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Conceptualising smart cities

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Introduction

The central premise of Soe et al's paper, 'Institutionalising Smart City Research and Innovation', is that the notion of a smart city remains unclear, with several definitions existing within the literature, and that one way to determine the parameters of smart cities is to examine the foci and approach of research groups globally who study and contribute to the smart city agenda. However, in charting the work of 50 or so institutes and centres, the authors conclude that there is 'a mismatch between conceptualisation of smart city and actual smart city research' (p. 128). In other words, the framing of smart cities within the literature does not align with how centres and institutes approach and contribute to smart cities. Having reached such a conclusion, the solution to this mismatch is not clear. Presumably, the definition of smart cities needs to change to match that held by research centres and institutes, or they need to alter their focus to align more closely with the predominant delineation of smart cities. Regardless, examining how research centres and institutes frame and approach smart cities does not appear to be a good means of defining them. The key questions then, which are not examined or answered in the paper, is why does this mismatch exist, and what would be a better way of determining what constitutes a smart city? The latter assumes that the conceptualisation requires a non-fuzzy definition, which is also a question worth considering.

Why does a mismatch occur in the conceptualisation of smart cities?

The paper promises a 'systematic overview of who are the actual smart city research actors', arguing that '[u]nderstanding these actors can help to reason the smart city as a concept' (p. 113). In other words, 'smart city research can be conceptualised by understanding what smart city researchers actually do' (p. 128). The problem with this approach is two-fold. First, it assumes that examining the orientation and approach of research actors is a sound method to understand the concept of the smart city, as opposed to considering other key actors, such as policy-makers, politicians, industry personnel, think-tank specialists, journalists, activists and so on, or adopting a different approach entirely. Second, it assumes that the majority of smart city research takes place within academia within research centres and institutes, as opposed to research and development in industry, or research by independent academics and small teams. Moreover, it assumes that smart city research has particular characteristics – in this

case, a focus on urban big data, urban informatics, urban science, technology development, and applied urban research, rather than more critical social science.

To take the first point. There are different ways in which to define what constitutes a smart city. One is ontological, seeking to define the essential elements that compose a smart city. It does so by identifying what constitutes a smart city materially (infrastructures, systems, practices) and discursively (policy and strategies). Another is epistemological that defines a smart city through how it is approached and operationalised, for example through technocratic forms of governance, operational processes, and the application of cybernetics and urban science to city management. A third method is to undertake a bibliometric approach that synthesises how a smart city is defined within the literature and produces a meta-definition. Alternatively, one can delineate a smart city by examining the definitions, approaches and practices of the actors who claim to be producing smart cities. This is the method adopted in the paper, focusing on research actors. However, why privilege what actors do over examining the characteristics of a phenomenon, or how it is operationalised, or what has been said about it? The paper does not give a rationale. And if one is privileging actors, why prioritise the views of academic research actors?

There are many actors involved in smart cities. Indeed, there is an extensive multi-scalar advocacy coalition (partners who work in concert with each other to promote their agenda) and epistemic community (a network of knowledge and policy experts that share a worldview and a common set of normative beliefs, values and practices and help decision-makers deploy solutions to problems) in operation that seeks to drive a smart cities agenda (Kitchin et al. 2017). Globally, organisations such as the Smart City Council, TM Forum, and Open and Agile Smart Cities seek to advance the development of smart cities. These are complemented by initiatives at supra-national (e.g. the European Innovation Partnership on Smart Cities and Communities), national (e.g. All Ireland Smart Cities Forum), and local (e.g. Smart Dublin) levels. Why not examine how city administrators and technocrats (e.g. mayors, chief innovation officers, project managers, consultants, designers, engineers, civil servants), or industry actors, view smart cities? After all, these are key actors in terms of producing and deploying smart city visions, agendas, programmes and technologies in practice in cities. Or why not examine how lobby groups, consultancy firms, think-thanks, non-governmental organisations, political parties, funding bodies (e.g. government programmes, research agency, philanthropy), or civil society frame smart cities? These all produce smart city narratives designed to shape how the smart city is conceived and produced. These actors all have differing agendas and ambitions to university researchers.

In terms of the second point, even if there was a justification for privileging the conceptualisation of smart cities by research actors, are those working in research centres and institutions representative? A large proportion of smart city research takes place outside of the academy through industry research and development work, and in private consultancies that advise city administrations. Some of their research follows a similar approach and agenda to that conducted in academia, but it often has a quite different intention in terms of creating a commercial product or driving a particular political agenda. Within academia, a significant amount of smart city research takes place outside of research centres and institutes, conducted by individual scholars or small teams. This is particularly the case in the social sciences, where

funding for large-scale institutional funding is more constrained and targeted. Large-scale funding available to research centres and institutes is usually directed to particular approaches, often with an instrumental, technical and applied policy orientation. Research that is more fundamental, critical, political and sociological in its approach is more likely to take place outside of centres orientated to urban informatics, urban science and technology development. These critical research endeavours tend to view the smart city in quite different ways, drawing on critical urban theory and considering issues such as political economy (e.g. capitalism, neoliberalism, postcolonialism), governance, governmentality, citizenship, equity, social justice, ethics and social policy. Interestingly, none of these issues are discussed in the paper, despite a large literature (both academic and grey) that examines them in relation to smart cities. It is as if smart cities somehow sit outside of culture, politics, society and history. Perhaps funding agencies and research centres and institutes need to broaden their remits to include more critical social science.

Moving beyond smart cities

It is unsurprising that a mismatch exists between the conceptualisation of smart cities in the academic and grey literature and smart city research conducted within research centres and institutes (though not necessarily research conducted elsewhere in or beyond the academy). There are many different stakeholders, views and agendas at work in conceptualising smart cities. University research actors play a role, but they are not the primary players in delineating how smart cities are conceived and produced. More crucially, a focus on actors is perhaps not the best way to determine the parameters of a smart city. Examining the 'actually existing smart city' (Shelton, Zook, and Wiig 2015) – how the smart city is constituted in practice within places (their strategies, policies, plans, actors and coalitions, and deployed initiatives) – might be more appropriate. As is accepting that smart city conceptualisations are necessarily fuzzy. Smart city developments take place in a diverse set of local contexts that shape how they are conceived and produced. In India, the 100 smart city program is part of a political, nationalist development agenda (Datta 2018). In China, smart cities are a key aspect of their fast urbanisation, economic development and population management agenda (Chien and Woodworth 2018). In the UK, smart cities are about the marketization of city services and the further embedding of a neoliberal urban order, as well as creating exportable business opportunities (consultancy expertise and technologies) (Caprotti and Cowley 2019). In Germany, smart cities are about efficiency of urban governance and sustainable growth (Skou and Echsner-Rasmussen 2015). Hence, one would expect a large degree of variation and fuzziness in how smart cities are conceptualised. As Caprotti and Cowley (2019, 587) argue, there are 'varieties of smart urbanism'. As such, fuzziness is an inherently useful quality of the term 'smart cities' – it can be co-opted to serve different agendas. As the authors note, a tight conceptualisation would actually be unhelpful to a sizable proportion of smart city actors (including research actors). The political and neologistic nature of the term is perhaps also why so few centre and institutes include the term in their name – it represents particular values and will have a certain shelf life.

Personally, I would favour an approach of decentering the smart city to place the focus on cities and urban research per se (Kitchin 2021). Here, there is move away from reifying the role of technology in tackling urban problems (Gangadharan and Niklas 2019) and a recognition that the issues facing cities are not going to be fixed through technological solutionism, but a multifaceted approach in which technology is at best just one component (Morozov and Bria 2018). Addressing homelessness requires a complex set of interventions, of which technology might be one part, along with health care and welfare reform, tackling domestic abuse, and a shift in the underlying logics of the political economy (Eubanks 2017); it will not be fixed with an app. An intelligent transport system that seek to optimize traffic flow is not going to resolve congestion; it requires shifting people from cars to public transit, cycling and walking. In other words, a more holistic approach to urban issues needs to be taken, one that is cognizant that smartness might or might not be a means of addressing an issue. And when technology does have potential to be a solution it still needs to be implemented in conjunction with other kinds of interventions, such as social, economic and environmental policy, collaborative planning, behavioural change, community development, investment packages, multi-stakeholder engagement, and so on (Kitchin 2021). The focus of attention and research then needs to be urban issues and processes per se, not smart urban technologies in isolation.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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