

Strategic Foresight and Futures Thinking in Urban Development: Reframing Planning Perspectives and Decolonising Urban Futures

TJARK GALL AND ZAHEER ALLAM

The SDGs, Paris Agreement, New Urban Agenda, and European Green Deal stress that our future is at stake in the face of an intensifying climate crisis. Urban areas are simultaneously victims, battlegrounds, and innovative labs to find new solutions. The current circumstances require immediate global and simultaneously localised action while providing a window of opportunity for urban leaders to shape a sustainable and inclusive future. Yet, any innovation toward urban futures necessitates a transdisciplinary perspective on trends, developments, and possible transition levers. This contribution aims to provide a conceptual foundation for sustainable transitions towards preferred futures by presenting current research, supplemented by reference cases on integrating this into urban practice and innovation.

¹ UNESCO,
“Futures Literacy.”

While used frequently, a clear definition of *futures* is paramount. What are futures, and why referring to them as multiple and not one future? What are the ways to work with or towards them? Existing approaches range from scenarios and visions to numerical forecasts. Summarised in the term *futures literacy*, i.e., the capability ‘to better understand the role that the future plays’,¹ the goal is to strengthen future thinking for planners and policymakers alike. Some core elements are the conceptualisation of multiple possible and preferred futures. Others are on the advantages of exploratory and experimental futures or the decolonisation of futures. The latter has particular relevance for the planning field, where plans are often drawn for several decades and, in many cases, already outdated or even destructive after a fraction of the time.

This contribution outlines the conceptual components of futures thinking and simultaneously presents methods and tools to implement strategic foresight and futures thinking into innovative planning, design, and policymaking. Firstly, specific references from the urban systems field highlight ways of integrating these approaches into practice. The following section provides a brief theoretical foundation, focusing on multiple and preferred futures and the decolonisation of futures, to be followed by three innovative types of application in the urban context. The first introduces scenario planning, the second urban visions, and the last is the integration of urban citizens of today and tomorrow.

A brief Introduction to sustainable urban futures

² Lecroart, "From Expressways to Boulevards."

³ WHO, *Global status report on road safety 2018*; Anenberg et al., *Global Snapshot*.

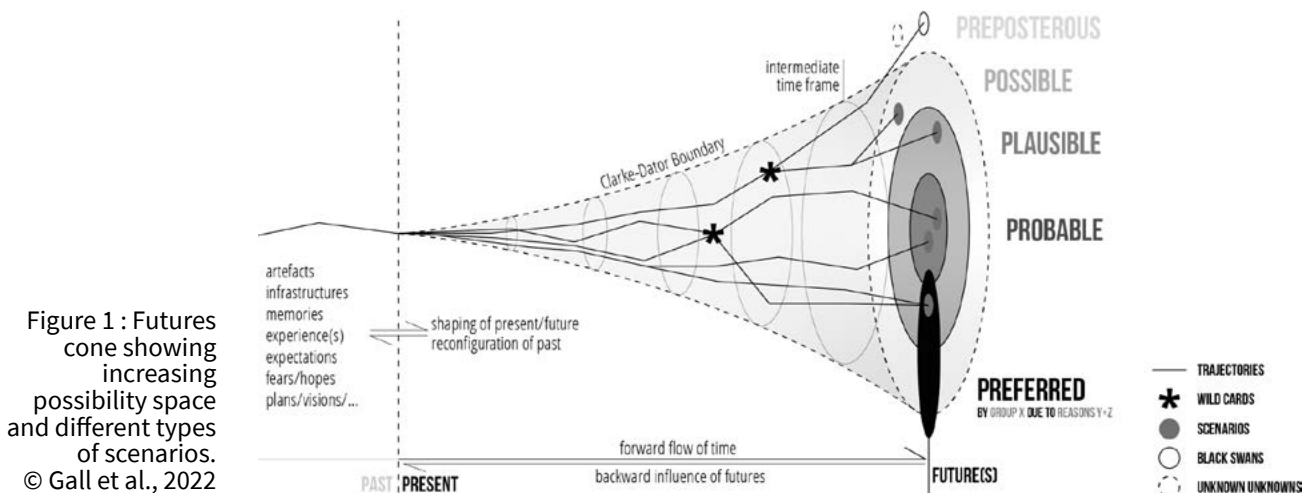
Urban planning, design, and governance are the fields that share society's task to take the existing urban areas and their embedded challenges and develop plans and policies that aim to transform them favourably. This requires a comprehensive understanding of:

- The current situation and its challenges, trends, and ongoing development
- The arising challenges and circumstances of tomorrow
- The adequate methods and tools to link the present to the future

Unfortunately, the past century highlighted urban planners as prone to make decisions that lead to more or different challenges later. Currently, cities globally are trying to convert ageing infrastructure from, for example, the highways and motorways that dissect our cities² and globally cause millions of fatalities annually and air pollution,³ to the artificially contained water bodies that result in flooding.

At the core of the issue lies great uncertainty about the future and the urban managers' attempt to anticipate the impacts that any proposed solutions might have. This uncertainty drives the necessity for and is the foundation of the field of future studies. A central tenant of which is the desire to improve our understanding of the future and integrate it into strategic methods. Many of its key concepts are visualised in a cone-shaped diagram (Figure 1). Influenced by the past, people are today part of a single global state. Moving further along the time axis, the more possibilities arise. At any time in the future, there are various possible scenarios, grouped into possible, plausible, or probable ones.

Further, preferred futures, defined as those that a particular social group wants based on their priorities, allow to form urban visions. From such visions, it is possible to go backwards, analyse what actions would need to be taken, and translate this into plans and policies – always keeping in mind that multiple outcomes remain possible and must be considered in the process. The focus here is on the practical implications of working with scenarios and visions and defining what preferred by a specific social group might mean.



Finally, the notion of decolonising futures is highly relevant in the planning context.⁴ Planning decisions today will positively or negatively impact the next generations to come. Today, it is possible to evaluate which past decisions were successful and which were not. The same will hold for the future. Roughly 6.7 billion urban residents will judge in 2050 about our current choices.⁵ Decolonising the future shall allow future populations to make their own decisions, or as stated in the second part of the well-known quote from the Brundtland Report⁶ in 1987: not to compromise ‘the ability of future generations to meet their own needs’. This can be translated into two precise learnings: first, any decision today that will be at the expense of future generations should be avoided. Second, where possible, everything that is planned and designed today should serve for the flexibility of tomorrow. This will allow future generations to appropriate what they inherited in their best knowledge. Examples are constructing dismantlable and recyclable or reprovable buildings, flexible infrastructures that will change future needs (e.g., less parking, different mobility services), or spatial planning frameworks that will enable densification, changing uses, and evolving mobility concepts. The following section introduces some approaches to integrate this paradigm into urban planning and governance practice.

Translating futures theory into practice

How to incorporate scenario planning, urban visions, and future generations’ needs into planning and decision-making practice? This section describes how urban stakeholders have worked successfully with urban futures in three specific contexts. Each section focuses on one goal. This research refers to several cases to present the central ideas and point towards further in-depth knowledge. Despite the separate discussion, the three approaches are closely linked and should be applied jointly.

Planning with multiple possible urban scenarios

Planning for different possible futures can be facilitated by scenario planning. With its early beginnings in the middle of the past century, scenario planning has been used in various ways, including territorial socio-economic scenarios,⁷ spatial and urban planning,⁸ or scenarios for sub-systems of the urban ecosystem, such as the transportation mobility sector.⁹ It refers to methods that create alternatives, or more precisely: alternative, multiple futures to open up the present, contour the range of uncertainty, reduce risk, offer alternatives, create more flexible organisational mindsets.¹⁰ Scenarios can inform and guide decision-makers by creating normative or descriptive alternatives, expanding cognitive limitations from bounded realities, and formulating relatable and plausible future narratives.¹¹ Finally, scenarios can be seen as a story that describes potential futures, including the process of reaching that future (Figures 2–4).¹²

Purposes of scenarios are vast, ranging from creating alternative pathways, allowing for imagination (visions), creating fear/urgency (dystopia) or hope (utopia). Further, they can support the testing of assumptions of impacts of

⁴Candy, “The Futures of Everyday Life.”

⁵UN DESA, *World Urbanization Prospects*.

⁶WCED, *Our Common Future*.

⁷Godet and Durand, *La prospective stratégique*.

⁸Goodspeed, *Scenario Planning*.

⁹International Transport Forum, *Travel Transitions*.

¹⁰Inayatullah, “Future Studies.”

¹¹Crawford, “A comprehensive scenario intervention typology;” Weidema et al., *Scenarios in life cycle assessment*.

¹²Parson et al., *Global-Change Scenarios*.

Figure 2 : Scenario planning workshop at 57th ISOCARP World Planning Congress, November 2021 in Doha, Qatar.
© Authors



Figure 3 : Scenario localisation workshop for Paris-Saclay, April 2022.
© Authors



Figure 4 : Working materials for interactive scenario workshop of Anthropolis Chair.
© Authors



¹³Wilkinson and Eidinow, “Evolving practices;” Weidema et al., *Scenarios in life cycle assessment*.

¹⁴Crawford, “A comprehensive scenario intervention typology.”

today’s decisions, make plans and policies more ‘future-proof’ and robust, or inspire, enable, and enforce existing policies. Scenarios can be rational-objectivist, social-constructivist, or normative-deterministic, each with its respective advantages.¹³ Further, the methods can be classified by their goals into *predictive scenarios* (what will happen), *exploratory scenarios* (what could happen), and *normative scenarios* (what shall happen) concerned with achieving future objectives. The latter comes in two sub-categories: *preserving systems* and *transforming systems*.¹⁴

Planners and experts usually try to determine *what will happen* to plan for the expected circumstances. This includes private development, the future needs

of the population, or environmental risks. However, history proved a high margin of error. Thus, exploring *what could happen* already allows to prepare better for what possible future conditions might arise. For example, a master plan might be developed for the anticipated population growth of one million people over the next ten years. Exploratory scenario planning enables to evaluate how the prepared plans could turn out if there were two million or only 500,000 inhabitants.¹⁵ Could the existing and planned infrastructure accommodate them? Would it be possible to adapt to the new requirements in time? Could changes to the original plan improve the flexibility toward varying future developments? Asking these questions can simultaneously create more adaptive urban frameworks and plans, allow for more self-determination of future planners, and remind today's experts that it is not always possible to know what the future will bring.

¹⁵ Goodspeed, *Scenario Planning*.

¹⁶ For an extensive overview of scenario planning, see Robert Goodspeed's *Scenario Planning for Cities and Region*.

¹⁷ UN-Habitat, *State of the World's Cities*.

When facing various future scenarios, it is possible to further evaluate them and assess, for example, their sustainability aspects or level of consideration for vulnerable groups. This allows to choose one or several preferred scenarios and explore possible pathways and what must happen when to get there. These normative, *what shall happen* scenarios are closely linked to the development of urban visions and can provide a valuable foundation for them. The following section outlines some key ideas of visions and links to some interesting examples.¹⁶

Mainstreaming urban visions

Visions are an essential component in the *futures* domain of urban planning, especially in helping bring people together as they pursue shared objectives and common goals of welfare, desired goals, and quality of life standards. On this front, numerous agencies are active in driving global agendas. The United Nations Human Settlements Programme (UN-Habitat) highlighted five key dimensions that, when pursued, would lead to prosperity in the future of cities: environmental sustainability, equity and social inclusion, productivity, infrastructure, and quality of life.¹⁷ While these can provide a sound basis for developing visions for sustainable urban fabrics, numerous other dynamics had since emerged in the planning arena, especially post-2015 when the world faced sustained climate challenges and welcomed more policy frameworks such as the Sustainable Development Goals, the Paris Agreement, the New Urban Agenda, and the 2030 Agenda for Sustainable Development. These helped shape analytical frameworks that guide urban *narratives* and *visions* cohesively and seamlessly. Especially in the face of climate change, the Covid-19 pandemic and the anticipated financial crisis blur the expected environmental sustainability and socio-economic development outcomes. To form cohesive narratives, especially regarding financing and taking responsibility. However, in building urban visions, cohesion is paramount. It can help different groups appreciate and acknowledge past narratives (e.g., cultural identities, success, and failures) and build on those to shape desired pathways. In retrospect, it is possible to introduce concrete and actionable policies and objectives that would help strengthen the success of existing visions while at the same time

¹⁸ Salingros, *Anti-Architecture and Deconstruction*.

¹⁹ “Transforming Urban Curacao.”

²⁰ “Positive City Exchange.”

correcting and sealing loopholes in current policies. For instance, urban planning principles inspired vehicular flows within urban areas and, over time, became an issue of magnitude in contemporary cities. While such was considered a better ‘vision’, promoted by then-celebrated urbanist Le Corbusier,¹⁸ car-dominated cities have been proven to be unrealistic and unsustainable; hence, the urge in many cities to adopt alternative planning models that focus more on people-centric elements.

Consequently, it is vital to ensure that anticipated future outcomes espoused in current urban visions will not endanger future generations similarly. Thus, contemporary visions need to be created flexible such that it will be possible for the next urban generations to tweak them to fit their realities. This is particularly relevant with climate change as a ‘wicked problem’, meaning that the nature of the problem is ever-changing with shifting urgencies, demanding that policies react accordingly.

	Engage	Design	Activate	Accelerate	Support
Standardisation	Evaluation	Visualisation	Simulation	Funding	Sharing
Policy development	Review	Revision	Planning	Budgeting	Analysis
Innovation partnerships	Appointment	Linking	Collaborating	Prioritising	Portfolio management
Organisational development	Identification	Leadership	Intrapreneurship	Self organisation	Twinning
Citizen engagement	Acknowledgement	Deliberation	Localisation	Connection	Amplification
Project development	Pitching	Prototyping	Delivering	Capitalising	Storytelling

Table 1 : Bold City Vision Framework for 2050 with six main processes and 30 sub-processes.
© +CityxChange

Further, urban fabrics can ultimately be perceived as the foundational precepts for many services, such as transport, energy, or water. Therefore, it is essential to design urban visions with interdisciplinary viewpoints. Additionally, well-crafted visions that consider sustainability transition needs and societal welfare must also include implementation pathways to ensure political and financial interests. The latter is particularly important in the global south, where local governments often do not have financial means for urban development and rely on partnerships, for example, with the private sector, international agencies, and participatory networks with the public. The list of promising urban visions currently in development or already established is long: United Nations Office for Project Services (UNOPS), in partnership with the ministry of Curaçao and support of members of the International Society of City and Regional Planners (ISOCARP), localised the New Urban Agenda through community expert-led urban visions.¹⁹ The EU-funded project +CityxChange,²⁰ with ISOCARP Institute as one of the partners, develops Bold City Visions 2050 for Trondheim, Norway, Limerick, Ireland, and five other European cities. Following a defined, integrated process (Table 1), the openly accessible development framework is rooted

in co-creation, sustainability, and inclusion. The resulting visions guide the mainstreaming of sustainable practices and values into various local plans and policies.²¹ Since the establishment of the framework, it has been replicated in other cities and widely disseminated, among others, via the Trondheim established Geneva UN Charter Centre of Excellence on sustainable urban development.²² In different contexts, specific, optimistic, and well-developed visions like the Agenda Teresina 2030 in Brazil have led to global attention, new partnerships, investments, and various promising local solutions, such as transport monitors and open data platforms.²³ Each of these examples shows the potential that effective, strategic, and integrated urban visions can have on global, national, and local scales. It can be translated into mainstreaming objectives and enabling local action. The following section zooms in further on the role of citizens in possible and preferred futures.

²¹ Ibid.

²² UNECE, “UNECE and City of Trondheim, Norway.”

²³ SEMPLAN, “Agenda 2030.”

²⁴ Gall et al., “Re-defining the System Boundaries.”

Integrating urban citizens of tomorrow

Visions can only be compelling if adopted by urban residents. Thus, it is key to frame them according to ‘urban users’ while considering the different variables and discourses for the private and public sectors and the political gains. This practice of viewing urban fabrics as a complex ecosystem, and the pursuit of its understanding as intricate, comprehensive networks, can be considered to achieve *wholeness*, a concept introduced by Christopher Alexander, which can lead to more sustainable and human outcomes. To effectively unpack this practice, it is paramount to understand and map the underlying dynamics of our societies and urban communities. Urban areas are the foremost physical places where people live, learn, work, trade, socialise, entertain, exercise, etc. New tools, such as big data and the possibility to unveil human patterns for increasing efficiency and performance, support the understanding of contextual traits in specific geographies, being particularly important as different neighbourhoods in the same city have varying identities, calling for varied approaches. To better achieve this, a two-pronged approach is proposed, including 1) the use of Personas, and 2) Future-Immersion. This can be paraphrased as people-centred design,²⁴ which considers the design or planning consequences for both present and future residents. Three specific approaches are presented: personas-based design, tech-enabled future immersion, and a cooperative Japanese method.

1. **Personas** are fictional characters derived from qualitative and quantitative data to support design processes. Depending on the application, they are mainly constituted of a name, photo, socio-economic information, a short story, and more detailed information (Figure 5). Initially developed as user personas for software development, design teams at Microsoft extended the application and laid out the methodological foundations used until today.²⁵ Since then, they evolved further towards future personas.²⁶ These can be developed depending on available information, resources, and requirements. The input data can come from focus groups, surveys²⁷ or big data.²⁸ Specific narratives can further supplement personas.²⁹ Furthermore, personas can ensure a more equitable consideration of statistically underrepresented groups such as people with disabilities.

²⁵ Cooper, *The inmates are running the asylum*; Pruitt and Grudin, “Personas: Practice and Theory.”

²⁶ Fergnani, “The future persona;” Fergnani and Jackson, “Extracting scenario archetypes;” Fuglerud et al., “Co-creating Persona Scenarios;” Salminen et al., “Persona Transparency.”

²⁷ Schäfer et al., “Survey-based personas.”

²⁸ Stevenson and Mattson, “The Personification of Big Data.”

²⁹ Vallet et al., “Tangible futures.”

³⁰ Rohr et al., *Travel in Britain in 2035*.

³¹ Research Chair from IRT SystemX and CentraleSupélec, University Paris-Saclay (www.chaire-anthropolis.fr).

³² Vallet et al., “Tangible futures.”

³³ Vallet et al., “Matching Synthetic Populations with Personas.”

While personas can be used in different phases of future scenarios or visions, their central application is narration and visualisation and telling stories through individual perspectives.³⁰ As part of the Anthropolis Chair,³¹ personas are one of the design tools for people-centred solutions for urban mobility in an area of 27 municipalities south of Paris in cooperation with the public authorities, industry, and academia. In the first step, present personas and narratives were developed to understand the needs, travel quality, and pain points of people working and living in the area.³² In the next step, persona development was linked to agent-based simulation. This allows development evidence-based personas while complementing the quantitative agent-based approach with qualitative data. Secondly, mixed-data input allows modelling future personas and the corresponding synthetic populations for one or several periods.³³ The resulting design and planning artefacts strengthen the design process of more future-proof and people-centred urban services. Further, the outcomes can support planning decisions by considering multifaceted needs and impacts on future residents across qualitative and quantitative domains.

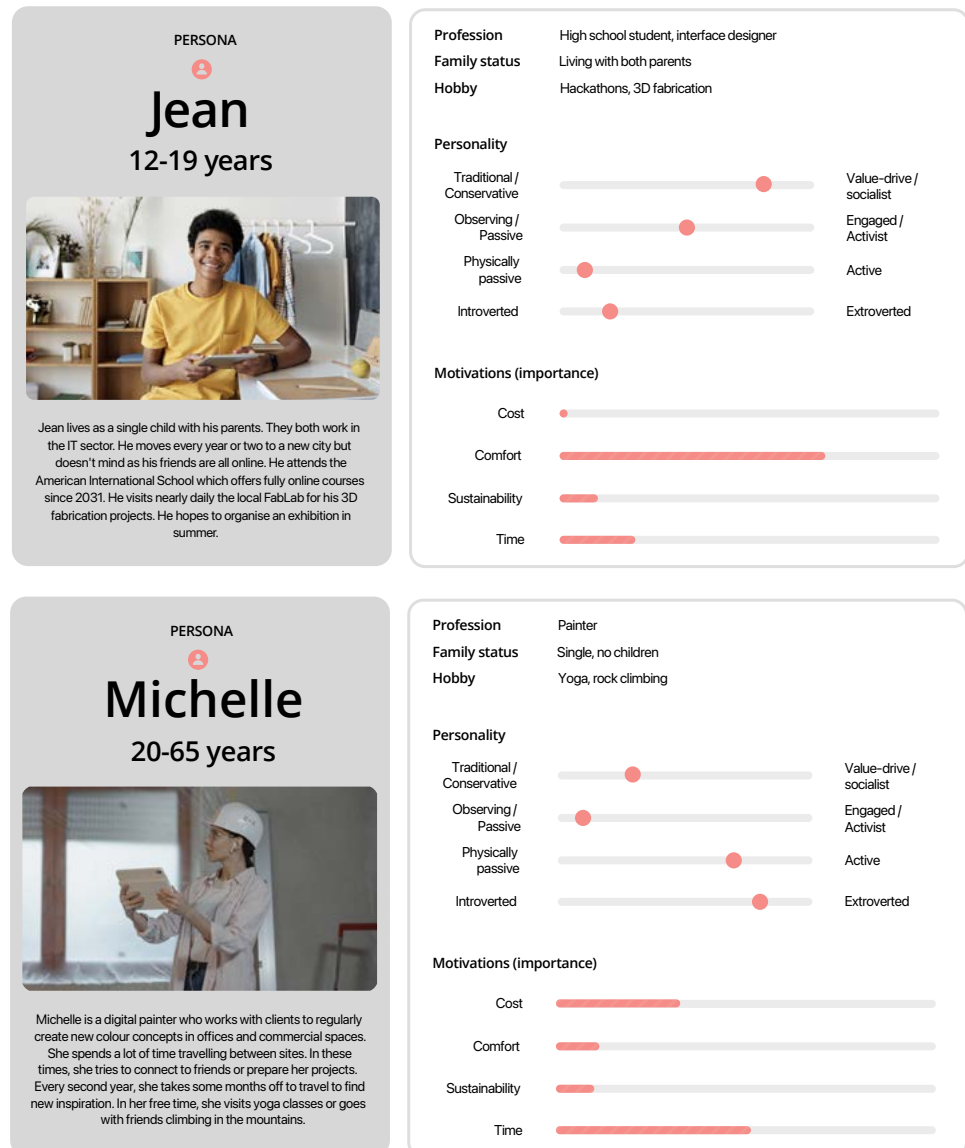


Figure 5 : Sample personas from an interactive workshop to explore urban mobility futures for Rouen (FR) in 2050.
© Authors

2. **Tech-based future-immersion** techniques open new possibilities arising from an emerging field of augmented realities. These build on data sourced from various domains not limited to urban fabrics. The resulting connected network of services can lead to a rich ecosystem aiding urban governance and public participation in urban development and policies. A recent example is that of the *Metaverse*, a concept initially coined in 1992 by Neal Stephenson.³⁴ It was brought to light by Meta (formerly Facebook), which can be described as a futurist digital world that is immersive and feels tangibly interconnected to everyday objects and humans' real lives and bodies. While its applications can seem futuristic, the substantial funding flows by both public and private organisations. It suggests that mixed-reality virtual immersion may play a vital role in the near future, allowing enhanced urban (scenario) planning via augmented realities. While it is dangerous to ascertain that humans will live solely in digital cities in the future (considering the risks to mental health and liveability), the facilities that such a concept may offer in building better urban service provision and immersion in planning and design practice can be undoubtedly encompassed.

3. A similar analogue pathway is already in use and **immerses planning workshop participants** in the future through roleplay. This method is increasingly used in Japan and improves the consideration of future residents.³⁵ In comparison to the persona-based approach that aims to provide design aids, its focus lies on expanding the mind of planning professionals and citizens involved in co-creative practices. In a typical setting, our interest remains often on immediate consequences and personal interests, restricted to our paradigms. One group is primed as future residents or stakeholders through different artefacts of data, stories, and other aids to account for this. Afterwards, the primed future group and the control group that is only representing themselves in the present are tasked to – partially alone, partially jointly – discuss and decide on different planning issues. When the decisions and plans are evaluated, the future resident's group prioritises solutions that are better in the long-term and have overall decreased negative impacts than the control group.³⁶ Thus, a formalised approach that reminds planners, decision-makers, and active residents of their present and future civic responsibility can already contribute to an improved participatory process.

³⁴ “Stephenson, *Snow crash*.”

³⁵ Nakagawa and Saijo, “Future Design.”

³⁶ Uwasu et al., “Citizen-Participatory Scenario Design Methodology.”

The systematic and multi-level integration of current and future urban citizens can bring various advantages and has already ample successful examples to build on, both analogue and digital. Such solutions may enable increased liveability in cities today and tomorrow. Citizen integration for more people-centred policies can be achieved in current and low-resource contexts. This, however, must be enabled by political will, multi-level governance and the possible integration of the private sector to ensure sound, efficient implementation pathways.

Conclusion

This contribution highlighted some possible avenues for how future literacy can innovate urban planning and governance processes. The focus lies on applications that can be realised without extensive resources and can lead to tangible impacts. Even if they just outlined a few key strategic areas from a broader field of possible approaches and tools, they have the potential to contribute to more sustainable and people-centred futures if used in a combined and integrated approach. Simultaneously, they can partially decolonise the future and allow the next generations to make good decisions with knowledge far more significant than today. Three primary steps can enable the implementation:

- Openly discussing and addressing future uncertainties of the urban context and integrating capacity development activities on concepts of futures studies
- Learning from and exchanging with public and private urban entities that actively integrate various approaches in their workflows via, e.g., international city networks
- Building a multi-level (international to local) policy and regulatory foundation that allows or even invites uncertainty in planning practice and enables the more comprehensive implementation and experimentation of approaches

Accordingly, futures literacy can contribute to more innovative and effective plans and policies and is an increasingly relevant interdisciplinary capability to facilitate urban innovation and urban system transitions. Working strategically with multiple possible futures secures consideration of various pathways, better preparation, and innovation towards preferred futures and visions. At the same time, it braces for the challenges of tomorrow by leaving room for flexibility and building a stable foundation for sustainable and people-centred urban futures.