

# Cities of Otherness: the smart city as a heterotopia

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**Abstract.** This paper provides an exploratory dimension to the current smart city discussion by regarding the smart city as a heterotopia space – a space of otherness. By adopting a Foucauldian approach, this paper briefly describes the ‘discursive formation’ of the smart city by analysing its ‘surfaces of emergence’, ‘authorities of delimitation’, and ‘grids of specification’, in order to capture the smart city discourse trajectory. It then focuses on analysing the smart city as a heterotopia space by applying Foucault’s six principles of heterotopias to the data gathered through twenty-seven ethnographic interviews with the smart city experts. In so doing, the paper intends to explore the possible implications for design – and ‘design’ in its widest sense – in the smart city context.

## Introduction

The expression ‘smart city’ has recently become a leitmotiv in the vision of future city and urban development. However, the current smart cities concept can appear decidedly ambiguous, since it seemingly leaves its definition up to considerable interpretation. This paper does not intend to provide any simple definition of what a smart city is, as it is unlikely to be a simple, or even single, authoritative and uncontested, definition. In Law’s (2004) words: “Simple clear descriptions don’t work if what they are describing is not itself very coherent. The very attempt to be clear simply increases the mess.” In various discourses the ‘smart city’ appears predominantly as an ‘other’ kind of city – efficient, technologically advanced, green and socially inclusive, and it has attracted increasing attention from

academia, industry, and government. In this exploratory paper, I adopt a Foucauldian approach to explore the smart city as a heterotopic space. By providing this rather different and exploratory dimension in understanding the 'smart city', I attempt to document and understand the nature and essence of the 'smart city' through its otherness. I propose this unique approach in order to stimulate more discussions on the relationships between technology, design and policy thinking, specifically focusing on the impact they have on each other, which echoes and enriches Hommels's (2008) discussion on the dynamic of such negotiation in modern urban developments.

The paper draws on data from twenty-seven semi-structured interviews conducted with (generally accepted) experts on smart city research and development, mostly from UK, and some others from smart cities across the globe (Dublin, Barcelona, and Beijing). The experts all hold senior roles in their organisations, their involvement in smart city projects covers a wide variety of works and expertise in smart city development, including policy making, public administration, academic research, industry based research and development, and technology development and sales. Most of these interviews lasted around 45 minutes, with the longest one over 70 minutes long. Due to the sensitivity of their work and for protection of their anonymity I cannot share more specific details in relation to smart city developments. Nonetheless, I have chosen these experts based on their experience (at least three years' involvement in the smart city and five years holding a senior position), expertise (through publications, invited talks and interviews, and recommendations) and influence (the positions they hold and the recognition they have in the field). These experts were asked questions regarding their understandings of what it means for a city to be 'smart', their involvement and work in the 'smart city' and what other potential innovation areas (i.e. policy, knowledge mobility and inter/trans-disciplinarity etc.) they've perceived in the smart city. Having already analysed the emerging data using an inductive, 'grounded', thematic approach, in this paper, I apply Foucault's six principles of heterotopia (1984) to the synthesis of the responses collected throughout the research, allied with an understanding of the current literature and discussion concerning the relative proximity and realization of the smart city vision, in order to understand the structuring and ordering of a 'smart city'. But this paper does not aspire to simply produce a total critique of the smart city either, or deny its utility theoretically. As Grudin and Poltrock (2012) formulate the general 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 analysis and ideas discussed in this exploratory paper seek inform and impact any future thinking around smart city design and development; or, as Foucault suggests, to question, challenge and inform debates about the 'smart city' that might currently appear as self-evident.

## The Foucauldian Approach

The role of an intellectual is not to tell others what they have to do. By what right would he do so? The work of the intellectual is not to shape others' political will: it is, through the analyses that he carried out in his own field, to question over and over again what is postulated as self-evident, to disturb people's mental habits, the way they do and think things. (Foucault 1997:131)

After delving into my initial analysis, I soon realised that the expert interviews suggested 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 briefly outline how I adopted the Foucauldian approach in unpacking the 'smart city'— both in terms of his general methodological, genealogical and archaeological, approach; his cogent ideas on the appropriate relationship between knowledge and power and specific concepts related to notions of 'discursive formations', 'heterotopias' and the idea of the 'gaze'.

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. It 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. Foucault's archaeology similarly concerns contextualising and historicising notions of truth, knowledge and rationality. He examines 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. This approach has very important methodological implications; leading me to unearth and examine a variety of data, to review a range of documents, and to interview a varied and interesting collection of people.

This leads me to the exploration of the smart city discursive 'formation' (Wang, 2017), which is a coherent discourse possessing common objects, concepts and arguments. The components of a Foucauldian 'discursive formation' include: 'surfaces of emergence', 'authorities of delimitation', and 'grids of specification'. In application, '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-configured. For example, due to the presumed technological nature of the smart city, the Internet of Things (IoT) has become central in defining and describing an 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 CHI and CSCW in the USA

and British HCI in the UK. ‘Authority of Delimitation’ refers to the experts interviewed, who possess the the ability to use their comments, publications and books etc. to define and shape the ongoing debate of the ‘smart city’. ‘Grids of specification’, are the classificatory dimensions of a discursive formation, how it is, for example, related to other important ideas, i.e. ideas about urban life, governance and citizen empowerment in my case. As a particular way of talking about, of constructing, a topic – the smart city – and its relations with other topics, such as technology, urban development, data science, etc. – the discourse inevitably limits other ways in which a topic can be constructed – of what effectively it ‘makes sense’ to say. It is, at least partly, in identifying this ‘discursive formation’ that the merit of a Foucauldian approach can be found.

In my understanding, heterotopia is Foucault’s effort of replicating the analysis he has done with the structuring of ‘discourses’ in places and living spaces. He conceptualises a heterotopia as a site that is defined by its absolute perfection, surrounded by spaces that are not so clearly defined as such (Foucault, 2002). Soja’s work (1995) adopted the heterotopia concept and demonstrated that a heterotopia is also a site that is ambivalent and uncertain because of the multiplicity of social meaning that is attached to them. Both understandings of a heterotopia echo the characteristics of a smart city. On the one hand, there is the assertion that smartness stands for being efficient, healthy, and technologically advanced, therefore, the ‘smart city’ is intended as the ideal and perfection of a future city without acknowledging there are more to a city than simply achieving efficiency. On the other hand, the smart city discourse is used by the city managers and policy makers to support specific development strategies and policies. For instance, 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 which changes the social meaning of a smart city whenever necessary. The experts I interviewed, who work as public administrators for city councils, all expressed their appreciation of the funding and investment opportunities that smart cities brought to their cities. Meanwhile, the incongruous forms of writing and text in the ‘smart city’ realm make the ‘smart city’ resemble a heterotopia even more. That is the smart city as a heterotopic space highlights the conflicts and tensions between discursive formations that are readily visible in my ‘smart city’ experts’ experiences, attitudes and opinions.

## What on earth is a heterotopia?

We are in the epoch of simultaneity: we are in the epoch of juxtaposition, the epoch of the near and far, of the side-by-side, of the dispersed. (Foucault, 1984)

They are set up to fascinate and to horrify, to try and make use of the limits of our imagination, our desires, our fears and our sense of power/powerlessness. (Hetherington, 1997:40)

The term heterotopia originally comes from the study of anatomy. It is used to describe part of body that's alien. Foucault, who then further developed this concept in his book *The Order of Things*, and in a lecture he gave to a group of architects which was then turned into an essay – *Of Other Spaces*. He defines a heterotopia as, either a textual or a geographical site that allows the ordering of things inside not through resemblance but rather through the process of similitude. In this sense, heterotopias would only exist in relations, that is, they are established by their difference in a relationship between sites rather than their otherness deriving from a site itself. Therefore, a place is seen as heterotopic only from the outside but not from the inside perspective. Hetherington (1997) echoes this argument by suggesting that heterotopia does not exist in the *order* of things, but in the *ordering* of things. He suggests a certain amount of neutrality needs to be taken into consideration while defining a heterotopia, for him, it is a place of alternate ordering. He also argues that a heterotopia is a space where freedom and control extend beyond their own limits and mingle with one another (Hetherington 1997). In this sense, heterotopia is a passage, one that's between freedom and control. It is a place where different or alternate social ordering is performed.

Genocchio (1995) characterises heterotopia as a self-refuting concept as he believes that heterotopia has been misread; the notion itself is problematic; and it should be read more carefully. He argues that heterotopia is an idea about space rather than the actual places or a practice challenges the factional ordering while refusing to be part of that order even in difference. However, Hetherington (1997) on the contrary, provides a convincing argument that:

No matter how much we wish to be free, we will always create conditions of ordering if not order itself.

And this argument became very evident when looking at the 'smart city', i.e. the way 'smartness' is often conceptualised as some form of new social/technological ordering. Most importantly, heterotopia, in my opinion, encapsulates the contrasting characteristics of both utopia and dystopia and highlights the contested nature and the plurality of futures. This is the main rationale behind this paper and its analysis of the smart city as a heterotopia.

## Smart city as a heterotopia

It would be wrong to just associate heterotopia just with the marginal and powerless seeking to use Other places to articulate a voice that is usually denied them. An Other place can be constituted and used by those who benefit from the existing relations of power within a society as in the case of the establishment of the workhouse or prison as a place of otherness that

becomes a site of social control though the practices associated with it and the meaning that develop around it. (Hetherington, 1997:52)

In this paper, the Foucauldian approach that I would like to introduce and apply to the analysis of 'smart city' is looking at the 'smart city' as heterotopia, rather than a utopia or a dystopia (a utopia that has gone wrong).

In *Of Other Spaces* Foucault summarises the six principles of a heterotopia. In this section, I apply these six principles to the 'smart city' to demonstrate how 'smart city' could be seen as a heterotopia.

His first principle says that there is probably not a single culture in the world that fails to constitute heterotopias, but they take varied forms, including what he would call heterotopias of crisis<sup>1</sup> or deviation. The 'smart city' appears to be an interesting example of a heterotopia of crisis or deviation. Cities, throughout the history have always continuously been contested spaces and it contains, embraces and nurtures various kind of deviations. Contrary to ordinary cities, one of the greatest promises of the 'smart city' is that it is designed to free cities from crisis and deviation. One of the experts pushed this idea even further, suggesting that perhaps 'Disney World' was a visionary exemplar some notions of a smart city. So to paraphrase Foucault's description of a crisis heterotopia in the smart city context, it is a space designed for the cities that are in crisis per se or facing various challenges ranging from urban ones to societal ones. The basics of being smart means a city would regulate deviation and push for normality by following a certain standard whether that leads to the resilience against disasters, security against crimes or the ultimate efficiency. However, efficiency, simplicity and formality are a problematic assumption and maybe an illusionary goal in an urban setting. Roy (2005) encourage urban planners must embrace the urban informality in order to work with the challenges of dealing with the "unplannable" — exceptions to the order of formal urbanization. Law (2004) critiques simplicity,

If the world is complex and messy, then at least some of the time we're going to have to give up on simplicities.

And they are not alone, one of my experts, who has been involved in many smart city developments, particularly appreciates the 'messiness' of a city:

There's a bunch of things baked into it as assumptions that ... like efficiency is a good thing, which I was trying to unpick, say that many of the great things about city, cities are totally inefficient. So, how do you deal with that? Explain to me, how efficiency is going to help with those things, it's not.

Another way is viewing a smart city as a heterotopia comes from the conflicts and tensions between *the old* and *the new*. It can be unpicked in two levels, in the physical level, a 'smart city' is an attempt at marrying the cutting edge technology system to the well established and often Victorian age urban infrastructure. This creates tremendous design and development challenges for many cities to become

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<sup>1</sup> Foucault originally used boarding school as an example of a crisis heterotopia to demonstrate that what he meant by a crisis heterotopia is a reserved space for who are in the state of crisis.

‘smart’. On the cultural level, a smart city proposes a new way of city governing and an alternative management and communication model in councils that are still following the 19<sup>th</sup> century structure. When asked what is the real challenge in implementing and pushing forward a smart city plan, one expert concluded it as a question about organisational culture. The challenge and crisis that a smart city project crystallises is a “cultural change” fundamentally. It is not just in people but in the process, in how organisations work. “What does the city council of the 21st century look like”, for him should be at the heart of a smart city quest. And these conflicts, challenges and even development crisis, are the attributes that makes a smart city heterotopic.

The second principle mainly suggests that heterotopia is a contextualised concept that its function and meaning would adapt accordingly to the time and situation. Foucault used the cemetery in his original text to elaborate this principle. The cemetery was moved from the heart of a city to the border, from the 18<sup>th</sup> to the 19<sup>th</sup> century as death, once regarded in sacred terms increasingly became associated with illness. The ‘smart city’ is also a highly flexible and adaptive concept. Though it is designed for the future but also designed to be future-proof (as if the future is to be prevented from occurring). It derives from some pre-existing urban imaginaries. 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. The ‘smart city’ emerged in the wake of the narratives of the sustainable/resilient cities and of the informational/intelligent city (Vanolo, 2013; Kitchin, 2014). The early digital network of local businesses and activities in a city in mid to late 90s in both Manchester and Amsterdam,<sup>2</sup> aiming at connecting the physical business through digital network, was identified by one expert as the earliest form of a smart city at that time (late 90s), and is still perhaps the essence of many modern smart city developments. 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, 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. One of them is the emphasis on citizen empowerment and the promotion of the term ‘smart citizen’. It takes a range of forms including e-voting, online-pooling (see

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<sup>2</sup> This refers to the early network of creative industries in Northern Quarter region in Manchester and Amsterdam Digital Straat which is a website for the cultural activities going on in Amsterdam.

the example of after election survey on both Twitter and Facebook), and civic participation (i.e. smart street).

The following principles characterise heterotopia as being capable of juxtaposing in a single real place, several different spaces, several sites that are in themselves incompatible. Foucault, used Oriental Gardens and their representation of the totality of a world to demonstrate this point. In the smart city context, this could be unpacked on two levels. Currently when developing a smart city (especially in the UK) the common practice is to develop smart parts in a city and hope by connecting and joining these parts together, we'd have a smart city. In so doing, these smart parts represent the totality of a smart city. Secondly, the smart city embodies the totality of the future world we are building for ourselves. On the one hand, the 'smart city' conveys not only one person's vision of what a future city should be like. It in fact accommodates many parallel yet contrasting and contested views on what the urban future is and should be. Taking MK: Smart as an example, there are seven different working streams on turning Milton Keynes in to a smart city, even though there is some shared vision in these seven streams, each of them is working under its own aims and objectives to realise their version of 'smartness'. And previously, these priorities and working streams were never brought together and categorised side by side in such manner. Similar situation could be found in the Manchester smart city project CityVerve, the Smart Dublin project and the Future City Glasgow project. In other words, this is a debate about whose smart city is the real smart city, whether that is the citizens', the communities', the councils' or other stakeholders' smart city. On the other hand, the 'smart city' rhetoric is often based comparing and contracting the present and the future, the status quo and the ideal, the real and the fictional. Going through the smart city blue prints and strategy, there's always the beautifully rendered futuristic city images symbolises the 'smartness'. They feature the driverless cars, the skyscraper forest and the people-less street whereas the city we live in has traffic congestions, real forest and traces of residents (such as street littering). And this embedded desire and longings for an alternative reality (whether better or not) give a smart city the quality of being surreal and marks it a heterotopia. The smart cities' fascination and obsession of future brings us to the next principle.

Heterotopias are often linked to slices in time. This fourth principle when applied to the 'smart city' helps us to unpack another feature in the urban smart city process – time or temporality. Foucault marks this link with time by contrasting heterotopias that are oriented towards the eternal (e.g. museums and libraries) with the ones oriented towards temporal (e.g. fairgrounds). One shows the accumulations of time, whereas the other portrays time's more transitory aspects. When talking with the smart city experts, one thing that they recognised and acknowledged was that every smart city would have a project on traffic management. Wiring the streets up with sensors and cameras in order to achieve

the ‘real time’ response to either congestion issues and traffic pressure in general, or to calculate and predict the best route. When applying this concept to a place with the potential of big crowds, we have the ‘smart parks’ that are dedicated to monitoring, predicting and managing crowd movement during large gatherings such as the crowd movements before and after events (i.e. a football match or a music festival). It seems that the city has to develop this capacity and ability to respond in ‘real time’ and any latency would be viewed as ‘not smart’ or potentially ‘dumb’. Under the overarching theme – efficiency, the ‘time’ in a smart city has to be at least in real time if not in the future. As one expert put it, “we may not know what to do with these data sets yet but we need to collect them and keep them in case one day we figure out what to do.” This quote captures many smart cities’ obsession with data gathering as an act of archiving. Apart from Beijing, every other smart city in my study has endorsed this obsession by having their own data dashboard. The ‘smart city’ design we see from the smart cities (London, Manchester, Dublin, Glasgow, and Barcelona etc.) is not only trying to enable a city with immediate actions and responses, but also with the survival strategies against the challenge posted by time, hence being “future-proof”.

Foucault then talks about the opening and closing of a system in heterotopias in the fifth principle. In the ‘smart city’ context, this means the silos and isolation created by the technology we introduce to the urban system. Open data and government transparency are two major components of a smart city agenda, it opens up what used to be closed data to people who possess the knowledge, power and capacity to access it. However, people who does not have digital literacy, who cannot afford smart technology, and people who are not ‘smart’ enough then would be locked out of the ‘smart city’. During the interviews, I asked the experts what they think the current smart city is serving, some of them think it is serving no one and some has pointed to the technology companies, government who bought into the smart city vision and us researchers who base our work in this realm but none of them answered citizens. This leaves me wonder that does this mean the smart city heterotopia only opens to the privileged but not to the ones it promises to ‘empower’?

The final principle, the last trait of heterotopias identified by Foucault, is that they have a function in relation to all the spaces that remains. Holland (2008) argues that there isn’t a single city that stands unchallenged as a smart city. Some experts I interviewed have argued differently. There may not be a city that is unequivocally smart, but there are many parts of the city that are smart as demonstrators or experiments. These demonstrators in the city, such as the ‘Smart street’ (Tenison Road in Cambridge), ‘Smart district’ (Merchant city in Glasgow) and ‘Smart park’ (Queen Elizabeth Park and Hyde Park in London) they exist to help the smart city developments to “walk the walk rather than talk the talk”, and they also resonate the experiment nature of the smart city projects that Tironi and

Criado (2015) has pointed out. Such an existence helps to showcase how some smart city technologies work, and, more importantly, work to convince. Technology companies use them to convince the city managers and cities use it to convince their citizens being 'smart' is the way (if not the only way) to move forward. In this way, the smart city indeed has a function to all the surrounding spaces as a pioneer, as an exemplar and as a standard. For research, it is the test bed, the living lab and the experiment field. For technology companies it is the major market to produce and vend their cutting edge technologies. For city managers and councils, it is the buzzword and the vision that attracts funding for developments (whether it is smart or not).

'Smart city' is paradoxical, it simultaneously is a city and is not a city. It means different things to different people in different context. It imposes a rather simplistic and singular moral order on cities, that being 'smart' means good without much discussion of why. It presents a future that social, societal and urban problems are so amenable to technological solutions. However, despite all these paradoxical natures of the current 'smart cities', more cities are catching up with their own smart city agendas.

## So what? - Final Remarks

Parts of the world are caught in our ethnographies, our histories and our statistics. But other parts are not, or if they are then this is because they have been distorted into clarity. (Law, 2004)

For decades, urbanists worldwide have been calling upon a different mindset while imaging and designing future cities (Jacobs, 1961; Lefebvre, 1991; Harvey, 2003; Soja, 2011). The purpose of adopting a Foucauldian approach is, to explore the alternative implications for design – and 'design' in its widest sense. This is also an attempt to continue and broaden the notion of 'implications for design' that has already been both explored and challenged by Paul Dourish in his 'Implications for Design' (2006) and 'Responsibilities and Implications: Further Thoughts on Ethnography and Design' (2007). The contribution I make here is to advance theory, specifically on how theory can motivate and catalyse technological and the urban developments in a process of co-production and co-envisionment. That is, to argue in essence that 'theoretical development' can also become a form of 'implication for design'.

Continuing this theme, there are all kinds of important questions we might reasonably ask of any theory or concept: notably, what 'work' does this theory or approach or category actually do? That is, what analytic work does it do? As Halverson (2002) suggests, the value of any approach or theory resides in how well it can frame the object of study, how the approach determines and highlights relevant issues. When viewed as tools for helping people understand a phenomenon, theories or concepts or approaches should possess particular

attributes: descriptive power, to help us describe (rather than misdescribe) the world; rhetorical power, to facilitate exactly how we can talk about the world; inferential power to enable us to make inferences and linkages between the theory and the ‘real world’, that in turn will hopefully lead to insights for both practice and policy, for example, offering some clues as to the likely effect of introducing change into a particular setting or a smart city - to help us choose between alternative prospects, to give us some purchase on which approach might yield results; and ‘application’ power that links the approach to policies and some form of ‘design’ in the world. Of central concern is the problem of relevant description, inference, rhetoric and application, and how we go about deciding them. When we use conceptual frameworks or theories to talk about the smart city and its intersection and inter-relationship with a host of other social and technical variables, how relevant are the issues we point to, both in describing the phenomenon and in informing policy and practice? Do they provide us with a conceptual framework for deciding which behaviours and activities, what pattern of regular and unusual events, we should be attentive to? Can it result in positive and relatively definitive statements about particular aspects of smart city settings (of housing, transport, empowerment, etc), about social policy and about social practice? Above all, and somewhat beyond the clearly serious concerns expressed by Halverson and Dourish, accepting that (social or cultural) theories rarely contribute much in the way of predictions or even concrete proposals for design, then maybe the criteria for evaluating the worth of a theory should change, towards the idea that a theory is valuable if it is ‘interesting’, if it makes us think in new and different ways (or just at all). And so I turned to Foucault.

A critique is not a matter of saying things are not right as they are. It is a matter of pointing out on what kinds of assumptions, what kinds of familiar, unchallenged, unconsidered modes of thought the practices that we accept rest. (Foucault, 1988:155)

I don’t consider this to be an especially persuasive defence of theory or ‘theoretical frameworks’ and so I intend to conclude this paper by considering how this Foucauldian theatrical approach plays out in terms of the attributions of theory that Halverson documents, whilst also suggesting that such an approach is ‘interesting’ and intellectually ‘fertile’.

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. Relatedly, 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”: this right level of analysis has to include both technical or technological levels as well as social and cultural levels. The Foucauldian notion of discursive formation has helped me draw out contextual features – how the smart city discourse emerged from a process of absorbing features of other urban imaginary came into existence. How

the nature of this smart city discourse made it hard to pin down a universal definition and thereby made it possible for many different technologies, disciplines and topics to rub shoulder with the smart city. Halverson 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”. I suggest that the genealogical and archaeological way of analysing assisted me to argue that from the shared ‘important aspects’ between the smart city discourse and other discourses (e.g. intelligent city, sustainable city, green city etc.), that the smart city emerges as neither new nor unique. Though the smart city does not exist to be an exact embodiment of any singular urban imaginary but a refined and updated collective of several rhetoric that makes it even more fitting, promising, and attractive. Similarly, a Foucauldian heterotopia perspective provides great ‘inferential power’ to understand the smart city, as being a heterotopia that none has claimed to have fully decoded. By introducing the Foucauldian way of thinking into the smart city research and analysis, I try to understand the features, unpack the discourse and describe it ‘better’ (or at least providing a counter perspective) so that the next set of design, development, research and policy decisions can be made with particular groups of people and citizens in mind, anticipating a future we are heading towards with the current smart city discourse.

## References:

- 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, pp.287–306.
- Dourish, P., 2006. Implications for design. *Proceedings of the SIGCHI conference on Human Factors in computing systems - CHI '06*, p.541. Available at: <http://portal.acm.org/citation.cfm?doid=1124772.1124855>.
- Dourish, P., 2007. Responsibilities and Implications: Further Thoughts on Ethnography and Design. *Proceedings of the 2007 conference on Designing for User eXperiences*, p.2. Available at: <http://portal.acm.org/citation.cfm?doid=1389908.1389941>.
- Foucault, M., 1984. Des Espace Autres - Of Other Spaces: Utopias and Heterotopias. *Architecture /Mouvement/ Continuité*, (March 1967), pp.1–9.
- Foucault, M., 1997. *The politics of truth* S. Lotringer & L. Hochroth, eds., New York: Semiotext(e).
- Foucault, M., 2002. *The order of things : an archaeology of the human sciences*, Routledge.
- Foucault, M. & Kritzman, L.D., 1988. *Politics, philosophy, culture : interviews and other writings, 1977-1984*, Routledge.
- Genocchio, B., 1995. Discourse, Discontinuity, Difference: The Question of “Other” Spaces. In S. Watson & K. Gibson, eds. *In Postmodern Cities and Spaces*.
- Grudin, J. & Poltrock, S., Running Head: TAXONOMY AND THEORY IN CSCW Taxonomy and Theory in Computer Supported Cooperative Work.

- 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), pp.243–267.
- Harvey, D., 2003. *The New Imperialism*; Oxford University Press: Oxford, UK.
- Haughton, G. & Hunter, C., 2003. *Sustainable Cities*, Available at: [http://books.google.com/books?hl=en&lr=&id=T2QOAAAAQAAJ&oi=fnd&pg=PP11&dq=Sustainable+Cities&ots=8GGvdXSxOW&sig=m7pRG5MKDQkBwi2\\_DfWpfRkJVJY](http://books.google.com/books?hl=en&lr=&id=T2QOAAAAQAAJ&oi=fnd&pg=PP11&dq=Sustainable+Cities&ots=8GGvdXSxOW&sig=m7pRG5MKDQkBwi2_DfWpfRkJVJY).
- Hetherington, K., 1997. *The badlands of modernity : heterotopia and social ordering*, Routledge.
- Hollands, R.G., 2008. Will the real smart city please stand up? Intelligent, progressive or entrepreneurial? *City*, 12(3), pp.303–320. Available at: <http://www.tandfonline.com/doi/abs/10.1080/13604810802479126>.
- Hommels, A., 2005. *Unbuilding Cities. Obduracy in Urban Sociotechnical Change*, Cambridge MA: MIT Press.
- Jacobs, J., 1961. *The Death and Life of Great American Cities*; Random House: New York, NY, USA.
- Jenks, M. & Dempsey, N., 2005. *Future forms and design for sustainable cities*, Available at: <http://www.loc.gov/catdir/enhancements/fy0625/2005049840-d.html><http://www.loc.gov/catdir/enhancements/fy0625/2005049840-t.html>.
- Kitchin, R., 2014. Opening up smart cities: A report on the Smart City Expo World Congress | The Programmable City. *Programmable City*. Available at: <http://progcity.maynoothuniversity.ie/2014/11/opening-up-smart-cities-a-report-on-the-smart-city-expo-world-congress/> [Accessed December 21, 2016].
- Law, J., 2004. *After Method mess in social science research*, Routledge.
- Lefebvre, H., 1991 *The Production of Space*; Oxford Blackwell: Oxford, UK.
- Roy, A., 2005. Urban Informality Toward an Epistemology of Planning. *Journal of the American Planning Association*, 71(2). Available at: <http://weblaw.haifa.ac.il/he/Faculty/Kedar/lecdb/general/353.pdf> [Accessed May 12, 2017].
- Satterthwaite, D., 1997. Sustainable cities or cities that contribute to sustainable development? *Urban Studies*, 34(10), pp.1667–1691. Available at: <http://discovery.ucl.ac.uk/1333706/>.
- Soja, E.W., 1995. Heterotologies: A remembrance of other spaces in the citadel-LA. In *Postmodern cities and spaces*. p. pp.13-34.
- Soja, E.W., 2011. Regional urbanization and the end of the metropolis era. In *New Companion to the City*; Wiley-Blackwell: Chichester, UK, p. pp. 679–689.
- Tironi, M. & Sánchez Criado, T., 2015. Of Sensors and Sensitivities. Towards a Cosmopolitics of “Smart Cities”? *TECNOSCIENZA: Italian Journal of Science & Technology Studies*, 6(1), pp.89–108. Available at: <http://www.tecnoscienza.net/index.php/tsj/article/view/217>.
- Vale, L., 2007. The Resilient City. *SOCIOLOGIA URBANA E RURALE*.
- Vanolo, A., 2013. Smartmentality: The Smart City as Disciplinary Strategy. *Urban Studies*, Early View, pp.1–16.
- Wang, D., 2017. Foucault and the smart city. Forthcoming