

Foucault and the smart city.

Ding Wang^a

^aHighWire Centre for Doctoral Training, Lancaster University

*Corresponding author e-mail: d.wang4@lancaster.ac.uk

Abstract: This paper critically analyses the concept of the ‘smart city’, focusing on uncovering the formation of a Foucauldian smart city ‘discourse’. Smart city developments and policies might be seen to support new ways of imagining, organising and managing the city and its flows. Alternatively, it might be argued that they seek to impress a new moral order on cities by introducing specific technical parameters to distinguish between the ‘good’ and the ‘bad’ city. The ‘smart city’ discourse reflects knowledge/power and may be characterised as a powerful tool for the production of techno-centric rhetoric and narrative where urban and societal problems are rendered docile and amenable subjects to technology solutions. The paper is based on a series of ethnographic interviews with smart city experts and uses a Foucauldian analytical approach to offer a powerful and critical alternative perspective to enrich smart cities future thinking.

Keywords: Smart City, Foucault, Discursive Formation, Critical Thinking

1. Introduction

The expression ‘smart city’ has recently become a leitmotiv in the vision of future city and urban development. Meanwhile, the current smart cities concept can appear decidedly ambiguous, since it seemingly leaves its definition up to considerable interpretation. The ‘smart city’ appears predominantly as an efficient, technologically advanced, green and socially inclusive city, and has attracted increasing attention from academia, industry, and government. In this paper, I explore smart city narratives from a different, perhaps unusual, Foucauldian perspective to uncover its ‘discursive formation’ – that is to consider the ways in which the debate is framed. By providing another dimension in understanding the ‘smart city’, and offering a different set of perspectives to pin down the nature and essence of the ‘smart city’, I propose this unique approach in order to stimulate discussion on the relationships between technology, design and policy thinking, specifically focusing on future challenges in the smart city scenario.

Twenty-seven interviews were conducted with experts on smart city research and development, mostly from UK, and some others from the leading smart cities across the globe (Dublin, Barcelona, and Beijing). These experts were asked questions regarding their prior experience with the smart city, their understandings of what it means for a city to be ‘smart’, and what other potentials (i.e. policy, knowledge mobility and inter/trans-disciplinarity etc.) they’ve perceived in the smart city. This paper synthesises the responses collected throughout the research with the current literature and

discussion concerning the relative proximity of the smart city vision, thereby providing a critical reflection on both the notion of the 'smart city' and ideas about developments or smart city 'trajectories' (Neirotti et al., 2014).

This paper does not aspire to produce a total critique of the smart city, denying its utility theoretically. As Grudin and Poltrock (2012) formulate the issue: adopting a Foucauldian approach may, or may not, help to formulate testable hypotheses; but it certainly provides a vocabulary and a motivation for any debate on the 'smart city' and, in the process may contribute to design ideas and recommendations. Ultimately the ideas discussed in this paper seek to inform and impact any future thinking around smart city design and development.

2. The 'smart city': Adopting A Foucauldian Approach

I believe that the expert interviews suggest the value of adopting a Foucauldian 'archaeology of knowledge' approach (Foucault, 1989), by explicating some understandings, and misunderstandings surrounding the idea of the 'smart city'. In this section, I unpack aspects of the Foucauldian approach: focusing on introducing the notions of genealogy and discursive formation and indicating the relevance of the 'smart city' gaze idea; but omitting, for reasons of space, the consideration of the smart city as a 'heterotopia' (a social and physical space within which conflicting ideas are played out).

2.1 Genealogy way of thinking/archaeology of knowledge

Genealogy is a historical perspective and investigative method, offering an intrinsic critique of the present. It critically analyses and uncovers the relationship between knowledge, power and the human subject in modern society and reveals how the present has been shaped by historical forces. Foucault's genealogical analyses challenge traditional practices of history, philosophical assumptions and established conceptions of knowledge, truth and power; displacing the primacy of the subject found in conventional history and targeting discourse, reason, rationality and certainty. Genealogy seeks to illuminate the contingency of the taken for granted, to denaturalise what seems immutable, to destabilise seemingly natural categories as constructs and confines articulated by discourse, opening up new possibilities for the future, (which is particularly fitting for the conference and track theme – 'Design for next thinking'). However, it is not the search for origins, nor the construction of a linear development. Instead it seeks to show the plural and sometimes contradictory past that reveals traces of the influence that power has had on truth.

Archaeology of knowledge is a process for working through the archives of a society¹. It is concerned with 'the history of systems of thought' and the history of societal structures (or episteme in Foucault's terminology) that have produced and shaped the boundaries of knowledge, ideas, truths, representations and discursive formations. Archaeology as a method isolates and deconstructs components of accepted knowledge. It reveals the arbitrariness of interpretation and the ordered procedures that made discourses possible. Foucault's archaeology concerns contextualising and historicising notions of truth, knowledge and rationality. He examined the conditions of emergence, how and why a given society/era recognises certain things as knowledge, how and why some procedures are considered rational and others not. In short, genealogy and archaeology are two halves of a complimentary approach, alternating and supporting each other.

¹ E.g. parliamentary debates, prison records, chronicles, diaries, journals, logbooks, official records, grand theories, popular knowledge, subjugated knowledge etc.

In the smart city context, the core idea of ‘smart’ is often seen as a shiny new concept and the approach to the next of urban futures. In adopting the genealogical way of thinking, I contend that the smart city is neither new nor the only way to construct thinking around urban futures. Smart city discourse, in our perspective, is an assemblage of several pre-existing urban imaginaries. Given the character of the smart city concept is a collective of ideas and imaginaries around urban ‘smartness’, the archaeology of the ‘smart city’, therefore, needs to trace back various individual components that make a city ‘smart’. In so doing, I will be able to identify what is kept from each original imaginary that makes the smart city thinking ‘new’ and seemingly ‘inevitable’. If we map out the narratives and trajectory of ‘urban imaginaries’, and place the smart city discourse as the most recent phase, what we find is that this discourse emerged in the wake of the narratives of the sustainable/resilient cities and of the informational/intelligent city (Vanolo, 2013; Kitchin, 2014)². Our early research (Wang, 2016) has echoed this notion that the smart city is not a new invention but developed and evolved from previous research endeavours concerning urban development. On the one hand, there is the assertion in the smart city discourse that smartness stands for being good, healthy, and technologically advanced, therefore, the ‘smart city’ is intended as the ultimate goal for urban development projects. However, this is not a distinct urban promise that a ‘smart city’ intends, it is a shared promise that a ‘resilient city’ (Vale and Campanelle, 2005; Vale, 2007; Chelleri, 2012) and a ‘sustainable city’ (Satterthwaite, 1997; Haughton and Hunter, 2003; Bulkeley and Betsill, 2005, Jenks and Dempsey, 2005) have yet to deliver. On the other hand, the smart city discourse is used by the city managers and policy makers to support specific development strategies and policies. There are many links between neoliberal urban developments and smart city imaginaries: the construction of a clean, green and intelligent city image is in fact useful to attract investments, leading sector professional workers and tourists (Brand, 2007; Jonas and Whiles, 2007; Hollands, 2008; Kitchin, 2014). As Rob Kitchin, one of the leading smart city researchers put it:

“Nonetheless, this vision of the open smart city, whilst somewhat different in terms of how city governance is enacted and central technologies configured, still largely adhered to the core political economy of the initial vision of smart cities — that of neoliberalism, with states becoming smaller and increasingly reliant on companies, privatisation, and financialisation to deliver core services, those state elements that remain being configured and managed through business practices, and an emphasis being placed on market-led regulation and open economies. The route to sustainability, resilience, smartness is through the free market and capitalist economic development of a certain kind.” (2014)

The green/sustainable city and the technological/informational city have been, and still are, a powerful diegesis to justify and rationalise the political choices, generate alternative business models and trigger new economic paradigms which promises us the ultimate ‘smart city’.

2.2 Discursive formation

The smart city ‘discursive formation’ is a coherent discourse possessing common objects, concepts and arguments. According to Foucault, the components of a ‘discursive formation’ include: ‘surfaces of emergence’, ‘authorities of delimitation’, and ‘grids of specification’.

In our case, ‘surfaces of emergence’ point to specific discursive and institutional sites – conferences, exhibitions, magazines and books, where arguments about the ‘smart city’ have emerged or been re-

² Other examples of notions that smart city may have rooted from 1) which feature technology are tech cities, digital cities, cyber-cities, knowledge cities, innovation cities, intelligent cities, eco-cities etc.; 2) visions that centres neoliberal development includes entrepreneurial cities, competitive cities, innovative cities, sustainable cities, and creative cities. (Kitchin 2014)

configured. Smart city first became well known when it was first trade marked by IBM in 2008. However, when asked when and how these experts first got into the field of smart city, they provided to very different points in time where they first rubbed shoulders with the smart city idea. Some dated this back to their work with aging populations in South Korea in the 1990s and some described their project experience of creating the first model of connected business network in the north of England in mid 1990s. Another theme I noticed is that these experts tend to pin down the definition of smart city through its connection with other closely related concepts according to their disciplinary background. Due to the technological nature of the 'smart city', Internet of Things (IoT) has become central in defining and describing their understanding of smart cities. That means one major site for smart city research and development publications are IoT conferences, summits and journals or computing conferences with an IoT interest, such as Computing Human Interaction conferences in the USA and British HCI in the UK. The mixture and interplay of various disciplines has also produced new sites for smart city related debates and discussions such as Urban Informatics and Urban Computing. Meanwhile, the Smart City Journal has been around since 2013. Other major urban studies journals have been releasing special issues on the smart cities too. Even though the number of conferences and journals that welcome smart cities paper submission has been increasing, our experts have still expressed their frustration and concern with finding the "right" venue and site to publish and disseminate their works. In our observations there are at least two layers of complexity that are contributing to this issue. Firstly, considering the smart city is a relatively new subject and an arguably ill-defined collection of disciplines, the conferences and journals dedicated to the 'smart city' may not have the same level of influence, impact and credibility compared to other traditional sole-disciplinary journals. Furthermore, when researchers try to publish their work at conferences or with journals that have more significant recognisability, they might face some form of 'disciplinary' bias - despite academic commitments to 'interdisciplinarity'. For example, two of the experts who came to smart cities from an IoT background, both with established records within HCI conferences have expressed their frustration at the rejection of submissions exploring and commenting on the societal impact of smart technology. As one of them said:

"Because we didn't build anything, it's difficult to publish it."

This status quo has made it tricky for experts to find venues to publish in and thereby made it very hard for certain smart cities discourses to surface.

However, this does not prevent the experts I interviewed from being regarded as an 'authority of delimitation' in my analysis, and the ability of using their comments, publications and books etc. to define and shape the ongoing debate. One of the experts described his work as a "reminder" for smart cities projects and developers to keep the citizen at the heart of the enterprise. After years of speaking at smart city events, and publishing articles calling upon some kind of kindred spirit, he has finally noticed the discourse on smart cities has been shifting away from the technological determinist proposition at most recent smart cities events he has attended. As he put it:

"... the nutshell of the problem with the smart city that it is entire body of knowledge generated or operationalised by people who are deeply inclined to de-value deprecate or dismiss modes of knowledge or modes of truth that they are personally not comfortable with."

While this statement may seem negative, it captures the importance, capability and power of these experts, whether they are in support or sceptical about the smart cities. Power here is not only the product of active agents applying force and authority to the bodies of the subjects e.g. the 'smart city', but rather the product of discursive tactics of professionals (i.e. the 'smart city' experts) who

use scientific techniques and evidence to normalise social discourse— drawing the line between what ‘makes sense’ to say and what does not.

‘Grids of specification’, are the classificatory dimensions of a discursive formation, how it is, for example, related to other important ideas, in my case ideas about urban life, governance and citizen empowerment. During the analysis, the more I exposed myself to the smart city discourse and tracked the ‘smart’ narrative the more I recognised an increasing number of ideas that relate to smart cities. It is a growing taxonomy. There is a considerable amount of concepts that are clearly not, in essence, a smart city idea or a smart city concept, such as smart electrical grid and smart homes – but are often implicated in the debate on the smart city, particularly when the smart city is conceived in terms of data and information flows. Meanwhile, there are other ideas that whilst not sharing the explicit resemblance with the smart city are deeply intertwined with the discourse. While a smart city project is undergoing development, ‘government procurement’ (three experts referred it as problem based procurement) is one important grid, which is about how smart technologies have been/are purchased by the various level governments and made their way into the ‘actual’ smart cities. When a smart city development is facing the end (such as Open Glasgow project), ‘legacy development’ is often required to both analyse and evaluate a smart city project carried out. Both grids capture an important economical element of the smart city – the cash flow, i.e. how and where the funds for ‘smartness’ went and how effective the investments were. Meanwhile, due to the IoT nature of some smart city projects, some of the ‘grids of specification’ of IoT become also smart cities ones too, for instance ‘cyber security’ is often brought up and so is ‘trust and privacy’ in regards of the smart city design/development challenges.

Other relevant aspects of the smart city discursive formation would include the formation of ‘enunciative modalities’, (who is qualified to speak about a topic, and who is not qualified), as well as the formation of concepts, and argumentative strategies (for example the mixture of anecdote, history and philosophy offered by the experts in their interviews). One expert shared how their project has to rebrand non-smart community issues (i.e. issues does not involve any smart technology as solution) as ‘smart’ issues to allocate necessary funding for community groups to continue their engagement work. During the interview, I also observed that due to the nature of their work, position and responsibility, some of the experts have to adopt different (sometimes even contradicting) voices rather than their own.

In these interviews the participants reveal how a given set of objects and particular concepts such as ‘Internet of Things’ and ‘connected cities’ have been formed and shaped over time to become components of the ‘smart city’ discursive formation. As a particular way of talking about, of constructing, a topic – the ‘smart city’ – and its relations with other topics, such as technology, urban life, transport, information etc. – the discourse inevitably limits other ways in which a topic can be constructed – of what effectively it ‘makes sense’ to say. It is in identifying this ‘discursive formation’ that the merit of this paper and this approach can be found, and why an overwhelming ‘social science’ concern with the relatively small number of interviewees is somewhat misguided.

The current smart city discourse is still largely focused on the ‘hard’ technical aspects of smart city development such as ICT development and implementation as well as architecture. However, the discourse of the smart city is also experiencing some shift of focus towards the ‘soft’ side i.e. social perspectives ranging from citizen engagement to participatory design. Yet the political and policy side of the discussion in smart city development is still to be developed.

2.3 The smart city gaze

Another Foucauldian path I could follow is applying the concept of gaze. What according to Foucault a medic gaze would/could see is not simply 'out there' to be seen, rather it is a reality that's made visible. Gazing then refers to the 'discursive determinations', of socio-culturally constructed ways of seeing (Urry and Larson, 2011:2). It is a performance that orders, shapes and classifies, rather than reflects the world. People gaze upon the world through a particular filter of ideas, skills, desires and expectations, framed by social class, gender, nationality, age and education. In 'The Image of the City' (1960), Kevin Lynch by comparing Boston, Jersey City and Los Angeles, found that people perceive the city predominantly as a built image, which is consist of districts, paths, and landmarks etc. In turn, John Urry argued in 'The Tourist Gaze' (1990) that for most of us (tourists) the city is a (photo) graphic image. Hospers (2009) suggests the value of of Lynch's and Urry's work for urban marketing is how they demonstrated and crystallised the significance of city images i.e. its urban landscape for built objects and (pseudo) authentic attractions. During our interviews with our experts, when asked how they envision the future of cities whether smart or not, our experts offered various meta level imaginaries (such as future democracy, city as an artificial intelligence and change in city governing) rather than specific building or landscape features a smart city would have. Similarly, in earlier work (Thomas et al., 2016) my colleagues and I have considered how ordinary citizens (not experts) perceive the notion of the smart city and the proliferation of potential 'gazes' that might be produced to influence design and policy. However, the smart city gaze is beyond the scope of this paper but will be the pursuit of our future work.

3. Discussion

What can a Foucauldian approach offer us in terms of developing an understanding of the 'smart city'? A Foucauldian approach like all theories, as sets of propositions and/or concepts are, ideally, ways of describing, explaining and sometimes even predicting aspects of the world.

Halverson (2002) elaborates on what theories 'do' for a discipline or a field³; especially how a theory should have four essential attributes and most importantly how these attributes could make the knowledge from one field accessible and available across disciplines and fields. I intend to conclude this paper by adopting these attributions to justify the Foucauldian approach I have followed. The first power or attribution Halverson calls '*descriptive power*', which refers to a conceptual framework that helps us make sense of and describe the world. She notes how this can include both a description of the context and a critique of technology in that context. The Foucauldian discursive formation helped us draw out both the context – how the smart city discourse from absorbing features of other urban imaginary came into existence. Furthermore, how this nature of smart city discourse made it hard to pin down a universal definition and how it made possible for many technologies, disciplines and topics to rub shoulder with the smart city.

She continues to describe how a theory needs '*rhetorical power*' or the capacity to "talk about the world by naming important aspects of conceptual structure and how it maps to the real world". And in this paper, the genealogical and archaeological way of analysing assisted us to argue that from the shared 'important aspects' between the smart city discourse with other discourses (e.g. intelligent city, sustainable city, green city etc.) that the smart city is neither new nor unique. Though the smart

³ Halverson was comparing and assessing Activity Theory and Distributed Cognition in the field of Computer-Supported Cooperative Work (CSCW)

city does not exist to be an exact embodiment of any singular urban imaginary but a refined and updated collective of several rhetorics which makes it even more fitting, promising, and attractive.

She notes how this encompasses description to oneself and that a theory can have ‘*inferential power*’. In her own explanation:

“Without engaging in arguments about whether theories are true, or only falsifiable (Popper 1992), we do want a theory to help us make inferences. In some cases those inferences may be about phenomena that we have not yet understood sufficiently to know where or how to look. We may hope that inferences will lead to insights for design. Or we may want to predict the consequences of introducing change into a particular setting.”

And in this paper, the Foucauldian approach provided us great ‘*inferential power*’ to understand the smart city which none has claimed to have fully decoded. By introducing the Foucauldian way of thinking into the smart city discourse, I try to understand the features, unpack the discourse and describe it ‘better’ (or at least providing a counter perspective) so that the next design, development, research and policy decisions can be made with particular groups of people and citizens in mind. Moreover, this paper is an attempt to anticipate a future we are heading to with the current smart city discourse.

Halverson describes how a theory can have power in terms of “application” — that can be used to guide system design through describing the world at the “right level of analysis”. Bijker (2001) encapsulating my own approach to theory: “theoretically informed and empirically grounded insight.” Hence, in this paper I examine smart cities by mapping the empirical data against a Foucauldian theoretical framework, which provides us with a powerful tool for sense-making, a support for analytic work, in making more and different ‘smart city’ knowledge (rather than the technical ones) available for policy and design.

Together with the ideal type of the ‘smart city’; specific objectives, strategies, ideologies and political choices may be presented as ‘natural’ and ‘univocal’ approaches. Like any other urban development issue, the ‘smart city’ will trigger restructuring which in turn will produce subjects that are either included or excluded, visible or invisible, people who will benefit and people marginalised from the circuits of power (Holland, 2008). The risk is that the current thinking of the ‘smart city’ is often reduced to a single techno-centric vision of the next future city, and that this will not only hinder the vision of any possible imaginative urban development approaches, as well as restrict alternative solutions to the problems of the present and the next. This is why stimulating researchers towards alternative next thinking and critical debate is of particular importance.

References

- Bijker, W. E. (2001). The Need for Public Intellectuals: A Space for STS. <http://doi.org/10.1177/0162243903256273>
- BRAND, P. (2007). Green Subjection: The Politics of Neoliberal Urban Environmental Management. *International Journal of Urban and Regional Research*, 31(3), 616–632. <http://doi.org/10.1111/j.1468-2427.2007.00748.x>
- Bulkeley, H., & Betsill, M. (2005). Rethinking sustainable cities: multilevel governance and the urban politics of climate change. *Environmental Politics*, (June 2013), 37–41. Retrieved from <http://www.tandfonline.com/doi/full/10.1080/0964401042000310178>

- Chelleri, L. (2012). From the «Resilient City» to Urban Resilience. A review essay on understanding and integrating the resilience perspective for urban systems. *Documents d'Anàlisi Geogràfica*, 582, 287–306. http://doi.org/10.1007/978-3-642-29470-9_2
- Foucault, M. (1989). *The Order of Things: An Archaeology of the Human Sciences. A Companion to Foucault*. <http://doi.org/10.1002/9781118324905.ch3>
- Grudin, J., & Poltrock, S. E. (2012). Taxonomy and Theory in Computer Supported Cooperative Work. In *The Oxford Handbook of Organizational Psychology* (Vol. 2). <http://doi.org/10.1093/oxfordhb/9780199928286.013.0040>
- Halverson, C. A. (2002). Activity theory and distributed cognition: Or what does CSCW need to DO with theories? *Computer Supported Cooperative Work*, 11(1–2), 243–267. <http://doi.org/10.1023/A:1015298005381>
- Haughton, G., & Hunter, C. (2003). *Sustainable Cities. Renewable Energy*. <http://doi.org/10.1177/095624789200400201>
- Hollands, R. G. (2008). Will the real smart city please stand up? Intelligent, progressive or entrepreneurial? *City*, 12(3), 303–320. <http://doi.org/10.1080/13604810802479126>
- Hospers, G.-J. (2009). Lynch, Urry and city marketing: Taking advantage of the city as a built and graphic image. *Place Branding and Public Diplomacy*, 5(3), 226–233. <http://doi.org/10.1057/pb.2009.10>
- Jenks, M., & Dempsey, N. (2005). *Future forms and design for sustainable cities. Cities*. <http://doi.org/10.4324/9780080455525>
- Jonas, A. E. G., & While, A. (2007). Greening the Entrepreneurial City? In R. J. Krueger & D. Gibbs (Eds.), *The Sustainable Development Paradox: Urban Political Economy in the United States and Europe* (1st ed., pp. 123–159). New York: Guilford Press. Retrieved from <https://books.google.com/books?hl=en&lr=&id=XqjE8zuNjtEC&oi=fnd&pg=PA123&dq=Jonas+and+Whiles,+2007&ots=k7qkzAgl7f&sig=mSuPG5BgPo7OSZirulo7hNBaG7k#v=onepage&q=Jonas+and+Whiles%2C+2007&f=false>
- Kitchin, R. (2014). Opening up smart cities: A report on the Smart City Expo World Congress | The Programmable City. Retrieved December 21, 2016, from <http://progcity.maynoothuniversity.ie/2014/11/opening-up-smart-cities-a-report-on-the-smart-city-expo-world-congress/>
- Lynch, K. (1960). *The image of the city*. MIT Press.
- Neirrotti, P., De Marco, A., Cagliano, A. C., Mangano, G., & Scorrano, F. (2014). Current trends in smart city initiatives: Some stylised facts. *Cities*, 38, 25–36. <http://doi.org/10.1016/j.cities.2013.12.010>
- Satterthwaite, D. (1997). Sustainable cities or cities that contribute to sustainable development? *Urban Studies*, 34(10), 1667–1691. <http://doi.org/10.1080/0042098975394>
- Thomas, V, Wang, D, Mullagh, L & Dunn, NS 2016, 'Where's Wally?: in search of citizen perspectives on the smart city' Sustainability, vol 8, no. 3, 207, pp. 1-13. DOI: 10.3390/su8030207
- Urry, J. (1990). *The tourist gaze: Leisure and travel in contemporary societies. Collection Theory, culture & society*{\guillemotright}, London, Sage Publications. <http://doi.org/10.1525/ae.1994.21.4.02a00540>
- Urry, J., & Larsen, J. (2011). *The tourist gaze 3.0*. SAGE.
- Vale, L. (2007). The Resilient City. *SOCIOLOGIA URBANA E RURALE*.
- Vanolo, A. (2013). Smartmentality: The Smart City as Disciplinary Strategy. *Urban Studies, Early View*, 1–16. <http://doi.org/10.1177/0042098013494427>
- Wang, D 2016, HCI policy and the smart city. in Proceedings of British HCI 2016 Conference Fusion, Bournemouth, UK. BCS Learning and Development Limited. DOI: 10.14236/ewic/HCI2016.35

About the Authors:

Author 1 Ding Wang is a PhD candidate from HighWire Centre for Doctoral Training (CTD) in Lancaster University. Her PhD research is to explore the rhetoric and discourses concerning the notion of Smart Cities.

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