3. Understanding professional agency in urban future-making

Acting in the face of uncertainty

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Introduction: What is urban future-making?

When it comes to the future of cities, it seems that much is currently shaped by an absolute imperative to act. The future seems to be everywhere, and, fundamentally, at stake. Major ecological and social threats to the future of human settlements, and to the planet as a whole, need to be urgently addressed (Wallace-Wells, 2019). Against this backdrop, urban areas have become crucial sites where aspired pathways towards desirable futures are imagined, forecasted, and variously negotiated (Hajer and Versteeg, 2019; Dixon and Tewdwr-Jones, 2021). Also, cities are often the places where the objectives of international agreements, e.g. on climate protection, are sought to be implemented. More specifically, experts, administrators, and policy-makers are compelled to, as soon as possible, take far-reaching decisions and devise appropriate strategies and interventions that can reduce carbon emissions, energy consumption, and resource use related to the urban built environment (Long and Rice, 2018; Bulkeley, 2023). This urgency to act derives primarily from prospects for the future, with looming expectations of ever-larger threats and risks to urban societies that must be addressed. Yet, the pressing need to act pre-emptively to tackle difficulties expected in the future is intricately interwoven with the immediate requirements of maintenance and adaptation that the physical materiality of existing buildings and infrastructures constantly generates.

We mobilize the concept of 'urban future-making' to refer to the activities of experts and administrators who seek to respond to the perceived threats to urban societies with measures related to the urban built environment. At

its core, we understand urban future-making to mean purposeful decisions and actions that impact the urban built environment with the aim of engendering transformative change. Engaging in such urban future-making, built environment professionals take decisions based on their expertise while negotiating political demands and accounting for their decisions in respect to, or even collaborating with, civil society (Kenis and Lievens, 2016; da Schio and van Heur, 2022). Yet, urban future-making also encompasses administrative, legal, discursive, and symbolic dimensions, which relate to modes of governance, bureaucratic procedures, and different discursive framings of multiple or contested urban futures (Goh and Bunnell, 2018; Wachsmuth and Angelo, 2018). Consequentially, future-making practices involve all societal spheres and are shaped by the interaction between political, professional, and civic actors (Wenzel et al., 2020).

In this chapter, we seek to provide theoretical foundations for understanding the crucial role of built environment professionals as urban future-makers as well as their capacity to act in the face of multiple crises. These professionals form a highly diverse group, found in the state administration, private sector, non-profit sector, and civil society initiatives. Even though their role is of strategic significance for the futures of cities amid multiple crises, little is known about their core values and motivations, about the ways they (can) act, fail to act, or legitimize their agency, or about ways to engage their experience in a more fruitful way. We maintain that experts and administrators dealing with the urban built environment are facing profound uncertainty.

As we will show in this chapter, classic modes of urban future-making, which had served to reduce or negotiate uncertainty in the past, increasingly appear insufficient. At present, experts and administrators are responding with experimental, adaptive, and flexible attitudes in conceiving transformative urban change. Against the backdrop of global multiple interdependencies and uncertain time horizons of climate change, the key question addressed in this chapter is how, under present conditions, professional agency concerning urban future-making can be conceptualized and – related more closely to professional practice – might be possible at all. Conceptually, we point out and seek to connect two different foundational approaches to professional agency: One draws on first-generation practice theories (e.g. Bourdieu, 1984; Giddens, 1984) and focuses on incorporated routines and dispositions that shape the respective professional fields and the agency of field actors; another regards agency as necessarily distributed in socio-material constellations (e.g.

Latour, 2005; Shove et al., 2012). Seen in this way, action presupposes and only happens through a structural environment.

The chapter is organized in two parts: The first part engages with different theoretical approaches which allow us to conceptualize agency in the context of urban future-making. We start from a broad understanding of agency that is based in social theory, with a focus on practice theories and relational sociology. Then we explore more narrow concepts of agency found within mainstream economics, as these concepts provide useful insights into the operational mode of professional agency. An additional strand of literature that we draw on addresses professions as core elements of contemporary societies; it allows for an understanding of the professional cultures of architects, engineers, and planners as based on expert knowledge, socialization and routines, as well as values and ethics. In the second part of the chapter, we draw on these theoretical foundations to explore the field of action constituted by practices of urban future-making. We argue that four types of sources contribute to heightened uncertainty at present, all of which derive from the specific challenges that arise when dealing with and intervening in the urban built environment. Subsequently, we discuss how these conditions are fundamentally challenging established professional routines and knowledges, then show how current approaches to urban future-making entail new modes of action, new actor constellations, and new modes of dealing with the future for built environment professionals.

Conceptualizing professional agency

Within the field of tension between structure and action, the notion of agency is situated in differing ways. Thus, agency, as an agent's capacity to act, is always socially conditioned (e.g. Sewell, 1992). The common thread of social scientific understandings of agency can be summarized as addressing the question of 'who or what has what kind of agency or is attributed such agency, or, to what and to whose influence something is due' (Helfferich, 2012: 10, translated by the authors). Conceptualizations differ in terms of where focus is placed when explaining and empirically reconstructing agency. Given our interest in built environment disciplines, we unfold our attempt to conceptualize professional agency in three steps. First, we look into what practice-theoretical approaches can offer to address particular professional practices; second, we discuss how the specific and straightforward approach of the principal–agent

setting can be broadened and further built on; and third, we carve out the key dispositions, value systems, and knowledge bases of the three disciplines of architecture, engineering, and planning.

Possibilities to act in society

The first generation of practice theorists, including Pierre Bourdieu (1984) and Anthony Giddens (1984), understand action primarily as routinized practices that lead to the stabilization and reproduction of existing conditions. Bourdieu in particular focuses on the habitus as a crucial means of this stabilization and reproduction of social order. The habitus as a set of deeply ingrained skills, dispositions, and orientation schemes incorporates history in the form of traditions and values as well as individual-, class-, and gender-specific experiences. Individuals acquire their specific habitus through primary socialization as children and through life experiences. In this context, dispositions are the tendencies or propensities to act, think, and perceive the world in certain ways (Bourdieu, 1984). On a similar note, Giddens speaks of the 'duality of structures' (1984: 16), wherein structures both enable and constrain action, and action, in turn, is able to recursively reshape structures. This ability to reshape structures, '"to act otherwise" […] with the effect of influencing a specific process or state of affairs' (ibid.: 14) is what Giddens refers to as agency.

Both Bourdieu's concept of habitus as an element that structures action and Giddens's idea of structuration are not limited to individuals but can also be (and have been) applied to organizations and professions. Acquiring professional knowledge and skills also entails processes of socialization, incorporating past experiences, schemes of orientation, and organizational dispositions (e.g. Robinson et al., 2022). At the same time, professional actors are, by means of their own actions, able to add to their experience and change these schemes and dispositions (Ortmann et al., 1997). In addition, professionals use specific symbols and act in specific ways to signify their belonging to their profession and their distinction from other professions and non-professionals, which is then externally perceived as professional competence. This perspective allows an understanding of professional agency as situated within a broader professional field, with its own specific symbolic capital, rules, and goals. In addition, the notion of 'hysteresis effects' helps explain why changes and transformations are often resisted or even counteracted by professionals themselves. The term describes the phenomenon that dispositions and practices, because

they are shaped by past social conditions, lag behind and may not align with changing contexts (Koll and Ernst, 2022).

The second generation of practice theories is characterized by a decentring of the subject as author of action. Instead, social practices constitute the unit of analysis (Schatzki, 1996; Reckwitz, 2002; Shove et al., 2012). A practice, then, is understood as a 'temporally and spatially dispersed nexus of doings and sayings' (Schatzki, 1996: 89). More specifically, practices consist of interdependencies between diverse elements including 'forms of bodily activities, forms of mental activities, "things" and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge' (Reckwitz, 2002: 249). Although these contemporary approaches to practice theory are often seen as focussing primarily on the reproduction of practices, they also deal with agency. In the words of Elizabeth Shove, Mika Pantzar, and Matt Watson, 'human agency is loosely but unavoidably contained with a universe of possibilities defined by historically specific complexes of practice. It is in this sense that practices make agency possible, a conclusion that is not at all incompatible with the related point that practices do not exist unless recurrently enacted by real-life human beings' (2012: 126).

This relational understanding of agency is not limited to everyday lives but also holds true for organizations and professions (e.g. Nicolini, 2012). In the context of urban future-making, the practice theory lens exposes the inter- and intra-dependencies between human agents and physical, material objects. This perspective also allows for an analysis of changes within professional strategies, which may occur through the dynamic interplay of material conditions, social meanings, and goals, as well as competencies, where shifts in any of these elements can lead to the evolution of collective routines and habitual actions. In this perspective, the success of intentional changes to professional practices depends on the relative fit or lack of fit with respect to the objects, bodies, and meanings in the already-existing order of things (Spaargaren, 2011: 817).

When it comes to urban future-making, the materiality of the built fabric must be systematically taken into account. This materiality, due to its specific permanence and ineluctable presence, structures – but does not determine – the room for manoeuvre of individuals as well as of professional actors related to the built environment. Here, approaches from science and technology studies propose the concept of distributed agency in socio-technical constellations (Latour, 2005). According to this literature, (socio-material) structures do not primarily frame the possibilities to act but are inherently interwoven

with, and are a constitutive part of, agency itself. Complementing the above approaches of relational sociology, Mustafa Emirbayer and Ann Mische (1998) argue in favour of an analytical differentiation of the agency concept by adding a temporal dimension. In this vein, they conceive of agency as a 'temporally embedded process of social engagement, informed by the past (in its habitual aspect), but also oriented towards the future (as a capacity to imagine alternative possibilities) and towards the present (as a capacity to contextualize past habits and future projects within the contingencies of the moment)' (ibid.: 963). In the context of urban future-making, importantly, the materiality of the built environment, due to its longevity and the major time investment required to transform it, also has a decisive impact on the temporal dimensions of agency.

Acting on behalf of others

We find a more straightforward understanding of agency in microeconomics and business studies. Here, professional agency is modelled in a bilateral contractual relation between client (principal) and contractor (agent). The straightforwardness of this approach is exemplified in two central aspects that well reflect the way economic theorizing addresses social phenomena in general: First, agency is seen as part of a relationship between two different parties, in which one actor acts on behalf of the other (e.g. Arrow, 1985). While this basic analytical setting contextualizes individual action, it does so in the narrowest possible fashion: as a bilateral relation. Second, business economics (and several related literatures) discusses the nature of the agency relationship primarily as a problem. The relation involves an '*information asymmetry* – agents typically know more about their tasks than their principals do' (Pratt and Zeckhauser, 1985: 3; emphasis added). Thus, scholars in this field see, first and foremost, a challenge in the fact that an actor appointed by somebody else has some ability to act autonomously, based on his or her advanced professional knowledge and expertise.

Research that builds upon the principal–agent setting abounds, partly seeking to translate the problem of information asymmetry into the formalized language of economic modelling, partly applying the theory to a variety of economic and organizational contexts (for an overview, see Eisenhardt, 1989). One important strand of research addresses contractual and institutional 'mechanisms and arrangements' (Pratt and Zeckhauser, 1985: 3) that help mitigate the agency problem by trying to incentivize the agent to behave in accordance with the principal's interests. With regard to organizational

research, Kathleen Eisenhardt (1989: 71) argues that agency theory is particularly useful where 'contracting problems are difficult' and goal conflicts between managers and professionals are likely to arise. As an example, the author points to 'topics such as innovation and settings such as technology-based firms' (ibid.) because of the uncertainty inherent in the assessment of outcomes and the different attitudes of principals and agents to risk.

On the one hand, applying agency theory to innovation and uncertainty resonates well with our focus on future-making. Also, the principal–agent constellation can be applied to the professional agency that we address here. Built environment professionals generally act on behalf of others: building owners, policymakers, or senior staff in public administration, for instance. And, in their activities, they do have advantages over these principals in terms of expertise and knowledge. On the other hand, however, dealing with this constellation in the narrow sense of principal–agent theory is misleading for three reasons: First, framing the relation primarily as a problem, i.e. as involving the risk of misalignment with the principal's goals, tends to overlook that future-making and innovation require more than the accomplishment of predetermined goals. Therefore, being able to act differently can also be an asset with regard to tackling a future that is either uncertain or characterized by looming perils. Second, while reducing the organizational context to a bilateral constellation helps sharpen analytical focus, this falls short when looking into innovation (and, hence, future-making) as a 'complex relational process' (Garud et al., 2016). Professionals critically need to associate with others, in a variety of principal–agent patterns. Third, the activities of built environment professionals not only take place in interpersonal relations, but essentially affect and are affected by the actual built material world.

Thus, while conceptualizing agency in a principal–agent relation is a fruitful analytical element with respect to the professional making of urban futures, a comprehensive analysis requires more than looking into the difficulties of how bilateral contracts are fulfilled. Eisenhardt, in this spirit, calls for the use of agency theory '*with complementary theories*' (Eisenhardt, 1989; emphasis in original) in order to embrace the complexity of professional activities related to the built environment in (not only) organizational contexts. Therefore, for the purpose of urban future-making, using agency theory requires, above all, considering a capacity to act *otherwise*, on the basis of expertise as a potential from which urban futures may arise. This requirement also calls for a more pronouncedly sociological approach to agency, and recent literature on organizations, it seems, is already following such a call, partly drawing on Gid-

dens's theory of structuration (e.g. Pontikes and Rindova, 2020), partly mobilizing actor–network theory and related work (e.g. Czarniawska, 2004; Steen et al., 2006).

Acting as built environment professionals in society

Over the preceding two sections, we have maintained that both social scientific and business-related approaches to agency offer useful starting points for understanding the professional activities that we are primarily concerned with in this volume. In this section, we seek to further substantiate our conceptualization of professional agency by clarifying some of the key characteristics of the actual professions of urban future-making. In principle, these professions involve the academic disciplines of architecture, (civil and construction) engineering, and planning. When it comes to execution, these disciplines are complemented by skilled crafts and trades as well as by non-specialist support staff.

The three disciplines of architecture, engineering, and planning have different historical and academic roots and traditions, which also differ depending on the national context. Speaking for European contexts, some general characteristics can nevertheless be identified: Architecture, typically, is seen to build on the arts and humanities. Creativity is perceived to be at the centre of the design process, and the myth of the 'creative genius' still shapes the professional identity and public perception of architects (Cuff, 1992; Stevens, 1998). Engineering, in contrast, is characterized by a natural sciences paradigm, with elements from mathematics, mechanics, and material sciences. This goes along with a problem-solving habitus. Typically, the public profile of engineers is less pronounced than that of architects (Bulleit et al., 2015). Planning is the youngest of the three disciplines and has acquired its formalized status only in the context of the post-war welfare state, typically associated with tasks of the public sector. It combines elements of both architecture and engineering, together with a variety of social science approaches, which has contributed to decades-long debates about what the actual core of the discipline is (for a starting point, see Wildavsky, 1973).

Applying our discussion regarding professional agency to these three disciplines requires, first and foremost, dealing with them as professions. Following the sociological scholarship on professionalism (Abbott, 1988), professionals are defined by their authority to act within certain predetermined jurisdictional boundaries. This authority derives from specialized as well

as standardized forms of knowledge and is secured by controlled access to professional associations. Educational curricula maintain this exclusivity; they are standardized around core components that form the prerequisite for becoming a member of these professional associations as a practitioner. Along with providing the legal base of the profession, education is also a major source of socialization, where professional networks are established and typical elements of professional practice are introduced and taught (Cuff, 1992). This involves studio work in architecture, laboratory experiments in engineering, and project-based courses in planning. Competitions are a core element of professional culture across the three disciplines and are a prime tool of peer-to-peer recognition and source of cultural capital (Lipstadt, 2003).

As already elaborated above, Bourdieu's work on the concept of the habitus lends itself particularly well to the analysis of the generative systems of dispositions, values, and ethics that define professional cultures (Stevens, 1998; Grubbauer and Steets, 2014): Breaking this professional habitus down to its essence, we can identify a key disposition towards creativity for architecture, a key disposition towards problem-solving for engineering, and a key disposition towards the public good for planning. For all three, tensions are notable when these dispositions conflict with the requirements deriving from contractual relations to the client (Marcuse, 1976). In contrast to what principal–agent theory suggests, these tensions do not primarily add to client uncertainty but rather affect the professional autonomy of the built environment–related disciplines. Take architecture: Where money rules and wealthy clients raise their demands, the values of architects may be compromised. Similar problems are encountered by engineers: Being perceived as serving the architectural design, their practices depend on the decisions of architects and clients alike. Both can contradict engineers' habitualized orientations towards functionality or material efficiency. Planners, finally, are often seen as being largely dependent on politics, with the public sector being employer or client. Planning decisions, then, are shaped by power relations which often pay little respect to professional expertise (Flyvbjerg, 2002). Professional practice (and expertise) thus continuously faces competing value systems, and built environment professionals have to deal with these in order to act effectively and in line with their own habitual orientations.

Importantly, the three built environment professions are all characterized by a specific knowledge base. While rooted in different academic worlds, all three are applied disciplines, with an implicit orientation towards action. Action is, thus, shaped by professional routines and techniques – i.e. practices

– such as modelling, calculating, forecasting, scenario planning, and prototyping as tools of decision-making. These routines and techniques allow for developing ideas, reducing complexity, and testing solutions. In accordance with practice theory (see above; Reckwitz, 2002; Nicolini, 2012), an important role can be ascribed to material objects in these processes, in the sense of 'acting with things' (Beauregard, 2015). These artefacts assume different and varying communicative functions throughout design and implementation processes (Ruge et al., 2022). The latest practices in each professional field are reflected in building norms and standards which legally regulate professional action and have decisive impact on risk assessment and project costs; the relation of norms and standards to innovations, i.e. changes in professional practices, however, is a deeply ambivalent one. While norms and standards are incrementally adapted to technological change, they provide little room for flexibility and, in practice, often have to be circumvented in creative ways (Grubbauer and Dimitrova, 2021).

Professional agency in the light of uncertainty

In a nutshell, the insights from the above discussion can be summarized as follows: Professional backgrounds, on the one hand, afford and frame specific agency for urban future-makers by providing them with authority based on specialized expertise and competences, underpinning their professional habitus, and providing routinized practices that reinforce and reproduce both authority and habitus (Schön, 1983; Cuff, 1992). On the other hand, this agency of professionals in the architecture, engineering, and planning disciplines is necessarily entangled with relational and institutional environments beyond the narrow professional context (Schatzki, 1996; Latour, 2005). Consequently, agency in urban future-making is also distributed throughout a wide and diverse field of agents and their varying sources of authority, value systems, and knowledge bases (Garud et al., 2016; Pontikes and Rindova, 2020). Moreover, this agency essentially involves the actual materiality of the built environment, which represents the legacy of past decisions and, at the same time, shapes temporal contexts of present action (Emirbayer and Mische, 1998).

To reiterate Giddens's (1984: 14) account of agency, producing an 'effect of influencing a specific process or state of affairs' with regard to urban future-making therefore presupposes taking into account – i.e. establishing, stabilizing, building on, or mobilizing – the socio-material structures pro-

fessional agents are entangled with. Recent scholarship has increased the expectations placed on professional agency, looking to professionals as 'front runners' (Loorbach et al., 2017) and agents of change within today's unstable and rapidly transforming societies (Doucet and Cupers, 2009; de Roo, 2017). However, heightened instability and rapid transformation, in our view, add to the uncertainty that professionals in the built environment face. The next step in our argumentation is therefore to address this uncertainty and to examine its role in present-day professional contexts more thoroughly.

Sources of uncertainty

Dealing with uncertainty as part of urban contexts is nothing new, especially when the future is involved (Zeiderman et al., 2015). Indeed, the tools and techniques of built environment disciplines have been developed in the modern era exactly in order to enable decision-making in the context of uncertainty (Christensen, 1985). In the social sciences, uncertainty, typically, is conceptualized by distinguishing it from risk (Beck, 1992). While the latter is considered predictable and calculable, uncertainty essentially exhibits incalculability and fundamental openness (Knight, 1921; Scoones and Stirling, 2020). Technologies of forecasting and risk assessment have long sought to reduce uncertainty to a calculable range of possible outcomes in all spheres of economic action (Beckert, 2016). Pertinent literature, however, highlights that contemporary processes of urban transformation are increasingly characterized by unpredictability, side effects, and non-linear outcomes (Balducci et al., 2011; de Roo, 2017). For instance, despite the capacity of scientific forecasts regarding climate change and tipping points to predict future patterns, the timescale effects of these phenomena in urban environments are uncertain (Mehta and Srivastava, 2020). Also, for many technological innovations now existing as prototypes and pilot projects, for instance in the field of transport and traffic, it remains unclear how (and/or when) their widespread implementation under real-life circumstances could become reality (Manderscheid, 2018; Thiel, 2020).

While there is, hence, a general agreement about the urgent need to act to mitigate the effects of climate change and other environmental threats, the actual what and how of that action still seem uncertain. Contrary to what is usually assumed (e.g. Ibert, 2007; Grabher and Thiel, 2015), urgency in the current situation does not enable action by reducing complexity. Thus, uncertainty and urgency still coexist. For the purposes of this chapter, we want to highlight

four sources of this enduring uncertainty that particularly impact professional agency related to built environment disciplines in the present moment.

Uncertainty concerns, first, the spatial boundaries – or boundedness – of strategies and interventions aiming to transform the built environment. For instance, mainstream planning (Moroni, 2017) but also progressive concepts of urban citizenship and the like all build on the normative idea that the local community affected by specific projects can be identified and should be involved in decision-making (Rolnik, 2014; Blokland et al., 2015). The same holds for the (environmental, social, etc.) impacts of buildings on the local environments in which they materialize. Climate change (as many environmental hazards) puts this assumption in question: Phenomena currently associated with climate change don't respect spatial, administrative, or sectoral boundaries, nor local anchorings, as Harriet Bulkeley points out in her discussion of the 'climate connected city' (Bulkeley, 2021); the complexity of ecological interdependencies and rebound effects undermines attempts to identify causes and effects within a defined territory (Beck, 1992). Also, growing social inequality, as well as the complexity of identifying specific social practices and lifestyles to hold responsible for climate change, questions the idea of local communities or groups of users as target groups for built environment disciplines.

Second, uncertainty around built environment action increasingly results from difficulties in aligning distinct temporal horizons (Laurian and Inch, 2018; Haarstad et al., 2023). The conflict between short- and long-term aims in planning is not new, and negotiating such differences has long been identified as a key task of planning. Also, envisioning, modelling, and forecasting how buildings and infrastructures will behave over time is part of architectural and engineering practice. However, in the current situation, temporal horizons of different stakeholders in planning and construction processes are not only conflicting: They are shifting and subject to uncertainty themselves because established criteria and modes of calculating risks, costs, and benefits based on life cycles in the built environment are up for revision (Chappells and Shove, 2005; Gram-Hanssen and Georg, 2018). Most importantly, the fundamental tension between the urgent need for transformation and the inherent inertia of the existing built environment translates into intricate decision-making problems. For example, the question of how to measure future costs invoked by built structures and their maintenance is a key issue for built environment professionals (Petit-Boix et al., 2017). Life-cycle assessment now involves sophisticated simulations and projections far into the future. These depend on contingent factors in the material properties of buildings and infrastructures,

but they also depend on decisions on how to value and incorporate previously externalized ecological and social costs (e.g. Backes and Traverso, 2024). This increasingly involves ethical considerations on which populations – those of the present versus those of the future – to prioritize (see Grubbauer, Volont, and Manganelli in this volume).

Third, uncertainty results from shifts in the established organizational, relational, and institutional arrangements. This particularly relates to the entry of a variety of new actors: These may be new private sector organizations from the technology (Söderström, 2014; McNeill, 2015) or the global consultancy sector (Faulconbridge and Grubbauer, 2015) that foster a digitalization (e.g. Rabari and Storper, 2015) or even 'platforming' (e.g. Barns, 2020) of large parts of urban infrastructures. Thereby, the classic array of built environment professions and organizations is being reshuffled both sectorally and geographically. This means that the relevant firms not only operate globally, but increasingly also enter built environment domains that were previously separated. One key consequence is that contractual relations have become an important element of governance in urban development; large-scale projects are subject to complex contracting and procurement, with path dependencies being established as to the future use and operation of digital technologies. Another consequence is that there are also changes within the public sector: State bureaucracies have segmented into sectoral fractions, and governance increasingly occurs through networked and multi-scalar arrangements (McCann and Ward, 2011). This poses challenges for professionals within state administration, as the size and complexity of many transformative projects and interventions in the built environment increasingly require the cooperation of different state levels as well as integrated planning across all built environment domains. Finally, the voices of civil society actors are both more and more demanding and increasingly polyphonic regarding their expressed interests, given the mounting diversity of contemporary societies (Fincher and Iveson, 2017).

This leads to the fourth aspect: Uncertainty increasingly derives from normative conflicts about the values underlying decision-making in policy and planning. As discussed above, built environment disciplines operate on key dispositions which inform education and practice but which also tend to be in conflict with other value systems. At present, these normative frameworks are challenged from two sides: Internally, professionals actively seek to respond to evident urgencies by considering new ethical questions about the societal and ecological benefits of their interventions (Awan et al., 2011; Fitz and Krasny,

2019; Gram-Hanssen, 2024). Research and practice are challenged as it has become more difficult to weigh conflicting ecological, social, economic, and cultural factors against each other. New concepts such as 'environmental justice' (Martínez-Alier, 2023) and 'mobility justice' (Sheller, 2018) have been mobilized to aim for a more inclusive built environment. Externally, given the shifting actor constellations described above, professionals face an extended array of value systems. One crucial consequence is that normative expectations to actively involve citizens and all kinds of other players in decision-making at all stages have gained in importance (Frantzeskaki and Kabisch, 2016; Castán Broto et al., 2022; Hofstad et al., 2022). Yet, the accountability and inclusivity of these new forms of bottom-up, co-productive, and experimental types of governance is subject to ongoing debate (e.g. Uittenbroek et al., 2022); this poses challenges for and needs to be reflected on by professionals in their roles as experts and administrators responsible for designing such processes.

Responses to uncertainty

To deal with uncertainty, built environment professionals have traditionally adopted three fundamental ways of tackling the future that are designed to secure professional agency. These types differ with regard to how the future (and the knowledge about it) are conceived: as a projection, a project, or a process.

The first approach – a projection – believes in having been or being able to create knowledge about how the future *will be*, seeking to anticipate the future and work towards realizing this projection. Such approaches are documented for a wide range of top-down, rational, and technocratic planning and engineering practices (Breheny and Hooper, 1985; Perry, 1995; Miller and Lessard, 2001). The second approach – a project – intends to create knowledge about how the future *ought to be*. Uncertainty is thus faced by actively shaping the future by setting an aim (or developing an idea) and acting towards it (Wiechmann and Hutter, 2008; Luck, 2018). The third type of strategy – a process – is more modest in regard to professionals' future-making capacities. Architects, engineers, and planners admit to *not being able to create reliable knowledge about the future* and therefore have to constantly adapt according to opportunities that boundary conditions offer (Lindblom, 1959). Each professional is, thus, an individual in a primarily political game of collective decision-making (Marsden et al., 2014). At present, these three classic modes of urban future-making in built environment disciplines are challenged. Projecting forecasted futures suffers from disruptive moments and the urgent need to act. Design-

ing projects for better futures and working towards them runs the risk of creating new but possibly misleading and irreversible trajectories. Incrementally 'muddling through' a process, finally, does not come to terms with the urgency of current crises and looming threats. Built environment professionals need to respond to these changing boundary conditions in order to extend or even maintain their options for agency; currently, three variants of how they might do so can be drawn from the literature.

The first and most prominent is, as mentioned earlier, the adoption of more experimental, adaptive, and flexible attitudes in dealing with uncertainty (e.g. Kaker et al., 2020). A variety of new adaptive approaches for conceiving of urban change is proliferating, attested by a burgeoning literature on 'experimental urbanism' (e.g. Evans et al., 2016) and 'urban living laboratories' (e.g. Bulkeley et al., 2019). Such new formats establish provisional contexts in which diverse urban stakeholders co-creatively develop, pilot, and test new methodologies and solutions for urban problems. Here, urban space translates into a seedbed or 'testbed' (Halpern et al., 2013; Karvonen, 2018) of transition. In some cases, experimentation in cities focuses on user integration in the reorganization of urban infrastructure systems (e.g. van Geenhuizen, 2018); in others, testbeds concern the deployment of new digital or AI-based technologies (e.g. Dowling and McGuirk, 2022). Some commentators even argue that we are entering an era of continuous urban experimentation (Karvonen, 2018; Bulkeley, 2023). The prospects of the 'experimental city' are still under scrutiny: While architects, engineers, and planners can certainly rely on long-standing experience with experimental approaches as part of studio work and laboratory testing, the scaling up and out of experiments to urban spaces at large is a new step also for these disciplines. One key question is how – beyond specific groups of targeted users as part of testing and prototyping – inhabitants as a whole are affected by experimentation and what this means for their everyday needs and routines.

As a second strand, and related to these experimental approaches, professionals are considered to proactively embrace more complex actor constellations by acquiring new social roles and thereby reshaping their work environments. When leading experiments conducted interactively with the public and under real-life conditions (Jahn and Keil, 2016; Beecroft, 2023), new types of skills are in need which allow a translation of professional expertise to the public but can also navigate specific capability requirements related to digital technologies. In some cases, municipal professionals emerge as central players (Evans et al., 2021) in, or more specifically as 'enablers' (Mukhtar-Land-

gren et al., 2019) of, such co-developed experiments. Still, such new roles entail difficult mediations between conflicting perspectives and are likely to fail in securing inclusivity, particularly regarding civil society actors (Wagner and Grunwald, 2019; Mello Rose et al., 2022; Kohler and Manderscheid, 2024). Crucially, new communicative skills are required in dealing with diverse publics and citizens who are emotionalized about changes that affect their life-world (see Grubbauer, Volont, and Manganelli in this volume). In some cases, professionals also move beyond their activities within firms and organizations and act as part of civil society initiatives in order to address sustainability or justice deficits of established procedures (Awan et al., 2011). Finally, urban future-makers seek to leverage trans-scalar networks and arrangements both to influence processes of multilevel policy-making and to use them as sources of policy learning (Davidson et al., 2019).

A third strand specifically addresses the ways professional agency tackles the future and calls for a more proactive approach in that regard. Ali Aslan Gümüşay and Juliane Reinecke (2024), in a recent intervention, and reiterating core arguments in planning theory (Connell, 2009; Campbell, 2012), focus on the academic roots of professional expertise; the authors insist that academics and professionals need to undertake a conceptual 'double leap' (ibid.: 5) when it comes to future-related reasoning and decision-making. Instead of simply extrapolating from the past – as classic forecasting does – professionals should include imagination as a serious alternative for framing the future; instead of remaining strictly value-neutral, future-making should also include value-led approaches of grasping the time ahead. For built environment professions, such a 'double leap' can strengthen their 'double' professional identity as 'doing'-oriented professions with academic socialization (Grubbauer and Shaw, 2018) because both imagination and judgement are an inherent part of their everyday practice. Gümüşay and Reinecke's (2024) intervention, then, also resembles earlier pleas for a proactive engagement with the uncertainty and complexity that the future(s) offer (Callon et al., 2009; Nowotny, 2016). A double leap towards risky speculation can therefore bring the academic and the practical sides of the built environment professions closer together, both in terms of problems and their potential solutions, but also in terms of shaping the socio-material environments in which future-making takes place. One important – albeit ambivalent – consequence of these recent attempts to explicitly address future-making practices as object of theorizing as well es empirical research is that practitioners themselves become targets of research and experimentation (e.g. Durante et al., 2024).

Conclusion

This chapter has been, first and foremost, a conceptual contribution to understanding the current conditions of professional agency in urban future-making. We have sought to examine how this agency can be conceptualized (and made possible) in the light of the present challenges of a simultaneous increase in urgency and uncertainty. For this purpose, we mobilized different literatures related to agency from sociology and economics and applied their insights to the specifics of built environment professionals. We then outlined the changing boundary conditions of urban future-making today and summarized recent accounts of possible professional responses to these conditions.

When it comes to the general framing of professional agency, we found that the literature offers two foundational approaches to agency: The first (mainly) draws on first-generation practice theories and addresses in particular the potential for deliberate and effective action against the backdrop of structural boundary conditions that are both limiting and enabling. For the professions we have looked into, it is most clearly Bourdieu's concept of (professional) habitus that mirrors this approach. The dispositions, values, and identities (and the list goes on) that this habitus contains provide built environment professionals with a degree of authority but also limit their scope of action. Currently, this habitus is confronted with an increasing uncertainty – as the temporal and spatial framework of action becomes blurred, new players enter the field, and professional values tend to lose their absolute validity. The second approach to agency draws on second-generation practice theories as well as actor–network theory and related literatures, framing agency as 'distributed', i.e. occurring within or through socio-material contexts. Proactively embracing these contexts is, hence, a key element of professional agency. For built environment professionals, this requirement is particularly relevant with regard to the actual materiality of the urban fabric.

In our view, juxtaposing both foundational approaches offers an interesting twist: Bringing in the socio-material context as a key to professional agency seems to call into question the actual foundations of the professional habitus – its knowledge base, expertise, practices, and values. Tackling the structural socio-material environment of professional activities would therefore be a new requirement for the professional repertoire of architects, engineers, and planners who can no longer simply rely on their habitualized professional authority. This requirement would therefore also have to be an element of university curricula and change the rules of access to professional

associations. At the same time, however, purely relying on structural work of network manipulation and the like runs the risk of losing sight of professional values and reducing professional agency, in a way, to tactical activities of building and stabilizing 'action nets' (Czarniawska, 2004). This is where the value base of the professional habitus comes into play again. When we finally try to give an answer to the question that we raised at the outset of this chapter, we hold that a conjunction of these two basic approaches to agency provides the conceptual guidance for understanding both the *agency* of urban future-makers and the ways of how that agency can be translated into *action* which accepts and embraces uncertainty.

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