

INVENTING FUTURE CITIES

Michael Batty
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illustrations, maps. ISBN: 9780262038959*

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In his recent book Michael Batty discusses how, and to what extent, the future of cities can be foreseen. Paradoxically, the book opens with a statement that the future cannot be predicted – which is appropriate given Batty’s premise that cities should be approached as complex systems. Indeed, one of the book’s strengths is that it introduces the notion of complexity - and applies it to urban change - in an accessible and practical way: it is not necessary to be a systems theorist or a data analyst to follow the book’s argument and to understand why unpredictability does not preclude planners, geographers, students or practitioners from thinking through how cities may evolve as communication and transport technologies develop.

The book is divided into eight chapters. The first sets out Batty’s argument about predictability and complex systems, encapsulated by his statement that one cannot predict future inventions. The unpredictability of invention – if inventions were predictable they would hardly be inventions – is at the heart of his contention that the long-term future is unknowable. This message is qualified by the suggestion that certain smaller-scale and shorter-term processes can (by-and-large) be predicted, and that this can help in understanding and managing cities. In the second chapter the problem of long-term predictability is shown to be further compounded by the recent acceleration of change, particularly in terms of population size and the rapid transition from an essentially rural to an essentially urban world.

What is meant by ‘city’? This question is addressed in chapter 3, a chapter that asks a basic but often over-looked question. It succinctly sets out the challenge of conceptualising and of identifying cities, which increasingly overlap, merge, and which are constituted of networks inter-twined at various scales. This theme is picked up again in chapter 4 where the question of urban form (i.e. the physical lay-out of cities at a meso-scale) is discussed. Batty’s contention is that identical forms can house different functions: it is misleading to read function from form or to assume that as functions change (e.g. as the economy evolves, as mobile communications become ubiquitous) so urban form will necessarily follow. To make this argument, the chapter marshals historical evidence of different ways urban form and function have been understood and projected over the last century, with particular emphasis on how the form of cities responds to changes in transport and communication technologies: as many flows critical to cities become

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dematerialised, so the connection between city form and function distends.

The next three chapters are thematic, each focussing on a key element that may impact the way cities evolve in the 21st century. Chapter 5 focuses on Big Data – the role it can play in cities and how it can measure their ‘pulse’. Michael Batty is a leading expert on data and cities: this chapter provides accessible insight into the meta-conclusions he draws from his empirical research. Whilst data can increasingly be used to measure flows and locations in real-time, Batty suggests that these data may not alter cities as decisively as certain smart-city proponents anticipate: the data are often error-prone, incomplete, biased, not tied to individuals, private and scattered. This does not mean they cannot be useful in managing traffic flows or in tracking goods and passengers, for instance, but does mean that the realisation of a fully managed and monitored city (based on Artificial Intelligence learning from vast amounts of data) is unlikely. Chapter 6 focuses on the physical expansion of cities, outwards (towards the suburbs), upwards (skyscrapers) and inwards (brownfield development and densification) and on how these different types of expansion relate to travel and communication technologies. In the final thematic chapter, Smart Cities are discussed directly: the concept is defined, and Batty argues that plans for the smart city are “no different from any other kinds of grand plan” (177) – i.e. they are unlikely to be fulfilled, though they will orient – to some extent – how cities develop. This chapter, which situates smart cities in the wider discourse of technological change, ties together the two previous thematic chapters and draws upon the conceptual thinking about form and function set out earlier. In conclusion Batty discusses what he means by ‘inventing the city’, and how the future of cities can usefully be apprehended given the uncertainty that governs complex systems.

This excellent book is both fascinating and (slightly) frustrating. It is frustrating because it unabashedly views the city as a physical artefact. Batty writes (161) that “the approach to cities we have adopted here is sometimes called “physicalism”, a kind of materialism, even positivism” : although the phrase appears in chapter 6, it applies to the whole book. The book is about the morphology of cities, their layout, their infrastructure, their form, and how these may evolve *ceteris paribus*. *Quod ceteris paribus?*¹ Climate, the environment, politics, social relations – these are hardly mentioned (though their omission is acknowledged in the last chapter). Throughout the book I was wondering about the rise in extremism, riots in Hong-Kong, floods in England, heat-related deaths in Chicago – these, too, will impact the future of cities. Furthermore these are also human (re)inventions or the consequences of inventiveness – not so different from smartphones and the internet-of-things. Whilst I was reading *Inventing Future Cities* I was also reading Richard Harris’ *Second Sleep* (2019), a thriller set in the medieval-type society that emerges after catastrophic failure of 21st century communication devices: Michael Batty’s book assumes that no such catastrophe will happen, and that technologies will evolve unpredictably but apolitically without backlash or city-altering environmental consequences.

Related to this morphological take on cities, the book’s argument is underpinned by an assumption that may raise some eyebrows, viz. that cities are built from the bottom up, that, as complex systems, their form emerges from an almost infinite number of uncoordinated individual decisions. This implies that planning is bound to fail, and that structures are emergent, not thought-through or imposed. This assumption – which has merit and can usefully

serve to understand many urban processes – excludes the possibility that politics, agency, social movements and, of course, urban planning can shape cities. As such, this assumption – presented as self-evident by Batty - is somewhat tendentious: unlike isolated complex systems in physics and biology for which it is safe to assume that politics and urban planning play no role, it is incorrect to assume these away for cities. Indeed, given the neo-liberal trope about government being ‘a bad thing’, assuming that cities are only built from the bottom up can carry political overtones. Whilst it is undeniable that cities are not solely shaped by politics and plans, and that these are probably less influential than their proponents like to believe, plans can be effective at inflecting and channeling trends and at altering urban morphology to some extent.

Finally in the list of (slight) frustrations is Batty’s adoption of five guiding principles (15-17): i) Zipf’s “iron law” of city size distribution; ii) the paradox of the modern metropolis, attributed to Glaeser, whereby physical proximity is becoming more important as the costs of travel and communication diminish; iii) the effects of information technology and the internet of things, which allow urban form to be examined and influenced by way of shorter and shorter feedback loops; iv) the geography of population distribution being dependent upon transport technologies (a principle attributed to HG Wells); and v), Tobler’s Law, that near locations exert a stronger influence than locations father away. These principles are useful heuristic devices, and cannot be fully explored in a short and accessible book: yet none are self-evident, and all can be debated. I’ll just give two examples: 1) Glaeser’s paradox is far too general – there is considerable evidence (e.g. Amin & Roberts, 2008; Bathelt & Gibson, 2015) that temporary travel and web-based communities (each facilitated and mediated by communication technologies) can obviate the need for physical proximity *for some activities and for some people*; 2) Tobler’s law may be of little consolation to Tuvalu islanders, whose way of life will soon disappear because of climate change induced thousands of miles away by industrial development in the global north (Roy, 2019). The five ‘laws’ are merely regularities which brook important exceptions.

So, why, despite these frustrations, do I highly recommend this book? The book is fascinating precisely because it adopts a circumscribed physical and bottom-up view of cities, and does not challenge some well accepted (though questionable) generalisations. By deliberately omitting political, social and environmental considerations, and by avoiding debates over accepted wisdoms, it addresses practical questions that designers, researchers, students, city planners and administrators face today without getting mired in academic debate: Michael Batty remains focussed and has picked his battles carefully. As a foil to techno-utopian² visions of driverless cars, fully automated cities, seamless communications and universal data acquisition – such as Google/Sidewalk labs’ vision for its Waterside development in Toronto³ – he provides an informed, nuanced and thoughtful evaluation of techno-utopianism, debunking some of its more extravagant claims on its *own terms*.

He explains in accessible language and without polemic what the potentials and limits of new urban technologies are, and, more importantly, how no amount of prospective thinking can map out the long-term future of cities: the future will be *invented* – partly, dare I suggest, by planners! – and cannot be *deduced* from current trends, technologies and utopias. Political economists, environmentalists and urban sociologists may find the book wanting: however, urban politics, climate change and social processes all occur in the material world

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described by Batty, all are influenced by the techno-utopian thinking that underpins smart-city plans, and all are in the difficult business of inventing future cities. Michael Batty has seized techno-utopianism by the horns, has knowledgeably assessed its empirical, technical and epistemological foundations, and has provided readers with a balanced, well-written and accessible demystification. The book's power lies in the fact that it informs current debates without backing a particular agenda: it provides logical, rather than ideological, arguments about the possibilities and limits of technology and artificial intelligence as they relate to the city, it carefully thinks through their likely effects on city management and physical development, and provides a useful set of concepts and evidence that will allow students, researchers and practitioners (as well as political economists, environmentalists and urban sociologists!) to think through these questions.

Notes

¹ “ceteris paribus” is a phrase used in economics meaning “all other things being equal”. “Quod ceteris paribus?” means “what other things remain equal?”

² This term is used advisedly: in chapter 4 Batty refers to other utopian visions of the city as developed by the Garden City Movement, modernists such as Le Corbusier, and pastoralists such as Frank-Lloyd Wright's.

³ https://storage.googleapis.com/sidewalk-toronto-ca/wp-content/uploads/2019/06/23135715/MIDP_Volume2.pdf

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