentally to demonstrate how the exploratory framework performs under constrained observational conditions (Figure 3). The case is not presented as being representative of a broader urban category. Neither is it analysed to explain development trajectories. Rather, its analytical value lies in integrating rapid demographic change, strong topographic constraints, and uneven institutional capacity within a setting in which longitudinal EO data constitutes the primary observational regime.

All indicators are derived from globally consistent EO-based datasets processed in Google Earth Engine and spatially aggregated in QGIS using a fixed hexagonal grid (Table 3, Appendix). The built areas for the period 2015–2025 were computed using data from Dynamic World (Brown et al., 2022). The population data were obtained from the WorldPop database (Bondarenko et al., 2025). The NDVI data were obtained from the Landsat-8 and Sentinel-2 missions. Temporal standardisation and Δz computation were performed in Excel, following the logic outlined in Section 4. The workflow, therefore, makes the analytical separation between computational processing, spatial aggregation, and relational interpretation explicit. The Appendix documents detailed technical steps; here, the focus remains on interpretive performance.

Four core indicators structure inference at the hex level:

- built-up extent (patch-derived built area per hex),
- built-up density proxy (population per built area),
- land consumption proxy (built area per capita),
- and mean NDVI per hex.

These indicators correspond directly to the families defined in Table 1 and are intentionally limited in number. Their role is not to capture the full complexity of urban dynamics, but to provide a parsimonious and interpretable basis for cross-family comparison.



Figure 3: The La Paz–El Alto metropolitan region. Source: Author, 2024.

5.2 Orientation logic and signal configurations

Orientation is derived from temporally standardised change. For each hexagon and each indicator, a z-score is computed per year, followed by Δz across a defined time window. A moderate deviation threshold ($\tau = 0.25$) is applied symmetrically to identify meaningful departures from baseline behaviour. The threshold was selected on the basis that, after sensitivity testing, it was sufficiently strict to avoid noise amplification while remaining responsive to moderate shifts.

The active signal count, denoted as k , measures the number of indicator families in which $|\Delta z| \geq \tau$. This metric operationalises cross-family reinforcement:

- $k = 0$ indicates no coherent deviation across families.
- $k = 1$ suggests isolated change without relational reinforcement.
- $k \geq 2$ indicates partial or multi-family alignment.
- Mixed sign deviations across families are treated as divergent configurations.

Importantly, k does not measure the magnitude of change, but relational coherence. This distinction is central to the framework's logic: the presence or absence of cross-family alignment is analytically more relevant than large movement in a single metric.

Table 2 summarises the orientation configurations used in the case application. The expanded matrix clarifies required indicator combinations and spatial expectations under distributed agency.

Configuration	Required Δz Combination	k	Spatial expectation under distributed agency	Interpretive orientation
Stable / low signal	No indicator exceeds $\pm\tau$	0	Micro-adjustments without synchronisation	No coherent reorganisation detectable
Single-family deviation	One indicator exceeds $\pm\tau$	1	Localised response or measurement sensitivity	Insufficient for cross-dimensional orientation
Partial alignment	Two indicators exceed $\pm\tau$ in same direction	2	Local reinforcement across dimensions	Emerging coherence
Multi-family alignment	≥ 3 indicators exceed $\pm\tau$ in same direction	≥ 3	Coordinated spatial shift	Stronger cross-dimensional signal
Divergent configuration	Indicators exceed $\pm\tau$ in opposing directions	≥ 2	Uneven change consistent with distributed agency	Ambiguous or conflicting orientation

Table 2: Orientation configurations and relational signal logic

5.3 Window comparison and temporal behaviour

To assess temporal sensitivity, Δz was computed across multiple window lengths. Three observations are analytically relevant.

First, the one-year window exhibited high volatility. Numerous hexagons registered isolated deviations ($k = 1$), while cross-family reinforcement remained rare. This behaviour was consistent with the non-linearity discussed in Section 2: short temporal windows amplify episodic fluctuation and sensor-level variability.

Second, the two-year window reduced volatility and increased partial alignment. A modest rise in $k \geq 2$ configurations suggests that certain areas exhibit relational reinforcement when short-term oscillations are smoothed. This window balances responsiveness and stability and was, therefore, adopted as the primary orientation window.

Third, extending to three-year windows increased smoothing but reduced sensitivity to more recent shifts. While coherence became more stable, interpretive responsiveness declined. Given the framework's exploratory purpose, the two-year window provided the most informative compromise.

This comparison demonstrates that signal coherence is not absolute but contingent on temporal framing. Rather than arbitrarily selecting a window, the framework treats window selection as part of the analytical logic and explicitly reports its implications.

5.4 Problem framing and situational differentiation

Across the two-year window (2023–2025), most hexagons fell into the stable/low signal category ($k = 0$) (Figure 4). Interpreted superficially, this could be read as urban stagnation. Within the framework's logic, however, stability is defined more precisely as the absence of cross-family reinforcement.

This macro-stability suggests three analytically relevant conditions:

- Spatial adjustments occurred in a distributed manner without synchronisation across dimensions.
- No dominant reorganisation pattern emerged at the metropolitan scale.
- Indicator behaviour remains within baseline variability under the defined observational regime.

In this sense, stability is not the absence of change but the absence of coherent cross-dimensional alignment. It reflects distributed micro-adjustments consistent with the principle of distributed agency.

Situational differentiation became visible in a minority of hexagons with $k \geq 2$. These areas clustered spatially along selected corridors and peripheral zones (Figure 5). In these locations, built-up expansion aligned with declining NDVI and increasing land consumption—indicating reinforced outward development signals. Other clusters exhibited intensified built-up areas alongside reduced per capita land consumption; consistent with selective internal intensification.

The spatial pattern that emerged was, therefore, not a city-wide transition but a differentiated mosaic: stable background conditions punctuated by localised zones of relational reinforcement.

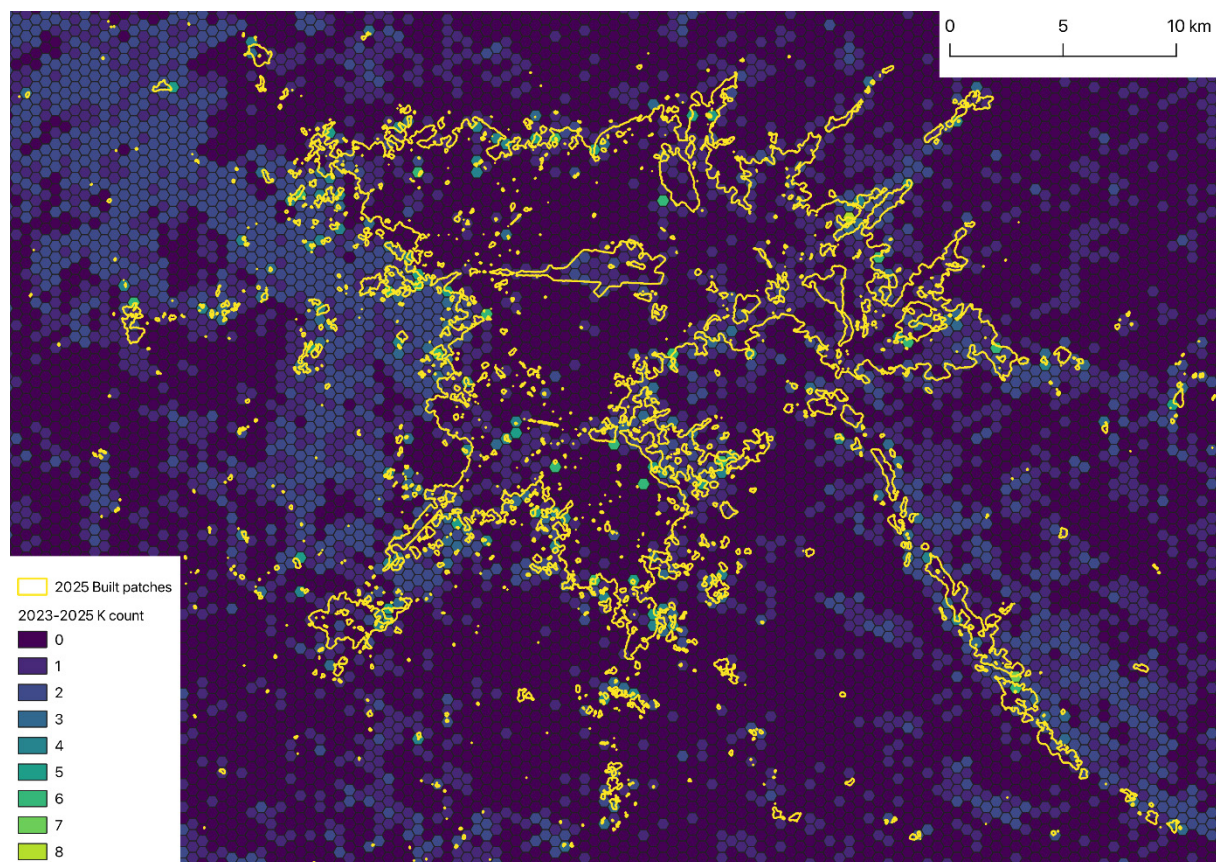


Figure 4: Active signal intensity (k). Hexagon map of the count of indicator deviations ($|\Delta z| \geq \tau$), indicating where signals reinforce or remain stable. Source: Own representation.

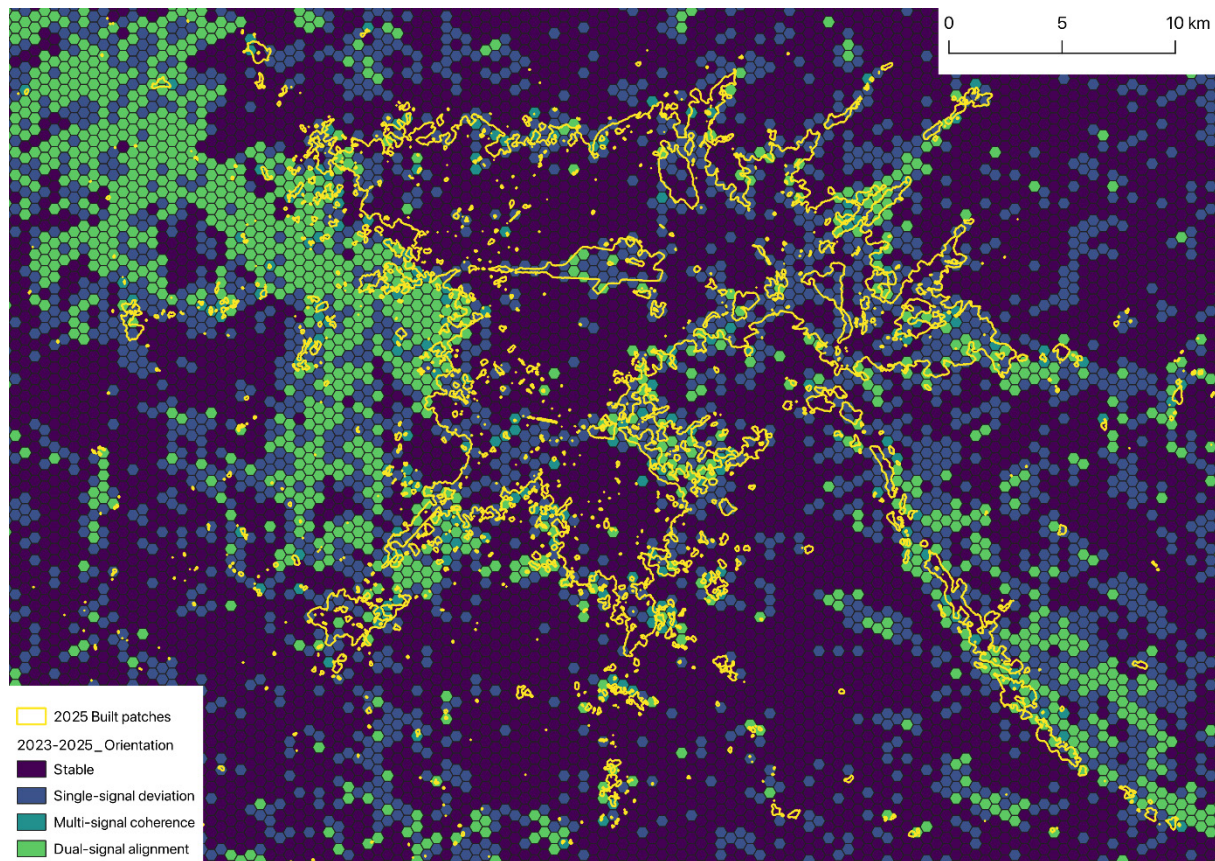


Figure 5: Situational differentiation under constraint. Hexagon map of orientation configurations showing where signals align, diverge, or remain absent under shared observational limits. Source: Own representation.

5.5 Early signal interpretation and stopping points

The framework explicitly prevents escalation from signal coherence to structural diagnosis. Even in hexagons with $k \geq 2$, the interpretation remains conditional: reinforced signals indicate cross-dimensional alignment, not causal mechanisms or long-term trajectories.

- Interpretation stops when:
- signals are driven by a single indicator,
- divergence persists across families,
- results vary materially across temporal windows.

In this application, the predominance of $k = 0$ and $k = 1$ categories indicated that metropolitan-scale reorganisation cannot be inferred with confidence. Localised reinforcement identified areas warranting closer qualitative or data-rich investigation, but the evidence did not support a systemic transition.

This outcome illustrates the framework's central claim: orientation can be generated under constraint without overstepping interpretive limits. Accordingly, stability, divergence, and non-detection are analytically productive findings.

5.6 Implications for complexity-informed orientation

The La Paz–El Alto application demonstrates how complexity principles discipline interpretation. First, non-linearity is evident in the sensitivity of short temporal windows, in which one-year intervals yield volatile and weakly aligned signals. This reinforces the analytical requirement to examine change across multiple indicators and longer time spans, rather than relying on short-term trends. Second, distributed agency is reflected in the

pronounced spatial unevenness of signal configurations, with stable areas coexisting alongside localised zones of reinforcement. This indicates that spatial divergence should be expected and interpreted as an intrinsic feature of urban change rather than as noise. Third, emergence is approached through cross-family alignment, where coherence across indicators suggests higher-level pattern formation but does not confirm structural transformation. Alignment is, therefore, interpreted as indicative rather than conclusive.

The dominant pattern is one of distributed micro-adjustment rather than synchronised reorganisation. This is not a minor finding. It clarifies that, under the current observational regime, the metropolitan system exhibits limited cross-dimensional reinforcement. Such clarity supports planning-relevant orientation: it identifies zones of reinforcement without overstating their significance and makes explicit where inference must stop.

The case, therefore, confirms that complexity-informed spatial analysis can produce structured, legible orientation under data scarcity, provided that parsimony, relational reading, and stopping rules remain integral to the methodological design.

6. Discussion

This study sought to clarify the contributions of complexity-informed spatial analysis when empirical observation is limited. The results indicate that the principal value of the proposed framework lies in structuring interpretation rather than in producing definitive diagnoses. Across the La Paz–El Alto application, the framework consistently delivered three forms of orientation that are directly relevant for analytical and planning contexts: first, problem framing; second, situational differentiation; and third, early signal interpretation. These outputs align with existent calls in urban analytics to prioritise interpretable evidence over model sophistication when working with globally available EO data.

These three forms of orientation can be interpreted through the complexity principles outlined in Section 2 as analytical constraints. Non-linearity, distributed agency, and emergence do not appear as directly observable properties, but as conditions that shape how spatial signals are read. They require multi-indicator comparison, legitimising spatial divergence, and limiting interpretations of alignment to indicative rather than conclusive evidence. In this sense, the case does not demonstrate complexity as a measurable system property, but rather shows how complexity-informed expectations structure interpretation under constrained observation.

Problem framing resulted from the disciplined comparison of indicator families under explicit observational constraints. By treating data scarcity as a condition of inference, the analysis clarified which spatial questions could be examined credibly and which could not. This addresses a persistent gap in EO-based urban studies, where large-scale datasets enable descriptive measurement but rarely specify their interpretive limits. The framework, therefore, contributes a procedural advance: it makes the boundary between evidence and inference visible, a distinction that is often implicit, rather than explicit, in spatial indicator research.

Situational differentiation constituted the second generalisable contribution. The hexagonal aggregation and cross-family comparison revealed spatially uneven signal configurations within the same metropolitan system. Such divergence is consistent with distributed agency and multi-scalar urban dynamics documented in morphological and remote-sensing studies (Angel et al. 2021; Taubenböck et al., 2017; Zhu et al., 2022). Importantly, differentiation did not depend on identifying statistically dominant trends. Instead, it arose from relational contrasts between indicators, and thus demonstrates that spatial heterogeneity can itself serve as an analytical output. This finding supports recent comparative work which shows that consistent indicator sets can reveal structural variation across cities without requiring explanatory modelling (Fleischmann and Arribas-Bel, 2022; Gerten et al., 2019).

The third contribution concerns the early interpretation of signals. The k -measure operationalised cross-family reinforcement by counting the number of indicator families that deviated beyond a moderate threshold ($\tau = 0.25$). Values of $k \geq 2$ indicated spatial locations where independent indicators shifted in a coherent manner, suggesting candidate areas of reorganisation. Conversely, $k = 0$ signalled the absence of cross-family alignment, which the framework treats, analytically, as meaningful stability. This interpretation aligns with complexity-informed expectations of non-linear change in which long periods of apparent equilibrium may precede rapid reconfiguration (Scheffer et al., 2012; Batty, 2013). Stability, therefore, does not imply stasis; it indicates that no coherent multi-indicator signal is presently observable.

Comparison across temporal windows further illustrates this point. One-year intervals produced volatile signals with limited reinforcement, two-year windows yielded moderate coherence, while three-year windows smoothed short-term fluctuations. This pattern mirrors findings from time-series research, which show that apparent urban dynamics are sensitive to temporal aggregation and sensor continuity. Interpreted through the framework's logic, such sensitivity is not a methodological flaw but evidence of non-linearity and observational constraint.

These contributions must be read alongside clear limitations. The framework does not explain causal mechanisms, governance processes, or socio-economic drivers of spatial change. Studies integrating institutional or sociodemographic data demonstrate that such questions require additional layers of evidence and validation strategies (Kuffer et al., 2020; Stevens et al., 2015). Nor does the approach replace modelling or prediction; its role precedes them. It organises spatial evidence to enable more precise targeting of subsequent analytical steps. In this sense, the framework complements existing EO-based urban analytics which have established measurement capacity (Angel et al., 2016; Taubenböck et al., 2012, 2014; Zhu et al., 2022).

Taken together, the findings suggest that the main generalisable contribution is methodological. In data-scarce contexts, analytical economy and interpretive transparency are more valuable than indicator proliferation or model complexity. By formalising stopping rules, relational diagnostics, and the conditional inclusion of datasets, the framework demonstrates how complexity-informed reasoning can be operationalised without overstating empirical support. Its significance, therefore, lies in clarifying what spatial analysis can responsibly claim in constrained settings and how such claims can still inform planning-relevant understanding.

7. Conclusion

This paper began from a persistent difficulty in urban science: complexity-informed perspectives offer powerful conceptual lenses, yet their empirical application remains fragile when observation is constrained. To address this problem, the paper developed an exploratory methodological framework that structures the interpretation of spatial evidence under data scarcity. The contribution is methodological and procedural. It lies in formalising indicator families, relational diagnostics, and explicit stopping rules so that interpretation remains aligned with available evidence.

The application demonstrated that such a framework can generate three analytically meaningful outputs. First, it supports problem framing by clarifying which spatial questions are empirically tractable. Second, it enables situational differentiation by revealing internally uneven signal configurations within the same urban system. Third, it enables early interpretation of signals by identifying where multiple indicators align, without presuming causal explanations. In the case application, this structure exposed spatial contrasts, stabilisation patterns, and zones of multi-indicator reinforcement that would not have been visible through single-indicator analysis. Together, these outputs constitute an analytical tier between description and explanation in which uncertainty, ambiguity, and non-detection function as informative results rather than residual deficiencies.

What extends beyond the case is not any substantive finding about a particular city, but the logic of interpretation itself. Unlike most EO-based urban analyses that prioritise measurement, modelling, or ranking, the framework formalises the organisation of interpretation when evidence is incomplete. Because it relies on globally consistent EO data and a limited set of indicators, it can be applied comparatively across contexts while maintaining transparency and analytical economy. At the same time, its limits remain explicit. The framework does not identify drivers, predict trajectories, or account for institutional dynamics; such questions require additional data, methods, and theoretical commitments.

Future work could build on this foundation in several directions. Carefully controlled cross-city applications would allow assessment of how indicator behaviour varies across urbanisation regimes, while sensitivity testing of thresholds and indicator combinations could clarify the robustness of detected signal configurations. In addition, integrating locally grounded datasets, where available, would enable examination of how observational constraints shift as evidentiary depth increases. Through such extensions, the framework may serve as a structured starting point for comparative inquiries.

8. References

- Allen, Peter M. (1997): *Cities and Regions as Self-Organising Systems: Models of Complexity* (1st ed.). Routledge. <https://doi.org/10.4324/9780203990018>.
- Allen, Peter M. and Michel Sanglier (1981) Urban Evolution, Self-Organisation, and Decision-Making. *Environment and Planning A*, 13(2), pp. 167–183. <https://doi.org/10.1068/a130167>.
- Angel, Shlomo (2012) *Planet of Cities*. Cambridge, MA: Lincoln Institute of Land Policy.
- Angel, Shlomo, Alejandro M. Blei, Jason Parent, Patrick Lamson-Hall and Nicolás and Galarza Sánchez (2016). *Atlas of Urban Expansion — 2016 Edition, Volume 1: Areas and Densities*. New York: New York University Urban Expansion Program, Nairobi: UN-Habitat, and Cambridge, MA: Lincoln Institute of Land Policy.
- Angel, Shlomo, Patrick Lamson-Hall, Alejandro Blei, Sharad Shingade and Suman Kumar (2021). Densify and Expand: A Global Analysis of Recent Urban Growth. *Sustainability*, 13(7), p. 3835. <https://doi.org/10.3390/su13073835>.
- Batty, Michael (2005). *Cities and Complexity: Understanding Cities with Cellular Automata, Agent-based Models, and Fractals*. Cambridge, MA: The MIT Press.
- Batty, Michael (2013). *The New Science of Cities*. Cambridge, MA: MIT Press.
- Batty, Michael and Stephen Marshall (2012) The Origins of Complexity Theory in Cities and Planning, in Portugali, Juval, Hendrik Meyer, Egbert Stolk and Enoch Tan (eds.) *Complexity Theories of Cities Have Come of Age: An Overview with Implications to Urban Planning and Design*. Berlin: Springer, pp. 21–40.
- Bayro Kaiser, Fabio (2024) *Urbanisation dynamics in La Paz and the Agglomeration Ruhr: exploring the spatial evolution of urban form using multi-source remote sensing data*. PhD dissertation, Rheinisch-Westfälische Technische Hochschule Aachen. <https://doi.org/10.18154/RWTH-2024-01267>.
- Bettencourt, Luís M. A. (2013). The Origins of Scaling in Cities. *Science*, 340(6139), pp. 1438–1441. <https://doi.org/10.1126/science.1235823>.
- Bettencourt, Luís M. A. (2021). *Introduction to Urban Science: Evidence and Theory of Cities as Complex Systems*. Cambridge, MA: MIT Press.
- Bondarenko, Maksym, Rhorom Priyatikanto, Natalia Tejedor-Garavito, Wenbin Zhang, Tom McKeen, Alexander Cunningham, Thea Woods, Jason Hilton, Duygu Cihan, Borys Nosatiuk, Thomas Brinkhoff, Andrew Tatem, Alessandro Sorichetta (2025). Constrained estimates of 2015-2030 total number of people per grid square at a resolution of 3 arc (approximately 100m at the equator) R2025A version v1. Global Demographic Data Project - Funded by The Bill and Melinda Gates Foundation (INV-045237). WorldPop - School of Geography and Environmental Science, University of Southampton. <https://doi.org/10.5258/soton/wp00839>. (Last accessed 05.02.2026)
- Brown, Christopher F., Steven P. Brumby, Brookie Guzder-Williams, Tanya Birch, Samantha Brooks Hyde, Joseph Mazzariello, Wanda Czerwinski, Valerie J. Pasquarella, Robert Haertel, Simon Ilyushchenko, Kurt Schwehr, Mikaela Weisse, Fred Stolle, Craig Hanson, Oliver Guinan, Rebecca Moore and Alexander M. Tait (2022). *Dynamic World, Near-real-time global 10 m land use land cover mapping*. Scientific Data, 9, article 251. <https://doi.org/10.1038/s41597-022-01307-4>. (Last accessed 05.02.2026)
- Byrne, David (2003). Complexity theory and planning: A Necessary Encounter. *Planning Theory & Practice*, 4(3), pp. 251–274. <https://doi.org/10.1177/147309520323002>.
- Colander, David C. and Roland Kupers (2014). *Complexity and the Art of Public Policy: Solving Society's Problems from the Bottom Up*. Princeton, NJ: Princeton University Press.
- Dovey, Kim and Pafka, Elek (2014) 'The Urban Density Assemblage', *Urban Design International*, 19(1), pp. 66–76. <https://doi.org/10.1057/udi.2013.13>.
- Demuzere, Matthias, Jonas Kittner, Alberto Martilli, Geoff Mills, Christian Moede, Ian D. Stewart, Jeroen van Vliet, Birgit Bechtel (2022) A global map of local climate zones to support earth system modelling and urban-scale environmental science. *Earth System Science Data*, 14(8), pp. 3835–3873. <https://doi.org/10.5194/essd-14-3835-2022>.
- Gerten, Christian, Stefan Fina and Karsten Rusche (2019). The Sprawling Planet: Simplifying the Measurement of Global Urbanization Trends. *Frontiers in Environmental Science*, 7, article 140. <https://doi.org/10.3389/fenvs.2019.00140>.
- GAML, Gobierno Autónomo Municipal de La Paz (2017). *Atlas de la Región Metropolitana del Departamento de La Paz*. La Paz: Gobierno Autónomo Municipal de La Paz.
- Hall, Peter G. and Kathy Pain (2006) *The Polycentric Metropolis: Learning from Mega-City Regions in Europe*. London: Earthscan/Routledge.
- Helbing, Dirk (ed.) (2012). *Social self-organisation: agent-based simulations and experiments to study emergent social behavior*. Berlin: Springer. <https://doi.org/10.1007/978-3-642-24004-1>.
- Jacobs, Jane (1961) *The Death and Life of Great American Cities*. New York, NY, USA: Random House.
- Kuffer, Monika, Dana R. Thomson, Gianluca Boo, Ron Mahabir, Taïs Grippa, Sabine Vanhuysse, Ryan Engstrom, Robert Ndugwa, Jack Makau, Edith Darin, João Porto de Albuquerque and Caroline Kabaria (2020). The Role of Earth Observation in an Integrated Deprived Area Mapping "System" for Low-to-Middle Income Countries. *Remote Sensing*, 12(6), p. 982. <https://doi.org/10.3390/rs12060982>.
- Fleischmann, Martin and Daniel Arribas-Bel (2022). Geographical characterisation of British urban form and function using the spatial signatures framework. *Sci Data* 9, 546 (2022). <https://doi.org/10.1038/s41597-022-01640-8>.

- Meijers, Evert (2008) Measuring Polycentricity and its Promises. *European Planning Studies*, 16(9), pp. 1313–1323. <https://doi.org/10.1080/09654310802401805>.
- Moroni, Stefano (2015) Complexity and the inherent limits of explanation and prediction: Urban codes for self-organising cities. *Planning Theory*, 14(3), pp. 248–267. <https://doi.org/10.1177/1473095214521104>.
- Moroni, Stefano and Stefano Cozzolino (2019): Action and the city. Emergence, complexity, planning. *Cities*, pp. 42–51. <https://doi.org/10.1016/j.cities.2019.01.039>.
- Portugali, Juval (2006). Complexity Theory as a Link between Space and Place. *Environment and Planning A: Economy and Space*, 38(4), 647–664. <https://doi.org/10.1068/a37260>.
- Portugali, Juval (2011). *Complexity, Cognition and the City*. Berlin: Springer-Verlag.
- Portugali, Juval (2016). What Makes Cities Complex?. In: Portugali, Juval and Egbert Stolk, Egbert. (eds) *Complexity, Cognition, Urban Planning and Design*. Springer Proceedings in Complexity. Springer, Cham. https://doi.org/10.1007/978-3-319-32653-5_1.
- Portugali, Juval, Han Meyer, and Egbert Stolk (eds.) (2012). *Complexity Theories of Cities Have Come of Age: An Overview with Implications to Urban Planning and Design*. Heidelberg: Springer Berlin. <https://doi.org/10.1007/978-3-642-24544-2>.
- Pumain, Denise (2018). An Evolutionary Theory of Urban Systems. In: Rozenblat, Celine, Denise. Pumain and Elkin Velasquez (eds.) *International and Transnational Perspectives on Urban Systems*. Singapore: Springer Singapore, pp. 3–18. <https://doi.org/10.1007/978-981-10-7799-9>.
- Pumain, Denise (2024). Scaling laws and urban systems. In: *Urban scaling*. London: Routledge. <https://doi.org/10.4324/9781003288312-4>.
- Rauws, Ward (2017). Embracing Uncertainty Without Abandoning Planning: Exploring an Adaptive Planning Approach for Guiding Urban Transformations. *disP - The Planning Review*, 53(1), 32–45. <https://doi.org/10.1080/02513625.2017.1316539>.
- Reicher, Christa, Klaus R. Kunzmann, Jan Polívka, Frank Roost, Yasmin Uktu and Michael Wegener (eds.) (2011) *Schichten einer Region: Kartenstücke zur räumlichen Struktur des Ruhrgebiets*. Berlin: Jovis.
- Reicher, Christa. Javier Ostos Prieto J; Fabio Bayro Kaiser (2025): Urban resilience: between tradition, crisis response, and global change. In: *VLC arquitectura*. Research Journal 12 (2), S. 233–246. <https://doi.org/10.4995/vlc.2025.24112>.
- Scheffer, Marten, Stephen R. Carpenter, Timothy M. Lenton, Jordi Bascompte, William Brock, Vasilis Dakos, Johan van de Koppel, Ingrid A. van de Leemput, Simon A. Levin, Egbert H. van Nes, Mercedes Pascual and Jon Vandermeer (2012) 'Anticipating critical transitions', *Science*, 338(6105), pp. 344–348. <https://doi.org/10.1126/science.1225244>.
- Seto, Karen C., Burak Güneralp, and Lucy R. Hutya (2012). Global forecasts of urban expansion to 2030 and direct impacts on biodiversity and carbon pools. *Proceedings of the National Academy of Sciences*, 109(40), pp. 16083–16088. <https://doi.org/10.1073/pnas.1211658109>.
- Slaev, Aleksander D., Stefano Cozzolino, Boyka Nozharova, and Juliana Ilieva (2022) The spontaneous rules of spontaneous development. *Environment and Planning B: Urban Analytics and City Science*, 49(9), pp. 2392–2408. <https://doi.org/10.1177/23998083221090963>.
- Sirko, Wojciech, Emmanuel Asiedu Brempong, Juliana T. C. Marcos, Abigail Annkah, Abel Korme, Mohammed Alewi Hassen, Krishna Sapkota, Tomer Shekel, Abdoulaye Diack, Sella Nevo, Jason Hickey and John Quinn (2023). High-Resolution Building and Road Detection from Sentinel-2. *arXiv preprint*, (Accessed 15.08.2025). <https://doi.org/10.48550/arXiv.2310.11622>.
- Stevens, Forrest R., Andrea E. Gaughan, Catherine Linard and Andrew J. Tatem (2015). Disaggregating Census Data for Population Mapping Using Random Forests with Remotely-Sensed and Ancillary Data. *PLoS ONE*, 10(2), e0107042. <https://doi.org/10.1371/journal.pone.0107042>.
- Taubenböck, Hannes (2025) Urban science with a view from space - Dynamics, Dimensions, Patterns, Effects, Adaptation, Ethics. Oberpfaffenhofen: DLR Forschungsberichte. <https://doi.org/10.57676/75k5-re54>.
- Taubenböck, Hannes, Thomas Esch, Andreas Felbier, Michael Wiesner, Achim Roth and Stefan W. Dech (2012). Monitoring urbanisation in mega cities from space. *Remote Sensing of Environment*, 117, pp. 162–176. <https://doi.org/10.1016/j.rse.2011.09.015>.
- Taubenböck, Hannes, Iris Standfuß, Michael Wurm, Andreas Krehl and Stefan Siedentop (2017). Measuring morphological polycentricity – A comparative analysis of urban mass concentrations using remote sensing data. *Computers, Environment and Urban Systems*, 64, pp. 42–56. <https://doi.org/10.1016/j.compenvurbsys.2017.01.005>.
- Taubenböck, Hannes, Michael Wiesner, Andreas Felbier, Mattia Marconcini, Thomas Esch and Stefan W. Dech (2014) New dimensions of urban landscapes: The spatio-temporal evolution from a polynuclei area to a mega-region based on remote sensing data. *Applied Geography*, 47, pp. 137–153. <https://doi.org/10.1016/j.apgeog.2013.12.002>.
- White, Roger and Guy Engelen (1997). Cellular Automata as the Basis of Integrated Dynamic Regional Modelling. *Environment and Planning B: Planning and Design*, 24(2), 235–246. <https://doi.org/10.1068/b240235>.
- Zhu, XiaoXiang, Chunping Qiu, Jingliang Hu, Yilei Shi, Yuanyuan Wang, Michael Schmitt and Hannes Taubenböck (2022). The Urban Morphology on Our Planet – Global perspectives from space', *Remote Sensing of Environment*, 269, p. 112794. <https://doi.org/10.1016/j.rse.2021.112794>.

9. Appendix

Dataset / Type	Source	Spatial / temporal resolution	Coverage (years)	Output used in analysis	License / terms
WorldPop R2025A v1: Population	WorldPop Global Demographic Data Project (Bondarenko et al., 2025)	~100 m (3 arc-sec), annual	2015–2025	Population per hex cell; population within built-up areas (last accessed 05.02.2026)	Open data; attribution required. DOI:10.5258/SOTON/WP00839
Dynamic World v1: Land cover	Google / Dynamic World Project (Brown et al., 2022)	10 m, near-real-time	2015–2025	Built-up presence; built-up area per hex; patch geometry (intermediate) (last accessed 05.02.2026)	CC-BY 4.0; attribution required
NDVI: Vegetation	Landsat 8 L2 (2015–2017); Sentinel-2 SR Harmonized (2018–2025)	30 m (Landsat), 10 m	2015–2025	Mean NDVI per hex; NDVI change signals (last accessed 05.02.2026)	Public domain (Landsat); Copernicus Sentinel terms

Table 3. Dataset specification and availability. Source: own representation

Indicator Family	Core Indicator	Computation (Hex Level)	Normalisation	Masking Rule	Used in Δz
Horizontal expansion	Built area (m ²)	Sum of built pixels per hex	$z = (x - \mu)/\sigma$ per year	Built_area > 0	Yes
Horizontal expansion	Built m ² per person	built_area / pop_sum	z-score per year	pop_sum > 0	Yes
Internal intensification	Population density	pop_sum / hex_area	z-score per year	pop_sum > 0	Yes
Spatial structure	Patch count	Count of built patches within hex	z-score per year	built_area > 0	Yes
Centre structure	Population share (optional)	pop_hex / total_pop_region	z-score per year	pop_sum > 0	Optional
Vegetation proxy (contextual)	Mean NDVI	Mean NDVI per hex	z-score per year	Valid NDVI pixels	

Table 4. Spatial indicator computation. Source: own representation

BEYOND DICHOTOMIES IN TEMPORARY USE OF SPACE: USING COMPLEXITY TO BROADEN UNDERSTANDINGS

Kobe Tilley¹, Tim Devos², Angelos Varvarousis³

Abstract

The utilisation of unoccupied space is becoming increasingly prevalent. This 'practice', known as Temporary Use of Space, is evolving and being used in more varied ways. Despite these developments, existent literature is lagging and often frames temporary use in terms of overly narrow dichotomies. While such distinctions may sharpen the debate, they can also obscure the complexity of contemporary dynamics. To address this, we draw on complexity theory to transcend dichotomous phrasings. After examining three common dichotomies, as well as a complexity-informed approach to temporary use, we analyse three emblematic cases from Flanders. Based on this perspective, we argue that dichotomies are insufficient for capturing the changing nature of temporary use. Thereafter, we propose understanding temporary use as an integral component of adaptive planning processes.

Keywords:

Temporary Use, Complexity Theory, Dichotomies, Adaptive Planning.

1 Centre for Mobility and Spatial Planning (AMRP), Department of Civil Engineering, Ghent University.
E-mail: ktalley.Tilley@UGent.be. ORCID: <https://orcid.org/0009-0007-7866-9037>.

2 Centre for Mobility and Spatial Planning (AMRP), Department of Civil Engineering, Ghent University.
E-mail: Tim.Devos@UGent.be. ORCID: <https://orcid.org/0000-0001-9632-7611>.

3 Institut de Ciència i Tecnologia Ambientals (ICTA-UAB), Universitat Autònoma de Barcelona.
E-mail: angelos.varvarousis@uab.cat. ORCID: <https://orcid.org/0000-0003-4300-6456>

1. Introduction

Temporary Use of Space (TU) is defined by its impermanent nature and refers to the interim use of space, between the end of one defined use of a space and the beginning of another. When implemented, TU often attempts to answer questions of urban governance and development (De Smet, 2013). Originally associated with grassroots and squatting movements, TU has increasingly become adopted by municipal governments, real estate developers, and professional associations (Galdini, 2020; Matoga, 2019). TU has often been mobilised to combat vacancy (O'Callaghan, 2023) and to foster redevelopment after periods of industrial decay and urban shrinkage (Dubeaux and Sabot, 2018). Arguably, TU has thus evolved from a niche practice into a process-oriented form of planning that is linked to adaptive tendencies in area development. While TU has mostly inspired a growing focus on temporal aspects in planning, it should also be understood as a practice that transcends its 'temporal' character (Oswalt et al., 2006).

Despite its wider adoption, existent literature upon the same has largely remained framed by niche interpretations and dichotomous debates. Dichotomies help frame the often-contradictory dynamics which practitioners have to work with and serve an analytical function (Tonkiss, 2013). However, overly simplistic dichotomies can hinder understanding of contemporary TU cases and their hybrid nature in terms of application and actor involvement (Devos and Boelens, 2024). We discerned three common dichotomies within existent literature on TU. The first, the '*temporary or permanent*' dichotomy, relates to the impact of the temporal-programmatical interplay of TU. The second, the '*grassroots or institutionalised*' dichotomy, questions the adoption and use of TU by a multitude of actors. The third and final dichotomy, '*inclusive or neoliberal*', concerns the beneficiaries of TU.

This paper explores avenues for expanding prevailing understandings of TU, beyond dichotomous framings, and we use Complexity Theories of Cities (CTC) to find a way of understanding the changes that TU faces. Because "complexity theory emerged as an interpretation and a tool to deal with contemporary urban territories" (Silva, 2016, p.2), we regard CTC as a gateway to studying TU. We seek to show how CTC enables deeper insight into the dynamics underlying these dichotomies while framing TU as an emblematic form of adaptive planning (Wohl, 2018; Silva, 2016). For this purpose, we apply the core CTC concepts of *uncertainty*, *non-linearity*, *self-organisation*, and *co-evolution* as lenses through which to view TU.

The paper is structured as follows: in the next section (2), we introduce three dominant dichotomies within existent TU literature. Section 3 introduces CTC as a theoretical approach to adaptive planning in changing societal contexts. Furthermore, we discuss how CTC resonates with TU as a hybridising practice. In section 4, three Flemish TU cases are introduced as empirical testing grounds to reveal how these dichotomies fail to capture contemporary TU dynamics. Thereafter, section 5 synthesises the three cases and discusses how dichotomous framings lead to reductive portrayals of urban dynamics. Finally, the paper's overall conclusions are presented.

2. Dichotomies in Temporary Use

The practice of TU has changed significantly over recent decades, as new actors have become involved and reasons to implement TUs are diversifying (Deas et al., 2021; Carlton and Vallance, 2017). Nevertheless, we can discern a tendency toward dichotomous thinking in debates on TU (Turku et al., 2023; Chang, 2021). Framings such as top-down versus bottom-up, citizen-initiated versus government-led, and development-oriented versus experimental, risk reducing TU to a black-and-white phenomenon. In practice, however, TU typically occupies intermediate positions and operates within spatial and institutional grey zones. Rather than offering an exhaustive overview of all tensions in TU practice and literature, this paper focuses on three recurring dichotomies as an entry point for analysis.

Should TUs function only in the meantime, or would they benefit from striving for a more permanent form of impact? The first discerned dichotomy is summarised as '*temporary or permanent?*' (Turku et al., 2023). It is commonly agreed that TUs are ways of 'in between' experimenting with program, space or governance. However, temporality can come with different expectations. This is especially true when TU initiatives are

embedded in larger development schemes because site owners may approach temporary interventions simply as the meanwhile use of sites. In contrast, for other actors such as organisers or users, these temporary activities can uncover opportunities and raise hopes for sustainability. Rather than focusing on the temporality or permanence, partial continuation on-site (Ferreri, 2015) or elsewhere (Lehtovuori and Ruoppila, 2017) can also be a valuable outcome. At the same time, impact can and should also be considered beyond immediate physical outcomes.

The second dichotomy, *'grassroots or institutionalised?'*, is inherently linked to the changing nature of TU as a spatial practice. Despite having roots that, amongst other aspects, trace back to grassroots and squatting movements (Honeck, 2017), TU is nowadays applied by a multitude of actors. Governments have become active adopters of the practice for different reasons. At the same time, a wave of professionalisation can be discerned (Orbaşlı and Karmowska, 2020). Spatial entrepreneurs and agencies now develop businesses focused on temporarily reusing vacant land or act as professional mediators (Matoga, 2019; Hernberg, 2022). Has the growing popularity of TU led to a shift away from its original 'grassroots' characteristics to the extent where it is now considered an institutionalised practice occupying a "place within a strictly limited time frame, while waiting for a major permanent project" (Dubeaux and Sabot, 2018, p.9)?

The final dichotomous debate, *'inclusive or neoliberal?'*, concerns the beneficiaries of meanwhile uses. Often, TU initiatives are reported to tackle unmet needs and to exercise an oppositional force against traditional planning (Moore-Cherry and McCarthy, 2016; Tonkiss, 2013; Calzati et al., 2022). In other words, they offer an opportunity for social and spatial experiments in which people can "assert their right to the city" (Németh and Langhorst, 2014, p.149). However, the success of TU as an experimental practice has led, for example, to its incorporation into government-led city marketing (Colomb, 2012). Additionally, critiques are formulated towards real estate developers who want to raise the value of their land by promoting TU before, during and after development (Bragaglia and Caruso, 2022). Given its growing popularity, can TUs still be seen as progressive and inclusive practices, or have they evolved into an instrument of neoliberal redevelopment and land valorisation?

3. A Complexity Approach to Temporary Use

Like all planning practices, TU is not applied in a vacuum but it operates within an increasingly complex planning arena (de Roo, 2020). Complexity Theories of Cities (CTC) have been developed to help comprehend societal change and to ground planning in conditions of uncertainty, non-linearity, and unpredictability (Boelens and De Roo, 2016). Chettiparamb (2019) argues that CTC enhances our understanding of the dynamics of complex systems and interacting networks of agents that shape spatial order. Similarly, Chettiparamb illustrates how this perspective can shape the design of processes, instruments, and institutional arrangements that balance top-down interventions with bottom-up dynamics. This highlights how planners can work within complex networks of actors and self-organising entities.

Through its experimental and ephemeral nature, TU exhibits several key traits emphasised in complexity thinking. However, only a limited number of publications have explicitly examined the connections which exist between TU and complexity-oriented approaches. Boonstra and Boelens (2011) were among the first to use TU in an illustrative manner. More recently, Rauws (2017) and Hoefkens and Machiels (2025) use TU to illustrate processes of (bottom-up) adaptation in urban regeneration schemes. Contrastingly, Silva (2016) and Wohl (2018) developed more extensive theoretical accounts of tactical urbanism through CTC. Silva (2016) conceptualised tactical urbanism as an adaptive practice operating in hard-to-predict but continuously evolving cities, whereas Wohl (2018, p.27) frames TU as a way of harnessing relational processes, "capable of 'fine tuning' the placement of long-term interventions by leveraging self-organisation and emergent capacities of complex adaptive systems." Finally, Chang (2022) synthesises CTC-inspired characterisations of TU by building on the aforementioned authors. Chang (2022, p.36) situates TU within non-linear processes marked by multiple uncertainties and influenced by "temporal systems". In line with the aforementioned authors, this paper draws on four core CTC concepts that resonate strongly with TU practices: *uncertainty, non-linearity, self-organisation, and co-evolution*. Although these concepts are often closely intertwined, they are initially treated separately for analytical clarity.

The disruptive and unavoidable nature of *uncertainty* is a cornerstone of complexity thinking (Moroni and Chiffi, 2021). It reminds us that our knowledge of how systems work is always incomplete, as are our predictions of the impacts that planning decisions or tools may have (Hillier, 2016). Even though uncertainty is inherent to planning, the discipline has historically been uncertainty-averse (Christensen, 1985), and thus repeatedly attempted to reduce or suppress it (Machiels et al., 2021). Unsurprisingly, spatial planning has treated the everyday environment as fixed and static for decades. This has resulted in a profession that has been modelled around ideas of predictability and linear development (de Roo and Rauws, 2011). CTC challenges this logic by treating uncertainty as a fundamental premise of planning processes and by accepting the unpredictability of both process and outcome (Innes and Booher, 2018; De Roo, 2016). For TU, this approach entails recognising the uncertain contexts and conditions from which initiatives emerge, while also embracing the unpredictability of the processes that follow. This uncertainty is reflected, for example, in the unknown time frames and future trajectories of initiatives (Nedučín and Krklješ, 2022); in challenges related to long-term sustainability (Kamvasinou, 2016; Jaspers and Steen, 2020); and in heightened feelings of intangibility which shape the conditions under which TU actors plan and operate (Ferreri, 2021).

Non-linearity is best understood as a natural condition of society rather than a clearly identifiable indicator. De Roo (2016, p.153) states that “non-linearity is seen as the characteristic representation of the path that progress takes. (...) A system that functions well will never reach a steady state of equilibrium.” Elaborating further, De Roo (2016) emphasises the absence of clear, direct and causal relations between elements within a process. Acknowledging non-linearity in relation to TU entails embracing ongoing and unpredictable processes. Under these often-precarious conditions, TUs are forced to adopt strategies of adaptation, whether formally or informally defined, throughout their operation. This ties in with the understanding by Boonstra and Boelens (2011, p.109) who describe non-linearity as processes that are constantly in motion and prone to (unforeseen) shifts. This aligns with the consideration that implementing a temporary project or experiment opens the possibility of unexpected outcomes. For Chang (2022), this aspect is key to understanding TU as an example of non-linear planning practices. TUs may leave legacies, but are rarely integrated into planning processes with this objective (Chang, 2022). However, it is also the case that TUs are often expected to produce clear and traceable results, contradicting their experimental nature. Most TUs eventually end, but they may leave legacies that extend beyond their immediate sites. Such legacies – which might include, for example, the relocation of activities between sites or the formation of networks between actors – are nonetheless hard to foresee and always subject to various unpredictable factors.

Self-organisation refers to the evolutionary process of spontaneous bottom-up order (Luhmann, 1984) and has gained prominence in the planning field, particularly as understandings of participatory planning move beyond purely governmental frameworks about citizen involvement (Boonstra and Boelens, 2011). Self-organisation captures both the diversity of planning and the plurality of actors involved. Understanding self-organisation is pivotal for analysing spatial transformation through civic action (Boonstra, 2015). Similarly, self-organisation draws attention to the innovative coalitions which exist between civic initiatives and governmental actors (Devos, 2021), with neither top-down nor bottom-up approaches alone being sufficient (Portugali, 2011; Chang, 2022). Self-organising initiatives can therefore both challenge and coexist with formal planning traditions, and may also enable mutual inspiration (Portugali et al., 2012, p.230). Cozzolino and Moroni (2024) distinguish between self-building, self-governance, and self-coordination when analysing self-organisation. TU especially aligns with aspects of self-coordination, as many TUs emerge bottom-up, organise accordingly and rely on the neighbourhoods they are situated in (Kamvasinou, 2016; Orbaşlı and Karmowska, 2020). As locally embedded practices, TUs allow people to exercise oppositional power as well as to actively engage in urban decision-making processes. Therefore, TU, as an example of self-coordination, could pose “a major challenge to urban planners and their established repertoire of tools” (Cozzolino and Moroni, 2024, p.33). Self-coordination “is a challenge because its (spontaneous) form of coordination does not coincide with forms of top-down coordination established by public authorities” (Cozzolino and Moroni, 2024, p.31-32).

Finally, *co-evolution* captures how different systems or subsystems mutually influence each other (Van Assche et al., 2017). Relating processes to their historical or social roots is fundamental to understanding change (Pumain, 2021; Allen, 2011). In the context of planning, the concept of co-evolution entails the recognition of interactions with other governance domains, the adaptation of actor-networks to evolving contexts, and the interplay between policy discourses and designated instruments (Boonstra and Boelens, 2011; Porter and De Roo, 2012). TU ‘as a practice’ has evolved alongside society and planning, shifting from an isolated practice to

a means of involving citizens in redevelopment processes, with new actors taking part in TU initiatives. The observed change in TU as a spatial practice can be regarded as having occurred as a result of the co-evolution with planning and society (de Roo, 2020). Thus, the “de-marginalisation of TU contributes to the transformation of planning itself” (Honeck, 2017, p.268; Patti and Polyak, 2015). Derivative calls to adapt planners’ roles when applying or mediating TUs align with this evolution (Vallance et al., 2017; Jaspers and Steen, 2020).

4. Illustrative cases

The discerned dichotomies can be argued to be rather artificial when it comes to trying to understand TU in our contemporary society. CTC provides the necessary nuance to embrace the changes facing TU and to explore how TU can accommodate adaptive planning processes. To illustrate this, we introduce three cases of TU in Flanders, Belgium. The cases were selected because each represents aspects of TUs in Flanders that are difficult to capture within the three discerned dichotomies. The description of the cases is based on desk-top research and semi-structured interviews conducted with coordinating actors of the individual cases. The first case (De Meubelfabriek, Ghent) is emblematic of an experimental municipal approach to TU. The second case (Asiat Park, Vilvoorde) is emblematic of a TU’s role in a large-scale yet undefined redevelopment context. In addition, case 2 illustrates the growing professionalisation of TU practice. The third and final case (Archipel, Antwerp) is the only case in which the owner of the TU-site is a private actor. It follows that the final case is emblematic of collaborations between non-profit TU organisations and private actors.

Whilst Flanders is known for its scattered development pattern (Vermeiren et al., 2019), TU in Flanders remains mostly an urban phenomenon. In contrast to, for example, the Netherlands, where TU is often centrally implemented and operated as cultural incubator spaces (van der Leden, 2024; Wijn, 2002), there is no central or shared policy regarding TU in Flanders. This contrasts with the top-down tradition which still dominates spatial planning in Flanders (Lacoere, 2023). TU remains absent from much legislation and policy documents, and the decision to implement a TU is often only made by the involved actors and only seldom part of top-down redevelopment processes. However, as the cases will illustrate, this situation is changing, with other parties becoming increasingly involved.

4.1. De Meubelfabriek (Ghent): Municipal Participatory Experiment

The site of De Meubelfabriek, a former furniture factory, houses 23 diverse organisations, including small workshop spaces, individual craftspeople, as well as sports and socio-cultural organisations. It is located in Brugse Poort, a dense and socio-economically vulnerable neighbourhood in Ghent. Squatting activities took place between 2011 and 2012 (Staes, 2012), and a smaller-scale TU was initiated by local inhabitants and continued until 2014, while the site was still privately owned (Respondent_06, 2025). After two consecutive failed attempts to obtain building permits for residential development (Gent, 2019a; Gent, 2017), the city acquired the site through a property exchange in 2018. In the same year, the municipality launched a then-novel open call for potential TU users (Gent, 2019c; Gent, 2019b). Following the selection procedure, the municipality supported the users in founding a non-profit organisation which would be, and is, responsible for site management (Respondent_03 and Respondent_04, 2024; Respondent_04, 2025). Several consecutive temporary occupancy and subsidy agreements were concluded between De Meubelfabriek vzw and the city for the period 2019-2026 (Gent, 2023; Gent, 2020; Gent, 2019b); the latter currently marks the TU’s formal end date. While the site has long been regarded as strategic within a wider neighbourhood renewal programme (Gent, n.d.), the nature of its long-term redevelopment remains uncertain. Despite consultation with temporary users as part of a 2024 preparatory study, it remains unclear as to what extent programmatic insights from the TU will be incorporated into future plans (sogent, n.d.).

A first distinctive feature of this case is the deployment of a city-employed community worker on site, who was tasked with coordinating and acting as a liaison between the users, neighbouring inhabitants, and the city administration. This approach was motivated by the vulnerable context of the neighbourhood and the fact that many of the selected organisations play important community roles but lack resources or familiarity with either legal or funding procedures. Nevertheless, the organisations were deliberately granted managerial agency, occupying a middle ground between autonomous self-organisation and a closely mediated process. Secondly, successive experiments with different governance arrangements have been

a cornerstone of the process. Initially, a horizontal governance model was implemented, which allowed all residents to participate in collective decision making. However, after certain weaknesses became apparent, management responsibilities were reassigned to the overarching non-profit and the municipal employee (Respondent_03 and Respondent_04, 2024; Respondent_04, 2025). These experiments were regarded as an inherent component of the process. During this period, the city's institutional support structures, including the presence of an on-site official, the exchange of administrative knowledge, and the acceptance of trial and error, were continuously tested, negotiated, and adjusted. It follows that emergence in this context did not imply the absence of institutional arrangements, and that self-organisation also did not equate to full autonomy. Thereby, the observations challenge idealised notions of bottom-up governance. In other words, self-organisation was actively negotiated rather than linearly realised. Thirdly, this experiment in collective governance unfolded amongst a heterogeneous group of organisations, of which not all were explicitly neighbourhood-oriented or locally embedded. Degrees of engagement with Brugse Poort therefore varied considerably, complicating assumptions of TU as an inherently community-driven practice.



Figure 1. The main building of De Meubelfabriek, a former furniture factory (Authors' picture, 2024).

Viewed through this lens, De Meubelfabriek exemplifies the non-linear redevelopment trajectory characteristic of complex inner-city areas. Failed development attempts, shifting ownership, local oppositions, and persistent uncertainties produced an unpredictable course. This context enabled TU activities to emerge and take on a significant role within the non-linear trajectory, and in active partnership with the municipality. Boundaries between the TU and the formal development process became blurred due to, for example, iterative feedback effects between development proposals, interdependencies between successive TU phases and shifting governance arrangements. The first TU uncovered opportunities which indirectly led to the second phase that was discussed above. Afterwards, budgetary difficulties led to multiple prolongations of the TU; again exposing the residing organisations to uncertain and precarious conditions. Precariousness thus worked as a constitutive feature of the project's operation, and was also continuously redistributed between initiators, users and the municipality itself. Uncertainty shaped both organisational strategies and future expectations. For the municipal government, De Meubelfabriek functioned as an experiment at multiple levels. For one of the first times, they interacted closely within a TU through the on-site deployment of a community worker. By doing so, the municipality positioned itself in between a top-down and bottom-up approach. Thus, the municipality did not merely oversee the TU, but adapted its own practices through prolonged engagement, co-evolving

with the user collective and the site itself. De Meubelfabriek is difficult to situate within a restrictive 'grassroots or institutionalised' dichotomy. The TU can be labelled top-down, but an important role was initially assigned to the residents. However, the fluctuating trajectory of governance experiments proved unpredictable and was subject to unforeseen change. Through these experiments, the project nevertheless aimed to stimulate the neighbourhood's self-organising capacity. This approach built on the earlier participatory dynamics created during the first, bottom-up phase of TU and its related neighbourhood dynamics (Respondent_06, 2025). By granting space and agency to vulnerable neighbourhood-oriented organisations, the municipality also strengthened their reach. The impact of the TU is therefore difficult to pinpoint, but it extended beyond immediate on-site outcomes. During the temporary phase, impact materialised primarily at personal and organisational levels. The effects of the TU thus emerged less as fixed spatial outcomes and more as relational and organisational transformations that unfolded over time. Beyond on-site outcomes, the TU has made a significant contribution to the TU culture in Ghent, empowering organisations and informing the city's distinctive neighbourhood-based approach. These effects are often overlooked by evaluations focused on permanence. It also remains the case, however, that many organisations still face an uncertain future due to the site's ending.

4.2. Asiat Park (Vilvoorde): Temporary Use Driving Slow Urban Renewal

Asiat Park is a TU project located on a large former military facility, sited at the northern edge of the urban centre of Vilvoorde. The site is bordered by industrial areas, a river-canal waterway, and a major arterial road. After the site became vacant in 2008, a local school and the municipality's technical services occupied the site for two years before it fell vacant again and becoming increasingly vulnerable to theft and squatting. During the European asylum crisis of c. 2016, it was used as a temporary asylum facility. For the municipality, the site's potential became particularly evident after an illegal New Year's Eve rave in 2017. Subsequently, the municipality of Vilvoorde acquired the site in late 2018 (Berlanger, 2018). A study to investigate the potential of TU was commissioned, and a TU was pioneered by allowing the Horst Arts & Music Festival to take place on the site. From 2019 onwards, the municipality sought to structurally activate the site prior to redevelopment. In 2022, following an innovative tender procedure, coordination and management were assigned to an alliance of two companies operating in public-private partnership with the city for two consecutive five-year periods. One of the companies is focused on alternative real-estate, while the other is the creative agency behind Horst Festival (Vlaamse Overheid, n.d.; Respondent_01, 2024). Alongside the initiation of the TU, the development of a new zoning plan for the site and its surroundings commenced (Vlaamse Overheid, n.d.; Vilvoorde, n.d.). As a result, TU, zoning development, and visioning progressed simultaneously with spatial interventions gradually tested and adapted in view of possible long-term development. Presently, Asiat hosts a broad mix of community organisations, cultural initiatives, small businesses, sports facilities, and public events, while also functioning as a semi-public park.

Three essential insights can be derived from the developments at Asiat Park. Firstly, the case clearly shows how local policymakers actively value and deploy TU. Even more explicitly than in the case of Meubelfabriek, this echoes a deliberate municipal strategy to use TU as an active planning instrument rather than a mere ad interim condition. This is particularly significant given the complexity and scale of the area's renewal; it would have been difficult to advance through conventional, municipality-led approaches, but became feasible through this hybrid public-private collaboration. Secondly, the TU coordinators are commercial companies with a clear societal mission rather than non-profit organisations. The alliance was specifically established for this project and operates within a public-private partnership with the municipal government. This challenges the dominant assumption that socio-cultural TUs are primarily rooted in activist organisational forms. The arrangement constitutes a hybrid governance configuration which aligns with public objectives while also tying in with local needs. Lastly, the current TU primarily functions as a testing ground for future site use. While remaining open to change, it is expected for the future site to involve similar types of activities and actors such as small businesses, socio-cultural organisations and leisure. To this end, the coordinators have sought to foster a slow-urbanism planning dynamic with a long-term perspective. This approach emphasises gradual co-evolution between actors, practices, and spatial configurations, rather than a linear pilot phase aimed at rapid consolidation or static planning. Their objective is to move beyond a loose collection of independently operating actors by fostering community building. In addition, the coordinators' role extends beyond mediation, as they organise the music festival themselves and shape spatial-artistic interventions. Community formation is thus approached as an emergent process rather than one of a predefined outcome.

Through this dual role, they seek to establish an unavoidable position within the site's development trajectory (Respondent_01, 2024; Respondent_05, 2024; Respondent_05, 2025). This strategy reflects an attempt to embed the coordinating alliance within the site's evolving governance and value structures, rather than merely facilitating meanwhile use.



Figure 2. A view on the central square at Asiat Park with the neighbouring cooling towers in the background (Authors' picture, 2026).

While formally the period of vacancy ended with the municipal acquisition, an open-ended redevelopment and a state of uncertainty here operates not as a planning failure, but as a condition actively mobilised within the TU strategy. The coordinators clearly mobilise this idea to market the site's temporary development as experimental 'slow urbanism'. To align their ambition to be embedded on-site for the long run with retaining the power of current dynamics, the coordinators have complemented their on-site gatekeeper role with a mandate to develop long-term visions (Respondent_05, 2025). This illustrates how it can often be difficult for TUs to envision pathways towards having impact on site. By emphasising both short- and long-term goals of their activities, the coordinators have strategically deployed temporality to pursue durability and challenge the conventional distinctions which exist between temporary and permanent development. Another aspect which shows the hybridity of contemporary TU cases is the role of the government. The latter initiated the TU, but did not top-down manage and design the site, thereby allowing self-organising and non-linear dynamics to develop. Much like the Meubelfabriek case, it is often hard to distinguish between top-down and grassroots dynamics within successful TU cases, in particular on an area-development scale. Moreover, the involvement of a commercial alliance does not necessarily imply that the TU is being instrumentalised in a mainstream redevelopment. Instead, the case illustrates how atypical commercial actors engage with or even develop in response to or even alongside constrained planning frameworks that limit conventional real estate trajectories. As the newly developed zoning plan excludes a major real estate development, it is even experienced as difficult by the coordinators to find an achievable long-term development strategy. Through the involvement of the government as both owner and formal planning entity, Asiat Park is likely to develop along another path compared to several other sites that have hosted TUs. Taken together, the Asiat Park case reinforces how contemporary temporary-use projects operate through hybrid governance arrangements, non-linear development trajectories, and strategic engagement with uncertainty.

4.3. Archipel (Antwerp): Cooperation Beyond Co-option

Archipel, founded and managed by the artist collective Rooftoptiger, is an artist-run workspace offering affordable studio space (Archipel, n.d.-a). The TU is located at the redevelopment site of the former slaughterhouse district in northern Antwerp (Antwerpen, n.d.). It has involved a redevelopment process that has been marked by a complicated public-private partnership, with the city owning only a relatively small part of the land, heavy contestation, multiple standstills, changes of ownership and strong hybrid forms of local involvement (Meeus et al., 2016). The collective has been active on-site since 2017, and has survived multiple waves of such developments. Initially, Archipel occupied one of the central derelict slaughterhouse halls but later moved to a new building at the northern fringe of the site, as the halls were transformed into a university college. Unlike the previous two cases, the building which Archipel occupies is owned by a private real estate developer. Their relationship is characterised by precarious dependence, formalised through a temporary agreement. The agreement was initially set for a three-year period. However, multiple extensions have been verbally confirmed but await formal agreements (Respondent_02, 2024).

The private ownership of the redevelopment site where Archipel is located contrasts most with the previous two cases. While the owner of the site offers space, not much further help has been received. Securing help from the municipal government has also proved difficult and has prompted Archipel to seek alternative and less conventional partners. Archipel has actively formed partnerships with other actors to secure financial stability and to diversify its network. Given the site's proximity to major ring road infrastructure works in Antwerp, Archipel could secure a collaboration to increase the liveability of the neighbourhoods affected by the works. The semi-public developer responsible for these works emerged as an unconventional but relevant partner (Archipel, n.d.-b; Respondent_02, 2024). Archipel is also taking on a multifaceted role through its activities. Apart from offering studio spaces to artists, the collective is organising socio-artistic interventions with and within the neighbourhood. By doing this, they are striving to create a coherent network within the neighbourhood that is affected by the redevelopment. However, influencing or altering the redevelopment process itself is not Archipel's primary objective. Nonetheless, by maintaining a strong presence in the neighbourhood, Archipel aims to become indispensable as a socio-cultural organisation and local hub (Respondent_02, 2024). Archipel's sustained on-site presence has further enabled the formation of alliances with both neighbourhood actors and private partners, including direct collaboration with residents and organisations. Notably, this mirrors earlier moments in which neighbourhood collectives, often disillusioned with government-led participatory processes, engaged directly with real-estate developers, resulting in tangible outcomes such as the retention of a community garden on site.



Figure 3. Archipel occupies the building on the left side, with across the street the redevelopment site of the former slaughterhouse (Authors' picture, 2026).

Archipel's search for partnerships and alternative networks indicates that coalitions of actors within TU projects are changing. Archipel has sought to secure their self-organising capacity by not relying on one partner or by focussing on only public means, as other TUs have. In addition, the enabling developer has not immediately instrumentalised the artist collective. As such, Archipel's cooperation with both private and semi-public partners appears nuanced and extends beyond straightforward critiques of co-option. Like the previous two cases, the embedding of Archipel in the larger development process is characterised by precarious conditions and uncertainty. As the development proceeded, they were allowed to remain but had to move throughout the site, occupying several places within the same development site over the past years. Each relocation required significant effort yet did not result in longer-term stability. This has hindered the long-term impact Archipel hopes to pursue. Although not aimed at altering the development, Archipel does aspire to remain in the vicinity of the new neighbourhood. By maintaining a strong presence in the neighbourhood, Archipel seeks to become indispensable as a socio-cultural organisation and local hub. Thus, impact is sought both in the temporary phase, for example by offering studio spaces while these are scarce in Antwerp, and in the longer term. Although the latter is unpredictable, Archipel has been actively trying to bridge the *'temporary or permanent'* dichotomy by not focussing on solely one or the other.

5. Nuancing Dichotomies Through Complexity Theory

In this penultimate section, we discuss why the earlier discerned dichotomies need nuancing. We do this by synthesising the three cases we elaborated on.

The *'temporary or permanent'* dichotomy addresses TU's impact as shaped by its temporal-programmatic interplays. This dichotomy largely emerges from practitioners' challenges when it comes to anticipating desired or foreseen outcomes. It often risks reducing a reading of a TU's impact to immediate spatial results, and may therefore overlook processual, relational, and displaced impacts beyond the site and the timeframe of the (given) intervention. Non-linearity invites us to shed light on relational forms of impact that emerge where outcomes are uncertain or unplanned. In the case of De Meubelfabriek, important impacts materialised at a personal and organisational level, as access to an experimental space has allowed organisations operating under precarious conditions to innovate. Moreover, previous trajectories – including failed development attempts as well as TU initiatives – have played a catalytic role in shaping later initiatives. In the case of Asiat Park and Archipel, co-evolution challenges us to rethink a narrow *'temporary or permanent'* dichotomy: evolving collaborations and the networks created embody meaningful forms of impact, even while the projects are still ongoing. In both cases, temporality is deliberately embraced as a method for long-term embedding. Nevertheless, establishing clear causal links between short-term activities and long-term legacies remains challenging within complex development processes.

The *'grassroots or institutionalised'* dichotomy addresses the growing adoption of TU by a multitude of actors and the accompanying effects. Shifting actor-constellations illustrate how TU practices co-evolve with society, exemplified by the municipally deployed TUs in the Asiat Park and Meubelfabriek. In both cases, governments deliberately assign an important role to TU for the in-between phases of development processes and pursue hybrid collaborations allowing for adaptive and self-organising processes. Professionalised, and often at least partially commercial, TUs further indicate that, like governments, the professional field of planning practice and spatial consultancy is evolving alongside TU practice. An overemphasis on either grassroots origins or the institutionalisation therefore obscures such hybrid governance arrangements and the continuously renegotiated agency among involved actors. While Archipel was initiated bottom-up, the unconventional alliances it pursues similarly reflect a changing field rather than a return to fixed categories. A self-organisation perspective thus reminds us that neither top-down nor bottom-up framings sufficiently capture the complex dynamics of TU.

Finally, the *'inclusive or neoliberal'* dichotomy addresses who benefits from TU practices, and frames it as either emancipatory or instrumentalised. While we need to stay vigilant for e.g. gentrification, the cases show that the beneficiaries of TUs are manifold. In Asiat Park and De Meubelfabriek, the engagement of municipal actors demonstrates how opportunities were explicitly given to vulnerable organisations, while recognising the precariousness associated with temporality. At De Meubelfabriek, we see inclusion materialised at a personal and organisational scale. At Asiat Park, the municipal-imposed quotas for social inclusivity or constraints

excluding future real estate development coexist with valorisation pressures, illustrating co-evolution rather than straightforward co-option. It follows that governments have the capacity to intervene to limit future gentrification, and indeed, to compel commercial entities such as the coordinating alliance to develop alternative strategies for maintaining their presence in the area. Archipel, again, puts forward a slightly different story as they are directly confronted with a real estate developer as the enabler of the temporary initiative. Nonetheless, through self-organised embedding and negotiated uncommon collaborations, it fosters inclusion through non-linear and negotiated pathways, while avoiding co-option by the TU's enabler. This case shows that it can be a viable strategy to bridge dichotomies and forge alliances with development partners. Self-organisation can thus function as a counterforce to co-option, whether adopted tactically by grassroots actors or actively promoted by governments.

6. Conclusion

This paper examined how a complexity-informed approach can broaden prevailing understandings of the practice in response to the persistent use of dichotomous phrasings in the literature on TU. The aim of this paper was to demonstrate the analytical value of CTC for understanding these dynamics; it did not seek to provide an exhaustive review of complexity theory or all tensions inherent to TU. We discerned three dichotomies, mobilised key CTC concepts and analysed three TU cases embedded in ongoing redevelopment processes.

Together, the cases show how dichotomies stabilise debates yet fail to capture TU as a complex, evolving, and relational practice. The impacts created in and by TUs seem to be non-linear, the governance structures are often hybrid and emergent, and inclusion is constantly negotiated. In relation to TU, it is clear that CTC offers a valuable lens for understanding the ever-evolving practice of TU and for rethinking planners' roles accordingly. The offered vocabulary provides new perspectives to the actors involved to deploy TU without necessarily falling into the 'instrumentalisation' trap. From a CTC perspective, the cases show that different dynamics incorporated in theoretical CTC accounts are inherently embedded in TU practice. In conclusion, the analysis foregrounded how CTC supports a shift from binary classifications towards trajectory-, process-, and relation-oriented perspectives of TU.

Rather than only using TU illustratively, we argue that it should be understood as part of broader adaptive planning transformations. Following this, careful dialogues can be initiated to promote TU in more diverse contexts, while remaining beneficial for the many actors who can be involved. Likewise, this interaction between TU and CTC can become a stepping stone to explore how TU's deeper intergration into planning processes influences current planning practice and instruments on a broader scale.

Acknowledgements

The first and second author acknowledge being financed through the Special Research Fund (BOF) supplied by their university. The third author acknowledges the support received from the Grant RYC2021-034401-I, funded by MICIUAEI10.13039501100011033, and by the European Union NextGenerationEUPRTR.

References

- Allen, Peter M (2011). Cities: The visible expression of co-evolving complexity. In: Portugali, Juval, Han Meyer, Egbert Stolk & Ekim Tan (eds.) *Complexity theories of cities have come of age: An overview with implications to urban planning and design*. Cham: Springer, pp.67-89. https://link.springer.com/chapter/10.1007/978-3-642-24544-2_5.
- Antwerpen. (n.d.). *RUP Slachthuissite - Noordschippersdok - Lobroekdok - Antwerpen*. [Online] Available from: <https://www.antwerpen.be/info/58e352cea67793014d67e1e0/rup-slachthuissite-noordschippersdok-lobroekdok> Accessed [19/09/2024].
- Archipel. (n.d.-a). *Over Archipel*. [Online] Available from: <https://www.archipel.site/over-archipel> Accessed [16/09/2024].
- Archipel. (n.d.-b). *Partners en netwerken*. [Online] Available from: <https://www.archipel.site/partners-en-netwerken> Accessed [19/12/2025].
- Berlanger, Dimitri (2018). Stad koopt Asiat-site voor 10 miljoen. *Het Laatste Nieuws*. [Online] Available from: <https://www.hln.be/vilvoorde/stad-koopt-asiat-site-voor-10-miljoen~a1f55121/> Accessed [12/3/2026].
- Boelens, Luuk & Gert De Roo (2016) Planning of undefined becoming: First encounters of planners beyond the plan. *Planning theory*, 15, pp.42-67. <https://journals.sagepub.com/doi/abs/10.1177/1473095214542631>.
- Boonstra, Beitske (2015). *Planning Strategies in an Age of Active Citizenship: A post-structuralist agenda for self-organization in spatial planning*. InPlanning, <https://dspace.library.uu.nl/handle/1874/322810>.
- Boonstra, Beitske & Luuk Boelens (2011) Self-organization in urban development: towards a new perspective on spatial planning. *Urban research & practice*, 4, pp.99-122. <https://www.tandfonline.com/doi/full/10.1080/17535069.2011.579767>.
- Bragaglia, Francesca & Nadia Caruso (2022) Temporary uses: a new form of inclusive urban regeneration or a tool for neoliberal policy? *Urban Research & Practice*, 15, pp.194-214. <https://www.tandfonline.com/doi/abs/10.1080/17535069.2020.1775284>.
- Calzati, Stefano, Francisco Santos & Giulia Casarola (2022) On the (non) institutional disclosure of urban commons: Evidence, practices and challenges from the Netherlands and Belgium. *Frontiers in Sustainable Cities*, 4, pp.934604. <https://www.frontiersin.org/journals/sustainable-cities/articles/10.3389/frsc.2022.934604/full>.
- Carlton, Sally & Suzanne Vallance (2017) The commons of the tragedy: Temporary use and social capital in Christchurch's earthquake-damaged central city. *Social Forces*, 96, pp.831-850. <https://www.jstor.org/stable/26563280?seq=1>.
- Chang, Robin (2022) 'Temporal entertainment. Temporary use stabilisation in German & Dutch contexts of urban regeneration' (unpublished PhD thesis), TU Dortmund University. <https://eldorado.tu-dortmund.de/items/7d084665-9727-4748-acf1-6fbc9e2a2ec3>.
- Chang, Robin A (2021) How Do Scholars Communicate the 'Temporary Turn' in Urban Studies? A Socio-Semiotic Framework. *Urban Planning*, 6, pp.133-145. <https://www.ssoar.info/ssoar/handle/document/72485>.
- Chettiparamb, Angelique (2019) Responding to a complex world: Explorations in spatial planning. *Planning theory*, 18, pp.429-447. <https://journals.sagepub.com/doi/abs/10.1177/1473095218820554>.
- Christensen, Karen S (1985) Coping with uncertainty in planning. *Journal of the American planning association*, 51, pp.63-73. <https://www.tandfonline.com/doi/abs/10.1080/01944368508976801>.
- Colomb, Claire (2012) Pushing the urban frontier: Temporary uses of space, city marketing, and the creative city discourse in 2000s Berlin. *Journal of urban affairs*, 34, pp.131-152. <https://www.tandfonline.com/doi/abs/10.1111/j.1467-9906.2012.00607.x>.
- Cozzolino, Stefano & Stefano Moroni (2024). *Action, property and beauty: Planning with and for emergent urban complexity*. Taylor & Francis, <https://www.taylorfrancis.com/books/mono/10.4324/9781003454304/action-property-beauty-stefano-cozzolino-stefano-moroni>.
- De Roo, Gert (2016). Spatial planning, complexity and a world 'out of equilibrium': Outline of a non-linear approach to planning. In: De Roo, Gert, Jean Hillier & Joris Van Wezemael (eds.) *Complexity and planning*. London: Routledge, pp.141-176. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315573199-8/spatial-planning-complexity-world-equilibrium-gert-de-roo>.
- de Roo, Gert (2020). Introduction to the Handbook on Planning and Complexity. In: De Roo, Gert, Claudia Yamu & Christian Zuidema (eds.) *Handbook on Planning and Complexity*. Cheltenham: Edward Elgar Publishing, pp.1-18. <https://research.rug.nl/en/publications/introduction-to-the-handbook-on-planning-and-complexity/>.
- de Roo, Gert & Ward S Rauws (2011). Positioning planning in the world of order, chaos and complexity: On perspectives, behaviour and interventions in a non-linear environment. In: Portugali, Juval, Han Meyer, Egbert Stolk & Ekim Tan (eds.) *Complexity theories of cities have come of age: An overview with implications to urban planning and design*. Cham: Springer, pp.207-220. https://link.springer.com/chapter/10.1007/978-3-642-24544-2_12.
- De Smet, Aurelie (2013) The role of temporary use in urban (re) development: examples from Brussels. *Brussels Studies. La revue scientifique pour les recherches sur Bruxelles/ Het wetenschappelijk tijdschrift voor onderzoek over Brussel/ The Journal of Research on Brussels*. <https://journals.openedition.org/brussels/1196>.

- Deas, Iain, Michael Martin & Stephen Hincks (2021) Temporary urban uses in response to COVID-19: bolstering resilience via short-term experimental solutions. *Town Planning Review*, 92, pp.81-88. <https://www.liverpooluniversitypress.co.uk/doi/abs/10.3828/tpr.2020.45>.
- Devos, Tim (2021) Government Planners and Critical Planning Practices as Allies: Tactics for Socio-Spatial Planning Innovations. *disP-The Planning Review*, 57, pp.30-45. <https://www.tandfonline.com/doi/abs/10.1080/02513625.2021.1981009>.
- Devos, Tim & Luuk Boelens (2024) The double connection: towards a bi-directional notion of participation. *disP-The Planning Review*, 60, pp.4-20. <https://www.tandfonline.com/doi/abs/10.1080/02513625.2024.2376443>.
- Dubeaux, Sarah & Emmanuèle Cunningham Sabot (2018) Maximizing the potential of vacant spaces within shrinking cities, a German approach. *Cities*, 75, pp.6-11. <https://www.sciencedirect.com/science/article/pii/S0264275116303006>.
- Ferreri, Mara (2015) The seductions of temporary urbanism. *ephemera*, 15, pp.181. <https://www.ephemerajournal.org/sites/default/files/pdfs/issue/15-1ephemera-feb15.pdf#page=182>.
- Ferreri, Mara (2021). *The Permanence of Temporary Urbanism: Normalising Precarity in Austerity London*. Amsterdam: Amsterdam University Press, <https://books.google.be/books?id=6ReFEAAQBAJ>.
- Galdini, Rossana (2020) Temporary uses in contemporary spaces. A European project in Rome. *Cities*, 96, pp.102445. <https://www.sciencedirect.com/science/article/pii/S0264275118314227>.
- Gent, Stad (2017). *Mondelinge vraag van raadslid Astrid De Bruycker: Stand van zaken Meibloemsite*. [Online] Available from: <https://ebesluitvorming.gent.be/zittingen/17.0602.6367.5027/agendapunten/17.0608.6442.6194> Accessed [19/12/2025].
- Gent, Stad (2019a). *Addendum bij de 'Bijzondere samenwerkingsovereenkomst Meibloemsite: verwerving, sloop fase 1 en beheer tijdelijke invulling' - Goedkeuring*. 2019_GRMW_00017 [Online] Available from: <https://ebesluitvorming.gent.be/zittingen/18.1218.3796.5717/agendapunten/19.0110.6948.3569> Accessed [19/12/2025].
- Gent, Stad (2019b). *Subsidieovereenkomst voor investeringskosten aan het artistiek en sociaal centrum De Meubelfabriek, Brugse Poort – werkingsjaar 2019 - Goedkeuring*. 2019_GRMW_01172 [Online] Available from: <https://ebesluitvorming.gent.be/zittingen/19.0502.5359.4084/agendapunten/19.1031.2410.2439> Accessed [19/12/2025].
- Gent, Stad (2019c). *Tijdelijke invulling 'De Meubelfabriek' start op de Meibloemsite*. <https://persruimte.stad.gent/171471-tijdelijke-invulling-de-meubelfabriek-start-op-de-meibloemsite/>.
- Gent, Stad (2020). *Subsidieovereenkomst voor algemene werkingskosten en investeringskosten aan het artistiek en sociaal centrum De Meubelfabriek, Brugse Poort – werkingsjaren 2020-2023 - Goedkeuring*. 2020_GRMW_00951 [Online] Available from: <https://ebesluitvorming.gent.be/zittingen/19.1125.0279.6986/agendapunten/20.0910.5726.6789> Accessed [19/12/2025].
- Gent, Stad (2023). *Subsidieovereenkomst voor algemene werkingskosten aan het artistiek en sociaal centrum De Meubelfabriek, Brugse Poort – werkingsjaren 2023-2025 - Goedkeuring*. 2023_GR_00779 [Online] Available from: <https://ebesluitvorming.gent.be/zittingen/23.0220.3622.6436/agendapunten/23.0828.2980.8986> Accessed [19/12/2025].
- Gent, Stad. (n.d.). *Zuurstof voor de Brugse Poort. Stadsvernieuwingproject. Herwaardering van de negentiende-eeuwse gordel rond de stad*. [Online] Available from: <https://stad.gent/nl/zuurstof-voor-de-brugse-poort/stadsvernieuwingproject> Accessed [19/12/2025].
- Hernberg, Hella (2022) Holding properties vacant is resource stupidity: Towards a typology of roles in the (inter) mediation of urban 'Temporary Use'. *Planning Practice & Research*, 37, pp.581-600. <https://www.tandfonline.com/doi/fu/10.1080/02697459.2021.2001730>.
- Hillier, Jean (2016) Strategic spatial planning in uncertainty or planning indeterminate futures?: A critical review. *Situated Practices of Strategic Planning*, pp.298-316. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315679181-22/strategic-spatial-planning-uncertainty-planning-indeterminate-futures-jean-hillier>.
- Hoefkens, Silke & Thomas Machiels (2025) Adaptive planning in regulatory planning systems: balancing rigidity and adaptability in Oude Dokken, Ghent. *Planning Practice & Research*, pp.1-22. <https://www.tandfonline.com/doi/abs/10.1080/02697459.2025.2504948>.
- Honeck, Thomas (2017) From squatters to creatives. An innovation perspective on temporary use in planning. *Planning Theory & Practice*, 18, pp.268-287. <https://www.tandfonline.com/doi/abs/10.1080/14649357.2017.1303536>.
- Innes, Judith E & David E Booher (2018). *Planning with Complexity: An Introduction to Collaborative Rationality for Public Policy*. London: Routledge, <https://www.taylorfrancis.com/books/mono/10.4324/97802033864302/planning-complexity-judith-innes-david-booher>.
- Jaspers, Sylke & Trui Steen (2020) The sustainability of outcomes in temporary co-production. *International Journal of Public Sector Management*, 33, pp.62-77. <https://www.emerald.com/insight/content/doi/10.1108/ijpsm-05-2019-0124/full/html>.
- Kamvasinou, Krystallia (2016). *Reimagining interim landscapes. Emerging Landscapes*. London: Routledge, pp.147-159. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315579184-18/reimagining-interim-landscapes-krystallia-kamvasinou>.
- Lacoere, Peter (2023). *Van groei naar grens: Ruimteneutraliteit en bouwshift als doelstellingen van duurzaam landgebruik*. Antwerpen: Gompel & Svacina, <https://gompel-svacina.eu/product/van-groei-naar-grens/>.

- Lehtovuori, Panu & Sampo Ruoppila (2017). Temporary uses producing difference in contemporary urbanism. In: Henneberry, John (ed.) *Transience and permanence in urban development*. Hoboken: Wiley Blackwell, pp.47-63. <https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119055662.ch4>.
- Luhmann, Niklas (1984) The self-description of society: crisis fashion and sociological theory. *International Journal of Comparative Sociology*, pp.59-72. https://brill.com/edcollchap/book/9789004478008/B9789004478008_s006.xml.
- Machiels, Thomas, Tine Compennolle & Tom Coppens (2021) Explaining uncertainty avoidance in megaprojects: Resource constraints, strategic behaviour, or institutions? *Planning Theory & Practice*, 22, pp.537-555. <https://www.tandfonline.com/doi/abs/10.1080/14649357.2021.1944659>.
- Matoga, Agnes (2019) Governance of temporary use. *Proceedings of the Institution of Civil Engineers-Urban Design and Planning*, 172, pp.159-168. <https://www.icevirtuallibrary.com/doi/full/10.1680/jurdp.18.00052>.
- Meeus, Bruno, Tim Devos & Seppe De Blust (2016). The politics of nostalgia in urban redevelopment projects: The case of antwerp-dam. In: Karner, Christian & Bernhard Weicht (eds.) *The Commonalities of Global Crises: Markets, Communities and Nostalgia*. Cham: Springer, pp.249-269. https://link.springer.com/chapter/10.1057/978-1-137-50273-5_10.
- Moore-Cherry, Niamh & Linda McCarthy (2016) Debating temporary uses for vacant urban sites: Insights for practice from a stakeholder workshop. *Planning Practice & Research*, 31, pp.347-357. <https://www.tandfonline.com/doi/abs/10.1080/02697459.2016.1158075>.
- Moroni, Stefano & Daniele Chiffi (2021). Complexity and uncertainty: implications for urban planning. In: Portugali, Juval (ed.) *Handbook on cities and complexity*. Cheltenham: Edward Elgar Publishing, pp.319-330. https://www.academia.edu/43456256/Complexity_and_Uncertainty_Implications_for_Urban_Planning_Handbook_on_Cities_and_Complexity_.
- Nedućin, Dejana & Milena Krklješ (2022) Culture-led regeneration of industrial brownfield hosting temporary uses: A post-socialist context—case study from novi sad, Serbia. *Sustainability*, 14, pp.16150. <https://www.mdpi.com/2071-1050/14/23/16150>.
- Németh, Jeremy & Joern Langhorst (2014) Rethinking urban transformation: Temporary uses for vacant land. *Cities*, 40, pp.143-150. <https://www.sciencedirect.com/science/article/pii/S0264275113000486>.
- O'Callaghan, Cian (2023) Rethinking vacancy within the urbanization process: towards a new research agenda. *Urban Geography*, pp.1-20. <https://www.tandfonline.com/doi/full/10.1080/02723638.2023.2233862>.
- Orbaşlı, Aylin & Joanna Karmowska (2020) Temporariness in Architectural Regeneration. *Architectural Regeneration*, pp.169-187. <https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119340379.ch8>.
- Oswalt, Philipp, Misselwitz Philipp & Klaus Overmeyer (2006). Patterns of the unplanned: urban catalyst. In: Franck, Karen & Quentin Stevens (eds.) *Loose Space*. London: Routledge, pp.271-288. <https://www.taylorfrancis.com/chapters/edit/10.4324/9780203799574-18/patterns-unplanned-philipp-oswalt-misselwitz-philipp-klaus-overmeyer>.
- Overheid, Vlaamse. (n.d.). *Vilvoorde - Voortgang: Een kloppend hart voor de Asiat-site*. [Online] Available from: <https://www.vlaanderen.be/stedenbeleid/verhalen/vilvoorde-voortgang-een-kloppend-hart-voor-de-asiat-site> Accessed [19/12/2025].
- Patti, Daniela & Levente Polyak (2015) From practice to policy: frameworks for temporary use. *Urban Research & Practice*, 8, pp.122-134. <https://www.tandfonline.com/doi/full/10.1080/17535069.2015.1011422>.
- Porter, Mr Geoff & Gert De Roo (2012). *Fuzzy planning: the role of actors in a fuzzy governance environment*. Burlington: Ashgate Publishing, Ltd., https://books.google.be/books?hl=nl&lr=&id=-i8JsKQoeOQC&oi=fnd&pg=PP1&dq=de+roo+2012&ots=IYiOi-KIXa&sig=Re_JKQ5X2XmYnFFfCnv9ZR8u0&redir_esc=y#v=onepage&q=de%20roo%202012&f=false.
- Portugali, Juval (2011). Complexity theories of cities: Implications to urban planning. *Complexity theories of cities have come of age: An overview with implications to urban planning and design*. Cham: Springer, pp.221-244. https://link.springer.com/chapter/10.1007/978-3-642-24544-2_13.
- Portugali, Juval, Han Meyer, Egbert Stolk & Ekim Tan (2012) Complexity theories of cities have come of age: an overview with implications to urban planning and design. <https://link.springer.com/book/10.1007/978-3-642-24544-2>.
- Pumain, Denise (2021). Co-evolution as the secret of urban complexity. In: Portugali, Juval (ed.) *Handbook on cities and complexity*. Cheltenham: Edward Elgar Publishing, pp.136-153. <https://www.elgaronline.com/edcollchap/edcoll/9781789900118/9781789900118.00015.xml>.
- Rauws, Ward (2017) Embracing uncertainty without abandoning planning: Exploring an adaptive planning approach for guiding urban transformations. *DisP-The Planning Review*, 53, pp.32-45. <https://www.tandfonline.com/doi/full/10.1080/02513625.2017.1316539>.
- Respondent_01 (2024). 'Interview over Asiat-park' (Interview by Tilley, Kobe, 19/09/2024), Vilvoorde.
- Respondent_02 (2024). 'Interview over Archipel' (Interview by Tilley, Kobe, 20/09/2024), Online.
- Respondent_03 & Respondent_04 (2024). 'Interview over De Meubelfabriek - tweede tijdelijke invulling' (Interview by Tilley, Kobe, 24/09/2024), Ghent.
- Respondent_04 (2025). 'Interview over De Meubelfabriek - tweede tijdelijke invulling - opvolggesprek' (Interview by Tilley, Kobe, 07/02/2025), Online.

- Respondent_05 (2024). 'Interview over Onkruid en Asiat-park' (Interview by Tilley, Kobe, 27/09/2024), Online.
- Respondent_05 (2025). 'Interview over Onkruid en Asiat-park - opvolggesprek' (Interview by Tilley, Kobe, 06/02/2025), Online.
- Respondent_06 (2025). 'Interview over De Meubelfabriek - eerste tijdelijke invulling' (Interview by Tilley, Kobe, 02/04/2025), Ghent.
- Silva, Paulo (2016) Tactical urbanism: Towards an evolutionary cities' approach? *Environment and Planning B: Planning and design*, 43, pp.1040-1051. https://journals.sagepub.com/doi/abs/10.1177/0265813516657340?casa_token=UlzN8jltXuYAAAAA%3A8-zrV51QXHWeBYwZ70HEO6Aikv_XofWb8saKpxVucr45u3eO9K0wmjCfQCLnwEYibzba3IEI2CE.
- sogent. (n.d.). *Meibloemsite. Een tweede leven voor de vroegere bowling en meubelwinkel*. [Online] Available from: <https://sogent.be/projecten/meibloemsite> Accessed [19/12/2025].
- Staes, Bert (2012). Bowling Meibloemstraat is opnieuw gekraakt. *Nieuwsblad*. [Online] Available from: <https://www.nieuwsblad.be/regio/oost-vlaanderen/regio-gent/gent/bowling-meibloemstraat-is-opnieuw-gekraakt/58723866.html> Accessed [12/3/2026].
- Tonkiss, Fran (2013) Austerity urbanism and the makeshift city. *City*, 17, pp.312-324. <https://www.tandfonline.com/doi/full/10.1080/13604813.2013.795332>.
- Turku, Veera, Mikko Kyrönviita, Ari Jokinen & Pekka Jokinen (2023) Exploring the catalytic power of temporary urbanism through a binary approach. *Cities*, 133, pp.104145. <https://www.sciencedirect.com/science/article/pii/S0264275122005844>.
- Vallance, Suzanne, Ann Dupuis, David Thorns & Sarah Edwards (2017) Temporary use and the onto-politics of 'public' space. *Cities*, 70, pp.83-90. <https://www.sciencedirect.com/science/article/pii/S0264275116305807>.
- Van Assche, Kristof, Raoul Beunen & Martijn Duineveld (2017). Co-evolutionary planning theory: Evolutionary governance theory and its relatives. *The Routledge handbook of planning theory*. London: Routledge, pp.221-233. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315696072-18/co-evolutionary-planning-theory-kristof-van-assche-raoul-beunen-martijn-duineveld>.
- Vermeiren, Karolien, Lien Poelmans, Ann Pisman, Stijn Vanacker, Peter Willems & Guy Engelen (2019) Kernen, linten, verspreide bebouwing in Vlaanderen. <https://archieef.algemeen.omgeving.vlaanderen.be/xmlui/handle/acd/229668>.
- Vilvoorde. (n.d.). *RUP Asiat-Darse*. [Online] Available from: <https://www.vilvoorde.be/rup-asiat-darse> Accessed [19/09/2024].
- Wohl, Sharon (2018) Tactical urbanism as a means of testing relational processes in space: A complex systems perspective. *Planning Theory*, 17, pp.472-493. <https://journals.sagepub.com/doi/abs/10.1177/1473095217722809>.

NAVIGATING POST-GROWTH PLANNING: LEVERAGING COMPLEXITY FOR BEING INTENTIONAL AND UNINTENTIONAL

Christian Lamker¹

Abstract

Spatial planning faces mounting challenges with regard to land use, housing, energy, and infrastructure – fields where traditional solutions, such as expanding land use, are no longer viable or desirable. Planning's fundamental assumptions of temporal certainty, linear control, and clear roles erode and demand fundamental rethinking. This paper connects post-growth planning to complexity theory to navigate this tension by emphasising adaptivity, reflexivity, and normativity. Drawing on Niklas Luhmann's systems theory, the exploration reveals how spatial planning's self-images and roles reproduce growth-dependent actions despite mounting evidence of their unsustainability. It uses insights, especially with regard to land use, as well as podcast interviews with key thinkers to transcend these lock-ins by embracing 'intentional unintentionality'. In so doing it deliberately reshapes one's own roles while acknowledging the non-linear, unpredictable effects on external systems. The transformative potential lies not in top-down control but in planning's capacity to generate alternatives from within; leveraging complexity to align with post-growth priorities.

Keywords:

Complexity, Luhmann, Roles in Planning, Post-Growth Planning, Systems Theory.

¹ Faculty of Spatial Sciences, University of Groningen.
E-mail: c.w.lamker@rug.nl. ORCID: <https://orcid.org/0000-0002-1541-6952>.

1. Introduction

Uncertainty grows regarding future threats to society and space, while the competition for limited resources intensifies at global, regional, and local scales. Limits to growth have become more tangible in European countries. Besides geopolitical triggers and implications, this has given rise to a key question for spatial planning: How to keep or regain agency in a situation of resource scarcity, and especially with regard to land? This paper draws on post-growth planning and complexity thinking to carve out active roles in the socio-spatial puzzle: we perceive an age of loss, crises, and catastrophes, while Europe is historically and globally seen as rich in resources. After decades of growth, we perceive growing areas of scarcity: not enough resources, not enough energy, not enough land, not enough housing. A desire for more has reached its practical limits, while society, research, and policy increasingly emphasise the dreadful consequences of growth for long-term sustainability, climate change, and even social justice and democratic decision-making itself (Büchs et al., 2024; Dixon-Decleve et al., 2022; European Parliamentary Research Service [EPRS], 2023; Hickel & Hallegatte, 2022).

In spatial planning debates, we have witnessed deficiencies not only in bringing about transformative change on the ground but also with regard to understanding why such future trajectories have failed to convince and materialise. Have we locked ourselves in? This paper contends that an adapted inquiry is necessary. It goes beyond questions of political economy and redistribution and extends beyond widely shared approaches such as communicative planning and the sustainability transitions literature (Avelino et al., 2024; Healey, 2023; Suitner & Levin-Keitel, 2025). The search for conceptualisations of spatial planning beyond growth has become part of critical, future-oriented reflections on systemic change (Durrant et al., 2023; Durrant et al., 2025; Healey, 2024; Kaika et al., 2023; Savini, 2025; Savini et al., 2022; Xue, 2022a).

This paper focuses on a theoretical and conceptual perspective and abstracts from the often localised or case-study-based approaches to make concepts like post-growth tangible, for example, by connecting post-growth planning to goals such as net-zero land consumption or net-zero-emission scenarios (Lamker & Terfrüchte, 2024; Suitner & Levin-Keitel, 2025). Three observations function as anchoring points. First, we lose *time* due to growing crises and contradictions between the present, the past, and long-term societal future. Crises and challenges accelerate, while spatial structures only change slowly. Politics and society call for faster solutions while we worry about long-term societal and environmental futures, which often oppose quick fixes. Planning theory has only now begun to grapple with the reasons and limits of meaningful planning “in a world increasingly out-of-sync” (Jensen et al., 2025, p.197). Second, we lose the *certainty* in the search for seemingly known certainties from the past and today. Yet, it remains illusory to gain linear control over future developments (de Roo, 2018; Gunder & Hillier, 2009). Third, we lose *roles* due to a lack of new practical options for acting and being. Both post-growth planning and complexity theory seek emerging roles (Lamker & Schulze Dieckhoff, 2021; Rauws, 2017).

Since the mid-2000s, the turn towards complexity has enabled versatile insights to be gained into the possibilities and impossibilities of making decisions that have material and long-lasting impact within spatial planning (Chettiparamb, 2025; de Roo, 2018; de Roo & Silva, 2010; Innes & Booher, 2010; Rauws, 2017). Planning scholarship has introduced complex adaptive systems that are characterised by nonlinearity, emergence, and adaptive planning approaches. Complex adaptive systems are continuously evolving “towards an optimal ‘fit’ with their dynamic environment” (Rauws, 2017, p.33). Adaptive planning focuses on emergent qualities instead of linear approaches of control, or more immediately “influencing the possibility spaces for urban transformation” (Rauws, 2017, p.33). With other involved actors, they puzzle through problems “to put pieces together to create a shared picture of the future and a strategy for getting there” (Innes & Booher, 2010, p.9). The ability to do so diminishes rapidly amid the interplay of challenges such as climate change, sustainability, and fundamental growth-based criticisms. Environmental crises pose new and deep complexity challenges in which “sustainability could be perceived as the continuously changing space of alternatives or paths” (Skrimizea et al., 2019, p.130). The argument here is that it is not solved by blaming anyone for short-sightedness, inflexibility, or low willingness to change. A diversity of evolutionary potential is more important for the long-term viability of postgrowth pathways than a single predefined optimal outcome.

The question becomes: *How can planners (re-)gain agency in intentional transformative action?* Models are missing to either fully grasp this complexity or to build anchoring points for new actions and roles. There has been little engagement with the challenges that have arisen along the way, or the struggles *within* spatial

planning – though a transformation of planning itself would accompany social change towards post-growth futures (Xue, 2022b, p.405). Growth is rarely seen as a problem that directly opposes goals such as reducing greenhouse gas emissions, enhancing biodiversity, providing affordable housing, or fostering social justice. On the contrary, economic growth is regularly positioned as a requirement for meeting such goals, alongside identifying and developing additional uses of resources and land. This hope on trickle-down effects has been profoundly criticised elsewhere (Barry, 2020; Lamker, 2024; Rydin, 2025). For the sake of clarity, this paper does not further distinguish between post-growth and degrowth. It uses post-growth as a denominator of a joint criticism and possible future directions (in line with Durrant et al., 2023; Durrant et al., 2025). The foundation for understanding post-growth planning comprises a series of open engagements on the connections between post-growth and spatial planning in Germany, the Netherlands, and wider Europe between 2016 and 2025. They uncover obstacles and challenges for changing roles and practices towards a growth-independent spatial planning from the perspective of 29 key thinkers. These interviews are publicly available as an open-science product across 27 podcast episodes (www.postgrowthplanning.com).

This paper conceptualises spatial planning as the organisation of decisions about space through the production and reproduction of roles (Lamker & Marjanović, 2022). Complexity theory and systems theory, inspired by Niklas Luhmann, help us to understand why such efforts cannot be intentionally planned; however, they can still be unintentionally effective. In 1972, at the same time as the Club of Rome positioned the ‘Limits to Growth’ (Meadows et al., 1972), Luhmann recognised that the unexpected scarcity of both financial and material resources constitutes a systemic issue (Luhmann, 1972). This perspective provides a meaningful framework for interpreting the relationship that exists between a system and its environment in terms of alternative possibilities (Luhmann, 1972, p.188). This paper argues that perceptions of scarcity and limits to growth, particularly regarding land and the global consequences of expanding land use to foster economic growth, has led to increasing complexity in selecting the most desirable actions. A fruitful way forward is to increase reflexivity about what is real and what is to be realised. The conceptual exploration relies on reading original works by Niklas Luhmann from a planning perspective (Luhmann, 1972, 1977, 1983, 1987, 2006, 2018), the rare uses of his body of thought within planning scholarship (Duineveld et al., 2017; Lamker & Marjanović, 2022; Mäntysalo, 2016; Redepenning & Wilhelm, 2014; van Assche et al., 2013), and a critical reading of further role-based approaches in planning research (Frantzeskaki et al., 2016, 2016; Innes & Booher, 1999; Lamker, 2016, 2019a, 2019b; Moroni, 2020; Wittmayer et al., 2017).

With the aim of connecting post-growth planning to a complexity theory lens, this paper explores flawed self-images or false representations of expectations towards spatial planning as a major obstacle for spatial planners. A role-based conceptualisation offers the potential to break through lock-ins and, by understanding the impossibility of intentional transformation, to develop and enact *intentional* roles for a post-growth transformation, and to consider how ‘*intentional unintentional*’ transformation might be equally effective. To do so, the paper delves into the core question of sustainability from the perspective of limits and scarcity, the growth bias in spatial planning, and the challenges of overcoming it. Following this, sections three and four will work from uncertainty towards conceptualising spatial planning as the complex production and reproduction of roles. Section five will add the element of time by first thinking through the implications of seeing planning as intentional and unintentional, and then moving towards potential futures for spatial planning to come. Lastly, the conclusion will summarise a message for spatial planning that actively seeks its role in planning amid unknown outcomes: to reduce the desire to control, to move forward more effectively, and to exert influence on spatial futures.

2. Sustainability Challenges: Limits and Space

Sustainability has become one of the key goals for future-oriented action in society and within spatial planning since the late 1980s; in part furthered by the adoption of the Sustainable Development Goals (SDGs) at the global level in 2015. The connection to land as our common resource base and the limits of using more of it has been a key line of discussion for a long time (Owens & Cowell, 2002). More recently, the turn towards net-zero policies for land consumption has put a quantified limit, a final frontier that cannot be exceeded, of using land high on the political agenda throughout Europe (European Spatial Planning Observation Network [ESPON], 2024).

2.1 Limits: Sustainability and the Age of Scarcity

Reports from the Intergovernmental Panel on Climate Change (IPCC) and the Club of Rome's report 'Earth for All' began to recognise growth as a fundamental driver of global environmental and social crises (Dixon-Decleve et al., 2022; Intergovernmental Panel on Climate Change [IPCC], 2022). Reaching sustainability and climate change goals, but also tackling social inequalities, touches upon fundamental paradigms of a growth-oriented society and the ways in which spatial planning is nested within it (Büchs et al., 2024; Durrant et al., 2023; Hackworth, 2018; Savini et al., 2022; Schmid, 2022; Xue, 2022b). Alongside perceptions of multiple crises or a 'polycrisis', academic, societal and political debates have moved from the transformation of specified elements of a system towards wider system transformations that include fundamentally transforming the urban and spatial foundations of our existence (Allen et al., 2015; Kaika et al., 2023; Varvarousis et al., 2025).

Sustainability and questions of limits in relation to using land and non-renewable resources have been recognised as one of the most fundamental societal questions that need to be addressed (Dixon-Decleve et al., 2022; Owens & Cowell, 2002). In spatial planning, sustainability has moved to a core aim globally and within all European countries. This has also contributed to an increasing emphasis on policies for net-zero land consumption (Eichhorn et al., 2025; ESPON, 2024; Evers, 2025; Lacoere & Leinfelder, 2023; Lamker & Terfrüchte, 2024). However, despite decades of discussions, the relevance of sustainability transition debates seems to have even further increased, while actual successes in spatial planning lag behind (Suitner & Levin-Keitel, 2025). Seeking reasons for the same in a lack of discussion, a lack of awareness, or a lack of knowledge no longer convinces. More fundamental critiques have surfaced from post-growth planning debates. These debates challenge underlying systemic assumptions, the embeddedness of economic growth in policy, tools and instruments (Durrant et al., 2023; Durrant et al., 2025; Lamker & Terfrüchte, 2024; Verweij et al., 2025), and driving forces of capitalism that render reaching agreed sustainability targets impossible (Dixon-Decleve et al., 2022; Hickel & Hallegatte, 2022). Following this, sustainability can be seen as a prime example of a puzzle of complexity. Next to shortcomings in the shared picture of the future and a meaningful strategy to get there, the agency of spatial planners themselves gets blurry. Finally, even the meaning of the word sustainability might be challenged as an empty signifier (Gunder, 2006; Gunder & Hillier, 2009). Planning debates have concluded that large terms such as sustainability, as well as growth, remain open to diverse interpretations and uses. They serve as points of reference for questions about the long-term direction for spatial planning itself as well as for the wider spatial foundations of society and economy.

An emerging body of post-growth planning literature has criticised spatial planning for an inherent bias towards supporting growth, whether that be striving for economic growth directly, or through the growing use of land for settlements and infrastructures to foster economic growth (Durrant et al., 2023; Rydin, 2013, 2025; Savini, 2021; Savini et al., 2022). This puts into question issues of long-term sustainability from two directions. *First*, economic growth is linked to the use of natural resources, the emission of greenhouse gases, and often to globally extractivist and exploitative relationships between the Global North and Global South (Brand & Wissen, 2018; Kaika et al., 2023). Attempts at absolute decoupling have consistently failed, and relative decoupling can, at best, be seen in limited cases (Hickel & Kallis, 2020). *Second*, space for additional settlements and infrastructures is limited and contested. The possibilities for further extensions threaten remaining natural areas, conflict with climate adaptation measures, and may also endanger local and regional food production as well as food security in some places. Fostering land-based growth to deliver positive side effects is no longer a feasible strategy under such circumstances.

2.2 Space: Growth-Bias and the Final Frontier

The entanglement of spatial planning has a long history (Durrant et al., 2025; Greaves, 2024; Lamker, 2024). From the height of industrialisation at the turn of the 19th and 20th centuries, the profession institutionalised in multiple steps to cope with the most adverse effects of growth: public health and safety needed rules and infrastructures. Further into the 1920s onwards, spatial planning catered for organising growth by coordinating large-scale infrastructures, securing housing, urban expansions, open and green spaces, and the first regional approaches. This culminated in the development of extensive and comprehensive plans as well as the establishment of many European planning schools in the 1960s. Simultaneously, first engagements with computer technology led to engagement with systems and complexity; often in the search for linear ways to make better plans (Harris, 1989). In the absence of external growth drivers in a period of neoliberal

reforms in the 1990s, spatial planning moved towards actively fostering growth, especially economic growth, by engaging with global competitiveness, globalisation, connectivity, and nodes for exchange and economic activity – often losing the social baselines of development out of sight (Allen et al., 2015; Durrant et al., 2023). Positive spin-offs for welfare and social and environmental side-benefits, such as decent public spaces and housing, but also an increasing tax base, were envisioned through the application of planning instruments (Rydin, 2013). However, the positive relation from growth to assumed benefits that this growth delivers may not be as clear (e. g. for new housing developments vs infrastructure costs), side benefits cannot be secured and happen to be more randomly (e. g. new inhabitants versus local economic and retail structures), and it is evident throughout as to who has stated this need (i.e. the use of the passive voice, of the ‘is needed’ in proposals).

Against the background of the emerging recognition of growth-based or growth-fuelled crises, it has been suggested that spatial planning is biased towards growth. *More* is needed to achieve something good. However, this neglects adverse side effects of growth, hidden costs, distribution struggles, and structural constraints to make this noble hope real. Using the words of Patsy Healey, “environmentally-conscious social democratic future will not come about by itself. It needs to be struggled for [...]” (Healey, 2023, p.2303). Avoiding such struggles is also the essence of what this paper recognises as the reinforcement of the growth bias in spatial planning (Durrant et al., 2023; Lamker, 2024; Rydin, 2013, 2025). For example: more economic growth is needed (to generate jobs and taxes); more agricultural land needs to be used for housing (to make it affordable); more new housing is needed (to increase the tax base and to keep local economies running); new commercial and business land is needed (to enhance job and retail options for inhabitants); more material resources, such as rare earths, are needed now (to become climate neutral later); and more smart technology is needed (to use less energy).

While some relationships are evident, these examples show one commonality: growth is central and is the foundation to reach something else. Talking about the growth-bias does not take into question the goals themselves, which have been put into brackets in the examples. But what happens if ‘more’ is no longer possible or desirable in the first place? A final frontier opens as a fundamental uncertainty for spatial planning, one in which scarcity of material resources and scarcity of known agency might be a force which leads to reconstructing the boundaries between spatial planning and its environment as well as enabling new roles to emerge for planners.

3. Uncertainty: Complex Production and Reproduction of Roles

Dealing with uncertainty, that is, a perceived lack of knowledge for purposeful action, is a key essence of spatial planning (Abbott, 2005). To move forward, the renewed integration of complexity theory has been a fruitful endeavour for more than two decades (Chettiparamb, 2025; de Roo, 2018; de Roo & Silva, 2010; de Roo et al., 2020; Portugali, 2021; Sengupta et al., 2016). It allowed finding a vocabulary to deal with a dynamic world in a constant flow, one in which “systems are transforming, seeking a new balance and a good fit with their environment, [...] as a temporal manifestation of stability to which systems are attracted” (de Roo, 2018, p.9). Alongside this, systems thinking and concepts such as non-linearity, adaptivity, and emergence, have become more familiar within the development of planning theories and teaching planning theory courses in Europe (Chettiparamb, 2025; de Roo, 2018; de Roo et al., 2012, 2012; Moroni & Cozzolino, 2019; Rauws, 2017).

Looking towards the spatial planning discipline more specifically, what counts as spatial planning is continuously produced and reproduced within spatial planning, distinguishing the boundary to other activities (Lamker & Marjanović, 2022). This emergence, production and reproduction of the *spatial planning system* itself, in systems theory terms, happens through the actions and communications through which spatial planners enact recognisable roles to respond to perceived expectation; further discussed below. It is crucial to distinguish the person of a planner from hers/his potential and actual roles. Roles should not be mixed between spatial planning (as a system, or an ‘institutional technology’) and planners themselves (Moroni, 2020, p.570). They are contingent and can transcend back towards concrete persons who enact them (Luhmann, 1977, p.47). We recognise others in the roles they take and, in turn, which we may also take ourselves (Luhmann, 1983). While a person can only be one entity at a time, as recognised in actor-based approaches, a role-based approach allows each planner to potentially enact different roles over time, or even at the same time (Lamker, 2019b).

Transformative changes are likely to happen in a dynamic and non-linear way, in which new system qualities emerge in unpredictable ways. Transformative action in the sense of post-growth planning futures has an outside view towards the environment (Xue, 2022a), as well as an inside view towards spatial planning itself (Xue, 2022b). Using Luhmann's systems theory shifts the meaning of 'being' a planner: from an ontology of being to an epistemology of doing; from searching within a planner's personality to recognisable actions and communications; and from enclosed actors to recognisable roles. Roles are the patterns of these actions and communications; they are commonly observed together. Denominators describe roles, for example, as technical problem-solvers, moderators, strategic navigators, and explorers in Lamker (2016), or in the new roles of trend-spotters, matchmakers and facilitators of Rauws (2017). Roles are confined enough to be visible and distinguished from others. At the same time, they are open enough for use by different persons (Lamker, 2019b, p.203). Luhmann recognises that we can only talk about 'organised complexity' and not the reduction thereof (Luhmann, 1997, pp.430–431). Spatial planning can develop its own ways to cope with complexity and thus organise it, while complexity itself is not changed or even reduced. The production and reproduction of roles is a way to organise complexity, to develop the capacity to communicate, and to act within the spatial planning system. Planners adapt their roles to the complexity given, evaluate actions and observable consequences, and adjust subsequent actions accordingly (Lamker, 2019b). Their view of a suitable role, considering complexity, and their way to organise it, emerges and becomes more outspoken or outwritten. The ability to adapt to different roles and equally adapt those same roles enables reflective processes as well as the production of alternatives and their critique in structured procedures (Luhmann, 1983, p.50).

Building on these insights, and with Niklas Luhmann's systems theory in mind, complexity helps re-conceptualise spatial planning itself and the potential new system stability that it may purposefully seek. System change, here meaning fundamental *change within a system*, takes time when it faces fundamental uncertainties in different phases and at different scales (de Roo, 2018, p.16; Meadows, 2008; van Assche et al., 2013, p.7). This goes alongside contextual changes which influence the system from the outside. Organisations react to far-reaching uncertainties with adaptations that establish new perceived certainties – though these are at best "temporal manifestations of stability" (de Roo, 2018, p.9). In spatial planning, adapted modes of action or roles substitute previous ones. For a time, certainty is replaced by a (new) role that allows for this process to happen and enable what we call innovation (Luhmann, 2018, p.180). Implicitly, preceding roles move to the side and vanish. However, depending on the degrees of diversity allowed within the system itself, they might remain available for future use. Spatial planning can change from within by adapting roles in response to uncertainty. New communications and actions unfold, while stakeholders, organisations, or people may not change concurrently. Systems thinking searches for leverage points to exert influence in a system, from changes in the mode of operation towards transcending foundational paradigms (Meadows, 1999).

A system is produced and reproduced by differentiating its boundary from other systems (Luhmann, 2006). An 'autopoietic system', in which we include spatial planning as the "field of action and reflection with an interest in the organization of space" (van Assche et al., 2017, p.223), can only use its own operations to do so (Luhmann, 2018). Pragmatically speaking, spatial planning uses its own instruments and tools to act and distinguish itself from other systems, e.g., reacting to the need for affordable housing by searching for new land to build. The decision environment for spatial planners consists of a multiplicity of other systems that can include economic systema, political systema, and the inner psychological systems of everyone involved. All of these can be influenced by spatial planning but not fully understood from within spatial planning and its own terms (which are available for use to develop its own image of another system). From this perspective, a starting point is identifying *if* there is recognisable planning happening. If perceived contextual changes and planning actions happen at the same time or subsequently, we may see this as a positive co-occurrence. Being an observer, we then put a spotlight on "understanding the mechanisms and processes of the change that selfreferentially occur within selforganising system" (Chettiparamb, 2025, p.154). However, it is questionable whether others demand that planning happens as such. This, in turn, opens pathways for adaptation and change of *what* happens. For the next part, this raises the question: what is the self-image within spatial planning, and how far can we understand the expectations towards the discipline and profession?

4. Roles: Expectations and Mirror Images

This paper conceptualises how and why spatial planners follow growth logics often with good intentions or in unquestioned ways, to a degree that growth itself evolved to an empty signifier. For sustainability, growth, and other key terms in spatial planning, Gunder and Hillier (2009) have recognised how words get emptied of their meaning and become empty signifiers that unite a group of people, but are as close to a religious belief as concepts guiding normative action. Ultimately, due to a perceived inherent goodness, faking is more acceptable than opposing and engaging with flawed directions (Gunder, 2011). For example, spatial planners want to conform to expectations towards them, and especially so with regard to sustainability (Gunder & Hillier, 2004; Owens & Cowell, 2002). There is nothing problematic in this at first glance. It points towards a desire to distinguish spatial planning from other activities (in system terms) and the want to follow a strong motivation to be a good planner (in actor-related terms). However, planning remains highly dynamic, and expectations do not converge to unequivocal terms. Uncertainty remains a core condition of spatial planning, and is especially caused and accelerated by the impossibility of grasping expectations. This can be visible in the use of the passive voice where, for instance, “planning is tasked to provide space for economic activities”. No actor is named, and such a claim remains almost undisputable, as the origin of the task cannot be asked or included (Lamker, 2022).

Instead of blaming spatial planners or others, this paper disentangles the systemic processes that constantly fuel the image of a growth-oriented profession and render alternatives as niches or utopias. Regularly, spatial planning researchers and practitioners have more to say about why post-growth perspectives are *not* relevant (because it is out of fashion, unnecessary, exclusive, inappropriate, out of their responsibility) than what they could offer (Lamker & Schulze Dieckhoff, 2022). This approach is not adopted by pure intention, not imposed on spatial planners, and not a kind of individual mindset. Rather, growth is entrenched in the communication that produces and reproduces the spatial planning system itself. But how has such a lock-in happened?

The identified growth-bias in spatial planning is more an unintentional lock-in that has led to deeply nested routines and roles that are perceived suitable fits towards external expectations. This can be to deliver housing, to provide for renewable energies, or to respond to climate change and foster climate adaptation. Regularly, immediate responses move towards finding land for new demands (e.g., energy transition) or using land to induce demands (e.g., to boost economic growth). However, recognition also increases that growth is not a stable solution, and that planning may reach the end of growth and space or land (Lamker, 2024; Rydin, 2025). While economic growth can unfold in multiple ways, and we can and do even adjust how we measure indicators such as Gross Domestic Product (GDP), land is much less expandable and much more immediately connected to environmental and social change. In a podcast interview, Thomas Hartmann summarized this clearly: “post-growth planning is a question of land policy” (Hartmann & Lamker, 2023). The ongoing dialogue regarding net-zero objectives for land consumption represents the most significant intersection between land policy and post-growth planning that crosses multiple scales and connects to key legal planning instruments and tools in European countries.

Recognition and awareness alone can be necessary conditions for transformation, but they are not sufficient ones. What we recognise in a system (the spatial planning system) is communication and action. The roles of planners can be used to systematise what is available to spatial planning and to describe, conceptualise, and analyse spatial planning actions (Lamker, 2019a; Moroni, 2020; Othengrafen & Levin-Keitel, 2019). A role-based understanding helps disentangle how self-images and expectations align or misalign. *First*, each role means *a way of acting within planning itself*. For a postgrowth transformation, a broadened repertoire of roles could include inspirers and motivators (Lamker & Schulze Dieckhoff, 2021), but also explorers, leaders, and strategic navigators (Lamker, 2019b). They enhance the willingness to absorb increased uncertainty for the time of transformation, and support the need to transform planning from within so that, first, it may be at the forefront of wider change (Xue, 2022b, p.405).

Complexity theory highlights the impossible attempt to gain linear control over the environment. A Luhmann-based view from systems theory points to a fundamental concern: we can only understand other systems in our own. Pragmatically speaking, we build a mirror-image of the environment in our own system and in our own terms. When a role becomes enacted, it *relates to perceived expectations within spatial planning* (Lamker & Marjanović, 2022). They may not be actual expectations, or the only possible ways to meet them. Even if expectations are

outspoken or outwritten in clear language from other systems (e.g., politics), they do not hold certainty towards planning actions and enable an unequivocal certainty to use only one planning instrument. In Luhmann's words, "language use alone cannot assure this possibility" (Luhmann, 2006, p.48). Self-descriptions, including capitalism as a description for modern society, hold an ideological quality that reproduces itself (Luhmann, 2006, p.56). This paper follows a complementary approach to theoretical analyses that focus on the mismatch that exists between meaning and what can be symbolised in language or visuals from a psychoanalytical and linguistic lens (Gunder, 2003; Gunder & Hillier, 2009). Here, the same words are used in different systems, but they produce and reproduce system/environment boundaries instead of bridging them.

A *third* and final way reaches a step further. Other systems, like the political system, may have *overlaps in available roles* and a potential for a partial and temporary match (Lamker & Marjanović, 2022). For example, the role of a moderator would not differ in some of the core behavioural patterns such as discussing, moderating, and supporting (Lamker, 2019b, p.207). If it happens that two structurally coupled systems enact the same role at a given moment and a given place, they might find a sudden (unexpected, emergent) moment of alignment in which the border becomes porous and the system/environment boundaries are readjusted. Luhmann points to the way information makes a difference for a system, which would also be true for a planning system in the way this paper argues for: "Information is information only if it is not just an existing difference; it is information only if it instigates a change of state in the system" (Luhmann, 2006). This suggests that the search for a far-reaching transformation is both the quest for a transformation within, by producing new roles or adjusting existing roles, and the quest for those almost magical moments of alignment when suddenly something new emerges. This might get close to what Innes and Booher (1999) had in mind more than a decade ago when talking about role playing and "games without frontiers" to foster innovation and adaptive capacity: opening boundaries between unintentional and intentional thought and action.

5. Time: Being Intentional Unintentional

Scholars have observed hardship adjusting instruments and tools, inventing new ones, and enacting a divergent set of roles which move beyond growth, both in planning practice and planning research (Lamker & Schulze Dieckhoff, 2021, 2022; Xue, 2022b). At first sight, this leads to a demotivating picture about the potential of post-growth planning, and to deferring responsibilities to changes in other systems such as the economy or politics. Looking across podcast interviews, conversations ponder on the need for changes in political decision-making and the economic system in diverse ways – from refocusing on local and social economies (Yvonne Rydin, Stephen Leitheiser) to alternative economic models (John Barry, Vincent Liegey). However, the preceding section of this paper has shown, from a theoretical perspective, that we cannot be certain about the expectations of spatial planning, and whether they are unequivocal or not. From practice observations and research in Sweden, Dick Magnusson concludes a podcast interview with the hopeful message that "post-growth planning is possible" (Magnusson & Lamker, 2023). Central values to post-growth approaches such as staying within environmental limits, reducing material consumption, and fostering well-being, democracy, and social justice can easily connect to spatial planning and enable the (so far) missing dialogue (Xue, 2022b).

The translation of ambiguous goals and targets to space requires weighing of interests, negotiation, and the use of a whole box of planning instruments and tools which can be highly laden with growth (Durrant et al., 2023). Below the surface, expectations are translated into one's own understanding (one's own 'system' of spatial planning). Conforming to expectations becomes a two-step process of pre-thinking actions to conform to the mirror image as they have been internalised into spatial planning. In routinised and regular situations, experience has undoubtedly led to a relatively good of fit between expectations and subsequent planning actions. This fit and has stabilised the relationship between society and politics to spatial planning and ultimately spatial planning in relation to its environment. However, for more fundamental transformations that challenge routines and established modes of action, a lock-in occurs. What if the mirror-image of expectations is incomplete, flawed, or even false? Expectations themselves include new (potential) directions, and no translations to expectations are yet available. However, triggers for system change can only become relevant from within a system itself, when a system recognises triggers in its environment as relevant information (Duineveld et al., 2017, p.377), or if planning changes itself to be the vanguard of social change (Xue, 2022b). As a result, spatial planning would find difficulty in adjusting instruments and tools, inventing new ones, and enacting a diverse set of roles. Practically speaking, expectations translate to focusing on growth – whether they are explicitly naming it or not.

Post-growth is not yet institutionalised within spatial planning, and there is very limited *intentional* and explicit post-growth planning action visible. Moving towards post-growth planning entails fundamental transformations that challenge established roles and modes of action. No translations to expectations or derived roles are yet available and ready to use. Strong sustainability, climate change, and net zero targets have become established, but it is less clear what the expectations towards spatial planning are, or even more: at what time and with what timeframe. This means that external triggers are not yet widely recognised within the spatial planning system as relevant information that changes expectations and requires changed practices (Duineveld et al., 2017). Moreover, shifting goals have become integrated into established practices without yet opening up more systemically towards self-reflection, role reflection, and using processes to produce critique and alternatives from within (Luhmann, 1983). At the same time, our democratic and societally integrated spatial planning has evolved in a way that couples modestly well with previous expectations and even provides the illusion of control that sticks as a temporal manifestation and provides stability and certainty. Which external trigger can help overcome these kinds of lock-ins?

Moving further, this paper suggests turning the question how roles change upside down to recognise the potential to transform from within spatial planning towards growth-independent modes of action. Strong sustainability and net-zero directions have become common sense in policy across Europe, alongside recognition that spatial planning may even lag behind when it comes to materialising sustainability objectives (Suitner & Levin-Keitel, 2025). Such an observation can also provide more courage to move a step ahead and, in Luhmann's terms, produce system alternatives from within to enable comparisons – or even to see spatial planning as one of the processes needed to conceptualise alternatives in the first place (Luhmann, 1983). Complexity theory puts emphasis on *adaptivity* (Rauws & de Roo, 2016), while Luhmann's system approach emphasises the relevance of *reflexivity* to gain options for comparison (Luhmann, 1966). Even more, complex systems “are not just evolutionary by way of responding to external stimuli but are structurally self-organising by way of self-reference, that is, responding to its own feedback” (Chettiparamb, 2025, p.154). Changes and structural adjustments are possible within the system itself, and a complex system features some degree of freedom to self-organise in relation to its environment. Post-growth planning brings back *normativity* towards a future trajectory to emphasise the need for selectivity and subsequent action (Durrant et al., 2025), especially in a dynamic world in which the causes of our actions are not fully known and in which not every interest or desire can find its way into space. Ultimately, any specific use of land excludes many others, even with the most advanced approaches of mixing uses horizontally, vertically, or temporarily.

To sum up, we can control what we do ourselves (in our own system) but not the impacts this has (on other systems). Where does spatial planning then sit if only its own actions and communications can be intentionally planned? An effective way forward in a post-growth transformation might be to conceptualise the trajectory as *intentional or unintentional*. Intentional towards the changes within spatial planning over which direct control can be exerted, and unintentional towards other systems over which direct control is impossible. Influence then unfolds in non-linear ways, and leads to emergent and adaptive responses. At best, we can reach temporary stabilisations and temporarily enhance the coupling between external expectations and planning actions, while knowing that any planning remains preliminary in the long run.

The puzzle raises the question of how to act amid such fundamental uncertainty and seize agency despite knowing that we have no certainty about the consequences. Luhmann recognised a key responsibility of organisational members that “one must avoid being disturbed by oneself” (Luhmann, 2018, p.64). He offers a perspective to engage in different behavioural patterns or roles. From a systems perspective, this does not feel like a conflict with oneself if we recognise professional demands as more than mere obedience. Put differently, the spatial planning system, in systems-theory terms, has degrees of freedom within itself. This is mirrored in the planning ethics of professional bodies that seek ways to support a responsible use of discretion by spatial planning professionals. It also leads to an unexpected conclusion from a seemingly neutral systems perspective: spatial planning is a highly political activity, and it must be so. By reducing the ambition to exert control, the window of opportunity to exert real influence is more likely to open.

6. Conclusion: to boldly plan...

The history of spatial planning has shown that growth, in terms of both economic growth and the expansion of land use for settlements and infrastructure, is not always the primary focus by conscious intent. Rather, the opposite is true: the core of spatial planning has focused on concerns such as public health, decent living conditions, basic societal infrastructure, and so on (Lamker, 2024). Those were bold aims against the massive forces of industrialisation in Europe. Today, there is good evidence that most spatial planners want to be a positive force in society, though change may be slow and tending towards formalisation instead of transformation (Nelson & Neil, 2021; Othengrafen & Levin-Keitel, 2019).

A future beyond growth dependence remains both hard to imagine and practice (Lamker & Schulze Dieckhoff, 2022). Developing on 'new land' (the classic blank sheet) remains attractive for implementing new and innovative ideas. But the planning discipline has also incorporated multiple directions and associated roles that work within existing built environments and put other priorities up front (e.g., urban renewal, infill developments, densification, climate adaptation, and energy transition). The desire for growth is often coupled with other priorities, but growth may take a back seat in the reality of changing the built environment. Processes of spatial change operate through a dynamic, non-linear process with multiple ideas, intentions, and both own and mirrored expectations. While spatial planners may also have personal motivations, such as securing their jobs and advancing their careers, there is little evidence that they are attracted to growth per se.

This paper has sought to disentangle what it means to change roles towards growth and independence, and to argue that such transformation is not linear but requires the search for a new alignment of roles *within* planning, notwithstanding the need for a responsive environment outside of planning. It has outlined contemporary perceptions of sustainability and growth-based crises from a spatial planning perspective. A role-based approach anchored in systems theory and complexity theory, and drawing especially on the works of Niklas Luhmann, has helped conceptualise how roles, expectations, and mirror images influence what happens within spatial planning and how much (or how little) intentional steering is possible. Using this perspective, the paper calls for understanding inherent limitations and turning to oneself to be more intentional and unintentional: to embrace the non-linear relationships between action within spatial planning and effect in other systems and the built environment. Adaptivity, reflexivity, and normativity are thus core elements for connecting post-growth planning and complexity scholarship and for leveraging influence from this encounter. Lastly, such considerations call into question the need to view spatial planning as a political activity full of impossibilities, but rather as one with a multiplicity of options and available roles for action.

Post-growth planning futures stress the crucial importance of key human needs and desires while recognising limits in available resources and the negative consequences of growth logics here and elsewhere; now and in the long-term future. With post-growth planning and other future trajectories under discussion, spatial planning continues to seek new (temporary) couplings with other systems, such as the economy, politics, and psychology. This paper has acknowledged that only our own communications and actions can be intentionally planned. What sounds like a constraint should be a liberating message to engage in democratic public deliberations and to make clear decisions: we can control what we do ourselves (in our own spatial planning system). Thus, spatial planning is both the subject and the object of transformation and offers much, especially when driven by societal changes, priorities, and expectations. Complexity theory has opened pathways to uncertainty, nonlinearity, and emergence, enabling impact without intent. Post-growth planning and complexity theory are fruitful encounters if we internalise them within spatial planning in adaptive, reflexive, and normative ways. Reducing the desire to control others opens doors to move more effectively toward exerting influence over how spatial futures shape us and get shaped by us.

References

- Abbott, J. (2005). Understanding and Managing the Unknown: The Nature of Uncertainty in Planning. *Journal of Planning Education and Research*, 24(3), 237–251. <https://doi.org/10.1177/0739456X04267710>
- Allen, A., Lampis, A., & Swilling, M. (Eds.). (2015). *Routledge Advances in Regional Economics, Science and Policy. Untamed Urbanisms*. Routledge. <https://doi.org/10.4324/9781315746692>
- Avelino, F., Wijsman, K., van Steenberghe, F., Jhagroe, S., Wittmayer, J., Akerboom, S., Bogner, K., Jansen, E. F., Frantzeskaki, N., & Kalfagianni, A. (2024). Just Sustainability Transitions: Politics, Power, and Prefiguration in Transformative Change Toward Justice and Sustainability. *Annual Review of Environment and Resources*, 49(1), 519–547. <https://doi.org/10.1146/annurevenviron-112321-081722>
- Barry, J. (2020). A Genealogy of Economic Growth as Ideology and Cold War Core State Imperative. *New Political Economy*, 25(1), 18–29. <https://doi.org/10.1080/13563467.2018.1526268>
- Brand, U., & Wissen, M. (2018). *The limits to capitalist nature: Theorising and overcoming the imperial mode of living. Transforming capitalism*. Rowman & Littlefield International.
- Büchs, M., Koch, M., & Lee, J. (2024). Sustainable Welfare: Decoupling Welfare from Growth and Prioritising Needs Satisfaction for All. In L. Eastwood & K. Heron (Eds.), *De Gruyter Handbook of Degrowth* (pp.89–104). de Gruyter. <https://doi.org/10.1515/9783110778359-008>
- Chettiparamb, A. (2025). Planning from a systems perspective at the frontier: Complexity in the past and present. In P. Allmendinger, M. Tewdwr-Jones, & M. Wargent (Eds.), *Critical Planning Futures: New Directions in Planning Theory* (pp.143–165). Routledge. <https://doi.org/10.4324/9781003402855-9>
- de Roo, G. (2018). Ordering Principles in a Dynamic World of Change – On social complexity, transformation and the conditions for balancing purposeful interventions and spontaneous change. *Progress in Planning*, 125, 1–32. <https://doi.org/10.1016/j.progress.2017.04.002>
- de Roo, G., Hillier, J., & van Wezemael, J. (Eds.). (2012). *New directions in planning theory. Complexity and planning: Systems, assemblages and simulations*. Ashgate.
- de Roo, G., & Silva, E. A. (Eds.). (2010). *New directions in planning theory. A planner's encounter with complexity*. Ashgate.
- de Roo, G., Yamu, C., & Zuidema, C. (Eds.). (2020). *Research Handbooks in Planning series. Handbook in Planning and Complexity*. Edward Elgar Publishing.
- Dixon-Decleve, S., Gaffney, O., Ghosh, J., Randers, J., Rockström, J., & Stoknes, P.E. (2022). *Earth for All: A survival guide for humanity*. A Report to the Club of Rome. New Society.
- Duineveld, M., van Assche, K., & Beunen, R. (2017). Re-conceptualising political landscapes after the material turn: A typology of material events. *Landscape Research*, 42(4), 375–384. <https://doi.org/10.1080/01426397.2017.1290791>
- Durrant, D., Lamker, C. W., & Rydin, Y. (2023). The Potential of Post-Growth Planning: Re-Tooling the Planning Profession for Moving Beyond Growth. *Planning Theory & Practice*, 24(2), 287–295. <https://doi.org/10.1080/14649357.2023.2198876> (Comment).
- Durrant, D., Marjanović, M., & Rydin, Y. (2025). Post-Growth Planning. *Built Environment*, 51(1), 5–15. <https://doi.org/10.2148/benv.51.1.5>
- Eichhorn, S., Ehrhardt, D., & Jehling, M. (2025). From policies to outcomes: multilevel analysis of the influence of regional planning on land take. *European Planning Studies*, 33(1), 83–103. <https://doi.org/10.1080/09654313.2024.2412216>
- European Parliamentary Research Service. (2023). *Beyond growth: Pathways towards sustainable prosperity in the EU*. Study (PE 747.108). European Parliament. <https://doi.org/10.2861/602232>
- European Spatial Planning Observation Network. (2024). *No net land take trajectories: Policies and practices across Europe*. Policy Brief. European Spatial Planning Observation Network (ESPON).
- Evers, D. (2025). Exploring the implications of the no-net-land-take policy for spatial planning: the case of the Netherlands. *Town Planning Review*, 96(4), 373–394. <https://doi.org/10.3828/tp.2024.13>
- Frantzeskaki, N., Dumitru, A., Anguelovski, I., Avelino, F., Bach, M., Best, B., Binder, C., Barnes, J., Carrus, G., Egermann, M., Haxeltine, A., Moore, M.L., Mira, R. G., Loorbach, D., Uzzell, D., Omann, I., Olsson, P., Silvestri, G., Stedman, R., . . . Rauschmayer, F. (2016). Elucidating the changing roles of Civil society in urban sustainability transitions. *Current Opinion in Environmental Sustainability*, 22, 41–50. <https://doi.org/10.1016/j.cosust.2017.04.008>
- Greaves, S. (2024). Spatial Critiques of Growth. In J. Becker, J. N. Bergamo, A. Fortuny Sicart, S. Greaves, N. Keurhorst, J. Lloveras Gutiérrez, M. Pansera, B. Robra, E. Schramm, & B. Suárez Eiroa (Eds.), *Critiques of growth: an introduction* (pp.74–92). Universidad de Vigo.
- Gunder, M. (2003). Passionate planning for the others' desire: An agonistic response to the dark side of planning. *Progress in Planning*, 60(3), 235–319. [https://doi.org/10.1016/S0305-9006\(02\)00115-0](https://doi.org/10.1016/S0305-9006(02)00115-0)
- Gunder, M. (2006). Sustainability - Planning's Saving Grade or Road to Perdition. *Journal of Planning Education and Research*, 26(2), 208–221. <https://doi.org/10.1177/0739456X06289359>

- Gunder, M. (2011). Fake it until you make it, and then... *Planning Theory*, 10(3), 201–212. <https://doi.org/10.1177/1473095210387542>
- Gunder, M., & Hillier, J. (2004). Confirming to the Expectations of the Profession: A Lacanian Perspective on Planning Practice, Norms and Values. *Planning Theory & Practice*, 5(2), 217–235. <https://doi.org/10.1080/14649350410001691763>
- Gunder, M., & Hillier, J. (2009). *Planning in ten words or less: A Lacanian entanglement with spatial planning*. Ashgate. <https://doi.org/10.4324/9781315246697>
- Hackworth, J. (2018). Urbanisation, planning and the possibility of being post-growth. In K. Ward, A. E. Jonas, B. Miller, & D. Wilson (Eds.), *The Routledge Handbook on Spaces of Urban Politics* (pp.197–205). Routledge. <https://doi.org/10.4324/9781315712468-21>
- Harris, B. (1989). Beyond Geographic Information Systems. *Journal of the American Planning Association*, 55(1), 85–90. <https://doi.org/10.1080/01944368908975408>
- Hartmann, T., & Lamker, C. W. (2023, August 21). *Becoming a Post-Growth Planner #20: Obstacles and challenges to changing roles and practices* [Podcast]. <https://www.postgrowthplanning.com/podcast/becoming-a-post-growthplanner-20-thomas-hartmann>
- Healey, P.(2023). The planning contribution in a disoriented continent. *European Planning Studies*, 31(11), 2297–2305. <https://doi.org/10.1080/09654313.2023.2217856> (Reflection).
- Healey, P.(2024). Planning and caring: A reflection. *Planning Theory*, 23(3), 266– 277. <https://doi.org/10.1177/14730952231226411> (Essay).
- Hickel, J., & Hallegatte, S. (2022). Can we live within environmental limits and still reduce poverty? Degrowth or decoupling? A debate curated by Simon Maxwell. *Development Policy Review*, 40(1), Article DPR. 12584, 1–24. <https://doi.org/10.1111/dpr.12584> (Article).
- Hickel, J., & Kallis, G. (2020). Is Green Growth Possible? *New Political Economy*, 25(4), 469–486. <https://doi.org/10.1080/13563467.2019.1598964>
- Innes, J. E., & Booher, D. E. (1999). Consensus Building as Role Playing and Bricolage: Toward a Theory of Collaborative Planning. *Journal of the American Planning Association*, 65(1), 9–26. <https://doi.org/10.1080/01944369908976031>
- Innes, J. E., & Booher, D. E. (2010). *Planning with complexity: An introduction to collaborative rationality for public policy*. Routledge.
- Intergovernmental Panel on Climate Change (2022). *Mitigation of Climate Change: Climate Change 2022. Sixth Assessment Report*. Intergovernmental Panel on Climate Change (IPCC). https://report.ipcc.ch/ar6wg3/pdf/IPCC_AR6_WGIII_PressConferenceSlides.pdf
- Jensen, M., Galland, D., & Harrison, J. (2025). The mistreatment of time in planning theory. In P.Allmendinger, M. Tewdwr-Jones, & M. Wargent (Eds.), *Critical Planning Futures: New Directions in Planning Theory* (pp.180–200). Routledge. <https://doi.org/10.4324/9781003402855-11>
- Kaika, M., Varvarousis, A., Demaria, F., & March, H. (2023). Urbanising degrowth: Five steps towards a Radical Spatial Degrowth Agenda for planning in the face of climate emergency. *Urban Studies*, 60(7), 1191–1211. <https://doi.org/10.1177/00420980231162234> (Special Issue: Urbanising degrowth: towards a radical spatial degrowth agenda for future cities).
- Lacoere, P., & Leinfelder, H. (2023). No net land take for Flanders. Towards a roadmap for the implementation of Europe's land target. *Raumforschung und Raumordnung | Spatial Research and Planning*, 81(6), 620–635. <https://doi.org/10.14512/rur.1696>
- Lamker, C. W. (2016). *Unsicherheit und Komplexität in Planungsprozessen: Planungstheoretische Perspektiven auf Regionalplanung und Klimaanpassung* [Uncertainty and Complexity in Planning Processes: Theoretical Perspectives on Regional Planning and Climate Adaptation]. *Planungswissenschaftliche Studien zu Raumordnung und Regionalentwicklung*: Vol. 6. Rohn. <https://doi.org/10.17877/DE290R-20157>
- Lamker, C. W. (2019a). Leadership Roles in Local Land-Use Planning for Noise Control. *Town Planning Review*, 90(3), 275–297. <https://doi.org/10.3828/tpr.2019.19>
- Lamker, C. W. (2019b). Planning in uncharted waters: spatial transformations, planning transitions and role-reflexive planning. *Raumforschung und Raumordnung | Spatial Research and Planning*, 77(2), 199–211. <https://doi.org/10.2478/rara-2019-0012>
- Lamker, C. W. (2022). Poststrukturalistische Impulse für die deutschsprachige Planungstheorie. In U. Altrock & H. Nuißl (Eds.), *Gesellschaftsverhältnisse und Planung: Ein Geburtstagsgruß für Sandra Huning. Sonderausgabe der Planungsrundschau anlässlich des 50. Geburtstage von Sandra Huning* (pp.95–108). Universität Kassel.
- Lamker, C. W. (2024). Raumplanung und das Ende von Wachstum und Fläche: Wachstumsbias und Postwachstumskritik. *RaumPlanung*, 226(2), 34–40. <https://ifr-ev.de/raumplanung/die-zukunft-der-raumplanung/>
- Lamker, C. W., & Marjanović, M. (2022). Reproduction of Spatial Planning Roles: Navigating the Multiplicity of Planning. *PlaNext - Next Generation Planning*, 12, 70–83. <https://doi.org/10.24306/plnxt/82> (Journal volume 'Governing the Unknown: Adaptive Spatial Planning in the Age of Uncertainty').
- Lamker, C. W., & Schulze Dieckhoff, V. (2021). New roles in collective, growth-independent spatial organisation. In B. Lange, M. Hülz, B. Schmid, & C. Schulz (Eds.), *Social and Cultural Geography: Vol. 49. Post-Growth Geographies: Spatial Relations of Diverse and Alternative Economies* (pp.347–362). transcript Verlag. <https://doi.org/10.14361/9783839457337-025>

- Lamker, C. W., & Schulze Dieckhoff, V. (2022). Becoming a post-growth planner: inner obstacles to changing roles. In F. Savini, A. Ferreira, & K. C. von Schönfeld (Eds.), *Post-Growth Planning: Cities beyond the market economy* (pp.189–202). Routledge. <https://doi.org/10.4324/9781003160984-20>
- Lamker, C. W., & Terfrüchte, T. (2024). Post-Growth Ambitions and Growth-Based Realities in Sustainable Land-Use Planning. *Urban Planning*, 9, Article 7881, 1–16. <https://doi.org/10.17645/up.7881> (Contribution in Special Issue: Urban Shrinkage, Degrowth, and Sustainability: How Do They Connect in Urban Planning?).
- Luhmann, N. (1966). Reflexive Mechanisms. *Soziale Welt*, 17(1), 1–23.
- Luhmann, N. (1972). Knappheit, Geld und die bürgerliche Gesellschaft. *Jahrbuch für Sozialwissenschaft*, 23(2), 186–210.
- Luhmann, N. (1977). Differentiation of Society. *Canadian Journal of Sociology / Cahiers Canadiens de sociologie*, 2(1), 29. <https://doi.org/10.2307/3340510>
- Luhmann, N. (1983). *Legitimation durch Verfahren*. Suhrkamp Taschenbuch Wissenschaft: Vol. 443. Suhrkamp.
- Luhmann, N. (1987). *Soziale Systeme: Grundriß einer allgemeinen Theorie*. Suhrkamp Taschenbuch Wissenschaft: Vol. 666. Suhrkamp.
- Luhmann, N. (1997). *Die Gesellschaft der Gesellschaft 2*. Suhrkamp Taschenbuch Wissenschaft: Vol. 1360. Suhrkamp.
- Luhmann, N. (2006). System as Difference. *Organisation*, 13(1), 37–57.
- Luhmann, N. (2018). *Organisation and decision* (D. Baecker & R. Barrett, Trans.). Cambridge University Press.
- Magnusson, D., & Lamker, C. W. (2023, August 30). *Becoming a Post-Growth Planner #19: Obstacles and challenges to changing roles and practices* [Podcast]. <https://www.postgrowthplanning.com/podcast/becoming-a-postgrowth-planner-19-dick-magnusson>
- Mäntyselä, R. (2016). From Public-Private-People Partnerships to Trading Zones in Urban Planning. In G. Concilio & F. Rizzo (Eds.), *Human Smart Cities* (pp.141–157). Springer International Publishing. https://doi.org/10.1007/9783-319-33024-2_8
- Meadows, D. H. (1999). *Leverage Points: Places to Intervene in a System*. Sustainability Institute. http://www.sustainer.org/pubs/Leverage_Points.pdf
- Meadows, D. H. (2008). *Thinking in systems: A primer*. Chelsea Green Publishing.
- Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. (1972). *The Limits to growth: A report for the Club of Rome's project on the predicament of mankind*. Universe Books.
- Moroni, S. (2020). The role of planning and the role of planners: political dimensions, ethical principles, communicative interaction. *Town Planning Review*, 91(6), 563–576. <https://doi.org/10.3828/tpr.2020.85> (Viewpoint).
- Moroni, S., & Cozzolino, S. (2019). Action and the city. Emergence, complexity, planning. *Cities*, 90, 42–51. <https://doi.org/10.1016/j.cities.2019.01.039>
- Nelson, S., & Neil, R. (2021). Early Career Planners in a Neo-liberal Age: Experience of Working in the South East of England. *Planning, Practice, and Research*, 36(4), 442–455. <https://doi.org/10.1080/02697459.2020.1867777>
- Othengrafen, F., & Levin-Keitel, M. (2019). Planners between the Chairs: How Planners (Do Not) Adapt to Transformative Practices. *Urban Planning*, 4(4), 111–125. <https://doi.org/10.17645/up.v4i4.2237>
- Owens, S., & Cowell, R. (2002). *Land and Limits - Interpreting Sustainability in the Planning Process*. Routledge.
- Portugali, J. (Ed.). (2021). *Research handbooks in urban studies series. Handbook on Cities and Complexity*. Edward Elgar Publishing.
- Rauws, W. S. (2017). Embracing Uncertainty Without Abandoning Planning: Exploring an Adaptive Planning Approach for Guiding Urban Transformations. *DisP - the Planning Review*, 53(1), 32–45. <https://doi.org/10.1080/02513625.2017.1316539>
- Rauws, W. S., & de Roo, G. (2016). Adaptive planning: Generating conditions for urban adaptability. Lessons from Dutch organic development strategies. *Environment and Planning B: Planning and Design*, 43(6), 1052–1074. <https://doi.org/10.1177/0265813516658886>
- Redepenning, M., & Wilhelm, J. L. (2014). Raumforschung mit Luhmannscher Systemtheorie. In J. Oßenbrügge & A. Vogelpohl (Eds.), *Theorien in der Raum- und Stadtforschung: Einführungen* (pp.310–327). Westfälisches Dampfboot.
- Rydin, Y. (2013). *Future of planning: Beyond growth dependence*. Policy Press.
- Rydin, Y. (2025). *Planning Without Growth*. Policy Press, an imprint of Bristol University Press. <https://doi.org/10.56687/9781447369790>
- Savini, F. (2021). Towards an urban degrowth: Habitability, finity and polycentric autonomism. *Environment and Planning a*, 53(5), 1076–1095. <https://doi.org/10.1177/0308518X20981391>
- Savini, F. (2025). Strategic planning for degrowth: What, who, how. *Planning Theory*, 24(2), 141–162. <https://doi.org/10.1177/14730952241258693>
- Savini, F., Ferreira, A., & Schönfeld, K. C. von (Eds.). (2022). *Post-Growth Planning: Cities beyond the market economy*. Routledge. <https://doi.org/10.4324/9781003160984>
- Schmid, B. (2022). What about the City? Towards an Urban Post-Growth Research Agenda. *Sustainability*, 14(19), 11926. <https://doi.org/10.3390/su141911926>

- Sengupta, U., Rauws, W. S., & de Roo, G. (2016). Planning and complexity: Engaging with temporal dynamics, uncertainty and complex adaptive systems. *Environment and Planning B: Planning and Design*, 43(6), 970–974. <https://doi.org/10.1177/0265813516675872> (Guest Editorial).
- Skrimizea, E., Haniotou, H., & Parra, C. (2019). On the ‘complexity turn’ in planning: An adaptive rationale to navigate spaces and times of uncertainty. *Planning Theory*, 18(1), 122–142. <https://doi.org/10.1177/1473095218780515>
- Suitner, J., & Levin-Keitel, M. (2025). Putting sustainability transitions “on the ground”. Three arguments for a stronger integration of spatial planning and sustainability transitions scholarship. *Raumforschung und Raumordnung | Spatial Research and Planning*, 83(6), 477–492. <https://doi.org/10.14512/rur.3071>
- van Assche, K., Beunen, R., & Duineveld, M. (2017). Witchcraft, oracle, and magic in the kingdom of planning: A reflection on planning theory and practice inspired by Ernest Alexander. *Planning Theory*, 16(2), 223–226. <https://doi.org/10.1177/1473095216676747> (Comment).
- van Assche, K., Duineveld, M., & Beunen, R. (2013). *Redefining Transition Management* (Wageningen University Working Papers in Evolutionary Governance Theory No. 9). http://governancetheory.files.wordpress.com/2013/01/egt9_redefining_transition_management.pdf
- Varvarousis, A., Kallis, G., & Kaika, M. (2025). Transitioning to Post-Growth Cities. *Journal of City Climate Policy and Economy*, 4(2), Article e20250006, 229–243. <https://doi.org/10.3138/jccpe-2025-0006>
- Verweij, S., Lamker, C. W., & Groot, B. de (2025). To Transport or not to Transport: Post-Growth Avenues for Transport Infrastructure Planning. *Journal of Critical Infrastructure Policy*, 6(1), Article e12035, 1–5. <https://doi.org/10.1002/jci3.12035> (Critical Perspectives).
- Wittmayer, J. M., Avelino, F., van Steenberghe, F., & Loorbach, D. (2017). Actor roles in transition: Insights from sociological perspectives. *Environmental Innovation and Societal Transitions*, 24, 45–56. <https://doi.org/10.1016/j.eist.2016.10.003>
- Xue, J. (2022a). A critical realist theory of ideology: Promoting planning as a vanguard of societal transformation. *Planning Theory*, 21(2), 109–131. <https://doi.org/10.1177/14730952211073330>
- Xue, J. (2022b). Urban planning and degrowth: a missing dialogue. *Local Environment*, 27(4), 404–422. <https://doi.org/10.1080/13549839.2020.1867840>

Acknowledgements

This manuscript has been drafted, written, and edited without support from artificial intelligence. The author thanks human intelligence and all participants in the 22nd meeting of the Association of European Schools of Planning (AESOP) Thematic Group on Planning and Complexity in Aachen in November 2024, as well as for conversations with key thinkers on post-growth and complexity theory between 2016 and 2025. The author also expresses special appreciation to Gert de Roo and Ward Rauws for comments on earlier drafts of this article.

FROM TEMPORARY TO TIMELESS: WORLD EXPOS AND THEIR IMPACT ON CITIES.

Javier Ostos-Prieto¹

Abstract

World Expos take place in cities worldwide. They offer visions of the future and act as catalysts for urban transformation. Despite their ambitions, these events remain inherently temporary, lasting only three to four months. This paper asks how the Expo format engages with urban dynamics through temporary intervention strategies. It explores the relationship that exists between ephemerality and permanence by examining how temporal complexity shapes urban space at World Expos. It does so with a focus on Expo '92 in Seville. Using a critical comparative analysis of theoretical understanding of time, the paper evaluates their effects at the urban scale. The temporal distance since 1992 allows an assessment of the long-term urban legacy of a short-term global event.

Keywords:

Expo '92, Mega-Event, Seville, Urban Complexity Theories, Urban temporality.

¹ Chair and Institute for Urban Design, Faculty of Architecture, RWTH Aachen University.
E-mail: javier.ostos.prieto@staedtebau.rwth-aachen.de. ORCID: <https://orcid.org/0000-0002-9551-3946>.

1. Time, space and complexity: Towards an integrated understanding of contemporary urbanism

Time is often described as a measure of change. Although we can quantify time, its fundamental nature remains one of the major unresolved questions in physics. While time is commonly perceived as linear, several physical theories describe it as symmetric rather than unidirectional. Here, time links directly to one of the characteristics of a complex system: non-linearity. Complexity-oriented interpretations in physics –from quantum mechanics to gravitational theory – incorporate time to explain observable phenomena, but do not fully clarify their ontological basis. An explanation of time is, therefore, necessary in order to understand its complexity in relation to space and urban systems.

Entropy, from the second law of thermodynamics, links temporal progression to irreversible energy expenditure (Riggs, 2015), while Einstein's theory of relativity conceptualises time as relative to both observers and energetic conditions (Einstein, 1905). It follows, that time emerges through interactions between observers, matter, and energy, with each conditioned by specific spatial and situational contexts (Ikeda, 2012). Quantum theory further complicates this picture, with space and time form overlapping fields in which particles exist probabilistically while also revealing emergence, non-linearity and relational dependencies (Bohm, 1980). These concepts resonate with the characteristics of complex systems: nonlinearity, emergence, spontaneous order, and adaptation.

Urban systems display analogous complexity. Social complexity theory prefers to conceptualise terms such as development and evolution as abrupt shifts in progress, often referred to as 'revolutions' (Portugali, 2006). When scholars conceptually extend principles of physics to urban systems, the same four defining characteristics of complexity emerge: non-linearity, emergence, spontaneous order, and adaptation. From this perspective, cities function as complex adaptive systems in which time, space, and place continually interact.

Contemporary urbanism faces a fundamental tension between the ephemeral and the permanent; a duality that manifests across technical, physical, and conceptual dimensions. Within the framework of urban complexity theory, space and time function as interdependent variables in dynamic urban systems subject to non-linear change. Within these systems, long-lasting structures coexist with temporary interventions and short-lived events, producing emergent behaviours that exceed the sum of their parts (Moroni and Cozzolino, 2019). The concept of urban ephemerality thus extends beyond the transient lifespan of buildings or uses, and instead encompasses a mode of experiencing and organising time in cities.. While early urban transformations evolved through slow rhythmic processes, contemporary cities operate under high-speed cycles of transformation. These challenges include anticipating multiple potential futures without reliance on rigid frameworks and understanding time as a complex web of interconnected events rather than as a linear trajectory. Mega-events, particularly Universal Exhibitions, illustrate this tension by imposing highly structured temporal frameworks onto urban space while also highlighting the interplay that takes place between ephemeral activities and permanent urban forms (Roche, 2003). These events underscore the intertwined nature of ephemerality and permanence, and offer a critical lens through which to view the temporal and spatial dynamics which shape contemporary urban environments.

The complexity of cities significantly impacts urban phenomena (Batty, 2005). Universal Expositions are high-impact interventions that condense multiple temporalities: short-term urgency, futurist projections, and the integration of the past. They are international events of short duration, generally of three to six months duration, which offer speculative and projective visions of the future. Despite their ephemeral nature, these mega-events have also left deep permanent imprints on the urban landscapes upon which they took place. Each Expo event usually displays a unique and spectacular array of architectural objects and structures (Roche, 2003). Iconic structures such as the Crystal Palace in London (1851), the Eiffel Tower in Paris (1889), the Ferris wheel in Chicago (1893), the Atomium in Brussels (1958), the Space Needle in Seattle (1962), and the Al Wasl Plaza dome in Dubai (2020) exemplify the synthesis of ephemeral programming with lasting architectural and urban legacies. Across more than 108 iterations, Universal Expositions have tested new urban models, technological visions, and spatial imaginaries.

Expos are large-scale urban interventions designed for short, fixed durations that can also produce long-term transformations. Like cities, they are complex systems that are made up of multiple components and interactions (Moroni and Cozzolino, 2019). However, the temporal compression and high-intensity development associated with these events also introduces risks. Mega-events frequently generate large urban areas designed for specific, short-term functions that may struggle to adapt after the event concludes. The legacy of these interventions is therefore uneven: while some infrastructures have been successfully absorbed into their given long-term urban fabrics, others have become obsolete, fragmented or chronically underused. In this sense, Expos act as stress tests for the ability of cities to transform ephemeral installations into permanently useful assets.

This paper adopts the framework of urban complexity to analyse Universal Expositions, and in so doing focuses on the concepts of time, urban design, and the tensions which exist between ephemerality and permanence. The chosen case study – the Universal Expo in Seville in 1992 – illustrates these issues particularly well. Although Expo '92 represented one of the most ambitious in Spain's recent history and has left a significant urban footprint, its post-event trajectory reveals a clear failure of adaptable reuse: large sections of the site have struggled to integrate into Seville's long-term urban dynamics, with many structures remaining underutilised, vacant or repurposed only after extensive delays. The Seville case mirrors recurrent patterns observed across other mega-events, where ambitious temporary visions confront the practical challenges of long-term urban assimilation. It offers a critical lens for examining event urbanism and how mega-events can shape and constrain their social and spatial legacies.

2. Objectives and methodological approach: Analysing Expo 92 as a case of ephemeral urbanism

This paper explores the implications of ephemeral urbanism through the specific case of Expo '92 in Seville (Figure 1), and in so doing analyses its relationship with permanence, temporality and urban complexity. It unravels how an intervention which was designed for a short-lived event has had a lasting impact on the city's urban fabric, and also addresses what lessons can be drawn from it for future interventions of a similar nature. It also seeks to provide understanding as to how time, as a structuring category of urban planning thinking and action, shapes the decisions, expectations and outcomes of world exhibitions.

The paper also interrogates the role of time as a structuring category in urban planning thought and practice. It considers how different temporal horizons – ranging from the immediacy of event delivery to post-event adaptation and long-term urban legacy – influence planning decisions, shape stakeholder expectations, and condition the eventual outcomes of world exhibitions. By foregrounding time as both an analytical and operational dimension, the paper contributes to a more nuanced understanding of how temporality operates within mega-event urbanism.

Methodologically, the paper adopts a critical-comparative approach, integrating perspectives from urban theory, spatial planning, architecture and studies about time. A diverse set of sources – including historical records, planning documents, cartographic materials, statistical data, and empirical observations – supports the construction of a comprehensive account of the Expo's ephemeral configurations and their subsequent materialisation into permanent urban forms. The methodology further incorporates elements of systemic analysis. Thus, it treats the city as a complex, adaptive organism whose parts interact dynamically and not always predictably. This complexity-informed lens enables the paper to trace emergent outcomes, feedback loops, and unintended consequences, thereby situating the Seville Expo within broader patterns of mega-event urbanism.



Figure 1. Expo '92 on the left of the river and the historic centre of Seville on the right in 2023. Own elaboration.

3. Universal Exhibitions as urban catalysts: a view from complexity

Contemporary urbanism faces a fundamental conflict when it comes to linking space and time: the coexistence of the ephemeral and the permanent. This duality is not only technical or physical, but also conceptual and philosophical. Urban complexity theories understand space and time as interdependent variables that shape the form and function of cities. Cities are not merely anonymous spaces but unique and familiar places that bear names such as Jerusalem, Paris, and New York, and are immediately associated with memory, history, geography, and mythology (Portugali, 2006).

Urban planning faces the challenge of understanding this complexity. The Master Plans applied to urban environments tend to reduce highly complex problems and uncertain situations into simple problems, thereby losing the ability to recognise the true complexity of the city as a system (Moroni and Cozzolino, 2019). The city, understood as a complex system, is subject to non-linear, unpredictable, and multifactorial changes in which permanent structures coexist with and are affected by ephemeral interventions.

The concept of urban ephemerality refers not only to the limited duration of a building or its use, but also to the experience of time in the city. In this sense, Expos consider people's ability to experience the irreversibility and directionality of the flow of time from the past to the present and the future (Roche, 2003). In this way, ephemeral events shape the urban experience, and leave permanent imprints on collective memory.

In late modernity, the dominant social form is no longer the state but the *network* (Castells, 1996), implying a spatial and temporal reconfiguration in which change occurs in ever shorter and more interconnected cycles. Given this context of high speed and volatility, it is common to think that a plan is necessary to achieve successful results in the city (De Franco, 2024). However, this contrasts with antagonistic concepts such as *laissez-faire* (Allison, 1971), in which the city is simply allowed to self-organise.

In this dichotomy between self-organisation and planning, the city faces the difficulty of predicting the evolution of complex systems. This is extremely difficult when making a Master Plan. One possible answer to this problem is understanding that a qualitative prediction cannot predict particular events but rather indicates what kind of events are expected within a large class of possibilities, while also emphasising the inherent uncertainty of urban systems (Hayek, 1967). In this regard, urban actions possess three essential characteristics: intentionality, subjectivity, and uncertainty (Moroni and Cozzolino, 2019).

In urban planning, temporal action, best understood as a decision, is not an instantaneous process, but rather one that requires social interaction, time and collective negotiation (De Soto, 2008). It follows, that contemporary urban planning faces the challenges of anticipating futures without being truly rigid, and understanding time not as a straight line but as a complex web of interconnected events. It is precisely this understanding that allows us to see complex artefacts, such as the city, not only as artificial products but also as part of an organic natural process in their interactions with the built space (Portugali, 2006).

Universal Exhibitions, as well as other world events such as the Olympics or world football tournaments, are also complex processes that combine political, cultural and social layers that interact across urban, national, and international scales. A city work in the medium term, trying to produce an event and manage its effects (Roche, 2003). They therefore represent a particular form of ephemeral urbanism which has the potential to generate lasting structural changes. Despite their short duration, their impacts are often profound, as they mobilise resources, modify infrastructure, and act as catalysts for projects that would otherwise not be politically viable. In this sense, the intersection of strategic planning and speculative architecture situates urbanism associated with Expos.

During the brief period of an Expo, the host city becomes a global showcase. This temporary nature also brings with it the risk of the fragile: facilities built in haste, spaces designed to be moved through quickly, and programmes that prioritise spectacle over long-term functionality. For this reason, good planning must take into account two time horizons: the short term (2 to 5 years) and the long term (10 to 20 years). In the short term, an Expo should serve to improve infrastructure, provide the city with new facilities, and enable it to update its connectivity. In the long term, the event's resilience will depend on its capacity to reintegrate into the city, offer adaptive uses for its sites, and generate sustainable opportunities. This logic of reversibility aligns with the proposals of tactical urbanism, which treat the temporary as a rehearsal for the permanent.

Dubai Expo is an example of this vision, as it will soon turn into District 2020; a sustainable city focused on community needs (Richards and Leal Lodoño, 2022). Similarly, the 2012 London Olympics were used as a strategic process to regenerate London East with new strategies and infrastructure for 2031 (Davis, 2014). Indeed, the idea of mega-events has been employed as a tool to achieve urban goals crystallised in the concept of *eventual cities* (Richards and Palmer, 2010), articulating Expos as innovation laboratories in which solutions scalable to other urban areas are experimented with: from sustainable building techniques to new models of public space management. However, as Portugali (2006) reminds us, space is not only a landscape full of forces, but also a product that emerges from the interactions that take place within it. If these are not articulated as spaces with a long-term urban strategy, they risk becoming spaces that are disconnected from their surroundings; spaces of exception whose disconnection from the urban fabric prevents their social and functional appropriation.

4. Expo '92 in Seville: Modernisation, Identity and Urban Transformation

The mega-event genre emerged at the end of the 19th century, and was closely linked to processes of nation-building and imperial buildings that symbolised industrialisation and the rise of capitalist societies in the United States and Western Europe (Hobsbawm, 1992). These events responded to state-driven needs to project images of modernity, as well as technical progress and cultural supremacy to the rest of the world. They became strategic instruments in the construction of national identities and international economic positioning. Early Universal Expositions, particularly between 1851 and 1875, reflected the imperial ambitions of powers such as France and the United Kingdom, and served as platforms for displaying both colonial wealth and industrial superiority in competition with emerging nations (Richards and Leal Lodoño, 2022). Within this context, Universal Expositions were spaces for the exhibition of technological and scientific dominance, and consolidated the idea that material progress was the core of civilisation.

Over time, the objectives and narratives of Expos evolved alongside broader socio-economic and cultural transformations. The period between 1925 and 1970, often described as the era of the *Modern Expos*, was characterised by a strong emphasis on avant-garde architecture, rational planning, and utopian urban visions that were influenced by the Modern Movement (Richards and Leal Lodoño, 2022). From the 1970s to the turn of the millennium, the *Postmodern Expos* shifted the focus towards spectacle, theme-based content and entertainment; reflecting the rise of consumer culture and the production of collective imaginaries around progress (Richards and Leal Lodoño, 2022). By the year 2000, events such as the Sydney Olympic Games, the Hanover Expo, and the London Millennium projects had consolidated mega-events as tools in the global economy; reinforcing the role of host cities as nodes of innovation and tourism (Roche, 2003). More recently, the *Expos of the future and sustainable development* – such as Dubai – have articulated discourses of sustainability, technological innovation and cultural diplomacy; responding to challenges posed by climate change and digital globalisation.

Despite their success in image-making and economic impact, mega-events have often prioritised controlled spatial narratives and choreographed experiences. This design logic tends to limit opportunities for informal appropriation and unplanned social interaction, both of which are crucial to the long-term vitality of urban spaces. From an urban complexity perspective, the existence of this tension between predictability and spontaneity is critical to assessing the enduring social and spatial effects of Expo-led transformations, particularly after the given event's temporal framework has expired.

Since the Second World War, Expos have been framed as spaces for the “meeting of nations” and as catalysts for large-scale urban renewal, capable of transforming both the physical and symbolic structure of host cities (Marchena Gómez and Pablo-Romero Gil-Delgado, 2005). Beyond their diplomatic and economic objectives, however, Expos function as experimental laboratories of urban design, where specific spatial configurations actively influence patterns of social interaction. In this sense, the relationship that exists between urban form and social life is not incidental, but central to understanding the long-term legacy of these events within complex urban systems.

Within this framework, the selection of Seville as host city for Expo '92 responded to a national strategy of international projection in the post-Cold War global order. Spain sought to consolidate its image as a modern, democratic and competitive state after decades of dictatorship and isolation. Expo '92 thus became both a symbolic and material opportunity to demonstrate organisational, technical and cultural capacity, and aligned with other major modernisation projects such as the Barcelona Olympic Games and Spain's integration into the European Economic Community. However, policymakers largely articulated this ambition through top-down planning mechanisms and therefore subordinated social integration to representational and infrastructural goals.

The choice of Isla de la Cartuja as the Expo site illustrates this logic. Historically marginal and located on the right bank of the Guadalquivir River, the area remained relatively disconnected from urban developments in Seville. Its selection enabled the creation of a new urban enclave that was largely detached from existing neighbourhood dynamics (Figure 2). Although river channelling and infrastructural works since the 1950s had reduced flood risk and improved accessibility, event-specific requirements for Expo '92 primarily drove the area's transformation. The orthogonal layout adopted – originating from a 1981 competition – was retained in the final master plan despite diverging proposals in the 1985 competition (Díaz Recaséns and Díaz Recaséns, 1981). While this predictable and legible spatial order facilitated visitor flows and event management, it constrained informal uses and spontaneous social interaction; key components of socially resilient public spaces.

The Expo '92 Master Plan organised the site around a large artificial lake and a system of orthogonal axes, preserving the Cartuja Monastery as a symbolic heritage landmark. Beyond its powerful symbolic charge as a representation of modernity and openness to the world, this operation had a profound impact on Seville's urban morphology. It acted as a lever for large-scale public and private investment and accelerated infrastructural modernisation. The Expo catalysed urban planning interventions at three scales: neighbourhood – new facilities, roads and public spaces –, urban scale – bridges, bypasses and major infrastructures such as the Alamillo Bridge –, and regional scale – improvements in infrastructures and communications benefiting Andalusia as a whole – (Marchena Gómez and Pablo-Romero Gil-Delgado, 2005). However, while these transformations significantly

modernised Seville's infrastructure, their social impact was uneven. Improved accessibility did not translate into full functional or social integration, and the Cartuja remained weakly embedded in Seville's everyday urban life after the event; leading to mono-functional redevelopment and persistent underuse.

These outcomes reflect a technocratic vision of urban modernity which prioritises infrastructure, efficiency and international visibility over social continuity, adaptability and long-term sustainability. As Lovelace (1958) suggests, 'you can't do planning without a plan', but it is also worth asking, does planning need a plan? (Neuman, 1998). Urban planning inevitably projects an idealised image of the city (Alonso, 1963), and in the case of Expo '92, this image centred on an international, competitive and transformed Seville. The materialisation of this vision, however, revealed inherent contradictions: spaces designed for global representation struggled to accommodate local, everyday uses, underscoring how planning narratives are intertwined with power relations and contested urban futures.



Figure 2. Site of Expo '92 in 1985 (left) and 1993 (right). Own elaboration based on aerial images of the Red de Información Ambiental (REDIAM).

Expo '92 was therefore much more than a temporary event. It constituted a powerful declaration of intent that reshaped Seville's urban identity while simultaneously exposing the limits of predictable, top-down design in producing socially and spatially resilient urban environments. Its legacy reinforces a central lesson for contemporary urbanism: Universal Expositions are not only projects oriented towards the future, but also exercises in memory, political construction, and spatial experimentation whose effects continue to shape cities long after the event itself has concluded.

5. Expo '92 as an engine of change: urban and functional transformations in Seville

A common assumption in urban planning is that a master plan can create attractive and successful urban areas (Cozzolino, 2024). This premise underpins many mega-events, particularly Universal Expositions, which are frequently conceived as catalysts for accelerated urban transformations. The case of Expo '98 in Lisbon, for example, illustrates how an event can be mobilised not merely as a temporary spectacle but as a driver of long-term urban restructuring and regeneration (Carrière and Demazière, 2002). Similarly, Expo '92 in Seville represented a milestone in the city's modernisation process, concentrating investments, urban planning strategies and a vision of progress within a compressed time frame (Carrière and Demazière, 2002). Its designation was not an isolated decision but part of a broader national strategy, reinforced by the simultaneous hosting of the Olympic Games in Barcelona; both sought to reposition Spain within the global economic and cultural landscape.

Mega-events possess the capacity to transform ordinary spaces into special and symbolic places (Roche, 2003). Achieving such transformation, however, requires prospective planning that anticipates multiple scenarios and long-term consequences, rather than responding solely to immediate functional demands (Moroni, 2023). The case of Seville reflects this process. Prior to 1992, the city had limited cross-river connectivity, with only four bridges over the Guadalquivir and a fragmented railway system which possessed two train stations, San Bernardo and Plaza de Armas, and whose lines formed significant urban barriers. The Expo accelerated a radical urban and infrastructural transformation. In less than five years, authorities constructed approximately 75 km of new road infrastructure across the metropolitan area. Major transport investments included the completion of the A-92 motorway linking Seville and Granada, a comprehensive restructuring of the railway network through the construction of the Santa Justa station, and the inauguration of Spain's first high-speed rail line connecting Seville and Madrid. In parallel, planners expanded the airport's capacity fourfold. Finally, significant river engineering works restored approximately 7 km of the city's riverbanks, while seven new bridges were constructed and the port underwent extensive redevelopment (Marchena Gómez and Pablo-Romero Gil-Delgado, 2005).

The magnitude of these investments was decisive. In Seville and its surroundings alone, 139,874 million pesetas – equivalent to around 840.38 million euros – were allocated, while total investments across Andalusia reached 5,256.32 million euros (Marchena Gómez and Pablo-Romero Gil-Delgado, 2005). These resources financed extensive road access systems, public spaces, transport networks, thematic pavilions, scenic spaces such as the Central Theatre, an auditorium, and a cinema, as well as sports facilities and service buildings. Collectively, these interventions redefined both the functional organisation and symbolic structure of Seville, and reinforced its role as a regional and international hub.

The infrastructural expansion had tangible and lasting effects. Within little more than a decade, the number of bridges crossing the Guadalquivir doubled, improving urban mobility and re-integrating the river as an *urban river*. The Santa Justa station eliminated long-standing physical barriers and, through the high-speed rail connection, reduced travel time to Madrid to two and a half hours, while the completion of the A-4 motorway strengthened Seville's strategic position within the national transport network between central and southern Spain. At the same time, the modernisation of the river port and, especially, the airport placed the city firmly on the international map. It opened the door to continental tourism, and the city has attracted an increasing number of visitors every year since then.

Bertolini (2007) reminds us that infrastructure should be designed for a world full of multiple, constantly changing actions, increasing its adaptability and resilience. Seville's experience reveals the limitations of event-centred planning when planners fail to address long-term integration. While post-1992 urban mapping depicts a more extensive and better-connected city, it also exposes persistent fragmentation. Large areas surrounding Isla de la Cartuja struggled to consolidate, and many Expo buildings failed to secure viable permanent uses; illustrating a broader failure of adaptable reuse. In this context, the event's spectacular and representational dimensions tended to overshadow functional continuity and everyday urban needs. The Expo's ephemeral logic was not effectively translated into a flexible long-term framework, and complexity was addressed in response to immediate deficiencies rather than as an ongoing condition requiring adaptive governance.

6. Ephemeral Urbanism and Permanent Legacy: The Temporal Complexity of Expo '92

One of the most significant legacies of Universal Exhibitions lies in their capacity to accelerate urban development and mobilise large-scale spatial transformations within exceptionally short timeframes (Sykta, 2020). Conceived as showcases of modernity, innovation and progress, these events often leave enduring material and symbolic imprints on host cities. However, accumulated experience demonstrates that such transformations rarely follow linear trajectories, or automatically produce coherent, functional and sustainable urban outcomes. The long-term effects of Expos led development depend less on the magnitude of initial investment than on the institutional and social capacity to adapt specific infrastructures and spaces once the ephemeral spectacle has concluded.

In the 21st century, the concept of planning has increasingly moved away from the closed, deterministic models that dominated much of the previous century. The recognition of cities as complex systems – characterised by both ordered and random interactions – has revealed the limitations of projects based on fixed objectives and rigid spatial prescriptions. Public actions, regulations, and flexible structures are more efficient for designing and planning the city, which Moroni (2023) calls *adaptive, multi-stage, or multi-component plans*. This vision recognises that ideal spatial configurations cannot be fully anticipated, given the continuous emergence of new needs, actors and challenges (Moroni and Cozzolino, 2019). As a result, cities should not be designed as static systems, but rather as dynamic realities in constant transformation.

Considering this perspective, Cozzolino (2018) points out that urban planners should abandon the assumption that inhabitants' preferences and behaviours can be predicted with certainty. Rather than imposing closed solutions, planning should establish regulatory frameworks and spatial conditions that allow complexity and self-organisation of urban systems to flow. Hakim (2014) reinforces this idea by advocating for the use of negative rules – those that indicate what not to do – rather than positive rules that prescribe specific actions. This enables greater freedom in spatial production and facilitates spontaneous and unpredictable solutions. Similar arguments are advanced by Schubert (2018), who conceptualises planning as a form of non-planning oriented towards maximum flexibility. De Franco (2024) further warns that every plan, as an act of design, simultaneously enables certain possibilities while excluding others, thereby limiting its capacity to urban complexity. Much like in quantum mechanics, where particles are understood probabilistically rather than through fixed positions, urban planning must accept indeterminacy as a fundamental condition. Planning, therefore, is never a definitive solution, but a provisional hypothesis to continuous revision and adaptation.

Expo '92 in Seville exemplifies how a six-month ephemeral event can generate long-lasting – though often incoherent – effects on urban morphology and functionality. Such mega-events produce both failures and opportunities, with impacts unfolding across short (2-5 years), medium (10-20 years) and long-term horizons, as clearly evidenced in Seville. Many interventions implemented for the Expo, including ephemeral structures, became effectively permanent due to the absence of clear post-event strategies. The event thus left deep material and symbolic traces, reinforcing the idea that ephemerality in urbanism does not necessarily equate to reversibility.

Subsequent planning instruments, particularly the 2007 Master Plan, consolidated a predominantly mono-functional development model for the former Expo site (Figure 3). Unlike other areas of the city – such as the historic centre or Triana – characterised by a mix of residential, commercial and civic uses, the Expo '92 area was largely assigned to industrial, business and public facilities uses. The absence of residential uses left a structurally incomplete urban fabric, and rendered the area as an enclave largely inactive outside working hours. From the perspective of urban complexity, this condition constitutes a critical failure: without permanent inhabitants, the city's fundamental social substrate is missing. Although several buildings were reused for business, technological and cultural purposes, many pavilions remain abandoned or underutilised, reflecting a clear failure of adaptable reuse and the absence of a coherent long-term regeneration strategy.

Despite the construction of a technology park, cultural areas, sports facilities, hotels and the Alamillo Park – with over 900,000 m² of green space (Marchena Gómez and Pablo-Romero Gil-Delgado, 2005) – Isla de la Cartuja has not been consolidated as a fully integrated urban district. The Expo continues as a temporary place; a space in which society carries out ephemeral and simple actions. The single-function workspace has not allowed for the spontaneous development of shops or restaurants for workers. The rigidity of the planning framework governing the site has inhibited the emergence of mixed uses, local commerce and informal social practices. Like a subatomic particle, the area exists in a constant state of observation.

In this context, time cannot be understood solely as a linear chronological dimension. Rather, it operates as a relational and structuring force that shapes urban experiences and conditions design decisions. The compressed, urgent temporality of the Expo collided with the slower, accumulative and evolutionary time of the city, producing a persistent mismatch between event-driven spatial logics and everyday urban life. The post-Expo period has been marked by an ongoing search for functions, identities and meanings for a space conceived as exceptional and never fully normalised within Seville's urban structure.

From a complexity theory perspective, these outcomes emerge as non-linear effects. Decisions made in the years preceding 1992 did not merely shape the immediate present but generated bifurcations and divergent trajectories that continue to resonate decades later. Isla de la Cartuja has thus become an urban laboratory where obsolescence, fragmentation and reinvention coexist. Demolished pavilions adapted office spaces, technological centres, university spaces and cultural facilities form a heterogeneous landscape that resists conventional urban categorisation.

Although a linear, functionalist perspective might interpret this functional and morphological heterogeneity as a planning failure, an alternative reading understands it as an expression of non-deterministic urban evolution. If we understand the city as an open complex system, the absence of a single, stable outcome does not necessarily signal dysfunction, but rather highlights the contingent nature of urban processes. The challenge lies not in eliminating uncertainty, but in creating frameworks capable of accommodating adaptation, reconfiguration and resilience over time.

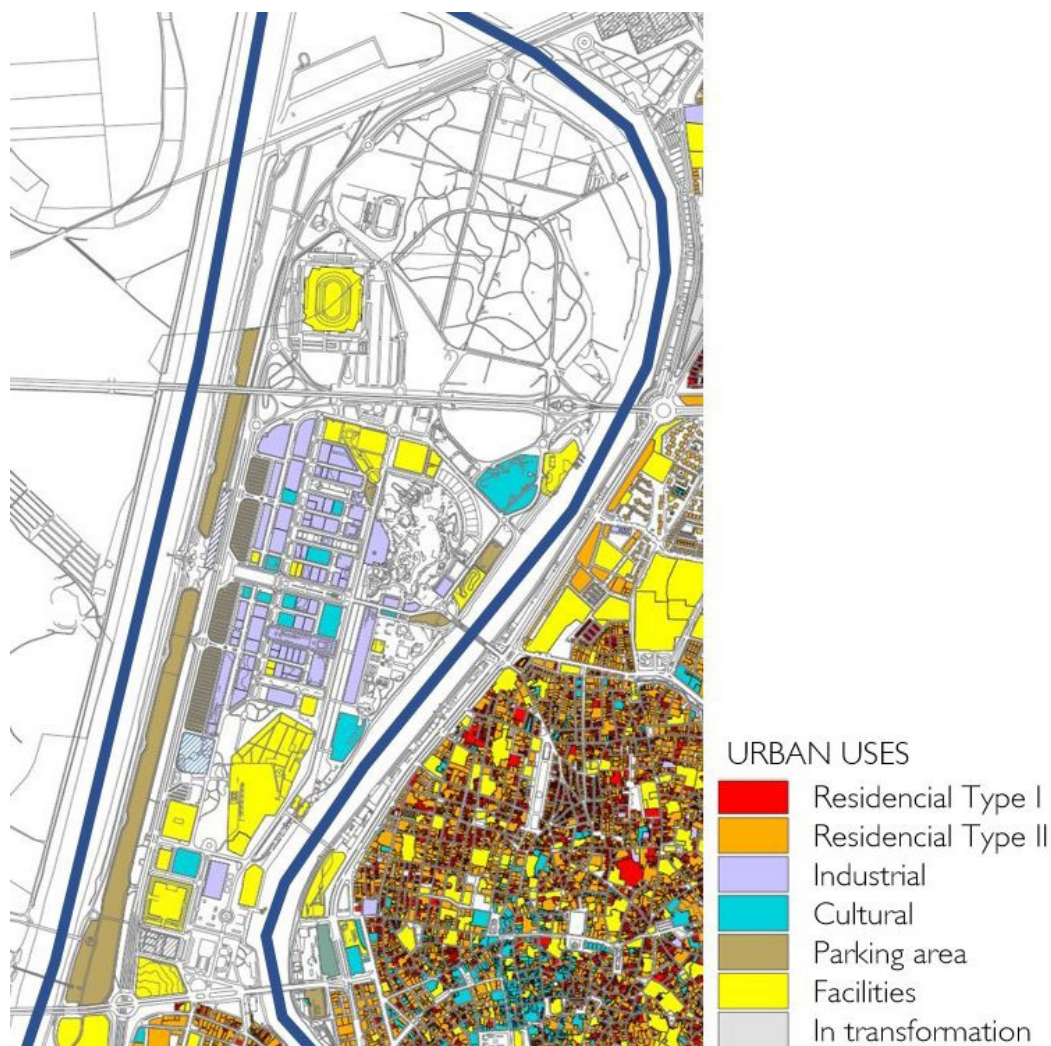


Figure 3. Urban uses established by the Seville Master Plan 2007. Source: Plan General de Ordenación Urbana de Sevilla of 2007.

Ultimately, we should not assess the urban legacy of Expo '92 solely in terms of physical permanence, economic return or immediate functionality. Its significance also lies in its contribution to urban imaginaries, institutional learning, and critical reflection on the limits of spatial control. The Seville experience demonstrates that urban design is a hypothesis tested within a dynamic and unpredictable environment. In this sense, sustainability is less about achieving predefined outcomes and more about maintaining openness to change, embracing uncertainty, and enabling cities to learn, adapt and reinvent themselves through both their failures and their successes.

7. Conclusion

This paper's analysis of Expo '92 in Seville as a paradigmatic case of ephemeral urbanism reveals key insights into the interaction among time, complexity, and permanence in urban transformation. Conceived as a six-month event, the Expo nonetheless operated as a powerful catalyst for change across multiple scales – local, urban, regional and national. Major investments in transport infrastructure, cultural facilities, public spaces and regional connectivity significantly transformed Seville's spatial structure, integrating the city into high-speed mobility networks and reinforcing its position as a strategic node in southern Europe. While these interventions produced substantial material and symbolic benefits, they have not consistently yielded equitable social outcomes or long-term urban sustainability.

A central conclusion concerns the unresolved tension which exists between the ephemeral logic of the event and the long-term logic of the city. Expo '92 operated under conditions of urgency, compression and exceptionality, whereas urban life unfolds through cumulative, evolutionary and relational processes over time. This temporal mismatch generated persistent imbalances in the site's spatial and functional integration. The consolidation of Isla de la Cartuja as a predominantly single-functional area – focused on business, technology and public uses – limited opportunities for a diverse, dynamic and socially active urban fabric. The near absence of residential function has constrained social appropriation, reinforced spatial isolation, and reproduced a functionalist logic that is at odds with the diversity and resilience principles which are central to complex urban systems.

From the perspective of urban complexity theory, Expo '92 exemplifies how decisions and interventions under uncertainty can generate non-linear, emergent effects far beyond initial planning intentions. The reorganisation of transport infrastructure, riverfront transformation, and the construction of new architectural landmarks transformed both Seville's urban image and its functionality. Simultaneously, these interventions produced bifurcations that led to divergent development trajectories: Isla de la Cartuja evolved into a heterogeneous urban laboratory in which obsolescence, abandonment and reinvention coexist. The coexistence of demolished buildings, reused pavilions and unresolved spaces illustrates the city as an open, dynamic and adaptive system, challenging linear and deterministic planning paradigms.

The Expo also highlights the importance of incorporating flexibility, adaptability, and multi-scalarity into urban plans for mega-events. The *adaptive plans* and *multi-stage plans* proposed in contemporary literature (Moroni, 2023) offer more resilient alternatives to rigid master plans, facilitate the gradual integration of event spaces into the urban fabric and reduce the risk of long-term obsolescence. Complexity theory underscores the limits of absolute urban control, and emphasises planning frameworks that support self-organisation, as well as the emergence of spontaneous solutions and iterative adaptation rather than fixed prescriptive spatial outcomes.

Expo '92 further demonstrates the ambivalent nature of mega-event legacies. While it successfully projected Seville as a modern, globally connected city, its social and spatial outcomes remain uneven. The prioritisation of spectacular objectives often overshadowed everyday urban functionality. Post-event planning rigidity inhibited the emergence of spontaneous activities, local commerce and residential uses. This experience consequently reinforces the necessity of viewing mega-events not as isolated spectacles, but as integral phases within the city's lifecycle, where adaptability and programmatic flexibility are essential for long-term sustainability.

Beyond urban form, mega-events function as political and symbolic constructs. Seville's selection for Expo '92 was embedded in Spain's broader national project of modernisation and international repositioning. The Expo projected strategic national and urban intentions, and demonstrated how symbolic imperatives shape planning decisions. Complexity theory provides a lens through which to understand these dynamics: interventions are not only infrastructural but also socio-political experiments in which outcomes emerge through the interaction of multiple agents, scales, and temporalities.

Ultimately, the most enduring lesson of Expo '92 is that urban design is inherently provisional. Planning interventions are hypothesis-tested in dynamic, uncertain, and evolving environments. Cities cannot be reduced to static systems with definitive solutions. They are complex realities that require openness to

uncertainty, flexibility in the face of change, and the capacity to learn from both successes and failures. Expo '92 reinforces the need to move beyond deterministic planning toward approaches grounded in adaptability, functional diversity, social integration and ecological responsibility; principles central to complexity theory and essential for addressing the challenges of contemporary urbanisation in an increasingly interconnected and complex world.

References

- Allison, Lincoln (1971) Politics, Welfare, and Conservation: A Survey of Meta-Planning. *British Journal of Political Sciences*, 1, pp. 437–452. <https://doi.org/10.1017/S0007123400009236>
- Alonso, William (1963) Cities and City Planners. *Daedalus*, 92, pp. 824–839. <https://www.jstor.org/stable/20026814>
- Batty, Michael (2005) *Cities and Complexity: Understanding Cities with Cellular Automata, Agent-Based Models, and Fractals*. MIT Press.
- Bertolini, Luca (2007) Evolutionary Urban Transportation Planning: An Exploration. *Environment and Planning A: Economy and Space*, 39, 8, pp. 1998–2019. <https://doi.org/10.1068/a38350>
- Bohm, David (1980) *Wholeness and the Implicate Order*. Routledge, London.
- Carrière, Jean-Paul and Demazière, Christophe (2002) Urban planning and flagship development projects: Lessons from EXPO 98, Lisbon. *Planning Practice and Research*, 17, 1, pp. 69–79. <https://doi.org/10.1080/02697450220125096>
- Castells, Manuel (1996) *The Information Age. Vol. I – The Rise of the Network Society*. Blackwell, Oxford.
- Cozzolino, Stefano (2024) Planning and design for long-term neighborhood adaptability: an investigation of the formation and evolution of Kreuzviertel in Dortmund, Germany. *URBAN DESIGN International*, 30, pp. 81–103. <https://doi.org/10.1057/s41289-024-00243-6>
- Cozzolino, Stefano (2018) Reconsidering Urban Spontaneity and Flexibility after Jane Jacobs: How do they work under different kinds of planning conditions? *COSMOS+ TAXIS*, 5, 3, pp. 14–24. https://cosmosandaxis.org/wp-content/uploads/2018/03/cozzolino_ct_vol5_iss3_4.pdf
- Davis, Juliet (2014) A promised future and the open city: issues of anticipation in Olympic legacy designs. *Architectural Research Quarterly*, 18, 4, pp. 324–341. <https://doi.org/10.1017/S1359135515000068>
- De Franco, Anita (2024) To plan or not to plan? Is this the question? *Transactions of the Association of European Schools of Planning*, 8, pp. 10–23. <https://doi.org/10.24306/TrAESOP.2024.01.002>
- De Soto, Jesus Huerta (2008) *The Austrian School: Market Order and Entrepreneurial Creativity*. Edward Elgar, Cheltenham.
- Díaz Recaséns, Montserrat and Díaz Recaséns, Gonzalo (1981) La Corta de la Cartuja, Sevilla. *Arquitectura*, 232, pp. 60–63. <http://previa.coam.org/media/Default%20Files/fundacion/biblioteca/revista-arquitectura-100/1981-1986/docs/revista-articulos/revista-arquitectura-1981-n232-pag60-63.pdf>
- Einstein, Albert (1905) Zur Elektrodynamik bewegter Körper. *Annalen der Physik*, 322, 10, pp. 891–921. <https://doi.org/10.1002/andp.19053221004>
- Hakim, Besim S. (2014) *Mediterranean Urbanism Historic Urban / Building Rules and Processes*. Springer, Berlin.
- Hayek, Friedrich A. (1967) *Studies in Philosophy, Politics and Economics*. Routledge, London.
- Hobsbawm, Eric (1992) Mass-Producing Traditions: Europe, 1870–1914, in: *The Invention of Tradition*. Cambridge University Press, Cambridge, pp. 263–307.
- Ikedo, Sanford (2012) Entrepreneurship in action space, in: *The Spatial Market Process*. Emerald, Bingley, pp. 105–134.
- Lovelace, Eldridge (1958) Three Short Articles Designed to Provoke Discussion and Re-Examination of Basic Principles. *Journal of the American Institute of Planners*, 24, 1, pp. 7–10. <https://doi.org/10.1080/01944365808978260>
- Marchena Gómez, Manuel Jesús, Pablo-Romero Gil-Delgado, María del Pópulo, (2005) La Exposición Universal de Sevilla de 1992: consecuencias de orden territorial. *Territorio y desarrollo local*, 4, pp. 19–30. <https://hdl.handle.net/11441/79057>
- Moroni, Stefano (2023) Distinguishing 'planning' from the 'plan'. Institutional and professional implications of taking urban complexity seriously. *European Planning Studies*, 31, 11, pp. 2327–2341. <https://doi.org/10.1080/09654313.2023.2217851>
- Moroni, Stefano and Cozzolino, Stefano (2019) Action and the city. Emergence, complexity, planning. *Cities* 90, 12, pp. 42–51. <https://doi.org/10.1016/j.cities.2019.01.039>
- Neuman, Michael (1998) Does Planning Need the Plan? *Journal of the American Planning Association*, 64, 2, pp. 208–220. <https://doi.org/10.1080/01944369808975976>

- Portugali, Juval (2006) Complexity theory as a link between space and place. *Environment and Planning*, 38, pp. 647–664. <https://doi.org/10.1068/a37260>
- Richards, Greg Leal and Lodoño, María del Pilar (2022) Festival cities and tourism: challenges and prospects. *Journal of Policy Research in Tourism, Leisure and Events*, 14, 3, pp. 219–228. <https://doi.org/10.1080/19407963.2022.2087664>
- Richards, Greg and Palmer, Robert (2010) *Eventful Cities: Cultural Management and Urban Revitalisation*. Routledge, London.
- Riggs, Peter J. (2015) Contemporary Concepts of Time in Western Science and Philosophy, in: *Long History, Deep Time: Deepening Histories of Place, Aboriginal History Monographs*. ANU Press, pp. 47–66. <https://www.jstor.org/stable/j.ctt183q3h5.10>
- Roche, Maurice (2003) Mega-Events, Time and Modernity On time structures in global society. *Time & Society*, 12, 1, 99–126. <https://doi.org/10.1177/0961463X03012001370>
- Schubert, Dirk (2018) Cities and plans—the past defines the future. *Planning Perspectives*, 34, 1, 3–23. <https://doi.org/10.1080/02665433.2018.1541758>
- Sykta, Izabela (2020) Urban and architectural heritage, as well as the impact of American world expos on city planning and development on example of Philadelphia, Buffalo, Saint Louis and Cleveland. Part I. Initial studies—supplement. *Teka Komisji Urbanistyki i Architektury pan Oddzialw Krakowie Urbanity and Architecture Files*, 48, pp. 315–348. <https://doi.org/10.24425/tkuia.2020.135421>

BEYOND BEFORE AND AFTER: TIME-BASED PARTICIPATORY URBANISM

Ardalan Tayefehhosseinlou¹

Abstract

Urban interventions do not end at installation; their meanings and uses develop through repeated encounters over time. When this temporal unfolding is overlooked, participatory planning is narrowed to discrete stages and misses the negotiations that occur through use. This paper argues that participation can be understood not only as a planned event or phase, but also as participation-in-use: the ongoing reinterpretation and negotiation of an intervention through everyday interaction. Through a design-led conceptual inquiry, it develops the notion of Minimally Intrusive Interventions: small-scale, materially modest, reversible, and interpretatively open elements that invite non-prescribed use and remain adjustable as situated feedback accumulates. By foregrounding transitional periods in the life of an intervention, the paper proposes a time-aware design disposition that keeps learning, adaptation, and recalibration possible without presuming a final end-state. In this sense, incompleteness is framed as a deliberate strategy for inclusive engagement across shifting users, rhythms, and institutional constraints.

Keywords:

Participation-in-use, Transitional Phases, Deliberate Incompleteness, Urban Temporality, Minimally Intrusive Interventions (MIIs).

¹ PhD Candidate Urban and Regional Planning, Technical University of Dortmund | Dortmund, Germany.
Email: ardalan.391@gmail.com.

1. Introduction

'A city is more than a place in space; it is a drama in time.' With this maxim, Patrick Geddes foregrounded a dimension of urban life that resists reduction to spatial form alone (Geddes, 1904, 107). While cities are widely acknowledged as spatial systems, the temporal processes through which urban environments are inhabited, negotiated, and transformed remain difficult to accommodate within many planning and design frameworks. This is not because time is absent from planning discourse, but because it is often treated as a background parameter – something to be scheduled or managed –

rather than as an active design medium which shapes decision-making, representation, and participation (Klaasen, 2005). This paper examines how temporal assumptions embedded in prevailing project logics shape participatory urban planning. It argues that participation is often organised around punctual moments of consultation within linear project timelines, and that this leaves limited space for the transitional phases through which urban interventions are gradually interpreted, negotiated, and reconfigured through use. The paper, therefore, asks how participation might be reconsidered when time is approached not merely as a project parameter but as an active design medium that shapes urban interventions. Rather than answering this question through procedural reform alone, the paper approaches it through a design-led conceptual inquiry into temporally open forms of intervention.

A persistent manifestation of this prevailing temporal framing is the reliance on linear project logics structured around identifiable milestones and moments of completion. In practice, urban change is frequently narrated through simplified timelines that move from a defined "before" state to a resolved "after" condition. Reviews of strategic spatial planning research indicate that even approaches attentive to processualism often depend on fixed horizons and coarse chronologies, leaving limited analytical space for duration, sequencing, or timing as lived phenomena (Hutter & Wiechmann, 2022). Such temporal simplifications are not inherently problematic; they enable coordination and decision-making. They become problematic, however, when they are treated as sufficient representations of how urban change is experienced and negotiated over time.

What tends to be marginalised within these linear accounts are transitional phases: the lived intervals in which interventions begin to interact with their surroundings, uses are tested and adjusted, and meanings emerge through everyday practice. Here, meaning is understood not as symbolic content or designer intention embedded in space, but as an emergent and relational quality that arises through situated interactions over time. In line with Barad's (2003) performative account, meaning does not precede material arrangements but is co-produced through material-discursive practices. Transitional phases rarely align with punctual participation formats or end-of-project evaluations, yet they play a crucial role in how urban change becomes socially meaningful. Longstanding urban critiques have cautioned against assumptions of stable end states, and instead emphasised the open-ended and emergent character of city life (Jacobs, 1961). When interventions are conceived primarily as finished solutions, they risk becoming static insertions into dynamic environments, with limited capacity to absorb lived feedback once delivered.

To address this structural tension, this paper turns to design as a way of creating conditions through which participation can unfold gradually through interaction and use. The concept of Minimally Intrusive Interventions (MII) – defined in Section 4 – is developed through a design-led conceptual inquiry that combines critical synthesis of participatory approaches, theoretical reflection on time and urban complexity, and speculative design exploration. Rather than emerging exclusively from abstract theory, MIIs are constructed through iterative engagement with practical shortcomings observed in participatory urban practice and their reinterpretation through selected theoretical lenses. Design reasoning thus operates as a mediating tool, and translates critique into a design disposition with operational implications. The inquiry began by exploring why participatory actions may fall short in practice and, in doing so, identified a recurring temporal oversight: participation is often bounded, scheduled, and prematurely stabilised within project timelines.

Given this, engagement with existent literature in this paper is critical and selective. Rather than aiming for comprehensive coverage, texts were chosen for their capacity to interrogate time-compressed participation, engage with urban complexity, and inform concrete design consequences. Theoretical insights from authors such as Portugali, Wunderlich, and Storni were used to clarify and consolidate understandings first

encountered through practice in tacit form. In this sense, MIs emerge through abductive reasoning as both a theoretical construct and a design disposition, offering a speculative bridge from critiques of time-compressed participation toward temporally open forms of engagement.

2. Three Temporal Gaps in Participatory Planning

Despite widespread recognition that cities evolve through time, participatory planning practices continue to rely on temporal structures that often sit uneasily with how urban life is lived and negotiated (Forester, 1999; Saad-Sulonen *et al.*, 2018). Rather than a single shortcoming, this misalignment can be understood as a set of interrelated temporal gaps embedded in planning logics, research practices, and participatory formats. This section identifies three such gaps: a misfit between project time and lived time, the limits of expertise under conditions of unpredictability, and the tension which exists between social rhythms and project-based temporalities.

2.1. Temporal Misfit: Project Time versus Lived Time

A first temporal gap concerns the mismatch between project-based temporal frameworks and the temporalities of everyday urban life. Del Gaudio, Franzato, and de Oliveira (2017) describe participatory processes as vulnerable to temporal misfits that arise from differences in roles, expectations, routines, and motivations amongst actors. When participation is organised as a sequence of predefined phases, it implicitly assumes shared availability and synchronised engagement that rarely exist in practice. As a result, collaboration may weaken not because participation is rejected, but because its temporal structure fails to recognise diverse rhythms of involvement; limiting its capacity to function as an ongoing and inclusive process.

This mismatch becomes particularly visible when participation is framed as a project management task. Karasti, Baker, and Millerand (2010) emphasise that collaborative development depends on long-term temporal work, including sustaining engagement, aligning actions across time, and managing dependencies beyond immediate deadlines. Similarly, Dille and Söderlund (2011) show how inter-institutional projects are shaped by timing norms and synchronisation demands, and how temporal misfits emerge when actors operate according to different temporal expectations. These studies show that participation depends less on inclusion alone than on how time is allocated, coordinated, and allowed to unfold.

Temporal misfit is further reinforced by representational practices in planning and design. Klaasen (2005) argues that spatial models necessarily freeze reality at particular moments, making gradual adaptation, delayed effects, and informal negotiation difficult to capture except indirectly. Van Schaick (2011) similarly points to the gap which exists between knowing activity patterns and knowing how to plan and design for them. While abstraction is unavoidable, difficulties arise when project time and representational time are treated as adequate substitutes for lived temporal experience.

2.2. Unpredictability and the Limits of Expertise

A second temporal gap emerges from the persistent tension existing between expert-led planning and the inherently unpredictable character of urban life. Urban theory has long questioned the assumption that cities can be fully anticipated, stabilised, or resolved through design. Jane Jacobs' description of cities as systems of organised complexity remains foundational in this regard: urban patterns emerge from innumerable interactions whose timing, intensity, and meaning cannot be predicted linearly or centrally controlled (Jacobs, 1961). From this perspective, unpredictability is not an anomaly within urban systems, but a defining condition of how they function and evolve over time.

Subsequent research on planning has reinforced this critique by examining how professional expertise encounters uncertainty. Cozzolino (2018) shows how urban outcomes vary under different planning conditions, and emphasises that spontaneity and adaptation cannot be fully scripted in advance. Rauws and de Roo (2016) similarly argue that adaptive planning is less about defining final configurations, and more about generating conditions for ongoing adaptability. Taken together, these contributions suggest that this limitation of expert-led planning lies not in a lack of knowledge but in its tendency to seek premature closure by translating open-ended processes into fixed solutions.

Recent work on collective creation helps to further specify where this limitation becomes most consequential. Muñoz Aparici and Harteveld (2025) argue that disciplinary expertise can systematically filter out forms of situated and unconventional knowledge that are critical for understanding how public spaces are actually experienced and negotiated. Their contribution reframes unpredictability not as a technical failure of planning but as an epistemic blind spot: when professional routines privilege what can be formalised in advance, they marginalise forms of understanding that emerge only through use, appropriation, and interaction over time.

This epistemic gap has direct temporal implications for design and participation. Storni (2013) conceptualises this problem as a 'future-use gap', which describes the persistent distance between imagined futures embedded in design decisions and the fluid realities that unfold through everyday use. When interventions are conceived as one-off insertions rather than evolving propositions, the capacity for reinterpretation and adjustment is significantly reduced. In such cases, unpredictability is treated as a disturbance to be corrected rather than as information generated through engagement over time. Portugali's understanding of the city as an emergent system further reinforces this argument. For Portugali (2021), urban environments are co-produced through recursive interactions between agents and artefacts, unfolding as an open-ended "game" rather than a controllable sequence. The temporal implication is that planning models oriented toward fixed end states struggle to accommodate the dynamics of urban becoming.

2.3. Social Rhythms versus Project Time

A third temporal gap concerns the relationship between project timelines and the social rhythms through which urban spaces are lived. Del Gaudio *et al.* (2017) emphasise that time in community-based contexts cannot be treated as a neutral metric imposed from above; it is negotiated and embedded in everyday life. Urban experience unfolds through repetition, routine, interruption, and maintenance – temporal patterns that rarely align with formal project schedules. To make this misalignment analytically precise, this paper uses "rhythms" not as a metaphor but to name how collective time becomes socially organised and materially expressed in everyday spatial activity.

Lefebvre defines rhythm through the interaction of "a place, a time and an expenditure of energy," foregrounding repetition, interruption, and bodily routines as constitutive of lived space (Lefebvre, 2004, p. 15). Building on this, Brighenti and Kärrholm (2018) emphasise that territories are no less temporal than spatial: rhythms contribute to processes of territorialisation through which socio-material relations become patterned and meaningful over time. The consequence for participatory formats is straightforward: if participation is structured only as punctual events, it systematically misses the rhythmic work through which belonging, care, and negotiated use become legible in everyday life – precisely because those dynamics require duration, recurrence, and exposure to changing conditions (Brighenti & Kärrholm, 2018). This reframing also clarifies why rhythm analysis matters here: it helps distinguish between the time of professional intervention and the time of lived use in which participation actually takes shape.

At the level of spatial practice, drawing on Lefebvre's rhythm analysis, Petrescu (2012) distinguishes between abstract professional spaces and lived spaces shaped through everyday practices. Wunderlich (2013, 2023) extends this perspective by showing how urban places are constituted through rhythms of movement, encounter, and pause, linking temporal experience to sensory and spatial engagement. From this standpoint, participation cannot be understood only through isolated events, because many of its effects become visible only through repeated presence, changing use, and accumulated familiarity. Project-based participation formats, however, tend to operate on homogeneous timelines that assume synchronic engagement and shared temporal capacity, leaving many forms of situated knowledge underrepresented.

Taken together, these three gaps expose a structural mismatch between how participation is planned, and how it is lived. Project timelines privilege linear progression, expert foresight, and punctual moments of engagement, while urban life unfolds through emergent practices, uneven rhythms, and gradual adjustment. This mismatch does not stem from a lack of participatory intent but from temporal frameworks that compress participation into events, phases, and outcomes. As a result, many participatory approaches struggle to engage with the transitional, iterative, and time-dependent dimensions of urban change – dimensions that cannot be resolved through event-based, short-term, or outcome-driven interventions alone.

3. Temporal Structuring of Participation

Participatory planning is often framed as a corrective to top-down decision-making. However, recurrent critiques of participatory outcomes suggest that the challenge lies not simply in the presence or absence of participation, but in how participation is temporally structured (Saad-Sulonen *et al.*, 2018). As argued in the previous section, planning processes tend to privilege linear timelines and moments of closure. This section, therefore, refines the discussion by asking a more specific question: what form of participation is marginalised when participation is treated as a temporally bounded phase rather than as an unfolding process?

In much participatory practice, engagement is concentrated in discrete moments – most commonly early consultation or co-design workshops – after which decisions are stabilised and implementation proceeds. Saad-Sulonen *et al.* (2018) describe this tendency as a narrowing of participation to punctual events, and argue that many forms of knowledge and negotiation emerge only during use and that they therefore remain inaccessible within fixed participatory windows. From this perspective, participation is often front-loaded, while later phases of adaptation and reinterpretation are institutionally marginalised.

Dalsgaard and Halskov (2012) sharpen this critique by distinguishing between who participates and how participation unfolds over time. They show that even when participatory processes are inclusive in terms of representation, their temporal organisation can restrict participant agency. When engagement is confined to predefined stages, participants are positioned as contributors to a design outcome rather than as ongoing actors in its evolution. Participation becomes a matter of consultation rather than a sustained condition of co-presence and learning.

An alternative understanding of participation emerges when attention shifts from formal co-design moments to participation as something that unfolds through situated use, repetition, and everyday interaction. Light and Akama (2012) emphasise that participatory engagement is inherently uneven and emotionally demanding, requiring opportunities for withdrawal, return, and re-entry. Participation, in this view, is staggered rather than continuous, shaped by changing capacities, trust, and confidence over time.

This perspective challenges the assumption of a stable or homogeneous ‘community.’ Kraff (2018) critiques the tendency to treat participants as a unified group present at a single moment, and instead argues that publics are diverse and temporally fluid. People enter and leave participatory processes, and their positions and capacities change. When participation is temporally fixed, it privileges those who are able to engage at a specific moment, while marginalising future users, newcomers, and those whose circumstances shift. Participation as situated use acknowledges that belonging and agency are continuously renegotiated rather than settled once and for all.

3.1. Risks of Temporally Fixed Participatory Approaches

When participation is treated as a completed phase, it generates a set of structural risks that undermine its long-term democratic and spatial ambitions. These risks do not stem from participation itself, but from the assumption that participation can be finalised and translated into a fixed outcome.

First, temporally bounded participation can produce temporal exclusion from belonging. Arnstein’s (1969) classic critique warned that participation limited to symbolic moments risks reproducing power imbalances. Subsequent work in collaborative planning confirms that even inclusive processes can exclude those not present within designated participatory windows (Healey, 1997). Once those windows close, belonging becomes anchored to a past configuration of actors rather than an evolving public.

Second, fixed participation often leads to a functional mismatch. Participatory decisions made early in a process assume that future uses can be sufficiently anticipated. Yet planning theory has long demonstrated that urban problems are inherently indeterminate and resistant to definitive solutions (Rittel & Webber, 1973). Research on adaptive planning shows that even well-informed participatory decisions lose relevance when embedded in static outcomes that lack mechanisms for revision (Rauws & de Roo, 2016). When participation ends at design completion, discrepancies between intention and lived practice remain unaddressed.

Third, temporally closed participation contributes to maintenance disengagement and responsibility vacuums. When participatory processes conclude with delivery, responsibility for ongoing care and upkeep often becomes ambiguous. Forester (1999) emphasises that democratic planning depends on ongoing relational engagement rather than one-off involvement. Empirical research on urban open-space management demonstrates that maintenance outcomes improve when residents remain involved through continuous dialogue and adjustment, rather than through a formal handover alone (Suomalainen *et al.*, 2022). Without temporal continuity, participation gives way to disengagement.

Taken together, these observations point to a specific absence in dominant participatory frameworks. What is missing is not participation as such, but participation understood as a temporal condition rather than as a discrete phase. Participation organised as co-design privileges anticipation and agreement, while participation as situated use foregrounds adaptation, reinterpretation, and everyday feedback. While both modes are valuable, the former dominates participatory planning practice, leaving the latter underdeveloped and weakly institutionalised.

4. Defining Minimally Intrusive Interventions

Having clarified the temporal stakes of participation, discussion moves from diagnosis to specification by introducing a deliberately bounded concept: Minimally Intrusive Interventions (MIIIs). This section defines the minimum criteria for MIIIs to make the subsequent argument evaluable rather than merely aspirational. MIIIs are small-scale, abstract, and reversible urban elements – expert-designed yet co-authored through use – that invite non-prescribed interaction and generate time-based insights into how public space is lived and negotiated. Rather than functioning as problem-solving devices, prototypes for future development, or temporary stand-ins for permanent projects, MIIIs are conceived as materially modest spatial propositions whose meanings, functions, and durations emerge through repeated interaction over time.

This definition positions MIIIs as neither solutions nor accelerators, but as open-ended spatial conditions. Their purpose is not to deliver predefined outcomes, but to create situations in which participation unfolds through situated use, adaptation, and reinterpretation. MIIIs therefore operate at the intersection of material form, temporal openness, and everyday practice, foregrounding participation as something that happens in time rather than at a single moment.

To ensure conceptual clarity, an intervention is classified as an MIII only if it satisfies all of the following criteria:

- Material modesty and limited footprint: introduced without permanently altering existing infrastructure or fixing spatial arrangements.
- Reversibility: fully movable and removable; withdrawal is structurally feasible without leaving lasting physical traces. This paper operationalises reversibility as a strict threshold in order to avoid conflating MIIIs with broader “temporary use” practices. The threshold is informed by temporary-use literature that distinguishes interim/“meanwhile” occupation from end-state redevelopment (Bishop & Williams, 2012), and by accounts of temporary-use repertoires that vary in the extent to which interventions materially alter sites (Haydn & Temel, 2006; Németh & Langhorst, 2014).
- Interpretative openness: the element is not defined by a single prescribed programme; it remains polyvalent in use. This criterion draws on the notion of “loose space,” where urban settings enable appropriation and user invention rather than compliance with a fixed script (Franck & Stevens, 2006).
- Participation-in-use: participation is enacted primarily through embodied interaction and reconfiguration (use, rearrangement, adaptation) rather than being confined to workshop-based input. This is informed by participatory design work that treats participation as something that can unfold over time beyond punctual events (Saad-Sulonen *et al.*, 2018), and by relational accounts of practice that emphasise co-production through situated engagement (Petrescu, 2012). Here, these ideas are translated into an operational emphasis on participation through use.
- Temporal openness: the intervention is not defined by a single event moment or a predetermined narrative of completion; its continuity (or disappearance) is allowed to emerge through ongoing

use, neglect, adaptation, and repair. This criterion is developed by combining participatory design arguments about temporally extended engagement (Saad-Sulonen *et al.*, 2018) with urban design scholarship that treats temporality and rhythm as design conditions rather than mere scheduling variables (Wunderlich, 2023).

These criteria define MIs as spatial conditions for the unfolding of participation, rather than as punctual formats for capturing opinions or showcasing quick wins.

4.1. Improvisation and Participation-in-Use

Participation-in-use within MIs can be further clarified through improvisation theory. Improvisation does not imply randomness or the absence of structure; it refers to the generation of novelty within enabling conditions. Derrida (2004) stresses that improvisation does not exclude the “pre-written” constraints that make an event possible, and thus suggests that the improvised remains situated within a framework rather than unfolding as pure indeterminacy. In a related register, Hallam and Ingold (2007) shift attention from creativity as a finished product toward improvisation as an ongoing process, foregrounding emergence, temporality, and the unfinished.

From this perspective, MIs do not ‘deliver participation’ as a discrete phase; they establish conditions in which participation may be enacted, revised, and contested through repeated encounters over time. The key issue is therefore not openness in the abstract, but whether an intervention’s form is calibrated so that users can reinterpret, reconfigure, stabilise, or refuse it through practice –without requiring a prescribed programme. The paper develops this calibration more explicitly as a design stance of elasticity in Section 6.

4.2. Distinctiveness Within Small-Scale Intervention Fields

Small-scale intervention practices are often distinguished more by their names than by their operative logics. Landgrave-Serrano, Stoker, and Crisman (2021) describe this congestion and propose ‘punctual urbanism’ as an umbrella for rapid, time-limited intervention logics. Although the argument developed here is primarily conceptual, it draws on a broader repertoire of practices that have experimented with temporality, lightness, and reversibility in public space. Practitioner frameworks such as Project for Public Spaces’ ‘Lighter, Quicker, Cheaper’ (LQC) approach promote incremental, low-risk actions that create opportunities for learning and adaptation over time (Project for Public Spaces, 2011). Governance-oriented guidance on enabling temporary use likewise emphasises permitting and regulatory arrangements that can accommodate provisional occupation and iterative adjustment (C40 Cities, 2021). Institutional accounts of participatory design in urban change further underline feedback loops and experimentation as conditions for people-centred urban processes (Robert Bosch Stiftung, 2020).

Initiatives within this field often work through mobile, replicable elements and pop-up formats, ranging from PPS’s Benches Collective, which uses minimal street furniture to invite interaction (Project for Public Spaces, 2015), to Street Lab’s pop-up installations that turn streets into sites for hands-on engagement and learning-through-use (Street Lab, n.d.). In much tactical urbanism guidance, such interventions are framed as prototypes that help legitimise a preferred future condition or accelerate a pathway from pilot to permanence (Global Designing Cities Initiative, 2018; Lydon & Garcia, 2015). Critical commentary has cautioned that “temporary” can become aestheticised or short-termist when detached from situated responsibility (Harris & Nowicki, 2015).

MIs deliberately depart from this repertoire in two ways. First, they suspend instrumentality: they are not designed primarily to validate a predefined solution, prototype a future permanent scheme, or accelerate policy adoption (contrast with tactical urbanism’s “short-term action for long-term change” framing (Lydon & Garcia, 2015)). Second, they suspend temporal closure: they are not defined by a scheduled end (an event or pilot), but by whether they remain meaningful through repeated, changing use over time, and drawing on broader understandings of temporality as well as urban rhythms (Wunderlich, 2013, 2023).

On this basis, MIs are proposed as a distinct category whose contribution is not speed or activation, but the time-based legibility of negotiation: how uses and meanings develop (or fail to develop) when an object

remains open to reinterpretation and reconfiguration over time. While MIIIs share certain similarities with other temporary or participatory urban practices, they remain analytically distinct. The following intervention types are therefore not considered MIIIs:

- Tactical urbanism when tactical interventions function as short-term prototypes aimed at steering policy or delivering a defined improvement trajectory (Lydon & Garcia, 2015).
- DIY urbanism when interventions are primarily unauthorised, citizen-led modifications pursuing specific community agendas or claims to space (Douglas, 2018).
- Pop-up/curated activation when the intervention is thematically programmed and temporally bounded (e.g., curated pop-up landscapes tied to entrepreneurial place strategies) (Schaller & Guinand, 2019).
- Participatory design tools when participation is primarily workshop-based facilitation oriented to extracting preferences or producing a design decision (Light & Akama, 2012).
- Performance interventions (e.g., flash mobs, parkour, symbolic disruptions) when the primary medium is performative action rather than an enduring, reconfigurable material proposition (Yaghi et al., 2019).

This exclusion is not evaluative. It is definitional: MIIIs must remain materially modest, reversible, and open-ended enough for participation to unfold through use over time, not primarily through spectacle, event-time, or a bounded pilot.

5. Deliberate Incompleteness as a Temporal Design Mechanism

Deliberate incompleteness is often misread as under-design, indecision, or a lack of responsibility. In this paper, it is treated differently: as a purposeful design strategy that keeps an intervention open long enough for situated practices to surface, and for the intervention to be iteratively recalibrated in response to those practices. The basic causal claim is straightforward: because urban participation unfolds through time, and because urban use cannot be fully specified in advance, interventions that remain partially unresolved can better accommodate emergent interaction, reduce premature closure, and support learning-by-use.

One way in which deliberate incompleteness enables participation over time is by making early failure and adjustment structurally possible. A useful metaphor for the operational value of incompleteness is Tom Wujec's "Marshmallow Challenge"² (Wujec, 2010). The consistent failure pattern in the exercise is not a lack of intelligence but a sequencing mistake: teams invest in a complete, coherent solution and only test the marshmallow at the end, when revision is costly or impossible. The teams that perform best treat early collapse as information and iterate quickly. Translated into urban interventions, the marshmallow stands for the "weight" of real-world use – misuse, unexpected appropriation, conflict, neglect, weather, shifting user groups – factors that routinely exceed what a design can anticipate at the outset. Deliberate incompleteness works here because it creates structural room for early testing and adjustment, rather than treating completion as the moment when learning should stop. This matters for MIIIs because their value does not depend on delivering a finished spatial product; it depends on keeping a public situation responsive to the kinds of feedback that only appear once bodies encounter materials over time. Incompleteness is therefore not a stylistic preference but an operational safeguard against end-state assumptions.

Cristiano Storni's argument for "design for future uses" clarifies a key causal mechanism behind deliberate incompleteness: deferring closure because designers necessarily lack access to future contexts of use (Storni, 2013). Rather than treating this lack of foresight as a defect to eliminate, Storni frames it as a condition that design should acknowledge – by postponing certain decisions until the time of use, and by enabling users to participate through appropriation, reconfiguration, and ongoing interpretation. In the context of MII, deliberate incompleteness works because it prevents a common failure mode of participatory projects: participation

2 In the Marshmallow Challenge, teams try to build the tallest free-standing tower they can using spaghetti, tape, string, and a marshmallow, which is placed on top (Wujec, 2010).

is concentrated early, but the built outcome becomes fixed, thereby turning later users into consumers of a resolved design rather than co-producers of an evolving situation.

This temporal argument becomes materially specific through the concept of “loose space.” Franck and Stevens (2006) describe how urban settings can enable appropriation when physical and social conditions allow users to invent uses beyond a single script. From this perspective, deliberate incompleteness does not function as an abstract claim of openness; it works only when openness is materially supported by elements and arrangements that preserve a field of possible actions (moving, pausing, clustering, reorienting, ignoring) rather than narrowing behaviour to compliance with a programmed function. Incompleteness is thus not an accidental gap, but a deliberate design move that keeps multiple uses plausible long enough for emergent patterns to stabilise (or fail to stabilise) through repetition. For MII, this matters because interpretative openness is not an aesthetic preference but a practical means of keeping participation possible after installation, when situated knowledge becomes observable: use-patterns, conflicts, latent desires, non-use, and informal rules of engagement. In this sense, deliberate incompleteness acts as a temporal redistribution of interpretive authority – shifting meaning-making away from the design phase alone and into the use phase, where embodied practices can surface and be responded to over time.

Empirical accounts of children’s use further illustrate how incomplete conditions can allow meanings and affordances to emerge through lived interaction rather than prescription. In the case of Tahuantinsuyo Park, Castillo Ulloa, Million, and Schwerer show how provisional and adaptable spatial elements were taken up by children in ways that exceeded the pedagogical intentions embedded in the original design. Rather than being treated simply as misuse or deviation, these embodied interactions brought latent affordances to the fore and informed subsequent spatial adjustments (Castillo Ulloa *et al.*, 2021).³ Their case highlights a common mismatch: expert intention encodes “proper” use, but children (and often other groups) reveal alternative spatial logics through embodied practice. What matters for this paper is the mechanism: when design elements do not fully prescribe what counts as correct use, users can discover and stabilise meanings through action, and designers can learn from those meanings without forcing them back into an original script. This is precisely the kind of learning MII aim to enable. Deliberate incompleteness works because it allows the intervention to remain in a transitional condition where reinterpretations are not treated as deviations but as signals – making otherwise tacit spatial knowledge legible over time.

To avoid treating incompleteness as a vague appeal to openness, the argument requires an operational clarification: the conditions under which incompleteness remains modifiable, reversible, and accountable. Christopher Alexander’s distinction between mechanistic and “living” processes provides a useful lens through which to clarify the form of openness advanced in this paper. Rather than advocating arbitrariness or indeterminacy for its own sake, Alexander’s notion of a living process describes systems that remain responsive to feedback and evolve through incremental adjustment over time (Alexander, 2002). Within the context of MII, this distinction has an explicit operational implication: a living intervention is one that can be modified in small, reversible steps as patterns of use, appropriation, or friction become visible, rather than fixing an early design intention into a finalised form.

A comparable clarification can be drawn from Taleb’s concept of antifragility. When applied cautiously, antifragility does not function here as a general theory of cities but as a justification for a safe-to-fail design stance (Taleb, 2012). MII are not intended to be optimised through predictive modelling or exhaustive anticipation. Instead, they are designed to learn through exposure, where minor stresses such as misuse, reinterpretation, wear, and shifts in routine become sources of feedback rather than signs of failure. The relevance of antifragility lies in the capacity of an incomplete intervention to benefit from small disturbances by making adjustment feasible and through avoiding brittle, one-shot delivery logics.

3 The Tahuantinsuyo Park case (La Balanza, Comas, Lima) is framed through four linked concepts—affordance, relational space, spatial knowledge, and spatial pedagogisation—to examine how children’s actual uses diverge from expert design intentions. Castillo Ulloa *et al.* (2021) describe CCC’s process as beginning with the ‘Proyecto Semilla’, in which brightly painted poles, tyre benches, and a dirt ramp were introduced as adaptable elements whose affordances would be tested through use. Over several years, the intervention was revised in response to what children actually did in the space—for example, climbing poles and using sloped surfaces for sliding—eventually reaching an open-ended, trial-and-error stage in which, as the authors put it, experts and children ‘meet halfway’.

Taken together, these perspectives help specify a practical condition for deliberate incompleteness. Incompleteness must be sufficiently structured to support iterative adjustment, while remaining open enough to allow reinterpretation and reconfiguration through use. It is this balance that enables incompleteness to function as a mechanism for time-based participation, rather than as an abstract design attitude or a rhetorical commitment to openness. In this sense, incompleteness operates as a calibrated design condition – one that sustains adaptability without relinquishing responsibility for form, use, or ongoing transformation.

6. Design Sensibilities for Time-Based Participation

This section translates the conceptual arguments developed in Sections 2–5 into a set of design sensibilities for time-based participatory urbanism. Rather than proposing a method or checklist, it articulates principles that guide how MIs can be conceived, situated, and sustained without collapsing openness into vagueness or participation into event-based formality.

If participation unfolds over time rather than at a single moment (Section 3), interventions should not be treated as finished products that resolve spatial questions in advance. Given this, MIs are conceived as temporal invitations: materially present propositions that remain open to interpretation across different rhythms, user groups, and situations. This sensibility responds directly to the temporal gaps identified earlier (Section 2), where project timelines and lived time rarely align. MIs withhold closure at the moment of installation. Instead of signalling completion, the intervention signals availability – for testing, rearrangement, contestation, or disregard. Participation emerges not because users are asked to contribute, but because the intervention remains unresolved enough to be engaged with repeatedly and in different ways over time (Saad-Sulonen *et al.*, 2018).

Such invitations require a specific kind of openness: elasticity. Elasticity describes a productive tension between recognisable form and interpretative freedom – enough structure for an intervention to be legible and usable, but one that also possess sufficient indeterminacy for users to reinterpret, reconfigure, or refuse it without violating a prescribed script (Førde, 2021). In this sense, MIs function as enabling but incomplete frameworks rather than as neutral objects or fully programmed installations. This elasticity matters because public space is not only a setting for activity, but also a site of ongoing social negotiation. When interventions avoid over-programming, they allow tacit norms and boundaries to surface through practice: who initiates action, who yields space, how conflicts form and dissipate, and how shared conventions stabilise (or fail to stabilise) over time. This civic role of unscripted encounter and negotiation is central to Sennett's argument for urban environments that do not over-protect users through order (Sennett, 1970), and was further developed in later discussions of designing openness and disruption as an ethical stance toward public life (Sendra & Sennett, 2020).

A related sensibility concerns looseness as a material affordance. As Franck and Stevens (2006) argue, urban spaces become appropriable when their physical and social conditions allow users to invent uses beyond a single script. For MIs, looseness is not an absence of design intent, but a deliberate calibration of form, weight, connection, and surface that keeps multiple actions plausible. This distinction matters because many temporary or participatory interventions appear open in discourse but are tightly controlled in practice. When the range of acceptable actions is narrow, participation collapses into compliance. MIs instead aim to sustain co-authorship by allowing users to “write back” into the intervention through rearrangement, adaptation, misuse, or neglect – without needing to seek permission to deviate.

MIs treat participation not as input to be extracted, but as a capacity to be cultivated over time. Participation is enacted primarily through embodied, use-based engagement – moving, stacking, sitting, leaning, ignoring, or even damaging elements – rather than through discursive contribution alone. Such actions are not hierarchised as constructive or undesirable; they are interpreted as spatial signals that reveal how public space is negotiated in practice (Petrescu, 2012). Cultivation does not imply intensive facilitation. Rather, facilitation is intentionally light and withdrawable: subtle cues may lower the threshold for first interaction, but ongoing hosting or programming is avoided. This stance preserves participation-in-use and prevents the intervention from reverting to workshop logic, where engagement is punctual, verbalised, and temporally bounded (Saad-Sulonen *et al.*, 2018).

Because participation-in-use unfolds through repeated encounters, the temporal horizon of an intervention matters: not only how it is introduced, but how it remains available for return, reuse, and re-interpretation. Where conventional projects equate success with permanence, MIs treat repetition as evidence of meaning-making across time. What matters is not whether an intervention lasts indefinitely, but whether it remains available long enough for patterns of negotiation to emerge across different times, conditions, and user constellations. Temporality is thus treated as a design condition rather than a scheduling parameter (Wunderlich, 2023).

This sensibility also reframes evaluation. Instead of measuring uptake or popularity, attention shifts to recurring configurations, cycles of re-appropriation, moments of conflict, periods of non-use, and practices of repair or abandonment. Such patterns indicate how meaning stabilises – or fails to stabilise – through time, and align with the argument in Section 5 that deliberate incompleteness works by deferring closure and enabling learning-through-use (Storni, 2013).

At the same time, treating repetition and open-ended use as sources of learning raises ethical constraints that cannot be solved by design intent alone. Openness in time-based participatory interventions must be approached with caution. Loose, reversible, and deliberately unfinished arrangements do not guarantee inclusive or equitable participation. They may equally enable monopolisation, misuse, avoidance, or conflict, shaped by informal norms and unequal capacities to claim space. Such conditions echo long-standing critiques in urban theory that public space is not a neutral setting but a socially structured arena in which encounter, conflict, and uneven capacities to shape space and social life become visible (Sennett, 1970; Sendra & Sennett, 2020). These should be understood as ethical risks rather than design objectives.

Ethical restraint is equally important in observation. If interventions aim to reveal everyday negotiation, intrusive monitoring risks producing performative behaviour and undermining authentic use. Documentation strategies should therefore prioritise non-intrusion and avoid making users feel watched, while still allowing changes in configuration and use to be traced over time (Gehl & Svarre, 2013). This matters especially in a framework that values tacit and emergent forms of participation, since overly intensive observation may distort precisely those practices which the intervention is meant to learn from. Rather than claiming these tensions are resolved in advance, MIs treat them as constitutive limits of time-based participatory inquiry.

7. Conclusion, Ways Forward

This paper has argued for a time-based understanding of participation in urban design by introducing MIs as a conceptual framework rather than as a finished method or solution. By foregrounding temporality, deliberate incompleteness, and participation-in-use, the paper does not seek to replace established participatory approaches, but to complement them by drawing attention to what often remains underexplored: how participation continues, transforms, or dissipates beyond formally organised moments of planning, design, and engagement. Its central contribution lies in linking temporality, deliberate incompleteness, and participation-in-use into a conceptual framework for small-scale urban interventions that remain open to reinterpretation and adjustment over time.

What gives MIs their particular value is their modesty. They are intentionally small-scale, reversible, and open-ended; designed to surface patterns of everyday negotiation rather than to deliver predefined outcomes. In this sense, MIs are proposed neither as a universally applicable tool, nor as a corrective to all shortcomings of participatory planning. Their value is situational and exploratory, particularly in contexts where uncertainty, multiplicity of use, and temporal change are not problems to be eliminated but conditions to be worked with. The paper, therefore, contributes not only a critique of time-compressed participation but also a design-oriented approach to thinking about how participatory processes can remain active through use, repetition, and adjustment over time. In this sense, it extends participation research toward the temporal conditions through which meanings are negotiated in practice, while suggesting for design and planning that interventions may be valuable precisely because they remain provisional, revisitable, and open to situated learning over time.

Several limitations remain. Participation-through-use does not guarantee inclusivity; loose and open conditions may be appropriated unevenly, ignored entirely, or dominated by particular groups. In addition, ethical tensions surrounding observation, interpretation, and intervention cannot be fully resolved in advance

and require ongoing reflexivity. Moreover, the insights generated through MIs are context-specific and do not easily translate into generalisable metrics or policy prescriptions. These limitations are not incidental but inherent to the experimental and time-sensitive nature of the approach.

As a next step, the paper points to the planned testing of MIs at selected sites in the Ruhr region. Residual and under-programmed spaces – often described as urban cracks – offer a particularly suitable context for such experimentation, as expectations of use are weak and ambiguity is already present. These future explorations are conceived not as validation exercises but as opportunities to examine how minimally intrusive, temporally open interventions are negotiated in practice, and how design sensibilities translate under real-world conditions.

The argument made here is deliberately restrained. It does not advocate for more design, faster action, or stronger intervention. Instead, it suggests slowing down: allowing time for spaces to be inhabited, misused, adapted, and reinterpreted before being resolved. In an urban context increasingly driven by acceleration and closure, taking time seriously may be one of the most modest – and necessary – design choices available.

References

- Alexander, Christopher (2002) *The nature of order: An essay on the art of building and the nature of the universe, Book 1: The phenomenon of life*. Berkeley, CA: The Centre for Environmental Structure.
- Arnstein, Sherry R. (1969) A ladder of citizen participation. *Journal of the American Institute of Planners*, 35 (4), pp.216-224. <https://doi.org/10.1080/01944366908977225>
- Barad, Karen (2003) Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of Women in Culture and Society*, 28 (3), pp. 801-831. <https://doi.org/10.1086/345321>
- Bishop, Peter and Lesley Williams (2012) *The temporary city*. London: Routledge
- Brighenti, Andrea Mubi and Mattias Kärrholm (2018). Beyond rhythmanalysis: Towards a territoriology of rhythms and melodies in everyday spatial activities. *City, Territory and Architecture*, 5, 4. <https://doi.org/10.1186/s40410-018-0080-x>
- C40Cities (2021) *How to enable temporary use to activate your city*. [Online] Available from: <https://www.c40knowledgehub.org/s/article/How-to-enable-temporary-use-to-activate-your-city> Accessed [29/01/2026].
- Castillo Ulloa, Ignacio, Angela Million and Jona Schwerer (2021) 'I Spy with My Little Eye': Children's actual use and experts' intended design of public space. In: Million, Angela, Christian Haid, Ignacio Castillo Ulloa and Nina Baur (eds) *Spatial Transformations: Kaleidoscopic Perspectives on the Refiguration of Spaces*. London: Routledge, pp. 294-309.
- Cozzolino, Stefano (2018) Reconsidering urban spontaneity and flexibility after Jane Jacobs: How do they work under different kinds of planning conditions? *Cosmos + Taxis*, 5 (3+4), pp.14-24.
- Dalsgaard, Peter and Kim Halskov (2012) Reflective design documentation. In: *DIS '12: Proceedings of the Designing Interactive Systems Conference*. New York: Association for Computing Machinery, pp.428-437.
- Del Gaudio, Chiara, Carlo Franzato and Alfredo Jefferson de Oliveira (2017). The challenge of time in community-based participatory design. *Urban Design International*, 22 (2), pp.113-126.
- Derrida, Jacques (2004) The other's language: Jacques Derrida interviews Ornette Coleman, 23 June 1997. *Genre: Forms of Discourse and Culture*, 37 (2), pp.319-329.
- Dille, Therese and Jonas Söderlund (2011) Managing inter-institutional projects: The significance of isochronism, timing norms and temporal misfits. *International Journal of Project Management*, 29 (4), pp.480-490.
- Douglas, Gordon C. C. (2018) *The help-yourself city: Legitimacy and inequality in DIY urbanism*. Oxford: Oxford University Press.
- Førde, Anniken (2021) Magi når elastikken tøyes: Mangfold, eksperimenter og stedssensitivitet. In: Pløger, John, Anniken Førde and Anne-Lene Sand (eds) *Improvisasjon: Byliv mellom plan og planløshet*. Oslo: Scandinavian Academic Press, pp.85-103.
- Forester, John (1999) *The deliberative practitioner: Encouraging participatory planning processes*. Cambridge, MA: MIT Press.
- Franck, Karen A. and Quentin Stevens (eds) (2006) *Loose space: Possibility and diversity in urban life*. London and New York: Routledge.
- Geddes, Patrick (1904) Civics: As Applied Sociology. *The Sociological Review*, sp1 (1), pp.100-118. <https://doi.org/10.1177/0038026104SP100110>
- Gehl, Jan and Birgitte Svarre (2013) *How to study public life*. Washington, DC: Island Press. <https://doi.org/10.5822/978-1-61091-525-0>

- Global Designing Cities Initiative (2018) *From pop-up to permanent: Five lessons in tactical urbanism*. [Online] Available from: <https://globaldesigningcities.org/update/from-pop-up-to-permanent-five-lessons-in-tactical-urbanism/> Accessed [29/01/2026].
- Hallam, Elizabeth and Tim Ingold (eds) (2007) *Creativity and cultural improvisation*. London: Routledge. <https://doi.org/10.4324/9781003135531>
- Harris, Ella and Mel Nowicki (2015) *Cult of the temporary: Is the pop-up phenomenon good for cities?* [Online] *The Guardian*. Available from: <https://www.theguardian.com/cities/2015/jul/20/cult-temporary-pop-up-phenomenon-cities> Accessed [29/01/2026].
- Haydn, Florian and Robert Temel (eds) (2006) *Temporary urban spaces: Concepts for the use of city spaces*. Basel: Birkhäuser.
- Healey, Patsy (1997) *Collaborative Planning: Shaping Places in Fragmented Societies*. London: Macmillan Press Ltd. <https://doi.org/10.1007/978-1-349-25538-2>
- Jacobs, Jane (1961) *The Death and Life of Great American Cities*. New York: Random House.
- Karasti, Helena, Karen S. Baker and Florence Millerand (2010) Infrastructure time: Long-term matters in collaborative development. *Computer Supported Cooperative Work*, 19 (3–4), pp.377-415.
- Klaasen, Ina T. (2005) Putting time into the picture: The relation between space and time in urban design and planning. In: Hulsbergen, Edward D., Ina T. Klaasen and Iwan Kriens (eds) *Shifting sense: Looking back to the future in spatial planning*. Amsterdam: Techne Press, pp.181-195.
- Kraff, Helena (2018) A tool for reflection—on participant diversity and changeability over time in participatory design. *CoDesign*, 14 (1), pp.60-73. <https://doi.org/10.1080/15710882.2018.1424204>
- Landgrave-Serrano, Monica, Philip Stoker and Jonathan Jae Crisman (2021) Punctual urbanisms: Rapid planning responses to urban problems. *Journal of Planning Literature*, 36 (4), pp.467-491. <https://doi.org/10.1177/0885412221999424>
- Lefebvre, Henri (2004) *Rhythmanalysis: Space, Time and Everyday Life*. Translated by Stuart Elden and Gerald Moore. London: Continuum.
- Light, Ann and Yoko Akama (2012) The human touch: Participatory practice and the role of facilitation in designing with communities. In: *Proceedings of the 12th Participatory Design Conference: Research Papers – Volume 1*. New York, NY: Association for Computing Machinery, pp.61-70. <https://doi.org/10.1145/2347635.2347645>
- Lydon, Mike and Anthony Garcia (2015) *Tactical urbanism: Short-term action for long-term change*. Washington, DC: Island Press.
- Muñoz Aparici, Mar y Maurice Harteveld (2025) Overcoming Disciplinary Stupidity: Collective Creation for Diversity and Inclusion in Public Space Design. *Footprint*, 19 (1), pp.49–60. <https://doi.org/10.59490/footprint.19.1.7490>
- Németh, Jeremy and Joern Langhorst (2014) Rethinking urban transformation: Temporary uses for vacant land. *Cities*, 40 (Part B), pp.143-150. <https://doi.org/10.1016/j.cities.2013.04.007>
- Petrescu, Doina (2012) Relationscapes: Mapping agencies of relational practice in architecture. *City, Culture and Society*, 3 (2), pp.135-140.
- Portugali, Juval (2021) Homo faber, Homo ludens and the city: a SIRNIA view on urban planning and design. In: Portugali, Juval (ed.) *Handbook on Cities and Complexity*. Cheltenham: Edward Elgar Publishing, pp.370-390.
- Project for Public Spaces (2011) *How lighter, quicker, cheaper interventions can catalyse city-wide renewal*. [Online] Available from: <https://www.pps.org/article/how-lighter-quicker-cheaper-interventions-can-catalyze-city-wide-renewal-one-place-at-a-time> Accessed [29/01/2026].
- Project for Public Spaces (2015) *Benches Collective*. [Online] Available from: <https://www.pps.org/places/benches-collective> Accessed [29/01/2026].
- Rauws, Ward and Gert de Roo (2016) Adaptive planning: Generating conditions for urban adaptability. Lessons from Dutch organic development strategies. *Environment and Planning B: Planning and Design*, 43 (6), pp.1052-1074.
- Rittel, Horst W. J. and Melvin M. Webber (1973) Dilemmas in a general theory of planning. *Policy Sciences*, 4 (2), pp.155-169.
- Robert Bosch Stiftung (2020) *Participatory design for people-centred cities*. [Online] Available from: <https://www.bosch-stiftung.de/en/publication/participatory-design-people-centered-cities> Accessed [29/01/2026].
- Saad-Sulonen, Joanna, Eva Eriksson, Kim Halskov, Helena Karasti and John Vines (2018) Unfolding participation over time: temporal lenses in participatory design. *CoDesign*, 14 (1), pp.4-16.
- Schaller, Susanna and Sandra Guinand (2019) Pop-up landscape design and the disruption of the ordinary. In: Aelbrecht, Patricia and Quentin Stevens (eds) *Public space design and social cohesion: An international comparison*. Oxford: Routledge, pp.242-259.
- Sendra, Pablo and Richard Sennett (2020) *Designing disorder: Experiments and disruptions in the city*. London and New York: Verso.
- Sennett, Richard (1970) *The uses of disorder: Personal identity and city life*. New York: Alfred A. Knopf.

Storni, Cristiano (2013) Design for future uses: Pluralism, fetishism and ignorance. *Proceedings of the Nordic Design Research Conference (NORDES)*, 5, pp.50-59.

Street Lab (n.d.) *About*. [Online] Available from: <https://www.streetlab.org/about/> Accessed [29/01/2026].

Suomalainen, Sari, Outi Tahvonen and Helena Kahiluoto (2022) From participation to involvement in urban open space management and maintenance. *Sustainability*, 14 (19), 12697. <https://doi.org/10.3390/su141912697>

Taleb, Nassim Nicholas (2012) *Antifragile: Things that gain from disorder*. New York: Random House.

van Schaick, Jeroen (2011) *Timespace matters: Exploring the gap between knowing about activity patterns of people and knowing how to design and plan urban areas and regions* (Doctoral thesis). Delft: Delft University of Technology.

Wujec, Tom (2010) *Build a tower, build a team*. [Video] TED Conferences. [Online] Available from: https://www.ted.com/talks/tom_wujec_build_a_tower_build_a_team Accessed [29/01/2026].

Wunderlich, Filipa Matos (2013) Place-temporality and urban place-rhythms in urban analysis and design: an aesthetic akin to music. *Journal of Urban Design*, 18 (3), pp.383-408. <https://doi.org/10.1080/13574809.2013.772882>

Wunderlich, Filipa Matos (2023) *Temporal Urban Design: Temporality, Rhythm and Place*. London: Routledge.

Yaghi, Amro, Doina Petrescu and Krzysztof Nawratek (2019) Performative interventions to reclaim, redefine, and produce public space in different cultural and political contexts. *Archnet-IJAR: International Journal of Architectural Research*, 13 (3), pp.718-735. <https://doi.org/10.1108/ARCH-04-2019-0077>.

PLACES

FROM DENSIFICATION TO HIGH-RISE DEVELOPMENT. UNPACKING SUSTAINABILITY TRADE-OFFS AND CONTRADICTIONS IN OSLO

Rebecca Cavicchia¹, Roberta Cucca², Per Gunnar Røe³, Jin Xue⁴

Abstract

Oslo has long pursued an ambitious anti-sprawl agenda, with densification at the core of its urban development strategy. Compact growth, efficient land use, and climate-oriented planning have shaped the city's approach to sustainability. However, as densification intensifies, concerns about its social, spatial, climate, and ecological consequences have increasingly emerged; challenging the assumption that compact urbanism is inherently equitable and sustainable.

This paper presents a meta-analysis of a decade of research on the relationship between densification strategies and socio-spatial justice in Oslo. Drawing on studies of neighbourhoods, planning documents, and governance processes, we examine how densification is implemented and justified, and what inequalities it may reinforce.

We analyse how climate goals and planning frameworks have established compact development as Oslo's dominant paradigm, explore environmental trade-offs with ecological protection, and assess socio-spatial impacts such as rising housing costs and unequal access to amenities. We also consider how the city's emerging high-rise strategy may intensify these tensions.

Keywords:

Densification, High-Rise Development, Socio-Spatial Inequality, Housing Policy, Sustainable Urbanism.

-
- 1 Rebecca Cavicchia is a postdoctoral researcher in the Department of Urban and Regional Planning at the Norwegian University of Life Sciences, and a senior researcher at Nordregio. Her research focuses on housing and land policy and governance, housing inequalities, gentrification, and sociospatial disparities, with a particular emphasis on their intersections with green transition initiatives and urban densification processes.
 - 2 Roberta Cucca is a Professor in the Department of Urban and Regional Planning at the Norwegian University of Life Sciences (NMBU), where she teaches urban sociology. Her research focuses on socio-spatial inequalities, urban governance, and just transitions, with specific interests in green gentrification, housing inequalities, and school segregation. She currently leads the NMBU team in the EU Horizon project RehousIn, which examines housing inequalities in the context of the green transition.
 - 3 Per Gunnar Røe is a professor in the Department of Sociology and Human Geography at the University of Oslo. He is also a principal investigator in Include, a research centre for socially inclusive energy transitions. His research focuses on the dynamics of urban and suburban development, and particularly the social implications of physical planning, architectural design and spatial restructuring in metropolitan areas. Røe has published extensively on the transformation of urban spaces, especially the interplay between the built environment, social life and policy.
 - 4 Jin Xue is a professor of urban and regional sustainability planning. Her research focuses on urban and regional sustainability planning, with a critical perspective on mainstream planning discourses and land-use strategies rooted in the green growth paradigm. She also contributes to the field of post-growth planning. Her work combines conceptual and theoretical development with empirical research, particularly within Nordic contexts.

1. Introduction

Densification has become a cornerstone of urban sustainability policy in cities across Europe and beyond. In Oslo, it has acquired a particularly prominent and normative role since the 1980s. Historically characterised by relatively low-density development and suburban expansion, the city has increasingly embraced densification as a key strategy to limit urban sprawl, preserve surrounding forests and green areas, and promote a more compact urban form (Næss *et al.*, 2011). Framed within both national and local political agendas as an environmentally sound path to green growth, densification has also been associated with expected social benefits including expanding housing supply, enabling social mix, and enhancing liveability at the local level (Municipality of Oslo, 2015).

However, while densification is often promoted as a universally beneficial planning strategy, its social and distributive outcomes depend heavily on the institutional and spatial contexts in which it unfolds (Haarstad *et al.*, 2023). Research on the social sustainability of densification underscores that, particularly in market-driven settings and in the absence of inclusive housing policies, such processes can generate exclusionary dynamics and exacerbate existing inequalities. Rising land values and housing costs associated with densification interventions can undermine affordability for low-income households, migrants, and first-time buyers (Debrunner, 2024), while brownfield and central redevelopments often overlap with “new-build gentrification,” producing displacement pressures and reshaping neighbourhoods for higher-income groups (Davidson and Lees, 2005; Hewitt, 2026; Rérat, 2012). Compact and low-carbon districts increasingly cater to eco-conscious middle-class lifestyles (Rice *et al.*, 2020), and flagship eco-districts or waterfront redevelopments frequently become enclaves for affluent groups; reinforcing segregation (Andersen and Røe, 2017; Caprotti, 2014). These tensions revolve around the risks of altered place identity, exclusionary development, displacement, and uneven access to environmental benefits (Cavicchia and Cucca, 2022; Skrede and Andersen, 2022). In addition, it has been argued that densification in many cases foregrounds technical rationales and financial logics (Kjærås, 2024), with the risk of underplaying architectural qualities and socially attentive place-making.

In Oslo, these outcomes have been mediated by a highly commodified housing system (Aarland and Sørvoll, 2021) characterised by high homeownership rates, a public housing sector that expands primarily through limited acquisition of existing units, weak price regulation mechanisms, and a strongly dual structure in which a small, residual municipal housing sector coexists with a largely unregulated private market. The planning system is also highly privatized, as most development plans for housing and offices are made by private real-estate developers and builders (Falleth *et al.*, 2010). This places the initiative, economic risks, and design in the hands of these actors, while concentrating development within individual plan areas. Such a fragmented, project-based approach can make it difficult to coordinate across developments and to achieve broader planning objectives, such as providing sufficient social infrastructure for a growing population.

Against this background, this paper offers an interpretative reading of the possible environmental and social implications of densification. Drawing on insights from multiple studies conducted in Oslo over the last decade, the paper offers an interpretative meta-analysis of how densification interacts with diverse dimensions of sustainability.

The paper is structured as follows. First, we define the densification conceptually and analyse its implementation in Oslo. In so doing we highlight how national climate goals, regional planning frameworks, and local political dynamics have merged to make compact development the dominant urban paradigm. Second, we explore the environmental implications of this strategy, and focus on how densification is implemented, the trade-offs that emerge among ecological protection, climate targets, and the pressure for growth. Third, we examine the socio-spatial justice dimensions of Oslo’s densification path, and show how rising housing costs and displacement pressures not only exacerbate existing divisions, but also how they may improve conditions for social mix. Finally, we consider the potential implications of Oslo’s new high-rise strategy, which signals a shift toward vertical urbanism. We discuss how tall-building development may intensify existing tensions around segregation, affordability, and the distribution of environmental benefits and burdens, and we reflect on whether high-rise densification represents a continuation of, or a turning point in, the city’s longstanding compact-city agenda.

Overall, the paper argues that while densification has contributed, to some extent, to meeting important climate targets, its social consequences warrant closer scrutiny. A more just and sustainable urban transition in Oslo will require rethinking as to how density is produced, governed, and distributed across the city.

2. Oslo in Context: Densification, Housing System, and Planning Governance

Oslo's urban development strategy has prioritised densification as a key planning principle since the 1980s (Næss *et al.*, 2011). Within Oslo's planning doctrine, densification – *fortetting* – refers to the concentration of new housing, workplaces, and services within the existing urbanised area, rather than through outward urban expansion. This approach has followed the compact city model, which has become deeply institutionalised in municipal planning documents and widely accepted as the most sustainable way to manage urban growth, reduce greenhouse gas emissions, and preserve peri-urban agricultural and natural lands (especially the forests surrounding the city, called “Marka”). Within this framework, densification has been presented both as a sustainability strategy and as a growth mechanism (Næss *et al.*, 2020) – intended to intensify land use in already urbanised areas, and particularly so in areas in close proximity to public transport (Municipality of Oslo, 2018). Spatially, Oslo's densification strategy is structured by three principles: first, the containment of urban expansion through the protection of Marka as an urban growth boundary; second, development “from inside out”, which prioritises redevelopment in inner-city areas before outer suburban areas; and third, the concentration of growth around public transport nodes and corridors. In this sense, Oslo's densification strategy overlaps with transit-oriented development (TOD), especially when implemented outside the densely built-up city, where a shift towards sustainable mobility is more reliant on access to public transport. This is especially the case for the suburban hinterland of Oslo. While policies to reduce car use have been relatively successful in the city core, there is vast potential to develop such strategies in the city's suburban hinterlands (Nenseth and Røe, 2024).

The compact city model and densification strategies are implemented through a multi-scalar planning system and a multi-level decision-making regime. The logic of this system is that a regional plan (County of Akershus and Municipality of Oslo, 2015) for the future development of public transport infrastructure, workplaces, and housing is intended to guide land-use and transport planning in the municipalities that form the Oslo region. Municipal land use plans, in turn, serve as frameworks for legally binding development plans, which are compulsory for all larger building projects. Although all such plans must be adopted by the area's political authorities, most development plans (following a 1985 amendment to the Planning and Building Act) are produced and implemented by private real estate developers and builders. The shift towards private builders and developers being the dominant actors in urban development, as well as the increased role of financial actors (Orderud, 2006), has infused urban planning with business strategies, investment returns, competition and place promotion strategies (Røe *et al.*, 2022); resembling the urban entrepreneurialism found internationally (Hall and Hubbard, 1996).

While densification is presented as an environmentally rational approach, it has operated within a governance regime and housing policy context that limits the city's potential to address spatial inequalities. Over the past two decades, densification in Oslo has unfolded through the large-scale redevelopment of former industrial and commercial areas, particularly in the inner East of the city. These interventions have increasingly relied on private developers, with the municipality playing a coordinating role rather than exercising strong control over housing provision through densification (Cavicchia, 2023). This is particularly relevant if we consider the implications of promoting market-oriented densification for housing inequalities. While the city promotes social mix and social sustainability (Municipality of Oslo, 2018, 2008), it lacks binding tools to enforce housing affordability, mandate non-market housing, or ensure inclusive access to new developments (Cavicchia, 2023). In particular, under the national legal framework established by the Planning and Building Act, the municipality lacks legally enforceable inclusionary housing mechanisms (Granath Hansson *et al.*, 2025; Nordahl, 2014), thereby constraining its capacity to steer densification toward more equitable outcomes. Indeed, while the municipality can negotiate for some affordable units on publicly owned land, it cannot impose affordability requirements on private developers beyond those included in development agreements. This results in highly uneven outcomes across projects which reinforce rather than mitigate socio-spatial inequalities. The weak regulatory framework limits the municipality's ability to secure affordable housing from private development in densification areas and, as a result, social goals are often subordinated to market logic (Cavicchia and Cucca, 2025).

At the same time, Norway's housing system offers limited institutional support for redistributive interventions. The welfare state's role in direct housing provision has diminished significantly over time and especially since the 1980s (Aarland and Sørvoll, 2021), partly because municipal property has been sold to private actors which

has, in turn, limited municipalities' ability to set aside housing for affordable housing or disadvantaged groups. Most new housing is delivered by private actors, and typically targets middle- and high-income groups. These constraints have been further amplified by the structural features of the Norwegian housing system. As of 2022, approximately 70% of Oslo's population were homeowners; reflecting a national housing model that is built on asset-based welfare and limited direct public provision (Cavicchia et al., 2025). Public rental housing makes up only about 3% of the total housing stock and is strictly means-tested; reserved for the most vulnerable groups (Sørvoll, 2019). Cooperative housing – historically a more affordable alternative – has increasingly aligned with market prices, especially in centrally located developments; limiting its redistributive function (Cavicchia et al., 2025). This limits the sector's ability to offer affordable alternatives to ownership. Housing policy increasingly promotes individual responsibility, and reinforces homeownership as both a tenure norm and a welfare strategy. In such a context, densification strategies – when implemented without inclusive housing policies – tend to reproduce rather than challenge existing inequalities (Debrunner *et al.*, 2024).

Furthermore, spatial disparities are closely linked to how densification materialises in Oslo (Figure 1). On the eastern side of the city, large-scale redevelopment projects have occurred in brownfield areas such as Løren and Ensjø as part of one of Europe's largest city-building plans; it seeks to provide residences for approximately 40,000 inhabitants and 100,000 workplaces (Municipality of Oslo, 2018). Here, planning ambitions for compact growth, including improved public transport (a new metro connection), have coincided with high-end residential development. Although these areas reflect attempts to increase housing supply and restructure obsolete industrial zones, they have been developed mainly to attract the middle and upper middle classes, and lack social infrastructure such as parks, sports fields, public spaces, youth clubs, and so on, as developers have mainly sought to produce dwellings for sale within Oslo's highly profitable housing market. As these areas are also frequently criticised for their monotonous architecture, the densification strategy has received negative attention (Grønning and Mosebach, 2024).

On the western and more affluent side of the city, densification has been more fragmented and politically sensitive; often facing stronger resistance from residents (Andersen and Skrede, 2017). In addition, a substantial share of inner-suburban housing areas, with mainly detached and semi-detached housing, is preserved under a municipal plan, "småhusplanen" (the small house plan). This plan prevents densification in the preserved areas, in both the western and eastern parts of the city, but mainly in the western, more affluent areas. Due to the existence of power relations and market calculations by developers, these differentiated trajectories are played out in possibly unequal ways, with high-end amenities and infrastructure prioritised in areas where revenues are high. These processes are amplified by the transfer of the cost of such amenities from municipalities and public agencies to private developers, in what Graham and Marvin (2002) have described as the dismantling of the modern infrastructural ideal.

While some densification and redevelopment projects have introduced more diverse housing typologies as well as new financial instruments that reduce the demand for capital among first-time buyers, their capacity to alter entrenched socio-economic patterns remains limited (Cavicchia, 2023). This underscores the need to understand densification in Oslo not only as a spatial strategy but also as a process that is shaped by institutional constraints, social and environmental justice issues, and the broader financialization of housing. Understanding Oslo's approach to densification thus requires attention not only to spatial strategies, but also to the institutional, political, and economic logics through which urban development is governed.

3. Environmental implications and paradoxes

In this section, we explore the environmental implications of densification, focusing on how it is implemented and the trade-offs that emerge with regard to ecological protection, climate targets, and the pressure for growth. Empirically, the section considers Oslo's overall compact-city planning framework. It draws on existing research on green-space loss and environmental inequality, and analyses the material and infrastructural consequences of redevelopment, including the displacement of environmental burdens to suburban and peri-urban hinterlands.

Densification is considered an environmentally friendly approach to urban development because it reduces pressure to convert natural areas and farmland, thereby protecting natural landscapes and biodiversity. In

addition, densification may enhance proximity and high-density urban structures, thus minimising travel distances and the need for motorised transport (Cooper *et al.*, 2002; Næss *et al.*, 2020). Densification of residential areas often takes the form of apartment buildings; less land-demanding and more energy-efficient for space heating than low-density single-family houses (Brown and Wolfe, 2007). Cumulatively, all of these factors may contribute to reducing energy consumption, mitigating climate change, and protecting nature and biodiversity. These environmental benefits form the basis for densification as both a widely accepted urban development norm and the prevailing strategy in Oslo's planning context (Røe *et al.*, 2022), in which arguments for urban densification are strongly grounded in the aforementioned environmental concerns (Municipality of Oslo, 2011).

Despite these environmental benefits, densification is by no means without conflicts, trade-offs and limitations even regarding environmental sustainability (Berghauser Pont *et al.*, 2021). If densification primarily occurs on brownfield sites, it can help reduce the conversion of natural areas into built-up zones. However, urban densification in Oslo has also resulted in negative consequences for urban green spaces. Between 1999 and 2004, there was a 5% decrease in open-access areas within the continuous urban areas of Greater Oslo (Næss *et al.*, 2020). The intensified use of land not only increased population density but also raised demand for social and technical infrastructure – such as kindergartens, playgrounds, and schools – aspects which can further contribute to the loss of green spaces. The significance of green spaces for public health became particularly apparent in Oslo during the Covid-19 pandemic, (Venter *et al.*, 2020). The continued reduction of open areas poses an ongoing risk to public health in future situations. With regard to Oslo, studies indicate that districts experiencing population densification tend to have the lowest availability of blue-green spaces (Venter *et al.*, 2023).

Another well-known challenge to using densification as a climate mitigation measure is the trade-off and potential conflicts that exist with regard to climate adaptation strategies. In particular, increased densification can lead to soil sealing and inadequate management of precipitation; both may result in flooding. Other negative environmental impacts of densification include increased noise levels, higher concentrations of air pollutants, and intensified urban heat island effects. These issues also have distributive aspects. In Oslo, the areas most affected by environmental disadvantages are often those that have experienced the most intense population consolidation (Venter *et al.*, 2023).

Densification is a typical decoupling strategy that seeks to reconcile economic and physical growth in urban development with environmental sustainability through the highly efficient use of land and other resources (Næss *et al.*, 2011). In environmental governance terms, the densification in Oslo resembles the ecological modernisation strategy, unfolded in the urban planning context, with a hegemonic neoliberal discourse characterised by a technical environmental perspective, urban entrepreneurialism, and a market-based solution (Kjærås, 2024). This strategy can only be considered relatively environmentally friendly when compared to urban sprawl. While densification helps to reduce land consumption, it is much more challenging to achieve similar reductions in other environmental impacts, such as material use for construction, infrastructure, and energy consumption (Næss *et al.*, 2020). In absolute terms, an increase in building stock still leads to higher overall consumption of materials and resources (Xue, 2015). There are also geographically uneven spillover effects that are seldom taken into consideration, such as transporting the masses from development projects that are part of densification strategies into suburban and peri-urban hinterlands. Sæther (2024) studied the transport and disposal of excavated masses from development projects in Oslo and identified nearly 30 disposal sites across the greater Oslo region. Transporting these masses generates CO₂ emissions, while their deposition can have significant environmental impacts, particularly because many of the sites are located in natural or agricultural areas. Densification can be an effective strategy in the short term, but it faces limitations in the long run as available land for infill development becomes exhausted. In Oslo, current opportunities for densification primarily come from redeveloping former industrial and harbour areas which have become available due to economic globalisation, de-industrialisation and the relocation of manufacturing. This global economic shift underpins the adoption of the densification approach. However, once these sites are fully developed, further expansion of the residential building stock would require encroaching on natural land or farmland. Given Oslo's current and projected population growth along with associated – though estimated – housing demands (Statistics Norway, 2024), it is difficult to envision how future housing and infrastructure needs can be met without additional land becoming available. As the remaining opportunities for redevelopment diminish, pressures for further densification within existing urban areas are likely to intensify, potentially exacerbating

existent conflicts between densification objectives and the preservation of local identity and amenities including green spaces, natural features, and the existing urban environment (Andersen and Skrede, 2017).

4. Implications for housing accessibility

This section considers densification in Oslo as market-driven housing production, and especially focuses upon the redevelopment of brownfields into new residential areas. The feature of densification examined here is not simply the addition of housing units, but the type, tenure, price level, and accessibility of the housing produced. The analysis draws on empirical studies of Oslo's newly developed densification areas, as well as previous work on housing accessibility, new-build gentrification, and exclusionary pressure. The section further analyses the institutional limits of Oslo's housing and planning system.

One of the important social challenges associated with urban densification in Oslo concerns housing accessibility. Although densification is widely promoted as a strategy to expand housing supply and alleviate affordability pressures, this narrative often overlooks more fundamental questions about the nature and distribution of new housing: what types of dwellings are produced, who gains access to them, under what tenure conditions, and in which parts of the city? Housing accessibility refers to the differentiated capacity of individuals and households to access the housing market across tenures, typologies, and spatial locations (Cavicchia, 2021). In Oslo, the dominance of homeownership as the main tenure form, combined with limited empirical data on the slightly growing rental sector, means that discussions on accessibility primarily centre around the ownership market (Cavicchia et al., 2025). As discussed in previous research (Cavicchia, 2022, 2021), densification has not significantly improved access to attractive and centrally located housing for broad segments of the population. Instead, much of the new housing produced favours relatively affluent buyers.

Patterns observed across the city indicate that densification areas – where much of the new housing supply has been concentrated – face some of the most acute accessibility challenges (Cavicchia, 2021). These challenges emerge on multiple levels. First, these developments almost exclusively produce ownership units, resulting in a narrow housing supply in which the availability of rental housing depends almost entirely on private landlords. Second, the units delivered are typically small. One- and two-bedroom apartments dominate – often justified by developers as a strategy to promote affordability. Yet in practice, these units remain expensive both in terms of price per square metre and relative to average incomes; they are frequently unsuited for families (Wessel and Lunke, 2019). Third, all the housing provided belongs to the free-market segment, with no provision for social or affordable housing. The only partial exception is represented by a limited stock produced by OBOS, which has introduced models such as below-market-price units and rent-to-own schemes. However, these remain limited in number and lack legal safeguards to ensure affordability over time. As a result, housing delivered through densification tends to be neither affordable nor particularly high-quality in several areas (Schmidt, 2014).

Land values further shape these patterns. Many densification projects take place in central or brownfield locations where land costs are high, and competition among developers is strong. In the absence of binding affordability mechanisms, this context incentivises housing production that is aimed at high-income segments or investors. The lack of institutional tools to regulate pricing, enforce tenure mix, or introduce non-market options contributes to a situation in which housing accessibility remains tightly linked to purchasing power. These dynamics are particularly relevant for younger people and first-time buyers, whose challenges are partially captured by the *Nurse Index* – a national indicator that compares the purchasing power of a single nurse's income across Norwegian cities. The index illustrates the severity of these conditions, and shows how difficult it has become for middle-income households to access homeownership in Oslo (in 2024, a nurse could afford to buy 2.4% of the housing units sold in Oslo, against 24% in Tromsø, 30% in Bergen and 32% in Stavanger). Therefore, such groups may have to relocate to more affordable outer suburbs when they have children and require more spacious homes. In a recent qualitative study of nurses living in the Oslo region, Solli (2026) revealed the dilemmas confronting nurses as they cope with both everyday care responsibilities and work life, and, in some cases, choose between interesting hospital careers in the city centre and less attractive work in suburban nursing homes.

Spatial analysis of Oslo further reveals that the areas developed through densification – particularly in the inner and semi-central districts, where housing prices have increased by up to 200% since 2004 – overlap with the city's least accessible housing zones, as assessed using the Nurse Index (Cavicchia, 2021). In this sense, while densification has expanded the overall housing stock, it has primarily done so in ways that benefit already advantaged groups, and thus reinforced rather than mitigating existent socio-spatial inequalities. Furthermore, access to homeownership increasingly depends on intergenerational transfers or accumulated equity, making it difficult for individuals without family support to enter the market (Cavicchia, 2021). In many densification areas, housing opportunities are effectively restricted to those with substantial pre-existing wealth or strong socio-economic advantages. This means that although densification can provide more housing units than low-density development, it does not necessarily broaden access for a wider range of residents. Instead, it produces an expansion of stock that is largely captured by already-advantaged groups, leaving persistent barriers in place for lower-income households.

The limitations of housing accessibility in Oslo's densification areas are further compounded by broader processes of *new-build gentrification*, a form of gentrification that occurs not through the rehabilitation of existing housing stock, but through the construction of entirely new developments (Davidson and Lees, 2005). In Oslo, where densification largely occurs on former industrial and commercial sites, new-build gentrification is particularly relevant to understanding how urban change can generate gentrification-like dynamics without direct displacement. Unlike traditional gentrification, where existing residents (usually tenants) are forced out, new-build gentrification involves "selective inclusion"; housing is built for more affluent groups, reshaping the socio-economic profile of areas through who is allowed to reside within the same (Davidson and Lees, 2005; R  rat, 2012).

In a context such as Oslo – where direct displacement is relatively uncommon due to high homeownership rates and because many densification projects occur on previously non-residential land – new-build gentrification unfolds through subtler processes. Here, the concept of exclusionary pressure (Cavicchia, 2022) helps to explain how housing markets filter access even in the absence of displacement. Drawing on and expanding Peter Marcuse's (1985) idea of "exclusionary displacement," exclusionary pressure refers to processes that prevent certain groups from moving into redeveloped areas, especially when housing prices rise beyond their reach. An extreme example of new-build gentrification in Oslo is the Fjord City development, and particularly the redevelopment of the inner eastern harbour district of Bj  rvika. Here, high-end residential developments are combined with office spaces for highly paid jobs – often linked to multinational companies – as well as major cultural institutions, including the city's library, museum, and opera house. Although the original plans envisioned allocating a share of the housing stock (at least 10%) to affordable housing, this objective was ultimately not realised (Andersen and R  e, 2017).

In Oslo's densification areas, exclusionary pressure operates not only within the redeveloped sites but also spills over into surrounding neighbourhoods as well as, more recently, suburban centres. This spillover is central to how new-build gentrification materialises. As new, high-priced units are introduced, they raise the profile and market expectations of adjacent areas. The result is a social filtering-up effect, whereby subsequent housing transactions are increasingly directed toward higher-income buyers; a process which makes it progressively harder for first-time buyers and middle- or low-income groups to gain access (Cavicchia, 2022). This process is further intensified by the speculative nature of Oslo's housing market. In several of the areas surrounding major densification sites – including Ens  , L  ren, and Kv  ernerbyen – the frequency of housing transactions has been particularly high; indicating intense speculative activity. Apartments have been bought, flipped, and resold multiple times over relatively short periods. This pattern not only drives up prices but also fosters a short-term investment logic that undermines housing stability and deepens exclusionary effects (Cavicchia, 2021). In these cases, speculation becomes a key mechanism through which exclusionary pressure is reproduced, as property values are inflated and dwellings are treated less as homes and more as assets. These cases illustrate how exclusionary pressure works not through the removal of current residents, but through the systematic reconfiguration of access to urban space. The result is a gradual socio-spatial transformation in which neighbourhoods that were once accessible become increasingly closed off to less affluent groups. This transformation occurs through price appreciation, speculative investment, and a narrowing of the income profiles of new residents.

Crucially, the exclusionary effects of densification in Oslo have emerged from the interactions of planning frameworks, market dynamics, financialisation and institutional constraints. The absence of binding affordability requirements, the dominance of the ownership sector, and the municipality's limited regulatory leverage have all contributed to the creation of a situation in which densification reinforces rather than reduces inequality. Reframing new-build gentrification through the lens of exclusionary pressure is essential to capture the specific ways in which densification contributes to socio-spatial stratification in Oslo. This perspective sheds light on how, even when driven by sustainability goals, densification can reinforce exclusionary housing dynamics in a highly competitive, speculative market.

5. Social mix or gentrification?

Another relevant issue at stake is understanding how densification interacts with the socio-spatial distribution of different population groups in Oslo. This section analyses densification as a process that can produce both social mix and gentrification, depending on location, scale, housing profile, and surrounding neighbourhood contexts. Empirically, the section analyses densification areas across different parts of the city: in eastern Oslo, large brownfield redevelopments tend to attract higher-income residents to historically working-class areas, while in western Oslo, smaller, more fragmented projects may offer limited entry points into affluent districts. The analysis explores social composition and social change in the densification areas with regard to factors such as household income, tenure, family composition, immigrant background, and school-related effects.

While densification is often framed as a planning tool to promote social mix and diversity, its outcomes depend strongly on where and how it takes place, the location of projects, the surrounding social contexts, and the housing market conditions that shape who can afford to move in (Cavicchia and Cucca, 2025). Oslo's enduring east-west socio-economic divide provides a crucial backdrop for interpreting these dynamics (Ljunggren, 2017). The western districts remain the most affluent, with higher property values, income levels, and educational attainment, while the eastern districts have historically housed more modest-income and immigrant households.

Against this backdrop, analysis of six densification areas – Løren, Ensjø, and Kværnerbyen in the east, and Skøyen, Majorstuen, and Pilestredet Park in the west – reveals distinct patterns which point to both gentrification and de-segregation (Cavicchia and Cucca, 2025). In the east, large-scale redevelopments have transformed former industrial and commercial sites such as Løren, Ensjø, and Kværnerbyen. These once peripheral and neglected areas have become symbols of urban renewal – compact, with a functional mix and well-connected through transit-oriented approaches (including a new metro connection). Yet the new housing that has emerged there is almost entirely at the high end of the market, and the supply consists mainly of new owner-occupied apartments targeted towards middle- and upper-income buyers (Cavicchia, 2021). In 2018, household incomes in these new neighbourhoods were already well above their district averages, particularly in Løren, where they exceeded Grünerløkka's by more than 20%. Similar trends appeared in Ensjø and Kværnerbyen, both of which had higher incomes than the surrounding Gamle Oslo district, even though they were still below the citywide average.

This upward shift points to a selective process. Densification in the eastern parts of the city tends to attract residents who are better off than the existing population (as these areas historically have been dominated by the working class), but not necessarily among Oslo's wealthiest. These are often younger professionals, as in Kværnerbyen, which is dominated by single-person households and many renters, and middle-income families, especially evident in Løren and Ensjø, where the share of households with children is much higher than in their respective districts.

Patterns of immigrant background add further nuances. Løren has a relatively high proportion of non-Western immigrants – about 28%, above both the district and city averages – while Ensjø and Kværnerbyen have lower proportions. In these latter areas, non-Western immigrant residents also tend to have lower incomes than their peers from within the wider district. Overall, eastern densification areas show a gentrifying tendency: they attract residents with higher incomes than the surrounding district average, often through homeownership in high-priced housing markets. This, as already noted, is also linked to spillover effects into surrounding neighbourhoods, where housing prices and income levels have risen significantly over time.

The picture looks somewhat different in the West. Here, densification has occurred through smaller projects - in places like Skøyen, Majorstuen, and Pilestredet Park - located in some of Oslo's most affluent neighbourhoods. Interestingly, household incomes in these densification areas are lower than in their surrounding districts, and in Majorstuen and Pilestredet Park, they even fall below the city average. This reflects the profile of their residents: many are younger renters, singles, or couples at the start of their careers. In Majorstuen and Pilestredet Park, renters make up around half of all households, while in Skøyen, where the population is slightly older, the rental share is smaller and incomes somewhat higher.

These western neighbourhoods are marked by smaller apartments and few families - between three-quarters and four-fifths of households have no children. Still, their relatively diverse resident mix means that they can act, at least modestly, as entry points into high-status districts for groups who might otherwise be excluded. In recent years, Majorstuen and Skøyen have even seen a gradual increase in residents with non-Western backgrounds, suggesting that some degree of social diversification is occurring, albeit at a limited scale.

These trends indicate that western densification areas can function as entry points for less affluent residents into high-status districts, thereby modestly contributing to increased social mix. However, this effect is limited by the small size and sporadic nature of densification projects in the West, as well as strong local opposition to larger-scale developments.

When comparing eastern and western densification areas, a clear macro-pattern emerges. While these patterns suggest a potential desegregation effect of densification, significant limitations remain. In the east, market-driven housing production without binding affordability requirements risks reinforcing the exclusion of lower-income households. In contrast, and in the West, limited land availability, strong opposition to densification, and high rental prices restrict the potential for a genuine social mix. In addition, both sides face challenges related to micro-segregation within developments, where apartment size, tenure, and price stratification can reproduce inequalities even in mixed areas.

The potentials of densification for residential social mixing matter particularly for schools, one of the most important arenas of social cohesion in Oslo, a city characterised by pronounced residential and school segregation (Cavicchia and Cucca, 2020). Yet, so far, densification has not contributed significantly to reducing these divides. Two main problems have emerged (Cavicchia and Cucca, 2020). First, many densification projects have been poorly suited for families with children, as already argued, with very limited provision of larger, affordable units. As a result, these neighbourhoods tend to attract young adults, couples, and highly mobile households, rather than stable families with school-age children. Consequently, the demographic impact of densification on nearby schools has been often limited (Cucca and Mouratidis, 2025). Second, densification has been concentrated in the inner city, while the outer districts - where residential and school segregation are most severe - have seen little intervention. The outer East and West, strongly divided along socioeconomic and ethnic background lines, remain largely untouched by transformative planning (although the situation is somewhat different in the surrounding suburban municipalities). Yet without substantial investment in affordable family housing in these peripheral areas, the potential for densification to rebalance socio-spatial inequalities and reduce school segregation is largely unrealised (Cavicchia and Cucca, 2020).

6. Towards High-rise living?

This section examines high-rise development as an emerging vertical form of densification in Oslo. The focus is on whether tall buildings generate new implications for housing affordability, social mix, environmental justice, and micro-segregation. The analysis is based on Oslo's recent high-rise strategy, and includes responses from public and private actors, international research on vertical urbanism, and empirical studies of high-rise living environments in both post-war and contemporary developments.

Recent policy developments have signalled a partial shift in Oslo's densification trajectory from predominantly mid-rise compact development towards a more explicit embrace of vertical urbanism. The adoption of a new municipal high-rise strategy marks an important turning point in planning discourse and has reframed tall buildings not only as exceptional architectural objects but as potential instruments for sustainable growth, land-use efficiency, and transit-oriented development (Municipality of Oslo, 2023). However, there are widespread

concerns that this strategy will not contribute to the city's socially sustainable development. An analysis of the document and comments submitted from a variety of actors and stakeholders during a hearing (Choi et al., 2024) reveals that although high-rise developments are believed to enhance Oslo's economic vitality in well-connected areas near transportation hubs and reduce urban sprawl, several issues remain regarding social inequality, the preservation of cultural heritage, and environmental sustainability.

Generally speaking, high-rise buildings are increasingly presented as both a way to accommodate continued population growth without encroaching on protected green areas and low-rise neighbourhoods, and as a means to concentrate density in well-connected nodes (Graham, 2016). In this sense, vertical development is positioned as a continuation - and intensification - of the compact city paradigm already dominant in Oslo. High-rise development in Oslo also reflects an international trend in which high-rise buildings signify a post-industrial shift towards entrepreneurial and competitive economic policies. The proliferation of multistorey buildings is seen not only as a way to densify cities and thus effectively utilise infrastructure and further promote shifts towards sustainable transport, but also as the ultimate expression of competitive urbanism, as promoted, for example, by Glaeser (2011). Increased physical density through high-rise development has, in many cities, become part of their urban sustainability strategies, despite resistance from, for example, architectural heritage institutions and citizens living in neighbourhoods near new high-rise developments (Ebbensgaard, 2024) (ref). High-rise development is also highly profitable for real estate developers and builders due to increased space utilisation. In addition, spectacular high-rise buildings may serve as symbolic expressions of urban economic vitality.

However, as with densification more broadly, the social and environmental implications of high-rise development are far from neutral. International research on high-rise development and vertical urbanism shows that tall residential buildings tend to amplify rather than neutralise market dynamics. They often function as highly commodified housing products shaped by investment logic, branding strategies, and profitability considerations (Graham, 2016; Maloutas, 2024; Maloutas and Karadimitriou, 2022). In market-driven contexts, high-rise projects frequently target upper-income segments and investors; thereby contributing to new forms of socio-spatial stratification and what has been described as vertical micro-segregation - the internal differentiation of residents by floor level, apartment size, access to views, light, and amenities (Maloutas, 2024). Rather than producing socially mixed environments, vertical developments may, therefore, reproduce inequalities both within buildings and across neighbourhoods (Lehrer and March, 2019).

Evidence from recent research in Oslo points in a similar direction. New high-rise residential developments are typically located in already attractive and infrastructure-rich areas - such as waterfront redevelopments, former industrial transformation zones and spaces surrounding nodes in the public transport system - where land values are high, and development has been led by large private actors (Andersen & Røe, 2017). These new developments represent a clear shift from the high-rise housing projects of the post-war period, from the 1950s to the 1970s, when public and municipal agencies, together with cooperative builders, planned and implemented large-scale housing projects, especially in the eastern outskirts of the city. These high-rise developments addressed post-war housing demands by building amenity-rich neighbourhoods with a substantial proportion of municipal social housing. Such developments were, nevertheless, halted due to growing public criticism of these housing environments, especially for families with children (Røe, 2025). It was not until the early 2000s, after the municipality had launched its first strategy for high-rise buildings as part of the compact city policy, that high-rise housing again became an alternative. The municipality of Oslo now has approximately 100 high-rise residential buildings, and a large share of them have been built in the second phase (post 2000) of high-rise developments.

These new projects often combine iconic architecture, private shared amenities, and securitised semi-public spaces; thereby reinforcing patterns of selective inclusion. Dwelling types in high-rise buildings are frequently skewed toward small and medium-sized ownership units, with larger and more exclusive apartments concentrated on upper floors - with the latter also often featuring large balconies and outdoor terraces. The development of high-rise buildings, often constructed for elites, may create micro-segregation (both horizontally and vertically) and prioritise secluded social activities in ways that counter the development of a socially sustainable city. A study based on interviews and observations in newly constructed high-rise buildings in Fjord City revealed the spatial and vertical diversity of living environments in such buildings and their close neighbourhoods. While some apartments were characterised as large and amenity-rich, with

abundant light and views, others were perceived as dense, close to the street level and in the “shadows”. In contrast, high-rise developments from the post-war period were designed to reduce inequalities in physical living conditions and amenities (Asbjørnsen *et al.*, 2025), with a variety of indoor and outdoor amenities, as well as social infrastructure, accessible to all inhabitants.

This internal vertical differentiation mirrors broader housing market inequalities and may generate new forms of socio-spatial filtering, even in the absence of direct displacement – dynamics that resonate with patterns of new-build gentrification and exclusionary pressure; both already documented in Oslo’s densification areas (Cavicchia, 2023, 2022, 2021). In Oslo, some of future new high-rise developments are to be located in one of the few centrally located multicultural and socially diverse urban districts, Grønland, where the social implications may be severe if inclusive measures are not implemented.

From a socio-spatial justice perspective, high-rise development risks intensifying several of the tensions already identified in Oslo’s densification approach. First, in the absence of binding affordability requirements or inclusionary housing tools – which Norwegian municipalities largely lack (Granath Hansson *et al.*, 2025) – vertical projects are likely to further expand the stock of high-priced housing, and thus contribute little to improved accessibility for lower- and middle-income households (Cavicchia, 2023, 2021). Second, the concentration of tall buildings in specific redevelopment areas may reinforce uneven development patterns across the city; thereby adding vertical enclaves to an already polarised urban geography structured along the east–west divide (Cavicchia and Cucca, 2025; Ljunggren, 2017). Third, the increasing privatisation of elevated and internalised shared spaces – such as rooftop terraces, indoor lounges, and residents-only facilities – may shift everyday social life away from open public arenas toward controlled semi-private environments, weakening the integrative potential of neighbourhood space.

7. Conclusion

The experience of Oslo’s densification strategies must ultimately be understood within the framework of a highly commodified housing system (Aarland & Sørvoll, 2021), as well as a planning regime where private real-estate developers, builders and consultancies are influential actors who increasingly set the agenda for urban development (Haarstad *et al.*, 2021; Røe *et al.*, 2022). Urban growth in the Norwegian capital has unfolded against a backdrop of uneven intensification, with redevelopment concentrated in specific pockets of the city rather than evenly distributed (Cavicchia, 2022). These processes intersect Oslo’s long-standing socio-spatial divisions between east and west, and shape how densification is implemented and experienced across different neighbourhoods.

A recurring feature of redevelopment has been the symbolic use of green space as part of the branding of new districts (Andersen & Skrede, 2017). As noted, rivers, streams, and linear parks have often been mobilised as emblems of sustainability to give legitimacy to densification projects. Yet, the actual provision of green space has frequently been more limited than initially envisioned (Venter *et al.*, 2023).

The geography of densification also reflects deeper urban divides, which are increasingly addressed within existent international literature (Røe *et al.*, 2022). Much of the new construction has taken place in the eastern parts of the city, largely because of the availability of post-industrial land. At the same time, resistance from residents in western neighbourhoods has limited large-scale redevelopment there. This uneven distribution means that the social and ecological consequences of densification are felt more acutely in certain districts, thereby reinforcing existing patterns of inequality (Cavicchia, 2021).

The social outcomes of these processes are increasingly visible. As reported in other contexts affected by a high-pressure housing market, densification – particularly through the construction of small apartments – does not automatically improve housing affordability (Stacy *et al.*, 2023). New housing in densification areas is often priced well beyond the reach of average households; contributing to a growing affordability problem (Cavicchia, 2021). The dynamics of “new-build gentrification” extend beyond individual projects, spill over into adjacent neighbourhoods, and raise housing costs more broadly. While densification has some potential to play a desegregating role in Oslo’s west – by introducing more diverse housing types into historically affluent areas – such projects have been rare and fragmented (Andersen and Røe, 2017; Cavicchia, 2021). In contrast,

in the eastern districts, densification has more consistently supported gentrification; reshaping the social composition of neighbourhoods and contributing to displacement pressures.

A better understanding of rental dynamics is also essential. The rise of both long-term and short-term rental markets in Oslo has had a profound effect on affordability, yet these dynamics have not always been well captured in debates. Without a deeper understanding of how rental practices intersect with densification, it is difficult to fully grasp the consequences of the same for housing access.

In Oslo's municipal and regional planning frameworks, densification has been envisaged as a coordinated and environmentally rational strategy: a way to accommodate population growth within the existing urbanised area, protect agricultural and natural lands, reduce car dependence, support public transport, and promote socially sustainable urban development. This planning doctrine assumes that compact growth can simultaneously deliver climate benefits, efficient land use, improved accessibility, and more inclusive urban environments. The empirical studies reviewed in this article show, however, that Oslo's densification strategies present a set of intertwined paradoxes (Andersen & Skrede, 2017; Kjærås, 2024): green space is celebrated as part of the compact city narrative but sacrificed or put under pressured by redevelopment pattern; redevelopment is concentrated where land is available, resistance is weaker, and market conditions are favourable; affordability is undermined even as new supply is added; and gentrification advances unevenly across the city's east and west. The Oslo case thus demonstrates that the social and environmental effects of densification cannot be inferred from the planning doctrine alone. Densification is not a single policy instrument with predetermined outcomes, but rather a set of development practices that are shaped by governance arrangements, land availability, market dynamics and local resistance. The central issue is therefore not simply whether Oslo should densify, but how density is produced, where it is located, who benefits from it, and which costs are redistributed across neighbourhoods, social groups, and ecological systems.

Recognising these tensions is essential for understanding the limits of the "green city" narrative and for imagining more equitable ways of accommodating urban growth (Andersen and Røe, 2017).

References

- Aarland, K., Sørvoll, J., 2021. *Norsk boligpolitikk i internasjonalt perspektiv. En sammenligning av boligmarkeder og boligpolitikk i sju europeiske land.* (No. 7/21), NOVA RAPPORT. NOVA, Oslo.
- Andersen, B., Røe, P.G., 2017. The social context and politics of large-scale urban architecture: Investigating the design of Barcode, Oslo. *European Urban and Regional Studies* 24, 304–317. <https://doi.org/10.1177/0969776416643751>
- Andersen, B., Skrede, J., 2017. Planning for a sustainable Oslo: the challenge of turning urban theory into practice. *Local Environment* 22, 581–594. <https://doi.org/10.1080/13549839.2016.1236783>
- Asbjørnsen, H., Blümlein, P., Smedal, A., 2025. *Livet i høyhus fra to ulike epoker. Sosial bærekraft i Ammerudblokkene og Mad-bygget.* Centre for Sustainability and Development and the Include Centre, University of Oslo.
- Berghauser Pont, M., Haupt, P., Berg, P., Alstäde, V., Heyman, A., 2021. Systematic review and comparison of densification effects and planning motivations. *Buildings and Cities* 2, 378. <https://doi.org/10.5334/bc.125>
- Brown, M., Wolfe, M., 2007. *Energy efficiency in multi-family housing: A profile and analysis.* Washington, DC: Energy Program Consortium.
- Caprotti, F., 2014. Critical research on eco-cities? A walk through the Sino-Singapore Tianjin Eco-City, China. *Cities* 36, 10–17. <https://doi.org/10.1016/j.cities.2013.08.005>
- Cavicchia, R., 2023. Housing accessibility in densifying cities: Entangled housing and land use policy limitations and insights from Oslo. *Land Use Policy* 127, 106580. <https://doi.org/10.1016/j.landusepol.2023.106580>
- Cavicchia, R., 2022. Urban densification and exclusionary pressure: emerging patterns of gentrification in Oslo. *Urban Geography* 1–23. <https://doi.org/10.1080/02723638.2022.2100174>
- Cavicchia, R., 2021. Are Green, dense cities more inclusive? Densification and housing accessibility in Oslo. *Local Environment* 26, 1250–1266. <https://doi.org/10.1080/13549839.2021.1973394>
- Cavicchia, R., Cucca, R., 2025. Desegregating through densification? Potential and limitations in the case of Oslo. Presented at the Storbykonferansen, Oslo.
- Cavicchia, R., Cucca, R., 2022. Urban Densification and Its Social Sustainability, in: *The Palgrave Encyclopedia of Urban and Regional Futures.* Springer International Publishing, Cham, pp. 1–14. https://doi.org/10.1007/978-3-030-51812-7_156-1

- Cavicchia, R., Cucca, R., 2020. *Densification and School Segregation: The Case of Oslo*. *Urban Planning*, 5(3), 217–229. <https://doi.org/10.17645/up.v5i3.3215>
- Cavicchia, R., Cucca, R., Kronborg, A.K., 2025. *National Report on the Housing System from a Multi-Level Perspective: Norway*. Deliverable 4.2, "National Report on the Housing System from a Multi-Level Perspective". ReHousIn: Contextualised pathways to Reduce Housing Inequalities in the green and digital transition.
- Cooper, J., Donegan, K., Ryley, T., Smyth, A., Granzow, E., 2002. *Densification and Urban Compaction: Reinforcing the Drive for Sustainability*. *Transportation Research Record: Journal of the Transportation Research Board* 1817, 102–109. <https://doi.org/10.3141/1817-13>
- County of Akershus, Municipality of Oslo, 2015. *Regional Plan For Areal Og Transport I Oslo Og Akershus*.
- Cucca, R. and Mouratidis, K., 2025. School segregation, residential patterns, and the role of school choice in an egalitarian system. The case of Oslo, Norway. *Urban Research & Practice*, 18(5), pp.671–695.
- Davidson, M., Lees, L., 2005. New-Build 'Gentrification' and London's Riverside Renaissance. *Environment & Planning A* 37, 1165–1190. <https://doi.org/10.1068/a3739>
- Debrunner, G., 2024. *The Business of Densification: Governing Land for Social Sustainability in Housing*. Springer Nature Switzerland, Cham. <https://doi.org/10.1007/978-3-031-49014-9>
- Ebbensgaard, C. L. (2024). Architectures of disavowal and enduring acts of refusal. *Environment and Planning D: Society and Space*, 42(5–6), 824–843. <https://doi.org/10.1177/02637758241266344>
- Falleth, E.I., Hanssen, G.S., Saglie, I.L., 2010. Challenges to Democracy in Market-Oriented Urban Planning in Norway. *European Planning Studies* 18, 737–753. <https://doi.org/10.1080/09654311003607729>
- Glaeser, E., 2011. *Triumph of the city: How urban spaces make us human*. Pan Macmillan.
- Graham, S., 2016. *Vertical: The city from satellites to bunkers*. Verso Books.
- Graham, S., Marvin, S., 2002. *Splintering urbanism: networked infrastructures, technological mobilities and the urban condition*. Routledge. Routledge, London.
- Granath Hansson, A., Sørensen, J., Nordahl, B.I., Tophøj Sørensen, M., 2025. *Contrasting inclusionary housing initiatives in Denmark, Sweden, and Norway: how the past shapes the present*. *Housing Studies* 40, 892–913.
- Grønning, Ø., Mosebach, G., n.d. *Vi må snakke om Hovinbyen: Elefanten i rommet er en papirtiger*.
- Haarstad, H., Hanssen, G.S., Andersen, B., Harboe, L., Ljunggren, J., Røe, P.G., Wanvik, T.I., Wulff-Wathne, M., 2021. Nordic responses to urban challenges of the 21st century. *Nordic Journal of Urban Studies* 1.1 (2021): 4–18.
- Haarstad, H., Kjærås, K., Røe, P.G., Tveiten, K., 2023. Diversifying the compact city: A renewed agenda for geographical research. *Dialogues in Human Geography*, 13, 5–24. <https://doi.org/10.1177/20438206221102949>
- Hall, T., Hubbard, P., 1996. *The entrepreneurial city: new urban politics, new urban geographies?* *Progress in Human Geography* 20, 153–174. <https://doi.org/10.1177/030913259602000201>
- Hewitt, I., 2026. *State-led new-build gentrification in metropolitan Oslo*. *Urban Studies* 00420980261432567. <https://doi.org/10.1177/00420980261432567>
- Kjærås, K., 2024. *The politics of urban densification in Oslo*. *Urban Studies* 61, 40–57. <https://doi.org/10.1177/00420980231178190>
- Lehrer, U., March, L., 2019. *Vertical urbanism: high-rise buildings and public space*. Lehrer, Ute, and Loren March. "Vertical urbanism: high-rise buildings and public space." *Yhdyskuntasuunnittelu* 57.4: 37–42. <https://doi.org/10.33357/ys.88628>
- Ljunggren, J., 2017. Oslo – Ulikhetenes by. *NOST* 1, 470–473. <https://doi.org/10.18261/issn.2535-2512-2017-06-04>
- Maloutas, T., 2024. The role of vertical segregation in urban social processes, *Nature Cities* 1.3 (2024): 185–193.. <https://doi.org/10.1038/s44284-024-00037-5>
- Maloutas, T., Karadimitriou, N. (Eds.), 2022. *Vertical cities: micro-segregation, social mix and urban housing markets*, *Cities series*. Edward Elgar Publishing, Cheltenham, UK, Northampton, MA. <https://doi.org/10.4337/9781800886391>
- Marcuse, P., 1985. *Abandonment, gentrification, and displacement: the linkages in New York City*, in: *Gentrification of the City*. Routledge, pp. 153–177.
- Municipality of Oslo, 2023. *Strategi for høyhus i Oslo*.
- Municipality of Oslo, 2018. *Kommuneplan 2018. En grønnere, varmere og mer skapende by med plass til alle*.
- Municipality of Oslo, 2015. *Kommuneplan 2015. Oslo mot 2030 – Smart, trygg og grønn*.
- Municipality of Oslo, 2008. *Fjordbyplanen*.
- Næss, P., Næss, T., Strand, A., 2011. Oslo's Farewell to Urban Sprawl. *European Planning Studies* 19, 113–139. <https://doi.org/10.1080/09654313.2011.530395>
- Næss, P., Saglie, I.-L., Richardson, T., 2020. Urban sustainability: Is densification sufficient? *European Planning Studies* 28, 146–165. <https://doi.org/10.1080/09654313.2019.1604633>
- Nenseth, V., Røe, P.G., 2024. Sustainable suburban mobilities – planning practices and paradoxes. *European Planning Studies* 32, 1059–1077. <https://doi.org/10.1080/09654313.2023.2249950>

- Nordahl, B.I., 2014. Convergences and discrepancies between the policy of inclusionary housing and Norway's liberal housing and planning policy: an institutional perspective. *Journal of Housing and the Built Environment*, 29(3), 489-506. <https://doi.org/10.1007/s10901-013-9357-2>
- Orderud, G.I., 2006. The Norwegian Home-building Industry — Locally Embedded or in the Space of Flows? *International Journal of Urban and Regional Research*, 30(2), 384-402. <https://doi.org/10.1111/j.1468-2427.2006.00666.x>
- Rérat, P., 2012. Housing, the Compact City and Sustainable Development: Some Insights From Recent Urban Trends in Switzerland. *International Journal of Housing Policy* 12, 115–136. <https://doi.org/10.1080/14616718.2012.681570>
- Rice, J.L., Cohen, D.A., Long, J., Jurjevich, J.R., 2020. Contradictions of the Climate-Friendly City: New Perspectives on Eco-Gentrification and Housing Justice. *International Journal of Urban and Regional Research*. 44, 145–165. <https://doi.org/10.1111/1468-2427.12740>
- Røe, P.G., 2025. *The Social Ambitions and Failures of Architecture in Oslo's New Towns of the 1950s, 1960s, and 1970s, in: Peripheral Centralities: The Lost and Past Urbanity of the Suburbs*. Routledge, London. <https://doi.org/10.4324/9781003367246>
- Røe, P.G., Kjærås, K.E.A., Haarstad, H., 2022. The Spatialities of the Nordic Compact City, in: Jakobsen, P., Jönsson, E., Larsen, H.G. (Eds.), *Socio-Spatial Theory in Nordic Geography*. Springer International Publishing, Cham, pp. 191–205. https://doi.org/10.1007/978-3-031-04234-8_11
- Sæther, B., 2024. Construction minerals as part of an urban circular economy? A multi-scalar study of the city of Oslo and its hinterland. *Cambridge Journal of Regions, Economy and Society* 17, 483–494. <https://doi.org/10.1093/cjres/rsae030>
- Schmidt, L., 2014. *Kompakt by, bokvalitet og sosial bærekraft*.
- Skrede, J., Andersen, B., 2022. The emotional element of urban densification. *Local Environment* 27, 251–263. <https://doi.org/10.1080/13549839.2022.2034769>
- Solli, H., 2026. Climate-friendly mobility: A possibility for nurses? *Journal of Urban Mobility* 9, 100187. <https://doi.org/10.1016/j.urbmob.2026.100187>
- Sørvoll, J., 2019. The Dilemmas of Means-tested and Market-oriented Social Rental Housing: Municipal Housing in Norway 1945-2019. *CHA* 6, 51–60. <https://doi.org/10.13060/23362839.2019.6.1.460>
- Stacy, C., Davis, C., Freemark, Y.S., Lo, L., MacDonald, G., Zheng, V., Pendall, R., 2023. Land-use reforms and housing costs: Does allowing for increased density lead to greater affordability? *Urban Studies* 60, 2919–2940. <https://doi.org/10.1177/00420980231159500>
- Statistics Norway, 2024. *Regional population projections*.
- Venter, Z.S., Barton, D.N., Gundersen, V., Figari, H., Nowell, M., 2020. Urban nature in a time of crisis: recreational use of green space increases during the COVID-19 outbreak in Oslo, Norway. *Environ. Res. Lett.* 15, 104075. <https://doi.org/10.1088/1748-9326/abb396>
- Venter, Z.S., Figari, H., Krange, O., Gundersen, V., 2023. Environmental justice in a very green city: Spatial inequality in exposure to urban nature, air pollution and heat in Oslo, Norway. *Science of The Total Environment* 858, 160193. <https://doi.org/10.1016/j.scitotenv.2022.160193>
- Wessel, T., Lunke, E.B., 2019. Raising children in the inner city: still a mismatch between housing and households? *Housing Studies* 36, 131–151. <https://doi.org/10.1080/02673037.2019.1686128>
- Xue, J., 2015. Sustainable housing development: decoupling or degrowth? A comparative study of Copenhagen and Hangzhou. *Environment and Planning C: Government and Policy*, 33(3), 620-639. <https://doi.org/10.1068/c12305>

PLACES

A CITY RETURNS TO ITS FJORD: REFLECTIONS ON OSLO AND THREE DECADES OF WATERFRONT TRANSFORMATION

Elin Børrud¹

Abstract

This paper provides a retrospective reflection on how Fjord City emerged as a central vision for Oslo's urban development. As in many cities during the 1980s and 1990s, concerns grew that Oslo had become disconnected from its waterfront. A lively public debate about the harbour's future role led municipal politicians to commission a study which assessed port activities and the potential benefits of releasing port land for other urban uses. This paper reflects on how Fjord City is understood today, in light of the debates that initiated its transformation. At that time, the Port Authority resisted external involvement in what it regarded as its core professional domain. Today, however, political decisions have contributed to a significant shift in roles: the Port Authority and its subsidiary, Hav Eiendom, have become commercially oriented and active urban developers who are shaping key conditions for the realisation of the Fjord City vision.

Keywords:

Waterfront, Urban Planning, Urban Transformation.

¹ Department of Urban and Regional Planning, Norwegian University of Life Sciences
e-mail: elin.borrud@nmbu.no

The author is a trained architect who worked as a planner in the municipality of Oslo and partly ran a private planning and architectural practice alongside a professorship in urban and regional planning at NMBU. Her research focuses on the morphological aspects of urban transformation processes. In recent years, she has worked mostly within education and the didactics of spatial planning.

1. What if the Port moves out?

Like many other settlements, Oslo emerged where sea routes met land routes. For centuries, the city developed in a way that created an ever-greater distance between the city and the fjord. In the mid-1980s, people began to demand that major road schemes, industry, and the port should free up space for housing, waterfront recreation, and improved water quality. This trend occurred in many places. What was about the fact that modern port operations no longer required quay length for loading and unloading, but areas for stacking containers. While other cities had areas suitable for the same within their municipal boundaries, Oslo had neither the geography nor the topography that naturally facilitated such a port. A new modern port within the Oslo municipality would have, regardless of its location, entailed traffic to and from the port through the city centre, as well as extensive land reclamation in the harbour basin. This text is a personal account from within the establishment of what we now refer to as 'Fjordbyen Oslo' (the Fjord City), as well as an external reflection on an urban transformation that has been ongoing for nearly 30 years. The history of the Fjord City is about when we posed the big 'what if?': What if the port moves out of Oslo, and the city returns to its fjord?

My basis for reconstructing this history is my experience as a public-sector planner and project manager for the analytical work that led to the Fjord City decision. From the perspective of planning theory, we are talking here about strategic planning that was conducted before formal land-use decisions. What does a planner do when an open-ended commission arrives from City Hall? The case is also a story about how a municipality adapted to the transition from governmental steering of urban development to becoming one of many actors jointly responsible for implementing market-oriented plans².

2. Provocations and Forecasts

Provocations can be useful tools for kick-starting urban development. When the question of alternative uses for Oslo's port areas was placed on the agenda in 1996, the then Port Director and his board were mightily provoked. I perceived their scepticism as stemming from a mistrust that city planners regarded the port merely as an unaesthetic and unnecessary obstacle to a new urban lifestyle, whose main ingredients were recreation and café-latte drinking. At the same time, a newspaper debate had for some time been circulating among independent port experts about whether the Oslo Port Authority (PA) was running its affairs efficiently enough. This was not a question of whether Oslo should have a port, but of how much land it required. The question centred upon forecasts for goods volumes, methods for stacking containers, and the reclamation of new land to make room for them. Concurrently, many perceived the port authority as unreceptive to outside advice. It seemed as if they believed that decisions about port operations did not concern anyone but themselves – and thus neither did the areas used for these operations. This irked architects and, in particular, city enthusiasts, who believed that Oslo's location at the head of the Oslo Fjord was being completely spoiled by a single actor's dominance.

Following a request from the City Commissioner for Urban Development, the Planning and Building Agency (PBA) initiated a study of alternative uses of the port's areas. Our primary task was to assess the population's access to the water. We defined this as a question of the value of the port sections in a broad sense.

In parallel with PBA's study, the PA was to revise its strategic plan to demonstrate how it would handle the forecast enormous growth in container cargo. While the PA merely used 'small change' of its solid port cashier, we had a budget that was a small fraction of the PA's. However, the PBA could assign a larger internal team to the work than the PA could. The ensuing race towards 'the truth' culminated in an exhibition in central Oslo in January 1998. Here, the results of both planning efforts were presented to the public before the City Council addressed whether port's areas could be used for other purposes. The fact that PBA's arguments for the 'Fjord City' gained support meant that the Port Authority's strategic plan was sent back with a message to adjust it to realise the Fjord City vision. It was 'salt in the wound' for the PA. Almost 30 years later, we now know that the port authority got roughly what it wanted: a modern container port central to Oslo that was financed with income through the heavyweight commercial property development of those areas that were released for other uses.

2 A part of this article constitutes a reworking of a text originally published in a discussion volume about the future Fjord city (Kjellsen et al., 2007).

Today, the term Fjord City is actively used in both urban development and promoting the city as a tourist destination. The term can be perceived primarily as a vision of better contact between the city and the water, but the Fjord City concept was also a strategy that addressed many more and much more important questions tied to Oslo's long-term development.

3. Scenarios for future retrospection

As the project manager for this work, I wrote a scenario description for the year 2015, with a look back at what had happened in 1998, when Oslo City Council decided the port's fate. (The decision was taken two years later.) The task was to foresee how the political argumentation for the decision to be taken might unfold. The alternatives imagined were: "Fjord City", what if port operations were discontinued within Oslo's boundaries? And "Harbour City", what if the port authority's forecasts for future expansion needs were taken seriously and turned into an urban development project? Now in 2026, we know the outcome. Most of the area has been transformed. We can therefore reflect both on what we imagined might have happened by 2015 and on how the vision has been realised.

The term "Fjord City" and its alternative, "Harbour City", were used strategically. They represented the extreme options and were clearly different political choices. For the analytical work to be reliable and not merely received as a provocation, it was important for those of us in PBA not to be perceived as biased. This applied to both the port's advocates and the organised "Fjord City friends". We had not taken a stance in advance. For my part, I remained uncertain until a likely implementation of the two strategies was described; only then did I decide what to advise. I mention this to underscore that such analyses do not reveal the truth but rather only assemble the arguments which we find convincing. An overarching goal was for the City Council to make a clear decision about the port's future in Oslo. Otherwise, port operations would stagnate due to resistance and filibustering of all matters concerning port development within Oslo's boundaries.

Today, we might think that this big 'what if?' had always been associated with political consensus both inside and outside the council chamber. But at that time, it was highly uncertain which side would be in the majority. The planning work was initiated by the Labour Party but thereafter taken over and later steered through to a decision by the Conservatives. Yet many would probably claim that it was originally a Liberal Party politician who posed the question (Kjellsen et al., 2007). Views on the port's significance in Oslo did not divide along party lines but across them.

4. The Gordian knot

Although we worked with spatial visions of the future city, it was my clear opinion then that the opportunity to achieve alternative uses of the harbour areas lay not in architecture but in law. We needed a competition in jurisprudence, not an architectural competition, as many asked for. Some would likely still argue today that the Fjord City vision suffers architecturally, but back then, even a host of fine proposals would not have led to a decision. The main question was to determine what Oslo would gain or lose from an alternative use of its harbour areas. A Gordian knot lay in the relationship between the Harbour Act, the Local Government Act, and the Planning and Building Act. As we saw it, this represented a problem with respect to the values embedded in the areas as well as with regard to who could manage them when they were no longer used as a port. Who owned the port areas? Why should the Ministry of Fisheries, as the superior authority for areas under the Harbour Act, determine urban development in Oslo? Why could the well-filled port fund not be transferred to the municipal fund when both belonged to the municipality of Oslo?

As city planners, we were not allowed to investigate such questions, even though we needed knowledge-based arguments to loosen the Gordian knot. The Harbour Act's provision stated that money earned on port operations could only be used for measures which benefitted port operations. The Port Director's choices were therefore to let money that could not be used accumulate in the bank, build a larger port, or subsidise the port's users. The latter would make Oslo even more attractive and the need for additional space even greater. It was entirely understandable that the port authority wanted to use its many millions to build a grand new container port, preferably along Oslo's entire shoreline. For Oslo, this would have been physically possible only by filling large quantities of rock and soil into the harbour basin to create new land; a solution that the

inhabitants began to resist in the late 1980s. In particular, the question of infilling along the quay edge at the western part of the harbour triggered protests about the port's land use in Oslo.

5. The strategic questions

Alternative uses of port areas concern urban development. Could Oslo as a city gain or lose if the port moved out? This problem implicated many different questions that had to be answered before the City Council could make its decision. Most important to our work was highlighting the extent of the advantages that might arise for the municipality and its inhabitants if the container port either moved out of the municipality or was developed into a large, efficient facility, as envisaged by PA. To achieve this, we developed key strategic questions across a range of themes that would be affected by the decision. These strategic questions were derived from assertions made in the public debate about the port's development opportunities. Through so doing, we were confident that the questions we sought to answer had public interest and political anchoring. My view was also that many of the claims made in the public debate were not knowledge-based. Our task became one of providing the cross-disciplinary knowledge for the politicians to then reach a unanimous decision.

Strategic questions or hypotheses were posed concerning (1) the recreational needs of post-modern urban life and whether port operations truly limited Oslo residents' recreational opportunities; (2) the relationship between the strategic location of port sections and the socio-spatial structures across them; (3) the value potential of the different port sections –what the areas would be worth if used for other (non-port) activities; (4) the port's importance for business activities in Oslo; (5) the various environmental burdens of goods transported; and finally (6) the port's significance for Oslo across a range of regional contexts.

These six themes were treated separately and presented in individual sub-reports; a summary of the thematic studies served as the scenario description for 2015. This was built as a continuous chain of argument for a decision in favour of either The Fjord City or The Harbour City (PBA, 1998).

6. Arguments for the Fjord City

The decisive arguments for recommending the Fjord City to the City Commissioner were socio-economic. Considering the societal trends that we judged to be strong, we concluded that Oslo and its wider region would benefit from using the port areas for housing, other business activities, and accessible public spaces. This would yield increased tax revenues from housing developments, create opportunities for attractive business locations, and reduce transport demand by better balancing workplaces and housing in and around Oslo. The studies clearly showed that Oslo's business community was not particularly dependent on the port's location within the municipality. It was not the case therefore, as some claimed, that if the port moved, jobs would follow. Modern port operations are not major employers. At that time, far more people worked at Aker Brygge (a former shipyard transformed) than in the entirety of the port itself. In addition, the analysis undertaken, demonstrated the area's value potential for alternative uses and higher density.

The uncertainty about who would benefit from this potential was, as noted, a Gordian knot. The PA's key argument for further developing a large port within Oslo focused on environmental arguments. It argued that moving the port farther from the region's core would entail longer transport times for goods by vehicle, and that it was more environmentally friendly to ship goods as far as possible into the centre; ie. to where they are purchased. Isolated as a transport calculation, this assertion was correct. Longer road distances increase CO₂ emissions but, as we demonstrated, these calculations did not take into account other portant parameters. From a global perspective and in the context of total environmental accounting across the entire value chain of goods production, the increase in CO₂ emissions from a few extra miles of driving was (and is) insignificant. More importantly, existent trends at the time of the analysis had already shown that distribution warehouses receiving goods from the port were already being relocated to cheaper plots in neighbouring municipalities north and south of Oslo. This meant that an increasing number of goods bound for shops in Oslo city centre were, already, first hauled out to the periphery and then back into the centre by lorries. When assessing environmental impacts, the number of people affected must also be considered. A port in the city's most densely populated area means that more people are affected by traffic to and from the port than if the port is in an area with a lower population density.

Perhaps because the PA failed to step out of its sectoral silo, it argued for a strategy based on very optimistic forecasts for cargo handled via Oslo harbour, whilst offering no forecasts for how the rest of society might change. Nor did the PA have a spatial perspective on the port in terms of urban morphology. In my view, the PA bet all on two cards: that arguments from the environmental calculus would be accepted as truths, and that the port authority, as the expert body in port matters, would be regarded as more reliable with regards to the avenues of argumentation deployed than the city planners.

7. Oslo Harbour forever

The decision to adopt the Fjord City proposal compelled efficient operation of the port areas. Previously, there had been little will to do so the Harbour and Fairways Act was adjusted, and, under the port-closure provision, port-generated income would be made available, in future, for other public-benefit purposes. The Ministry of Fisheries also tasked the ports in the inner Oslo Fjord with studying a future regional joint port structure; just as we had forecast (Plan-og bygningsetatenOslo, 1997). An inter-municipal company, Viken Havneseelskap AS, was established, but dissolved after the study was submitted to the ministry. The conclusion of that work was that an inter-municipal port company should not be created. Instead, it was decided that the existing ports in the region should just cooperate and exchange information on professional and technical port matters. It is important to note that this conclusion was arrived at by a board chaired by Oslo's Port Director, and its recommendation entailed that Oslo should have a large container port within its own borders. Thereafter, the port authority changed its name to Oslo Havn KF and began developing a so-called temporary container port at Sjursøya (sydhavnen), while also communicating that a regional solution would be established and that Sjursøya would be released for alternative use in 2025. Today we know, as I wrote in 2007 – that this would never happen. What we refer to as the Fjord City was, in the late 1990s, the Harbour City.



Figure 1. How port activities have dominated the area connecting the city to the fjord.

The Fjord City decision clearly led to more efficient port operations. In other words, it was good that the then politicians decided in favour of the Fjord City rather than a compromise between the two extremes. Had this not been the case, we would not now be able to discuss urban development in Oslo as we do today. The Fjord City vision positioned Oslo within a space of expectation, one that the port authority, for better or worse, has come to occupy through its role as a commercial property developer under the name Hav Eiendom AS. It was established in 2003 as a limited liability company. With income obtained from developing the former port areas, which is funding the construction of what no one any longer calls a temporary container port. The Port Authority, which rejected new ways of organizing port operations in the Oslo region, chose to establish a new organization to be able to conduct property development in areas where port operations had been discontinued. Compared with other port cities, this way of organising is rare (Sánchez, 2016).

8. Anno 2026

After the initial work in the late 1990s was completed, I have mostly observed Fjord City from the sidelines and as a normal inhabitant of the city. What worried me when I was involved was that the vision would create exclusive enclaves between the city centre and the fjord, without creating socio-spatial links to the districts behind. This was also a question raised by Briers (2020, 12) who noted that, “urban waterfronts are seldom able to become integral parts of the city centre”. In our case, I believe this is organisational. The problem with dis-integration emerged not only through the creation of HAV Eiendom and its mandate, but also from the Planning and Building Agency’s establishment of a dedicated Fjord City Office solely for planning those areas. There is no reason to believe that those who have and are working in this office have not been concerned with the relations that exists between the port sections’ hinterland, and the new developments. Still the tendency for the Fjord City vision to become ‘A Project lying between the city and the fjord’ is very much present. Nevertheless, while PA became a housing developer, PBA focused on public spaces accessible to all. A public urban space runs along the entire waterfront, named ‘havnepromenaden’, and seven commons named ‘allmenninger’ run across the new developments. Whether the integration has in fact occurred is now a matter of personal experience.



Figure 2: The public playground in one of the Bjørvika commons attracts people from all over. Source; The Author

As of August 2026, Fjord City is approaching completion. Bjørvika, the most central part, is finished, and the Fjord City Office has been terminated. However, the area that started the whole process, Filipstad, has been under continuous planning for 30 years, with no actual construction having taken place. The City Council approved the area zoning plan in 2020, and this opens the door to the development of up to 3,000 homes as well as various business activities. To exercise better control over the process, the Oslo municipality established its own agency, Filipstad Infrastructure. Since autumn 2024, it has been responsible for planning and implementing all public spaces and infrastructure, as well as coordinating the various stakeholders involved in the implementation of the same. For the moment it is impossible to see any correlation between this new organisational set-up and the development process for the other major Fjord City sub-area not yet developed, Grønlikaia. The rationale for the new organization may stem from the need to coordinate state transport agencies (roads and rail). But it may also reflect a desire to reclaim some control from a highly proactive and autonomous actor like Hav Eiendom.

Grønlikaia has been subject to extensive planning work combined with early participation processes and later subject in a broad parallel commission initiated by Hav Eiendom. Five interdisciplinary teams delivered feasibility studies with ambitious environmental goals. Hav Eiendom submitted a planning proposal in September 2024, with ambitions for around 1,500 homes, 3,000 jobs, and approximately one kilometre of extended harbour promenade.

Due to a professional disagreement between Hav Eiendom AS, the landowner, and PBA, the planning authority, the process is paused. PBA decided not to send the proposal for consultation, as the normal procedure, citing significant deviations from overarching plans (the Municipal land use plan, the Fjord City Plan, and the High-rise Strategy). The proposed development would create unacceptable visual consequences caused by too high buildings PBA also pointed out that a warning against excessive building height was already communicated at the start-up meeting in 2021, which indicates that Hav Eiendom did not heed PBA's recommendation. An even more serious issue is that the City Government (the responsible politician) nonetheless chose to send the proposal to public consultation, against the advice of its own planning authority. While PBA considered the buildings as too tall, HAV Eiendom continues to argue that the development volume envisaged by the plan is necessary to finance the area's infrastructure, harbour promenade, and public access to the fjord. As of August 2026, the outcome of this disagreement remains unknown.

9. Is Oslo's Fjord City good for the city's population?

Critical perspectives are needed to understand the political, social, and urban dilemmas that have been, and are embedded in the shaping of Oslo's former port sections. Professional interest in the Fjord City's development has been great, but it has not yet been subject to comprehensive critical evaluation. PBA made a summary in 2017 of what was achieved so far. It confesses the early analysis that placed the Fjord City vision within an international trend of urban economic competition (Kolstø et al., 2017). Critics of such use of aesthetics and prestigious cultural activities as selling points warned against overlooking locally rooted culture in this market race for many years ago (Bergsli, 2005). An anthology of different voices presented a snapshot of thoughts before the transformation process had even begun (Kjellsen et al., 2007). Ten years later, it was documented that urban qualities were ensured through the creation and implementation of an integrated and coordinated development process (Bergsli, 2015). Today, our own observations bring this narrative further up to date and tell us more.

It is not only the roof of the National Opera House and the new public library that have become much-loved destinations for residents and tourists. Crowds of people also promenade along the 'havnepromenaden' at the waterside. Such events were beyond what we could have envisioned in the late 1990s, but this was not the case with regard to Oslo becoming a year-round bathing city with an armada of floating saunas in the inner harbour basin. Better access to the water has clearly created a different urban environment compared with the Oslo that residents experienced 20–30 years ago. Special credit should be given to the Port Authority for its efforts to address past environmental impacts and improve water quality

The area's reputation and the influx of tourists have no doubt shifted the city's centre of gravity towards the fjord.



Figure 3. One of the Sauna-villages with the Munch Museum and Barcode buildings in the background. Source: The Author

Despite this, there remains constant commentary in local newspapers and on social media which claims that the buildings are aesthetically unappealing, too colourless, or too tall. Criticism of the Fjord City touches on fundamental questions about architecture, identity, social inclusion, and governance. The debates have centred on the design of the Munch Museum, the height of the Barcode row, the width of Dronning Eufemias street, the lack of social housing, and the privatisation of public space. The latter is especially directed at Aker Brygge and Tjuvholmen, which is two of the earliest developments where private investors took the responsibility for implementing both the buildings and the spaces in between (Hanssen et al., 2021).

The Barcode project, the row of high-rises along the railway tracks, faced strong opposition early on. The criticism concerned building heights and a perceived breach with the idea of creating better contact between the city and the fjord (Andersen and Røe, 2017). It has also been examined more broadly in light of both Fjord City as a vision and aestheticising principles as planning tools (Grønning, 2011). Critics have argued that the development has produced increasingly privatised public spaces, reducing publicness and increasing behavioural regulation. From this perspective, the promise to “give the fjord back to the people” has functioned more as a marketing narrative for waterfront destinations aimed at affluent user groups than as a commitment to ensuring accessible public space for all residents (Bjerkeset and Aspen, 2017).

The case demonstrates the (ongoing) existence of governance challenges and institutional tensions. Both Grønning (2011) and Skrede (2013) pointed to how strong public regulation, combined with neoliberal governance logics and market-driven implementation, affects both objectives and outcomes. Other studies have argued that, despite plans listing social sustainability as a goal, practising architects pay little attention to it, which the authors subsequently claimed has not helped Bjørvika appear to be a just city (Andersen and Røe, 2017).

At the same time, the establishment of the nine-kilometre continuous Harbour Promenade was achieved through collaborative binding, shared principles, strategic governance, and ongoing negotiations between the Oslo municipality and Oslo Havn KF (Moretti, 2017). As an urban area, it appears, at least to one user, to be an openly accessible space for all.

10. Concluding reflection

The question of whether Oslo should continue its port expansion or return to its fjord was a contentious issue for several years before the City Government commissioned its study in 1996. When the City Council decided in favour of the 'Fjord City' approach in 2000, it was a strategic choice that framed subsequent decisions to reduce motorway barriers; prioritise housing, recreation, and culture; and later move/streamline freight and port traffic to Sjursøya. The subject that caused a major conflict in the 1990s – namely, whether the waterfront should represent an industrial working area or an urban, recreational, and housing-oriented landscape – has been silenced. Today, the Port Authority expects to build as large a port as it wishes; a project that will be primarily financed by developing the 'released areas' at very high densities. The Gordian knot might have been untied but questions regarding the size of the container harbour and the expected increase in value of the freed former harbour section remain unanswered.

References

- Andersen, B. and Røe, P. G. 2017. The social context and politics of large-scale urban architecture: Investigating the design of Barcode, Oslo. *European Urban and Regional Studies*, 24, 304–317.
- Bergsli, H. 2005. Entreprenørpolitikk og byutvikling. Byutvikling og globale trender. *By og byliv i endring. Studier av byrom og handlingsrom i Oslo*, 87–120.
- Bjerkset, S. & Aspen, J. 2017. Private-public space in a Nordic context: the Tjuvholmen waterfront development in Oslo. *Journal of Urban Design*, 22, 116–132.
- Briers, C. 2020. Oslo Fjord City. https://www.academia.edu/10217550/Oslo_Fjord_City_-_Oslos_strategic_waterfront_development. [Online].
- Grønning, M. 2011. What is Fjord City? Territorio.
- Hansen, G. S., and Millstein, M. . 2021. *Demokratiske byrom*, Universitetsforlaget.
- Kjellsen, C. F., Jørgenvåg, J. and Berre, N.. 2007. *Stemmer om fjordbyen: en artikkelsamling om Oslos framtidige fjordkant*, Oslo, Tverrfaglig arena for byutvikling.
- Kolstø, S. and Kronborg, A.-K. 2017. *Oslo: vekst og endring : tjuefem år med plan- og bygningsetaten*, Oslo, Press.
- Moretti, M. 2017. Oslo's Harbour Promenade between the city and the fjord. 34.
- Plan-og bygningsetaten Oslo 1997. *Fjordby eller havneby?: utredning om Oslos havne- og sjøsido*, Oslo, Plan- og bygningsetaten.
- Skrede, J. 2013. The issue of sustainable urban development in a neoliberal age. Discursive entanglements and disputes. *FORMakademisk*, 6.
- Sanchez, J. M. Port-City governance. A comparative analysis in the European context. *Proceedings of the AESOP YA Conference*, Ghent, Belgium, 2016. 3–8.