The Politics of Urban Experiments: Radical Change or Business as Usual?
Andrew Karvonen, James Evans and Bas van Heur

Abstract
Experimentation is increasingly being promoted as an alternative to 'urbanization as usual' with cities serving as laboratories for radical change. Policymakers, designers, private companies, and third sector organizations are initiating one-off activities of innovation to trial various future visions of local economic development, social cohesion, environmental protection, creative sector expansion, policy evolution, infrastructure provision, academic research, and so on. The rhetorical power of the experiment has the ability to hypnotize urban stakeholders by making them feel as if they are a party to cutting edge innovation as it unfolds on the ground. However, these activities also reinterpret and reframe the trajectories of contemporary urban development in ways that are often unrecognized.

In this chapter, we examine the drivers, pressures, and interests involved in the recent rollout of urban experiments using insights from science and technology studies, environmental governance, and political economy. We look specifically at how the concept of 'experiment' has emerged in urban debates about ecology and resilience, climate change governance, and socio-technical transitions. The novel and indeterminate character of experiments provides a refreshing alternative to the standard policy mechanisms of urban sustainability but these experiments are often couched in the dominant urban agenda of neoliberal economic growth and tend to privilege those actors who align with this particular perspective. We conclude that the allure of experiments has the potential to open up cities to new modes of governance but there is a pressing need to understand the politics of experimentation in order to unlock the radical potential of these activities.

Introduction
When Jean-Francois Mayet was elected mayor of the French city of Châteauroux in 2001, he inherited a mass transit system that was functional but under used by residents. The city, located about halfway between Paris and Bordeaux, had collective aims that were similar to other medium-size cities in Europe: to reduce the city's ecological footprint while improving the local economy and fostering a more equitable society. Instead of drafting a new regional transit plan, upgrading and enhancing the existing bus system, or devising regulations and incentives to encourage residents to use mass transit more frequently, Mayet made a simple yet radical decision: make the transit system free and monitor the results. Within a year, ridership had increased by 81%; after ten years, the average number of annual trips per resident had tripled. Lost revenues were negligible as bus fares only covered 14% of the total system expenses. Meanwhile, the benefits of reduced traffic and exhaust emissions, reinvigorated local businesses, and lower transportation expenses for low-income residents were significant and widespread. Châteauroux is now viewed as a 'canary in the coalmine of transportation policy', Mayet has been feted as one of the most popular mayors in France, and his 'experiment' in free local transit is now being duplicated in other cities such as Aubagne, France and Tallinn, Estonia (Grabar 2012).

The above example of instigating radical change in an urban system is quickly becoming the norm in cities that are pursuing improved urban futures. Alongside conventional processes involving long-term planning and investment to regenerate hard and soft infrastructures, urban actors from the public, private, and third sectors are undertaking experiments to reduce their carbon footprint, encourage local economic development, foster community cohesion, and so on. Experiments are attractive because they are provisional, risky, and dynamic. The allure of the experiment lies in its ability to be radical in ambition while being limited in scope. The potential of experiments to operationalize the often generic, abstract and long-term oriented visions of sustainable development explains their recent emergence as a favored mode of governance. By design, experiments have a high risk of failure but also high rates of return if they are successful. Experiments feed on attractive notions of innovation and creativity (both individual and collective) while reframing the emphasis of sustainability from distant targets and government policies to concrete and achievable actions that can be undertaken by a wide variety of urban stakeholders. When they work, urban experiments rewrite a local or regional development narrative as evidenced by well-known success stories such as the novel public space of the High Line in New York City, the bus rapid transit system in Curitiba, Brazil, and the progressive planning agendas in the Swedish city of Malmö and the Germany city of Freiburg.

But what exactly do experiments do and how do they reframe the notion of sustainable urban development? Do they provide a viable alternative to conventional modes of urban development or do they simply repackage change in the appealing rhetoric of innovation? Do experiments replace long-term, comprehensive planning with incremental, one-off interventions or do they aggregate into new modes of urban governance that can harness innovation effectively?

In this chapter, we argue that the rise of urban experimentation in the pursuit of more sustainable urban futures has a combination of positive and negative implications. We begin by reflecting on the role of experiments in the development of the contemporary urban ideal and how this resonates with post-positivist theories that embrace uncertainty, contingency, and open-endedness. Experiments suggest recursive learning as a key component of enacting different urban futures. We then examine how the notion of experimentation has been deployed in recent scholarship on urban ecology and resilience, climate change governance, and socio-technical transitions. While experimentation as a mode of urban change is certainly not a new concept, its application to sustainable urban development promises new modes of engagement, governance, and politics that simultaneously challenge and complement conventional strategies that involve masterplanning, regulations and incentive programs, awareness raising campaigns, and so on. Experiments are frequently portrayed as beneficial to cities as a whole while sidestepping troubling issues about who is doing the experimenting, who is being experimented on, and who is being left out. We conclude by arguing that experiments, and their attendant visions of more sustainable urban futures, are not inherently positive activities in cities but carry politics just like any other urban development strategy. As such, there is a need to develop a politics of experimentation that can open up cities to more radical agendas of change.

The Drive to Experiment in Cities
Urban experimentation is not a new phenomenon; cities have always been experimental (Evans 2011; Bulkeley and Castán Broto 2012a; Karvonen and van Heur 2013). The Chicago School of the 1920s is perhaps the most obvious historic example of experimentation in cities, with Robert Park and colleagues conceptualizing Chicago as a vast living laboratory for *in situ* social science research (e.g.,

Park 1929). However, the evidence of urban experiments goes back further, even if the vocabulary of 'experiment' and 'laboratory' was not explicitly used. The nineteenth century origins of the modern urban ideal are founded on a wide array of indeterminate interventions such as the rollout of large-scale infrastructure networks for water, wastewater, electricity, and communications; the emergence of local and regional government bureaucracies for public health and safety, economic regulation, taxation and spending; and the introduction of new technologies such as elevators, automobiles, and flush toilets. These interventions were not based on carefully devised and executed strategies but rather were part and parcel of a raft of open-ended, trial-and-error activities that in aggregate produced the contemporary city. From this perspective, experimental urbanism is the norm rather than the exception; experiments are how cities change and evolve over time.

Today, the notion of experimentation resonates with the emphasis on uncertainty found in a variety of post-positivist theoretical trajectories such as post-structuralism, pragmatism, Mode 2 Science, transdisciplinarity, applied innovation, and knowledge co-production (see Gibbons *et al.* 1994; Nowotny *et al.* 2001; Ramadier 2004; Benneworth 2010; Evans and Karvonen 2011). Latour (2001, 2004) has characterized contemporary social change as 'collective experimentation' and Beck (1995) has used the notion of the 'global experiment' in his highly influential risk society thesis. With respect to cities, experimentation is often promoted as an antidote to the modern ideal of rational and comprehensive planning models. Advocates of experiments share the belief that the 'modernist dream of total control' is unrealistic and instead, it is necessary to embrace the 'unpredictable and unplannable nature of cities' (Evans 2011: 224). Put another way, experiments embrace the messiness and contingency of policymaking and urban development (Meadowcroft 1999, 2009). But this raises vexing questions. How can experiments serve as the catalyst for urban change while also existing outside of rational and comprehensive planning models that dominate urban development today? Are experiments part and parcel of urban development processes or do they somehow stand outside of these processes? To answer these questions, it is helpful to consider how experiments are advertised and what they actually do.

The appeal of experimentation lies in its promise to harness *radical contingency* in the service of urban development. Urban stakeholders are continually faced with unexpected events, chance occurrences, and a general sense of uncertainty about how to act in a precarious and uncertain world (Karvonen and van Heur 2013). Experiments are open-ended interventions; they come with both substantial risks as well as rewards. Real world experimentation is founded on the idea that we are compelled to act despite vast uncertainties and gaps in knowledge (Callon *et al.* 2009). There is a need to embrace complexity, fluidity, and unanticipated outcomes (see Guy 2012). However, Gross provides a cautionary warning in using the notion of experimentation in highly metaphorical and imprecise ways. He argues that in many cases experimentation 'comes to have the same meaning as development, complexity, interconnection, globalization and so comes to mean the same as virtually anything that is subject to change' (2010: 66). Similar to sustainability, the notion of experimentation can quickly be evacuated of meaning and serve as a conceptual 'garbage can' for anything and everything related to change and development. Cutting through the grandiose claims of promoters of experiments is the first task in analyzing how experiments change cities.

Elsewhere, we have argued that it is useful to understand experimentation as an activity that 1) involves a particular arrangement of instruments and people, 2) is designed to induce change in a controlled manner, and 3) includes the subsequent measurement of these changes (Karvonen and van Heur 2013). The importance of experiments is not in the intervention itself but in the assembling of human and nonhuman actors, the observing of change, and the applying of the knowledge gained to

other locales. In other words, the value of experimentation is in controlling and steering innovation. As Gross and Krohn (2005: 77) note, '[t]he experimental nature of society, understood in this way, changes from an evolutionary process […] into an institutionalized strategy which includes all kinds of political, cultural, or aesthetic components.' This paradoxical notion of *institutionalizing experimentation* is what sets the contemporary activities of experiments apart from experiments in previous decades. It is precisely this moment that generates both the potential to operationalize sustainable development more widely and the danger of capture by neoliberal development strategies.

Institutionalized experimentation uses a mode of knowledge generation based on *reflexivity* with continuous reflection, assessment, and readjustment (Voß and Kemp 2006; Grin 2006; Stirling 2004; Meadowcroft 2007, 2009). Meadowcroft (2009: 323-4) writes that the emergence of reflexivity 'is especially important in relation to sustainable development because of the broad reach, normative foundations, and multi-layered uncertainties with which this idea is associated.' The idea of reflexivity is also closely related to the notion of *recursive learning* (see McFarlane 2011a, 2011b). An experiment is proposed and conducted, the generated data is collected and analyzed, and this is fed into urban policy, leading to further experimental activities (Evans and Karvonen 2013). This feedback loop of data collection, analysis, and application resonates with the increasing centrality of knowledge flows to urban development.

The emphasis on institutionalization also fits with contemporary notions of sustainability and sustainable development. The evolution of sustainability over the last three to four decades, specifically with the Brundtland Commission in the late 1980s and the subsequent iterations of Agenda 21 and Local Agenda 21 in the 1990s and 2000s, have followed a surprisingly conventional trajectory with respect to politics, policies, and governance. This is evident in the current sustainable development discourse in cities today that is largely dominated by market-based approaches of neoliberal management (Keil 2007, Swyngedouw 2007, While *et al.* 2009). Rather than drawing inspiration from the various social movements of the 1960s and 1970s, or alternative models of living such as self-sufficiency, appropriate technology, no-growth economics, and back-to-the-land communities, sustainability is largely devoid of progressive potential (although exceptions do exist with respect to a variety of community-based initiatives, see for example Hopkins 2008, North 2009, Pickerill and Massey 2009, Seyfang and Haxeltine 2012). In other words, the theoretical implications of sustainability are radical because they challenge contemporary ontological and epistemological assumptions about the world but sustainability in practice tends to adhere to more traditional modes of change. From this perspective, experiments provide an attractive storyline of radical change that is enticing to progressive sustainability advocates while simultaneously feeding into and supporting neoliberal interpretations of sustainable development.

Experiments also share with contemporary sustainable urban development agendas an emphasis on the local scale (see Marvin and Guy 1997, O'Riordan 2001). The local character of experiments runs counter to trends towards globalization and champions the particular and the local rather than abstract universal conceptions (Luke 2009). One of the appeals of experiments is that they produce knowledge 'in the real world' and 'for the real world' (Evans and Karvonen 2013). The tangible quality of experiments gives them value and traction in instigating change by focusing on a particular place and a particular set of circumstances. This frames the city as the key scale for framing experimental knowledge production (Hodson and Marvin 2010). Of course, while the ethos of experimentation is broadly aligned with contemporary discourses of sustainable urban development,

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the societal and political implications of staging and linking up multiple experiments remain largely unexplored.

Experimentation as a Sustainable Urban Development Strategy
Reviewing the current deployment of 'experimentation' in the pursuit of improved urban futures would be a daunting task due to the plethora of activities that have been or are currently being undertaken. Instead, we find it helpful to look across three discourses of sustainable urban development where experiments play a significant role: ecology and resilience, climate change governance, and socio-technical transitions. We explore how each operationalizes sustainable city discourses in concrete projects that control and steer experiments through particular types of disciplinary and policy knowledge and techniques. In each of these discourses, we find that experiments are defined, institutionalized and enrolled into neoliberal development schemes in a variety of different ways while sharing the same vocabulary and normative goal of enacting radical change.

Ecologizing the City
Experiments are a common trope in the work on urban ecology and resilience (Evans 2011). Urban ecologists embrace the messiness of cities and the inherently bound-up character of people and their material surroundings. Ecological resilience maximizes 'the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity and feedbacks' (Walker *et al.* 2004: 5). The core guiding principle here is that natural systems are characterized by disturbance rather than stability. While markedly different from the non-urban ecosystems typically studied by ecologists, resilience makes intuitive sense in relation to urban environments that are characterized by high frequency, high magnitude disturbance events. Using resilience to think about the city as a complex adaptive system clearly resonates with wider currents in urban thought that emphasize contingency and complexity. As a result, the idea of resilience has gained considerable traction amongst urban ecologists and practitioners as a way to capture the dynamic interplay of natural and social processes.

If resilience suggests a new way to understand the world, then adaptive management provides its operational component. Seeking to increase the ability of a system to adapt to change by building the capacity of the actors involved to understand and learn, adaptive management proceeds through an experimental mode of governance. In stark contrast to standard management that focuses on simply administering policy diktats, the adaptive approach views 'policies as hypotheses' rather than answers and requires experimental interventions to test them (Berkes *et al.* 2003: 433). Real world experiments serve to elucidate potentially fruitful courses of action in the face of uncertainty about how to progress (Evans 2011, Karvonen 2011, Karvonen and Yocom 2011). The iterative model of learning is central to the adaptive management approach, as experiments are designed, monitored and then (at least in theory) used to inform a new round of policymaking. It is perhaps no surprise that the adaptive approach of resilience and its experimental method of proceeding have become popular with policymakers and urban practitioners in environmental management.

Experimentation in urban ecological resilience projects involves the establishment of interventions that are closely based on biological and ecological principles, monitoring their performance, and then interpreting the results. These interventions frequently involve water and energy flows as well as biodiversity. They are valuable because they materialize innovation; they are not conceptual models on a computer screen or in a natural science laboratory but rather interventions in the real world. A significant challenge of these experiments involves establishing a route to inform urban policy, which

in turn has driven an increasing emphasis on partnership building and political networking Indeed, in contrast to rural and wilderness settings, crowded urban environments pose considerable challenges to ecologists seeking to stage experimental interventions (Evans, 2011). This has encouraged ecological research teams to become highly embedded into the governance networks of the cities in which they operate. Urban ecological experiments thus imply a form of knowledge production that requires close links between the experimenters and existing institutional actors, shifting conventional understandings of what counts as expert knowledge in urban decision-making (Brand and Karvonen 2007, Karvonen and Brand 2009, Ernstson and Sörlin, 2012). The ecologization of urban governance directs our attention towards not only the question of who is included and who is excluded from these experiments, but also by extension to the implications of a mode of urban planning that is increasingly primed to make decisions based upon the resultant knowledge (Evans, 2011).

Governing the City

Experiments are also significant in the dialogue on climate change and urban governance (Evans and Karvonen 2011, 2013, Hoffmann 2011, Bulkeley and Castán Broto, 2012a, 2012b, Bulkeley *et al.* 2012, Castán Broto and Bulkeley 2013). While much of the emphasis of climate change has focused on the global scale and the formation of multinational treaties, Hodson and Marvin (2007: 303) argue that the climate change agenda is reinvigorating a need to 'cultivate new techniques of governance' for urban sustainability. Experiments are a crucial element in 'shaping how individuals, communities, cities, counties, provinces, regions, corporations, and nation-states respond to climate change' (Hoffmann 2011: 8). In the arena of urban climate change governance, experiments are comprised of those activities that reside outside of well-established policy channels. They are intended to reinvigorate and stretch traditional avenues of governance to face the multifaceted challenges posed by a changing climate.

In their study of 100 global cities, Castán Broto and Bulkeley (2013) identified 627 climate change experiments that they categorized and catalogued in a database organsed around five sectors of mitigation (urban infrastructure, built environment, transport, carbon sequestration, and urban form) and one of adaptation. They argue that climate change experiments 'are central to the ways in which mitigation and adaptation are being configured and contested' (Bulkeley and Castán Broto 2012a: 2). A broad range of strategies is identified in their study, from landfill gas capture to water conservation measures and from alternative energy supply systems to carbon sequestration programs. In this context, experiments provide opportunities to innovate, learn, and gain experience with the particular challenges posed by a changing climate; they are strategies for introducing new forms of intervention in a variety of urban spaces (Bulkeley and Castán Broto 2012a; Castán Broto and Bulkeley 2013).

Beyond their novelty, climate change experiments are intriguing because of their promise to restructure urban stakeholders into new configurations. The researchers found that climate change mitigation and adaptation activities resulted in novel partnerships between public, private, and third sector organizations and argue that these partnerships are 'opening up new political spaces for governing climate change in the city' (Castán Broto and Bulkeley 2013: 93). The experimental agenda is then an activity to align the aims and agendas of different urban stakeholders into a shared low carbon trajectory with the experiments themselves as a means to trial these new partnerships. However, it is important to consider the extent to which this shared trajectory is shaped by dominant interests or can be considered to be something new.

Furthermore, an important characteristic of climate change experiments is their 'publicness'; these activities are an opportunity for influential urban stakeholders to reinforce their remit to govern (Bulkeley and Castán Broto 2012a). By demonstrating that they are taking action on climate change mitigation and adaptation, the experimental actors strengthen their role as arbiters of urban development. This emphasis on the public aspects of experimentation resonates with the notion that experiments (whether scientific, urban or otherwise) are always social engagements (Shapin and Schaffer 1985); they are undertaken to persuade the public in various ways (similar to iconic architecture projects and local branding strategies). The very act of conducting an experiment, regardless of whether it is a success or failure, legitimizes the activity of experimentation as well as the experimenters (Barry 2001, Reno 2011, Karvonen and van Heur 2013).

Transitioning the City

A third interpretation of experiments in sustainable urban development can be found in the socio-technical transitions literature. Focusing on technologies, transitions scholars use a multi-level perspective that involves niche (micro), regime (meso), and landscape (macro) levels of change (Hodson and Marvin 2010). Experiments occur in specific niches or environments that are protected from conventional political and economic pressures (Kemp *et al.* 2001, Geels 2002, 2004, 2005, Hoogma 2002, Smith *et al.* 2005, Geels and Schot 2007) but these activities only become valuable when they align the micro, meso, and macro levels to create a pathway to alternative urban futures. The appeal of the transitions approach and in particular the multi-level perspective is that it explicitly aims to analyze the role of experiments in societal transformation and the institutional environments in which experiments are situated.

One advantage of this approach is that it acknowledges that radical experiments are often constrained by their context. Regimes in the transitions literature are relatively stable configurations of institutions, organizations, practices, techniques, and beliefs that structure technological development, deployment, and use. Niche experiments are therefore often strongly shaped by these broader regimes to the extent that the radical potential of many niches is diluted in the process of its institutionalization. To popularize and gain wider support for the niche experiment, niche actors often align their visions and practices with those of more powerful regime actors such as large energy firms, regional governments, and local business communities. The transitions literature has demonstrated that these assemblages of power are the result of path dependent processes leading to a particular type of socio-spatial fix (Coenen *et al.* 2012). In such an environment, incremental innovations are more likely than radical innovations.

At the same time, niches continue to hold promise for radical experimentation because they can exert pressure on regimes, ultimately leading to the transformation of the latter. This can be the result of new developments on the landscape level – such as the debate on sustainability or the discussions on peak oil and the need for alternative sources of energy – as this creates opportunities for particular niches to promote and institutionalize their own visions of sustainable transition. To characterize this tension between regime reproduction and transformation, Smith and Raven (2012) make a useful distinction between 'fit and conform' and 'stretch and transform' empowerment. 'Fit and conform' empowerment produces innovation that leaves the regime selection environment untouched and actually adapts to this regime. This can be highly disempowering from the perspective of sustainability as '[t]here is always pressure for sustainable innovations to become competitive on the more narrow economic, technological, organizational and other criteria of existing markets, compared to the broader sustainability values that might originally have motivated the innovative effort' (2012: 1030). In contrast, 'stretch and transform' empowerment undermines regimes by creating

opportunities for wider participation in political debates. When looking at the current proliferation of urban experiments in cities across the world, only a few manage to achieve this state of 'stretch and transform' empowerment as progressive linkages between the niche experiment and the wider environment are underdeveloped.

The sustainability of niches ultimately depends on the upscaling from local niche experiments to more institutionalized sustainable regimes and intermediaries that link niche actors with regime members are key (see Guy *et al.* 2011). Cities and city regions are important in this context as they constitute a scale at which we can observe an agglomeration of social, political, and economic actors that can enable but also obstruct the emergence of sustainable niche practices and the translation of these practices in sustainable government policies and business strategies. Although tacit knowledge exchange through informal and face-to-face interaction between actors from different organizations and backgrounds takes place on multiple scales, many of these exchanges and networks are localized on the urban scale. This localized type of institutional thickness, as Coenen and colleagues (2012: 974) rightly argue, explains why some but not all places develop a regional innovation system that successfully 'results in the emergence of a common sense of purpose, shared expectations or vision around a widely held agenda for regional development'.

Emancipation through Experimentation?
The sections above demonstrate how experiments are being deployed in different ways to redirect urban development processes. However, a missing element in the above discourses is that they rarely address the *politics* of urban change, a critique that mirrors a longstanding concern amongst sustainable development theorists that the radical potential of sustainable development and sustainability has largely gone unrealized (Gibbs and Krueger 2007, Meadowcroft 2009). Reflecting on the political implications of urban experiments, Hodson and Marvin (2009) note that these activities are often financed by corporate actors that frame sustainable innovation in ecological, technical, and economic terms while overlooking the social and contextual aspects of urban change. While and colleagues (2004, 2009) note a similar pattern in approaches to carbon management in cities (and sustainable urban development more generally) that have been largely subsumed by economic development interests. They note that 'the reality is that sustainable development has been transformed into an ideology and it is widely criticized for being co-opted within neoliberal modes of governance' (While *et al.* 2009: 76).

This is also the case with the majority of urban experiments wherein contingency is closed down rather than opened up, hindering the more radical potential of innovation. In their analysis of climate change experiments around the globe, Bulkeley and Castán Broto (2012a: 13) find that 'experiments are often vested with particular interests and strategic purposes in the governing of the city'. The new partnerships that are forming around low carbon urbanism often reproduce existing power geometries that reinforce climate change governance as voluntary and market-orientated (Hoffmann 2011). This blunts the emancipatory, radical potential of experimentation. In other words, it is clear that the capacities of experimentation are not evenly distributed amongst urban stakeholders (Hodson and Marvin 2009, Evans and Karvonen 2013) and the publicness of urban experiments does nothing to address this. Local experimentation advocates often have a specific subset of the public in mind and frame the parameters of experiments accordingly. Experiments are often advertised as being progressive but in reality they tend to reinforce existing power structures and differentials. In this way, experimentation is surprisingly unreflexive and fails to challenge existing modes of governance.

But all is not lost. Amin and Thrift (2002: 4) advocate for a new type of urbanism, one that involves 'a set of potentials which contain unpredictable elements, as the result of the co-evolution of problems and solutions.' Urban experiments would appear to be an ideal approach to identify and realize this new set of potentials. Experimentation attempts to open up the evolution of cities to new ideas and configurations through place-based innovation while also embracing uncertainty and risk as constructive drivers of urban development processes (Karvonen and van Heur 2013). In a similar vein, Evans (2011: 233) notes that 'the central role afforded to experimentation in current manifestations of urban sustainability undoubtedly offers up a potential space for more playful or insurgent political engagements with urban infrastructure and material form.' And Bulkeley and Castán Broto (2012a: 7-8) argue that 'experiments could provide grist in the urban mill, creating conflict, sparking controversy, offering the basis for contested new regimes of practice.'

To realize this, there is a pressing need to establish agendas for experiments that directly challenge urbanization as usual. Experiments are not simply about the pursuit of novelty but about fundamentally altering the way that urban development is done in a particular place. The transformative potential of experimentation does not lie in a series of one-off experiments where knowledge gleaned is fed into existing policy mechanisms, but in establishing a process of governance that challenges and disrupts the status quo by re-orienting policy and planning around inclusive innovation and learning activities. If we begin to understand experiments in cities as urban politics by another means (Evans and Karvonen 2013), then the challenge of experimentation is to go beyond the existing constellation of actors and develop more participatory agendas that can imagine significantly different urban futures.

The recent emphasis on social or grassroots innovations as a counterpart to technological innovation (Seyfang and Smith 2007, Seyfang 2010, Seyfang and Haxeltine 2012) is a promising first step towards more radical forms of experimentation as are ideas about civic environmentalism (Karvonen 2011, Karvonen and Yocom 2011), just sustainability (Agyeman and Angus 2003, Agyeman 2005, Agyeman and Evans 2006), the right to the city (Mitchell 2003, Harvey 2006) and deliberative democracy (Dryzek 2000, Meadowcroft 2004, Luke 2009). Experiments can enhance these agendas by complementing protest-based orientation with generative partnerships to realize demonstrable changes on the ground. But it is important not to simply revert to an understanding of experiment that serves as a catch-all for any alternative urban development or policy. Realizing what the preceding section characterizes as a 'stretch and transform' approach whereby more insurgent, radical and emancipatory activities are allied to continuing to formal urban development is a significant challenge to advocates of urban experimentation. An important first step when reviewing an existing urban experiment or instigating a new experiment is to ask who is being served by urban experiments and how the relations between the state, private, and public actors are being conceptualized and reoriented through experimentation.

Conclusions
In this chapter, we argued that experimentation is increasingly being promoted as an alternative to 'urbanization as usual' with cities serving as test beds for radical change. Examining how the concept of 'experiment' has emerged in urban debates about ecology and resilience, climate change governance, and socio-technical transitions suggests that the allure of experiments has the potential to open up cities to new modes of governance, but there is a pressing need to develop a politics of experimentation to unlock the radical potential of these activities. To date, urban experiments, similar to the discourses of sustainability and sustainable development, has largely reinforced rather than reoriented existing power geometries. Urban experiments are all too often enrolled in standard

neoliberal urban development strategies rather than serving as alternatives to it, with the result that urban experiments on the whole exhibit the paradoxical qualities of promising radical change while practicing business as usual.

This is not to say that the emancipatory potential of urban experiments is unfounded, but rather that too often it remains just that in practice; potential rather than reality. We argue for a 'stretch and transform' model of transformative urban change whereby the formal power of urban partnerships to intervene politically and materially in the city is allied to the alternative visions that often flourish in urban subcultures as it is in these interstitial areas that more radical experiments often emerge (van Heur 2011). That these positions most often take the form of local resistance to corporate development agendas directs our attention towards the challenges of what we might term the 'governance of experiments', whereby more fundamental changes to the way in which urban politics and development takes place are required. Perhaps the most important task for scholars studying urban experiments is to assess their potential to substantively change existing modes of local governance, as it is only when this is achieved that experiments can go beyond 'business and usual' and realize radical change.

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