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Design in government: City planning, space-making, and urban politics

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ABSTRACT

In recent years, design has appeared in an ever-broadening range of government processes and projects, particularly in cities. What has design become, such that its methods and practices could be applied to urban planning and public administration? And what are the governmental problems that design methods and designers are being mobilized to address? This article answers these questions by tracing the tangled intersections of design, city planning, and urban administration in the last century. Through a genealogical analysis, it shows how a number of designers came to redefine design as a set of procedures for formulating and proposing solutions to "wicked problems." This understanding of design—which developed in fields such as industrial and product design that were remote from government—has recently gained salience in public administration and city planning. In contrast to an influential geographical analysis of design as spectacular architecture that is divorced from any broad social objective, the article argues that design in government can be analyzed as the design of politics. Its concern is not with the aesthetic or functional qualities of material objects—whether a manufactured product, building, or article of clothing—but with the ongoing work of organizing argumentation and decision making about complex, large-scale problems.

In recent years, we have witnessed the planning and construction of a new wave of future-oriented, design-based projects that seek to remake urban space, from large-scale infrastructure to parks and waterfront districts. A widely discussed example is the Rebuild by Design competition that was organized to plan for recovery and reconstruction following Superstorm Sandy, which struck the eastern seaboard of the United States in 2012. The most ambitious proposal to emerge from the competition is for a flood protection system that is to wrap around the lower part of Manhattan in New York City. The first phase of detailed planning and construction of this barrier system is the East Side Coastal Resiliency project (ESCR), a series of berms, flood walls, permeable surfaces, and elevated public spaces that will extend for 2.4 miles along the East River on the Lower East Side. Beyond providing protection from coastal flooding, the project will overhaul a large (nearly 60 acre) park, incorporate green infrastructural elements, and reintegrate predominantly low-income neighborhoods with the waterfront.

What are we to make of the newly prominent role of design in projects like Rebuild by Design and the ESCR? What, precisely, is "design"—and what is *being* designed—in such projects? They include many practitioners from traditional design fields like landscape architecture, urban design, and architecture. But design in these projects more centrally refers to something else—what the organizers of Rebuild by Design refer to as "the process by which communities create solutions to complex problems" (Rebuild by Design, 2013). Plans for the ESCR were developed by interdisciplinary teams of landscape architects, hydrologists, park designers, and engineers through extensive interactions with residents of the area adjacent to the project and other stakeholders. In workshops, models and renderings were used to elicit community input about particular features, such as park amenities, uses of public space, surface treatments, and circulation plans. This design-based process moved in parallel to—and in some ways replaced—established governmental procedures of deliberation and decision making by community boards, city government, and federal officials.

Rebuild by Design and the ESCR exemplify a broader development. Across a range of domains, from urban planning to public service delivery, design methods are being used to organize "interaction and decision making among the actors involved in a collective problem," as the political scientist-turned designer Christian Bason (2017, p. 79) puts it. Various approaches—human-centered design, participatory design, and speculative design—are being employed to elicit and incorporate the opinions of citizens, reform administrative procedures, and plan large-scale projects. As the strategic design consultant Marco Steinberg

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(2019) argues, in "redesigning the way they conceive and deliver new solutions," designers seek to "innovate the model of government itself." Advocates of design in government claim that what is at stake in their practices, as former head of Mexico City's Laboratorio Para La Ciudad Gabriella Gomez-Mont writes, is nothing less than "how we collectively decide what type of life we want to live together" (Gomez-Mont, 2016, p. 84).

What has design become, such that its methods and practices can be applied to government planning and public administration? And what are the governmental problems—particularly in cities—that design methods and designers are being mobilized to address? This article offers one possible set of answers to these questions by tracing a significant mutation in design. It describes how an array of practitioners redefined design not in terms of specific objects—whether buildings, industrial products, or urban spaces—but as a set of practices for addressing complex problems. Such design problems, these practitioners argued, are "wicked" in the sense that they have no definitive formulation or optimal solution and can therefore only be addressed through an iterative and collaborative process of modeling and testing. Our analysis clarifies the emerging role of design practices in ambitious projects of urban space-making. It also allows us to understand design in government as one site in which fundamental issues of modern politics—such as the role of expert knowledge in democratic government, and the prospects for democratic control in addressing complex collective problems—are being worked through today.

From the architecture of the spectacle to public sector design

This article contributes to a longstanding discussion in urban and political geography about the role of design in urban space-making and urban politics. One starting point of this discussion that helps to orient our account, both historically and conceptually, is David Harvey's (1989) analysis of post-modernism, which he developed through a contrast with modernist city planning. Modernist city planning, Harvey argued, addressed the layout of cities or urban districts and approached space as "something to be shaped for social purposes and therefore always subservient to the construction of a social project" (Harvey, 1989, p. 66). By the 1970s, ambitious projects of modernist urban planning had been thoroughly discredited. "Civil rights demonstrations, street riots, and inner-city uprisings" were the most visible elements of widespread "urban discontent that swirled around urban renewal and housing projects" (p. 89). City governments were paralyzed by fiscal crisis, and privately financed commercial projects became the focal point of (highly circumscribed) urban development initiatives. In this context, Harvey argues, post-modernism abandoned the transformative ambitions of modernist planning. It approached space as "something independent and autonomous," and was oriented to "aesthetic aims and principles which have nothing necessarily to do with any overarching social objective." In a striking claim, Harvey argued that the role of planning in modernity was displaced in postmodernity by design (p. 66). Its paradigmatic expression was an "architecture of spectacle" that conformed to the demands of a new phase of urban accumulation. "Imagining a city through the organization of spectacular urban spaces," Harvey claimed, "became a means to attract capital and people (of the right sort) in a period (since 1973) of intensified inter-urban competition and urban entrepreneurialism" (pp. 91–92).

Although the term postmodernism is out of date, Harvey's account remains influential. As Maroš Krivý (2019, p. 4) observes, urban geographers continue to understand the relationship between design and urban space-making in terms of "entrepreneurialism and spectacular architecture." Given this still-prominent analysis, it is striking to note the divergences between Harvey's account and the role of design in the ESCR and other recent design-based interventions. These are, indeed, future-making and space-making projects with ambitious (if complex) social objectives. They seem to exemplify not the limited ambition Harvey associates with postmodernism but what Clive Barnett (2018, p. 12) has identified as a new "urban optimism," in which "urban-scale institutions, infrastructures and communities of interest are identified as being empowered to respond creatively" to challenges such as ecological crises, persistent poverty, and systemic inequalities.

Specifying "design"

Examples like the ESCR point to the importance of undertaking a "more nuanced analysis of what 'design' means within cultures of urbanistic expertise" (Krivý, 2019, p. 5; see also Grove, 2018, 2019). Following Lauren Rickards (2019, p. 4), we need to better understand the "problems [design] is being directed toward and what solutions it is seen to promise." A first step in such an analysis is to specify what kinds of design theory and practice are at stake in projects like the ESCR. We suggest that the clearest articulation of these practices and concepts—and of the rationale for their application to governmental problems—is not found in architecture or urban design. Rather, it is found in what is variously called "design for policy" (Bason, 2014) or "design in the public sector" (Junginger, 2017). In these fields, the objects of design are not primarily buildings, streetscapes, or other objects, but administrative routines, service delivery systems, policy interventions, and planning processes. Public sector design employs traditional studio-based design practices, such as the iterative prototyping of physical models. But it also incorporates methods such as community design workshops, customer journeys, scenarios, focus groups, and brainstorming sessions that reach beyond the studio. Such design practices are increasingly widespread in urban governance, as city-based design labs have extended their work to issues such as transportation, public health, education, infrastructure, and homeless services. While designers from fields like architecture may play significant roles in such practices (planning of the ESCR was spearheaded by a global architecture firm), major practitioners of this approach come from other fields of design, such as industrial or organizational design, or are not designers at all.

How do advocates and practitioners of "design in the public sector" explain the relevance of their understandings and practices to contemporary government? In addressing this question, Bason (2017, p. 23) refers to a "characteristic of 21st century problems." We are increasingly faced, he argues, with "'[w]icked' societal problems" such as "[c]hronic health problems …, an ageing population, climate change, inner-city social problems and crime, long-term unemployment, and faltering educational systems." These wicked problems, Bason claims, are "complex and open for interpretation, characterised by competing or conflicting options for solutions, and which will most likely never be fully solved" (Bason, 2010, p. 10). According to advocates of public sector design, established forms of government planning and decision making have proven themselves inadequate to deal with the challenges of such "wicked" problems. Thus, Steinberg (2019) argues that conventional approaches to public administration—which draw on "linear models of planning and past performance as the basis of decision making"—are "cracking under the pressure of an increasingly complex world." Sabine Junginger (2017, pp. 4–6), a specialist in service design and human-centered policy design, similarly writes that "traditional models and problem-solving processes are under attack by frustrated, impatient and vocal citizens," thus challenging policymakers to address what she also calls "wicked problems" that emerge in situations "where we do not yet know what problems we might be dealing with."

This pervasive explanation for the proliferation of design practices in government—in terms of the complexity of the problems faced in contemporary public administration—is profoundly disorienting. It locates design not in relation to the problem of defining the functional and aesthetic qualities of objects (or, more generally, to a specifically form-giving activity) but in relation to the traditional domains of public policy, public administration, and city planning. This way of situating design also provokes a number of questions. Why should design methods

be particularly well suited to addressing complex or wicked problems faced in contemporary government? More basically, in what sense are contemporary problems of public policy distinguished by their complexity or wickedness?

In fact, a preoccupation with complexity is foundational to the "traditional" forms of modern public administration to which public sector designers contrast their approach. At the beginning of the 20th century, major figures in the emerging field of public administration argued that, as Charles Merriam observed, "political situations are usually complex, containing many factors which it is difficult to isolate successfully" (Merriam, 1930, p. 124–25). This complexity arose, they claimed, from the conditions of a rapidly industrializing and urbanizing society, which presented problems of scale and interconnectedness that challenged existing American governmental institutions (Collier, 2017). What, then, can we make of claims that public sector design is a response to—and is in many ways defined in relation to—the distinctive complexity of governmental problems today?

Complexity and problematizations of government

We address this question by analyzing the concern with complexity in contemporary design in terms of a particular *problematization* of government—a way of thinking about the challenges that complexity poses to collective decision making in pluralistic democracies, and about the responses to complexity that are deemed thinkable and practicable. Our question, thus, is not whether complexity is in fact a distinguishing feature of the present (Urry, 2005). Instead, we inquire into the varying ways that complexity has been constituted as the focus of "acts, practices, and thoughts that … pose problems for politics" (Foucault, 1984, 114; see also Koopman, 2013). Here, the discourse of public sector design offers a key point of orientation in its ubiquitous reference to "wicked problems." This term was most famously described by the mathematician Horst Rittel and the city planner Melvin Webber in the article "Dilemmas in a General Theory of Planning", written when they were colleagues at UC Berkeley's College of Environmental Design. Notably, the article was published in 1973, the same year that Harvey identifies as a point of inflection in the shift from modernist planning to postmodern design. In our broader argument, "Dilemmas" will serve as the starting point for a genealogical investigation into the intertwined trajectories of design and city planning from the early 20th century to the present. This genealogy will suggest a story about design, space-making, and urban politics that diverges from accounts of spectacular architecture and new regimes of accumulation outlined by Harvey and other scholars.

On the narrower question of how a particular understanding of complexity is invoked to define contemporary public sector design, Rittel and Webber's discussion points to a distinction between two ways that complexity has been taken up as a governmental problem.

For Charles Merriam and many other founding figures in modern American public administration in the early 20th century, complexity could be tamed through bureaucratic administration. A democratic public would delegate its sovereignty to legislators who could define general goals and values based on a "public interest." These legislators would then delegate their authority to technical experts or professional administrators. Merriam and other advocates of rational public administration were confident that such experts and professionals could definitively formulate problems and draw on technical knowledge and past experience to identify optimal solutions (that would maximize benefits while minimizing costs). This model rested on, and was enacted through, a separation between the domain of politics (concerned with the selection of values and goals) and the domain of administration (the sphere of technocratic expertise) (Collier, 2017; see also; Callon et al., 2009).

In "Dilemmas" Rittel and Webber observed that this model for managing complexity was breaking down. The experiences of post-war government—such as persistent urban poverty, crime, and the perverse effects of large-scale government investments in transportation and housing—demonstrated the limited reach of technical expertise in solving complex problems. "[T]heory is inadequate for decent forecasting," Rittel and Webber wrote; "our intelligence is insufficient to our tasks" (Rittel & Webber, 1973, p. 160). They also pointed to the unintended "waves of consequences" that technical solutions produced "over an extended—virtually an unbounded—period of time." At the same time, the choice of values and aims through representation and delegation seemed increasingly inadequate as a model for democratic politics. A "seeming consensus" about the nature of public problems was being eroded by "the growing awareness of the nation's pluralism and of the differentiation of values that accompanies differentiation of publics." It was difficult to identify an "undisputable public good" (p. 155–56). The concept of "wicked problems" characterized these predicaments of expert truth in modern democracy. Wicked problems, Rittel and Webber argued, had no definitive formulation. Lessons from the past were not transferrable since each problem was essentially unique. The elements that comprised a wicked problem were interconnected, making causal explanation difficult. Furthermore, goal setting and the formulation of solutions could not be neatly separated into political and administrative tasks. Planning was by its nature political, and politics took shape only through the process of planning, as problems and possible solutions were identified. Wicked problems had no optimal solution—indeed, they were never solved, but only "re-solved—over and over again" (p. 160).

"Dilemmas" is often read as a criticism of rationalistic "solutionism," and a reflection on the limits of technical expertise in resolving public problems in a democratic polity (e.g. Head, 2018; Barnett, 2018, 2021). Indeed, Rittel and Webber announced this theme in the very first sentence of the abstract of "Dilemmas," which proclaimed that "[t]he search for scientific bases for confronting problems of social policy is bound to fail" (Rittel & Webber, 1973, p. 155). But by the time Rittel and Webber published "Dilemmas" this was hardly news. A crisis of city planning and public administration—the areas Rittel and Webber explicitly addressed in "Dilemmas"—was widely proclaimed, and an ambitious post-war project of urban redevelopment had collapsed in the U.S. and other countries. Rittel and Webber's famous postulate might thus be read—like Nietzsche's "god is dead"— less as a provocative declaration and more as a report on an inescapable contemporary reality. Instead, their central question was how to reconstruct planning as a goal-oriented, future-making activity in light of the ubiquitous wicked problems in modern government. "In a setting in which a plurality of publics is politically pursuing a diversity of goals," they asked, "how is the larger society to deal with its wicked problems in a planful way?" How were "goals to be set, when the valuative bases are so diverse?" (p. 168). Their answer was not to retreat from the problems of interconnectedness, scale, and complexity that theorists of public administration had identified half a century earlier. Rather, it was to seek out new procedures for enlisting both experts and publics in formulating and arriving at (only ever tentative) resolutions to wicked problems.

The central claim of this article is that we can analyze and critically assess contemporary design in government as a key (if still inchoate) set of practices and form of reasoning through which the "dilemmas" that Rittel and Webber described almost fifty years ago are being addressed today. Taking designers' reflections on wicked problems as a starting point and guide, we pursue such analysis and critical assessment through a genealogical inquiry. Following Koopman, genealogy examines "the articulation of that which comprises a singular problematization out of a multiplicity of otherwise disentangled elements." It seeks to explain "those conditions of possibility that constrain and enable us today, right now, in our present" (Koopman, 2013, p. 24). Accordingly, our account examines figures and historical moments that are situated in disparate and discontinuous fields, such as public policy, industrial design, and city planning (among others). Our aim in tracing

their genealogical entanglement is to explain the conditions of possibility of a particular way of approaching governmental problems that is found today in public sector design—and that is brought into relief by the exemplary case of the ESCR.[1]

Section 2 elaborates our claim that Rittel and Webber's work on wicked problems should be understood in relation to a broader search for new accommodations between expert authority and democratic norms amid crises of city planning and public administration in the 1960s. Section 3 then traces how a number of designers—situated in fields such as industrial and product design that were remote from the problems of public policy and city planning—took up Rittel and Webber's concept. They redefined the activity of designing, not as a process of determining the functional and aesthetic qualities of objects, but as a set of iterative, collaborative, and experimental techniques for formulating and devising solutions for wicked problems. This redefinition of design allows us to make sense of the concepts and practices of contemporary public sector design. Section 4 addresses how these concepts and practices were taken up in urban administration and city planning. Having emerged in the late 19th and early 20th century in close alignment with design fields like architecture and landscape architecture the field largely abandoned a transformative, form-giving project following the crisis of post-war modernist planning. In the last few decades, however, design-based procedures, including those found in public sector design, have been mobilized in a new atmosphere of "urban optimism" (Barnett, 2018) about tackling large-scale problems.

Section 5 argues that our genealogy suggests a story about design, space-making, and urban government that is distinct from Harvey's influential account of urban accumulation. What is at stake in contemporary design in government as it appears in exemplary cases like the ESCR is not the creation of spectacular architecture, mobilized in the service of the aestheticization and depoliticization of urban development. Instead, practices of design in government involve the *design of politics*—an ongoing work of organizing argumentation and decision making about complex, large-scale problems. Here, politics is not defined by established governmental institutions or as a radical alternative to such institutions.[2] Rather, following a pragmatist tradition of political thought that is explicitly engaged by a number of influential public sector design theorists and practitioners (e.g. Bason, 2017; Buchanan, 1992; Junginger, 2017; Melles, 2008), it refers to the process through which collectives and decision making arrangements are assembled around common problems. Thus, in the ESCR we see the shaping of a kind of provisional governmental form, a particular patterning of technical "solutionism" and collaborative problem-solving, centralized control and community engagement, expert authority and argumentation. This analysis points to the space-making implications of design in government, which in the case of the ESCR involves varied arrangements to address issues that unfold at different scales, and that affect different collectivities (Grove, 2019). It also identifies design in government as one set of practices for structuring the fraught process through which, today, technical experts and democratic publics debate and make decisions about common issues—what Callon, Lascoumes, and Barthes refer to as "technical democracy" (Callon et al., 2009; see also; Latour, 2004).

Wicked problems: Rittel and Webber

Our account begins with the concept of "wicked problems," which we approach not directly—through the well-known article "Dilemmas in a General Theory of Planning"—but through Rittel and Webber's lesser-known separate work. While the discussion in "Dilemmas" is relatively abstract, this separate work explicitly engaged specific domains of practice—in Webber's case, city planning amid the upheavals of the 1960s, and in Rittel's, the integration of scientific expertise into the new (and newly democratic) government of West Germany (Gruendel, 2022). From this perspective, we can better grasp Rittel and Webber's central concern, which is also the central concern of contemporary design in government: given a crisis in traditional models of public policy and urban administration, how can the wicked problems of contemporary society be addressed "in a planful way"?

Horst Rittel: decision science and post-war democracy

Before joining Webber at the College of Environmental Design at the University of California, Berkeley, Rittel worked at the *Hochschule für Gestaltung* in Ulm, a leading German design school. At the same time, he was a member of the *Studiengruppe für Systemforschung* (SfS), an interdisciplinary team of researchers and advisors who explored the possible application of the emerging systems sciences to political decision making. In particular, members of the SfS were engaged in debates about the role of technical experts in a post-Nazi state. Developments such as government management of atomic energy and European integration generated tensions around technocratic planning of economic and social life. Thinkers on both the left (e.g. Marcuse, Horkheimer, Habermas) and the right (e.g. Heidegger, Schmitt, Gehlen) argued that such developments posed an acute threat to democratic politics. While SfS researchers shared such concerns, they insisted on the essential role of technical experts in modern government and sought ways to make expert participation in decision making compatible with democracy (Gruendel, 2020).

One formative moment for the SfS was a debate with the conservative sociologist Helmut Schelsky. Schelsky argued that science, in presenting an objective and incontestable answer to public problems—a "best one way"—would displace the "classically democratic" process of argumentation and debate through which a common will takes shape (Schelsky, 1961, pp. 101–102).[3] In a "pure technical state" sovereignty would be concentrated in whomever "most effectively commands the scientific-technical means available" (p. 100). Members of the SfS countered that Schelsky's picture of a science that could offer unambiguous and uncontestable solutions to public problems distorted the way that technical expertise was operationalized in government. Helmut Krauch, founder and director of the SfS, thus wrote that "[w]hoever is concerned with the development of technical procedures knows how rare optimal solutions are, even if one only applies technical criteria, how often a given problem is solvable in several ways, how frequently functions display multiple optima" (Krauch, 1961, p. 201). The question the SfS posed was how to invent new models for the role of technical experts in democratic decision making.

In search of answers, Rittel and several other members of the SfS visited a number of prominent American research institutions, including think tanks such as RAND, MITRE, and the Stanford Research Institute. Rittel found that key figures in these institutions were developing critiques of rational planning and administration, which he described in a report on the trip.[4] These critiques would come to be central to his own thought. Referring to rationalistic models of problem solving that involved a sequence of clear goal formulation and definitive solution by technical experts, Rittel wrote that "[t]raditional maxims for action … are useful at most for short-term, narrowly defined decision situations" that were not characterized by high levels of uncertainty and complexity (Rittel, 1963, pp. 17–18). Moreover, because in a pluralistic society "there is never a single value scheme which would be accepted by all

[1] On the methodological use of exemplars see e.g. Rabinow (2003).

[2] As in approaches that draw from radical democratic theory (e.g. Swyngedouw, 2018; cc.f. Barnett, 2017).

[3] All translations of German texts by Anke Gruendel.

[4] Rittel's account is strikingly different from historical work (e.g. Amadae, 2003) that casts these think tanks as sites in which the application of wartime operations research and systems sciences to public policy served to depoliticize civilian government.

people at all times," no objective criteria could adjudicate among alternative value systems (pp. 22–23). Indeed, the aspiration to ground government actions in expert analysis and comprehensive knowledge of "social" values was illusory. "Nowhere in the pluralistic social structures of modern society," Rittel posited, "can we find concentrated omnipotence" (p. 26).

Over the next several years, Rittel built on these observations to reformulate the central dilemmas of technical expertise in modern democracy. Specific knowledge that was relevant to a particular collective issue, he argued, was "distributed over all participants in a wicked problem," including technical specialists, government officials, and the myriad citizens, organized groups, and businesses, that would be affected by a problem and possible resolutions. *Ignorance* about general criteria for determining what Schelsky referred to as the "best one way" to address a wicked problem was also distributed over all participants, expert and non-expert alike. This "symmetry of ignorance" undermined the very idea of the expert who "knows better by virtue of his degrees or his status." "There are no experts," Rittel proclaimed, "and if experts there are, they are only experts in guiding the process of dealing with a wicked problem, but not for the subject matter of the problem" (Rittel, 1972a, p. 394).

These considerations led Rittel to reconsider the key questions to be confronted regarding expertise and democracy. The central issue was not the choice between rationalistic decision making by experts and authentic political will—as critics of both the left and the right argued. Rather, it was the design of procedures for enlisting various kinds of "participants" in making decisions. Rittel imagined that such procedures would begin with an "initially unstructured problem area or topic" that was linked to a "particular situation": "'Urban Renewal in Baltimore', 'The War', 'Tax Reform'" (Kunz & Rittel, 1970, pp. 2, 4). It would then proceed through an iterative, "argumentative" process of specifying these ill-defined issues and exploring possible solutions. This argumentative process would involve a range of people who had specific knowledge (not necessarily technical knowledge) about an issue and would also include "those who are likely to be affected" by any possible resolution (Rittel, 1972a, p. 394). A key question in formulating procedures for such an iterative process was how participants could be identified, and how their evaluations about unfamiliar problems and possible future solutions could be formed and elicited. Here, Rittel proposed employing techniques such as scenario-based games or the construction of physical models. Such techniques would activate participants by creating "vicarious experience" of an issue and possible ways of addressing it (Rittel, 2010 [1966], p. 117). They could also engage participants in a "counterplay of questioning and arguing," through which participants would "form and exert their judgments incessantly, developing more structured pictures of the problem and its solutions." This process of argumentation might settle an issue by "convincing the opponents" or through a "formal decision procedure." But it might also unravel existing solutions; proposed specifications of a problem might be "questioned and turned into issues" (Kunz & Rittel, 1970, p. 2).

Melvin Webber: planning and pluralism

Rittel's co-author on "Dilemmas," the American planning scholar Melvin Webber, came to questions about technical expertise and pluralist democracy from the distinct experience of American city planning and urban administration. Best known for his work on transportation and metropolitan form, during the 1960s Webber wrote a series of articles that addressed "the relations between technics and politics as they might affect city planning" (Webber, 1969, p. 278). Webber situated these reflections in a critical juncture in the history of city planning. From one perspective, it was a golden age. Federal money was flooding into cities for urban redevelopment; academic planning programs were expanding thanks to exploding demand for experts to staff city planning departments; and planners' authority was burnished by the prestige of new quantitative methods that promised to rationalize urban administration (see section 4 below). "Never before," Webber wrote, "have we been accorded such status as we now enjoy; never have so many governmental and civic leaders been so openly dependent upon our counsel; never has the American city planning movement been in a position to influence the welfare of so many Americans so profoundly." But Webber also sounded a note of foreboding: "Never," he wrote, "has the path of righteousness been less clearly laid out" (Webber, 1963, p. 232). Critics both inside and outside the field had begun to resist the displacement caused by urban redevelopment projects and to reject the urban forms these projects produced. Moreover, the problems these interventions were meant to solve—the decline of central districts and urban poverty, for example—were becoming more acute, as a range of "disabling conditions resonate upon each other in self-perpetuating waves" (p. 235).

Webber argued that these circumstances challenged city planning, as both a field of academic inquiry and as a domain of professional practice. Previously, city planners had addressed problems as though they "stood in direct, one-to-one relation to demonstrated causes," and offered "direct technical solutions" through interventions in the physical environment: the imposition of zoning and other regulatory controls, or the construction of parks, housing, and infrastructure, for example. So long as planners assumed such straightforward cause-effect relations and a "consensus on objectives," there was "little doubt about the actions to be taken" (Webber, 1969, p. 280). But such assumptions had become untenable. The "simple one-to-one cause-and-effect links that once tied houses and neighborhoods to behavior and welfare" were coming to be seen "as but strands in highly complex webs that, in turn, are woven by the intricate and subtle relations that mark social, psychic, economic, and political systems" (Webber, 1963, p. 233). Moreover, it was no longer possible to assume that an urban community held unified interests or values, and it was not clear at what scale a community should be defined. A proliferation of "groups joined by common interest", Webber wrote, were "finding coherence against a wide range of spatial scales" (p. 190). Consequently, any "grand social accounting for a 'whole community'" was "meaningless," and merely served to cover over "the distribution of costs and benefits among the affected groups" (Webber, 1969, p. 286). In sum, the "simple clarity of the city planning profession's role" was "being dimmed" by "clouds of complexity" and "diversity" (Webber, 1963, p. 233).

What, then, were the present prospects for city planning? Here, Webber noted a paradox: even as traditional city planning precepts were breaking down, the broader capacity to anticipate and shape future states of the world was increasing. Rapidly expanding knowledge of "physical, biological, and social systems" was yielding new "technologies through which those systems can be modified" (Webber, 1968, p. 180). More sophisticated benefit-cost analysis offered rigorous comparisons of social payoffs that would result from one course of action versus another (p. 102). These expanded technical capacities, Webber warned, presented distinct dangers to democracy. Specialists already found it difficult to talk to politicians, and decision makers were "increasingly forced to accept the conclusions of technical specialists, thus putting the specialists in the role of governors." But like Rittel and his SfS colleagues, Webber rejected the proposition that advances in science and technology implied a "tyranny of technocrats" (Webber, 1969, p. 277). No technical knowledge could master the complex problems contemporary governments faced. "Ideal solutions to problems, full identification of probable consequences, and faultless evaluation of alternative actions," he argued, "are all patently impossible." No matter "how competent the supporting scientific analyses, or how sophisticated the simulation models," complex social problems presented government decision makers with "a cluster of political questions that no technical methods can mask" (p. 291).

Here, Webber saw a role for a city planning practice in orchestrating "decision and action processes" that were at once political and technical. In contrast to the delegatory structure of public administration proposed

by Merriam and others, Webber suggested that democratic discussion and debate were both an outcome and an "operational mode" of planning. For example, increasingly sophisticated benefit-cost analysis would not depoliticize decision making. Rather, since the "political expression of preferences" was the "only way we have to assess appropriate distributions of benefits and costs" (p. 292), technical assessment would create a *demand* for public debate about alternative courses of governmental action. In this light, Webber recast the role of planning and the planner. The planner was not a "substantive expert" and planning was not "a substantive field," a "specialized department or function in an organization," or a "set of technical skills or technical knowledge." Instead, the role of the planner was as "formulator of the procedural rules" that would "foster more effective deliberation and argumentation" (Webber, 1978, pp. 9–10).

A mutation in design

Particularly when read against Rittel and Webber's separate and prior work, it is not difficult to understand how practitioners and theorists of public sector design have drawn on the concept of "wicked problems" in describing their approach. Rittel and Webber's preoccupation with the status of expert truth in democratic governance is echoed in public sector design's claims about the limitations of rationalistic planning in addressing complex issues. And their exploration of alternative approaches to formulating and developing solutions to problems anticipates various practices of collaborative design. Here, however, we encounter a puzzle. "Dilemmas" did not mention design as such and made little reference to professional design fields. And yet, almost immediately designers in traditional fields such as industrial and product design—which had little direct connection to government and politics—invoked concept of "wicked problems" to reflect on the field of design and its practices. As we show in this section, this migration of the concept across domains is explained by the fact that a set of issues parallel to those raised in "Dilemmas" was being debated by designers and design researchers at just the moment it was published.[5]

The backdrop to this story is a postwar debate about the possibility of defining systematic methods in design. At this time, no common discourse linked professional fields like industrial design, graphic design, and architecture. Rather, these professions were loosely identified with studio-based practices for creating objects (whether buildings, urban ensembles, or industrial products), and oriented to norms of aesthetic taste, function, and consumer preference. Both influenced by and building on parallel attempts to create unifying methods in other fields, a number of designers tried to define a systematic methodology for design.[6] Their aspiration was to emulate an engineering ideal of rationality that proceeded from the definitive formulation of problems to the choice of optimal solutions. This effort was inspired by high-profile projects to design technical artifacts based on a tangle of material, environmental, and behavioral considerations. A frequently cited example was the American space program. Rittel later recalled that designers from fields like architecture asked: "if it were possible to deal with such complicated things as the NASA program" using a systematic approach to problem-solving, "then why couldn't we deal with a simple thing like a house in the same way?" Was it possible to "look at every building as a mission-oriented design object?" (Rittel, 1972b, p. 5).

Early references to wicked problems in design pointed precisely to the limits of this rationalistic approach. For example, the architect Vladimir Bazjanac, Rittel's colleague at Berkeley, argued that design problems were "'wicked' and a linear step-by-step procedure applied to them cannot by itself yield any solutions." Architects faced too many parameters, too many constituencies, and a lack of criteria for deciding what constitutes good architecture, or whether "good architecture" is valued or valuable (Bazjanac, 1974, p. 8). But designers soon took up the concept in a different way: not to mark a negative limit of rationalistic methods but to positively define design as a process of formulating and proposing solutions to wicked problems.

Bruce Archer: "A designerly way of thinking and communicating"

To describe this shift, we turn to the work of Bruce Archer, an industrial designer who was briefly Rittel's colleague at Ulm and spent his career as an influential theorist and teacher at the Royal College of Art (Davis & Gristwood, 2016). Archer was among the prominent designers who experimented with rationalistic methods in the 1960s. But he soon grew suspicious of this ambition. Instead, Archer analyzed what he called a "designerly way of thinking and communicating" that embraced "all those activities and disciplines … that have a value-seeking, feeling or judging aspect, and that have a planning and making aspect" (Archer, 2005b [1976], p. 11).

Beginning in the early 1970s, Archer was preoccupied with how design could be justified as a valuable pursuit at a moment when its status was in decline. Like Rittel and Webber, Archer situated this predicament at a particular conjuncture in "contemporary industrial society." The answers to social problems—growth, technology, and development—were now understood to be problems themselves: the "pursuit of expansion" had been replaced by "the questioning of expansion"; the "pursuit of invention" by "the questioning of invention." Relatedly, the authority of experts and professionals in solving social problems had eroded. "Planner" was increasingly "used as a pejorative term." The work of modern architects was "mainly disliked." Demands were growing for "popular participation in decision making in planning and architecture." These developments had shaken the confidence of the designer as a "practical artist concerned with form, proportion, texture, colour and problems of conveniences and function; secure in his [*sic*] attitudes as to good taste" (Archer, 2005a [1973], p. 16–18).

Notwithstanding this "evident deterioration in the relations between design and society" Archer insisted on the indispensable role of design in addressing contemporary problems. It was not the "objective facts of systems" defined by engineers and assessed through rationalistic methods that led them to be accepted or rejected, he argued. Rather, it was their "subjective attributes." But amid the relentless progress of technical rationality, the human ability to "manipulate, reason with and operate with the quantitative" had "completely outrun [the] ability to manipulate the qualitative" (p. 20). In Archer's own field of industrial design, a "collapse of sales of British products" had resulted from "the absence of adequately updated designs and models"; "invention and design" was "the central issue in its condition and management" (Archer, 1976, p. 517). This led to a question: What exactly makes a product attractive or valuable for a consumer or user? Consumers did not always want the cheapest product, nor did they always want the "better" product ("with the higher specifications: bigger, faster, more powerful, more durable, more handsome, more extras"). Rather, value was determined by the "subtle ratio between specification and price" that resulted from the combination of a diverse "set of attributes." The "trick of discovering" which combination of attributes should be combined in an object was "the exercise known as designing" (p. 509–10).

To illustrate, Archer offered the apparently mundane example of a wristwatch. A number of attributes, he pointed out, would be valued by the consumer: accuracy, legibility, quietness, looks, durability, and cost. How could the proper combination of attributes be discerned? Some information could be collected from the purchaser and user of the watch through what Archer called an "experimental" approach. A designer would "put a model or mock-up before a representative buyer." Whether through verbal feedback or in the process of use, the consumer would indicate the "combination of attributes" that gave the watch qualities

[5] In fact, Rittel was a central participant in these discussions (see Gruendel, 2020).

[6] See Mareis (2011) on how a coordinated effort by a number of designers (often referred to as the Design Methods Movement) reoriented the knowledge culture of design.

such as "usefulness, convenience, assurance, comfort, beauty, and the like" (p. 511–12). At the same time, the designer would have to account for a number of things that could not be gleaned from a consumer: safety features, patents, copyrights, and the properties of different materials. The attributes of the final product, thus, would reflect the specialized knowledge of a range of participants: the technical understanding of engineers, financial and legal parameters, and situated knowledge elicited from users and through use.

For Archer, the mundane example of the watch pointed to a distinguishing feature of design problems: they were "characterized by being 'ill-defined" (Archer, 1979, p. 17), a phrase borrowed from Rittel and Webber's "Dilemmas."[7] The requirements for a given object identified at the outset of a design process did not contain "sufficient information to enable the designer to arrive at a means of meeting those requirements." The process of discovering the "necessary further information" was the core activity of designing. In this process of discovery, Archer argued, the "essential language of Design" was modeling—referring to the production of any "representation of something" whether through "drawings, diagrams, physical representations, gestures, algorithms"—to elicit information from users, manufacturers, installers, retailers, and a host of others (Archer, 2005b [1976], p. 12). This process of discovery did not reveal a single optimal solution to a design problem. Some information would be "vague or unreachable." Some might arise "from capricious fortune or transitory preference." Some information might be "actually unknowable." Moreover, certain requirements of a project might "turn out to be incompatible with one another" and initial premises would have to be revisited or abandoned.

In these reflections on a mundane industrial product, Archer was working toward an audacious redefinition of design and the designer. What defined design, Archer argued, was not "the subject matter" to which designers turned their attention but "the kind of intellectual procedure that [they] bring to bear upon it" (Archer, 2005b [1976], p. 10). The designer, meanwhile, was not the unique source of imagination, experience, or insight; there were many participants whose specialized knowledge was essential to the design process. Instead, the distinguishing role of the designer lay in discovering and then translating diverse legal requirements, engineering parameters, financial considerations, and user preferences into the attributes of a designed object.

In the late 1970s and early 1980s this conception was elaborated by Archer and a handful of other designers. Notable among these is Nigel Cross, who explicitly drew on Rittel and Webber's formulations about wicked problems, not to define a negative limit of design, but to articulate a positive understanding of design problems and the design process. Design problems, Cross argued, were not given in advance. Instead, the role of the designer was to "define, redefine, and change the problem-as-given in the light of the solution that emerges from [their] mind and hand." This process would not involve "prolonged analysis of the problem" with the aim of generating "one hypothetically-optimum solution." Rather, "a central feature of design activity" was "its reliance on generating fairly quickly a satisfactory solution" that could be tested and revised (Cross, 1982, p. 224). Here, modeling was the means for a particular kind of experimentation: not the scientific method of "controlled experiment, classification, [and] analysis," but a means to structure inquiry into "ill-defined, ill-structured, or 'wicked' problems" that had to be clarified through an iterative process of prototyping, testing, and revision (Cross, 1982, p. 224).

The generalization of 'design'

Archer and Cross were working in established design fields, and their reflections were addressed to established design institutions, practices, and pedagogy. Beginning in the early 1980s, another group of professionals began to look to design for tools and concepts that they could employ in domains outside the traditional purview of design. These professionals—many of whom were not trained as designers—were generally located in consultancies, design firms, and technology companies, where they were addressing issues such as branding, product development, and user interfaces (Reese, 2002). By the early 1990s, a number of these professionals began to write explicitly about design as a generalized practice for formulating and proposing resolutions to wicked problems.

For these theorists and practitioners, a pragmatist concept of "experience"—often explored through explicit discussion of pragmatist philosophers (such as John Dewey) and contemporary thinkers who have taken up the pragmatist tradition (such as Bruno Latour)—gained a new centrality in defining design and design methods.[8] Thus, in the influential volume *Design at Work,* Joan Greenbaum and Morten Kyng (1991, p. 15) wrote in reference to the design of computing systems that the "design process" is "firmly rooted in experience," and required tools for "examining the context and paying close attention to the situations in which computers will be used." Here, experience did not refer to interior and subjective states. Rather, it referred to what the management scholar and design theorist Richard Buchanan called the "concrete interplay and interconnection of signs, things, actions and thoughts" (Buchanan, 1992, p. 20) in a particular situation. Experience, thus defined, came to serve simultaneously as a field of concern, a description of what the design process aimed to produce, and a kind of test—what Michel Foucault called a "site of veridiction" (Foucault, 2008, p. 32, p. 32)—through which a design could be assessed. On the one hand, Buchanan argued, since design had "no special subject matter of its own" and was "potentially *universal* in scope," the designer had to "discover or invent a *particular* subject out of the problems and issues of specific circumstances" (Buchanan, 1992, p. 16). On the other hand, design ideas, whatever form they took, would be "developed and tested by experience" (ibid., 13).

This orientation to experience as a site of veridiction was closely tied to an aspect of design that had been implicit in Archer and Cross but now gained new significance and centrality: the essentially collaborative nature of design as an approach to exploring and formulating wicked problems. Elizabeth Sanders, an anthropologist and experimental psychologist who contributed to the development of participatory design methods, thus referred to users as "direct contributors to the product development process" and to the designer "as the 'enabler' of the design process" (Sanders, 1992, p. 53). The aim of participation or collaboration was to structure an argumentative process of specifying a problem and shaping possible resolutions. Thus, Buchanan argued that the design process was a means of generating "deliberation and argument" among various participants in a design problem. Importantly, in contrast to contemporaneous discussions of participation in city planning (see below), Buchanan's conception of deliberation and argumentation was not primarily linguistic or rational. It did not aim to arrive at either a consensus among participants, on the one hand, or, on the other hand, to identify a "technological 'quick fix' in hardware." Instead deliberation and argumentation were part of an iterative process of modeling and testing "new integrations of signs, things, actions, and environments that address the concrete needs and values of human beings in diverse circumstance." Their aim was conceived in pragmatist terms: to contribute to "adequate solutions" to the "inherently *wicked problems* of design thinking" (Buchanan, 1992, pp. 20–21).

This definition of design around the category of experience corresponded to a generalization of design—beyond traditional object-oriented fields—and to an expansion in both the methods of design and the scope of their application. Designers increasingly incorporated

[7] Although Archer does not cite "Dilemmas" the source is clear. During Rittel's time at Ulm the two exchanged ideas and research and Archer was engaged with Rittel's work (Gruendel, 2020).

[8] On design and pragmatism see Gruendel (2022).

practices from the social sciences, such as ethnography and focus groups, to enlist various stakeholders (installers, assemblers, manufacturers, engineers, public officials, and administrators) into design processes. At the same time, designers extended their practices to new fields such as development and humanitarianism (Schwittay & Braund, 2017), private sector management (Boland & Collopy, 2004), and public administration (Bason, 2010; Junginger, 2017).

The mutation in design traced in this section allows us to make sense of the discourse and practice of public sector design. Consider the description of Christian Bason, who is particularly explicit about the goals and modalities of this approach. Invoking Archer and Cross, Bason refers to an "essentially 'designerly' [way] of working" (Bason, 2017, p. 148) on problems of government that are complex, involve a range of goals and values, and cannot be definitively formulated at the outset. He argues that public sector design grounds governmental decisions and processes in particular situations and lived experience, writing that the design process "[helps] uncover what would actually benefit people by grasping the world from their perspective, emphasizing what they do, [and] the context they do it in" (Bason, 2010, p. 161). And he emphasizes how practices derived from studio methods—"models and sketches, also stories, media and enactments"—make it possible to "envision a desired future state of affairs." Designerly practices of modeling, Bason argues, make it possible to "rehearse the future" (a phrase borrowed from the design researcher Joachim Halse, 2010Joachim Halse, 2010), thus "making future scenarios sufficiently tangible for managers, staff and end-users to enter into dialogue with them" (pp. 41, 148).

At the same time, Bason's reflections diverge from those of prior designers in a crucial respect: in contrast to Archer, Cross, and Buchanan (but like Rittel and Webber) Bason is centrally concerned with "experience," "collaboration," and "participation" as they relate to questions of democratic politics. Bason thus characterizes the design process as one that involves "interaction and decision making among the actors involved in a collective problem" (Bason, 2017, p. 79). The process of identifying and assessing policy options can be "co-designed through an interplay between policy makers at different levels of the governance system, interest and lobby groups, external experts and, not least, end-users such as citizens or business representatives themselves" (p. 81). The value of public sector design, for Bason, reaches beyond "productivity and outcomes" to also include "democratic elements such as participation, empowerment, transparency and accountability" (p. 168). What can we make of Bason's claim that "democratic elements" such as participation and transparency are at stake in design processes? And what, to take things from the other side, are the governmental problems—particularly in cities—that design methods and designers are being mobilized to address? To address these questions, we turn to a parallel thread in our genealogical analysis—related to city planning and urban administration.

City planning: design and urban politics

In its inception in the late 19th century, city planning was closely tied to the design fields of architecture and landscape architecture.[9] The field's central concern was physical planning of an "end-state"—whether an urban ensemble or an entire city or district—that was described in a master plan. Although its norms shifted from aesthetics to social improvement and reform in the first half of the 20th century, professional training in the field was studio-based (Alonso, 1986; Taylor, 1998, pp. 4–11). At this time, city planning was informed by a simplistic determinism, which posited that the built environment could shape social reality in the public interest (Webber, 1963, p. 233). By the 1950s, powerful internal and external forces were pushing the academic field of planning—and, in a distinct fashion, planning practice—to adopt the formal models and quantitative techniques of the post-war systems sciences, with the aim of developing rational approaches to both the object and process of planning (Taylor, 1998, p. 60). Scholars have cited various reasons for this development. Among these were: an effort to bolster the prestige of an emerging academic city planning field; the demand for expert analysis generated by government expenditures on housing and transportation; and the attempt to redress the limitations of the discipline's environmental determinism through more complex and rigorous causal models (Alonso, 1986, pp. 60–67).

Initially, more formal and quantitative approaches built on traditional conceptions of city planning as end-state planning and of the planner as maker of urban futures and arbiter of public values—as, for example, in urban redevelopment projects (Beauregard, 1989, p. 383). The authority of planning and the planner simply shifted. The experience and judgment of the designer or reformer was bolstered, or replaced, by the impersonal authority of the rational planner and decision maker. But this model of technocratic authority was itself undermined, or at least transmogrified, in the complex conjuncture in which Rittel and Webber's writings of the 1960s were situated. Urban uprisings and resistance to redevelopment policies were accompanied by growing skepticism of both rationalistic techniques and the master planner as demiurge of spatial form. Demands for citizen participation multiplied, and veto points were installed in processes of planning, permitting, and building. The project of urban redevelopment ground to a halt in the US and other countries, and the transformative, future-making project of planning was widely proclaimed to be in crisis (Alonso, 1986, pp. 66–7; Harvey, 1989, p. 89).

In some respects, these developments in city planning during the 1960s and 1970s parallel the story about design traced in prior sections. In both cases, postwar attempts to replace designers' judgment with rationalistic approaches to both the object and process of planning or design were called into question. And in both cases we find a concern with expanding the range of actors involved in planning or design processes. But following the disciplinary tumult of the 1960s, these fields parted ways in striking fashion. As we have seen, influential design theorists and practitioners reaffirmed their field's identity as a practice of "manipulat[ing] the qualitive," and sought to rethink the studio, the model, and other aspects of design as an integrative and future-making endeavor.

Planning moved in an entirely different direction. A tendency toward formalization and quantification continued, though in contrast to discussions of "rational planning" of the 1950s and 1960s—which presumed that overall planning processes could themselves be rationalized—it was increasingly focused in specialized sub-fields such as transportation, housing, and environmental planning (Beauregard, 1989, p. 383). Meanwhile, the politics of both the object and process of planning became a consuming preoccupation, as the field focused on restoring the legitimacy of planning and urban administration by grounding it in democratic will and concerns for social justice (Taylor, 1986, p. 85). One indication of this turn is the influence of Arnstein's (1969, p. 116) account of participation, which diverged both from Rittel's account of the involvement of experts and non-experts in an "argumentative" process of planning and from designers' conception of a collaborative process of form-giving. For Arnstein, participation meant including "have-not citizens, presently excluded from political and economic processes," with the goal of effectuating a "redistribution of power." Influential concepts in planning often sought accommodations between specialized expertise and authentic politics. Krumholz' (1982) "equity" planner was an unapologetic partisan who marshalled technical analyses to advance the interests of disadvantaged groups. In a different vein, Innes' (1995, p. 186–7) account of planning as communicative action cast the planner in the role of developing "critical or

[9] Our account primarily refers to the US (see Taylor, 1998 for comparative perspective) and to evolving practices of end-state planning that emerged from the American city beautiful movement (which initially focused on the layout of city centers and civic districts). See Alonso (1986) on the centrality of this movement and of studio practices to early American city planning.

emancipatory ways of knowing that are designed to get past the embedded power relations in a society" through "innovative, stakeholder-based, consensus-building processes" (see also Taylor, 1998, pp. 122–125).

The crucial point is that the orienting norms in these approaches—consensus and participation, power and equity—generally referred to linguistic communication and to abstract notions of justice. They were remote from a studio-based, form-giving and future-making endeavor. According to Alonso, the studio, which had been central to end-state planning at an earlier moment in the history of city planning, became "vestigial" as it was "squeezed by both the soft and the hard social sciences, and its emphasis on physical design came to seem suspect and outdated" (Alonso, 1986, p. 64; also see; Taylor, 1998, p. 160). Planning practice, according to Beauregard (1989), "underwent centrifugal disintegration" and "the common object of interest—the city … was lost." As Appleyard and Jacobs (1982, p. 6) explained this development, city planning had become "too immersed in the administration and survival of housing, environmental, and energy programs and responding to budget cuts and community demands to have any clear sense of direction with regard to city form." These developments in planning took shape alongside but should be distinguished from what Harvey describes as postmodern design—which was primarily the purview of architects, confined to privately-led redevelopment projects, and largely divorced from broader social objectives (Harvey, 1989).

The return of design and "urban responsibility"

In recent decades, the relations between urban government, planning, and design seem to be shifting again. Proclamations of crisis and deep pessimism about cities and city planning, according to Barnett (2018, p. 12), have been at least partially displaced as urban processes are seen not just as "sources of problems but also as sites of opportunity and potential." Design is playing a distinctive role in this new moment of "urban optimism." As Cowley (2018, p. 5) observes, design has emerged as one means to fill "the gap left by an ongoing collapse of the faith in modernist planning within what is widely narrated as a deepening 'crisis of trust' in liberal government and public institutions." [10]

It is crucial to keep in view the various practices and understandings of "design" that have gained prominence in this new context. A number of design-based approaches that emerged in the 1980s and 1990s have brought back into focus what Beauregard called "the common object of interest"—the city—through their concern with spatial layout and urban form, the distribution and function of "green" spaces, and the design of streets. In many cases, the impetus for these approaches came from outside—or from the margins—of city planning: the reorientation of urban design toward experience (e.g. Appleyard & Jacobs, 1982); the emergence of novel approaches to spatial planning in the New Urbanism (Congress for the New Urbanism, 2000) and Transit-Oriented Development (Calthorpe, 1993); and the renewed centrality of landscape design in city planning (Gandy, 2006). These diverse design approaches concerned with specific substantive areas are interrelated with, but should be distinguished from, a more recent and still tentative development: the growing importance of practices and understandings developed in public sector design in formulating and proposing solutions to wicked problems.

Both dimensions of design appear in initiatives like the Rebuild by Design (RBD) competition and the East Side Coastal Resiliency Project (ESCR), the exemplar introduced at the outset of this article. Rebuild by Design and the ESCR certainly involve new ideas about urban form, incorporating elements such as multi-functional green infrastructure and multi-use spaces that integrate transportation, recreation, and housing. But we also find in them practices and concepts that emerge from the genealogy of design in government we have traced. Rebuild by Design did not approach post-disaster reconstruction as a well-parameterized task, such as rebuilding a particular damaged facility or protecting a specific vulnerable area, according to a strict calculus of cost and benefit. Instead, reconstruction was approached as a multi-dimensional challenge of adapting to climate change by bolstering "resilience"—itself understood as a complex of issues, including urban adaptation to climate change, social marginalization, and improved urban experience. It was up to project teams to constitute this ill-defined issue *as* a problem, that could be addressed through specific interventions.[11]

The process for identifying and developing proposals for the ESCR and other Rebuild by Design projects involved multi-disciplinary teams and elaborate processes to enlist participants with various forms of specialized knowledge—from engineers and landscape architects to local activists. Models, renderings, and simulated interactions in co-design sessions were employed to generate an "experience" of potential design elements, such as park amenities, uses of public space, surface treatments, and circulation plans. This experience of possible futures was meant to serve both as an input to detailed planning and as a way to understand what people living in communities around the project want and what they value. The proposal that resulted from this design-based process was not presented as a mono-functional, optimal solution. Instead (think here of Archer's watch) it was presented as a multi-functional intervention that combines heterogeneous attributes. Information about some attributes could be gleaned directly from "users." Others required the input of technical specialists or elected officials who indirectly represented public interests. These attributes corresponded to multiple kinds of collective benefit and multiple scales at which such benefits might be realized. The flood barrier system will protect a large area of the Lower East Side, which contains infrastructure that is vital to all of Lower Manhattan—even to the metropolitan region as a whole. At a smaller scale, neighborhoods immediately surrounding different parts of the flood barrier gain access to a redesigned park and system of circulation along the East River waterfront (Collier & Cox, 2019).

In sum, the ESCR allows us to understand the recent migration of design practices into government as the return to and reactivation—in new circumstances—of a fundamental problem that Rittel and Webber formulated in the 1960s and 1970s amid the crisis in modernist urban planning. Namely, how, in a democratic polity, the elements of a transformative and future-making project to address large-scale and complex collective issues could be reconstructed. The final section of this paper stays with the exemplary case of the ESCR to examine the kinds of politics and the kinds of collectivity (at what scales, how composed, etc.) that are at stake in public sector design and other forms of design in government.

The politics of design in government

In the years since the Rebuild by Design competition was organized, and the ESCR was proposed, critical scholars have generally looked skeptically at these ambitious design-based attempts to plan for urban adaptation to climate change. One dominant line of argument, which echoes but updates Harvey's analysis of postmodernism (today analyzed under the master concept of "neoliberalism"), is that these initiatives support ongoing processes of urban accumulation. Thus, Natasha Iskander (2018) argues that the ESCR maintains a "political, economic, and physical status-quo," building an "ordinary if costly piece of infrastructure" behind which "the city will be able to hum along as usual, with the value of real estate continuing to rise, and with the poor and middle class continuing to face displacement from the expensive heart of Manhattan." Ros Exo Adams (2014, p. 133), meanwhile, claims that

[10] Similarly, Fishman (2012) analyzes the new urbanism as a response to the "urban crisis of the 1970s and 1980s."

[11] See Elliott-Ortega (2015) on the connections between Rittel and Webber's work on wicked problems and Rebuild by Design.

what is at stake in these projects is a "familiar neoliberal capitalist trope of defend and develop … leveraging governmentally sanctioned infrastructure funding and legal mechanisms to ensure large-scale, low-risk private investments in a changing world climate."

In light of this broader diagnosis, critical scholars argue that in projects like the ESCR design functions as what Cynthia Weber (2012, p. 283) refers to as a "mix of techno-rationality and aesthetics" that purports to be "apolitical," even while it promotes a very specific political agenda—and precludes more radical political possibilities. Thus, Iskander (2018) argues that the formalized processes of collaborative design in the ESCR turned "the everyday ability to solve a problem into a rarefied practice, limited only to those who self-consciously follow a specialized methodology."[12] Adams contrasts the community engagement in the ESCR and other Rebuild by Design projects—in which participation was carefully planned and in important ways circumscribed—to the kind of community that "manifested itself spontaneously" in the mutual aid strategies of the Occupy Sandy movement. Arguing that the latter, purportedly more authentic community "naturally threatens government," Adams (2016, p. 187) claims that design practices in RBD negate "such communitarian bonds." As Dawson (2019, p. 265) puts this argument, while such projects "gesture toward participatory planning … their overwhelming emphasis was on technocratic, postpolitical, and even machine-driven forms of management of the city."

We set aside the important questions that these scholars raise about the role of designers in defining basic parameters such as the organization of participation and the scope of any given project (though we return to both issues in the case of the ESCR below[13]). Here, we turn instead to a different issue, namely, the model of politics that underpins such assessments of contemporary design in government. These scholars criticize design to the extent that it presents a specialized methodology that simply reprises, in a different guise, the old role of the authoritative expert—purportedly apolitical, unaccountable, propped up by the authority of professional status or impersonal truth—and ultimately forecloses more radical and directly democratic forms of politics. This critical account of politics resonates with arguments based on radical democratic theory (e.g. Swyngedouw, 2018) that pose a stark choice between deliberation and decision making in the institutionalized routines of government (politics) and what are taken to be more fundamental forms of antagonism and contestation (the political).[14]

On one level, critical scholars' arguments parallel those made by the practitioners and theorists of design in government (ironically, since these scholars are criticizing design in government). As we have seen, advocates of public sector design are preoccupied with the limitations—and dangers—of excessive technocratic authority and urge forms of decision making that include a wider range of participants. The key difference between these two groups of observers lies in the alternative models of politics and procedures of decision making that they imagine and (in the case of designers) endeavor to construct. Critical scholars have sought alternatives in authentic forms of agonistic politics or democratic will. By contrast, as we have suggested, theorists and practitioners of design in government are engaged in a reconstructive project. This project aims to restore the conditions of possibility for future-making interventions that address the issues of complexity, interconnectedness, and scale that pervade modern government. By giving this reconstructive moment its proper weight, we can extract from the genealogy we have presented—reaching back to Rittel and Webber's formulations about wicked problems—an alternative way of critically assessing projects like the ESCR: in terms of the process through which collectives are assembled and decision-making processes are orchestrated.

Technics, politics, and critique

So what exactly was Rittel and Webber's position on the accommodation between expert truth and modern democracy? In both their separate work and their collaborations, Rittel and Webber shared some ground with critics of the right (like Schelsky) and the left (like many American city planning scholars and many critical scholars today), who were preoccupied with the specter of what Webber (1969, p. 277) referred to as a "tyranny of technocrats," and argued for more direct democratic control over plans and planning. Rittel and Webber's aim was certainly to pare back the excesses of technocratic power where, for example, experts had made unwarranted suppositions about desired social ends, or claimed that their knowledge could master complex systems that in fact eluded them. But they were equally concerned with identifying the proper role for various kinds of experts and expertise, which they understood to be essential to modern government, given the scale and complexity of the problems it faced. This did not mean simply redrawing and strictly enforcing a line between politics and expert truth, in which goals are derived from a process of democratic will formation and experts play a "merely" technical function in selecting optimal means to meet these goals, thereby foreclosing political debate. Indeed, as we have seen, they proposed using expert practices—such as forecasting and benefit-cost analysis—to generate discussion, argumentation, and even contestation around planning and decision-making processes. Technical expertise was essential but had limits, and its relationship to democratic demands had to be reimagined.

In symmetrical fashion, Rittel and Webber also maintained that direct democratic control over and input into planning and policy-making had limits. Rittel was particularly explicit on this point. He argued that as governmental problems spanned ever larger distances—both spatial and "cultural"—"planning for others" became impossible "unless these others participate in the planning process" or even "plan for themselves" (Rittel, 1972c, p. 233). He insisted, moreover, that "nothing in the spatial planner's education or experience makes him an expert on how other people should live" (Rittel, 1967, p. 16). Planners were consequently "dependent on the expertise" (here referring to specialized, contextual knowledge of various sorts, c.f. Collins and Evans, 2007) "of those who are affected by [their] plan." But direct democratic control could not address the problems of scale, interconnectedness, and complexity that modern planners inescapably faced. In part, this was a pragmatic matter. The formulation and solution of collective problems required too much time and too much specialized knowledge for any citizen to be intimately involved in, or be a competent judge on, every issue. As Rittel put it, "you cannot participate in the street lighting …, and in the garbage collection, and in the traffic plan … and in the reorganization of the national economy …" (Rittel, 1972c, p. 233). It was also a matter of the very nature of preferences and values. Citizens might not know what they want until presented with concrete choices or opportunities to reflect upon embodied experience. Moreover, increasingly diverse publics could never be adequately represented through participatory mechanisms as there was no way to activate publics at a scale, or at the multiple and overlapping scales, that corresponded to the scope and interconnected character of wicked problems. "It is very hard," Rittel posited, "to demarcate those who might be affected …. Everybody can say he is affected directly although he is geographically some distance from the place" (ibid., p. 234). Direct democratic control, like expertise, had both its proper place and its limits, and could not offer solutions to complex problems unfolding at

[12] Iskander refers to this "rarified practice" as "design thinking." This term has come to refer to formalized (and, in the view of critics, rigidified) methodologies developed by prominent consultancies. These methodologies diverge from the original understanding articulated in Cross and Buchanan (Kimbell, 2011), and as Carlgren et al. (2016) argue, cannot be taken as exemplary of diverse design practices in decision-making and planning.

[13] See also the analyses in Schwittay and Braund (2017) and in Collier et al. (2016).

[14] See Barnett (2017) for a critical assessment of this aspect of radical democratic theory.

large scales.

In sum, Rittel and Webber were working to establish a double limitation, in response to two kinds of excess: the excessive power of technical experts, and excessive demands for direct democracy. But their aim, ultimately, was not only to establish limits but also to lay the grounds for reconstruction, a project that might be best defined—in juxtaposition to the position of the critical scholars discussed above—as a *critique* of governmental rationality.[15] By seeking out a proper role and jurisdiction of both expert truth and direct democratic control in government, they sought to reconstruct procedures for dealing with complex, large-scale problems. Certainly, one needed participation, and one needed people to "plan for themselves" in some cases. But one also needed mechanisms of representation and delegation. Similarly, one needed specialists in particular subject matter: engineers, landscape architects, transportation specialists, and so on. Moreover, one needed that particular kind of specialist—not exactly a recognizable "expert" in any classical Weberian sense—who knows something not about a particular subject matter but about "guiding the process of dealing with a wicked problem," as Rittel (1972a, p. 394) put it, and could act as what Webber referred to as the "formulator of the procedural rules that will foster more effective deliberation and argumentation" (Webber, 1978, pp. 9–10). Their critical project might be characterized as *the design of politics*, understood not in terms of the formation of an authentic democratic will, but as the concrete process through which diverse participants—experts, members of various publics, and other stakeholders—formulate, work on, and argue about common problems. In this conception, politics is the gathering of collectives around particular issues in particular situations, and the formulation of problems and resolutions that are debated, revised, and either implemented in some form or abandoned, as a well-defined problem is turned, as Rittel put it, back into an issue.

Rittel and Webber's project does not, of course, offer a key to understanding contemporary design in government in every instance; the purpose of genealogy is not to find essence in origins—just the opposite. What genealogical analysis may do is offer a different way to ask questions about the political stakes of contemporary governmental forms. With our proposal to analyze design in government as the design of politics in hand, then, we return again to the Lower East Side and the ESCR, which we are now in a position to situate in relation to the arc of our genealogical and historical account.

The design of politics

The Lower East Side exemplifies many of the developments we have traced in this article. It is, first of all, a central example of imperious modernist planning in the United States. After World War II, vast swaths of the area were cleared to make way for master-planned public housing blocks and a highway that runs along the waterfront. It is also one of the most important early scenes of resistance to such projects, as citizens mobilized in the 1960s—and, in subsequent decades, continued to mobilize—to halt city redevelopment projects, and to insist on their right to determine the area's future (Angotti, 2008). This tradition of resistance produced an impasse in urban planning and development that persisted for half a century, as in the repeated, successful mobilizations to block a succession of projects that sought to remake the waterfront.

Against this background (and following the "event" of Hurricane Sandy, which turned climate adaptation into a widely accepted imperative), it is striking that in the ESCR a design-based process managed to re-establish the conditions of possibility for moving forward with a large-scale redevelopment project. It did not do so by establishing unaccountable technocratic rule or curtailing participatory mechanisms. Rather, it orchestrated a process involving technical experts, elected representatives, and citizen groups, employing specific techniques—models, renderings, interactive maps—through which "argumentation" was organized. The result was a particular patterning of technical "solutionism" and collaborative problem-solving, centralized control and community engagement, expert authority and argumentation. This variegated governmental form corresponded to a particular logic of political scale—a calibration of decision-making arrangements to the spatial extent of problems. Those elements of the project that operate at larger scales—the reduction of infrastructure vulnerability and flood protection for neighborhoods in Lower Manhattan—were not considered extensively in the participatory design process but conformed to engineering specifications for flood protection at larger scales. Meanwhile, the process of participation and co-design focused on elements that primarily affect local residents, and that do not have significant externalities, most notably the park design, waterfront access, and flood barrier treatments (Collier & Cox, 2019).

The acceptability of these arrangements need not be assessed by referring to political-philosophical first principles or by searching for authentic expressions of democratic will (a search that would be disappointed—that will, indeed, always be disappointed). Instead, we can ask, more pragmatically, whether in this particular situation they made possible a way of addressing governmental problems that garnered consent if not consensus, without foreclosing the possibility of dissensus. Over decades of activism, community groups had grown suspicious of perfunctory participation that served only to push through plans that had already been decided upon. Interviews with community organizers suggest that they saw the iterative adjustment of plans in relation to "arguments" and "counter-arguments" in the co-design process as a sharp departure from this history (Collier et al., 2016). "You know what [the designers] went through?", reflected Damaris Reyes, a local activist who had spearheaded previous resistance to city-led redevelopment projects. "To have meetings with the community, hear, change it again and be ready to come back again, wanting to get more feedback and change it again. And then when they came back, you could see reflected in the design what the community was saying. You could just see it. They wanted to know what we wanted, and they wanted to know that they would deliver what we wanted." This does not mean that the design process foreclosed contestation, or that it will deliver on its promises. "[L]et's say," Reyes speculated, after the project had been turned over from the design team to the city, and carefully wrought plans were thrown into doubt, that "in the next phase the design was going to be completely different, and if all of a sudden it went from a berm to these ugly floodwalls, we would go crazy. Then we would fight this project to make it stop" (Reyes, 2018, p. 236). What was "designed" here, in short, was a particular procedure for planning and deliberation that moved things forward, for a time, while remaining open to argumentation and struggle.

Our aim is not to valorize this project of design in government or to pass judgment about its success in a particular case. It is, however, to establish the pertinence of analyzing design in government *as* the design of politics in rendering comprehensible and historically intelligible certain parts of our contemporary reality, and in bringing into focus a particular conception of the political "problem" of city planning and urban administration that it may allow us to formulate—both as practitioners and as critical scholars. This analysis suggests that, following Clive Barnett (2017, p. 279), we should evaluate the politics of design in government by analyzing "the ways in which democracy's meanings emerge in the course of political action." How is participation organized? How does it relate to non-participatory mechanisms (delegation, representation, or expert decision)? Does it offer ways forward when planning and administration have run aground in addressing urgent problems? Does it garner meaningful agreement among parties affected

[15] The genealogy of design is thus part of what Foucault called the genealogy of critique (Collier, 2017; Folkers, 2016). Our argument for identifying both a reconstructive and a "critical" possibility in contemporary design in government is consistent with—and, perhaps, gives more content to, and genealogical perspective on—Bruno Latour's argument about design as a "cautious Prometheus" (Latour, 2011).

by it?

These questions can never be answered through comforting recourse to expert truth, democratic will, or authentic community participation as *foundational* principles, even if the more pragmatic demands of each remain inescapable. As Andrew Barry has put this point, one of the "persisting circumstances" of contemporary politics is that "common decisions have to be arrived at" in the "absence of 'rational' justification" or definitive adjudicatory criteria (Barry, 2002, p. 270). A challenging corollary of this view, he suggests, is that, while critical scholars have been most comfortable questioning a lack of adequate democratic voice—and denouncing excessive combinations of truth and power—we must also be attentive to the "*excess* of politics," the "overproduction of dissensus," and the "over-valuation of the political."[16] Barry helpfully reformulates the demand for democratic politics in this light: not that "every issue should be made a political issue" but that every issue can be "political in principle." The question of "whether to make something a political issue" for collective deliberation, contestation, and decision, and *how* to do so, "is a matter of judgment" (Barry, 2001, p. 7). Today, one procedure for arriving at such judgment is the "activity known as designing."

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[16] The original reads "over-evaluation" but the author confirmed that, given the context, "over-valuation" was intended (personal communication).

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