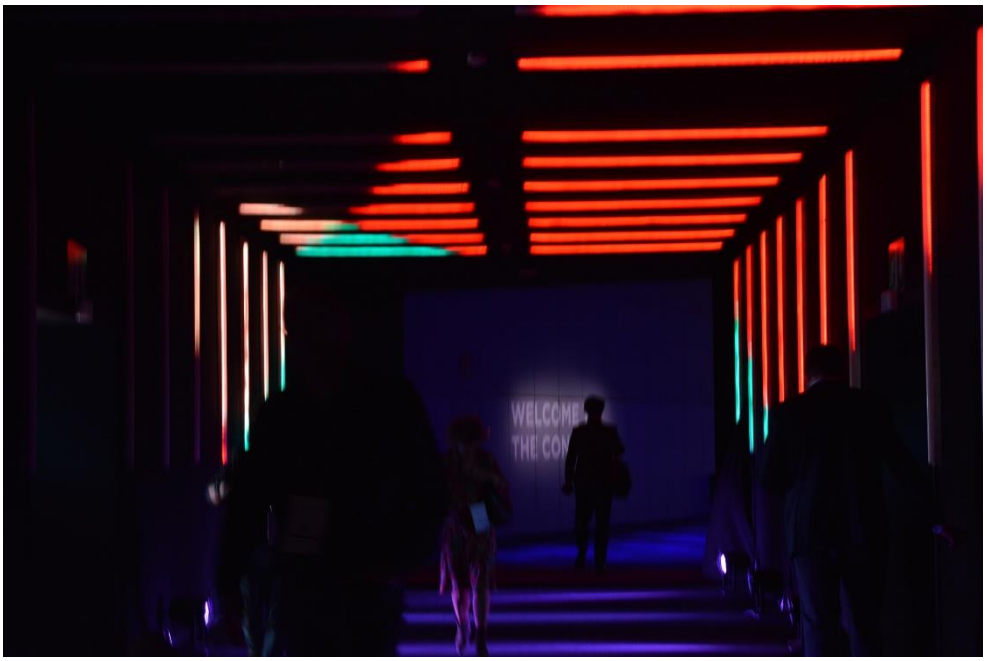
European Smart City Politics:

Conception, Perception and Lived Experience in the cases of the EU, Amsterdam and Barcelona



Thesis Submission for the Award of

PhD in Media and Communication

October 2019

By Dafni Mangalousi

Thesis title: European Smart City Politics- Conception, Perception and Lived Experience in the cases of the EU, Amsterdam and Barcelona

By Dafni Mangalousi

Abstract:

Critical smart cities literature has called for further research on the discursive and material realities of smart cities (Kitchin, 2015) in order to politicise them as a research topic under a right to the smart city framework (Kitchin et al., 2018). Towards this research agenda, this thesis develops an integrated discursive-material framework for understanding the 'smart city'. The understanding of the material component highly relies on Henri Lefebvre's (1974) theory of the production space, and his triad model of socio-spatial processes: *conceived space, perceived space*; and *lived space.* The discursive component relies on Ernesto Laclau and Chantal Mouffe's (1985) theory of hegemony, with however the incorporation of Doreen Massey's (1995; 2005) constructive critique on the spatial understanding of politics that has influenced Mouffe's (2013a; 2013b) later work on the politics of agonism. Upon its development, the integrated framework is operationalised to approach European spatial politics case studying the regional level of the EU and the city levels of Amsterdam and Barcelona. The analysis of the three case studies is performed through the political discourse analysis of documents and websites and ethnography in place of relevant events. Thereof, the findings of this thesis are gathered into a conceptual model for understanding the discursive-material realities of smart cities that suggests four non-mutually exclusive smart cities imaginaries currently at play: (a) the corporate smart city; (b) the panopticon smart city; (c) the smart city mediator and (d) the empowering smart city. Finally, this thesis recommends that future scholarship further engages with the conceptualisation of technology as space, the development of a radical understanding of citizenship towards the imagination a right to the smart city framework and activist methodologies towards its realisation.

Acknowledgement

This project started one rainy evening in Rotterdam (Netherlands) to complete a rainy day in Leicester (UK). In between there were other cities, words, change, emotions, dreams, space, time, politics and dyslexia.

The first person I will have to acknowledge is myself. I owe it to myself to write here that I could not have done this without me. I reached, and witnessed myself, reaching many limits of this body and mind and although I am grateful, it was not easy, and it needs to be said.

When the body and mind collapses, it is spirit, the third that saves the day. Here is what I have learned. Ask for help when you need it. Take care of yourself first, so that you can take care of others' after. And change, change is the only constant. Be smooth, be bold, be grounded, be flexible. Have faith. And have courage.

All my gratitude to my supervisors, Athina Karatzogianni and Christian Morgner that saved the day along with spirit. All my gratitude to my family, and my extended families, of all the beings: the healers, the dancers, the muses, the jokers, the cities, the books, the trees, the water, the sound, the curry, the chi and ki, and the cold night and the warm day, the crows, the moon, the spider, the panther, the angels, and ancestry, the temples and the thoughts, the music, the clouds, the mushrooms, the colours and all that is. The space that held us all together. And the time that kept us running. We have all changed a lot from Rotterdam to Leicester and I am proud of us.

Finally, this thesis is dedicated to our beloved human-dog Faidra who had to cross worlds two days before submission. This thesis is also dedicated to my grandfather who crossed worlds the night before my VIVA and the many more who have since then coronavirus or not.

This thesis taught me how to deeply recognise and honour the processes of death and rebirth. All my gratitude to all that is and everything else.

May we all live, love and die graciously.

4 April 2020

Leicester, UK

Table of Contents

List of Figures

LIST OF IMAGES

Abbreviations

AI	Artificial Intelligence
AIM	Amsterdam Innovation Motor
ASC	Amsterdam Smart City
AMA	Amsterdam Metropolitan Area
AMS	Amsterdam
BMA	Barcelona Metropolitan Area
BDC	Barcelona Digital City
BSC	Barcelona Smart City
CDA	Critical Discourse Analysis
CLLD	Community-led Local Development
CTO	Chief Technology Officer
DECODE	Decentralised Citizens Owned Data Ecosystem
DESA	Department of Economics and Social Affairs
DESA- PD	Department of Economics and Social Affairs- Population Division
DG(s)	Directorate General(s)
DG COMM	Directorate General Communication
DG CONNECT	Directorate General Communication Networks, Content and Technology
DG ENER	Directorate General Energy
DG MOVE	Directorate General Mobility and Transport
DG REGIO	Directorate General Regional and Urban Policy
DHA	Discourse Historical Analysis
DIMMONS	Digital Commons Research Group
ECSC	European Coal and Steel Community
EIP(s)	European Innovation Partnership(s)
EIP-SSC	European Innovation Partnership on Smart Cities and Communities
ERDF	European Regional Research Fund
EU	European Union
EWRC	European Week of Regions and Cities
FSFE	Free Software Foundation Europe

GaWC	Globalisation and World Cities
ICTS	Information and Communication Technologies
IPA	Interpretative Policy Analysis
LEADER	Liaison entre actions de développement de l'économie rurale (Links between actions for the development of the rural economy)
OIP	Operational Implementation Plan
PPP(s)	Public Private Partnership(s)
PPPP(s) or 4P(s)	Public Private People Partnership(s)
Rand D	Research and Development
SCS	Sharing Cities Summit
SDGs	Sustainable Development Goals
SCEWC	Smart City Expo and World Congress
SET-Plan	Strategic Energy Technology Plan
SIP	Strategic Implementation Plan
UN	United Nations
WMC	WeMakeThe.City
WWII	World War II

Chapter 1: Introduction

This thesis develops an integrated discursive-material framework for understanding smart cities. The understanding of the material component highly relies on Lefebvre's (1974) theory of space, and his triad of socio-spatial processes: *conceived space; perceived space*; and *lived space.* It also relies on elements from Massey's (1995; 2005) understanding of spatial politics, in communication with Mouffe's (2013a; 2013b) work on the political. This framework is demonstrated through discourse analysis of texts and (auto-)ethnography spaces/events, by employing case studies at the EU level, and at the city level for Amsterdam and Barcelona. This introduction explains the research problem, rationale for the perspective chosen, and the overall outline of the thesis.

1.1 Research Problem and Thesis Contribution

Smart cities, wired cities, techno-cities, digital cities, cyber cities are some of the terms used in the past decades to characterise the exalted use of technology within the space of the city but also projecting utopias and dystopias of science and fiction (see Aurugi, 2016; Batty, 2012; Cardullo et al., 2019; Gibson et al., 1992; Glasmeier and Christopherson, 2015). Largely, existent literature on smart cities can be divided into a real versus imaginary dichotomy. One strand of literature focuses on what is technically possible and/or measurable, proposing or assessing smart cities grids, taxonomies, indicators and models, in conversation with policymaking trends and tendencies (e.g. Giffinger et al., 2007; Giffinger and Gudrun, 2010; Lazaroiou and Roscia, 2012). Another strand of literature, which can be framed as critical smart cities literature, seeks to offer a critical social science perspective to smart cities developments in response to their uncritical discoursing within academia, policymaking, industry and expert groups (see Kitchin, 2015; Kitchin et al., 2018).

To date, the critical smart cities literature concerns the following smart city developments. First, Hollands (2015) argues that the rise of the corporate smart city signifies the power of corporations, industry and capital over smart city developments (e.g. Kitchin, 2017a; Hollands, 2008; Söderström et al., 2014). Second, the use of determinist, commonsensical and uncritical language dominates these developments,

while empty signifiers and vagueness are operationalised to accommodate the components of citizens and life in the city (e.g. Cowley et al., 2018; Datta, 2018; Galdon-Clavell, 2013; Hill, 2013; Kitchin, 2015; Townsend, 2013). Third, the literature identifies issues around surveillance and control that are produced from the development of smart cities, such as tech and data-led governance (e.g. Gibbs et al., 2013; Greenfield, 2013; Vanolo, 2014). Such issues are concealed within an overall neoliberal agenda that pushes neoliberal subjectification onto citizens and citizenship altogether (e.g. Cardullo and Kitchin, 2018; Kitchin et al., 2018; Shelton et al. 2015). As a result, critical smart cities literature has been seeking appropriate ways to critically think of smart cities, while attempting a balancing act between the imagined and the real 'smart city' (Glasmeier and Christopherson, 2015). In 2015, Rob Kitchin set a research agenda for the critical smart cities' literature calling for contributions that can 'reveal the discursive and material realities of actually existing smart city developments' (2015, p.134). Today, this research agenda is backed up by an overall aim that, on the one hand seeks 'to expose, propose and politicize the smart city' and on the other, 'to envisage an alternative smart city founded on the principles of "the right to the city" ' (Kitchin et al., 2018, p.21, see also Cardullo and Kitchin, 2018; Cardullo et al., 2019).

This thesis responds to this research agenda developing a project specific contribution towards understanding smart city developments in Europe. European smart cities politics is the area of focus for this thesis and particularly discursive-material construction and production of smart cities therewith. Furthermore, this thesis proposes to avoid a conceptualisation of smart cities as a depoliticised subject that needs to be politicised. Instead, the research aim of this thesis is to uncover the political behind smart city politics (or else the antagonisms behind the conflicts) based on Mouffe's (2005; 2013a) understanding of the political as ontological and politics as ontic (see also Marchant, 2004). It is therefore argued, that in order to formulate a deep understanding of what 'the right to the smart city' means (see Cardullo et al., 2019) based on Lefebvre's (1996) radical conceptualisation of the right to the city (see Purcell, 2002; 2014) an understanding of smart cities as a political (urban) process is necessary. To achieve that, this thesis will offer its unique approach as a contribution to the critical smart cities literature by producing a theoretically robust, methodologically coherent and empirically grounded discursive-material analysis of smart city spatial politics within the EU.

First, pursuant of this integrated approach, this thesis principally argues for a discursive-material approach to the 'smart city'. Such approach seeks to go beyond the dichotomization of the imagined and the real in space production that is sometimes connoted in conceptualisations such as 'the real smart city' (Hollands, 2008) or the 'actually-existing smart city' (Sheldon et al., 2015) and 'actually-existing smart citizens' (Sheldon and Lodato, 2019). Using Henri Lefebvre's (1974) theory of the production of space this thesis seeks to avoid an oversimplification of the dialectical relationship between science (real) and fiction (imaginary). Instead, this project focuses on developing a discursive-material framework to explore the socio-spatial processes signified through the imaginary-real dialectic (also discussed as *discourse-urban reality dialectic* by Pugalis, 2009).

Second, this thesis investigates the political production processes surrounding the smart city spectacle's materialisation across space and time (see Vuolteenaho et al., 2015 based on Debord, 2002). Therefore, this thesis' primary contribution to critical smart cities literature is the theoretical and methodological integration of discursive-material processes the political economy of smart cities. This has been preoccupying a number of authors lately from various approaches in a rather unorganized manner, e.g. Karen Barad's (2007) material-discursive entanglements, Carpentier's (2017) discursive-material knot, Orlikowski and Scott's (2015) material-discursive practices and Højgaard and Søndergaard (2011) discursive and material subjectivities. As discursive-material and material-discursive approaches develop their variations significantly depend on their understanding of the relationship between the discursive and the material, in conjunction to their understanding of materiality, materialism and the body. For example, Karen Barad's (2007) post-humanism conceptualises material-discursive entanglements within the framework of new materialism that seeks to reposition humans (and meaning) as matter and in relationship to matter. Michel Foucault's (1995; 2001) work, that has highly influenced discourse studies, develops through a focus on the materialism of the body making a distinction between discursive and non-discursive practices. Elsewhere, Ernesto Laclau and Chantal Mouffe (1985; 1987) defend their theory of discourse to Geras (1987), who argues their post-Marxism too easily disregards materialism, by supporting that outside discourse there is only 'mere materiality' i.e. matter (Laclau and

Mouffe, 1987). For them, the material does not exist outside the discursive or else the materiality of discourse is not the same as ‘mere materiality’ (ibid).

Third, consequently, this thesis views the development of discursive-material frameworks highly dependent on the development of an understanding of whether materiality sits inside or outside of discourse (i.e. how the terms materiality, materialism and material are operationalised). For example, Carpentier (2017) has developed his discursive-material knot framework drawing upon both Laclau and Mouffe’s (1985) discourse theory and new materialisms entanglements (e.g. Barad, 2007). For instance, other scholars engage explicitly in efforts to understand, reframe, and contextualise existent theoretical-analytical frameworks, and their relationship to the material or materialist traditions (e.g. Howarth, 2018; West, 2011). The rationale behind the discursive-material framework for the smart city is further developed in the next section.

Altogether, this thesis follows a critical social science perspective to the production of the space of smart cities adding value to (critical) smart cities and discursive-material literatures separately and in their conjunction. This thesis’ uniqueness lies in that (a) it supports a transdisciplinary approach to the research topic of smart cities, (b) by incorporating existent literature and theory into a discursive-material framework that (c) subsequently is developed into an appropriate methodology for approaching the discursive-material construction and production of smart cities within European spatial politics.

1.2 Research Rationale: The Need for a Discursive-Material Framework

This thesis proposes that, in order to accomplish the dual research aim of (a) uncovering the political behind smart city spatial politics in order to (b) ultimately provide a deeper understanding of what ‘the right to the smart city’ entails, the development of a project specific discursive-material framework is needed. This framework ought to provide an understanding of the discursive-material relationship that can be translated into an empirical inquiry. The rationale for this is developed after the initial exploration of a widely related literature and in order to address identified shortcomings and gaps.

First, beyond the imaginary-real dialectic, the exploration of literature demonstrates the importance of several dialectical relationships such as structure-agency, form-content, symbolic-material, global-local, space-time. Those relationships appear as significant in the conceptualisation, theorisation and understanding of cities in general and their positionality within the conditions of 21st century modernity and capitalism. At the same time, these relationships appear in various levels of abstraction and differ within the various approaches. As such, one key intention of this framework was to bring together various levels of abstraction (i.e. both theoretical and empirical literatures) to comprehend the production of smart cities in the context of 21st century political economy while avoiding its overdetermination. Accordingly, the intention of the proposed discursive-material framework is to defy the dualism between political economy and cultural studies scholarship by combining anti-essential theories and thinkers as well as different levels of abstraction. In effect, the discursive-material framework of this thesis answers episteme-ontological questions throughout its articulation, positioning this thesis as a critical analysis, as much as a critical political economy analysis, that can be framed as a discursive-material approach to the political economy of the 'smart city'. Ultimately, the purpose of this framework is to provide a grounded theoretical context for building a project specific methodology for empirical inquiry.

Second, although critical smart cities literature has been organising around its agenda and aims more and more incorporating Henri Lefebvre's (1996) work (e.g. Cardullo et al., 2019; Coletta and Kitchin, 2017; Kitchin, 2019) there is still much of his work left untouched (for instance Lefebvre, 1968; 1991 [1974]; 2003 [1970]). Notably, this can be a wider critique on the so far appreciation of his work (see Aronowitz, 2007) although lately there is a resurgent interest his work (e.g. Kingma et al., 2018a; Misoczky and Oliveira, 2018; Purcell, 2013). In *Marxism and The City*, Ira Katznelson (1993) provides an enlightening context of the three main political economy approaches to city of the 70s-80s, by discussing the differences between Henri Lefebvre, David Harvey and Manuel Castells. There, Katznelson (1993) illustrates how David Harvey's and Manuel Castells' 'respatialized Marxisms' that 'fundamentally shaped the new discourse of the city within Marxism' (p.103), were produced in critique, in conjunction and in parallel to Henri Lefebvre's work as such restating the importance of his work. As Katznelson (1993) puts

it ‘Lefebvre may have shown Marxism the way back to the city, but having reached its gates, he entered by bidding Marxism’s project of social theory farewell’ (p.101), unlike ‘Harvey and Castells [who] carried Marxist theory with them as they passed the portals of the city’ (p.102).

The insights of all three intellectuals are substantial to the understanding of the city in the 21st century. Since Lefebvre’s death in 1991, Manuel Castells has conceptualised the network society that have had a tremendous impact to fields such as media and communications and geography (e.g. Sassen 2002; 2007) as well as policy in general. At the same time, the work of David Harvey has significantly moved towards Lefebvre looking for spaces of hope and talking of rebel cities and reigniting his conceptualisation of the ‘right to the city’ (see Harvey, 2008; 2013). Despite the early critiques of Harvey (2008 [1973]) and Castells (1977) on the metaphysical nature of Lefebvre’s work ‘[t]here is a sense in which these critiques of Harvey and Castells talk past Lefebvre’ (p.100-101), because the core of his project was fundamentally different from theirs. For the supporters of Lefebvre what stresses the importance of his theoretical contribution is that it is not purely theoretical, but results from his long term activity and involvement with urban sociology, architecture and urbanism; his political, other than merely intellectual, engagement with his work (Stanek, 2011), but most importantly his (meta-)philosophical praxis (Aronowitz, 2007). Lefebvre is not necessarily or merely an urban theorist, but an everyday life philosopher that to a great extent critiques the production of empirical knowledge as he promotes a philosophical approach to analysis that is defined by the analytical experience (see Lefebvre, 2004[1992]; 2014a; 2016). Lefebvre never tried to be a traditional Marxist. Marxism initially was a helpful tool for Lefebvre that was easily dropped when it became limiting to his overall project.

In this thesis, theoretical prominence is given to the work of Henri Lefebvre arguing that further exploration of his work can offer a better understanding to the ‘right to the smart city’ while providing a solid theoretical background. Specifically, for approaching the smart city, but also developing a relevant discursive-material framework his ground-breaking work on the production of space is elementary. According to Lefebvre (1974) the production of space (and for him space is always social) is the result of the following triad of socio-spatial processes. Processes of space conception where the urban city and

its possible futures are imagined (*conceived space - representations of space* in spatial terms). Processes of space perception where the material reality of the urban city space is reproduced through commonsensical spatial practices (*perceived space -spatial practices* in spatial terms). Finally, processes of experiencing and living of space where the everyday occurs and what has been conceived and perceived is revealed under the light of lived experience (*lived space -representational spaces* in spatial terms). Lived space, where the body resides, is of prominence to Lefebvre (1991 [1974]), because as he expresses 'the 'heart' as *lived* is strangely different from the heart as *thought* and *perceived'* (p.40, emphasis on original).

Incorporating Lefebvre's (1974) triadic model (conceived, perceived, lived) helps overcome an imaginary-real dichotomisation, as well as produces an understanding of smart cities as a socio-spatial urban process, which can interrogate the full spectrum, of the political processes of space production. At the same time, it pronounces that the right to the smart city involves participation in all the processes of space production i.e. conception, perception and living. Taken as whole, Lefebvre's (1968; 1991 [1974]; 1996; 2003 [1970]) work extends from the political economy of capitalism to the critique of everyday life and development of differential politics providing the possibility of analytical width, depth and perspective on both top-down and bottom-up processes of space and city production. Per se, Lefebvre is chosen as a starting point for approaching the 'smart city', because his work can provide a solid theoretical and conceptual background to a rather new topic of research that could benefit from further theoretical grounding. Therefore, the thesis develops this extensive theoretical integration to inquire into how smart cities are produced within European spatial politics by asking the following research questions:

RQ1 Conceived Space: How are European smart cities represented and what discourses and ideologies are operationalised in their conception?

RQ2 Perceived Space: How are spatial practices operationalised in European smart cities politics?

RQ3 Lived Space: How are European spatial politics over smart cities lived and experienced?

To address these questions, this thesis develops a project specific methodology that is a translation of the developed discursive-material framework and is guided by the empirical inquiry. The purpose of the methodology is to create the conditions for the smart cities product to be contextually revealed to the researcher within an empirical inquiry into European spatial politics. The complexity of European identity and space, that is revealed through a review of literature, in combination with the complexity of urbanisation processes (e.g. Castells, 1993) recommends a necessity for a wide discussion. For the purposes of this thesis and the feasibility of the project, this is narrowed down through the method of case study. In other words, the method of case study is chosen to structure the empirical enquiry. Following the directions of existent literature on smart cities specifically, and cities of the 21st century more generally, a two-levels case study approach is selected as the best way into the European spatial politics enquiry. One level is the regional level that involves the case study of EU spatial politics and another is the city level that involves the case studies of the smart cities' spatial politics of two cities, Amsterdam and Barcelona. The choice of the case studies results from a preliminary inquiry into existent literature as part of an initial topic familiarisation.

As per the aims of this thesis, the contextual revelation of smart cities politics needs to be both discursive and material, therefore a combination of methods is chosen. The three case studies are analysed through the combination of two methods: discourse analysis and (auto-) ethnography (i.e. ethnography in place and autoethnography in space). The combination of these two methods of analysis respond to the necessity to approach European spatial politics under Lefebvre's triadic model as well as go beyond a discourse overdetermined analysis towards actual engagement with space and spatial politics at the different levels and cases. The two methods in combination are used to provide a gateway into all three processes of space production (conceived, perceived, lived) as revealed in two types of texts: documents and events that are analysed for each case.

1.3 Thesis Outline

This thesis is organised into six chapters. So far, the perspective and rationale of this thesis was introduced (**Chapter One**). In **Chapter Two**, the integration of the proposed discursive-material framework occurs through a review of relevant theories to provide a solid theoretical context to comprehending 'the smart city', and particularly the discursive-material construction and production of European smart cities. It combines theoretical grounding with literature review in its articulation drawing upon the works of key authors, disciplines and themes that are important to contextualise and explain the smart city as the city of the 21st century. Other than Henri Lefebvre's (1974) work, Antonio Gramsci's (1971) hegemony and Laclau and Mouffe's (1985) theory of hegemony (see also Mouffe, 1979) are incorporated through the scholarship of geographer Doreen Massey (1995; 2005, also Massey et al., 2009). Thereof, they are all positioned under Donna Haraway's (1985) framework of the cyborg world as the present matrix of symbolic-material reality (sections 2.1-2.2). The global and local dimension of cities in the global political economy are then reviewed (section 2.3-2.4), before concluding to the topical focus of this thesis and the operationalised research questions (section 2.5).

Chapter Three provides the methodology of this thesis (a) presents the approach to method and research design (section 3.1-3.2), (b) the three case studies and empirical data collection of the thesis (section 3.3-3.4), (c) explains the chosen combination of methods and the methodological positioning of those (sections 3.5) and (d) explains the analytical and writing processes of this thesis (section 3.6). All four functions in their total offer an operationalisation of the integrated discursive-material framework so to approach the topic of the smart city. The main empirical chapters are chapters four and five, whereas chapter six is used as a conclusive reflective chapter that also provides discussion.

Chapter Four examines the web of meaning of how smart cities are conceived in European spatial politics, based on the conducted discourse analysis of key texts. The purpose of this chapter is to answer the first research question (based on Lefebvre's conceived space) of *how European smart cities and what discourses and ideologies are*

operationalised. Following this, **Chapter Five** looks at the perceptions of smart cities within European spatial politics building upon chapter four and relying on the ethnographic research in place conducted for this thesis. The purpose of this chapter is to answer the second research question (based on Lefebvre's perceived space) of *how spatial practices are operationalised within European smart cities politics*. At last, **Chapter Six** concludes with the findings of the two main empirical chapters, while offering a combination of reflections to answer the third question of *lived experience of spatial politics* through the auto-ethnographic research. This chapter also offers the usual limitations and challenges during the research processes, bringing the analyst's ontology into the research process, and identifies a possible future research agenda on smart cities.

Chapter 2: Integrating a Discursive-Material Framework for the 'Smart City'

The proposed integrated discursive-material framework critically addresses the 'smart city' as an urban and space-making process. Using the range and depth of Henri Lefebvre's (1968; 1991 [1974]; 1996; 2003 [1970]) work on space, the urban and the city, the framework seeks to provide a reiteration of the spatial and temporal configurations operationalised, implied and necessary for the construction of 'smart cities'.

Details of the discursive-material approach as well as reasons behind it are presented throughout this chapter. Overall, the rationale of the integrating process consists of three interrelated levels of abstraction that are graphically presented in Figure 1. Those are here represented as a linear process only for the purpose of clarity of the thesis' argument, representing the logic behind the following sections of this chapter leading to the framework, and not as an argument altogether. In fact, all three levels (space-time, discursive-material, urban-city) are logically combined and incorporated within the context of the cyborg world where the 'smart city' is at last located and can be best understood as distinct prisms for approaching the 'smart city'. To be more specific, the higher level of abstraction concerns the prism of space-time. In this most abstract level,

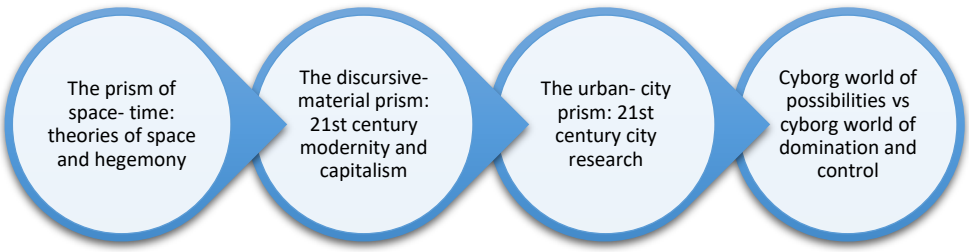


Figure 1: Levels of abstraction- the rationale behind the discursive-material integrated

Henri Lefebvre's work is combined with Antonio Gramsci's conceptualisation of hegemony. With guidance from the works of Ernesto Laclau, Chantal Mouffe and Doreen Massey the purpose is to grasp the context of the emergence of smart cities as well as the processes of their construction as new spatial and temporal configurations that are inherently political and as such contingent. Beyond a strict political economy approach and in line with the insights of the incorporated authors, this prism seeks to highlight political processes that define smart city developments. The second level of abstraction

concerns viewing 21st century capitalism and modernity under a discursive-material prism. Under this prism, the discursive-material processes of globalisation, the network society and manifestation of the city-node therewith are discussed as precursors of the 'smart city'. This prism historically situates the emergence of the smart city amidst trans-local and trans-urban processes that define the specificities of capitalism and modernity in the beginning of the 21st century. Furthering the thinking of the space-time prism, these processes are articulated as discursive-material processes and altogether provide the discursive-material approach to political economy. Lastly, the third level of abstraction concerns the urban-city prism. Under this prism, the smart city and neighbouring literatures review display various tensions in academic literature. Those range from empirical results on the gap between city life and policy for example, to the constrains the existence of disciplines creates in approaching the topic and the necessity for development of integrated theoretical- methodological frameworks able to combine literatures and disciplines to critically address smart city developments in due time (e.g. Kitchin, 2015). This prism seeks to situate the 'smart city' as a transdisciplinary object of research, as a solution to address the existent gaps of literature. This prism also focuses on providing the reasoning behind this thesis contribution through the development of a project specific integrated framework. Ultimately, the 'smart city' is contextualised through Donna Haraway's (1985) work that suggests we reside in an in-between 'cyborg world' that is simultaneously a world of possibilities and a world of domination and control.

The proposed integrated discursive-material framework for the 'smart city' gathers the various insights of the three interrelated prisms of perception with the purpose to illuminate the constancy of this tension. In other words, providing a framework for studying the processes of smart cities production and developments as simultaneously expressions of possibility and control. In what follows, this chapter offers (a) an extensive discussion on Lefebvre's work (his dialectical approach; production of space and theory of difference); (b) additional discussion on the politics of hegemony –through Gramsci, Laclau, Mouffe, Massey; (c) a comprehensive discussion on urban processes, globalisation, the networked society, and uneven development and; (d) a transdisciplinary review of research on cities.

2.1 Henri Lefebvre's Work as a Starting Point for the 'Smart City'

Overall, Lefebvre's project although very wide is quite concise when viewed through its philosophical and political underpinnings. That is to say that the production of theory is the result of his intellectual process as a philosopher of spatial ontology and not the end-goal of the scientific inquiry. In *The Critique of Everyday Life* Lefebvre (2014a) argues that '[r]esearch, conceptual development and theories are a matter for dialectical method, not deductive logic' (p.394). Notably, prior to his work on most widely recognised work on urbanisation and the production of space (60s-70s), Lefebvre (2009a) was predominantly an intellectual of the dialectic proposing 'dialectical materialism as a universal method' (p.109) while trying to avoid formalism in method. As such, part of his philosophical project was to review Hegel and go beyond an orthodox application of Marx's social theory (see Lefebvre, 2009a). As part of his political project, Lefebvre (1968) introduced his concept of the right to the city (see Lefebvre, 1996) amidst the May '68 student movement in France, which he supported, participated, and studied. Furthermore, his critique of everyday life (Lefebvre, 2014a) straightforwardly combining philosophy and political praxis has been highly influential in both French intellectualism and politics. His theory of the production of space (Lefebvre, 1991 [1974]) was developed to prove to critics such as Castells'[1] how dialectical method can produce theory.

The *Production of Space* (1974) is regarded as Lefebvre's exemplar work. Here, Lefebvre gathers and manifests all his previous explorations of the urban and the city, the human body, everyday life and his beyond Marxism social critique of capitalism and the state. In what follows, an overview of Lefebvre's theoretical understandings that surround and define this work is provided. The overview begins with Lefebvre's

[1] It is important to note here, that Castells' (1977) fundamentally disagrees with Lefebvre's conceptualisation of the urban and the dialectics of spatial and social relations. For him as a historical materialist, whereas space is a social construction (a result of the forces of production and consumption), the social is not spatially constructed, as Lefebvre's (2003 [1970]) core argument suggests. For Castells, the urban is a symbolic system, when for Lefebvre it is a socio-spatial dialectical process and thus as much material as symbolic. In a sense, thus Castells rejects Lefebvre's (2009a) dialectical materialism.

understanding of capitalism as a contradictory totality that leads to his theory of the production of space and theory of differences. Towards the development of the space-time prism, a substantial focus is given to Lefebvre's ontology of space and overall, his spatial politics that generate his critique of everyday life, the right to the city and later on his rhythmanalytical project. The purpose of this overview is to find the relevance of Lefebvre's work for 21st century capitalism and, in turn, the production of the 'smart city'.

Lefebvre's Dialectical Approach to Political Economy

Capitalism (and its survival) is understood differently by different theorists, leading to differences in approach, conceptualisation and method. The purpose of this part is to present how Lefebvre (1976 [1973]) comprehends capitalism and its political economy in *The Survival of Capitalism* where he lays the foundation for his further theoretical engagement with space production. Through the conceptualisation of the 'reproduction of relations of production' Lefebvre (1976 [1973]) contextualises his theory of the production of space and departs from Marxism's historical materialism. Initially hypothesizing whether such concept is actually a meaningful one (or valid in terms of formal logic), he revisits the concepts and dialectic of reproduction and production in modernity, to argue that capitalism as a mode of production that 'dominates the results of history' (p.10) is not a coherent system or has a defined structure. Capitalism is rather an ongoing framework or a strategy that points towards a totality that is to be never fully established. Unlike Marx and historical materialists, who put the concepts of production and reproduction in fundamental relationship with the capitalist mode of production, Lefebvre suggests that the concept of the 'reproduction of relations of production' reveals itself through the everyday life of the aware, the thinker, the philosopher and not through the structure or system of capitalism itself. He insists that the concept is not something that was discovered. Instead, it reveals itself as knowledge throughout the experience of theory and practice. Ultimately, building on his critique of everyday life, for Lefebvre (1976 [1973]), this revelation arises from the logical contradictions manifested in everyday life, the urban and space and cannot be taken for granted as a realised static fact. To the contrary, they entail processes that echo the incompleteness of capitalism:

> Neither the adventurer in knowledge nor the mere recorder of facts can sight this 'continent' before actually exploring it. If it exists, it rose from the waves like a reef, together with the ocean itself and the spray. The metaphor 'continent' stands for capitalism as a mode of production, a totality which has never been systematised or achieved, is never 'over and done with', and is still being realised (Lefebvre, 1976 [1973], p.7)

Lefebvre (1976 [1973]) employs his analysis by looking at the capitalist mode of production in the 20th century with the purpose to explain the 'reproduction of relations of production'. To achieve that, he operationalises the concept of 'repetition' as being key. More precisely, Lefebvre proposes a (meta-)philosophical dialectical exploration of the repetition of capitalist production process, as (a) reproduction of social relations and (b) relations of production, both under the proposed concept of 'reproduction of relations of production'- i.e. proposing that the concepts of production and reproduction are entangled within each other. Under this overarching approach, repetition cannot be simply repetitive in the positivist terms of, e.g. A in moment one is repeated as A in moment two, therefore a repetition of the same in different moments occurs. This, Lefebvre argues, holds only if we were to accept capitalism as a coherent system of total overdetermination, i.e. echoing Althusser's (1962) or Castells' (1977) historical materialisms. However, going beyond structuralism and Marxist orthodoxy, Lefebvre's focus is rather interested in the processual character of repetition, and what that entails as an inherently contradictory process. What it entails, as he argues, is that while the reproduction of relations of production has to be constant to sustain the mode of production; it also has to be presented/appear as new in order to conceal that what is reproduced through relations of production extends to the reproduction of social relations and all aspects of everyday life. In Marxist thought, this is explained through the concept of 'alienation'. However, Lefebvre (1976 [1973]) seeks to add that what's repeated needs to be, on the one hand reproductive (strategically thought through to ensure capitalist survival by reproducing social relations), and on the other reproducible (to be reproductive in disguise, to hide the contradictions that the reproduction of social relations entails). In the end, for Lefebvre (1976[1973]) '[t]he reproducible and the reproductive generate the repetitive' (p.32). In this approach therefore, each repetition is not the same as a previous one nor does it repeat something similar, rather each repetition

incorporates what is reproducible and reproductive at a given moment. As such, Lefebvre is found to argue that a decision-making process that selects agreeable characteristics is required to prescribe what is to be repeated and what are the conditions of the repetition, i.e. what is prescribed to remain or become real.

The point of departure for Lefebvre's (1976 [1973]) engagement with repetition is not to say that it explains everything as in overdetermining reproduction, but rather to move from the critique of capitalism as a coherent system to understanding capitalism as a contradictory totality, which is what Harvey (2014) thoroughly investigates in *Seventeen contradictions and the end of capitalism*. The philosophical argument is that repetition of reproduction cannot be an exact repetition because the reproducibility clause implies the reproduction of something, at least seemingly, new. At the same time, what's new cannot be entirely new, especially in a repetitive context of the inherently contradictory totality of capitalism, thus repetition relies on what Lefebvre (1976 [1973]) frames as a 'false' new that ultimately produces differences. Lefebvre (1976 [1973]) takes the example of fashion (be it clothes, furniture or else) when newness is expected, is partly new and partly 'false' new. Expanding on this process Lefebvre turns his focus towards growth. Lefebvre (1976 [1973]) argues that its theorisation is based on 'a curious mixture of ideologies, which already seem to be pluralist or multifunctional […] hide reality, i.e. the brutal character of economic growth and capitalist expansion' (p.107). Per se, there is no single ideology of growth rather an array of ideologies of growth, that altogether push towards the reproduction of relations of production. Loyal to dialectics, Lefebvre writes: '[t]he problem under discussion here is that of *economic growth* and the *ideologies* which have so far been associated with it: our theme, therefore, is not growth but *the relation between growth and ideologies*' (Lefebvre, 1976 [1973], p.102, *emphasis on original*). The formulated question is thereof the extent to which and how this relation determines repetition in order to further the inquiry to what differences are being produced.

Initially looking for a theory of growth, Lefebvre partly founds it in the Marxist equivalent to growth: 'enlarged accumulation' (Lefebvre, 1976 [1973], p.102). However, he finds Marx's analysis 'incomplete' (p.108) as it is grounded in the perspective of England and its relations to the world market, i.e. the important role England had played

in constituting the world market through imperialism and colonialism with no state intervention (see also Lefebvre, 2009b). What he postulates is that an honestly critical theory of growth is closely linked to ideologies of growth, as there has not been yet a point in history when an alternative growth strategy or logic has been suggested. On the contrary, there seems to be an acceptance of the logic of growth and that is, as Lefebvre (1976 [1973]) reads it, a victory in the level of ideology. As he argues, the experience of the 20th century suggests that the communist revolution in part failed or was defeated because it did not produce an alternative to the capitalist world market. That, in turn, left an even more powerful world market where an internal focus on (national) growth led by the bourgeoisies was established as a requirement that no state power could question. According to Lefebvre (1976[1973]), we have moved from a 19th century growth context where 'each capitalist produced on his account' (p.105) and 'the state did not as yet play the role of [the] regulator' (p.106) to the 20th century growth context where the 'state is […] responsible for growth' (p.106). Because of this responsibility of the state, growth 'knows and recognises itself as end and means simultaneously' (p.109). That is to say that there is no fundamental difference between a growth strategy and the ideology of growth. No matter the strategy i.e. based on which ideology, growth is accepted as necessary, 'is forecast mathematically' in economic numbers through the fetishisation of the GNP, and as such also becomes determined. Following this, it is because growth is both necessary and determined to the extent, that it 'carries within itself its own ideology' (ibid) that reproduction of capitalism is ensured.

What Lefebvre strives for is a theory of growth that approaches growth as ideological and is ideological, because, as he further explains, even scientific inquiry is caught up in the repetitive process of growth ideology whose purpose is to mask the contradictions of capital. Unveiling the relation between growth and ideology can help us employ a 'critical analysis of the 'false' new' (p.33) which can reveal the parts of the new that are indeed new. In other words, the analytical task at hand: to uncover the 'falsity' of what's new. For instance, when talking of an economic crisis (Lefebvre mentions the 30s, but we could also consider the 2007-2008 one) we are talking of '*a crisis in the reproduction of the relations of productio*n, and especially a decay of the centres and centralities' (p.117, *emphasis on original*). In Lefebvre's rationale, this involves an ideological reformulation of the repetitive process of reproduction. Lefebvre (1976 [1973]) thus

suggests to view the capitalist mode of production as 'a capitalism of organisation' that attempts to appear as something very coherent, i.e. 'organized capitalism' (see Lash and Urry, 1987), in order to, through ideology work on the background, establish social relations while hiding its contradictory incoherent nature. Focusing on the new aspects of the repetition, distinguishing the partly 'false new' from the partly new and uncovering the world of possibilities is thus the proposition Lefebvre makes for the intellectual analyst. This fundamental understanding of capitalism is what leads Henri Lefebvre to develop his theory of the production of space, where he essentially investigates the processes of spatialisation as the reproduction of relations of production.

The contradictions of capital, growth and the ideology of neoliberalism has been also explored by Harvey[2] more recently (2007; 2014) whose work can further provide a vocabulary to explain transformational and transitionary periods of the political economy and the role of crises in context. In his latest book, following the 2007-2008 crisis, he focuses on capitalist crises as 'essential to the reproduction of capitalism' (Harvey, 2014, p.ix). Altogether, what's suggested is that with each crisis of reproduction of the relations of production (Lefebvre, 1976 [1973]), a process of reconfiguration is taking place one that is inscribed in the very architecture of capitalism (Harvey, 2014). Experientially this is expressed in everyday 'contradiction[s] between reality and appearance' (Harvey, 2014, p.6) - the real and the imaginary in Lefebvre -that Harvey counts into seven foundational contradictions,[3] seven currently moving contradictions[4] and three dangerous contradictions,[5] seventeen contradictions in total. According to Harvey's (2014) analysis, the current capitalist architecture is the product of foundational contradictions that are strongly interlinked to 'provide a basic architecture for capital

[2] Harvey's work is brought up here as despite his different epistemological approach (of historical materialism), his findings were always similar to Lefebvre's to the extent that his later work on rebel cities (Harvey, 2013) and the contradictions of capitalism (Harvey, 2014) are very akin to Lefebvre's explorations.

[3] The foundational contradictions according to Harvey (2014) are: use value and exchange value (p.15-24); the social value of labour and its representation by money (p.25-37); private property and the capitalist state (p.38- 52); private appropriation and common wealth (p.53- 61); capital and labour (p.62- 69); capital as a process or thing? (p.70- 78); and the contradictory unity of production and realisation (p.79- 85)

[4] The moving contradictions according to Harvey (2014) are: technology, work and human disposability (p.91- 111); divisions of labour (p.112- 130); monopoly and competition: centralisation and decentralisation (p.131- 145); uneven geographical developments and the production of space (p.146- 163); disparities of income and wealth (p.164- 181); social reproduction (p.182- 198); and freedom and domination (p.199- 215)

[5] The dangerous contradictions according to Harvey (2014) are: endless compound growth (p.222- 245); capital's relation to nature (p.246- 263); the revolt of human nature: universal alienation (p.264- 281)

accumulation' (p.88); of moving contradictions that are the result of the necessary and determined relations of the foundational contradictions in combination with their seemingly fixation; and finally, the dangerous contradictions are a by-product of this dynamic process. The latter are dangerous 'not only for the ability of the economic engine of capitalism to continue to function but also for the reproduction of human life under even minimally reasonable conditions' (Harvey, 2014, p.221).

What Harvey (2014) suggests is to look at the contradictions of capital, comprehend the relations between the foundational and moving ones and organise political action (of revolutionary humanism) based on the dangerous ones: endless compound growth, capital's relation with nature and universal alienation. Lefebvre would be less interested in the foundational contradiction as they represent the Marxist formalisation; however, his work moves around several aspects of the moving and dangerous contradictions. Regarding the dangerous contradiction of 'endless compound growth' that was Lefebvre's (1976 [1973]) interest, Harvey (2014) reiterates that '[c]apital is always about growth and it necessarily grows in a compound rate' (Harvey, 2014, p.222), i.e. is both necessary and determined. Harvey (2014) being more empirically oriented than Lefebvre, explains that compounding follows the idea of mathematical singularity and its representation evidently 'sails off into infinity' (p.225) when, for instance, graphically comparing the mathematical expressions of compound and simple interest. Within the logic of endless compound growth, growth has no limits. Considering the numbers that express those rates means that '[b]y the time 2030 rolls around, when estimates suggest the global economy should be more than $96 trillion, profitable investment opportunities of close to $3 trillion will be needed' (p.228) which Harvey (2014) suggests is not feasible when looked from an investment viewpoint. Generating such levels of investment opportunities requires fundamental changes in the capitalist society. As he explains and based on the relation of urbanisation and capital accumulation (Harvey, 1985), when such growth is

> imagined physically, the enormous expansions in physical infrastructures, in urbanisation, in workforces, in consumption and in production capacities that have occurred since the 1970s until now will have to be dwarfed into

> insignificance over the coming generation if the compound rate of capital accumulation is to be maintained (Harvey 2014, p.228-229)

Finally, as regards to Lefebvre's (1976 [1973]) worrying around the ideologies of growth, since the 90s the ideology of neoliberalism has been named as the ideology, set of ideologies or ideological structure on the job of sustaining capitalism and masking its contradictions. David Harvey (2007), in particular defines neoliberalism in *A Brief History of Neoliberalism*, as 'a theory of political economy that proposes that human well-being can be best advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong property rights, free markets and free trade' (p.2). Within its scheme, not only growth but also competition, ownership, appropriation and any sort of economic activity are naturalised through the concepts of rights and freedoms. The neoliberal state plays a substantial role as a regulator in sustaining the organisation of capitalism and capital through the development of the required institutional framework (Harvey, 2007). In their analysis of the 'new spirit of capitalism' of France between 1968 and the mid-90s, Luc Boltanski and Eve Chiapello (2007) argue that at the level of the state neoliberalism's pressures (through the world market especially) have led almost every state to adopt certain neoliberal policies and practices by necessity. Nonetheless, if neoliberalism is accepted as a dominant ideology in the new spirit of capitalism, it is not expressed and reproduced uniformly by everyone and everywhere, rather appropriated differently upon occasion and subjective position producing critical side effects in the process.

There are several questions that are posed so far as relates to smart cities as part of the post-2008 crisis repetition and the relation of growth and its ideologies therewith. The main question is the extent to which smart cities and the focus on the expansion of the cyborg world of control can play the role of revitalising capitalist accumulation and how. As discussed further along (see Sections 1.3 and 1.4), the core premise of smart cities, internet of things and digitalisation discourses is the transcendence of the physical to the non-physical, digital, immaterial, virtual etc. Under a Donna Haraway (1985) and a discursive-material perspective, there is no such separation. The cyborg world represents and is represented by 'a condensed image of both imagination and material reality' (p.150); 'a hybrid of machine and organism'; 'a creature of social reality as well as a

creature of fiction' (p.149); 'two joined centres structuring any possibility of historical transformation' (p.150). Linking this back to Lefebvre (1976[1973]) then, the deriving question is what organisation and decision-making processes are involved in this current repetition and are represented in the production of the 'smart city, what part is new and what part is 'false' new, what are the differences produced, what are the strategies and what are the tactics used etc. Similarly, to Haraway's understanding of the cyborg world, Lefebvre's overall project is preoccupied with highlighting the world of possibilities amidst the world of capitalism, domination and control and focus on its widening. According to Lefebvre (2014a), these possibilities result from the juxtaposition of the conditions that constitute the real wherewith praxis occurs and the processes that contain 'the evolution and forward movements of the real' (p.404-405). Therewith a contradictory nature is implied as 'realization' processes are inherently constricted in between the discursive and the material (ibid). This contradictory nature calls for tactics and strategies whose intent is to widen the field of possibilities and for Lefebvre (1991 [1974]) space is a key arena to explore this.

In what follows, Lefebvre's theory on the production of space is reviewed. There, Lefebvre (1991 [1974]) proposes a move from dialectics to triadic prisms of understanding seeking to, on the one hand, avoid the trap of philosophical dualism and, on the other, extend philosophy into everyday life, not as a concept but as a lived experience. Doing so, Lefebvre radically transforms dialectical materialism asserting space as 'ontological groundwork to reassert the primacy of the 'real' over the imaginary' (Shields, 1999, p.150) so to reveal the contradictory character of 'realization' processes (Lefebvre, 2014a). Lefebvre's (1991 [1974]) proposition is to take a microscale approach to the contradictory totality of capitalism, avoiding the formalising and essentialisation of its power and structure, yet not neglecting it.

Lefebvre's Theory of the Production of Space

Henri Lefebvre's (1991 [1974]) core argument is that the production of space –or else the process of spatialisation- is a social product as much as a social construction. The social reproduction of relations of production, reproduction of society, of capital and capitalism altogether are all operationalised in the context of taken for granted growth

and its connection to the urban process (see also Lefebvre, 2003). The basis of the argument is that each society produces its own space, i.e. primarily space is social ('social space') as it is 'the outcome of a process with many aspects and many contributing currents, signifying and non-signifying, perceived and directly experienced, practical and theoretical' (p.110). As such, a project for a communist society for instance needs to produce its own space instead of relying to the existent space (which is part of Lefebvre's critique of the Soviet Union) which is the product of capitalist society. That is because 'the relationship of that space to the time which gave rise to it takes on an aspect that differs sharply from the picture generally accepted by historians' (ibid). Following a regressive progressive method, Lefebvre (1991 [1974]) illustrates this analytically through his history of space whose purpose is to describe spatialisation as a social process relevant to historical, cultural and political developments.

In Lefebvre's history of space first comes, absolute space that is the natural and concrete space as is experienced in/through everyday life. Historically, that is the archetypical space of the tribal times where spatial frontiers are shaped between the experience of the natural and the supernatural -the experience of the human body as much as the social body of the tribe, the village etc. Second comes, sacred space as the result of the appropriation of absolute space, the transformation of absolute space into the organised (political) entity of the (sacred) city -'setting up a man-versus-nature distinction subduing the forces of the unknown nature through the first social technologies of organised religion' (Shields, 1999, p.174). Then, when history begins, in the Greek city-states or the city of Rome for instance, historical space takes its form predominantly relying on symbols and their reproduction. Historical space starts to appear more coherent in religious medieval times, whereas it is further manifested during the Renaissance when 'for Lefebvre the transition from a sacred to a secular social order' (Shields, 1999, p.175) is manifested. This spatial category for Lefebvre gives rise and perspective to the next and of prime importance category of abstract space. Historical space through its primacy on geometry, of the visual and of the phallic lays the foundation for abstract space, 'the space of the bourgeoisie and of capitalism' (Lefebvre, 1991 [1974], p.57), that comes about as 'the result of a series of economic, social, political, technological, and cultural developments' (Stanek, 2008, p.70). As such, abstract space is where smart cities are socially produced.

In Hegelian and Marxist terms, Stanek (2008) argues that Lefebvre's 'unitary theory of space' takes abstract space as 'a concrete abstraction', i.e. upholds that space is 'socially produced and thus historically contingent […] yet characterized by a universal feature called centrality' (p.76). However, as Shields (1999) suggests the very same approach can be seen as 'a failure in Lefebvre's own terms' (p.172) due to its essentialist and formalist character especially as regards to the historical chronology presented thus far (absolute space→ sacred space → historical space → abstract space) which Lefebvre (2003) also uses when approaching cities and theorising the urban. Nevertheless, the purpose of a regressive chronology is to link the past to the present in order to introduce the key contributions of Lefebvre's theory that operates within the dialectical relation of the present with the future. From there on, Lefebvre's theory moves beyond description and critique towards action and praxis through a progressive method. The past is inscribed, necessarily and inevitably, into each space to the extent that historicism as represented through linearity of history and its rationalism ghosts the analytical process. This becomes even more apparent when the past/present interplay is regarded and overdetermined within a regressive chronology. Nevertheless, as Shields (1999) points out Lefebvre's contribution is much more substantial as regards to the present/future interplay, which makes his two final categories of contradictory and differential space substantial to the approach in this thesis.

Abstract space is as much homogeneous as it is fragmented due to the contradictory nature of space production in a capitalist inherently contradictory context. If abstract space is to be considered, the space produced in capitalism then contradictory space is its fragmentary effect that makes spatial contradictions and paradoxes apparent. The existence of 'poor' and 'rich' ghettos structured by, for example, urban areas, gentrified areas, suburbs or shanty towns, might upon occasion produce forms of revolt as a result of isolation, separation or disintegration. In this occasion, these contradictory spaces can be considered as having a heterogeneous fragmentary effect, in contrast to the original purpose of their fragmentation that was often to homogenise them. Conceptually moving from the category of abstract space to the category of contradictory space, therefore intents to point to the paradoxical character of homogeneous and fragmented spatialisation processes as much as their dialectical relation. Contradictory space is

understood and experienced through several oppositions/contradictions.[6] However, Lefebvre's production of a theory of contradictory space is not to pinpoint these contradictions but to elevate a theory of differences. For Lefebvre, from the contradictory character of abstract space, the last category of differential space arises as a negation. If abstract space seeks to homogenize and flatten, its fragmentary effects by subsuming differences, seeing it as contradictory, thus analytically recognizing these processes, could give birth to differential space, which is the space of differences and challenging hegemony. Lefebvre (1991 [1974]) suggests that if we dare to look at the differences the contradictory totality of capitalism produces, the world of possibilities that lies in differential space is revealed to us.

The conceptualisation of the different categories of space can prove helpful for understanding the production of space historically as well as how to identify spaces of action. However, as Lefebvre (1991, [1974]) begins in *The Production of Space* when we try to think of or talk about space '[w]e are […] [actually] confronted by an indefinite multitude of spaces, each one piled upon, or perhaps contained within' (p.8) each other. For example, we might think/ talk about geographical space, political and economic space, physical space, global space, public space or cyberspace, at times selectively engaging with one, two, or more, but often having difficulty to grasp their entanglements. The first step, Lefebvre suggests is when referring to space -accepting it as social- to refer to it as (at least) three levels or dimensions of social spatialisation: the physical, the mental and the cultural (also appears as social when related to the level of state suggesting the complexity of the conceptualisation). These three are not experientially distinguishable from each other, but they can to an extent be analytically distinguished if their relationships through their created dialectics are considered and, to the extent possible, formalisation refused. As Rob Shields (1999) suggests 'Lefebvre tries to tell us that the system of space is not just spatial practice in the sense of its social construction, but equally the representations of it and discourses about it, and it is also equally its

[6] For instance, the contradiction of quantity/quality as on the one hand spaces of consumption according to which needs are dictated and on the other, the consumption of space according to desire whereby a rather unproductive consumption in terms of abstract space, also occurs. The opposition of production/consumption that 'cannot completely mask the dialectical conflict suggested by the term 'productive consumption'' (Lefebvre, 1991 [1974], p.354). The principal contradiction of global/fragmented (local) space that requires us to understand space as 'whole and broken, global and fractured, at one and the same time' (p.356) and the opposition of exchange/use value that is quite evidently manifested in 'appropriation' of space as opposed to 'property'.

reflexive affects, promoting here, limiting there' (p.154). The aim of this work as Lefebvre (1991, [1974]) asserts seeks to recognise space and most importantly the 'science of space' as (a) political (through the discursive production of knowledge), as (b) ideological (seeking to conceal its contradictory nature) and as (c) a technological utopia –capitalist or else- (in progress of realisation). In other words, space is not ever just space in the sense of a homogeneous form and/or content (historical or abstract space), but spaces of contradictions, paradoxes and differences that promote multiple possibilities that tend to differ. From that point perspective therefore Lefebvre produces his social theory of space wherewith each social spatialisation process can be analysed in its a historical mode (and within its historicity) as a three-part dialectic between spatial practices (perceived space -le perçu), representations of space (conceived space -le conçu) and spaces of representation (lived space -le vécu).[7] The three categories correspond to the physical, the mental and the cultural or social modes and are not always experientially distinguishable but they can be analytically.

Spatial practice (perceived space) is what sustains the mode of production as it reproduces the social relations of production into the physical space of materials. In the words of Shields (1999), it is the 'production and reproduction of specific places and spatial "ensembles" appropriate to the social formation' (p.162). In relation to the survival of the mode of production of capitalism, a spatial practice needs to be reproducible and reproductive so to ensure the production of space in accordance to capital. It thus follows that spatial practice also gathers the contradictory character of everyday life. This becomes clearer when considering a specific spatial practice, say Shields (1999) example of the concept of the shopping centre as developed in North America. When perceived as a spatial practice links to consumerism, crowd psychology, architectural typology etc. become apparent (see for example Shields, 1989). Though, more often the shopping centre perceived in a commonsensical mode as the place to, for instance, find a collection of brands, or shopping and other leisure activities such as cinema and dining out. The characteristic of perceived space therefore is that is taken for granted and mostly experienced unreflectively, hiding the contradictory nature of the

[7] As Shields (1999) suggests translations from French to English in combination with Lefebvre's general disinterest for formalisation often create confusion, but that is precisely the point that Lefebvre is trying to make: the interlinkage of the three as experience is what makes a mere philosophical exploration outside or without experience not possible.

production of space as a reproductive and reproducible spatial practice. Therefore, when approaching perceived space analytically the task it to uncover what is hidden behind the commonsensical mode of its spatial practice, other than understanding the spatial practice itself.

Representations of space (conceived space) refers to the discourses on space conception and theorisation that eventually suggest the framework for its production. It is 'the logic and forms of knowledge, and the ideological content of codes, theories, and the conceptual depictions of space linked to production relations' (Shields, 1999, p.163). To a great extent, it always involves an abstraction of the lived experience and it might nowadays include from the individual discourses of urban planners, developers and architects to the individual or collective discourses of politicians, policymakers and researchers as well as the discursive regimes those form that seek to conceive the production of space in terms of urban development. What is then conceptualised by Lefebvre as conceived space is directly linked to the practices and regimes of knowledge production, for instance, the politico-scientific complex under which space is to be produced. Analytically, the task is to uncover the discourses, the codes, and the logics etc. inscribed in the conception of space and as such representing as much as imagining space.

Spaces of representation (lived space) amount to the spaces where discourses of space are formulated whether as a result of historical processes or even as utopian projections. To an extent, it concerns the socio-spatial imaginary of a historical bloc of time and is the space where reflexivity occurs. This is Lefebvre's 'other space' in the triadic model. Edward W. Soja (1996) based on Lefebvre's work conceptualised this space as 'third space'. This is the space of the lived experience that reflexively seeks to change space according to the rhythms of the body, for example, but also as Soja (1996) suggest on actually and actively experiencing the social. A squat, a garden, a slum, a square and a market viewed as spaces of representation can provide physical, mental and/or cultural uses of space that can be subversive of an otherwise dominated by certain rules and values abstract space and commonsensical spatial practices. For instance, producing culture in a squat, turning a planned to be parking space into an open community garden, feeling joy in the slum, protesting in a public square or meeting people and chatting in a market

instead of consuming. In these occasions, abstract space is being appropriated upon neglect of dominant and accepted spatial practices that have conceived space and perceived space in a specific way. In lived space, an alternative is instead represented one that reflects the lived experience more accurately in the sense that 'the 'heart' as *lived* is strangely different from the heart as *thought* and *perceived'* (Lefebvre, 1991 [1974], p.40, emphasis on original). As such, lived space includes a wide range of micro-scale subversions of space such the expression of complaint, dislike or discomfort in the conditions of a public space, for instance due to the negative experience of the social as a queer, disable, person of colour. Analytically, the task is to, foremost, allow the resurfacing of lived space and experience and to the extent possible listen to what it says beyond and without thought and perception.

Conclusively, the value of the three categories is in their analysis in dialectic. What Lefebvre reveals is that although perceived space being directly linked to abstract space and the existent mode of production and ideology of structuralism might represent the world of capitalism, domination and control, there is still space for differences that much more easily arise amidst conceived and lived space. Looking into the depths conceived and lived space, while reviewing perceived space, seeks to attest for the concept without life and life without concept amidst the real of formal logic and the real of dialectical logic.

Evidently, the dialectic is fundamental for Lefebvre's approach to theory. His 'social theory of space' derives from his intellectual and philosophical engagement with dialectics from Hegel to Marx, but most importantly beyond and among them (Shields, 1999). The implications of his trialectic proposition are in many senses radical even for the tradition of dialectical materialism (Lefebvre, 1968 [1940]). As Shields (1999) explains primarily Lefebvre 'shifts the ground of dialectical materialism from time to space' (p.119), so that temporality is no longer attached to the dialectic and historicity is dialectically inscribed into space. This implies an ontology where primacy is given to the category of space over the category of time, whereas time is to found within space as 'all struggles and the sedimented achievements of the history of civilization all take place in space' (Shields, 1999, p.150). As such, Lefebvre through his work predominantly

develops and practices the spatial politics his theory suggests within the realm of intellectual thought, proposing the strategic overdetermination of the category of space.

Lefebvre's Theory of Difference and the Right to the City

Lefebvre's (1974) theory of differences views differences as the results of the contradictions of space production and are crucial for the imagination and realisation of the right to the smart city, because there lies the space of the organisation of future resistance and political action. In that respect, Elden (2007) reviewing Lefebvre's work argues that in fact '[t]here is a politics of space because space is political' (p.101) as spatial politics take place in between abstract space and differential space (Butler, 2012). Lefebvre (2009) insists that the role of the state in capitalism is crucial to produce abstract space. Although state power over abstract space is not direct, since capital occupies that role, he was determined in pointing out the importance of the state and its institutions for the capitalist mode of production. The 'national territory' of a state amounts to a physical space that is physically described by borders and internal systems of organisation e.g. transport and road systems. The social (cultural) space of a state amounts to the hierarchical organisation of its institutions, laws and general governance, that altogether require 'the maintenance of a *mental space*' (Butler, 2012, p.84, *emphasis in original*) that defines, what Benedict Anderson (2006) called the imagined community of the nation- state. Thus, the state through ensuring its physical, social and mental space occupies the role of fragmenting, and homogenising space as well as establishing a hierarchy within it. The state homogenizes space through centralisation, fragments it through planning its infrastructural base and thus dictating the usage of space and in the process also defines hierarchies among centres and peripheries and their permitted relations (Lefebvre, 2009). As such, the state participates in reproduction of the mode of production and the production of abstract space through its responsibility of governing and ordering aspects of what it to be repeated. Furthermore, according to Lefebvre (1992 [1974]) the production of abstract space involves the (socially biased) 'logic of visualisation' that views space in its abstract form and further imagines it in terms of its functionality for the established social relations and current mode of production.

Looking at abstract space as contradictory from Lefebvre's (2016 [1965]) metaphilosophical stance allows his social critique of everyday life (2014 [1947, 1961]) and his theory of production of space (1992 [1974]). At the same time, his focus on the lived experience, the human body and its rhythms suggests his conceptualisation of the right to the city (see Lefebvre, 1996) and eventually his rhythmanalytical project as an approach to philosophy and research (Lefebvre, 2004 [1992]). For Lefebvre, the right to the city is not a simple demand but perhaps the ultimate opportunity for radical politics to strategically focus on the production of differential space. Lefebvre's approach to spatial politics thus involves the comprehension of the role of the state in capitalism in an attempt to politicise space and claim the right to space, to the city, to the urban and to difference (Lefebvre, 1974; 1996). Contrary to the at times uncritical and a-political appropriation of the concept, the right to the city entails a radical approach to spatial politics (Harvey, 2008; Purcell, 2014), wherewith difference is understood as fundamental.

Lefebvre's theory of differences is built on the following premise: 'Differences endure or arise on the margins of the homogenized realm, either in the form of resistances or in the form of externalities […] What is different is, to begin with, what is *excluded'* (Lefebvre, 1974, p.373, *emphasis in original*). For Lefebvre (1974), differences are generated through repetition and its homogenising effect, but they are not all similarly different. To the contrary, certain differences, which he calls 'induced differences', are internal to the contradictory totality of capitalism, and thus are accepted and desirable. Others escape the present rules and are what he calls 'produced differences'. When 'produced differences' are forcefully pushed back and co-opted by capitalism they become 'reduced differences'. On the other hand, produced differences that escape reduction are fought through 'differential signs' i.e. differences that are reduced or induced to signs. In this sense, differences are not particularities along or against a universal, Lefebvre insists (or at least the way he means it). Repetition 'generates difference', but also due to its contradictory character, '[a]bstract space […] makes the relationship of repetition and difference a more antagonistic one' (p.396), which opens the possibilities of differential space. Differential space thus takes on the meaning of a counter-space that appropriates and antagonises abstract space. Yet, as Lefebvre suggests '[s]ooner or later […] the existing centre and the forces of homogenization must seek to

absorb all such differences, and they will succeed if these retain a defensive posture and no counterattack is mounted from their side.' (Lefebvre, 1974, p.373). As such, Lefebvre's theory of difference is yet another tool to unmask the hidden contradictions and antagonisms and proposes the strategic use of differential space to challenge abstract space. In this sense, he also suggests the necessity to recognise and claim the 'right to difference', that is the right to differential space, to challenging abstract space and what elsewhere is framed as the 'right to the city' (Lefebvre, 1968).

The conception of the 'right to the city' attributed to Lefebvre (1968) concerns 'a transformed and renewed *right to urban life*' (see also Lefebvre, 1996). Purcell (2014) rightfully argues that even though the term has gained great attention in academic, policy, activist and generally political discourses, Lefebvre's (1968) initial conception remains the most thorough and radical one. Lefebvre's conception is a critical response as much as rethinking of the politics of decision-making, policymaking and governance as its functionality is to open the horizons for change by being incorporated into everyday (political) life. The right to the city as the totality of Lefebvre's work is underpinned by an 'unwavering commitment to the project of imagining and achieving revolutionary change in human society' (Purcell, 2014, p 144). The right to the city is thus essential to any revolutionary change, including towards any post-capitalist systems of organisation, because any radical systemic change 'has to be urban, in the broadest sense of that term, or nothing at all' (Harvey, 2008, p.40). In Lefebvre's (1996) own words, his work 'wants to break up systems, not to substitute another system, but to open up through thought and action towards possibilities by showing the horizon and the road.[…] Its aim is to allow its problems to enter into consciousness and political policies' (p.63).

Finally, Lefebvre's (2004) latest work was focused on completing his theory into the level of the lived experience through the perspective of the analyst as an ontology in space. For that he brought his dialectical logic, the concept of repetition and theory of difference to the level of the body proposing the analysis of rhythms. His rhythmanalytical project, views rhythm as a repetition of something at a frequency, which as a lived experience is as much objective as it is subjective. That is because a rhythm exists at the intersection of space, time and the expense of energy which is something that any human body can sense, but differently. At the same time any human body has

its own rhythms and so rhythmanalysis is the praxis of understanding an external rhythm (for example the rhythms of an event) through noticing one's own rhythms as they clash or meet with this external rhythm. The effects of that the meeting of external and internal rhythms can create a number of effects to one's body, and so the task at hand for the analyst is to achieve a state of presence during the analysis, recognise these effects as they occur and mark their significance and interpretation. Operationalising that 'the 'heart' as *lived* is strangely different from the heart as *thought* and *perceived'* (Lefebvre, 1991 [1974], p.40, emphasis on original), Lefebvre (2004) has named the effects of meeting or clashing rhythms based on the heart's rhythmic sequences of repetition and difference. As such, when the analyst notices a sensation of conflict, arrhythmia occurs. When a sensation of co-existence and acceptance is noticed, polyrhythmia occurs. In polyrhythmia, there is no conflict but there is no unification either. When there is a sensation of constructive co-existence to the extent of co-creation, eurhythmia occurs, while isorhythmia occurs when there is unification and the sensation of oneness is produced through the rhythms. The rhythmanalytical project is a sensory analysis of repetition using discernment and the state of presence to judge what is repeated and uncover any hidden contradictions experientially. According to Lefebvre's (2004) spatial politics, the analysis of rhythms occurs (as in is repeated) in space, time frequents (as in is included) in space while energy is used as a sensory guide to be interpreted by the rhythmanalyst. Lefebvre (2004) also talks of rhythms and their analysis distinguishing two main types of rhythms. Linear rhythms that represent hegemonic linear thinking and circular rhythms that allow difference and can be framed as potentially counter-hegemonic.

In the following sections, I discuss the works of Antonio Gramsci, Ernesto Laclau, Chantal Mouffe and Doreen Massey in conjunction with Lefebvre's work. Heading towards an understanding of the politics of space and time and their relation to the discursive and the material, a focus on the spatio-temporal politics of hegemony begins to formulate. The purpose of the next three sections is to complete the meta-theoretical and philosophical discussions relevant to the development of the discursive-material framework.

2.2 Beyond Lefebvre: Politics of Hegemony in the 'Smart City' Urban Process

In this part, links between Lefebvre's and Gramsci's thinking are made to contextualize Lefebvre's spatial politics within the conditions of hegemony as well as to draw some of Gramsci's strategic insights on how its politics work and can be further operationalised. Following that, building on Doreen Massey's spatial politics Laclau and Mouffe's theory of hegemony is presented and brought into context in order to develop and define the discursive-material focus. Having discussed the production of space that defines this project's approach to the material, the task for this part is to further comprehend the processes of repetition and the production of differences within hegemonic politics. Building upon Dahlberg's (2014) discussion on the contribution of Laclau and Mouffe (1985) to the political economy, perceiving capitalism as a discursive system can provide us with insights on how to conceptually move from contradiction to antagonism (Laclau, 1990) and from antagonism to agonism (Mouffe, 2013a).

Lefebvre as Urbanized Gramsci

Stefan Kipfer (2008) argues that Lefebvre has many affiliations with Antonio Gramsci, more specifically he views Lefebvre's work as spatializing political theory by urbanising Gramscian hegemony. For him, Lefebvre's work explicitly 'links the problematic of hegemony with the production of space' (Kipfer, 2008, p.199). At the same time, he views Gramsci's historicism as being inherently spatial especially based on his exploration of the city-countryside relationship as well as 'urbanity and rurality as moments of hegemonic struggle' (Kipfer, 2012, p.83). Featherstone (2012) further argues that of crucial importance to Gramsci's work is his 'engagement with the spatial practices of the political', an engagement that derives from his perceived 'importance of the conduct of political activity and the making of connections' towards 'the formation of hegemonic and counterhegemonic politics' (p.69). As Featherstone (2012) explains:

> By engaging with the spatial practices through which solidarities and hegemonic articulations are constructed, Gramsci foregrounds important questions of the terms, practices, and relations through which political alliances are constituted. It is through attending to the spatial practices through which articulations are

> forged, through following them and intervening in them, that Gramsci engages with their relational character (ibid).

Equally and in reverse, Lefebvre's (1974) analysis suggests that abstract space is hegemonic. In Lefebvre's urban theory, hegemony is 'an incomplete, never fully total result of multidimensional (perceived, conceived, lived) processes and strategies of producing abstract space' (Kipfer, 2008, p.205). These processes and strategies of producing abstract space 'are potentially hegemonic insofar as they integrate the affective- symbolic sides of everyday life (lived space) into the practical-material (perceived) and institutional-ideological (conceived) dimensions of abstract space' (ibid). Following Lefebvre's line of thought, contradictory space reveals hegemonic processes and strategies in their contradictions, and counter-hegemonic processes are to be found and organised in differential space based on the theory of differences.

Akin to Lefebvre, the purpose of Gramsci's political theory is to first comprehend the workings of hegemony and then to organise counter-hegemony. Gramsci too moves away from the Marxist tradition by focusing on ideology as implied in the concept of hegemony (Mouffe, 1979) and focusing on civil society over political society that represents the tension between society and state politics. Ultimately, '[t]the society without a state, which Gramsci calls "regulated society", comes from the enlarging of civil society and, therefore, of the moment of hegemony, until it eliminates all the space which is occupied by political society' (Bobbio, 1979, p.41). Gramscian hegemony is promoted through the concept of historical blocs that each time represent and imply the dialectical relationship between (structured) social practices and the creation and reproduction of the (capitalist) superstructure. Gramsci argues that beyond a superstructure materialism, hegemony manifests as the 'political, intellectual and moral leadership over allied groups' (Mouffe, 1979, p.10). At the end of the day, Gramsci's political theory is in its core very pragmatic, seeking for analysis of hegemony (structures, superstructures and society) for the purposes of counter-hegemony (revolutionary politics, strategies and tactics). Towards that end, Gramsci has offered a few concepts that are helpful to the organisation of the counter-hegemonic struggle and its analysis and are brought to the fore here.

Gramsci talks of the 'passive revolution' as the occurring changes in political and institutional structures without the emergence of an active revolution. Linking this to Lefebvre's (1974) theory of differences, 'passive revolutions' are the product of the antagonistic relationship between abstract and differential space, repetition and difference. According to Mouffe (2013) 'passive revolutions' or else 'hegemony through neutralization' describes 'a situation where demands which challenge the hegemonic order are appropriated by the existing system so as to satisfy them in a way that neutralizes their subversive potential' (p.73). Secondly, Gramsci proposes two methods of challenging hegemony, the 'war of maneuver' and the 'war of position' that are best to be perceived as a continuum. The 'war of maneuver' suggests a physically targeted strategy that can involve occupations, uprisings, strikes, protests, barricades, armed revolution etc. However, as Gramsci saw the limitations of this type of war, he more and more focused on the 'war of position' that predominantly resists cultural domination and strategically challenges hegemony therewith. According to Cox (1983), the 'war of position' is a process that 'slowly builds up the strength of the social foundations of a new state' by 'creating alternative institutions and alternative intellectual resources within existing society' (p.165). In Mouffe's (2013) more contemporary agonistics, a 'war of position' needs 'to be launched in a multiplicity of sites, and this requires establishing a synergy between a plurality of actors: social movements, parties and trade unions' (p.75).

Gramsci's focus on culture derives from the perception that it is culture that 'shapes [the class'] ability to imagine how it might be changed, and whether they see such changes as feasible or desirable' (Crehan, 2002, p.71). Gramsci puts an emphasis on the role of the intellectuals as 'organizers of culture' such as scholars and artists but also intellectuals of more functional activities that are in nature technical or directive such as politicians, managers and technocrats among others. In fact, Gramsci classifies intellectuals in two dimensions: the horizontal and the vertical. Vertically are the specialists and experts along with the general directors of society that organize industry and production according to the needs of capitalist class. Horizontally are the traditional and organic intellectuals. Traditional intellectuals are linked to past intellectuals and are not directly presently linked to the hegemony of the current historical bloc. Organic intellectuals are on the other hand linked to the current historic bloc and are an intrinsic part of the

sustenance of its hegemony and dominance. Mouffe (2013) for example talks about artists as organic intellectuals. Organic intellectuals are in the key position to produce a class identity and awareness as well as help towards its homogenization and coherence. The reason why Gramsci positions intellectuals two-dimensionally is to showcase the potential fluidity of the groups, but also to signify the importance of them all to the production of any revolutionary project. In the organization of a new hegemony based on 'war of position' for instance, the recognition and identification of intellectual categories is crucial. Understanding each category in their dimension is crucial to understanding the politics of hegemony and culture production. A revolutionary project of 'war of position' needs to deeply understand the category of organic intellectuals as it is responsible for producing class culture and in the context of a 'passive revolution' can potentially produce differential space and/ or resist its appropriation.

Laclau and Mouffe's Radical Democracy

In *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics* Ernesto Laclau and Chantal Mouffe (1985) inspired by Gramsci and with a focus on discursive construction developed their theory of hegemony intended as an anti-essential (re-)articulation of Gramscian hegemony. Their theory was highly relying on their conceptualisations of articulation, discourse and (social) antagonism and their exploration meant to address the crisis of concept and practice in Marxism that according to them produced a left organized politics standstill due to the essentialisation of class and the economy. Instead, as they write in their introductory pages, there was a requirement to consider indications that suggest that the new left needs to direct its focus towards the embrace of difference and multiplicity:

> The rise of new feminism, the protest movements of ethnic, national and sexual minorities, the anti-institutional ecology struggles waged by marginalised layers of the population, the anti-nuclear movement, the atypical forms of social struggle in countries on the capitalist periphery—all these imply an extension of conflictuality to a wide range of areas, which creates the potential, but no more than the potential, for

> an advance towards more free, democratic and egalitarian societies (Laclau and Mouffe, 1985, p.1)

The question for Laclau and Mouffe was how different subject positions can be understood and approached within a less rational and objective political framework than the one proposed in Marxism so far and how can determinism and essentialism be avoided. Their post-Marxist elaboration responded to that question primarily by meta-theoretically accepting the impossibility of closure of any subject's position as much as the problematic of the perception of subject positions as fixed and singular.

According to Laclau and Mouffe (1985), the political construction of the social is a process of overdetermination that happens through negotiated logics of equivalence and difference, and as such, any articulatory practice has discursive closure and the achievement of hegemony as its overarching ambition. At the same time, the determination and fixation of the social is impossible which represents its limit. The limit of the social highlights the inherent contradictory nature of the social and therefore a society that in turn hosts and produces antagonism(s) by necessity. Arguably then for Laclau and Mouffe (1985), hegemony is to be 'understood as the general form of politics in modern capitalist societies' (Torfing, 1999, p.110). Within the limited social, hegemony is achieved when certain discourse(s) appear as natural and objective and are effortlessly reproduced to hold their hegemonic position. Nonetheless, hegemony is only and always temporal and seemingly fixed as it cannot ever truly achieve closure (Laclau and Mouffe, 1985). A hegemonic project needs to continuously articulate itself through the production of discourse (i.e. its articulatory practice) in order to remain and sustain itself and its processes. The ultimate purpose of hegemony is to create objects of seemingly clear boundaries that can hide deeply social antagonisms.

Linking this to Lefebvre's concepts, for Laclau and Mouffe therefore hegemony can be seen the process of the production of abstract space, masking contradictions and hiding differences with an explicit focus on discourse, articulation and the social. Laclau and Mouffe's work is particularly relevant to Lefebvre's category of conceived space. Reiterating this, Laclau and Mouffe could provide some insight on the role of discourse

and identity construction in the production of abstract space and the concealing of contradictory and differential spaces as well as on how space is conceived.

Overall, the main suggestion of Laclau and Mouffe's work is that, on the one hand, any hegemony can be discursively challenged exactly because its fixation is fiction. On the other hand, a hegemonic intervention can forcefully resolve social antagonisms in their discursive instances by simply excluding the discourses that signify or highlight those (Jorgensen and Phillips, 2002), thus further concealing the contradictory nature of hegemonic processes. As such, challenging hegemony similarly to Lefebvre's and Gramsci's understanding demands a high level of comprehension of the operations of hegemony and an articulatory practice that strategically produces a counterhegemonic challenge. The concept of articulation then becomes crucial for Laclau and Mouffe (1985) and their analysis of hegemony as it incorporates the strategic note of discursive practice. Articulation is 'any practice establishing a relation among elements such that their identity is modified as a result of the articulatory practice' (Laclau and Mouffe, 1985, p.105). Discourse is then 'the structured totality resulting from the articulatory practice' (ibid). Overall, any articulation is discursive, and any discourse entails articulatory practice. Whether an articulatory practice will eventually formulate a concrete discourse (i.e. fixate some meaning) depends on the assumed hegemonic processes. Articulation is the process through which discourses take their form (are filled with content) with the purpose to achieve, sustain or challenge hegemony. This articulation-discourse interplay under Laclau and Mouffe's (1985) theory of hegemony suggests that discourse is more than just language, as often approached in other linguistic traditions of discourse. Discourse is here also practice and to an extent implies a level of materiality, at least the way Laclau and Mouffe (1985; 1987) understand it.

Laclau and Mouffe's (1985) post-Marxist claims were greatly criticized by traditional Marxists. For instance, one of the most elaborate criticisms was that of Geras' (1987) who accused them of having misunderstood Marx and Marxism, of being idealists and completely ignoring materiality, which for many traditional Marxists and historical materialists equals the lived experience of capitalism. In their response to the criticism, Laclau and Mouffe (1987) refuse a strict opposition between idealism and materialism, calling upon a distinction between form as 'both the organizing principle of the mind and

the ultimate reality of an object' (p.87) and matter that which exists outside thought. Their theory of hegemony and understanding of discourse refers to the being of objects and the subjective identities they occupy that obtain a material form within thought, i.e. the materiality of discourse, but are different to 'mere materiality' as it refers to matter and the existence of objects, i.e. materiality outside discourse (see also Laclau and Mouffe, 1985). Bringing Lefebvre's radicalized dialectical materialism into this discussion, the lived experience crosses over from the materiality of discourse to the materiality outside it, going conceptually beyond the idealism/materialism dualism that Geras (1987) and Laclau and Mouffe (1985; 1987) seem to be trapped in.

A main distinction that can be made at this point is that Lefebvre's (2016) approach is metaphilosophical, while Laclau and Mouffe's approach is meta theoretical the most (Jorgensen and Phillips, 2002). Kipfer (2008) discusses differences between their works as regards to their apprehension and connection with Gramsci and draws a sharp line between Lefebvre and Laclau and Mouffe based on different understanding of language as well as their understanding of differences. He asserts that '[i]n contrast to post-Marxists Ernesto Laclau and Chantal Mouffe, Lefebvre did not consider hegemony a discursive form of articulation, *a linguistic way* of 'fixing' the interminable flux of signs' (Kipfer, 2008, p.203, *my emphasis*). This is to an extent true as indeed Laclau and Mouffe have a discursive focus on their approach to hegemony that does not exist in Lefebvre. At the same time, Lefebvre was not looking for a theory of hegemony towards a socialist strategy for the level of state politics as Laclau and Mouffe did. Furthermore, for Laclau and Mouffe (1985, 1987) discourse is not simply language or speech as Kipfer (2008) reduces their approach to, but is an articulatory practice which can debunk the 'semantic reductionism' accusation thrown at them that as argued 'detaches language as a whole for lived experience' (Kipfer, 2008, p.203). Laclau and Mouffe (1985) opposed linguistic essentialism as did Lefebvre. Their understanding of discourse as an articulatory practice focused on the logics according to which meaning is fixed and not in the linguistic fixation of signs per se (Torfing, 1999). Furthermore, Lefebvre was far more interested in the lived experience than Laclau and Mouffe. Laclau and Mouffe (1985) focused on the construction of identity, which is only but an aspect of what counts for the lived

experience but even more so at that time where explicitly focused on politics.[8] Kipfer (2008) points to Lefebvre's disagreement with Derrida's différance (as in both difference and deferral of meaning, whereby meaning is forever 'deferred' or postponed through an endless chain of signifiers, and hence it defies semantic reduction). However, Kipfer offers a rather crude and superficial explanation here that Laclau and Mouffe (1985) as well as Massey (2005) argue that hegemony denies difference, whereas Lefebvre would argue that hegemony minimizes difference. Kipfer (2008) writes that 'oppositional projects become counterhegemonic to the extent that they connect revolutionary claims to decision-making and strategies that transform minimally different peripheries into quests for spatial centrality and *maximally* different, non-capitalist forms of everyday life' (p.206, *emphasis in original*). Laclau, and Mouffe and Massey even more so, have a pragmatical approach to politics and accordingly work within the realm of transforming minimal differences and indeed not maximal. This however does not make their understanding of hegemony competing to Lefebvre's. Even more so, Lefebvre's theory of difference can still be a very productive source for expanding these more pragmatist works, while Laclau and Mouffe (1985) insights can be operationalised to explore Lefebvre's (1974) 'differential signs' as differences induced or reduced to signs.

Following Doreen Massey's constructive criticism to Laclau and Mouffe's project, in conjunction with her acknowledgement and appreciation of Lefebvre's spatial politics, in what follows the above differences are abstracted in the space-time dialectic. More specifically, the question of interest that Massey (1994; 2005) poses is how we can approach politics more spatially or without over determining time as expressed in history and politics by default (Osborne, 1995).

Towards Space-Time Politics: Thinking Radical Democracy Spatially

The politics of time have been extensively discussed as a key concept for the conceptualisation and analysis of modernity and capitalism (Osborne, 1995). According

[8] Laclau and Mouffe (1987) clarify that their intention was to point out that 'the world' and its society is 'an entirely social construction of human beings which is not grounded on any metaphysical 'necessity' external to it—neither God, nor 'essential forms', nor the 'necessary laws of history' and 'that the political transformations which will eventually enable us to transcend capitalist society are founded on the plurality of social agents and of their struggles' (Laclau and Mouffe, 1987, p.106)

to Osborne (1995) there is a fundamental relationship between time and politics in general, especially as those get contextualised within history (see also Debord, 2002). In Osborne (1995) words, 'politics [can be seen] as centrally involving struggles over the experience of time' (p.200). In the society of the spectacle, Guy Debord (2002) illustrates how the spectacle operates as 'a means of unification' (para.3) as regards to both time and space. According to them '[s]pectacular time is the illusorily lived time of a constantly changing reality' (para. 155) that is tightly connected to the capitalist time of production. At the same time, the '[c]apitalist production has unified space, breaking down the boundaries between one society and the next' (para.165) striving for a homogenization effect that transcends time and history.

Following Doreen Massey's (1994a, 1994b; 2005) arguments towards a focus on space and spatial politics, that to a great extent brings Lefebvre's project into the 21st century, this section discusses how to think radical democracy spatially. Although global geo-politics are often discussed as across the board power struggles over space (e.g. Tuathail, 2000), a generalised understanding of politics as a spatial category has been long time missing (Massey, 2005). In *Politics and Space/Time*, Massey (1994a) urges us to strategically bring spatial politics into history and politics suggesting that 'the spatial is integral to the production of history, and thus to the possibility of politics' (p.84). Ultimately, '[we must] insist on the inseparability of time and space, […] on the necessity of thinking in terms of space-time' (ibid). Beyond his spatial politics, Lefebvre's engagement with the politics of time lies within his 'project of systematically combining a philosophical concept of the everyday with a sociological analysis of its evolving forms' (Osborne, 1995, p.189), something he also illustrated through his space production triadic model. Nonetheless, Lefebvre is to be predominantly seen as a proponent of spatial politics. If capital expands through the 'annihilation of space by time' (Marx, 1973, p.424), Lefebvre (1974) has shown that it also produces space, everyday life and humans and from that perspective has expanded politics into spatial politics in Doreen Massey's (1994a) sense.

Doreen Massey (2005) explicitly focuses on spatial politics in the context of globalisation. In *For Space*, she highlights the issues spatiality raises starting form, as did Lefebvre (1974), problematizing the conceptualisation of space particularly in

philosophy, but most importantly furthers this by focusing on the relation between the concept of space and time. Massey (2005) insists that the hegemony of neoliberal globalisation needs to be theoretically but also politically addressed (2002; 2006). Her aim is to bring forward 'the potential range of connection between the imagination of the spatial and the imagination of the political' (2005, p.10), which where she crossed paths with Laclau and Mouffe's work. She problematizes the equation of space with representation that philosophers such for example Laclau (1990) makes, pointing that such conceptualisation can only happen through privileging the signifier of time as telling history. Her 'proposition [however] turns geography into history, [i.e.] space into time' (2005, p.5). In her articulation, space is not stasis, as often philosophically conceived in opposition to time that usually represents movement and appears harder to pinpoint -at least in its most abstract form. As she argues, space is too open and thus equally impossible to represent. What she suggests is to acknowledge this openness and turn the focus towards difference, heterogeneity and multiplicity as key qualities that can simultaneously imply and signify temporality and spatiality.

For instance, in comparing the story of 'globalisation' with the story of 'modernity' she argues that 'it convenes spatial difference into temporal sequence, and thereby denies the possibility of multiple trajectories; the future is not held open' (2005, p.87). Faithfull to the potential of alternative political futures, herself, she proposes to embrace difference, heterogeneity and multiplicity looking towards the radical politics that a new understanding of spatiality can offer. Similarly, to Lefebvre, her work seeks a theoretical and political comprehension of spatiality that recognises space in its multiplicity and, influenced by Althusser's anti-essentialism, as a product that is not finite (Massey, 2005). She thus puts her intellectual focus into differential space urging us to think politics spatially and see the production of space as political. She critiques the overdetermination of temporality and history when talking politics, forging the 'idea that space and politics are co-constitutive, that they are built together as the outcomes of different ongoing processes' (Featherstone and Painter, 2013, p.3). If the metaphilosophical focus of Lefebvre intended to, through critique, bring awareness to the simultaneous spatial production of humans, their history and their world as his question was 'How can men live as they are living […] and accept it?' (Lefebvre in Charnock, 2014, p.315) proposing an ontology of space, Massey's intellectual focus is a more pragmatical one suggesting

that '[s]pace poses the question of how we are to live together' (Mouffe, 2013, p.22). In the process, by arguing explicitly on the co-constitution of space and politics she directly poses the question of spatiality to political theory as she engages with the work of Chantal Mouffe and Ernesto Laclau. Massey's proposed ontology of space, which ultimately hints an ontology of space- time meets Laclau and Mouffe political ontology. The deriving question is thus what does this constructive (inter-)exchange between spatial and political ontology can bring to Lefebvre's emphasis of differential space as radical politics.

In *Politics and Space/Time*, Massey (1994a), challenges Ernesto Laclau's (1990) logic on the *New Revolutions of our Time* that space and politics are oppositional categories- 'antinomic terms'. For a spatial theorist, his argument that space is static and as such opposes time that gives us politics is provocative the least. Massey (1994a) recognised that space in Laclau's (1990) rationale is but a dimension that lacks the complexity that Lefebvre (1991) has given to it. In fact, similarly to Laclau and Mouffe's (1987) argument on materiality and 'mere materiality' outside the social, Laclau (1990) talks of a space that only exists outside the form of the social, perhaps absolute space in Lefebvre's (1974) history of space. As Massey (1994a) writes 'different ways of conceptualising this aspect of "the spatial" themselves provide very different bases (or in some cases no basis at all [as in Laclau's account] for the politicization of space' (p.67). According to Massey (1994a), he sees space as determined, as the fixation of meaning and the elimination of temporality, and he operationalises the space- time dichotomous dualism to argue that time matters more as it makes history and moving as it provides the possibility of dislocation, which is for him freedom. Of course, as Massey (1994a) illustrates spatial theory tells a radically different story and Laclau's articulation is read as privileging the signifier of time. In Laclau's (1990) dialectical terms, Time is A and space is not-A, 'defined by absence, by lack' (Massey, 1994a, p.73). As she further explains in the occasion of the space-time dichotomy, Laclau (1990) fails to apply his usual reasoning that argues that '[a]rticulation … is the primary ontological level of the constitution of the real' (Laclau in Massey, 1994a, p.79). According to this, space and time are equally products of articulations. By overdetermining the coherent and logical time of history, Laclau falls into the trap of limiting our politics by excluding spatial politics (Massey, 1994a).

In ‘thinking radical democracy spatially’, Doreen Massey (1994b) engages with Mouffe’s (1995, also Laclau and Mouffe, 1985) work and its reception into geography by arguing for its direct implications to the field through spatiality (Massey, 1994b). In Massey’s analysis, the differences between the works of Laclau and Mouffe that followed *Hegemony and the Socialist Strategy* become more evident (see also Wenman, 2003). It is in Mouffe’s work that Massey (1994b) sees ‘a constructive exchange’ between her project on radical democracy and the political and the space-place relations and conceptualisations in geography (p.284). As she argues if space entails power then place entails power- produced identity/ subjectivity, so that ‘power is inherent in the social interrelations which construct both social identity (Mouffe's argument, in relation to radical democracy) and social space and place (the argument within geography)’ (ibid). Since the production of space produces social relations (i.e. humans, their world, their history) (see Lefebvre, 1991), which entails that social relations are spatialized, Massey seeks to focus the argument on that power is spatialised too. Henceforth, thinking radical democracy spatially means recognising that this is the context under which political subjectivities and identities are produced, i.e. spatiality is implied in their constitution as much as it needs to be taken into account for any ‘political project for a radical democratic future’ (Massey, 1994, p.285).

Most recently, Chantal Mouffe (2013) embraces Massey’s (1994b) arguments that evidently influence her latest works on agonism and a multipolar world (Mouffe, 2014). Mouffe (2013) especially develops her arguments on a multipolar agonistic world that ‘would acknowledge a plurality of regional poles, organized according to different economic and political models without a central authority’ (2014, p.22). In reviewing the works of Hardt and Negri (2000) and Virno (2004) and their argument that deterritorialisation will result in the dismantlement of states and ‘the emergence of an increasingly “smooth” democratic world beyond sovereignty and the constraints of state power’ (p.25), she postulates that a ‘smooth space’ is there imagined that when reviewed under Massey’s terms, and also Lefebvre’s, is impossible. Impossible because as they have shown space and multiplicity are co-constitutive (Massey, 2005). For Mouffe (2013) this signifies a misconception of politics that undermines the ontology of ‘the political’ (Mouffe, 2005) and in turn an ontology of space based on difference, heterogeneity and multiplicity (Massey, 2005). Seeking to continue the project of radical

democracy under the theory of hegemony (Laclau and Mouffe, 1985) while addressing the understanding of space as unified and homogeneous, Mouffe (2013) writes:

> To acknowledge the ineradicability of antagonism implies recognising that every form of order is necessarily a spatialized hegemonic one, that it constitutes a 'geometry of power', to use Massey's vocabulary. Heterogeneity can never be eliminated and antagonistic heterogeneity points to the limits of constitution of social objectivity. As far as politics is concerned, this points to the need to envisage it in terms of a hegemonic struggle between conflicting hegemonic projects attempting to incarnate the universal and to define the symbolic parameters of social life (Mouffe, 2013, p.30).

Back to the question of how all these works can be combined and fruitfully provide inform the discursive-material framework for the 'smart city', the first point of connection is anti-essentialism. As Mouffe (2014) argues, the aim is not that any theory of hegemony becomes hegemonic but rather that anti-essentialist theories become hegemonic within the social sciences. In that sense, and despite the differences between thinkers and the debates around their works, this thesis in the highest level of theory combines the works of Henri Lefebvre, Antonio Gramsci, Ernesto Laclau, Chantal Mouffe and Doreen Massey as guides for a discursive-material analysis of the smart city. For the purposes of further grounding the context of the smart city and moving from the space and time to the discursive-material relationship, in the next two sections literatures on globalization and urbanization, capitalism and technological development as well as existent 21st century city research are reviewed. The purpose is to lead towards a more grounded understanding of the smart city as a strategic object of study in the 21st century, and further understand how the aforementioned theories of space and hegemony can inform their analysis.

2.3 Reviewing the 21st century Modernity and Capitalism: The Global Dimension

According to Giddens (1990), human societies and cultures in their respective localities have been realising globalisation as 'the intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa' (p.64). Globalisation is often discussed as a culture-anthropological process and/or an economic-political one. The purpose of this section is to discuss the process of globalisation as a spatialisation process (Massey, 1999) -a socio-spatial process- in order to situate the smart city as a significant object-locality for the beginning of the 21st century, and further interrogate its discursive and material manifestations and space time configurations. Dialectical relationships such as the global and the local, structure and agency, form and content, appear fundamental to the theorisation and articulation of globalisation, but also the urban process discussed in the next section, and are for that reason emphasized throughout, especially as they inform the integration of the discursive and the material. Ultimately, the discursive-material and form-content relationships constitute a higher abstraction level and are analytically seen as more fixed, while the global-local and the structure-agency ones constitute lower levels of abstraction and their interplay is more fluidly constituted and influenced by the higher levels of abstraction and especially discursive-material articulations (Figure 2). In what follows, literatures on globalisation, the global political economy, urban processes and sustainability are reviewed in order to provide the context of the 21st century cities (Section 2.4).

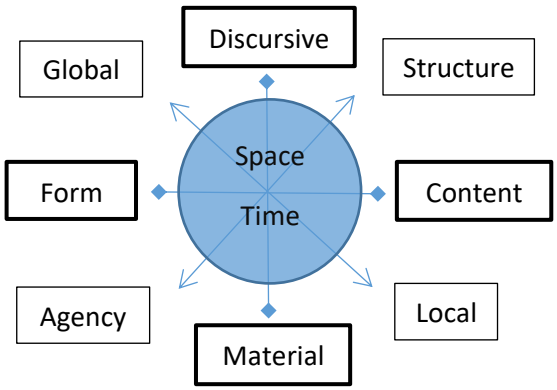


Figure 2: Dialectical relationships informing the discursive-material framework

Globalisation, Networks and Cyborgs: A Discursive-Material Perspective

Academic literature on globalisation moves from initially approaching globalisation as a singular process to approaching it as a set of individual processes or the intersection of certain individual processes, acknowledging a sense of complexity in its occurrence. Hopkins' (2002; 2006) for example discusses globalisation as a historical process. His main argument is that globalisation can be traced back to the 19th century, if not before, and consists of historical phases and multiple types. Nonetheless, since global history is an intrinsic part of the globalisation process, globalisation is generally theorized as the set of social, economic, cultural, ecological and political dimensions and processes that constitute it (see Beck, 1999; Kellner, 2002; Scholte, 2000; 2008). At the same time, due to the strong intellectual tradition of cultural history and as globalisation has been linked to colonial and imperial processes (Hopkins, 2002) the cultural effects of globalisation have gained attention. Discussed within a global/local dialectic, the cultural dimension is examined as to whether the overall effect of globalisation is cultural homogenisation e.g. westernisation or cultural heterogenisation e.g. glocalisation (see Kellner, 2002). Across the board, difference and multiplicity are reoccurring concepts in the theorisation of globalisation as a socio-cultural process. Another strand focuses on the political economy of globalisation and its macro aspects such as governance, markets, policy (e.g. Higgott, 2002), i.e. viewing globalisation as a socio-economic and/or socio-political process. Capitalism and the global network economy are key aspects of those articulations.

Appadurai (1990), aspiring to disengage from an economy vs. culture debate -i.e. avoid techno-economic determinism and still consider power dynamics- argues for a cultural dimension of globalisation that results from the disjuncture and difference of imagined scapes of global cultural flows that fluidly move around the global cultural economy, reshape it and transform it. In his view, modernity at large can be explained with five intersecting processes of movement: the movement of humans e.g. immigration, tourism ('ethnoscapes'), the movement of content (information), e.g. news ('mediascapes'), the movement of technology, e.g. infrastructural development ('technoscapes), the movement of capital ('financescapes') and the movement of (political) ideas, e.g. ideologies ('ideoscapes). These cultural scapes as products of culture dictate directions

of movement within the global economy and do so through difference and disjuncture. The actual movement occurs in the form of flows that is a vague and abstract representation that over determines agency over structure and content over form. Whereas the comprehension of 'the movement of flows' is conceptually very important, the background justification that the five dimensions-scapes are 'in fundamental disjuncture with respect to one another' (p.46) is solely viable within the cultural-anthropological approach followed by Appadurai (1996). Such an approach views culture as a hybrid construction of prime importance and deconstructs it into its dimensions-scapes at the point of reference. However, as he himself points out, if we would ask the 'Marxist questions' of structural and historical specificity, the unravelling power relations between the dimensions-scapes would provide a rather different understanding of the very same flows. From a political economy approach for example, where capitalism is to be viewed as 'the structure of other structures', i.e. in a sense 'a superstructure' (see Harvey, 2009, p.286- 302), 'financescapes' would obtain a dominant position whereas the movements of the rest four could be understood as a pre- condition for ensuring the movement of capital. For Appadurai (1990) culture is overemphasized as a hybrid construction of prime importance to explain the contemporary global economy, as such restating the global political economy in cultural terms, overemphasizing culture over the economy.

From a sociological perspective, Giddens (1984) talks of the dialectical essence in the constitution of society arguing that society has a form that makes sense only when it is structurally reproduced through agency. Unlike Appadurai's (1990) idea of potentially contradictory but rather random global cultural flows, Giddens (1990) argues that globalisation is a direct outcome of modernity's risk culture (also Beck, 1992) wherewith societies and their respective localities live in the future and not in the past, live in relation to each other and in relation to the world. As localities can be sensed (Massey and Jess, 1995) and experienced (Hiss, 1991) as a place - as something abstractly concrete - the difference that globalisation makes is that it charges the human mind with the awareness of its global context. That is a different sensation and experience altogether that Doreen Massey (1991) calls the 'global sense of place'. For Giddens (1990) the culture of modernity is to rather be a self-reflexive culture aware of its global context than some sort of global culture in disjunction (Appadurai, 1990). For Giddens (1991) agency is

constituted by the interexchange of different levels of awareness in a reflexive towards structure manner; agency exists within structure and through action agency produces structure. Giddens' (1990; 1991) contribution thus is that rational modern thought in a self- reflexive manner initiated the process of globalisation and activated it as part of its social formation processes.

The insights of Appadurai (1990) and Giddens (1984; 1990) combined suggest that globalisation has no form as society does (Giddens, 1984; 1990) rather it has meaningful content in terms of its cultural dimension (Appadurai, 1990). In turn, globalisation as content pertains the occurrence of discursive process(es) that are simultaneously global as they are local in the sense that globalisation as a set of interrelated and at times contradictory processes creates the conditions of localities, societies, cultures and humans. For instance, a global sense of place (Massey, 1991). The question is, if globalisation is content, what the correspondent form is, ascribing to Lefebvre's dialectical thinking '[t]here is no form without content. No content without form' (Lefebvre, 1996: 135). Towards that end, Doreen Massey (1999) argues that thinking globalisation spatially suggests that globalisation is actually 'the spatialization of the story of modernity' (p.28). In other words, globalisation underlies the discursive-material interplay of modernity and capitalism. For situating the 'smart city' the global network society in its current phase is signposted as the examined form and content, where with the content of globalisation, the story of modernity, the smart city as well as their material manifestations and spatial processes currently occur. In the end, inspired by Innis (1950) the intention is to provide a critical examination of 'the smart city' within its historical context in order to understand the surrounding civilisation.

Towards that end, starting from the imperial and industrial times, the technologies of transportation were the ones connecting the world through the physical transcendence of space by humans that was also the fastest possible way to move information around (see Mattelart, 2000). With time, transport networks became information networks, where a physical transcendence of space by humans to move information around is no more required (or at least physical accompanying information is not necessary) rather information flows on its own within the technology of the (physical) information network. Interestingly, both transport networks and information networks are part of a

process represented as ‘networking of the world’ that operates in the name of ‘globalism’ and within discourses on globalisation (ibid). As such, globalisation as content is fundamental to a story of modernity that discourses the production of a globally networked abstract space. Consequently, the specificities of transport and information networks in their historical context represent assumptions over space, time and space-time as much as seek to reconfigure them. For example, in his analysis Innis (1950) argues that depending on the historical moment and conditions the each time favoured technologies tend to either be time-biased: there is an emphasis on durability along with a decentralising effect e.g. stone, or space-biased: there is an emphasis on convenience along with a centralised effect e.g. papyrus. As such, the roles the diffusion of (networking) technology as well as the specificities of the diffused technologies play are critical. For the world to be globalised (as in culturally, economically and politically connected) it has to be also, if not first, technically connected i.e., connected through transport and information network technologies. Therefore, the global networked economy implies the physical infrastructure required for the networks to materialise, i.e. imply a spatialisation process. This process as Massey (1999) argues is often neglected, even within the realm of theorisation, because the discursive on its own is time biased. Bringing spatial politics into research, e.g. perceiving globalisation as a spatialisation process that is as much discursive as it is material, has as aim to reveal what Massey (1999) calls the ‘power geometries of time-space’.

A technically connected world, a networked world (Mattelart, 2000) ‘links distant localities’ creating ‘worldwide social relations’ (Giddens, 1990) and as coined by Castells (1996) results into the context of the ‘network society’ in the information age. Networks, on the one hand, ‘constitute the new social morphology of our societies’ and on the other, ‘the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture’ (Castells, 1996: 500). In other words, the network society and any locality within it, that consists of networks in form (social morphology) and content (networking logic), are constantly shaped by the self-reinforcing dialectic of the two. Localities are shaped and constantly reconfigured in relation to the global network society they find themselves in, which echoes Giddens’ (1990) insistence that society only has form that is meaningful if structure is reproduced through agency. Since globalisation has no form, Giddens’ (1990)

solution is to focus on the structure/agency dialectic as represented in the global/local dialectic. Similarly, in Castells' (1996) articulation the process of globalisation can be understood as a discursive process part of the content of the network society or else in Massey's (1999) words 'the spatialization of the story of modernity' (p.28) at this point of time. The form of the network society is meaningful if its structure is reproduced throughout its localities in terms of the networking logic, which simultaneously constitute and are constituted by the content of the network society.

In a similar vein, Robin Mansell (2012) discusses the information society under a symbolic-material perspective. As she argues the information society is a social imaginary that is equally a material production and a symbolic construction of society. In the era of networks, communication and media systems 'mediate every aspect of experience' (2012, p.93) through the production of the space within which experience takes place. For example, Appadurai's (1990) scapes can be read as spaces produced for the global culture's experience to take place and if the result is a 'global sense of place' (Massey, 1991) the mediation behind the experience cannot be neglected. Not independent to power relations within the systems then, the mediated experience of the information society is a social imaginary that results from the negotiation of various actors (Mansell, 2012) that operate within power geometries (Massey, 1999). Altogether, the network system of a society is constituted both by physical and material networks and by mental and symbolic imaginations of information networks (Mansell, 2012). The process of the production of the information networked society (form) and the process of its construction (content) are two processes crucially interrelated within the process of globalisation, in the sense that they are both a means and an end for its achievement (see also Mattelart, 2000). Unlike earlier discussions of globalisation, that focus on its cultural content, the argument here is that globalisation cannot be discussed independently of its political economy, modernity, capitalism and as it stands the global networked society and economy. Localities are not only connected into a global network that has both form and content but are also constantly transformed through it in a material and a symbolic manner, or else are constantly (re-)produced and (re-)constructed within it. At the same time, the reproduction and reconstruction of localities and networks is co-dependent under the global political economy (see Youngs, 2006), spatialisation processes (Massey,

1999), urban processes (Harvey, 1985), technological development (Schiller, 2004) and institutional arrangements (Castells, 2008) as discussed in the next section.

The Discursive-Material Reality of the Capitalist Cyborg World

In this section, the political economy of the current cyborg world is discussed through the urban, technological and institutional processes that provide the context of the smart city. Before delving into that Donna Haraway's (1985) articulation of the cyborg world is brought in to reiterate how the context of the smart city can be best dialectically articulated.

In her 1985 Cyborg Manifesto, Haraway (1985) describes the world as a cyborg world, introducing the 'image of the cyborg' as 'a condensed image of both imagination and material reality' (p.150); 'a hybrid of machine and organism'; 'a creature of social reality as well as a creature of fiction' (p.149). Her aim is to point us to the idea of that the world is constituted and constitutes of material-semiotic dialectics expressed as 'two joined centres structuring any possibility of historical transformation' (p.150). Way before the network society and the smart city, Haraway (1985) introduces us to a cyborg world of cybernetic systems, bodies and images that altogether and already structure our social, material and bodily realities. For Haraway (1985) the cyborg world is not a distant image or representation of the future but is as much part of our present as it is part of our past. As she argues, the cyborg world directly descends from militarism, colonialism, patriarchy, capitalism and as such dictates power, domination and control -often through surveillance and security. The power geometry of the cyborg world space-time or else the form of the cyborg world is the result of the history of power, domination and control. Cyborgs as the content of the cyborg world that is defined by difference and multiplicity are however seen as the offspring of such systems of domination and control because, ironically enough, in the cyborg world dualisms get extinct. As distinctions between human and animal, organism and machine, and the physical and the non-physical become from restrictive to irrelevant, the lines of their separation blur further.

In western thought and science, Haraway (1985) explains these relationships have been subject to, what she calls, 'border war' where '[t]he stakes [...] have been the territories

of production, reproduction, and imagination' (p.150). For her, the occurring blurring of lines effect is merely a reflection of changes in the scientific understanding of objects and as such knowledge production. Similarly, to Lefebvre, Haraway (1985) sees a world of possibility to arise as the dominant scientific paradigm collapses. This world allows but also demands science and fiction to mingle -blur into each other- so that the possibility to produce revolutionary historical transformation from their conjunction arises. For Haraway (1985) this is the kind of work that feminist science is sought to deliver, against the historical form of a cyborg world of domination and control -patriarchical capitalism- whose main purpose is to continue to dominate and control and sustain its power structure. Haraway (1985) operationalises the symbolic-material dialectic to argue that knowledge is situated within these co-constitutive material realities of power and possibility. More recently anti-essentialist feminist Karen Barad (2007) expand her work suggesting that any historical transformation is to be produced through a material-discursive dialectic. The cyborg world in its form and content is a world of domination and control and a world of possibilities. The dialectical relationship of the two produces historical transformation as much as it produces cyborgs. For the purposes of uncovering the 'power geometries of time-space' (Massey, 1999, p.28) in the networked society and economy a political understanding of the re-occurring processes, the reproduction of relations of production (Lefebvre, 1976 [1973]), is required.

This thesis uses the discursive-material instead of the symbolic-material dialectic so to incorporate the politicisation of the subject matter following the discursive turn traditions and address the agenda set by critical smart cities' literature. Ultimately, the discursive-material perspective developed in this thesis seeks to methodologically address the issue of a-spatial thinking, which to an extent coincides with a-political thinking. In her lecture *Space, time and political responsibility in the midst of global inequality*, Massey (2006) suggests that '[w]e *make* space in the conduct of our lives, and at all scales, from the intimate to the global' and we do so 'into a historical queue (one model of development)' effectively and constantly turning 'space into time' (p.90). It is therefore crucial to acknowledge spatial thinking if we are to address and reverse the 'annihilation of space by time' (Marx, 1973, p.424). Haraway's (1985) cyborg as situated in knowledge production 'is our ontology; it gives us our politics' (p.150) as the product of history and the spatial-temporal symbolic-material representation of historical transformation. In

Barad's (2007) terms human ontology is a manifestation of the discursive-material dialectic.

Accepting the cyborg world as the abstracted version of Castells' articulation of the networked society as the contemporary historical globalised reality can prove helpful in articulating its processes as socio-spatial Lefebvre's (1992 [1974]) terms. Following Lefebvre (1992[1974]), the network society is to be conceived, perceived and lived as space and its urban processes as socio-spatial, other than being abstracted into a space of flows (Castells, 1989). According to Castells (1989) the 'space of flows' is to be seen as 'the abstract space constituted in the networks of exchange of capital flows, information flows, and decisions that link directional centres among themselves throughout the planet'; the 'nodal points' of the globe (Castells, 1989, p.26). It is from this perspective that globalisation and the concentration of flows into nodes entails a different organisational structure, that of the 'network society'. Thereof, the 'rise of the network society' is realized not merely as an 'emerging social structure' (Castells, 2005, p.6), but rather as the structural triumph of the network throughout society e.g. as manifested in its two key organisational (sub-)structures: the (network) economy and the (network) state (p.8-16).

This new structural reality becomes possible and, in turn, is sustained by the constant and 'real-time' circulation of information (digital content) throughout the numerous technological achievements (digital technologies) that operate in the name of 'globalism', of 'networking the world' (Mattelart, 2000), of 'digital capitalism' (Schiller, 2000). Nonetheless, as Lefebvre (1976 [1973]) would argue the rise of this new social reality cannot be entirely new, but rather parts of it are merely new in disguise. The cyborg world of domination and control is historically produced in a rather linear manner until it changes through its clash with the world of possibilities. In this section, I review literature that describes the current state or phase of the capitalist cyborg world that for Haraway (1985) is characterised by power dynamics, domination and control. The aim here to better understand the role that urban processes, technological development and institutions play in the development of capitalism before looking into its 'world of possibilities' counterpart (Haraway, 1985).

To begin with, it is important to investigate the current phase of state of global capitalism as various scholars articulate it. First, according to Harvey (2014) capitalism is the 'social formation in which processes of capital circulation and accumulation are hegemonic and dominant in providing and shaping the material, social and intellectual bases for social life' (p.7). Hegemony and dominance assume agency so that the ways capitalist processes 'provide and shape social life' are not static, but rather transformative. Therefore, as a social formation, capitalism evolves and develops throughout time and depending on conditions or else as Harvey (2014) argues, capitalism reformulates itself not in a random or coincidental manner but rather in an organised and straightforward way; through its internal contradictions and resultant crises. As he explains, capitalist crises that have, by now, marked history 'are essential to the reproduction of capitalism' as when critically studied, they can reveal how the capitalist system survives through re-configuring processes that operate in the midst of each crisis' confusion (Harvey, 2014, p.ix.).

Overall, the capitalist system as a global system has repeatedly proven to be self-reflexive and adaptable. Therefore, too often capitalism is seen as 'the structure of other structures' (Harvey, 2009, p.286-302). According to Berry (2014), its super structural capacity means that 'we can no longer straightforwardly describe society as a thing' (Berry, 2014, p.53) or merely society as form, because we can see it becoming and transforming within, for example, a particular paradigm of accumulation that produces the very social relations of society. We need, therefore, to be 'understanding society as a process, which means that our societies are in a constant state of re-making, both as societies and as capitalist economies' (ibid); constantly (re-)constructed and (re-)produced discursively and materially.

In this regard, Moulier-Boutang (2012) and others (e.g. Vercellone, 2008) work on understanding this process of establishing a new global economic configuration as a transformation of human societies from economies centred on the production of material goods to one based on knowledge and information appropriation distributed through the numerous channels of technological achievements. Terms such as the *knowledge economy*, *post-industrial society* and *Information Age*, despite their attempts, are inadequate to describe the 21st century conditions of modernity (Moulier-Boutang, 2012).

Moulier-Boutang's (2012) suggestion is viewing capitalism as simultaneously 'a coherent system and dynamic process' and to note what he calls *cognitive capitalism* as the current capitalist phase (2012, p.47). In the phase of cognitive capitalism, 'resources that had previously been external' to the capitalist 'mode of production' and 'economic sphere', such as creativity and other cognitive processes, now become the focus of the system (Moulier-Boutang, 2012, p.58). The particular capitalist refocus constitutes a new 'paradigm of accumulation' that 'tends to identify in 'knowledge' and 'space' (geographic and virtual) as commodities' and that results into the formation of learning and network economies that become 'the basis for growth' and 'the source of surplus value' (Fumagalli, 2011, p.8). Fumagalli (2011) further renames cognitive capitalism into *cognitive bio-capitalism* to highlight that currently capitalism goes as far as producing life -i.e. through biotechnology- and humans –i.e. through capitalizing human cognitive processes. As such, agency and culture are reproduced through capitalist production as they in themselves reproduce capitalism, which reiterates the irony of the cyborg world as Haraway (1985) describes it.

Boltanski and Chiapello define 'the spirit of capitalism', where agency and culture reside, as 'the ideology that justifies people's commitment to capitalism, and which renders this commitment attractive' (2002, p.2) and in turn can explain the ideological underpinning of the current historical reality. The capitalist cyborg world is the result of an ideologically driven discursive-material process that achieved hegemony and as such is the present historical reality. As they argue we are presently in the third spirit of capitalism that is developed as a process since the 80s, and entails new 'forms of the capitalist accumulation process' e.g. 'network firms, internet and biotech, global finance and varying and differentiated productions' (see Table 2, Boltanski and Chiapello, 2002, p.6). Harvey (2007) positions the process of global capitalism in the 70s through the 'creative tension between the power of neoliberal ideas and the actual practices of neoliberalization' (Harvey, 2007, p.19). Ideologically this is played out between two aspects of liberalism, liberal rights and (neo) liberal economics, which 'are nonetheless inextricably linked, like the two sides of the same coin' (Zizek, 2010, p.37). For instance, the process of globalisation can be read under both prisms, i.e. cultural globalisation and economic globalisation. The same goes for the networking process: the network gives access to information and under the liberal rights prism everyone has the right to access,

but at the same time the network is owned and follows the rules of market economy, under the liberal economics prism. What Harvey (2007) frames as a 'creative tension' is that despite their contradictory essence, they both in principle became vital parts of the process of establishing the new economic configuration of global capitalism. Liberalism as the ideological underpinning of global capitalism that sustains its third spirit is useful here because it can prove useful in the analysis of the construction and production of the networked society as the part of the capitalist cyborg world.

What Boltanski and Chiapello (2002) describe as the new spirit of capitalism, is also explained by Moulier-Boutang (2012) as a process towards cognitive capitalism that by no means 'eliminates the world of material industrial production' (previous phase) rather with persistence 'it re-arranges it, reorganises it and alters the positioning of its nerve centres' (Moulier-Boutang, 2012, p.48). The process of the networking of society through the structural triumph of the network discussed earlier best illustrates the argument. Building upon industrial capitalism, cognitive capitalism seeks to better exploit collective intelligence for the circulation and accumulation of capital to continue (ibid). In global networked society of cognitive capitalism, '[c]ollective intelligence is suddenly multiplied' and networking becomes the ideal structure and logic through which the capitalist system appropriates collective intelligence 'in order to survive' (Moulier-Boutang, 2012, p.36). A networked world (with networked cities as powerful nodes) with its a structurally reproduced networking logic currently provides such for the capitalist cyborg world with the necessary arrangements and reconfigurations in check. Largely, those arrangements and reconfigurations are witnessed in relation to technological development, urban processes and institutional arrangements.

Highlighting the essential role technology plays in contemporary global capitalism Schiller (2000) renames it into *digital capitalism*. The purpose of globalisation and networking discursive-material processes is to connect spaces and places, put them into communication, while minimizing the effect of their distance through real fast time. Time and its overdetermination is fundamental to capitalism and become even more so within the context of digital capitalism, as digital technologies seek to actively flatten time in order to transcend space e.g. networks (see Castells, 2005; Mattelart, 2000). According to Schiller (2000) digital capitalism is 'free to physically transcend territorial boundaries

and, more important, to take economic advantage of the sudden absence of geopolitical constrains on its development' (2000, p.205), which also assumes its global outlook. This contributes 'to a new sense of simultaneity over space and total uniformity in coordinated and universally uniform time' (Harvey, 1985, p.9). Communications, along with transports as appeared in the 19th century might have 'consolidated the triumph of space as a concrete abstraction with real power in relation to social practices' (Harvey, 1985, p.13), however the importance of the unification of time and existence of clock time plays in global capitalism is unprecedented (Adam, 1995).

In the context of digital capitalism, a transition 'from clock time to digital time' occurs (Youngs, 2007, p.58-74), that in turn Hassan (2003) calls 'networked time'. In the network society, according to Castells (1996) 'timeless time' as everything becomes 'instant' and 'real-time'. Nonetheless, Hassan (2003) counter argues that it is only seemingly and conceptually possible and proposes the concept of 'networked time' as the new temporality under which knowledge is produced. Hassan (2003) is interested in highlighting the role neoliberal globalization and digital technologies play in the background. To be precise he argues that, 'the information technology revolution has brought its own dynamized structures of organization' i.e. the network society that 'creates and sustains its own temporality, the chronoscopic time of the network' (Hassan, 2003, p.237). That is important to consider as 'the knowledge being produced' including Castells' timelessness discussion 'reflects the needs and imperatives of the neoliberal knowledge society' (Hassan, 2003, p.237). For Schiller (2000) too understanding the interplay between the capitalist system and the ideology of neoliberalism within digital and network technologies is crucial. As digital and network technologies globalise and are globalised by becoming transnational, the neoliberal project rejoices not only by 'physically [transcending] territorial boundaries', but most importantly by 'diffusing more generally across the social field' (p.205). Largely, then capitalism turns digital because it must; because at this phase or stage of its development digital and network technologies can technically solve its spatial-temporal problems, reconfigure its structure and expand it.

It is important to reiterate here that the effects of this process are transformational not only to capitalist production, for instance through digitalisation, but to the whole web of

life. As Moore (2015) argues, capitalism is nowadays more of a 'world-ecology' than a 'social system' and its critique would benefit from viewing 'nature as matrix' instead of 'nature as object' (p.44-45). As Jansen (2008) building on Haraway argues our situated knowledge is '[i]nflected on the one hand by social relations and on the other by natural relations' (p.112) and it is in the process of this dialectical knowledge production that the cyborg world is constituted. This is crucial for understanding that 'the binary Nature/Society is directly implicated in the colossal violence, inequality, and oppression of the modern world; and that the view of Nature as external is fundamental condition of capital accumulation' (p.2). Overall, the capitalist cyborg world is 'a way of organising nature' (ibid) through the articulation, production and configuration of space and time. This organisational component of capitalism is what defines its discursive-material processes, manifestations and trajectories. Thereof, in what follows, a discussion of the relationship of capitalism with the urban process with a focus on technological and institutional development is provided.

The Urban Process: Technological and Institutional/Organisational Development

Urban processes are intrinsically linked to capital and the development of capitalism through urbanism and urbanisation (Harvey, 1985; 2009; Lefebvre, 1991; 1996). For Harvey (1985) the urban process contains 'the urbanization of capital' as in, largely, 'capitalism has to urbanize to reproduce itself' (1985, p.277). For him, the urban process is the key process capitalism uses to expand (Harvey, 1985) because it is fundamental to the production of space as the spatial expression of the urban process (Lefebvre, 1991). Equally, the urban process is a social process as much as '([s]ocial) space is a (social) product' (1991, p.26) implying that they are both as much constructed as produced. In the context of the cyborg world and the changes discussed within a globally networked society, it is essential to highlight that the urban process, in its abstract form but also urbanisation as a discursive-material process 'affects the future development of social relationships and the organization of production' (Harvey, 2009, p.307). As such the urban process is primordial in re-configuring space and time according to the desirable and essential conditions of the evolving capitalist system.

Looking at the production of cities as a 'practico-material and architectural fact' is meaningless without looking into the urban process through which they have been and are being produced (Lefebvre, 1996, p.103). After all, the urban is in itself the social reality of the city; a 'social reality made up of relations which are to be conceived of, constructed or reconstructed by thought' repeatedly (ibid). Through the urban process, it is not only the material city and its morphology that changes, but also the city's social reality (ibid). Lefebvre's (1996) distinction between the 'city' and the 'urban' is of course underlined by his dialectical thinking of no form without content and vice versa. As he writes 'the urban cannot go without a practico-material base, a morphology' and the other way around (p.103). Ultimately then the 'production of the city, and social relations in the city, it is a production and reproduction of human beings, rather than a production of objects' (Lefebvre, 1996, p.101). Furthermore, the city 'changes when society as a whole changes' (p.100). Equally, Harvey (2009) argues that urban systems, within which urban processes are formulated and operate, can reveal the 'set of social relationships which reflect the relationships established throughout society as a whole' (Harvey, 2009, p.307) and as such reveal the geometries of power (Massey, 1999). On another note, expanding this through Haraway (1985; see also Jansen, 2008) and Moore (2015) the production of the city and the production of the social is the production of nature.

In the context of cognitive (bio) capitalism (Fumagalli, 2011; Moulier-Boutang, 2012) and within the spirit of the cyborg irony (Haraway, 1985), a sharp distinction between the form and content of the digital is often times particularly hard in practice as in, in its everyday experience. According to Berry (2014) 'while the digital is material in form, encoded onto magnetic hard disks, computer flash memory or distributed in the network of cables that are weaved around the world, it is also true that what we used to call media is suspended within a digital medium, software, and enveloped by algorithms and code' (2014, p.122). Perhaps in theory, it is agreeable to distinguish hardware (material) from software (immaterial); however, such distinction shall remain analytical. Precisely because the digital technology contains the medium of software as content within its form that it becomes so pervasive (see also Manovich, 2012). What needs to be highlighted here is that software or what is often seen as the immaterial component of the digital has a form and structure of its own and is at the end of the day very equally material. As such, in order to understand digital technologies and digitalization processes, it is essential as

Mosco (2009) argues to incorporate 'the philosophical foundation of the theoretical approach' of the political economy as identified in 'the processes of commodification, spatialization, and structuration' (p.126).

Within the pervasiveness of the digital, digital and network technologies appear fundamental for the realisation and spatialisation of the cyborg world, to the extent that non-technological futures are unimaginable. The pervasiveness of digital technology steadily replaces and restructures previous technologies (Berry, 2014), both as a technical improvement (e.g. of the TV medium: from analog to digital TV) and as a technical replacement (e.g. of a method of organisation: from paper archives to digital databases). At the same time, 'the capitalist system is increasingly softwarized (or becoming digital)' (2014, p.18). These two processes (technological restructuring and digitalisation of capitalism), that Berry (2014) calls altogether 'the softwarization of society' is the process of fully transitioning into a global cognitive bio-capitalism phase that '[implies] the formatting of social life through the use of computational technologies, influencing both the economy and the lifeworld more generally' (ibid).

Moulier-Boutang (2012) suggests that in cognitive capitalism, on the one hand, 'the parameters of space and time [are] radically altered' (p.48). On the other, it is the very experience of space and time that is alerted. According to Berry (2014) it is crucial to develop an understanding of 'the way in which our relationships with the many entities that populate this human-built world are increasingly embedded with digital microprocessors running digital code' (p.10); within both digital technology as form and content. Coming back to the urban process, if the city is discursively constructed and materially produced, its respective digitalisation through digital and network technologies pre-empts and presupposes the production and construction of new space and time configurations. In this framework, technology becomes an essential layer of the urban process and shall be viewed as part of the production of space. In fact, it is the argument of this thesis that it is essential that technology overall and digital technology is understood as space (see for example Kitchin and Dodge, 2011). Technology as space can then become the medium through which we understand the altering of time.

This is possible of course as in terms of the social shaping and construction of technology whereby the social sciences have already adequately explained how its development requires decisions that are in fact path choices (Bijker and Law, 1992). Technology is not neutral rather relevant to the capitalist system within which its developmental decisions and choices take place. Patenting a technology (choice), for example, and disclosing the technology within the patent (decision), are a choice and decision in accordance to the general mandate of capitalist property system. Then again technological development in itself is not 'a pure application of knowledge of nature, above political and social differences' (Feenberg, 2010a, p.46), rather the eventual product of technology is 'one of the foundations of modern forms of social hegemony' (Feenberg, 1999, p.86). Against technological determinism, Feenberg's (1999; 2010a; 2010b) works echo that the belief that technology is or can be neutral, that is prevalent in popular discourses, is ideological and aims at a phenomenological determination of its role within society. The ideology of liberalism and the neoliberal economics/neoliberal rights dialectic is in fact paramount to debates over technology as for example it played out in the free software vs. proprietary software debates (see Berry, 2008; Mangalousi 2014).

Therefore, contesting technology and technology social movements are a paramount to differential space. For example, the potentials the free and open source social movements have created and negotiated since the 90s (Berry, 2008; Moore and Karatzogianni, 2009), as well as the most recent focus and articulations on the (urban) commons (Di Angelis and Harvie, 2013) they employ, are to an extent contesting dominant ideologies of technological capitalist production and producing differential space. To an extent because, such movements have to develop strategies to navigate, use or resist the co-optation of the differences they produce, their reduction or induction. Notably, technological development operates within the global urban system as much as within more local urban systems or ecosystems, representing 'the dominant interests from among many possible configurations' (Feenberg, 1999: 87). Arguably then, technological development is a trans-urban discursive-material process that can reveal geometries of power in time-space (Massey, 1999) as much as it can strategically be used for the production of differential space.

As with technology generally, digital technology is 'simultaneously technical and social, material and symbolic' (Berry, 2014, p.50); it gives technical solutions but not neutral ones as, through them, it (re-)organizes society and life within. After all, in the same way that Lefebvre (1996) talks about the city, when technology changes, society changes as well (see Feenberg, 2010b). Once a technology is introduced it 'offers a material validation of the social order to which it has been performed' (Feenberg, 2010b: 18) which means that, for instance, technology as a product and construct of a particular version or phase of the capitalist society affects its future by structuring its new social formation. The digital thus 'is also a historically located concept, as are its instantiations in concrete computational devices' (Berry, 2014: 50) -tightly linked to the society in which it is constructed and the capitalist system in which is produced (Feenberg, 2010b). In the quest for 'endless compound growth' (Harvey, 2014), digitalisation processes and the pervasiveness of digital technologies are discursive-material processes that are purposefully re-modelling the capitalist system adhering to its survival as an organiser of society. Continuous investment in digital technologies and production/consumption of digital content is fundamental for such a re-modelling.

Crucially, cognitive capitalism through its (re-)focus on 'immaterial investment' becomes 'immediately production of life and thus it is bio-production' (Moulier-Boutang, 2012, p.55). This is not necessarily entirely new situation as Flagel and Harmon (1986) while assessing the intellectual debate around artificial intelligence (formalist vs. pragmatist arguments), talk about the resulting changes in human thought and see 'digital thinking' and everyday thinking as being shaped by the use of digital tools. In 1986, they already conclude that:

> [o]f central importance to the discussion of digital thinking and technological progress are the problematic aspects of reducing experience to isolated, discrete facts, removed from the context of the lived experience. Not only are we faced with a new technological order, but we are also entering a realm where the technology itself encourages the separation of objects from their context. (p.559)

So far, the ways urban processes and technological development intersect with capitalist development were discussed. Those are however organized through trans-urban

geometries of power, whereby states institutions and other organisational structures become key. As Harvey (2007) argues the ideology of neoliberalism has been triumphant in organizing capitalism in the level of ideology which penetrates throughout all aspects of social life, e.g. through the network logic. However, there is also the element of the organization of the network society as a social morphology which Moulier-Boutang (2012) suggests 'cannot be achieved without a number of institutional arrangements governing its activities, relationships and property rights' (Moulier-Boutang, 2012, p.58). In a similar vein, Castells (2005) also argues that the structural triumph of the network as a discursive-material process is manifested in, on the one hand, its (network) economy and, on the other, its (network) state (p.8-16).

The rise in visibility and importance of international organisations such as the UN, the IMF and the World Bank, transnational organizational structures such as the EU or G8 and G20 international fora are few examples of organized intersections between the economy and the state in the global network society. Furthermore, the transitionary period of since the 2007-2008 financial and economic crises has been telling (Harvey, 2014). According to Howarth (2010) '[i]nstitutions like states, markets or governance networks can be conceptualized as more or less sedimented systems of discourse, that is, partially fixed systems of rules, norms, resources, practices and subjectivities that are linked together in particular ways' (Howarth, 2010, p.312).[9] At the same time, organisations and space are co-constitutive directly and indirectly structuring geometries of power (see Dale and Burrell, 2008).

Furthermore, academic literature widely suggests that the concept of governance is key to the 21st century transition (Colebatch, 2009; Davies, 2011; Eagleton-Pierce, 2014; Howarth, 2010; Offe, 2009). Governance according to Colebatch (2009) 'is rule by self-organising networks' (p.60), all the while as Eagleton-Pierce (2014) points out it is both 'a structure (the institutions of rule)' and 'a process (the steering of policymaking)'. Nonetheless, the concept of governance is ideological and as such it shall not be perceived as a new form of governing because according to Offe (2009), for instance, the term itself is an empty signifier (Laclau, 1996). As Eagleton-Pierce argues governance

[9] Howarth (2010) in fact proposes a view of hegemony as the practice of coalition-building and as a form of rule and governance

‘has been adapted to manage problems of legitimacy within relations of power [...] a kind of bridging concept between the bureaucratic and post-bureaucratic visions of politics’ (2014, p.16). The post-bureaucratic vision of politics refers to more reflexive and adaptable structures (beyond government control) that are often in consultation with the private sector and seen as more suitable for the network society.

Within the network society ‘the practice of governing has become negotiative and collaborative’ (Colebatch, 2009, p.59). The incapability of states of the network society to effectively and promptly react to the demands of the global capitalism has given rise to a new governance logic that aims to solve ‘a coordination problem with three aspects: organizational, technical, and political’ (Castells, 2008, p.88). Although, governance is used to indicate change of policymaking procedures, its function is to legitimize this change within the democratic context; to legitimize and justify the collaboration of the state with the private sector (Offe, 2009). In abstract terms, for Boltanski and Chiapello (2007) governance can be understood as the practice of neutralisation of critique. Within the discursive-material process of governance, the neutralisation of critique translates and transcends into the institutional and organisational levels of society.

Public-private partnerships (PPPs), for instance, are an example of how this process occurs. PPPs as a very popular governance structure are considered non-institutional, although they involve institutions, governmental agencies and public sector representation. In PPPs, the stakeholder approach dominates, as their purpose is to invite and coordinate partners towards specific goals. The structure of PPPs is not new but is re-introduced in different fields and sectors since the 1980s (Liander, 1999; Khanom, 2010). PPPs seem to be a direct effect of what Marianna Mazzucato (2011) calls the private-public divide rhetoric whereby ‘the current international debate about post-crisis recovery and growth is often so full of rhetoric about the private–public divide, on both the conservative and progressive sides of the spectrum’ (p.71). The public is indirectly presented as the problematic actor that needs to get itself together, allow cooperation with the private sector and achieve radical innovation (Mazzucato, 2011). This falls under what Mazzucato (2011) calls the ‘entrepreneurial state’ (ibid) that demands a transition from government to ‘new governance’ (Salamon, 2011) merely to keep up with the times. Nonetheless, as it has been argued the underlying purpose of PPPs is to mitigate financial

risks to the public sector so to provide incentive for the private sector to invest (Mazzucato, 2011; Yescombe, 2007). As such to a great extent, the creation of public-private partnerships suggests them as an organisational tool for cognitive capitalism to harness innovation and investments. Dale and Burrell (2008) analytically explain the entanglements of space and power in organisation also contributing to Massey's (1999) geometries of power. According to Dale and Burrell (2008) organisation shall be perceived as a material process as it both involves material space as in the architectural built environment of the organisation as well as spatial practices. Analytically they explain the entanglements of space and power through three concepts. The enchantment of space suggests 'linking together matter and meaning in such a way to produce various power effects', while emplacement in space concerns the 'construction of certain places for certain activities and certain people' and 'involves the processes of inclusion within and the exclusion from specific spaces' (Dale and Burrell, 2008, p.48). Lastly, 'enactment in space' for Dale and Burrell (2008) concerns 'the lived experience of social space' as 'the interaction of people as simultaneously social and embodied beings within the power embedded in specific spaces' (p.66).

Inequality, Uneven Development and the Problem of Sustainability

So far, the urban process and technological and organisational arrangements have been identified as crucial processes for the (re-)organization of the capitalist cyborg world, as it is through those processes that 'the space of the human species' is produced (Lefebvre, 1991, p.422) rather than simply 'just space' (p.416). The production of human space defines the space of life on planet earth as capitalism relies on value extraction from 'nature' and 'the environment (Moore, 2016; also Harvey, 2014). Precisely because of this fundamental contradiction of separation, space 'exacerbates the conflict inherent in the political arena and in the state *per se*' (Lefebvre, 1991, p.416). Furthermore, inequality, injustice, uneven development as experienced and understood within space are according to Smith (2008) both 'a product' and 'a premise' of capitalist development. In his own words:

> As product, the pattern is highly visible in landscapes of capitalism as the difference between developed and underdeveloped spaces at different scales: the

> developed and the underdeveloped world, developed regions and declining regions, suburbs and the inner city. As the premise of further capitalist expansion, uneven development can be comprehended only by means of a theoretical analysis of the capitalist production of nature and space. (p.206)

Castells and United Nations Research Institute for Social Development (1999) have highlighted that in our 'new historical reality' of continuous technological development and fast/vast information exchange a 'fourth world of social exclusion' is concurrently created (p.5); one that 'exists everywhere, albeit in different proportions' (p.10). On top of that, Youngs (2007) has thoroughly explained that 'digital inequalities' steadily add to other forms of inequality e.g. socio-economic and cultural inequalities. As 'the digital' affects both geo-spatial and socio-spatial spaces, issues of power and inequality in the Global Political Economy (GPE) arise creating a 'profound contradiction […] between connectivity and inequality' (Youngs, 2007, p.143) i.e. what has been popularized as the 'digital divide' (Selwyn, 2004). Slipping from academic circles but also within them, the term is discursively used to justify policies of 'access' that assumingly will close the gap of the digital divide (see Graham, 2002; Graham 2011; Hassan, 2003; Selwyn, 2004). In that context, 'inequality becomes a driver' (Youngs, 2007, p.92-107) and digitalisation processes go hand-in-hand 'with wider processes of globalisation, urbanisation and the concentration of corporate power' and tend to 'extend the powers of the powerful over space, time and people' (p.52).

In 2014, the United Nations *'2014 Revision of the World Urbanization Prospects'*[10] report states that the urban population already amounts to more than half of the world's population and is expected to increase, calculated by the World Bank at 53% worldwide urban population[11]. The report then decomposes the fact of high and rising worldwide urban population into three critical trends. First, the number of cities with more than ten million people has increased, second, the number of smaller cities grows even faster and thus third, rural populations decrease as urban ones increase. The movement of

[10] The UN revises every two years the world's urbanization prospects through the Population Division of its Department of Economic and Social Affairs (DESA): http://esa.un.org/unpd/wup/FinalReport/WUP2014-Report.pdf

[11] Urban population (%) is the percentage of the world's population that lives in urban areas using the World Bank's population estimates and urban ratios from DESA's urbanization prospects reports, see: http://data.worldbank.org/topic/urban-development?display=map

population towards urban environments along with the continuous growth of cities results in unsustainable urban living and consequently, considering the numbers, an unsustainable global future. The report concludes, therefore, with the problem of the sustainability of human societies; a human problem currently looking for a solution. 'Sustainability' and 'sustainable development' are not new concepts. In 1987, sustainable development was coined by the UN as the 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (quoted in LéLé, 1991). As LéLé (1991) suggests sustainable development as a term shows with time 'a lack of consistency in its interpretation' (p.607). For example, LéLé draws lines between sustainable development as 'socially sustaining human life' or 'ecologically sustaining human life' and sustainable development through economic growth. As he explains, there has been a change of conversation: when previously the question has been whether development is compatible with ecological preservation now the question has transformed into 'How can sustainable development be achieved?' (ibid).

Towards this end, among others the 2014 UN report puts cities into the spotlight of sustainability. In 2015, in a promotion video titled 'Preparing the world for important population changes', the UN highlights how understanding the demographic changes of the world population and preparing for them seems to be the only solution to our recognized urban problems: 'sustainable urbanization is key to successful development' (DESA, 2014). In the 'age of sustainable development' (Sachs, 2015), the 193 members of the UN begin to discuss the so-called post-2015 agenda that reaffirms that humanity has entered a new era that calls for pro-activeness. In 2015, the UN adopts the '2030 Agenda for Sustainable Development' that includes 17 sustainable development goals[12] to be promoted and adopted worldwide (see Sustainable Development Goals Knowledge Platform, no date).

[12] The 17 SDGs: No Poverty, Zero Hunger, Good Health and Well-being, Quality Education, Gender Equality, Clean Water and Sanitation, Affordable and Clean Energy, Decent Work and Economic Growth, Industry Innovation and Infrastructure, Reducing Inequality, Sustainable Cities and Communities, Responsible Consumption and Production, Climate Action, Life Below Water, Life on Land, Partnerships for the Goals.

Within the framework of global urbanisation prospects and the necessity of sustainability, the sustainable city[13] bring sustainability within the 'intersection of digital technologies and urban life' (Graham, 2004, p.3). Ahvenniemi et al (2017) explore 'to what extent the smart city concept addresses the same issues as the sustainable city concept' (p.240) in academic literature. In line with Monfaredzadeh and Berardi (2015) earlier study Ahvenniemi et al (2017) conclude that smart city 'emphasize human and virtual environment instead of the physical one' (p.240). Built environment and infrastructure are discussed more in sustainability discourses, while economic aspects are prevalent in smart city ones. Ahvenniemi et al (2017) also suggest that the aim of smart city discourses to achieve sustainability is insufficiently covered within a technological determinist framework. Given the centrality of the idea of sustainable cities to the broader policy agenda on global sustainability (see Sachs, 2015), it is, therefore, crucial to provide a critical analysis of this important concept especially since many have been framing the term as an empty signifier (Brown, 2016; Davidson, 2010; Griggs et al., 2017). As Griggs et al. (2017) argue the sustainable city floating or empty signifier leads to the prevalence of fragmentation and heterogeneity into policy proposals and strategies. As such, a critical insight into sustainability and cities that incorporates their political economy raises the following question: to what extent (any short of) sustainable cities can exist within capitalism since the production of abstract space as much as capital are inherently unsustainable when positioned within an ecosystem understanding of the planet (e.g. Moore, 2016). In the next section, the focus turns on cities. The purpose of this section it to investigate how can be cities studied in juxtaposition to their global context and what particularities does the cyborg world attaches to cities.

[13] In academic literature, sustainable cities are discussed in various designated relationships with smart cities, e.g. as different expressions of the same, as conflicting discourses or as working in conjunction (see Ahvennemi et al., 2017; Bibri and Krogstie, 2017; Hojer and Wangel, 2015; Martin et al., 2018).

2.4 Reviewing the 21st Century City: The Local Dimension

The city has received considerable attention within academia as a crucial node within a globalised world. Within geography the informational city, the global city and the media city are three conceptualizations attempting to explain this phenomenon, while scholars in media and communication articulate the relationship of media, the digital and the city. This section begins with (a) a brief discussion of cities as nodal points followed by (b) a transdisciplinary literature review on research on cities to conclude on (c) arguing for approaching the smart city as a transdisciplinary strategic object of research.

Cities as Nodal Points

The precursor of Castells' network society, the 'informational city', refers to 'the spatial expression of a new form of social organisation that is made up of technology, cultural information and social information as well as their interaction' (Castells, 1989a, p.1). The informational city constitutes a 'space of flows' whose essence is informational (Castells 1989a). This space of flows is an 'abstract space' that holds all social meaning; the city becomes a directional center- nodal point - that conveniently concentrates the power to move information, flows, meaning around society and reconstruct them in the process. The informational city as such is both a means and an end for what Castells' (1996; 2005) refers to as the structural triumph of the network in both form and content. The view of the city as a node, to an extent suggests viewing the city as an object. As Saskia Sassen (2007) in the global networked society 'cities emerge as one territorial or scalar moment in a variety of transurban dynamics […] as one site, albeit a strategic one, where multiple transboundary processes intersect and produce distinct sociospatial formations' (p.477). According to Castells' (1989a), the informational city results as a node from the interactions the 'informational mode of development' (that includes organisational and technological development) and 'the restructuring of capitalism' (economic development) as part of the urban process(es) (see also Castells, 1989b). New organizational structures and roles as well as technological developments in conjunction with the urban process participate in the transformation of capitalism. From the level of the city to the level of the state, these changes will eventually frame how the network is to be linked and, in turn, the terms under which information will flow throughout (see

Borja and Castells, 1997). For informational cities, when this structural triumph is achieved, the city transforms into a powerful locality that reflects and sustains the network and its logic as all types of information necessarily flow through it.

Geographers more traditionally have used the terms of global and world cities to describe cities as nodes in the global context. Peter Hall (1984) in the 1960s described world cities as 'national centres' focusing on the fact that the 'world's most important business is conducted' in cities such as London, Paris and New York. Unlike, more recent developments in literature his conceptualization was predominantly looking at the economic dimension of world cities and as such suggested a global north perspective. In the World City Hypothesis, John Friedmann (1986) building on the works of Castells and Harvey seeks to 'link urbanization processes to global economic forces' (1986, p.69). Bridging world systems theory with urban studies, Friedmann (1986) argues that '[t]he world city hypothesis is about the spatial organization of the new international division of labour' (1986, p.69). As such, a hierarchy of world cities exists; one that is complex and defines command and control centres as much as on-site polarization that is transnational in scale. Developing Friedmann, Saskia Sassen (1991) points to the fact that this 'dispersal and global integration has created a new strategic role for cities' (1991, p.4-5). That is because global cities are places of intense production of highly specialized knowledge in the form of financial goods and services. As Sassen (1991) writes, ironically, 'the 'things' a global city makes are services and financial goods' (p.5). As such, beyond the economic perspective of nodes as 'national centres' measured by the amounts of business materially conducted in city space (Hall, 1971), the global city in the networked society exists beyond its materiality as it concentrates and manages socio-cultural information that in dualistic thinking are often seen as immaterial or non-physical. In its core connected with the global network conditions, the global city, on the one hand, suggests 'the emergence of a new kind of urban system, one operating at the global and transnational regional levels' (Sassen, 2007, p.480). According to Scott (2012) this becomes more and more visible in the development and importance of global city-regions. On the other hand, the city is more like the world in itself as much as it is part of it that defines the experience of 'the global sense of place' (see Massey et al., 1999; Massey, 2007). As such:

> The global city phenomenon cannot be reduced to a few urban cores at the top of the hierarchy. It is a process that connects advanced services, procuder centres and markets in a global network […]. Inside each country the networking architecture reproduces itself into regional and local centres, so that the whole system becomes interconnected at the global level (Castells, 1996, p.380).

The role of the city within the global information network and, in turn, the global urban system is key for both their establishment and preservation especially because of the city's association with space and communication. The locality of the city as a space is in relational and contextual dialogue (communication) with the form a content of the global network. For that role, cities become important centres of and for power not only as information gatekeepers, but because within their spatial expression lies both the form and content of the network society. The nodal point of the city has thus been significant for the emergence of the network society and the performance of globalization to the extent that without city-nodes the 'rise of the network society' could not have been. The city as a local node is in a dialectical relationship with the networked society as a global phenomenon, in both content and form. The city is both constructed as a place and produced as a space within society while '[i]t changes when society as a whole changes' (Lefebvre, 1996, p.100). The city of the network society is in itself a discursive-material (urban) process. The diffusion of the networking logic and the network's social morphology that takes place in the city node is coordinated by the urban process and according to the global and transnational regional urban system. The dialectical relationship between the urban and the city as form and content is intersected by the dialectical relationships of the form and content of the network society and its discursive-material articulations of the global and the local, its structure and agency. The form and content of the global city as much as the form and content of the networked society are relationally and contextually produced within global and trans-local urban systems, globalised of networks and continuous information flows and their intersecting discursive-material processes that are simultaneously socially and culturally bound and reproduced into local contexts.

In what follows, a transdisciplinary literature review is performed to display some of the disciplinary difficulties and gaps that have led to the present articulation of a discursive-material framework for studying the smart city. One of the main drivers of the following part is to gain insights from empirical work as to how to further study the smart city as well as why to focus on the smart city as a strategic object of research. For the purposes of achieving transdisciplinarity, in line with Lefebvre's work (see Stanek, 2011; Streule, 2014), the below literature review is more indicative and less exhaustive. The aim is partly to recognise and draw attention to the production of situated knowledge (Haraway, 1988) and practice a way of dealing with the problem of discipline.

Towards a Transdisciplinary Literature Review on Cities

This section is divided in two main parts. On the first part, literature reviews of city research from the fields of (a) geography/urban studies and (b) media and communication are provided so to produce an indication of disciplinary developments, but to also to problematize them. On the second part, existent calls of interdisciplinarity and transdisciplinarity are presented as an example of the efforts scholars make to go deal with disciplinary situated knowledge production. Following, the argument of the smart city as a strategic object of research is presented.

Geography/Urban Studies Research on Cities

Empirical research on world cities, global cities and informational cities predominantly comes from the discipline of geography. The approaches range from economic geography perspectives to more cultural perspectives. What is common among most of this literature is the use of attribute measures, indicators and quantitative methods in categorizing and representing cities in the global context.

Taylor (2004) initiated the 'world city network' perspective as a global urban analysis of world cities as global service centers in response to state centric data that were predominantly defined by attribute measures. In this perspective, cities are understood as interlocking networks and what is measured is in fact the inter-city connectivity with the global context. His work has resulted into the Globalisation and World Cities (GaWC)

Research Network that 'focuses upon research into the external relations of world cities' (no date, para.1). The network's purpose is to fill the gap of world/global city research arguing that '[a]lthough the world/global city literature is premised upon the existence of world-wide transactions, most of the research effort has gone into studying the internal structures of individual cities and comparative analyses of the same[, while] [r]elations between cities have been neglected'(ibid). A main activity of the network is the production of the annual GaWC world cities ranking that is easily picked up by news reports and cities all over the world. The network further engages with global urban analysis of network connectivity in various scales (see Taylor and Derruder, 2004; Taylor et al., 2011), measures network connectivity (e.g. Hennemann and Derruder, 2014; Taylor and Catalano, 2001) and how it changes through time (e.g. Derruder and Taylor, 2016; Taylor and Aranya, 2008) all the while promoting the idea of global urban research (e.g. Harisson and Hoyler, 2018). This work is predominantly quantitative and has a visual and data orientation.

Similarly, empirical research on the informational city within geography seeks to provide indicators of how to account for which cities are informational cities and which are not. Stock (2011) relying on Castells' (1989a; 1989b) work as well as work on the knowledge society, creative cities and world cities literatures manufactures a long list of informational city indicators to account for what makes a city informational. For instance, infrastructure related indicators, can be ICT, knowledge city (clusters, hubs), creative city, airport, public transports and world city related indicators the number of residents, space of flows (capital, power, information) and cultural diversity. All these indicators together can provide an informational city ranking. Another smaller but similar strand of research is that of the 'world media city' research as coined by cultural geographer Stefan Krakte (2003). According to him the 'media city […] is a term currently used to describe cultural and media centres operating at very different geographical levels' (p.605). Media cities as he continues 'range from small-scale local urban clusters in the media industry to the cultural metropolises of the global urban and regional system' (ibid). Approaching the media city empirically can present us with a global media network of 'world media cities' that are geographically connected through the globalization of the cultural economy (Krakte, 2003; see also Krakte and Taylor, 2004). In a similar vein, Arsenault and Castells (2008), though form a media and communication perspective, have shown

how media corporations are structurally and dynamically organized within the global networked society.

Hoyler and Watson (2012) attempt to combine Arsenault and Castells (2008) work with Krakte's (2003) so to conclude in 'the spatial configuration of global media networks' that graphically shows the geographical concentration of media firms at the level of 'global media cities'- in a sense localizing global media structures. As they argue such analysis illustrates the impact global and/or regional media strategies have on the spatiality of media networks. This media city is the geographical or spatial configuration of the city and its connections to media and culture networks, describing the multi-leveled geographical (or spatial) concentration of cultural and media flows. The term of the 'media city' in geography very much relates to the concepts of the cultural economy and the creative city (see Florida, 2002; 2004) as well as the informational city and the networked society (see Castells, 1989a; 1989b; 1996). The cultural economy/creative class strand of literature appears in support or criticism of Florida's (2002; 2004) conceptualization of the creative class and its relation to the economy of the city (the creative city), while it explores the dialectical relationship between creativity (and creative processes) and urbanisation (see Scott, 2014). Developments in this research area have moved from an understanding of 'the cultural economy […] [as standing] between city and economy' to an understanding of the cultural economy in 'a more hybrid and complex relationship with the city' (Pratt, 2011, p.272).

Cumulatively, most of these works seek to represent and visualize concepts such as the informational city, the world city and the media city, their networks and their flows. Largely, what they are attempting is to discover and measure those concepts into actual cities, to objectify them, which is often problematic as to a great extent such work actively participates in the production of abstract (historical) space in Lefebvre's (1974) terms. For instance, in the process of Stock's (2011) work the informational city moves from being a concept to being a measurable, through indicators, object. Castells' (1989a) abstract space is objectified in order to for its existence beyond conceptualisation to be proven. This creates a situation where naturally not all cities can be included, as the open concept becomes a closely defined object. In Stock's (2011) own words, '[c]ities that have formerly been industrially oriented, and which have not mastered the transition to

the informational city, as well as cities on the periphery of the world economy including nearly all cities in developing countries, fall by the wayside (as 'economic deadlands')' (p.969). According to Robinson (2002) in order for '[t]he academic field of urban studies […] to contribute its resources more effectively to the creative imagining of possible futures around the world' (p.549) the focus needs to transverse to the ordinary cities (see Amin and Graham, 1997). That is because a concept such as the global city 'offers an authorized image of city success (so people can buy into it) which also establishes an end point of development for ambitious cities' (Robinson, 2002, p.546) and thus perpetuates and reproduces city inequality. Therefore, cities not just 'fall by the wayside' as Stock (2011) puts it, but are also not present or represented in world cities literature which actually entails that certain approaches 'are at best irrelevant and at worst harmful to poor cities around the world' (Robinson, 2002, p.549). In her critique, Robinson (2002) concludes that literature needs to in practice 'break free of the categorizing imperative' as much as the field of urban studies requires decolonization (ibid). As she describes:

> In both the broader and the more narrow economistic approach to identifying world cities, a view of the world of cities emerges where millions of people and hundreds of cities are dropped off the map of much research in urban studies, to service one particular and very restricted view of significance or (ir)relevance to certain sections of the global economy, Perhaps more importantly, this methodology reveals an analytical tension between assessing the characteristics and potential of cities on the basis of the processes which matter as viewed from within their diverse dynamic social and economic worlds (which, of course always stretch way beyond any physical edge to the city), or on the basis of criteria determined by the external theoretical construct of the world or global economy (p.535)

In a similar vein, in her response to Taylor (2000), Varsanyi (2000) offers two main points for the global/world cities literature:

> First, any model which seeks to capture the multi-faceted dimensions of world cities must do so by breaking out of a strictly economic

> understanding of globalization, and by including additional criteria […]. Secondly, while it is important to seek an understanding of the growing global spaces of flows which connect world cities, it is also important to look at the other half of the equation — that is, social, political, cultural, and economic processes within world cities which both create and are influenced by the global spaces of flows (p.38)

Conclusively, the above literature suggests two main tensions. One tension regards the neglect of multiplicity and difference through economically and data-driven approaches to cities as their qualified representation of socio-cultural flows cannot serve them justice. This tension seems to echo the longstanding debates in the social sciences between qualitative and quantitative methods, but also political economy versus cultural approaches. The second tension, which results from the first, is more practical and concerns the effects that the methodological and theoretical assumptions made within those paradigms have to cities and beyond. This tension concerns the epistemological and ontological premises underlying theory and method.

In order to deal with such tensions, many scholars in the field of geography and urban studies have urged for reconceptualization of the urban city as well as refinement of the tools used for its study. For instance, Amin and Thrift (2002) suggest updating our notion of the urban city and re-conceptualise it before engaging with any further sociological work, because the urban is much more symbolic and complex than it has been considered thus far. Blum (2003) then discusses 'how the symbolic order of the city and its range of imaginative permutations operate as vital distinctions in the everyday life of modern civilization' (p.294). Vital distinctions because geographers constantly cartograph inequality and injustice as manifests in cities (see Allen et al., 1999; Eade, 2000; Robinson, 2002; Roy, 2009; also Sassen, 2002). The city is more and more viewed as the most evidently conflicting space of our societies wherein inequality and injustice faster and easier reach the surface (see Harvey, 2009; Lefebvre, 1996; Massey; 2006; Sassen, 2014). For instance, Sassen (2014) calls for the conception of cities as 'today's frontiers zones' and Harvey (2012) as rebel cities. Allen Scott (2014) suggests going beyond mere conceptualizations of the city towards concrete theoretical frameworks that can allow for a contextualization of the city in its global context of 'cultural-cognitive capitalism' he

suggests. When transitioning to digitalised/networked versions of cities, especially, a necessity to keep on track with both the transforming and transformative relations arises as the focus of study moves towards the 'intersection of digital technologies and urban life' (Graham, 2004, p.3). As Jansson (2007) argues the situation at hand suggests that:

> [d]igital information and communication technology (ICT) networks blur the boundaries not only between perceived and/or conceived spatial categories (public-private, local-global, etc.), but also between the processes (material, symbolic and imaginary) that constitute space itself (p.185).

That is the main reason why it is imperative to also look at how media and communication scholars approach the city. As Aurigi (2008) suggests urban spaces are to be considered as 'augmented urban spaces', a transformed urban space that is 'a consequence of our urban space-bound usage of mobile or internet technologies' (p.333).

Media and Communication Research on Cities

Research on cities from the field of media and communication has been concentrated around the concept of the media city, but in a profoundly different way than the way used by Krakte (2003) in geography. The media city in this field is the 'mediated city': signifying the importance of communication within the city – 'the communicative city' (Burd; 2008) and the changes this brings to everyday life practices and experiences in the city (Eckardt et al., 2008; Georgiou, 2013; McQuire, 2008). Authors such as 'Georgiou and McQuire are unquestionable pioneers in the terrain of media city research' (Leurs et al., 2015, p.193), their contributions on the area perhaps setting the terrain itself. In this section, their work is critically reviewed and contextualized within the respective field.

Scott McQuire (2008) is the first scholar that traces 'the emergence of a distinctive lived environment: the media city' (p.203). As he argues the 21st century media and city environments seem to highly converge. Our social life is no more just lived in cities or experienced through media but 'emerges through a complex process of co-constitution

between architectural structures and urban territories, social practices and media feedback' (p.vii). McQuire (2008) follows a historical case study approach while focusing on 'the relation between media technologies and the transformation of the city' (p.203). He stresses the significance of image for urban projects, processes and experiences since the mid-19th century arguing for the transformative effect that the widespread circulation of images has in society. He looks at photography and film and examines their key role in relation to the city: the city can be seen as a 'territory of images', fragmented into photographic images and liquefied into moving pictures (also McQuire, 2006). In the context of the 'media city' or what he calls the 'media-architecture complex' both our social and spatial experiences are altered in highly ambivalent ways that are continuously informed and transformed by the interplay of imagination and reality. For McQuire (2008), it is the concept of 'relational space' that can best describe this ambivalent nature as it refers to the contemporary experience of social space as 'the active constitution of heterogeneous spatial connections linking the intimate to the global' (p.ix).

McQuire is clearly influenced by the alterations of space and time by digital media and the de-territorialisation their extension further causes. He suggests a 'non-media centric' approach, yet his approach of media comes across 'visual-centered', 'technology-based' and 'real-time oriented' as Takaaki Chikamori (2009) suggests. As he mainly studies photography and film in parallel with digital image technologies, he builds his argument on the lived environment of the media city. The argument itself appears valid and important, especially as it rises through 'the productive tension between the theoretical perspective and historical description' (Chikamori, 2009, p.149). Yet, as Chikamori (2009) comments his arguments need further theoretical rigorousness and robustness not to appear as an overgeneralization. Indeed, most recently McQuire (2016) further engages with Henri Lefebvre to argue for the 'right to the networked city' and conceptualisation of 'geomedia' and their transformation of public space: '[g]eomedia is a concept that crystallizes at the intersection of four related trajectories: convergence, ubiquity, location- awareness and real-time feedback' (p.2). In both his media city (McQuire, 2008) and geomedia (McQuire, 2016) conceptualisations - considering the context of media and communications - he explores the convergence of the mediatization and urbanisation processes. This, however, outside the discipline, underlines the

conceptual problem of an initial distinction of media and the city and of social and spatial experience. For McQuire 'the urban terrain and media platforms have come to be combined for the first time in the modern period [which] entails a proposition that they were separated originally' (Chikamori, 2009, p.151).

Myria Georgiou (2013) attempts to understand how 'media and the city co-constitute each other' in the first place and what are the social and cultural consequences of this co-constitutive process (p.5). Coming from a mediation perspective (see Silverstone, 2005), her initial question is whether a separation between the city and its symbolic image (as a product of mediation) is actually possible. The answer to this question soon proves to be negative and thus the significant link with the role of media takes place; for Georgiou media are to be considered as the gatekeepers of city mediation. Georgiou focuses on understanding difference and cosmopolitanism in the context of the mediated city, arguing for a 'from street level' approach instead of the 'bird's eye' view that as she argues fails to 'understand the city as a multi-layered site of struggle' (2013, p.7). The basis of her argumentation lies in the acknowledgement that 'the intensification of mediation and urbanization' processes within the global city (where cosmopolitanism unfolds) highlights 'difference' in the consciousness of its own 'urban subjects', while at the same time both media and the city as entities rely on difference (and/or play with it) 'to sustain their symbolic power' (p.4). Within both the spatial dimensions of place and space, she continues 'the city reveals the ways in which place is currently configured through the media' (p.7). Therefore, to analytically examine the consequences of these configurations, she identifies 'consumption', 'identity', 'community' and 'action' as 'four main interfaces' within which media and the city meet and thereby through their synergies challenge hegemony and mediate differences.

Georgiou (2013) is highly influenced by Roger Silverstone's (2007) work 'on the rise of the mediapolis' and the over determination of symbolic power over society. For him, the mediapolis is 'the mediated space of appearance in which the world appears and in which the world is constituted in its worldliness' (Silverstone, 2007, p.31). For Georgiou (2013) the media city is the mediated (through media) city or else the impact of the mediapolis on the urban environment and so through her empirical work she looks at processes of

bottom-up mediation[14] -'from the street level' as she frames it. Conclusively, she argues that her 'from the street-level' approach can explains how while, '[n]eoliberalism sustains a good grip on the city and the media, as its symbolic power is reproduced, day in, day out […] neoliberalism is also constantly challenged' (p.152). This takes place due to the impact that media and communication technologies have in 'decentralizing citizenship' and '[decoupling] its meanings from the complete control of the neoliberal nation-state' (p.156). In her framework, however, Georgiou (2013) is neglecting the political economy of media and digital technologies (see Mosco, 2009) overdetermining their symbolic power. Overall, Georgiou's (2013) explicitly cultural perspective seeks to draws attention to the mediated symbolic power of the city and its determining grip over society.

Both these pioneer works argue for further research on the media city, while highlighting the role media play in the space of the city as they examine media-city relations. McQuire (2008) sees this role unravelling into the experience of relational space, while Georgiou (2013) explores this space to highlight the importance of media in the construction of the city as place. Georgiou (in Leurs et al., 2015) comments that 'research on media city will gain momentum and wider academic attention if it continues to ask important questions that help us understand a globally connected, urbanised, unequal world' (p.197). McQuire (in Leurs et al., 2015) argues that the very importance of the area lies in that media in the 21st century city (especially through the digital) actually become 'part of the public space' (p.198).

Vualteenaho et al. (2015) argue that focusing on the 'spectacular, ordinary and contested facets of the media city' (p.2) might be the righteous research path 'for keeping pace with a range of ever-changing, interrelated actualities of urban transformation in academic media cities research' (p.16). In other words, the special issue attempts to bring 'urban

[14] The four bottom-up mediation processes Georgiou (2013) looks at are: (a) consumption in the global city of London in terms of neoliberal cosmopolitanism (in Stratford East London) and vernacular cosmopolitanism (in Shoreditch); (b) identity construction through popular culture and more specifically urban music and graffiti as they become 'the narrative of urban identity from the margins but against marginality' (p.81); (c) community in the Arab diaspora in Europe, local multi-ethnic communities and urban nomads revolving around the particularities and universalities of community projects and their interplays within the mediated city; and at last (d) action as a means for presence within the city, taking for granted that marginalization occurs, and what happens in the 'urban street is revived and extended to the global mediated street' (p.142).

transformation' or 'digitalised urbanism' into a more familiar context for media city scholars. They start their thesis with a dismissal of the techno-optimism vs. techno-pessimism dichotomised view of the city as a research practice. That mostly refers to prior literatures on the techno/wired/informational/digital/smart city and thus relevant but in need to be reintroduced to media city research. For this reason, they forward the trichotomy of (what they call) digitalized urbanism into three aspects of the media city: the spectacular, the ordinary and the contested.

Existing literature is grouped under these three facets of the media city. Following Guy Debord's (2002) society of the spectacle, the spectacular facet of the media city refers to the glamorisation of the digital and icts within the city. It is perceived as seeking to attract attention to the media city (a prominent example is the 'smart city'): 'This new, miraculous- sounding lexicon for urban techno(u)topias of state-of-the-art digital-technological advancement dominates academic-, government- and business discourses as well as policy recommendations' (Vualteenaho et al., 2015,p.3). The ordinary facet of the media city digs further in the ordinariness of the everyday life (see Highmore, 2001) experiences and practices of digitally mediated cities. 'What is at stake is how the standards of what constitutes normal and ordinary have in many regards drastically escalated in the course of the increased digital mediation of the urban everyday' (Vualteenaho et al., 2015, p.10). The keyword here is software (code as the coordinator of the digital) as it invades the ordinary and practically produces urban space (see Thrift and French, 2002; Kitchin and Dodge, 2011). Finally, the contested facet of the media city refers to the discontent digitally mediated environments can create or signify and the conflicts that arise as a result. Whether in the level of digital mediation, e.g. open-sourced or free software in conflict with proprietary software (see Berry, 2008) or in the space of the city, Georgiou's (2013) street level examples, e.g. public space occupation or subversion movements.

What Vualteenaho et al. (2015) seem to suggest is that viewing literature on (digitalised urbanism and) the media city under a prism of techno-optimism vs. techno-pessimism (a common duality, that has dominated discussions around the digital and further e.g. Old vs. New Media), is no more useful. That is why they suggest a different typology for understanding it from its spectacular, ordinary and contested aspects. This way, it seems,

they seek to empower the concept of the media city and its research with some more theoretical weight (in relevance to the three aspects), to better contextualise it while stressing how multi-faceted it is. However, how the media city is to be perceived is not thoroughly explained. This, of course, relates to the fact that most of the discussed and re-arranged literature was not written with the intension to contribute to media city research, thus how the media-city is understood may vary. Another reason is that the operationalisation of the trichotomy itself is again conceptual in order to provide an open space for future contributions on media city research, instead of suggesting a coherent way to address it. As explained in the conclusive remarks it is taken as a given 'that that the spectacular, ordinary and contested dimensions of digitalized urbanism hardly ever feature in a 'pure' form in actual cities', they are always interrelated as the empirical works of the special issue signify (Vualteenaho et al., 2015, p.15). This perhaps suggests that the role of 'media city research' is to better organise research *towards* understanding 'the actual city'.

Overall, the idea of the 'mediated city' is viable as long as the digital technologies used are mere enablers of processes and everyday practices and not 'social constructions that are being used to explore new ways of controlling and organizing space, time and social processes in a crisis-ridden urban world' (Graham and Marvin, 1996, p.380). From the media and communication perspective, the poor engagement with the global political economy in contrast to the rich engagement with culture, results in studying the city more in terms of experienced place and symbolic order and way to less as social production wherein technologies and media and communication themselves are produced within a global political economy. In what follows. calls and discussions towards interdisciplinary research on cities through the fruitful combination of media and communication and geography scholarships are discussed.

Interdisciplinary and transdisciplinary research on cities

In this section, the calls and discussions of interdisciplinarity and transdisciplinarity made within the two fields are presented to exemplify the transitionary period that research, theory and method as regards to studying cities traverse. At the same time, an argument in support of transdisciplinarity instead of interdisciplinarity is made based on

the understanding of interdisciplinarity as ambiguous and often empty of meaning (see Marsden, 2016; 2017; 2018a; 2018b). As Schmid (2014) also argues, to follow Lefebvre's extensive work, it is essential to understand his *transdisciplinary standpoint* that 'understands the splitting up of knowledge into individual disciplines as seriously limiting the possibility of generating new insights' (p.35). The purpose of this section is to further situate the knowledge production within the disciplinary and interdisciplinary frameworks, problematize and debunk them, before finally arguing for the transdisciplinary discursive-material integrated framework for the smart city.

First, Georgiou and McQuire suggest in Leurs et al. (2015) that structurally supported interdisciplinary research on the topic of media city is substantial. To an extent in the *Special issue: Media City: Spectacular, Ordinary and Contested Spaces* where Vualteenaho et al. (2015) re-organise existent literature, they do so with a sense of providing a structure (in the form of an agenda) for past, present and future contributions to the topic. In this case, media city scholars incorporate literature from urban geography to the media and communication discipline in order to achieve the level of interdisciplinarity in their work. However, this is a one-way communication and cannot solve the problem of the concept of media city prior's use in a substantially different way in geography (see Krakte, 2003).

Second, in their special issue *Going About the City: Methods and Methodologies for Urban Communication Research,* Aiello and Tosoni (2016) entail that although existent research draws on 'a wide variety of academic traditions and conceptual frameworks' (p.1253), there is 'an urgent endeavor' for a more 'sustained focus on the methodological' (p.1255). Their proposed field is that of urban communication that is a 'burgeoning branch of media and communication studies [that] has […] gained momentum through a series of monographs […], edited books […], and special issues' (p.1253), and includes the media city research discussed above. With no single definition possible 'urban communication scholarship is generally concerned with the ways in which people in cities connect (or do not connect) with others and with their urban environment via symbolic, technological, and/or material means' (p.1254), in many ways being more expansive than the media city research. Aiello and Tosoni (2016) seem to propose that infusing interdisciplinarity in the level of method and methodology- i.e.

between theory and practice - in this new branch of literature might be a viable solution towards achieving interdisciplinarity. As they note although this branch has been slowly created in response to the times and research evolution part of the problem is that 'to date there is very little in-depth and openly reflexive writing on the procedural and epistemological dimensions of urban communication research' (p.1255). Towards that end, the methodological grounding of urban communication research is seen as a reasonable agenda towards its development.

Unlike the case of Leurs et al. (2015) that seek to structure at the literature level, Aiello and Tosoni (2016) take a step back and further abstract the research area to the conjunction of communication and the urban city as they recognize that traditional methods and methodologies used within media and communications do not suffice for researching them contemporarily. Through a methodological focus that incorporates epistemological premises, Aiello and Tosoni (2016) expect that debates or concerns that are particular to the discipline or research agenda could be diminished 'in the service of groundbreaking analyses on the urban/communication nexus' (p.1255). At the same time, setting a methodological agenda for studying/researching the urban/communication nexus might prove handy, as they argue, for structural interdisciplinarity since methodologies or (multi-) mixed methods[15] approaches (see Matsaganis, 2016) require 'truly interdisciplinary skill sets' (Aiello and Tosoni, 2016, p.1257). Within the same special issue, Tosoni and Ridell (2016) the 'urban media studies' subfield (p.1278). However, as they note the subfield is still in 'a preliminary phase, and one finds very little systematic discussion on how to conduct research in the new interdisciplinary situation' (ibid).

Third, using Laclau and Mouffe's discourse theory, Dorte Madsen (2013; 2016; 2017; 2018a; 2018b) builds several arguments around the absence of meaning in the term of interdisciplinarity and its operationalisation as much as she proposes ways to overcome this. Approaching it as a signifier she illustrates how it can be partially (fixed), floating and/or empty as well as take different meanings in different discourses (Madsen, 2017). In Madsen (2018a) she empirically identifies two interdisciplinarity discourses that often

[15] Although a discussion around what accounts for a methodology, a method or mixed-methods is highly relevant, it is avoided for being out of the scope of this present literature.

operate antagonistically to each other. One discourse is discipline-inclusive and equates interdisciplinarity with interdisciplinary research within a discipline (ibid). The second discourse is the integration-premised discourse that is defined relationary to multidisciplinary and disciplinary research. In its generic sense, interdisciplinarity is defined as different to disciplinarity and in its more specific sense as different from multidisciplinarity that does not provide the synthesis and integration that interdisciplinarity does (ibid). In any case, interdisciplinarity in the integration-premised discourse is defined in negation. Nonetheless, as she illustrates the use of the term interdisciplinarity is ambiguous as it can have from lots of conflicting meanings to no meaning at all. Masden's (2013; 2016; 2017; 2018a; 2018b) cumulative work indicates that interdisciplinarity is not necessarily a solution to the existence of disciplinarity and because of that it is particularly important to approach it reflexively. For instance, she makes a distinction between the ambiguity of interdisciplinarity in the epistemological and the political dimension (Masden, 2018a). As she argues the epistemological ambiguity of the term is different to the political ambiguity of the term as 'ambiguity may be unwanted in the epistemological dimension, [but] it may be quite useful in the political dimension' (Masden, 2018a, p.459). Finally, as she argues although '[a]mbiguities cannot be erased […] unpacking them [...] makes it possible to spell out meanings and assumptions requiring scholars to be more reflexive and explicit about which ambiguities [they] are dealing with' (p.460).

For example, Madsen (2016) has analysed a considerable body of work from information studies and argues that discursively the concept of interdisciplinarity (and 'crossing boundaries') appears hand-in-hand with the myth of a weak discipline and the necessity for boundaries. Case studying the information studies discipline as a considerably 'weak discipline' that seeks to be transformed through interdisciplinary research she argues that actually '[d]e-mythologizing disciplinary identity of information studies is fundamental to exploring boundary crossing in the Information Field' (p.2707). In fact, Masden (2016) argues that it is the use of this 'myth [in the first place] that attempts to uphold the ideal of the unitary discipline' and as such confines the very discipline at hand (p.2706).

In support of transdisciplinary approach to research instead of interdisciplinarity, Adams and Jansson (2012) call for a collaboration of media, communication and geography scholars as they recognize a 'spatial turn' in media and communication studies and 'a communicative turn' in geography (see also Adams, 2011; Falkheimer and Jansson, 2006; Jansson, 2010). As Adams (2011) suggests existent literature hints the emergence of a new geography of communication subfield or discipline that can be presented within the dialectical relationship between communication and space. As Jansson (2005) explains elsewhere such a subfield 'would incorporate analyses of *how communication produces space and how space produces communication*' (emphasis in original, p.1). Unlike, Aiello and Tosoni (2016) who set a research field in the urban-communication nexus, Adams (2011) talks of the communication-space nexus. Unlike, the interdisciplinary examples discussed so far that better fit within Masden's (2018a) discipline-inclusive discourse, the communication-space nexus of Adams and Jansson (2012) has its background in some critical analysis of existent literature from both fields and looks towards some form of integration, as such expressing an integration-premised discourse on interdisciplinarity.

Another work where media and space relationship is articulated is that of Couldry and McCarthy (2004) in critique to which (see Jansson, 2004) the transdisciplinary approach towards geography of communication develops (Adams and Jansson, 2011). In their edited anthology Couldry and McCarthy's (2004) identify the 'MediaSpace conceptual realm' that derives as to make 'the proposition that media, particularly electronic media, and the social processes that shape our perception and use of space are allied phenomena' (Couldry and McCarthy, 2004, p.1). There, five interlinked levels are recognized as constitutive of media space that is seen as 'the most straightforward stage in the process of connecting media and space, geography and media analysis' (p.5). According to these five levels, mediaspace is constituted by (1) media representations; (2) media content that reconfigures social space; (3) the space of consumption and/or a space of production as the two ends of the media process; (4) by the scale-effects produced through the media process; and (5) how those are experienced in different places (p.5-8). In his review of this work, Jansson (2004) argues that although it definitely is 'a forward-looking collection of theoretical and empirical analyses, pointing out a very promising redirection of media studies', it is lacking 'a more convincing, or visionary, formulation of the spatial

perspective and its epistemological benefits […] the new agenda that […] spatial theory might bring to media studies' (p.553). This then becomes the project that Adams and Jansson (2012, also Adams, 2011; Falkheimer and Jansson, 2006; Jansson, 2006; 2010) steadily develop. In his cartography of literature Adams (2011) suggests that existent literature from both disciplines can be situated within 'the four-fold dynamics defined by two independent distinctions: space/place and content/context' (p.39). The four-fold dynamics within media studies originate from more traditional debates over space and/or time biased media, as well as the transmission or ritual models of communication (see Jansson and Falkheimer, 2006, p.10-15). Furthermore, they also relate to discussions around the globalisation and the local dimension, the experience of place and the politics of space, which necessarily cross cut to the discussions in geography (see for example Appadurai, 1996; Giddens, 1990; Massey, 1991; Massey and Jess, 1995)

Seen from its aftermath, the differences of Couldry and McCarthy (2004) and Adams and Jansson (2012) lie within the most recent debate within media and communications around mediation (see Couldry, 2008) and mediatization (see Jansson, 2013). Couldry relies on Silverstone's definition of mediation as the 'dialectical process in which institutionalised media of communication […] are involved in the general circulation of symbols in social life' (Silverstone in Couldry, 2008, p.8) with a focus on symbolic power. On the other hand, Jansson (2013) sees mediatization as a response to 'an epistemological need for grasping […] the complex forms of dependencies generated in times and spaces increasingly marked by *transmedia textures'* (not my emphasis, p.281). Jansson (2004) seems to suggest that Couldry and McCarthy's (2004) 'Mediaspace conceptual realm' does not really take space into account and merely supports a media agenda, i.e. holds a discipline-inclusive discourse. In response then, Adams and Jansson (2012) suggest that a 'conceptual framework for interdisciplinary research in communication geography' should begin with covering the subsequent relationships: (1) 'representations as places in communication', (2) 'textures as communication in places', (3) 'connections as spaces in communication' and (4) 'structures as communication in spaces' (p.306-313).[16] Following Adams (2009, 2011) these 'four intersections are

[16] In Adam and Jansson (2012) place representations are to be seen as both material and symbolic and as such constantly altered within the contemporary media context that 'continually reworks the relationships between people and their surroundings in both constructive and destructive ways' (p.308). Textures entail that 'communications weave together to form places': places exist because they are constituted of life, that assumes communication, while at the same time certain forms of communications are possible and other

fundamentally linked to the space versus place distinction and therefore connect [media and communications] to the heart of geographic thought' (Adams and Jansson, 2012, p.306). In a generalised manner within geography space is structurally produced (see Harvey, 2001; Lefebvre, 1992) through the urbanisation processes of capital (Harvey, 1985), when place is sensed (Massey and Jess, 1995) and experienced (Hiss, 1991), although different authors operationalise them differently. For instance, in Lefebvre (1974), place is incorporated in the intermingling of the three spatial categories of the conceived, the perceived and the lived as an integral part of the production of space. The four intersections in turn provide geographers a more critical understanding of the field of media and communication and intend to form a bridge among the two scholarly traditions and their disciplines, i.e. the integrated-premised discourse on interdisciplinarity with a transdisciplinarity intention.

In the edited volume *Geographies of communication: The spatial turn in media studies* –more clearly focused to media studies- an attempt to illustrate the potential of the institutionalization of such a sub-field (at least) on the Nordic level by first 'mapping and reflecting upon the epistemological field of geography of communication' is made (Jansson and Falkheimer, 2006). 'Communication as spatial production' is there discussed through Henri Lefebvre's 'triadic model of spatial production' (ibid). There, Lefebvre's triadic model is explored through contributions that theoretically and empirically interrogate (a) the 'spatial mediations' or the 'mediation of space' as *conceived space* (p.107-170); (b) the 'mediatisation of space' as *perceived space* (p.171-242); and finally (3) the 'mediatised sense of space' as the '*lived space* 'spaces of representation' (p.243-306).

Finally, Ash et al. (2015) who most recently also wonder whether a digital turn in geography can be recognized, one that justifiably betokens a new field of study that of 'digital geography'. In their working paper they mostly examine scholarship on 'geographies of the digital', 'geographies produced by the digital', and 'geographies

impossible or unlikely to occur (ibid). Structures, to some extent, communicate the (material) production of space and relate to among others existent infrastructure or their further development considering uneven development, cultural production, as well as mediated/mediatized mobility within the contemporary media context. Connections refer to an updated understanding of the virtual, connections within it but also connections without it: connections with the physical.

produced through the digital' in an attempt to explain how the digital produces both geographic knowledge and space, ultimately mediating our socio-spatial experiences. The digital for them is 'both material technologies characterized by binary computing architectures, as well as a broad genre of socio-techno-cultural productions, artefacts, and orderings of everyday life that result from our spatial engagement with digital mediums' (Ash et al, 2015, p.3). Literature on 'geographies of the digital' refers to works on cyberspace, virtual worlds and realities and applies 'pre-existing geographical ideas and methodologies to study what is considered new' –the digital realm of communication without forgetting its material production in the form of technology (p.4). Literature on 'geographies produced by the digital' concerns literature on smart cities or other versions of the city that highlight the use of the digital -how the city becomes the context within which the production of the digital takes place. Important here is the work of Kitchin and Dodge (2011) on simultaneous code/ space production: code produces space in its most traditional sense as '[n]early every urban practice is becoming mediated by code' (Amin and Thrift, 2002, p.125). Lastly, literature on 'geographies produced through the digital' that is, using the digital to produce new geographic knowledge 'in the service of enacting alternative economic, social, political and cultural geographies' or investigating the produced geographical knowledge that certain digital technologies engender.

The point Ash at al. (2015) seek to make is that the digital not only produces many geographies and spaces but it also has many of those to begin with, which makes studying 'the relationship between the digital and geography' essential (p.14). Eventually, through their exploration they conclude that it is important 'to frame smart city development within debates around the long history of urbanisation and urbanism, rather than to set them within a field of digital geography' (ibid). Unlike Jansson and Falkheimer (2006) that, in fact, say yes to a structurally and constructively organised sub-field of communication geography, Ash et al. (2015) lean towards a negative answer to avoid missing the point of the smart city being only but one phase of urban development. This thesis too supports Ash et al. (2015) argument that understanding the smart city as a socio- spatial urban process is far more important that the direct contribution towards a specific discipline, subfield and their development.

A necessary point to be made here is the evident importance dialectics play in the above discussions and disciplinary formulations on the various levels of literature, discipline and conceptual analysis. Whether urban-communication, space-communication, space-place, content-context, digital-geography, media city etc., this dialectic seems to play a fundamental role to the articulation of interdisciplinary research. However, the different levels of analyses and operationalisations of those dialectics are dependant to the ontology and epistemology of the analysis. That can be explained through Lefebvre (2009 [1940]) on the premise that the 'production of man' occurs dialectically and so does the production of situated knowledge and its products. As dialectics suggests any product is split and co-constituted, and so any analytical process can only occur in reversal. As Lefebvre (2009[1940]) writes although '[i]n any product, however trivial (this table, that hammer, that tree in the garden), the subjective and objective aspects, the activity and the thing, are intimately linked', in the state of analysis they can only be introduced as 'isolated objects' separated from each other (Lefebvre, 2009 [1940], p.107). As such, the process of integration entails that the isolated objects are analytically turned into a whole –'the reconstruction of the whole' is 'the fundamental operation of philosophy' (p.113). According to Lefebvre (2009[1940]), the thinking man 'feels the need to reintegrate these products immediately into the totality' (p.113) producing a 'philosophical analysis of understanding' (p.112). Nonetheless, any such integration process needs to consciously represent the disintegrated product as whole. The dangers of formalism, determinism and essentialism are lurking in the process, threatening 'performing a summation, and a summation of products' instead of integration (p.114). This difference between summation and integration is here understood as the basis of the difference between interdisciplinarity and transdisciplinarity, i.e. summing research ideas and literatures versus integrating them in an actively constructive manner. The latter being the aim of this thesis. Thus, in what follows the approach to the smart city as a strategic object of transdisciplinary research is presented.

Smart City as a Transdisciplinary Strategic Object of Research

Following Lefebvre (2009[1940]), the identification of the 'product' or 'isolated object' is the first action before delving into the particular framework of analysis that will situate the object within the production and consciously reintegrate it as a whole, in the process

revealing contradictions, showcasing differences and opening up spaces (e.g. Lefebvre, 1976[1973], 1992[1974]). Furthermore, following Sassen (2007) the city is to be perceived as a strategic site for research 'where multiple transboundary processes intersect and produce distinct sociospatial formations' (p.477). This section articulates the reasons why the smart city is chosen as a transdisciplinary strategic object of research while reviewing literature on (critical) smart cities.

Within a transdisciplinary goal, it is necessary to recognise the smart city as the current phase of urban development becoming more and more popular into policy and strategic development circles around the world and the European Union in particular (see Gibbs et al., 2013; Tranos and Gertner, 2012). Another popular term that has received considerable attention is that of the sustainable city, which is often used interchangeably or in conjunction to the smart city, and focuses less directly on the technological aspect (Ahvenniemi et al., 2017). Another term that puts the technological aspect in the forefront and is relevant here is the digital city. Dameri and Cocchia (2014) perform a deep literature review survey on smart city and digital city literatures to clarify the concepts. As they conclude although the two are often used interchangeably and do overlap, they 'define different paths for cities' (p.8). According to Aurugi (2016) the digital city is traditionally focused more on the conjunction of cyberspace and the city and suggests that the topic is multifaceted based on the problematics that arise.

This thesis argues that the main reason why the smart city has achieved such a rollout into policy and strategic planning is that it works in line with the three crucial processes required for the sustenance of the capitalist cyborg world and the production of abstract space: the urban processes, technological development, and new governance structures. The smart city enhances 'better governance' (see Shelton et al., 2015), through its networking capacity and exploitation of icts. As such, the smart city as an urban development project subsumes and incorporates the processes of technological development and governance. This very fact becomes the primal argument of why the smart city is an ideal product-isolated object to be strategically centred and explored.

First, many researchers talk of 'the "smart city" […] as a floating signifier that paves the way for broad implementation coalitions' (Wolfram, 2012, p.179) and 'the empty

rhetoric of the smart city' (Wiig, 2016)[17]. Furthermore, the smart city is identified as a floating signifier that stretches far beyond academic conceptualisation (e.g. Karvonen et al., 2018; Wiig, 2016; Wolfram, 2012). It is not an academic concept to be examined empirically, but a socio-spatial product articulated through discursive-material processes. As such, the smart city isolated object has many chains with many of the discussed literatures and one of the reasons is its primal orientation within the spectacular dimension (see Vultenalho et al., 2015). For Guy Debord (2002) the spectacle is a tautology that 'aims at nothing other than itself' (Chapter 1, para. 14). The spectacle is the materialization of a worldview that has become or is becoming objective. Considering the spectacle of smart cities entails viewing them both as fiction and reality - in the sense of a worldview that seeks to materialize and to become objective.

The number of academic literature discussing 'smart cities' is certainly on the rise, though as Kitchin (2015) argues 'much of the writing and rhetoric about smart cities seeks to appear non-ideological, commonsensical and pragmatic' (p.131) approaching them merely as an object of scientific reality. Questions on what accounts for a 'smart city', what is 'smart', how 'smart' etc., in other words, the discursive-material production of smart cities are yet to be explored. Up until now, existent critical literature lacks a necessary historical, empirical and collaborative perspective that would provide 'better socio-political understandings of the city' (p.73). Therefore, the purpose of positioning the smart city as a strategic object of research is to contribute towards reading the current 'urban technological transformation within wider social, political, economic, cultural and organisational context' (Kitchin, 2015, p.73). Responding to Rob Kitchin's (2015) research agenda for contributions that will 'reveal the discursive and material realities of actually existing smart city developments' (p.134) this thesis offers a contribution towards the topic of smart city through theoretically robust, methodologically coherent and empirically grounded discursive-material analysis of current smart city developments. This thesis responds to literature that indicates a lack of theoretical and

[17] Researchers might frame smart cities as floating and/or empty signifiers, but this has not been thoroughly articulated under a relevant discourse tradition. The understanding of the two terms and their relevance to this thesis are further explained in Section 3.6.

analytical grounding (Adams and Jansson, 2012; Aiello and Tosoni, 2016; Kitchin, 2015; Leurs et al., 2016; Scott, 2016) for comprehending and situating the city into a trans-urban global context (Sassen, 2001). The approach of this thesis calls for the dialectical understanding of what is imagined and what is real in those developments (instead of their dichotomisation) under the discursive-material integrated framework presented in the next section. Ultimately, this thesis seeks 'to achieve a change in society and to apply the analysis as an instrument of transformation' (Schmid, 2014, p.36).

(Critical) Smart Cities' Literature

A smart city is concerned with 'ICT both as digital infrastructure and ICT usage' (Tranos and Gertner, 2012, p.176); its role and purpose is after all that the whole city is a network in itself. The smart city is in fact the implementation of 'the internet of things' or in reverse 'the internet of things' is the technical backbone of smart cities (Mohanty et al., 2016; Zanella et al., 2014). As Haller (2010) suggests the common thread among all internet of things definitions is that 'it is related to the integration of the physical world with the virtual world of the Internet' (para. 3). The physical world consists of physical objects that include both inanimate objects such cars, machines, boxes and fridges and animate objects i.e. animals and humans. All these can become things in the internet of things or else can be called 'entities of interest' (ibid). Furthermore, '[b]uildings, rooms and things in the environment like rivers and glaciers can also be entities of interest' (ibid). Conclusively, Haller (2010) asserts that 'any object including the attributes that describe it and its state that is relevant from a user or application perspective can be regarded as an entity of interest' (ibid). The internet of things and in turn smart cities thus entail the objectification of entities into things that can be networked and exploited. The process of networking nevertheless is not a merely technical process, but it is also organisational. The smart city's networking capacity is paralleled with the desire and target for more appropriate governance structures (see Shelton et al., 2015). In smart city urban development thus the '[t]he key question is no longer technological; as ever it is organisational' (Batty, 2012, p.192). Hence, in contrast to discussions of around cities and technology (where the focus was in technical capabilities and possibilities) 'smart cities' open a discussion around the organisation and structuring of its networks (Gibson et al., 1992; Tranos and Gerner, 2012) and its data (Batty, 2012; Shelton et al., 2015). In

many ways and since technological development is global and the capacity of icts to 'produce massive streams of data in real time and space' (Batty, 2012, p.192) is established –smartness is further measured through achievement in organisation and governance of networks and information data.

In definition, 'smart cities' and principally its components -commonly information and communication technologies (icts) and 'quality of life'- are vaguely described within policy (Galdon-Clavell, 2013) so to conceal certain political agendas and ideologies (see Gibbs et al., 2013; Greenfield, 2013; Hollands, 2008; Vanolo, 2014). At the same time, deterministic and essentialist assumptions on how technology, and particularly icts, can solve everyday life (or urban) problems are prevalent (Kitchin, 2015). As Shelton et al. (2015), while focusing on data within the 'smart city' mix, for example conclude 'the problem is less with data, per se, and more with the uncritical, ahistorical and aspatial understandings of data often promoted within smart city imaginaries' (p.22). In their empirical research on apps that seek to address urban issues Desouza and Bhagwatwar (2012) recognize that policymakers and officials are more and more concerned with the urban problems rising in big cities and investigate city apps as a way to address them. This leads to an ecology where policymaking directly supports technology as the solution to urban problems through competition and challenges, initiatives and new governance structures.

At the same time, many of those apps claim citizen participation as substantial to the urban ecology. Titiana-Petra Ertio (2015) seeks to weigh how participatory city apps are, so develops a typology from theories of participation. She identifies three dimensions of participation in city apps: type of data (citizen or environment centric), information flow (oneway or interactive) and empowerment (operational or strategic). This then results into eight types of apps: 'informing apps', 'shared reality apps', 'trend monitoring apps', 'integrator apps', 'nudge apps', 'local network apps', 'citizen impact apps', and 'public dialog apps'. As she concludes, overall, the use of participatory apps is closer to 'participatory sensing rather than participatory decision-making through apps' (Ertio, 2015, p.317). In parallel, wider discussions and arising questions around 'participation', 'inclusivity' and 'rights' dominate, from early on, the smart city debates.

Generally, the debate juxtaposes top-down approaches to the smart city, such as the 'corporate smart city' (Hollands, 2015, p.67-70), with smart city approaches that go 'beyond technology and market-driven approaches to incorporate participation, citizen engagement, bottom-up perspectives' (Galdon-Clavell, 2013, p.718). Cardullo and Kitchin (2018) promote the re-imagination of 'what it means to be a "smart citizen" ' within a 'much more politically active discourse of rights and urban commons' that 'reimagine[s] the driving ethos for smart cities, [as] one rooted in rights, entitlements, community, participation, and ideals beyond the market' (p.18). The participation of citizens in terms of smart city decision- making processes and developments is of prime importance to those challenging the dominant discourses as those processes are recognised as substantial for the imagination, construction, realisation as well as actualisation of 'smart cities' (Galdon-Clavell, 2013; Hill, 2013; Townsend, 2013). In times where in the spirit of 'new governance' (see Egleaton-Pierce, 2014) multi-stakeholder structures often seek to involve citizens in however technologically deterministic, consumerist and uncritical ways (Cardullo and Kitchin, 2018; Ertio, 2015; Kitchin, 2015; Shelton et al., 2015; Shelton and Lodato, 2019). At the same time, Schaffers et al. (2012) talk about the 'smart city' as 'an urban laboratory, an urban innovation ecosystem, a living lab, **an agent of change**' (emphasis on original, p.99). Although citizen inclusivity or participation are discursively present in many policy discussions as smart cities are perceived as potential agents of change the extent to which those translate in the material production of the city remains questionable (Kitchin et al., 2018).

Within the capitalist cyborg world context of understanding, the 'smart city' spectacle is 'a worldview that [is being] materialized, a view of a world that [is becoming] objective' (Debord, 2002, chapter 1, para. 5) as 'the ruling order's nonstop discourse about itself' (p.6). At the same time, the means through which the spectacle is discoursed in the 21st century through icts, media, networks and technology are fundamental to grasp the particularities of the present (and future). Within the problem-solution logic of policymaking the 'corporate smart city' (Hollands, 2015) that best uses technology and data to solve its urban problems (Kitchin, 2015) -from governance to energy consumption- is presented as the local solution to the world urbanisation problem. As Hollands (2015) puts it '[a]llegedly motivated by population flows, cities as economic

growth hubs and environmental concerns, the smart city is currently being constructed as the solution to many urban problems […] a new kind of technology-led urban utopia' (2015: 61). As Kitchin (2015) best describes it, the corporate '[s]mart city advocates imagine themselves as creating technologies, techniques and visions that are scientific, objective, commonsensical and apolitical' (Kitchin, 2015, p.132). In many ways, the crucial point here is to other than recognising the technological and organisational aspects of the smart city to unearth the underlying political imaginaries and while doing so (re-) politicise the smart city as a strategic research object.

2.5 The Discursive-Material Integrated Framework

The purpose of the discursive-material framework is to provide an understanding of the smart city as a socio-spatial urban process that is discursive and material. If 'smartness' (along with its components of technological development and governance) is the current frame for urban development (Section 2.3), a key driving question of interest is 'What is particular to the smart city socio-spatial urban process?' (Section 2.4). Furthermore, the discursive-material integrated framework directly derives as a proposal from the discussion over the space-time relationship (Section 2.1) and as part of space-time politics of hegemony (Section 2.2). In order to study the smart city product as strategic research object (Section 2.4) in in its global and cyborg context (Section 2.3) the development of the discursive-material framework seeks to provide theoretical grounding and methodological support for the empirical analysis. As such the subsequent theoretical questions are operationalised for discussing empirical findings 'What configurations of space and time dominate the socio-spatial process of smart cities developments' and 'What antagonisms and agonisms the smart city hegemonic and counter-hegemonic discourses suggest over the cyborg world'.

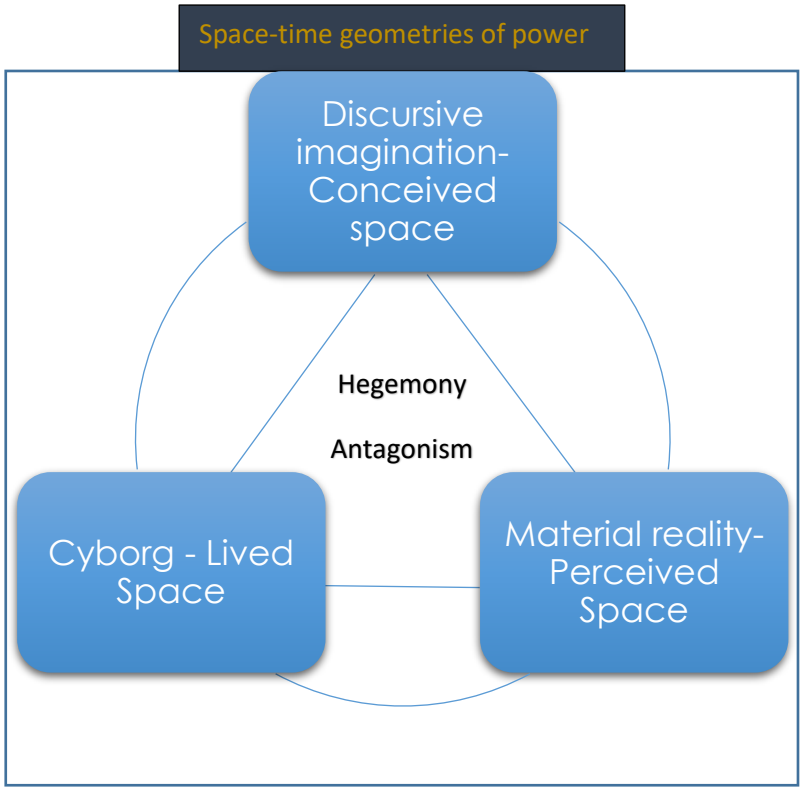


Figure 3: Integrated discursive-material framework for the 'smart city'

In this thesis, theory and practice, deconstruction and analysis are not regarded in strict separation but operationalised together through the 'method of articulation' (Howarth, 2005). The method of articulation is more of an approach to method than a method in itself and entails that the methodology is problem-driven, other than theory or empirical data driven. If the research problem is how to critically study the smart city considering the complexity of its product, the integrated framework proposes and articulates the discursive-material approach as a potential solution. Through combining the works of Henri Lefebvre, Antonio Gramsci, Ernesto Laclau, Chantal Mouffe, Doreen Massey and Donna Haraway the discursive-material integrated framework contextualises the topic of research, the product of the smart city as seen in Figure 3. The theoretical assumptions-propositions of this framework are summed up below.

Theoretical Assumptions-Propositions of the Framework

The first theoretical assumption follows Donna Haraway's cyborg manifesto proposing that:

> ***The cyborg world is already the reality over which we struggle.***

The above assumption is combined with Henri Lefebvre's proposition that:

> ***The production of space can be analytically understood between the triadic model of perceived, conceived and lived space.***

Those two together suggest the following for the 'smart city': If the cyborg world is our lived space, our discursive constructions of the 'smart city' (the imaginary) as much as its material reality (the real) are the product of the cyborg world as well as produce the cyborg world. Under this framework, technology and organisational structures are constitutive to and of space. Conceived space is where the urban city and its possible futures are imagined. Perceived space is what is and becomes the material reality of urban city space- what we perceive as city space. Lived space is the space of everyday experience where often what has been conceived and perceived is revealed in a new light- re-thought, re-conceived, re-perceived.

The second theoretical assumption is based on Antonio Gramsci, Ernesto Laclau and Chantal Mouffe arguing that:

The politics of hegemony are the main form of politics in capitalism.

The third based on Doreen Massey:

Spatial politics are crucial as they can reveal the geometries of power.

These two are combined with the common denominator found in all authors (Henri Lefebvre, Antonio Gramsci, Ernesto Laclau, Chantal Mouffe, Doreen Massey and Donna Haraway) that generally points to the fact that the inherent contradictions of capitalism produce differences that need to be explored. The deriving proposition is articulated as follows:

Contradictions of capitalist hegemony produce differences that have the potential to challenge it within various levels and scales of cyborg-spatial politics.

Laclau and Mouffe (1985) explain how discursive struggles over hegemony indicate antagonisms over the social. Laclau and Mouffe (1985) articulate Gramscian hegemony as the process that seeks to fix the meaning of the social so that it appears natural on the note of the impossibility of the social as the impossibility of fixity of its meaning. Lefebvre (1974) has also explained the workings of hegemony within capitalist production by assuming them into his triadic model: hegemonic processes overdetermine the processes of space conception and perception often assuming certain lived experiences that might not necessarily match with the everyday life of space. Hegemonic processes are represented as a linear rhythm and are characterised by linear thinking, while counter-hegemonic processes that allow difference as a circular rhythm (see Figure 3). Counter-hegemonic processes spark from lived space, stemming from everyday experience, but further seek to question and change dominant and hegemonic conceptions and perceptions of space. Therefore, lived space and the cyborg world is for both Lefebvre and Haraway is the space of the real struggle as they refer to the immediate

human experience. At the same time, organised effort and strategic approach are fundamental to the politics of hegemony Gramsci, Laclau and Mouffe. Analytically (and only analytically) antagonisms can be found in all three spatial categories: (a) Space is conceived in the imaginary through discursive construction. Discursive struggles take place over the representation of space; (b) Space is perceived materially. Material struggles are fought over the materiality of space and its assumed social relations; (c) Finally, space is lived, i.e. experienced, felt, debated and redefined in the context of everyday life and experience. Discursive-material struggles are fought over the cyborg world wherewith separation is no more possible.

The present integrated framework seeks to allow space for all the different levels of struggle to be analytically explored as they might represented different angles of cyborg-spatial politics. Based on Lefebvre (1976) the following questions can further drive discussion: 'What's new and what's false new in this repetition?' and 'What's the abstract space of the smart city and what's the contradictory and differential space of the smart city?'. In order to do that, narrowing down the area of inquiry and specifying the focus of the project is necessary.

Focusing the Project

In the process of developing this thesis' framework other works that have explored the discursive-material relationship in some capacity where consulted. Nico Carpentier's (2017) discursive-material framework similarly to this thesis builds upon the inseparability of theorical and empirical inquiry and develops his own framework and methodology to address and extend theory, method and literature. Carpentier (2017) operationalises discourse theory with new materialism so to articulate the discursive-material knot as the entanglement of discursive and material structures, agencies and their contingencies. Nonetheless, the problem-driven approach of this thesis for studying the 'smart city' and the central position given to spatial politics provide a rather different pathway, in terms of ontology and epistemology, for the exploration of the discursive-material relationship. Nonetheless, one key point to be made from reviewing Carpentier's work (for an extended review of the work see Mangalousi, 2019), but also from reflecting upon the development of the present framework, is that to a great extent the

overdetermination of the discursive over the material in articulating the discursive-material relationship is inevitable. Although the entry point of thesis might be the discursive (imaginary), with the guidance of Doreen Massey's work it actively enhances spatial politics through its focus, method and empirical inquiry. Per se, this project is consciously applying an understanding of the material processes implied and subsumed in discursive construction of the space of smart cities with the aim to go beyond the discursive.

Empirically, the project narrows down to the spatial politics of 'European smart cities' that becomes both the topic and the area of inquiry. The European spatial politics are selected as a contested space that hosts various levels of antagonisms and agonism as it is tightly connected to the global-local and structure-agency dialectical relationships. The rationale behind this is further explained in Chapter 3. In particular, the European spatial politics on smart cities are initially approached following the perspective of Pugalis (2009) who articulates the dialectical relationship between discourse and urban reality as a discursive-material loop. Pugalis (2009) uses the concept of the materialisation of discourse to indicate that discourse shapes urban reality that 'demonstrates the power to transmit idealised spatial imaginaries of present and future needs and desires' (p.82). He then uses the concept of 'discourse materialised [that] demonstrates the power of urban reality to shape future needs and desires as reflected in discourse', i.e. urban reality shapes discourse back signifying that the material is 'mediated through discourse' (ibid). Overall, this represents the constant contingency of urban reality that the politics of hegemony suggest and as such is incorporated in the framework as the space where hegemonic processes, antagonisms and agonisms are revealed and employed (Figure 4). Following Lefebvre's (1974) triadic model the following research questions are developed to lead an inquiry into European smart city politics.

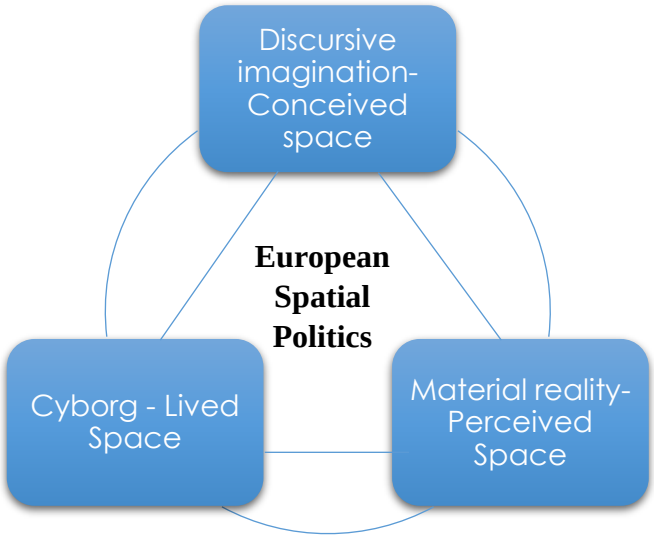


Figure 4: Discursive-Material Framework for European smart cities politics

Research Questions

The overarching research question is:

RQ: How are smart cities produced within European spatial politics?

The subsequent questions based on Lefebvre's triadic model are the following three.

Regarding space conception and its representations:

RQ1: How are European smart cities represented and what discourses and ideologies are operationalised in their conception?

Regarding space perception and spatial practices:

RQ2: How are spatial practices operationalised in European smart cities politics?

Regarding lived space and experience:

RQ3: How are European spatial politics over smart cities lived and experienced?

Chapter 3: Methodology

Following the discursive-material framework that proposes a theoretically informed approach on the transdisciplinary strategic object of the 'smart city' through spatial politics, this methodology chapter articulates how the research question of how the (socio-spatial) urban process of smart cities is conceived, perceived and lived within European spatial politics was eventually approached as well as the reasons why.

To begin with, the methodology employed, as well as the proposed discursive-material framework are project-specific and not exhaustive. The core methodological aim was for theory to constantly interact with the empirical transforming intellectual work from 'critique' to 'project' and back into the dialectical loop, as Lefebvre's stance suggests (Schmid, 2014, p.35). Notably, as Schmid (2014) writes '[o]ne cannot […] adopt Lefebvre's theory 'as it is' but must advance it conceptually in a constant interaction with social reality. Therefore, the theory must also constantly be further developed: what is needed is an open and creative way of handling it' (p.37). The discursive-material framework and the methodology employed were operationalised to provide a spatial analysis of the discursive-material manifestations of smart cities in European spatial politics, while bridging theory with the empirical and articulating their inseparability.

To do that three main methods: case study, discourse analysis, (auto-)ethnography, were inseparably combined through the method of articulation (Section 3.1) so to define the research design of the empirical inquiry and guide the analysis. For providing the rationale of the methodology, the method of case study was operationalised for approaching European spatial politics as the space of the inquiry (Section 3.2). Upon definition of the cases (Section 3.3) through the method of case study, the empirical cases were approached through the methods of discourse analysis and (auto-)ethnography (Sections 3.4-3.5). In what follows, the rationale behind the methodology is presented.

3.1 The Method of Articulation as Approach to Method: Combining Methods

First, one of the key concepts operationalised throughout the whole thesis is the approach to method as articulation. The concept of articulation that comes from Laclau and Mouffe's (1985) theory of hegemony[18] equates the practice of 'establishing relations among elements such that their identity is modified as a result of the articulatory practice' (Laclau and Mouffe, 1985, p.105). Articulation is the process through which discourses take their form with the purpose to achieve, sustain or challenge hegemony. This articulation-discourse interplay under the theory of hegemony is what suggests that discourse is more than just language, but it is also practice. All in all, Laclau and Mouffe's (1985)[19] operationalisation of articulatory practice brings the focus to the ontology of the political (which have been Mouffe's main work) and the in determination and impossibility of the social (which has been Laclau's main work).

Students and followers of Laclau and Mouffe's work have put considerable effort in articulating the methodological insights and tools their work demonstrates (see for example Glynos and Howarth, 2007; Howarth, 2005; Torfing, 1999; Torfing and Howarth, 2005). The core argument for this endeavour lies in the work's focus on the ontology of the political (see Glynos et al., 2009; Jorgensen and Phillips, 2002). On the basis of a political ontology of anti-essential character, Laclau and Mouffe's (1985) work can be combined with other discourse approaches at various stages of the research process (see Glynos et al., 2009; Jorgensen and Phillips, 2002) as well as other methods (see Howarth, 2005; Torfing and Howarth, 2005). Ultimately aiming at the very use of critique as a counter-hegemonic intervention (Mouffe, 2008). Beyond Laclau and Mouffe (1985), the principles of an anti-essential political ontology that operationalises articulation can be found in many others. Jorgensen and Phillips (2002) for instance suggest Haraway's (1985) work as a good example of articulatory science. At the same time, Laclau and Mouffe's (1985) abstractness, for many, provides methodological

[18] Their theory of hegemony entails an anti-essential (re-)articulation of Gramscian hegemony as 'the general form of politics in modern capitalist societies' (Torfing, 1999, p.110).
[19] Notably, *Hegemony and a socialist strategy* (Laclau and Mouffe, 1985) was a deconstruction, analysis and as such articulation of Marxism with little regard towards epistemology and in turn methodology.

openness and allows space for combination with other theoretical traditions (see Carpentier, 2010; 2017; Dahlberg and Phelan, 2013; Schou, 2016).

This is to recommend an understanding of this thesis, any intellectual work and methodology as a discursive articulatory practice. That is to say that the ontological focus towards spatial politics and the use of the method of articulation have been fundamental for the argumentative process of this thesis: from approaching literature and the research topic to the articulation of bridges, levels and cases as well as structuring the empirical chapters. The method of articulation is here used as an approach to method. The decision to use a combination of methods to address the research questions and the specific ways those have been employed from research design to analysis are below presented as articulatory practice.

3.2 Research Design: The Method of Case Study

The method of the case study was selected to structure an in-depth empirical inquiry on European spatial politics on smart cities. According to Yin (1984) the method of case study can provide an in depth empirical enquiry of 'a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used' (p.23). Traditional case study approach follows a 'hypothetical-deductive model of explanation' that puts significant focus in theoretical development and testing as well as research reliability and validity, thereof has a theoretical and methodological driven focus (Flyvberg, 2006, p.220). Nonetheless, as Flyvberg (2006) argues there is plenty of case study research that is problem-driven and seeks to produce in-depth and exemplary case studies that can contribute to knowledge through their situated contexts (inductive models). At the same time, under the method of articulation as an approach to method, the analysis of cases can be an appropriate research strategy that 'furnishes the means to condense a number of theoretical and empirical elements in order to elucidate a singular practice or phenomenon' (Howard, 2005, p.331). This is what is meant in this thesis by project-driven approach, all the while Lefebvre's (2014, see also Purcell, 2013) method of transduction is consulted. In this thesis, the method of case study was operationalised to direct the approach of the product-phenomenon of 'smart cities' within the context of

European spatial politics. The method of transduction, akin to the method of articulation, adds theoretical concept into the empirical inquiry not for the purpose of testing a theory (deduction) or developing theory (induction), but as Purcell (2013) puts it to 'better see' (p.320).

Furthermore, the method of case study is often praised for its openness and flexibility as a method (Flyvberg, 2006; Howarth, 2005; Yin, 1984). Due to the currency of the topic of research in academic literature and the ongoing developments in policymaking, an open methodology that allows flexibility and acknowledges that there is no total control over the empirical inquiry was necessary. Also due to the aim of bridging theory and practice openness and flexibility were by default necessary. Furthermore, according to Yin (1984) case studies are especially helpful in answering 'how' and 'why' questions which are more complex to answer. At last, a case study approach specifically allows the use of multiple methods, whether as different levels of analysis and/or combination of analytical tools (Howarth, 2005), which was also a requirement in this thesis based on the set goal to translate the integrated discursive-material framework into a project-specific appropriate methodology.

Case study research often involves thorough rationales for case selection (see Flyvberg, 2006; Thomas, 2011), but as Flyvberg (2006) argues, moving away from the traditional hypothetical deductive models, means that such rationales might highly rely on experience and intuition that is often hard to articulate. Nonetheless, keeping an open and flexible stance towards any method with a healthy dose of reflexivity is essential to the process of articulation (Glynos and Howarth, 2007). In this thesis, the subsequent process was followed in the research design. Considering that European spatial politics have been identified as the space of inquiry, the case selection rationally derived from the discussion of sections 2.3-2.4. The aim was to incorporate existent research beyond smart cities that highlights the trans-urban context of the 21st century city (Castells, 1993; Sassen, 2007) into the research design, while also attaining to a more theoretical aim identified in the literature to incorporate the observable global-local and structure-agency dialectics within a levelled structuration. Therefore, the overall space of inquiry was split into two levels: the city-local and the EU-regional. As Lefebvre (2014a [1947, 1961]) suggests 'the idea of level indicates hierarchy and bureaucracy in the structuring of society'

(p.412), while at the same time '[t]he idea of level encompasses the idea of differences between levels' (p.413). As such, the structuration into two levels was a design decision made to, on the one hand, acknowledge the structural differences between the two levels and, on the other, to allow differences to emerge. The intention being that existent geometries of power are acknowledged in a trans-urban framework of understanding.

To be more specific, the main assumption employed on this levelled structuration is that European politics are different from EU politics, although they are co-constitutive. Local European politics also participate in the construction of the European identity and the dialectical relationships between them all need exploration. This is supported by literature on the EU structure and its relation to the construction of European identities as well as its relation to globalisation. The EU is a transnational institution and as such provides a level of mediation between the global and the national/local. As Burgess (2002) suggests in *'What's so European about the European Union: Legitimacy between Institution and Identity'* it is important that lines are drawn between what the EU is and what Europe is. As he argues, '[t]he project of European construction is carried out in the name of Europe' and 'the assumed or perceived existence of the European' (2002, p.476). Since '[n]obody will deny that something like 'Europe' exists, that this concept has a meaningful and universally understood content' (ibid), the EU evolves through its treaties and directives while it (re-) constructs the notions of Europe and the European. These processes, however, do not occur independently to the global context. The whole of the European construction with its institutions, history and perceived and conceived identity is built in 'relation to the rest of the world within the matrix of economic globalization' (Burgess, 2002, p.479). This is the context upon which the EU lays its strategies and plans its policies; first, in order to legitimize itself by furthering its construction and second, in order to, as a neoliberal community of states to 'improve its competitive position as an entity vis-a-vis other states in the global market' (Harvey, 2007, p.65). At the same time, local levels are often called to represent the European identity or operationalise it to achieve their goals. Hence, the purpose of the research design was to acknowledge and unveil the differences between the levels of politics in order to inquiry into the therewith-existent geometries of power. Case selection did not aim for the cases to be explored to provide an accurate representation of European spatial

politics that can be generalised, but instead to provide a representation of the differences, antagonisms and agonisms among.

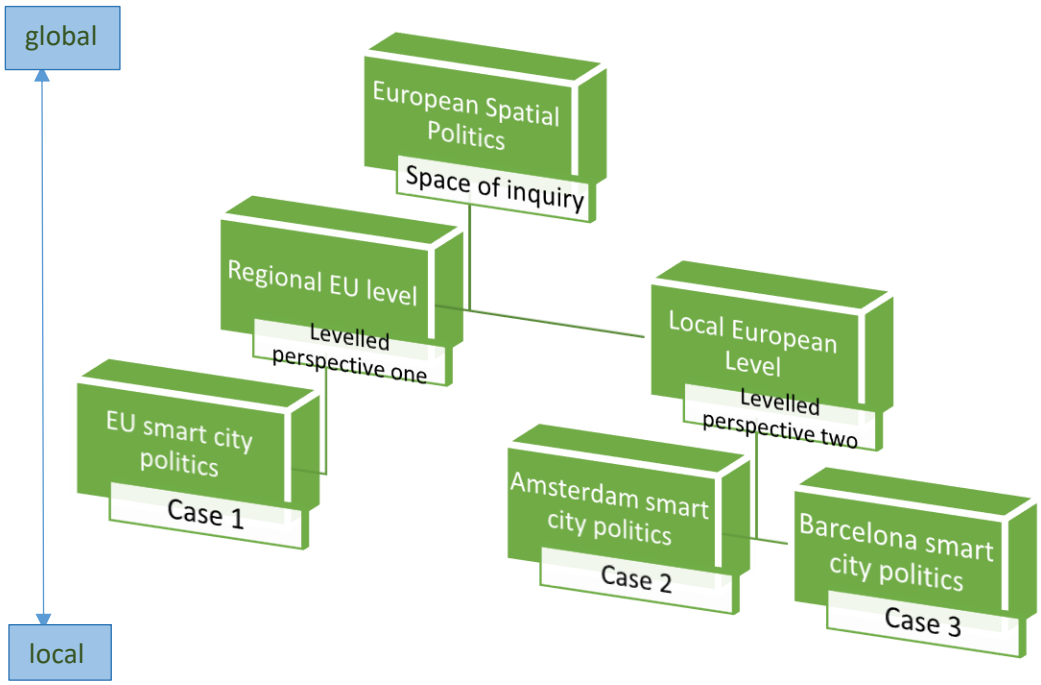


Figure 5: Rationale for case selection

Overall, the selected strategy for case selection was information-oriented and problem driven (see Flyvberg, 2006). The main goal of the strategy was to highlight structures and agency, power and difference, while adhering to this thesis' feasibility and thus in first glimpse the strategy can be seen as maximum variation case selection (ibid) within the European smart city spatial politics. According to Flyvberg (2006) maximum variation cases seek to 'obtain information about the significance of various circumstances for case process and outcome' and therefore the cases are different from each other on one dimension (p.230). However, as Lefebvre (2014) puts it dimensions translated into social sciences from mathematics can be rather formalised and essential, all the while dimensions are infinite. Considering that, the maximum variation strategy was modified for this project and employed to account for differences on between and within levels and not dimensions. In the city level for example, the difference between the cases that suggest maximum variation is the difference between the spatial politics of the two cities (Amsterdam and Barcelona). Between the case of the EU, which represents the regional level, and the city level cases the difference is the levelled perspective itself. An illustration of this rationale is also provided in Figure 5 above. Nonetheless, a

maximum variation strategy does not fully justify why the specific cases were selected. Beyond variation based on differences, the selected cases were also treated as paradigmatic cases, i.e. cases that can 'highlight more general characteristics of the societies in question' (Flyvberg, 2006, p.232). This will be further justified in the next section where, a detailed explanation of the rationale of the case selection is supported, while a selective literature review of empirical work on the European spatial politics of smart cities is also operationalised to support the case selection and context.

3.3 The Three Case Studies: EU, Amsterdam, Barcelona

The rationale above explains the logic behind the selected cases but not the reasons behind the selection of the specific cases which will be provided in what follows. The task at hand was that the two levels regional-local were represented through the selection of several paradigmatic cases in European spatial politics as regards to smart cities. Since this concerned an in-depth inquiry into European smart city spatial politics, three cases were considered as an appropriate number for both variation and depth. In the regional level, the selection of the case was much more obvious: EU smart city politics as represented by the European Commission and the European Innovation Partnership on Smart Cities and Communities. In the city level, the options were much more and the process longer until the crystallisation on Amsterdam smart city politics (Amsterdam Smart City Partnership) and Barcelona smart city politics (Barcelona City Council). Throughout the whole process of this thesis, developments in both regional and city levels were followed through the existent literature, topic familiarisation as well as case familiarisation. The selection of the city cases was finally made based on existent literature, as well as the popular representation of the two cities as smart cities.

Drawing upon literature, a presentation of the three paradigmatic cases follows. According to Flyvbjerg (2006) '[n]o standard exists for the paradigmatic case because it sets the standard' (p.232). In the words of Dreyfus (1988 in Flyvberg, 2006), 'you recognise a paradigm case because it shines' (p.232). In what follows, the justification of the three cases is therefore implied in their presentation that is based on existent literature and relevant policy/politics developments. In each case, the main actors arising from the

existent literature and context were signalled out to drive the discursive-material inquiry (Figure 6).

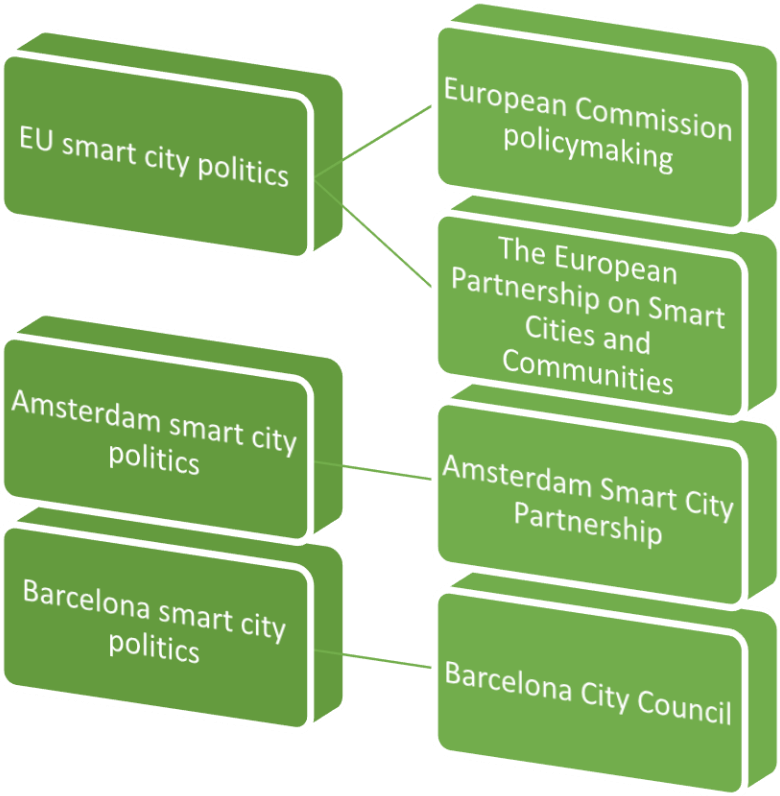


Figure 6: Main actors of the cases

Regional EU level: The Paradigmatic case of EU smart city politics

Identifying the paradigmatic case for the regional level was quite straightforward, the EU being the institutional backbone of the European region (Burgess, 2002; McCann, 2010). Policy development concerning smart cities was followed over time until a focus on the European Commission and the EIP-SCC as actors was developed. In what follows, the case and process are presented through initial observations of case familiarisation in communication with the insights of existent literature.

The concept of smart cities started to more strongly appear in public communications of the European Commission after 2010, in the context of and in parallel, with the building and elaboration of the Europe 2020 strategy for smart, sustainable and inclusive growth (European Commission, 2010a). References prior 2010 can be found within few documents such as the Strategic Energy Technology (SET) plan of 2009 which has strong ties with the European Innovation Partnership on Smart Cities and Communities (EIP-

SCC) created in 2012. Generally, smart cities within European policymaking have been tied with discourses on icts and governance in the networked society and knowledge economy (e.g. Tranos and Grenter, 2012; Caragliu et al., 2011). As such, they seem to also entail the need for a strategic decision towards smartness-to design a 'smart governance operating framework' (Gartner, 2011, in Albino et al., 2015, p.4) that exploits the perceived power and capacities of icts. Beyond smart cities per se, there has been numerous invocations of smartness since 2010 in the European Commission's communications. Other than the implication of technological use, the smart adjective is being used to imply 'smart' change towards an assumed right direction in certain fields of action or in certain applications. Examples are 'smart growth', 'smart regulation', 'smart specialisation', 'smart grids', 'smart meters' and 'smart homes', 'smarter work', 'smart use of technology', 'smart eGoverment', 'smart solutions' and 'smart budgetary consolidation' (examples taken from European Commission 2010a; 2010b). As such, already in the familiarisation process the paradigmatic case of the EU signifies wider discussions and policy trends taking place at this level around smartness and smart technologies, which has been further explored in literature.

Alberto Vanolo (2014) frames this as the smartmentality device. According to Vanolo (2014) there are 'three mechanisms governing the functioning of the smartmentality device' in connection to cities. The first regards to benchmarking and urban analysis that measures and computes cities and their data and develops a positionality of cities as collective actors. The second regards the very discoursing on the necessity of public-private partnerships and new governance structures that can further facilitate smartness and the third concerns the responsabilisation of cities and their citizens. These three mechanisms are closely interlinked and supportive to each other and adhere to the 'production of smartmentalities' (p.889), that is closely connected to the smart city concept but also that implies a contemporary generalised imperative of smartness. This imperative is, for instance, tightly connected to EU's digitalisation processes all the while benchmarking, monitoring and urban analysis are becoming crucial components of the most recent strategies, frameworks and policies of the EU. The Digital Agenda for Europe (DAE), for example, that was part of the Europe 2020 strategy, explicitly measures and manages the digitalisation process across Europe through the Digital Scoreboard -the evaluation tool designed to monitor the process of nation-states on

implementing DAE essential policies (Giannone and Santaniello, 2018). Notably, the Digital Scoreboard refers to the national level, as the EU has no institutional authority over cities. Nonetheless, the framework reaches the local level of the city through the subtle responsabilisation of the city and often its citizens 'as concerns environmental protection, technological upgrading and quality of life' (Vanolo, 2014, p.893). This responsabilisation occurs through the reclassification of the environmental or technological problems for example as an urban problem (ibid). Therefore, existent literature suggests that certain identified problems in the trans-urban or global urban context are being outsourced as responsibilities of the local level through the acknowledgement that, in fact, they can only be dealt with in that level as organisation on the global and trans-urban level is not as feasible. The intermediary regional level such the EU therefore is paradigmatic as it takes the role of coordinating this process.

To be precise, in the EU and throughout the work of the European Commission, an urban regional focus has been noticeable the past decade, reflecting global concerns on urbanisation and globalization such as those promoted through the 2030 Sustainable Development Agenda in 2015 or the Paris Agreement of 2016. The main incentive for being involved in those discussions is that Europe is already one of the most urbanised areas in the world and what that potentially means for its future development and urbanisation. At the same time, the EU seeks to obtain a leadership role within its global context in the areas of sustainability and smartness. In fact, most recently, smart cities have been pushed by the European Commission (Engelbert et al., 2018), discussions on sustainable cities in the EU can be traced throughout the 90s (Gibbs, 1999). Nonetheless, the EU has no direct political authority over European cities.

As such, as Vanolo (2014) argues the responsabilisation primarily occurs through naturalisation of 'the concept of the city as a collective actor: cities are represented as single, homogeneous and unitary actors who win or lose the challenge of the smart city' (p.889). In this process, differences are eliminated and ignored. At the same time, a precondition for this responsabilisation is of course the datafication of the city's functions, actions, services, activity so that participation into urban analysis is possible. Although, the benchmarking and monitoring frameworks seek to appear as neutral and objective tools monitoring the development of the digitalisation processes in Europe, in

their analysis of Digital Scoreboard datasets, Giannone and Santaniello (2018) found that 'there is a hegemonic vision of digital policies that the EU promotes through indicators and rankings' (p.12). In fact, in the process of its promotion as a tool the very concept of 'evaluation [becomes] a tool of neoliberal governance' (p.4). Nation-states and cities are measured by their ability to participate in the monitoring processes, which is a necessity, as well as the actual data they provide, it is desirable that certain standards or goals are reached at each period. This evidently creates a rather complex trans-urban relationship between the local-national-European levels.

Another way this becomes evident is as Vanolo (2014) suggests in the material dependency cities have on European funding. Cities that would be unable to employ strategic decisions towards smartness otherwise, i.e. cities that lack funding from other sources such as national or local funds rely on European funding. In fact, the amounts offered by the EU towards smartness and sustainability over the past decade are plenty and attractive, whereas smart cities are highly promoted through Horizon 2020 and regional development EU funding schemes since 2010 (Engelbert et al., 2018; Vanolo, 2014). At the same time, material dependency on funding has been the main method of attraction for European integration and has formed the national and local economies of many European regions contextually to the EU (McCann, 2010). In such context, regional and local sustainability and their interplay are highlighted.

Haarstad (2016) looked for the connection of sustainability with the EU 'smart city' agenda. His empirical research examined the extent to which the construction of sustainable or smart cities is impacted by the framing of sustainability within the smart city discourse considering that the latter is heavily pushed within EU policymaking. Haarstad (2016) investigated the structural implications the EU discourse on smart cities has and the agency (in terms of framing sustainability) of the EU-funded smart city projects and their implementation on the city level (of the city of Stavagner in particular). He eventually concluded that 'smart city is a way of framing sustainability' (p.12) that is particularly prevalent within EU institutional discourse e.g. European Commission and while it influences the other two levels he examines (EU-funded smart city projects and city level implementation of those) it does not exactly translate into them. In his own words, as regards to the EU institutional discourse:

> the EU-level discourse on smart cities is bound up with the EC's agenda of fostering innovation and competitiveness in the knowledge-based economy. The smart city agenda is envisioned as a fundamental transformation toward better integrated governance, faster uptake of new technological opportunities, and upscaling of innovative solutions. […] Sustainability is largely an assumed result of more efficient, cost-effective urban systems and greater availability of data. It is not jeopardized by economic growth but is dependent upon it, as there is a need for new markets, products, and services to materialize smart cities in Europe (p.7).

Haarstad's (2016) research examined few of the very first EU-funded smart city projects. Since then, and in response to the discussions around citizen participation and involvement highlighted in literature (Cardullo and Kitchin, 2018; Galdon-Clavell, 2013; Vanolo, 2016), citizen focused EU funded projects have been widely promoted in the, lately, contextual effort of the EU to reach out directly to European citizens. Such projects are often used as proof of the honest efforts of the EU to improve the wellbeing and quality of life of European citizens. Cardullo and Kitchin (2018) examined citizen focus projects of the European Innovation Partnership on Smart Cities and Communities (EIP-SCC) and concluded that smart cities operate in line with neoliberal urbanism and 'promote a form of neoliberal citizenship' (p.1). This is operationalised as they signal out through the interplay of citizens' participation and marketization. These themes seem to be the main themes-drivers for citizen-focused projects and depending on the projects' specificities are further divided in three interrelated aspects: technological solutionism, nudging behaviour and scaling and replication. Technology is perceived as the solution to urban problems (see also Kitchin, 2015), citizens are perceived as 'learners' that need to be educated towards changing their behaviour (Cardullo and Kitchin, 2018, p.14), while scaling and replication are the core evaluators of projects' efficiency (p.15- 16). Conclusively, Cardullo and Kitchin (2018) assert that the 'citizen engagement and citizen power enacted within smart city initiatives' are limited within a neoliberal ideology.

The research of Haarstad (2016) and Cardullo and Kitchin (2018) on the one hand raise issues around the effects of the very EU mechanisms and discourse to cities, citizens and the participation component, all the while they signify the prominence of certain actors,

such as the European Commission and the European Innovation Partnership on Smart Cities and Communities (EIP-SCC), in smart cities discourse, agenda and developments. Therefore, as a result of the familiarisation process, the European Commission's policy and strategy development on smart cities and the creation of the European Innovation Partnership on smart cities and communities were identified as two key aspects of the EU spatial politics on smart cities and were chosen to guide the exploration of this paradigmatic case. While the EIP-SCC represents a new model of organisation within the EU that has derived from the strategic focus the European Commission has set for the EU in the aftermath of 2007-2008, the European Commission sets the policy agenda in the EU. Conclusively, the paradigmatic case of EU smart city politics involves the European Commission and the EIP-SCC as its main actors.

Local City level: The Paradigmatic cases of Amsterdam and Barcelona European smart city politics

Identifying the paradigmatic cases for the city level was a longer process as the cases needed to be signalled out through the overall pool of European cities. Thus, the familiarisation process involved two stages. The first stage concerned the wide familiarisation with the developments around European smart cities through policy, publicity and existent literature, which eventually highlighted the cases of Amsterdam and Barcelona. The second stage concerned focused familiarisation with the individual cases of Amsterdam and Barcelona. In what follows, the two cases are presented through the initial observations from both stages of familiarisation in communication with existent relevant literature.

To begin with, many scholars focus their research on the city level often performing city case studies (e.g. Angelidou, 2014; 2016; Mora and Bolici, 2017, Nesti, 2018) towards understanding smart city realities (e.g. Shelton et al., 2015). That also stems from literature discussed in section 2.4, that argues that the city-local level is often the most obvious terrain of social antagonisms and agonisms (Sassen, 2014; Harvey, 2013). That is not to say that existent literature necessarily looks for antagonisms or agonisms, but that it is in the city level that such differences emerge clearly. In Varsanyi's (2000) words, '[t]he unique geographies and histories of individual cities can flesh out our models and provide us with an interesting and more complete understanding of world

cities and territorial states under conditions of contemporary globalization' (p.38). At the same time as Bentley and Pugalis (2014) argue an emergent place-based development paradigm arises to deal with perceived local regional development deficiencies, which is of interest to investigate at the local level as well. As regards to smart cities specifically, the familiarisation process showcased a characteristic relevant to many European smart cities. The fact that Europe is the most urbanised area in the world indicates that when talking of European smart cities, we need to be thinking about existent cities instead of built from scratch cities following Angelidou's (2014) typology. In existent cities, smart infrastructure is to be applied over existent 'actual' cities, unlike cases such as South Korea's Songdo that was envisioned and designed from scratch together with hard technological infrastructure (see Angelidou, 2014; Hollands, 2015). Furthermore, as literature suggests technology is not the only factor (that needs to be) considered for smart cities and especially European smart cities (Angelidou, 2014; Cardullo and Kitchin, 2018; Shelton et al., 2015).

After stage one familiarisation, the paradigmatic cases of Amsterdam and Barcelona smart cities were selected. The selection of those two resulted from the representation of the two cities as pioneering cases in both academic literature and public discourse as well as their preoccupation with the European identity in local politics. To be more specific, Amsterdam and Barcelona are very often included in smart city world rankings, while they have both received awards for their strategies and activities. Barcelona was the first European city to win the European Innovation Award in 2014. The second city was Amsterdam that won the same award in 2016. At the same time, both cities have awarded, active and/or completed EU funded projects in their list of achievements. In 2018, Barcelona was ranked as third global smart city, following London and Singapore, especially for its government-driven change (Open Access Government, 2018). Amsterdam has also won the World Smart Cities Awards in 2012 and the European City Star Award in 2011 (Angelidou, 2014). Amsterdam is often considered among the top five European smart cities as well as among the leading smart cities worldwide (e.g. Amsterdam Smart City, 2016b; Manville et al., 2014; Responsible Business, 2017).

The two cities are considerably different in terms of their space and politics as well as their location in the European region: Amsterdam in the European North and Barcelona

in the European South. This was also considered as a positive confirmation for ensuring maximum variation in this level. Nevertheless, existent literature on the two cities also showcases that they have both similarities and differences as regards to their smart city politics. Looking further into the two cases, Angelidou (2016) case studies the smart city strategies development of Amsterdam and Barcelona based on four characteristics: the central role of technology, human and social capital advancement, business sector advancement and networking.

In terms of the role of technology Amsterdam was initially more focused on energy saving and renewable technologies. Indeed, the Amsterdam Smart City (ASC) strategy began with the ASC programme that was initiated and implemented in the period of 2009- 2011 by the techno-policy network Amsterdam Innovation Motor (AIM) and the network-grid operator in Amsterdam Liander in close collaboration with the municipality of Amsterdam (Amsterdam Smart City, 2011; European Commission, 2011a). The programme was partly funded by the EU and it was tightly linked to the New Amsterdam Climate Programme which was a municipal commitment to 40% reduction of CO2 emissions by 2025 compared to 1990 (Amsterdam Climate Office, 2008; Amsterdam Smart City, 2010a; Mora and Bolici, 2017). The set commitments were intentionally set higher than the European targets to position Amsterdam as overachieving, a fact that was perceived by the European Commission as ambitious (European Commission, 2011a; 2011c). Achieving sustainability was key for the first steps of Amsterdam's strategy and meant developing projects for reducing CO2 emission. Technologies operationalised in Amsterdam at this time included smart meters, smart lighting, electric vehicles etc.

In *How to Become a Smart City: Learning from Amsterdam,* Mora and Bolici (2017) case study the development process of the Amsterdam Smart City (ASC) strategy as a unique example of success. Based on Angelidou's (2016) characteristics, in terms of human and social capital advancement a stakeholder bottom up approach is characteristic of Amsterdam, while the city is seen as a platform for testing innovative ideas and solutions (also Fini and Caschetto, 2014). Mora and Bolici (2017) suggest that the success of Amsterdam's strategy has been its strategic thinking. The starting phase activities of the ASC were (a) the decision of the three main actors or as they call them initiators (i.e. Amsterdam Innovation Motor, Liander and Municipality of Amsterdam) to transform

Amsterdam into a smart city; (b) the definition of the initial motivation and them taking the lead and; (c) the composition of the planning team composed by working groups representing Amsterdam's stakeholder approach. As such Amsterdam has taken a strategic approach to the smart city obtaining the title of 'the first municipality that adopted a smart city strategy' (Nesti, 2018, p.4).

In this strategic approach of Amsterdam, the other two characteristics of Angelidou's (2016) typology are also incorporated. In terms of business sector advancement, Amsterdam's strategy focused on capital investment incubators from funding programmes to start-ups. In terms of networking, Amsterdam seeks networking with other cities for knowledge exchange, has an organised marketing strategy and strong digital presence. As Baron (2012), who has been a key figure in the development of the ASC strategy, puts it the pressing question in developing Amsterdam's strategy was 'How could we make a city that already exists more intelligent?' (p.1) and how to 'develop the innovation that was needed' (p.2). Answering this question, a crucial component of the strategy was the creation of ASC Partnership, an offshoot of the AIM that follows the quadre triple helix approach to innovation (see Waart et al., 2015) involving partners from government, knowledge institutions, business and civil society towards smart city innovation. The ASC partnership was involved more in the planning phase activities of Mora and Bolici's (2017) analysis informing (a) the alignment of the ASC strategy with the general strategic framework of the city of Amsterdam; (b) the definition of a long-term vision, objectives and approach and; (c) the selection of fields of action. By now, the partnership has established itself as a key actor in Amsterdam's smart city ecosystem (Zygiaris, 2013; van Winden, 2015, Waart et al., 2015). Although the municipality of Amsterdam has been involved from the very beginning it has been predominantly involved as a partner-stakeholder. As such the key actor identified in the paradigmatic case of Amsterdam to further guide the inquiry into Amsterdam smart city politics case was the ASC partnership. The ASC partnership has been portrayed as the representative of Amsterdam's stakeholder approach.

Moving to the case of Barcelona, in terms of the role of technology, the focus was more on connectivity rather than sustainability. The Barcelona Smart City (BSC) strategy can be traced back to 2011 when Mayor Jordi Hereu signed an agreement with Cisco to

participate in their 'Smart+Connected Communities' project -a project that 'acknowledges the essential role of the network as the platform to help transform physical communities to connected communities' (Cisco, no date, p.2). The partnership with Cisco was continued under Mayor Xavier Trias, while a further focus on mobility and government services started to develop. Trias more fully formed the BSC strategy believing that 'a Smart City strategy is essential to foster economic progress and improve people's wellbeing and quality of life' (Trias in Eurescom, 2015, para. 2). The BSC strategy in terms of human and social capital, networking and business sector advancement has a different approach to Amsterdam approach. Following the so-called Barcelona model, Barcelona invests in the innovative spirit and talent of the city seeking to brand the city as a global innovative platform. Partnerships are as well promoted in the form of city collaborations and especially as regards to urban development and infrastructural development. For instance, innovation districts and urban regeneration are key to Barcelona's smart city strategy echoing Florida's (2002) policy recommendations for attracting the creative classes. The BSC is developed in connection to the regional development strategy of the Barcelona Metropolitan Area (BMA) that 'entails consolidating the BMA as a world- class metropolis' (PEMP, 2010, p.29). At the same time, the collaboration with Cisco and in fact Cisco's interest for the creating its city protocol based on Barcelona has established Barcelona as an international networking place as it hosts the Annual Smart City Expo and Congress since 2011 among other technology and innovation focused events. However, as Nesti (2018) finds the government officials' influence in the strategy development is much stronger in Barcelona than in the case of Amsterdam. This difference becomes apparent with the change of municipal government in Barcelona in 2015.

With this change of municipal government an elaborate smart city strategy started to be developed in Barcelona seeking to adverse some key smart city assumptions and safeguard citizens' rights among others. The change of municipal government in Barcelona (where grassroots political party Barcelona en Commu rose to power) signified a switch from a right-wing to a left-wing government. This led to a slight discontinuation of the smart cities strategy and in 2016 a new strategy was put forward under the frame of Barcelona Digital City (BDC) strategy. Francesca Bria was hired by mayor Ada Colau to act as Chief Technology Officer for Barcelona City Council to

review and revise the smart city strategy. The rise to power of Barcelona en Commu shed more light to a different parallel story of grassroots and open innovation and technology development smart city operations, while openly discussing antagonisms and proposing agonisms. As such, in the paradigmatic case of Barcelona the main actor identified is the city council of Barcelona, to further guide the inquiry into Barcelona smart city politics.

Here, it is worth to mention that considering the insights of Flyvberg (2006) that the naming, framing and interpretation of cases is a relatively subjective project specific process, although to the city level cases of Amsterdam and Barcelona were treated as paradigmatic they can in retrospective also be read as extreme/deviant cases, or else unusual cases of European smart cities. Flyberg (2006) defines such cases as cases that 'can be especially problematic or especially good' (p.230) able to 'reveal more information because they activate more actors and more basic mechanisms' than usual cases (p.229). Both cases are popularly presented as exceptionally good and pioneering cases, but also already through the familiarisation process have signified several problematics.

In the case of Barcelona, especially existent research has already focused on smart city contradictions and antagonisms. March and Ribera-Fumaz (2014) case study Barcelona's smart city strategy and self-sufficiency discourse as well as the development of its ecosystem through the smart building level, the network level and the block level. They identify three types of contradictions in the following areas: the smart sustainable fix, citizen's participation and processes of scaling. The smart-sustainable fix as they argue is 'a project that mobilises the environment for the 'legitimisation' of urban redevelopment' (March and Ribera-Fumaz, 2014, p.825). Citizens' participation in the case of Barcelona at the time of their research is contradictory as although there is a recognition for the central role of citizens, 'it is unclear how the interests of citizens are to be made compatible with the interests of private capital and of the urban political elites' (ibid). Lastly, the issue of scaling demands a critical reflection 'on the problems that Smart City projects may encounter when they are upscaled from pilot areas to the entire city' (ibid) and potentially beyond. In conclusion March and Ribera-Fumaz (2014) argue for a necessity to re-politicise the smart city debate '[o]therwise, the Smart City, can function to disguise entrepreneurial urban development and further privatisation of urban

services delivery under the veil of a new hype of ecological and technological branding' (p.826). Calzada (2018) looks at the techno-politics of data and smart devolution through a comparative analysis of few city cases including Barcelona. As regards to Barcelona especially, Calzada (2018) case studies the transitioning of Barcelona from hegemonic smart city to 'the experimental city' with the 2015 change of government and the change of the role of citizens from data providers to decision makers. For Calzada (2018), 'experimental cities approaches-embodies by grassroots movements, living labs, and co-operative platforms-consistently position local communities as the designers and proactive instigators of urban experiments' (p.3). As they argue the experiment city approach that Barcelona represents needs to be established as an alternative paradigm in order to fully judge its success in replacing the smart city paradigm.

As such although Barcelona especially, but also Amsterdam in its own accord (see Mora and Bellici, 2018) are portrayed as special and unique cases, the above literature also suggests that all three cases can be considered as paradigmatic, which makes it possible to be discussed equally even when separated in their levels. Since comparison is beyond the scope of this thesis, the perception of the cases as (even potentially) paradigmatic allows for the discussion of European spatial politics through the three cases in conjunction, relation as well as opposition. This is possible especially due to the regional trans-urban factor that has been inscribed into the levelled structure. For example, Engelbert et al. (2018) argue that '[t]he discourse practices of pursuing and granting smartness', noticed in the EU, are generally excluding citizens from smart city developments (p.1). However, a distinction between central and peripheral smart city practices can be made, recognising the latter as 'one key area for intervention' (p.6). According to them, central smart city practices are the 'short-running projects and experiments that are externally funded' most notably by the EU funding schemes in the case of European smart cities (p.2). Peripheral smart city practices are 'practices that can be initiated by a municipality that is seeking accreditation of its aspired smartness' (p.3) and 'focus […] on enabling smart city networking, professionalism and accreditation' (p.2), i.e. practices strategically initiated from the city-local level. Therefore, it is the antagonisms and agonism between central and peripheral practices that are of importance in the EU smart city politics. This was considered as a guiding factor for the analysis of the empirical data, the collection of which is presented in the next section.

3.4 Empirical Data Collection

Empirical data collection for each case was organised under the discursive-material framework of understanding. In order to cover all three aspects of space production, the main sources of data were documents, website entries and events identified from following the actors and their context. Those are altogether framed as key texts of European smart city politics. Websites entries and online material such as documents were the entry point to the empirical inquiry as they were used initially for familiarisation and problematisation of the topic. Out of those, several key documents were selected for discourse analysis in each case, while supportive documents were added in the process of analysis based on interdiscursivity. Beyond those, three events were also incorporated as sources of data collection. Three annual events (one per case) were selected within the summer-autumn period of 2018 after the preliminary analysis of documents and had the purpose to enrich the empirical cases through ethnography in place and autoethnography in space. The events were followed online for about a period of six months, but also through my attendance and participatory observation.

Data collection EU case

In the case of EU spatial politics on smart cities, three key documents were initially examined: (a) the Communication of the European Commission on the creation of EIP-SSC (2012); (b) the strategic implementation plan of EIP-SCC (2013) and (c) the Europe 2020 strategy for smart, sustainable and inclusive growth (2010). Supportive texts that were highlighted in the analytical process where the Innovation Union policy (2010), the Strategic Energy Technology (SET) Plan (2009) and the memo of explanation on the creation of EIP-SCC (2012).

For the case of EU spatial politics on smart cities, the 2018 European Week of Regions and Cities (EWRC) was followed and attended (Brussels, October 2018). The EWRC is an event that solely focuses on smart cities but has a spatial focus through its focus on regional and local development. In fact, the EWRC takes place annually since 2003 and has most recently developed into ‘a European networking platform for experts in regional and local development’ (Europa, no date, para.3). It involves about 6.000 participants ranging from ‘local, regional, national and European decision- makers and experts’ and

over ‘100 workshops and debates, exhibitions and networking opportunities’ (para. 4). As such, the EWRC is an annual flagship event and meeting point for the EU regional policy where both the EU and local perspectives are represented. In terms of content, the week aims to strengthen the EU efforts around cooperation and cohesion as well as share good practices of economic and social development across European regions. For that purpose, it also involves an Expo of Brussels based European organisations along with representations of several EU bodies, groups and topics that includes physical spaces for networking and lighting talks. The announcement of the RegioStars awards during the EWRC is an example of good practice sharing. Nonetheless, an aspect of this good practice sharing fundamentally concerns actors who work within the EU institutional establishment either directly or indirectly and the EWRC is operationalised to promote the successes as well as the importance of the EU institutional structure to European development. As such the event is also particularly important to the sustenance of the European identity. Procedurally for the attendance of this event, an application for each session was required and upon approval attendance was granted. As such, the sessions attended were dependent on the screening process performed by the organisers and the availability of spaces. At the time my applications were filled many of the smart and digital technologies focused sessions were fully booked.

Data collection Amsterdam case

In the case of Amsterdam spatial politics on smart cities, Joost Brinkman’s (2011) account, who acted as ASC Programme Manager and Ger Baron’s (2012) account, who has acted as ASC partnership director among other key positions were chosen as key texts, while an in depth exploration of the amsterdamsmartcity.com website was also performed using the wayback machine online tool. The About and Frequently Asked Questions (FAQ) pages were used as key entries, while earlier versions of those were used as supportive texts.

For the case of Amsterdam spatial politics on smart cities, the first edition of WeMakeThe.City was followed and attended. The event took place in Amsterdam in order to ‘celebrate urban living’ and ‘[address] important urban issues in the metropolitan region of Amsterdam’ (wemakethe.city, no date a, para. 1). The festival was organised by Amsterdam Municipality, Amsterdam Economic Board, Pakhuis de Zwijger, Waag

Society, Amsterdam Smart City and AMS Institute, that are essentially the key players of Amsterdam's smart city ecosystem (see Winden, 2016). The festival took place in 150 locations in the Amsterdam Metropolitan Area with themed conferences, urban talks, workshops, city expeditions and special events being the main event formats organised by the different partners or in collaboration. The estimated number of participants was 30.000 in total including local, national and international speakers. WeMakethe.City with its elaborate branding intends to become 'the largest city festival in Europe' seeking to address two main questions 'How can we make our cities better?' – glancing at the future- and 'How do we make better cities?' –glancing at present. As such, is an event that through its branding seeks to became a local outlet to share knowledge and practices using the space of the city, aspiring to 'transform the city into one huge festival' (wemakethe.city, no date a, para.6). The sharing of existent practices and tools involves local, national and international practitioners, while at the same time through its workshops the festival seeks to involve the community. The overarching purpose of the festival and its events is to imagine 'what kind of city do we want to live in, in five, ten or fifteen years time?' (ibid). The programme of the festival other than being divided into themes, had also different target groups with some days of the festival being to local practitioners, and thus those events were predominantly in Dutch, whereas the ones I was able to follow in English where targeted to international practitioners and were focused predominantly on trans-local knowledge sharing.

Data collection Barcelona case

In the case of Barcelona spatial politics on smart cities, the Barcelona City Council Digital Plan (Anjutament de Barcelona, 2017a) and the city council's website were used as key texts while a series of supportive documents[20] were also consulted. Contextually, an interview with Xavier Trias (2015) and the BCN smart city (2015) website as accessed through the wayback machine tool were also used as supportive contextual texts. Finally,

[20] . The code of technological practices for Barcelona City Council (Anjutament de Barcelona, 2017b), a supportive document around the concept of agile methodologies and transformation (Anjutament de Barcelona, 2017c), a technological sovereignty guide (Anjutament de Barcelona, 2017d), the ICT public procurement guide (Anjutament de Barcelona, 2017e), the innovative public procurement guide (Anjutament de Barcelona, 2017f), the government measure on ethical management and accountability on Barcelona's data commons (Anjutament de Barcelona, 2018)

as highlighted through the familiarisation process an inquiry into Cisco's involvement as an actor in Barcelona was also made.

For the case of Barcelona spatial politics on smart cities, the 2018 Sharing Cities Summit and 2018 Smart City Expo and Congress were followed and attended (Barcelona, November 2018). The Sharing Cities Summit and the Smart City Expo are in fact two separate events. The Smart City Expo began in 2011 and was to a great extent signifies the collaboration of the local authorities with the corporate world that has positioned Barcelona as 'an international reference point for smart cities' (Pericay Coll, 2011, para. 2). This international event involves both an expo of products, activities, projects etc. and a congress of several sessions on topics of interest as well as side events and activities. The Smart City Expo World Congress is envisioned by the organisers as 'a unique meeting point for the whole smart city ecosystem' (SCEWC, no date, para.2).

The Sharing Cities Summit held in Barcelona (2018) was the third summit, the first happened in Amsterdam (2016) and the second in New York (2017). The Sharing Cities Summit is an international meeting point for the Sharing Cities Alliance that is 'an independent foundation to foster further city-to-city learning and to help cities become truly sharing cities' (Sharing Cities Alliance, no date, para. 4). The 2018 edition of Barcelona 'convened Mayors, Deputy Mayors and city officials from leading cities all over the world to discuss how the continuous development of the sharing and platform economy affects cities, and what innovative measures can be taken to meet the challenges and opportunities cities face' (para.2). The summit was organised by the Barcelona City Council and the Dimmons group of the Open University of Catalonia (Sharing cities Action, no date a) and started one day before the Smart City Expo World Congress, while most of its events were held as part of it. In fact, a theme of the 2018 Smart city Expo World congress 'was dedicated to Sharing and Inclusive Cities' (ibid). This strategic mingling of the two events has been quite successful and plans for its continuation in a similar format for 2019 seem to be already in place (Sharing cities Action, no date a). In this event, several sessions from both the Sharing Cities Summit and the Smart City Expo World Congress were attended, while the relationship within the two events from the perspective of the Sharing Cities summit organisers were also observed. Finally, the

empirical was approached through the combination of the methods of discourse analysis and (auto-)ethnography as presented below.

3.5 Methods of Analysis: Combining Discourse Analysis and (Auto-)Ethnography

The combination of discourse analysis and (auto-)ethnography as methods of analysis for this thesis came from the necessity to approach European spatial politics under the Lefebvrian triadic model as well as go beyond a discourse overdetermined analysis towards actual engagement with space and spatial politics at the different levels and cases. In principle, the method of case study can be very well combined with discourse theory and analysis (see Howarth, 2005) as well as ethnography (see Fusch et al., 2017). The combination of discourse analysis and ethnography has been argued as a legitimate direction for research and holistic analysis although they can also be perceived as being at odds (see Hammersley, 2005; Kryzanowski, 2011; Macgilchrist and Van Hout, 2011). For example, Howarth (2005) argues that ethnographic data are often micro focused and intentionally at distance from macro theoretical concepts in contrast with a discourse theory informed approach to qualitative research that precisely seeks to bridge the theory with the empirical through the subjectivity of the researcher's analysis. Furthermore, autoethnography is a reflexive practice of emancipatory discourse (see Maydell, 2010; Mendez, 2013; Richards 2008).

The combination of methods in this thesis were operationalised to (a) achieve such macro-micro bridge (while avoiding, to the extent possible, the overdetermination of discourse and time) and (b) translate Lefebvre's triadic model through the ontology of the analyst. As such, the spatial-political ontology for this thesis consults Lefebvre's method of transduction that adds theoretical concept into the empirical observation, analysis, ethnography, experience etc. not for the purpose of testing a theory (deduction) or developing theory (induction), but as Purcell (2013) puts it to 'better see' (p.320). Purcell (2013) explains that using the method of transduction:

> we begin by closely examining actual-but-inchoate practices that are currently taking place in the city, and then we extrapolate them using theoretical reflection to produce, in thought, a more fully developed

> version of them, a virtual idea (which [Lefebvre] calls 'urban society') that shows us what kind of world they would produce if they were allowed to flourish and pervade the city. Once we have extrapolated this concept in thought, we then use it as a lens to help us better see those actual practices as they exist today, struggling to emerge and flourish (p.319)

Therefore, the main purpose of the method of transduction is the opening of imaginary space to different utopias, playing out their scenarios and adjusting practices towards achieving them in a reflexive manner (ibid). As such, the methods of discourse analysis and autoethnography are operationalised through the method of transduction, integrating the collected data into a comprehensive whole produced through theoretical self-reflection. In what follows, the positioning of the two methods is briefly presented.

Discourse analytical positioning

The discourse analytical positioning of this thesis is briefly here reviewed. The review is brief and non-exhaustive intentionally as extensive positioning has taken place through the very construction of the integrated discursive-material framework. The purpose here is to provide method focused clarifications and explanations for where this thesis stands within the various schools of discourse analysis. Due to the aims set through the discursive-material framework an open analytical approach to discourse was necessary to avoid its overdetermination as well as an episteme-ontological battle between various approaches to analysis. It should come as no surprise that the discourse approach favoured in this thesis was that of political discourse analysis (Glynos et al., 2009) that is a continuation of Laclau and Mouffe's (1985) work which has already been integrated into the framework. This decision was made to accommodate a spatial-ontology as articulated in the discursive-material framework. In what follows, I will articulate how political discourse analysis is most suitable for such purpose that other discourse analytical approaches.

Generally, the use of discourse analysis for the analysis of policymaking has been promoted in the circles of discourse analysts for the past decade and is considered a crucial part of critical policy studies and politics. To highlight the importance of discourse in policymaking discourse analysts have started looking towards the

development of concrete discourse analytical frameworks and methodologies that bridge critical policy studies with discourse analysis or have indicated the arising possibilities. More specifically the traditions that have more straightforwardly come forward within critical policy studies are interpretative policy analysis (Fischer, 2003; Yanow, 2000), critical discourse analysis for policy (Fairclough, 2013), discursive institutionalism (Schmit, 2011) and discourse theory approach to policy (Howarth, 2010), also framed as post-structuralist discourse theory and political discourse analysis (Glynos et al., 2009). The different approaches belong to different traditions and according to Glynos et al. (2009) have a different focus, ontology and purpose, although there have been arguments towards their combination depending on the project, its aims and objectives.

A fruitful combination requires choices over the focus, ontology and purpose of the project and arguably some combinations are easier to justify than others. Jorgensen and Phillips (2002) have for example provided some arguments over the possible combination of post-structural discourse theory and Fairclough's critical discourse analysis. Panizza and Miorelli (2013) have argued for a fruitful combination between post-structuralist discourse theory and discursive institutionalism. Howarth (2005; 2008) especially but also Glynos and Howarth (2007) have in more detail (re-)examined the contributions Foucault's work can make to Laclau and Mouffe since many traditions depend on interpretations of his work. At the end of the day, the combinations depend on the decisions of the analyst. In this thesis, the choice of the discourse analytical approach has been made through the articulation of the discursive-material analytical framework. The spatio-political ontology favours the discourse-hegemony framework of political discourse analysis (Glynos et al., 2009). Nevertheless, several insights are drawn from other traditions as regards to the operationalisation of analytical tools. A brief discussion of the differences between the approaches is here presented according to Glynos et al. (see Figure 1, 2009, p.32).

Political discourse analysis has a macro focus that though includes a micro analysis of texts, sees discourse as an ontological horizon and its purpose is to reveal the logics through which discursive practices stabilize or change (Glynos et al., 200). The macro focus of political discourse analysis allows flexibility as per the analysis as there is no standard way of doing political discourse analysis or a hegemony approach to policy

other than Laclau and Mouffe's work as a point of entry. Working with a method of articulation (Howarth, 2005), among theory and practice, combining other theories, consulting empirical material in the process and generally having an open approach to methodology suggests an open framework for the analysis of empirical material (see for example *Discourse Theory in European Politics: Identity, Policy and Governance*; Howarth and Torfing, 2005). What differentiates political discourse analysis from other traditions is the ontological, rather than epistemological focus and the mantra of anti-essentialism. Drawing upon Derrida and post-structuralism, for Laclau and Mouffe discourse is 'a differential ensemble of signifying sequences in which meaning is constantly renegotiated' (Torfing, 1999, p.85-86). Fixation is impossible since the transformation of elements from the field of discursivity (where there is undecidability) into moments[21] within a discourse (where there is decidability) is temporal and unstable. The deconstruction of hegemony becomes one of the apparent roles of an, under the theory of hegemony, discourse analysis, where the importance of the articulatory practice is put into perspective as well as revealed. Change(s) in a discourse, in a structure, in power and social change altogether thus are of apparent interest to the tradition of Laclau and Mouffe.

What differentiates Laclau and Mouffe (1985) significantly from other approaches is their denial of a distinction between non-discursive and discursive practices that characterises Foucault and the traditions influenced by him (e.g. Fairclough, 2010; Wodak and Meyer, 2016). For Laclau and Mouffe (1985) and their attempt to argue for the materiality of discourse, differentiating with 'mere materiality', ultimately anything that is not (yet) discourse, is (nonetheless) articulated discursively. Due to their viewing of discourse as an ontological horizon they see nothing other than the 'mere existence' of matter outside discourse. Foucault's (1995) biopolitical ontology on the other hand focuses on the present and the body, and to an extent allows an external to discourse materiality that is non-discursive. This very distinction, for example, based on the interpretation of Foucault, is what differentiates Fairclough's (2010) critical discourse analysis (CDA)[22] or discourse historical analysis (DHA) from political discourse

[21] The transformation of elements into moments signifies the attempt to fixate meaning

[22] In this thesis, CDA will be used to refer to the overall family of critical discourse analysis approaches (that for example includes DHA) and Fairclough's (2010) CDA will be named explicitly to avoid confusion.

analysis. Fairclough's (2010) critical discourse analysis who also argues for a political focus seeks to examine political discourses in the context of social change. DHA who also argues for a political focus seeks through its historical perspective to 'make practical claims of emancipation' (Reisigl, 2017, p.81). DHA is a more application and action-oriented approach within the overall CDA family of approaches, while it draws theoretical insights from the Frankfurt School (Forchtner, 2011). Nonetheless, the CDA family of approaches generally views text (discursive) within its social context (non-discursive). As far as this distinction goes, text is considered as an objective element to be examined in its subjective historical context, which echoes the realist ontology of Fairclough's CDA and DHA for instance (i.e. a linguistic-semiotic approach of realism). From this derives that, realist approaches to discourse operate in reversal to political discourse analysis as the focus of analysis is the text (micro) within its context (macro) that is the non-discursive social structure (Glynos et al., 2009). The discursive is thus one dimension of the social structure and not its ontological horizon.

Reiterating, the main difference between those approaches/traditions is that in the realist approaches the discursive practice that produces a text is ontologically different from the social context that change takes place, which is based on the discursive/non-discursive analytical distinction that Laclau and Mouffe (1985) reject. For them text and context can be analytically, but not ontologically different (see Glynos et al., 2009) which is an argument substantial for the spatial ontology propagated in this thesis. In other words, approaching the paradigmatic cases through the various empirical material and levels cannot be separated into text and context as that would not fit with the Lefebvrian approach to the production of space (conceived, perceived, lived). At the same time, it is here argued that the meaning of Laclau and Mouffe's (1985) denial of the non-discursive does not equate a denial of the material as some have suggests (e.g. Geras, 1986). For Laclau and Mouffe (and Foucault), language is always social practice and thus the analytical understanding of text within its social context is to an extent contradictory. Overall, it is argued that CDA is a text-based analysis of politics, whereas political discourse analysis is a political theory based political analysis, with a distinction between politics (as the ontic) and the political (as the ontological) made (see Marchart, 2004; Mouffe, 1995). In Mouffe's (1995) words 'by 'the political' I mean the dimension of antagonism which I take to be the constitutive of human societies, while by 'politics' I

mean the set of practices and institutions through which an order is created, organizing human coexistence in the context of conflictuality provided by the political' (p.9). This ontological political insistence of political discourse analysis is what makes it the best candidate to work against the overdetermination of time within the integrated discursive-material framework.

At the same time, the insights of CDA approaches have been relevant in the analytical process of this thesis with providing a set of analytical tools. Such combinations are agreeable with the method of articulation approach to methodology in several ways. First, as Howarth (2000) has argued the discursive and non-discursive distinction was not as important to Foucault as he did not extensively theorise this aspect in his work. This has led to the fruitful combination between Foucault and Laclau and Mouffe that Howarth (2000) proposes. In sum, Foucault's articulations of discourse and power are parallel to Laclau and Mouffe's theory of hegemony and can be incorporated into the discourse analytical vocabulary (ibid). Also, as Howarth (2005) explains Laclau and Mouffe's abstract operationalisation of articulation is akin to Michel Foucault's (1985) archaeological/genealogical method of problematisation where 'archaeology provides the means to delimit research objects, while genealogy analyses their constitution by recounting the historical practices from which they were constructed' (Howarth, 2005, pp.318- 319). Across both from theory to practice, the analytical task at hand is to identify 'the historical and structural conditions which gave rise to [certain political and ethical problems], while furnishing the means for their critique and transgression' (Howarth, 2005, p.318).

Furthermore, if research projects 'share a commitment to problem-driven approaches to discourse analysis, in which the problematization of social phenomena constitutes an important starting-point in any research strategy' (Glynos et al., 2009, p.35) constructive combinations can be performed. At the same time, according to Glynos et al. (2009) '[p]roponents of CDA/DHA […] tend not to dwell on their ontological presuppositions' although '[t]hese ontological commitments shape their choices of research objects and constrain the different ways in which they conduct their studies' (p.34). If there is a clear ontological clarification, the spatio-political in this case, to avoid analytical

contradictions, constructive articulations are possible, which is what has been argued for in this thesis.

(Auto-)Ethnographic Positioning

To begin with, it is important to mention that the ethnographic approach followed was from the perspective of a novice researcher (Fusch et al., 2017). Unlike to having prior experience with discourse analysis, that was not the case with ethnography. Therefore, the (auto-)ethnographic approach developed highly relied on the perceived necessities for the project and familiarisation with the method through practice. In fact, Lefebvre's (1992) rhythmanalytical project as an auto-ethnographic reflective practice was originally the main inspiration. Rhythmanalysis is the praxis of, upon reflection understanding an external rhythm in relation to the internal rhythm (of the heart), where the definition of what the rhythm is depends on the analyst.[23]

The use of the (auto-)ethnography signification used as the employed method signals a mix of ethnography and autoethnography. Generally, the mini ethnographic research conducted in this thesis departs from traditional models of ethnography and the rationales they are built there (see for example Stephen et al., 2012). Due to the combination with discourse analysis under a project specific discursive-material framework, it was crucial to keep the project manageable, while still produce appropriate insights. Thus, the employed method lies in between short-term ethnographic research and autoethnography, where autoethnography concerns the reflexive practice (see Maydell, 2010; Mendez, 2013) of transduction (Purcell, 2013), which is highly relevant to political discourse analysis as well (Glynos and Howarth, 2007). The (auto-)ethnographic positioning can be best articulated through the following section (3.6) as (a) the way the three cases were integrated into the chapters, (b) the analytical process followed and (c) the limitation to methods, are presented

[23] In its most abstract form, any rhythm can be broken down into time, space and energy. For example, the 5 o'clock traffic jam in Leicester has a particular experience of it in terms of time, space and energy that is subjective to the experience. However, further, to noticing and experiencing such rhythm, (how it feels, sounds and smells) further analysis can be provided that can discuss the particularity of this rhythm as, for instance, a spatial practice.

3.6 Analysis and Writing as Reflexive Practice and Praxis

Autoethnography constitutes a reflexive research practice (see Maydell, 2010; Mendez, 2013), the writing of which entails reflective praxis. This section seeks to present further clarifications as regards to the reflective and reflexive processes followed in this thesis, both in terms of the research and writing process. It seeks to indicate how the very analytical and writing processes, as understood in this thesis are, autoethnographic research. That is because, abiding to the principles of transduction and articulation, reflexivity is fundamental to the translation process of the discursive-material framework and spatial-political ontology into both the research process and written text of this thesis. In other words, in between Lefebvre's (1992) depiction of the rhythmanalyst as a heart spaced experiencer of rhythms and Haraway's (1985) cyborg as the 'condensed image of both imagination and material reality' (p.150), the discursive-material or cyborg analyst seeks for ways to incorporate the lived experience of the analyst in his analytical and writing process. There are many different ways to approach such an endeavour including both implicit and explicit ways of doing so (see for example Prasad, 2016), yet as Flyvberg (2006) recommends, in case study research, the narrative itself is often assigned to the task of doing so. In that vein, what follows is a structured presentation of some such elements of the lived experience of the writing and analytical processes of this thesis.

The writing process: Integration the Cases into Chapters

Pugalis (2009) proposition for an interpretative-spatial framework for policy analysis that operationalises Lefebvre's triadic model and Foucault's insights on power and discourse. Pugalis (2009) framework was developed to address 'the gap between discursivities and materialities […] as too often analysis of spatial policy discourse has taken an aspatial analytic approach' (p.78). Distinguishing between the materialisation of discourse and discourse materialised to indicate the dialectical relationship between discourse and urban reality, Pugalis (2009) seeks to spatialise the discursive terrain of policy pointing to its materiality. Analytically, Pugalis (2009) proposes three building blocks of analysis in his framework that correspond to Lefebvre's spatial production triadic model within the arena of policy. Carpentier (2017) also uses the concepts of 'triptych', 'three panels' and 'three platforms' to articulate his discursive-material knot approach. As such, it can

be argued that three-aspect discursive-material frameworks seem to be an agreeable direction for going beyond the discursive.

In this thesis, Lefebvre's (1974) triadic model is used to provide three distinct entry points (cases) that are then integrated through the methods of articulation and transduction into three distinct exit points (product-Chapters) as presented in Figure 7. Although, at the points of entry analytical separation is to an extent accepted, through the analytical process and towards the points of exit (empirical chapters) as it might become evident to the reader separation is not possible.

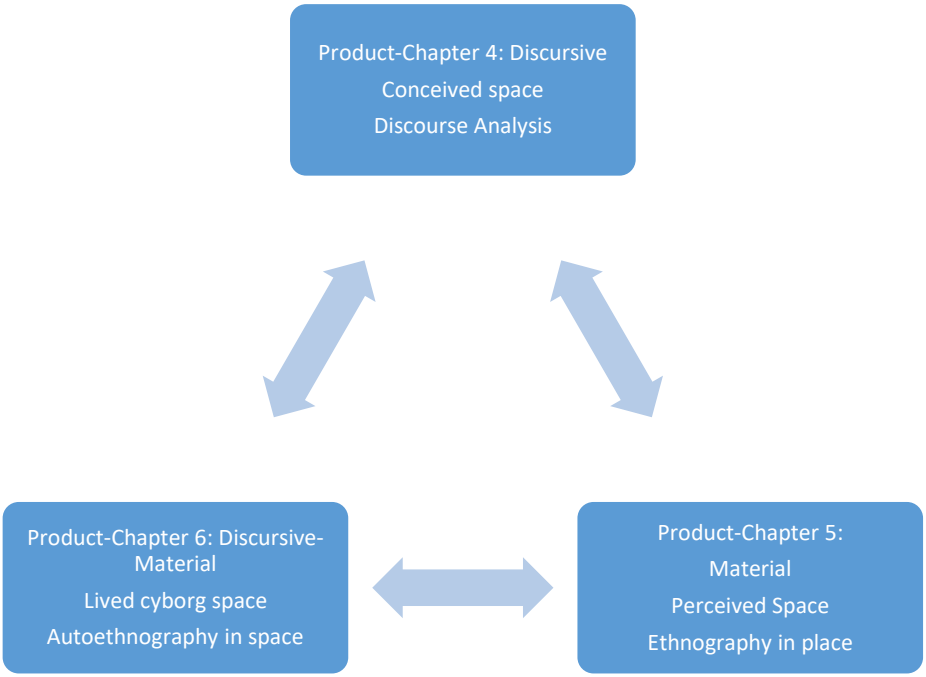


Figure 7: Integration of the Cases into the Chapters

Product-Chapter Four (Empirical): In order to approach the conceived space of European smart cities politics, the method of discourse analysis was employed. The first act in this block was the analysis of key texts. The purpose of the engagement with those texts was to develop an understanding of the research topic as represented in European spatial politics, but also attune to the antagonisms suggested from their analysis. In product-chapter four, the web of meaning of how smart cities are conceived in the three cases is presented.

Product-Chapter Five (Empirical): Building on the discourse analysis, Pugalis (2009) calls 'spatial policy research in place' (p.92) or else ethnography in place occurs through

the participation and attendance of the key events. Spatial politics research in place focused on the practices of the key actors, the organisation of the events as well as the discourses, antagonisms and agonisms present. Bringing along the insights gained from the prior discourse analysis, discourse is juxtaposed with urban reality and is in turn informed by it. The focus of here was on the perception of the space of cities, the existent (spatial) practices and the development of new ones towards the achievement of smartness. Through the attendance of the three events the live policy debate better highlighted the 'struggle […] being fought out in so far as different interests seek to impose their way of knowing (representations of space)' (Pugalis, 2009, p.92).

Product-Chapter Six (Reflective-Conclusive): Finally, spatial politics as lived space was approached through the (auto-)ethnography in space. The main purpose here was to 'connect the discursive-material realities of the policy-making process with the discursive-material realities of urban/social space' (Pugalis, 2009, p.93). Under the spatio-political ontology, another purpose here was to reflectively connect the other two product-chapters through the ontology of the analyst. As Pugalis (2009) argues this approach can be reflexively used 'to reveal the presence and absence of different citizen's rights to the city' (p.93).

The precise analytical process through which the cases where written into Chapter Four, Five and Six is explained below.

The analytical process: Readings and Tools

The analytical process followed included several readings of the empirical material at different times before and with the use of various tools. This was decided for two interlinked reasons. One was in order to adhere to all different levels of abstraction (see Figure 1) and create the theory-empirical loop that the method of transduction requires. The second one was to integrate the discursive-material dialectic in the analytical process. At the end of the day, this thesis due to its nature will remain a discursive articulation, and so the discursive-material dialectic was necessarily addressed through framework, method and analysis. What is presented in the empirical chapters below is the articulation of the following analytical process.

First reading of analysis: intertextuality, interdiscursivity, nodal points and chains of meaning

The first step of the analytical process was part of the familiarisation process to the topic and key texts and used several discourse analytical tools to get a grasp of smart cities spatial politics in each case. This step is especially connected to the first analytical block that focuses on the discursive. In this first reading of the cases, the following analytical tools were used.

-*Interdiscursivity and Intertextuality*

The two terms are analytical tools of the critical discourse analyses traditions (see Bhatia, 2004; Fairclough, 2010; Wodak and Meyer, 2016; Wood and Kroger, 2000) and that of discourse historical approach (Reisigl and Wodak, 2016). They are akin to Laclau and Mouffe's (1985) concept of articulation (see Jorgensen and Phillips, 2002) and Foucault's (1972) archaeological and genealogical methods, but more empirically oriented as tools and usually very text based. Here, these tools were used to better understand the discursive context of the cases by identifying what other texts are used in support of the key texts and what discourses those draw upon.

Wood and Kroger (2000) propose intertextual analysis as analysis of context helping the analyst to enhance the understanding of a text. This is a fundamental component of the discourse-historical approach that among others 'investigates intertextual and interdiscursive relationships between utterances, texts, genres and discourses, as well as extra-linguistic social/sociological linguistic variables, the history of an organization or institution, and situational frames' exploring 'how discourses, genres and texts change in relationship to sociopolitical change' (Reisigl and Wodak, 2016, p.27-28). Reversing this under a framework of hegemony, in this thesis, these tools are used based on the assumption that the very processes of policymaking and politics require the creation of intertextual and interdiscursive time-biased links as part of their hegemonic struggle. In other words, intertextuality is a condition in the context of historical development (Fairclough, 2010) and as such hegemony (Jorgensen and Phillips, 2002).

Bhatia (2004) provides several types of intertextual relationships such as texts providing context, texts within text (e.g. appendices), indirect or direct references of texts etc. Upon the identification of intertextual relationships, interdiscursivity can be extracted which is much more of interest to this thesis. In this first reading, intertextual relationships were manually marked in key documents for the purposes of uncovering interdiscursivity. In the process supportive documents, such as in the case of the EU were also uncovered. According to Jorgensen and Phillips (2002) 'interdiscursivity is a form of intertextuality' (p.73-74), while intertextuality is more explicit and evidently manifests in the text and interdiscursivity needs to be unveiled through the analytical process. At the end of the day, despite the phenomenologically limitless possibilities of interdiscursivity in practice the possibilities are limited by the hegemonic struggle, political imaginaries and ideology (see Jorgensen and Phillps, 2002). Analysis of intertextual and interdiscursive chains therefore were operationalised to reveal the production conditions of smart cities politics and how discursive content was structured in its context. As such, it is important to clarify that these tools were used as tools for exploration and not as tools of explanation and therefore are minimally present in the vocabulary of the empirical chapters.

-*Nodal points and chains of meaning*

Nodal points and chains of meaning (also relations of meaning) are two concepts stemming from Laclau and Mouffe's (1985) work that were used in understanding the discursive structures themselves in conjunction to the interdiscursive web. To begin with, Saussure's (1974) linguistic work established that the structure of language as a system of signification basically refers to the fixation of signs through signification processes between the signified (objects) and their signifiers. Overall, all signifiers are perceived as floating into the field of discursivity that represents the surplus of meaning (see Torfing, 1999). Those floating signifiers are perceived as filled with meaning only as part of discursive structures (see Jorgensen and Phillips, 2002). This however does not mean that floating signifiers are empty of meaning and a line needs to be drawn between the concept of floating signifiers and empty signifiers. As Laclau (2007) explains an 'empty signifier, strictly speaking, is a signifier without a signified' (p.36) which is paradoxical as, on the one hand, that is impossible as it disrupts the whole idea of the signification process and, on the other hand, necessary for the very existence and sustenance of any

system of signification (p.36-40). As such, empty signifiers represent, signify or describe the paradoxical nature of structures of signification or else highlight the complexity of the signifier-signified dialectic that construct signs. In that sense, while all signifiers might be floating in the field of discursivity at any point, not all of them are empty signifiers. All the while, empty signifiers can be a valuable theoretical concept to reveal paradoxes and contradictions especially in philosophically inclined work such the one Laclau (2007) delivers, as Andersen (2003) argues they might not be very useful analytically. Mostly because, when used analytically empty signifiers lose their theoretical status and while the analyst ponders on whether a concept is empty of meaning or not, they essentially become a synonym[24] to the empirically useful and simpler concept of floating signifiers (ibid). To avoid the neutralisation of the two distinct terms, in this thesis, the concept of floating signifiers was used in the analytical process.

Within discursive practice, floating signifiers transform into nodal points, i.e. the key signifiers that organise the web of meaning of a discourse or discursive structure (see Jorgensen and Phillips, 2002). To look for the nodal points of a discursive structure and the ways they relate to each other and other signifiers was a crucial step of this first reading of the analytical process. Furthermore, chains or relations of meaning were used to analyse the discursive structures as webs of meaning that are socially organised through *relations of difference* or *relations of equivalence* (see Torfing, 1999, p.96-97). That is to say that in the terrain of politics, and in the context of hegemony especially, the way the us/them polarity is constructed is substantial for identity and discourse (Laclau and Mouffe, 1985). This polarity is also the basis of Mouffe's (2014) agonistic approach. According to this, political subjectivities in the hegemony of capitalist societies can have two expressions. Either a differential value is ascribed and the polarity is framed as 'us vs. them', thus the identity and discourse of the 'we' is competitive to the identity and discourse of 'them' (and a relation of difference is drawn), or an equivalent value is ascribed and the relation to 'the other' ('them') is sympathetic without though being incorporated into the 'we' (and a relation of equivalence is drawn). As

[24] In fact, such use of two concepts as synonyms has been observed in the topic of smart cities and sustainability (see Brown, 2016; Davidson, 2010; Griggs et al., 2017).

Laclau and Mouffe (1985) and even more so Mouffe (2005; 2014) often stress the existence of 'we' and 'them' and 'othering' processes are fundamental to politics and the construction of political identities, as much as studies of the psyche have shown their importance to the construction of any sense of self. Notably, these two expressions are not mutually exclusive and can be put at work simultaneously in very complex ways so that differences[25] are stressed, while emphasis is put on the equivalences (Torfing, 1999).

In order to map the web of meaning, analysis is focused on how these relations are formed through the logics of difference and equivalence. The logic of difference, in the process of fixing meaning to a signifier highlights how one or something is different from the other. The logic of equivalence, on the other hand, attempts to flatten meaning by giving meaning to what insofar had a different meaning and, in the process, partially or wholly displace, even deprive, previous meaning. The logics of difference and equivalence can be found in all different levels of analysis, whether in terms of word choices and phrase construction (see Fairclough, 2010) or in terms of the articulatory practice (Laclau and Mouffe, 1985) and often both. Analytically, whereas the logic of difference draws lines between discourses and their signifiers, the logic of equivalence establishes mutual connections between discourses and the field of discursivity so that nodal points and floating signifiers are in constant communication, giving meaning to each other in a two-way process, i.e. not only floating signifiers inform the meaning of nodal points, but also nodal points partially fix the meaning floating signifiers anew (Torfing, 1999). This is a crucial point for this topic of research since smart cities have been casually identified as floating signifiers but have not been explored yet under a framework that can shed light into the web of meaning around them.

In terms of analytical practice, in this first reading, nodal points and chains of meaning where marked in each text to reveal discursive structures and webs of meaning as indicators of specific political subjectivities and imaginaries they were meant to construct. All in all, this first reading of analysis focused on the discursive context of the

[25] The concept of difference is here used according to Derrida's differance that means both to difference and the deferall of meaning. This is fundamentally different from Lefebvre's use of difference (see Kipfer, 2008) as the level of use is radically different too.

cases. This reading was used as preparatory work for the second reading of analysis that extrapolated from the chains of meaning socio-temporal and socio-spatial logics.

Second reading of analysis: socio-temporal and socio-spatial logics

The second step of the analytical process was to provide a spatially focused reading of the same texts through the identification of the socio-spatial logics through which the conception of smart cities takes place. For that, Glynos and Howarth (2007) logics of critical explanation were consulted. According to them 'the logic of a practice comprises the rules or grammar of the practice, as well as the conditions which make the practice both possible and vulnerable' (Glynos and Howarth, 2007, p.136). The main question for this reading was: what are the logics behind the discursive construction of smart cities in each case and what are their purposes and objectives? Therefore, this second reading is built up on the first reading further focusing towards the underlying political imaginaries.

Glynos and Howarth (2007) distinguish between three different types of logics: social logics, political logics and fantasmatic logics. Social logics concern the assumed and accepted set of rules and practices and are 'primarily interested in *characterizing* a particular social practice or regime' (Glynos and Howarth, 2007, p.137). Political logics 'focus more on the diachronic aspects of a practice or regime' (p.141) and are used to institutionalise social logics. Finally, fantasmatic logics 'contribute to our understanding of the resistance to change of social practices (the "inertia" of social practices), but also the speed and direction of change when it does happen (the "vector" of political practices)' (p.145).

In this thesis, social and political logics were used to narrate the discursive structures of the space of inquiry, while a decision was made for fantasmatic logics not to be used as an analytical tool in the empirical analysis. The main reason for that was to avoid the overdetermination of the discursive and instead of expanding into the fantasmatic logics of change and continuity, to extend into the socio-spatial analysis of the material as revealed through the (auto-)ethnographic fieldwork. As Glynos et al. (2009) write '[i]f political logics furnish us with the means to show how social practices come into being or are transformed, then fantasmatic logics disclose the way specific practices and

regimes grip subjects' (p.11). As such, fantasmatic logics can be a framing device into the working relationships between a policy and its subjects within the context of ideological critique (Glynos, 2008). The role of fantasy is certainly a very relevant and important possible angle to the exploration of European smart cities; however, it is not a tool that can offer extra insights to the discursive-material approach and aims of this thesis. As Glynos et al. (2009) argue that one of the key elements of political discourse analysis is a 'detailed analyses of the kinds of fantasies that underpin our social and political practices' (p.13) and in this thesis, this is performed without the use of fantasmatic logics, but through the Lefebvrian triadic model of space production.

To be more specific, according to Glynos et al. (2015) 'social logics help us characterize a practice in terms of its dominant, sedimented norms', while 'political logics characterize processes that establish, contest, de-contest, defend or transform those norms' (Glynos et al., 2015, p.395). Thus, political logics reveal the contingency of the social and the possibilities of its de-institutionalisation. As Glynos and Howarth (2007) explain:

> the *political* logics of equivalence and difference comprise a descriptive framing device which is derived from a particular understanding of discourse and the importance accorded to processes of signification. They enhance our approach to social science explanation by furnishing us with a conceptual grammar with which to account for the *dynamics* of social change. They help show how social practices and regimes are contested, transformed, and instituted, thereby extending our grammar beyond social logics (p.145)

Social logics are generally assumed, but more interestingly, in policy especially, they are often projected (see Glynos and Howarth, 2007). Projected social logics are therefore a key tool for the identification of underlying political imaginaries.

Therefore, upon identification of the main social and political logics in reading two of analysis, the focus of interest turned to Lefebvre's triadic model and the extent and ways it can be understood in conjunction with the identified logics. More specifically, the

question of interest become: what assumptions are made in the context of space conception as regards to lived and perceived space and how are these related to social logics (assumed or projected) and political logics? **Chapter Four** predominantly uses the vocabulary of social and political logics to articulate the conception of smart cities in European spatial politics.

Reflective step one: Ethnography and auto-ethnography

After the first two readings, the participation at the key events occurred. During that six month period (June to November 2019), note taking, self-reflexive audio recordings, photography and collection of other relevant material (such as leaflets) took place both in the context of the events, the visited cities but also in Leicester, the place of residence where the analytical process occurs. The texts were not consulted during this time and the ethnographic experience was the focus. Notes and audio recordings reflected a wide range of modalities such as observations, articulations, notes to self, relevant websites or information etc. This were performed in an unstructured free-writing or speaking manner in the effort of maximum presence for the lived experience of European spatial politics. This reflective process involved the cognitive operationalisation of Lefebvre's triadic model during research in place, in order to ground it through the ethnographic experience. Furthermore, it involved the noticing of rhythms. This process also involved the identification of antagonisms and agonisms as they were experienced in research in space and place. The articulations from this step are presented in **Chapters Five**. Notably, chapter five reads quite differently to chapter four due to the different methods performed. In this chapter, a method of storytelling is employed for the presentation of the chapter in order to transfer the experience of ethnography in place and space. Images taken during ethnography are particularly used in this chapter to give a sense of place and space of the cities and events to the reader.

Third reading of analysis (reflective reading): Subject positions, identity and group formations

After the first reflective step, a final reading was employed in a reflective to the empirical material manner rather than a purely analytical one. The set of concepts used in this final reading concern the construction of identities and derive from the work of Laclau and Mouffe (1985). Again, these concepts were operationalised as a continuation of the first two readings and since during the reflective step one and the ethnographic process many more identities were exposed than the ones present in textual representations.

Laclau and Mouffe (1985) problematize the category of the subject standing with the critiques on rationality, unity and homogeneity of the subject (mentioning Nietzche, Freud, Heidegger but also Foucault's analysis in the order of things). Considering the centrality given to the subject in the constitution of social relations e.g. the Man, the human, the individual, they do not consider the subject as constitutive, but constituted. As such, when they refer to its category, they do so in the sense of subject positions within a discursive structure suggesting that 'every subject position is a discursive position, [that] partakes of the open character of every discourse' (1985, p.115). This means that no subject position 'manages ultimately to consolidate itself as a separate position' (1985, p.122). For them, a subject position signifies the process of an identity construction, where identity means identification with a subject position and each subject position suggests an attempt to discursively represent 'a subject' relationally. The subject is always (even grammatically) overdetermined when it occupies many different positions among different discourses and is as such constantly contingent. Subject positions that appear as not in conflict are the result of hegemonic processes (Jorgensen and Phillips, 2002).

Laclau and Mouffe (1985) in fact use relations of meaning to understand subject positions and identity constructions (both individual and collective) as processes that create chains of equivalence (thus have an inclusive effect) and chains of difference (thus have an exclusive effect). For them, any identity construction involves the operationalisation of an 'us, we' in relationship to a 'them, they' other. Group formations eliminate some possibilities of identification by creating a collective identity through chains of equivalence and thus exclusion of the other. Noticing this, they go on proposing the conceptualisation of the decentred subject that simultaneously occupies various identities, although it might depend on its discursive position favour one or the other.

Individuals or collectives have many identities (decentring effect) and might identify differently in given situations (overdetermination effect) and in this case spaces or places.

This understanding of subject identification was used in this reading in a loose way as a detailed analysis of identity construction is out of scope of this analysis. Nonetheless, they were operationalised analytically in order to understand different subject positions as creating relations to other positions and attempting to represent 'subjects' that are seemingly fixed and claim universality. This analysis was performed dialectically between the key texts and events as regards to the key actors. In fact, the overall question can be articulated as: what were the subject positions of key actors or their representatives in the different events and how those relate to their group formations and textual representations? In continuation a sort reflective reading, back in the key texts was conducted in order to identify who occupies the subject position in the texts and what sort of chains of meaning is constructed in the process. Subsequently, which identities are empowered, and which are disempowered? Especially, for identities such as citizens, cities, community, partnership and stakeholders that were showcased as crucial through literature and prior analysis. Overall, this part of the analysis further informed the understanding of the right to the city. An articulation of this is presented across **Chapter Five** and **Chapter Four**.

Reflective step two: write-up, the citizen-cyborg analyst and rhythmanalysis

Throughout the previous steps and readings, several descriptive and reflective pieces of writing were produced. At the same time, during ethnography plenty of material such as leaflets and photos were collected. Those were used reflectively for memory refreshing during this reflective step two that also concludes the thesis in **Chapter Six**. In the final reflective step that also constitutes the write-up process, all the material (from writing to photos) were reviewed and provided the basis for the final presentation as it stands. The purpose of this process was to articulate the thesis in a comprehensive and coherent manner, while reflecting and acknowledging the messiness of the very process. Further to the writing pieces, all the empirical material (texts, photos, recordings, leaflets etc.) were re-approached as windows to the prior analytical process. Beyond the re-experience of the empirical material, Lefebvre's rhythmanalysis was articulated as regards to the

visited spaces and places. As such reflection has been incorporated in the analytical process in such a way that it resurfaces in a reflective manner chapter six. All in all, it is worth to highlight that what is here presented as a linear analytical process has been more of a circular process looping back and forth through the reflective writing.

Limitations to Methods

There were several limitations to the presented methodology at various stages and levels.

First, it is here important to note that originally the development of this thesis started from a discursive approach due to prior engagement with discourse analysis. Although I have not used political discourse analysis, I was greatly familiar with Laclau and Mouffe's (1985) discourse theory and discourse analysis methods. To the contrary, I have not conducted ethnographic research before and in this way the level of comfort with which I employed the two methods was fundamentally different. So, although the use of discourse analysis and deconstruction as a sole method was no more an option after my engagement with Henri Lefebvre's and Doreen Massey's work there is an extent to which the discursive is still overdetermined despite the effort. Nevertheless, the effort has been made and the work performed in this thesis certainly requires further engagement in order to achieve further clarity.

Second, there were a few more practical issues with the cases. For example, the 2018 EIP-SCC General Assembly that was another key event considered to be attended for the case of the EU spatial politics and that would be directly relevant to smart cities took place on the same dates as the WeMakeThe.City festival in Amsterdam (June 2018). As such a choice had to be made to attend the more general EWRC flagship event (October 2018) for EU spatial politics. Upon reflection, this decision worked out well since the presence of EIP-SCC in the 2018 Smart City Expo (Barcelona, November 2018) has compensated for an awareness of the role of EIP-SCC currently plays in the grand scheme of spatial politics. Furthermore, a few technology related hindrances occurred during ethnography in Amsterdam that took some time off attending the designated events. For example, I could not find out a tour meeting place on time as I did not have access to wifi, and my camera lens broke down on the first evening so I had to find a way to replace in order to continue.

Third, the way the methods were combined and articulated in this thesis only allows for short and speed ethnography. That worked quite well in terms of experience considering it was the first time I employed the method; however, it is acknowledged that the presentation of the ethnographic part might be underdeveloped comparing to the discourse analysis part.

Chapter 4: Conceived Space of Smart cities in European Spatial Politics

The purpose of this chapter is to answer the first research (sub-)question of how European smart cities and what discourses and ideologies are operationalised. As such this chapter focuses on the discourse analysis of key texts with the use of the analytical tools of interdiscursivity, nodal points, chains of meaning and logics of critical explanation that methodologically represented the first two reading of the cases. Although all tools are to an extent incorporated in the presentation of the analysis, as it might be noticed the logics of critical explanation are much more extensively used throughout. That is because, on the one hand, the process of characterisation of the logics from the first reading to the second substantially incorporates the analytical tools of the first reading. The floating signifier of smart cities is conceived through a web of meaning that consists of interdiscursivity, nodal points, chains of equivalence and difference and the operationalisation of social and political logics that include assumptions on spatial practices and the lived experience. So, on the other hand, even though logics operate in the realm of the discursive, the intention of the discursive-material framework is to sustain a socio-spatial perspective to the discursive. That is to say, that although this chapter approaches the conception of smart cities the logics reveal and articulate a web of meaning what through spatial politics extends to the urban reality seeking materialisation (see Pugalis, 2009) which becomes much more evident through the incorporation of the ethnographic experience in Chapter Five.

Chapter Four consists of three parts. The first part presents the web of meaning that conceives smart cities from the regional perspective of the EU (Section 4.1). The second part presents the web of meaning that conceives smart cities from the city perspectives of Amsterdam and Barcelona (Section 4.2). This distinction is made as the significance of the difference between the regional and local perspectives became apparent through the analysis. In order to, also highlight the differences between the two city perspectives an introductory context relevant to each city is provided before the analysis of the Amsterdam and Barcelona cases. The purpose of this introductory context's is to ground the analysis into the local politics of each city. The third part brings all the cases together discussing what the three cases together reveal about the conception of smart cities in European spatial politics (Section 4.3).

4.1 The Regional Level Perspective

First and foremost, it is important to reiterate the particularity of this level, as it represents the development of EU spatial politics regarding smart cities, within the institutional structure of the EU. The particularity of this level is essentially that intertextuality especially and interdiscursivity consequently are fundamental as a practice to its very processes. In this level, interdiscursivity and its materiality play a crucial role for the sustenance of the EU structure.

The Web of Meaning in the EU

One of the first observation to be made is that in fact the second key actor, the EIP-SCC, comes into being through an interdiscursive process and as a group formation embodies the interdiscursivity (see Figure 8). This happens through the operationalisation of chains of equivalence between the EIP-SCC and the European Commission that are as much material in terms of the EU governance structure as they are discursive. In its original format, the EIP-SCC is advisory to the European Commission (2012a) essentially

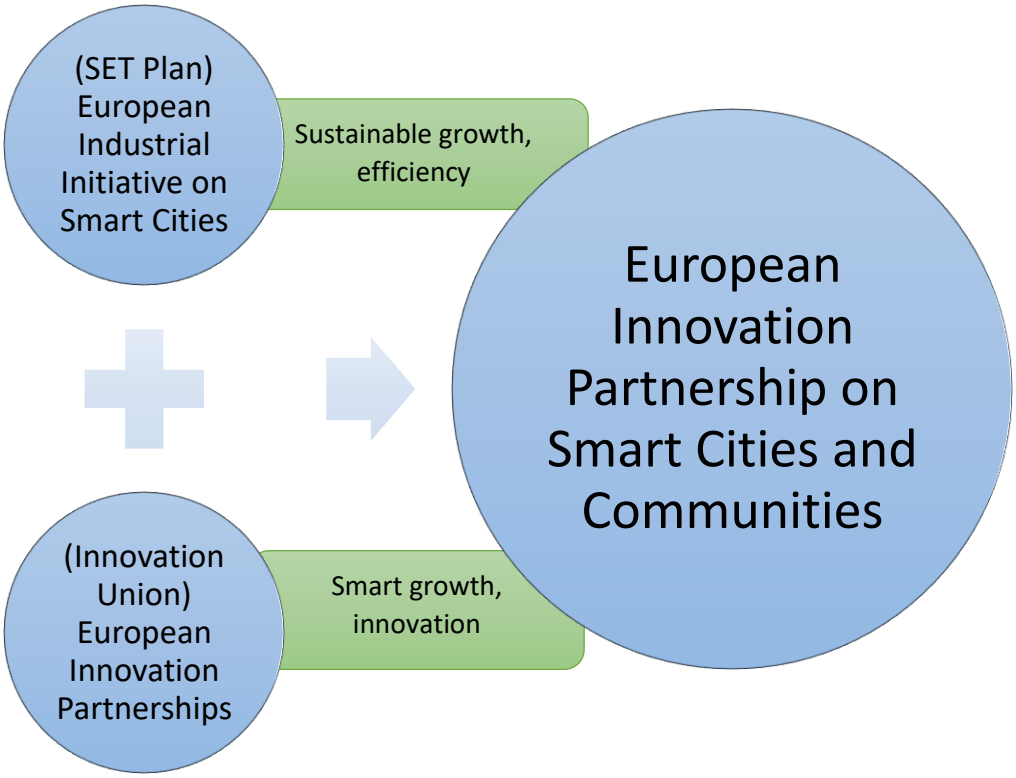


Figure 8: Interdiscursivity leading to the creation of the EIP-SCC

occupying the role of informing the EU structure on smart cities developments for the purpose of facilitating them, while it is closely interlinked and dependent to the very structure. As the focus on this chapter is on the discursive, the material dependency is discussed in the following chapter.

European Commission 2009-2013

The main thread of meaning put forward by the European Commission (2009; 2010a; 2010b; 2010c; 2012a) builds upon the nodal points of innovation and efficiency assuming their necessity within the logics of smart and sustainable growth accordingly. This thread operates across the two levels of structuration (city level and European level) and fundamentally proposes the use of technology for the purposes of efficiency as crucial. The nodal point of efficiency occupies the dual meaning of energy efficiency and governance efficiency depending on whether the sustainable growth or the smart growth logic is operationalised, with a distinction sometimes becoming difficult to assert. The key texts through which this thread of meaning is created intertextually are the Europe 2020 strategy (European Commission, 2010a), the Innovation Union policy (European Commission, 2010c) and the Strategic Energy Technology Plan (SET-Plan) (European Commission, 2009). The communication of the European Commission (2012a) that announces the creation of EIP-SCC appears as the result of this thread and constructs the initial identity of the EIP-SCC who in turn produces its own discursive practice.

The logics of smart and sustainable growth are explicitly developed and articulated in Europe 2020 strategy and analytically are characterized as political logics. Their very incorporation in the 2020 strategy and the subsequent discoursing on their development through policies such the Innovation Union has as aim while it also assumes the social logic of growth. Growth is assumed and accepted as imperative and inevitable and therefore is characterized as a social logic. Smartness and sustainability on the other hand are ways to further consolidate the social logic of growth in response to the 2007-2008 financial and economic crises. In other words, the political logics of smart growth and sustainable growth are necessary twitches and fixes of the post-crisis times. Smartness and sustainability can be also characterized as nodal points that combined with the social logic of growth form the respective political logics.

The context of the formulation of the political logics occurs in connection to the pre-crisis era. Moving into the 21st century and before the world crisis, the conceptualisation of the European Information Society (EIS) is prevalent in EU policy (see Gibbs, 2001; Shahin and Finger, 2009) and according to Goodwin and Spittle (2002) is to be taken 'as a metaphor for social and economic development' (p.226). The political logic of the EIS is conceived 'as a technologically driven phenomenon whereby' potential problems 'can be overcome through the application of technology' (Gibbs, 2001, p.74), which positions technology as 'the solution to wider policy problems' (Shahin and Finger, 2009). Shahin and Finger (2009) argue that icts become drivers for growth in a twofold manner with the EU. Their primary operationalisation is in the development and introduction of necessary policies that dictate the use and development of ICTs as an opportunity for growth. The secondary operationalisation is in the application of icts to further enhance and better coordinate European governance. In the post-crisis era, the focus turns to innovation instead replacing the straightforward technologically deterministic approach that the political logic of the information society is being accused of. This discursive change therefore requires a change in political logic.

The Innovation Union policy seeks to focus EU policy efforts around innovation to overcome the crisis, enhance competitiveness, create new growth as well as address societal challenges. Therewith, innovation is presented as 'the only answer' to a crisis struck Europe (European Commission, 2010c, p.6). Similarly, to the twofold operationalisation of icts, innovation is a solution for smart growth both as an end, i.e. the production of innovative technologies and solutions, and as a means, i.e. the consolidation of innovative ways of European coordination and governance such as partnerships and think tanks. In Europe 2020, smart growth 'means strengthening knowledge and innovation as drivers of our future growth' (European Commission, 2010a, p.2). Although, knowledge stands next to innovation as a driver, it is subsumed under the stronger nodal point of innovation. Knowledge as cognitive capacity and knowledge sharing as a method for harnessing collective intelligence are products of innovation that, unlike innovation cannot be measured in economic terms. As Moulier-Boutang (2012) has argued terms such as the information society and the knowledge economy are limited in scope, which can explain the change of focus. That does not mean that icts as drivers, the importance of information and knowledge are to become

redundant but that they are no more nodal discursive points. As such, the Innovation Union policy seeks to create, promote and sustain a European innovation ecosystem wherewith the products of knowledge, and information can be exploited for producing innovation and ensuring growth. Technological products are the tools that produce innovation and are produced by it.

This trail of thought, however, is very tightly linked to one of the key challenges of the EU structure, as identified in the aftermath of the EU crisis experience, the problem of co-ordination among different levels and actors, especially in terms of governance efficiency. As written in the Innovation Union policy: '[g]iven the scale and urgency of the societal challenges and the scarcity of resources, Europe cannot afford any longer the current fragmentation of effort and slow pace of change. Efforts and expertise on research and innovation must be pooled and critical mass achieved' (European Commission, 2010c, p.23). This is the very rationale through which European Innovation Partnerships (EIPs) such as the EIP-SCC are created as a new approach of 'pooling forces to achieve breakthroughs' (p.22). EIPs are created as a new form of Public-Private Partnerships PPPs with the purpose to refocus political efforts within the EU around innovation and harness it for the purposes of regional growth. EIPs are specifically presented as a strategic approach to innovation that goes beyond the technology focus of existing instruments. Each EIP is created for the purpose of tackling a specific societal challenge and its main function is to coordinate on identifying ways to address it by designing and implementing actions that support the whole research and innovation chain, while also making those evident to European Commission and other EU bodies.

At this point, another logic emerges in this post-crisis condition in the EU and that is the political logic of acceleration. The urgency of the situation, the pooling of efforts and resources, the creation of partnerships and ecosystems and so on are identified as key actions and practices for the end-goal of growth, considering of course that innovation is the nodal point, 'the only answer' to overcome the crisis (European Commission, 2010c, p.6). The political logic of acceleration through innovation in a post-crisis EU is operationalised as, at first stage, a reversal process to the crisis and at second, as its denial. The effects of the crisis (and the hindering of growth) is to be reversed as soon

as possible so that the European economy can achieve its pre-crisis growth levels and further ascend. In the representation provided in the Europe 2020 strategy this desirable scenario is portrayed as 'sustainable recovery' in contrast to the less desirable scenario of 'sluggish recovery' and the least desirable scenario of the 'lost decade' (see Figure 9).

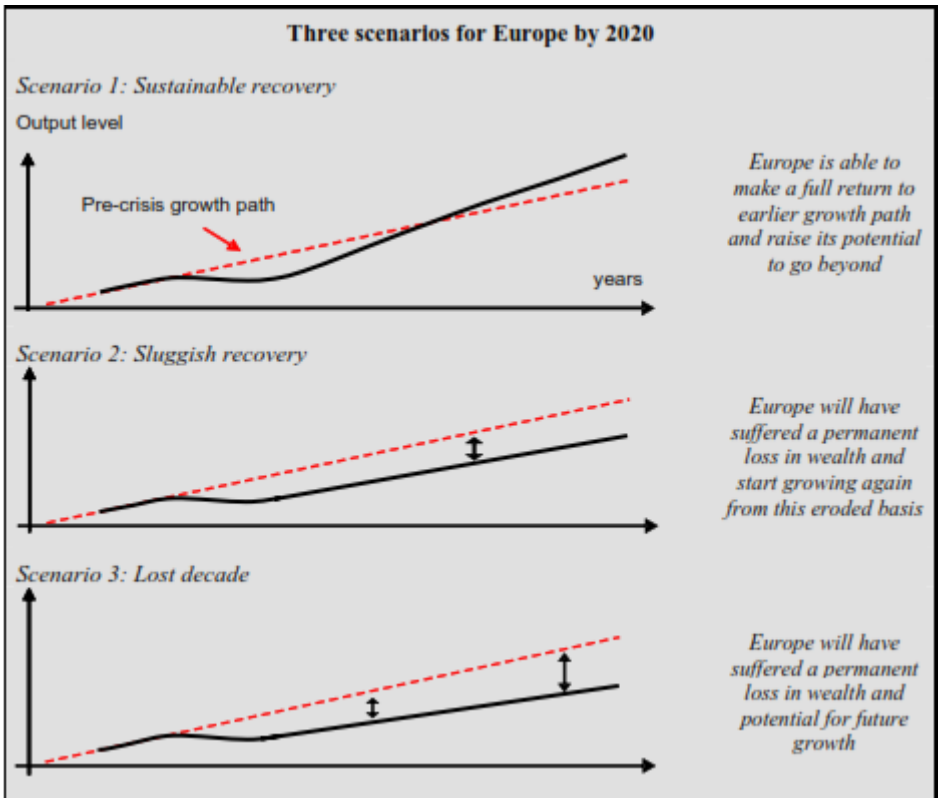


Figure 9: Growth scenarios from the Europe 2020 strategy on growth scenarios. Source: (European Commission, 2010)

In Europe 2020, sustainable recovery equates sustainable growth which means 'promoting a more resource efficient, greener and more competitive economy' (Europe, 2010a, p.5). Similarly, to the nodal point of innovation, the nodal point of efficiency within a sustainable growth logic is two-fold as it covers both energy and governance efficiency as resources to be harnessed for the purposes of growth. The operationalisation of the two nodal points together occurs dialectically in a two-folded way: innovation is the means towards energy efficiency and governance efficiency is the means towards innovation. While they are both necessary for growth, they are interdiscursively linked within the political logics of smart growth and sustainable growth (see Figure 10).

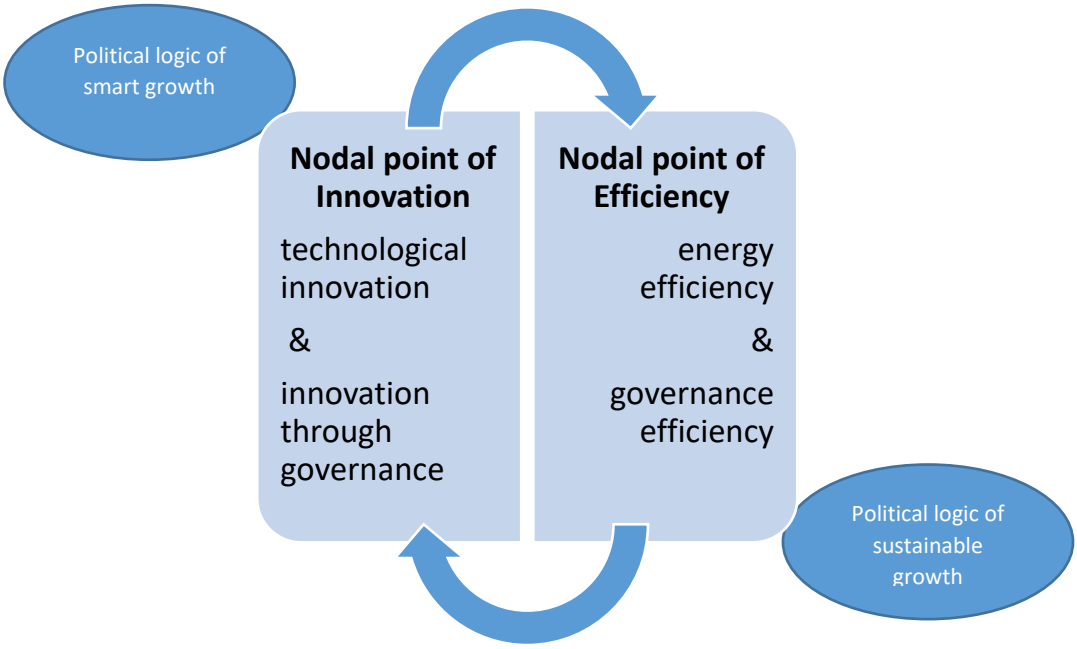


Figure 10: Dialectical relationship between nodal points of innovation and efficiency

Energy efficiency is used to signify the necessary choices towards sustainability. Energy efficiency is often a nodal point for discourses of sustainability or 'sustainable economic development' and 'resilience' (EIP-SCC, 2013, p.5) or efficiency of networks (European Commission DGCCI, 2014). The energy efficiency aspect is also what connects intertextually and interdiscursively the SET plan with EIP-SCC. EIP-SCC is 'the logical next step to scale up in a comprehensive and integrated way the efforts undertaken by the related urban efficiency component of the Strategic Energy Technology Plan' (European Commission, 2012 b, p.2). The SET-Plan was presented as the technology pillar of EU's energy and climate policy as such having a broad scope on sustainability (European Commission, 2009). The SET-Plan focused on investing in low carbon technologies under an industrial policy framework that involved the so- called European Industrial Initiatives (ibid). Since the development of the Innovation Union policy and the EIPs, the EIP-SCC was created to further operationalise what was before the European Initiative on Smart Cities.

The creation of the EIP-SCC 2013 onwards

The European Industrial Initiative on Smart Cities had as goal to support ambitious and pioneer cities putting 25 to 30 European cities at the forefront of the transitions to a low carbon future by 2020. Its objective was to create the conditions to trigger the mass

market take-up of energy efficiency technology. Energy efficiency as argued in the SET-Plan is necessary because it is the simplest and cheapest way to secure CO2 reductions (European Commission, 2009) which is also one of Europe 2020 targets and generally the EU's positioning as a responsibly environmental conscious region with 'some of the highest environmental standards in the world' (European Union, no date, para. 1). In Europe 2020, the SET plan and EU's industrial policy framework fall under the political logic of sustainable growth. The focus of the initiative is at the local level, the level of the city, as it looks to foster the dissemination throughout Europe of the most efficient models and strategies (European Commission, no date a). These models and strategies mostly concern buildings, energy networks and transport and the overarching priority is scaling of successful and pioneering initiatives and projects from the local to the European context (ibid). Related to that is the creation of standards for the purposes of replicability. Picking up the sustainability and efficiency goals set in the European Industrial Initiative on Smart Cities, the role of the EIP-SCC is to facilitate the required processes by focusing on innovation processes.

As such the political logic of sustainable growth is now combined with the political logic of smart growth. The EIP-SCC is positioned as an improvement moving beyond a solely industrial and technology focus. In fact, under the Europe 2020 strategy, the reinvention of industry is key to sustainability and in fact the digitalisation of industry seems to be fundamental in this process. This is tightly connected to the discourse on the 4th industrial revolution (see Schwab, 2016) and the EU's lead role in it (see Schäfer, 2018). The fourth industrial revolution, following the third industrial revolution, i.e. the digital revolution, in Schwab's (2016) analysis, 'is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres' (para. 2) echoing Haraway's (1985) cyborg world. The disruption that these phenomena produce however are not 'an exogenous force over which humans have no control' (para. 29) as it was the case with the digital revolution and information society discourses. This time around in the words of Schwab (2016)

> All of us are responsible for guiding its evolution, in the decisions we make on a daily basis as citizens, consumers, and investors. We should thus grasp the opportunity and power we have to shape the Fourth

> Industrial Revolution and direct it toward a future that reflects our common objectives and values (para. 29).

This invocation of responsibility that trickles all the way down to cities and citizens as Vanolo (2014) suggests has as its main purpose the responsabilisation of the public sector and government officials and politicians. In a post-crisis context especially, political will is invoked to mitigate any financial risks to the public sector through the public-private model in order to secure and ensure private investments (see Yescombe, 2007) that are fundamental to the social logic of growth. The same invocation occurs within the Europe 2020 strategy and is articulated in the foreword by the at the time President of the European Commission at the time as follows:

> European leaders have a common analysis on the lessons to be drawn from the crisis. We also share a common sense of urgency on the challenges ahead. Now we jointly need to make it happen. […] We must have confidence in our ability to set an ambitious agenda for ourselves and then gear our efforts to delivering it. […] The condition for success is a real ownership by European leaders and institutions. Our new agenda requires a coordinated European response, including with social partners and civil society. If we act together, then we can fight back and come out of the crisis stronger. We have the new tools and the new ambition. Now we need to make it happen. (Barroso in European Commission, 2010a, para.7-10)

Although the tools, i.e. technology, knowledge and information are now to be taken for granted instead of being considered disruptive and life-changing, it is the crisis and the fear of static growth or no growth at all that become the exogenous forces. Technology is not driving change anymore; technology fixes and provides solutions. What drives change is political will, governance, coordination, partnerships, ecosystems etc. Taken as an example, the EIP-SCC is created ‘to catalyse progress’ through innovation on the intersection of energy, transport and information and communication (European Commission, 2012a, p.2) - the three industrial sectors identified as key to the development of smart cities, through a multi-stakeholder approach (European

Commission, 2012a). As such the discursive change from the technology and industry focused SET-Plan to the innovation focused EIP-SCC trickles down to the very group formation materially as change in the governance model within the EU structure.

It is through this process that technological determinism is abstracted into the nodal point of innovation and the logic of smart growth. The techno-fix discourse within the smart growth logic that uses technology for the purposes of efficiency further ascribes to the social logic of modernisation and progress. Classic theories of modernisation, such as neo-evolutionism and neo-functionalism (e.g. Levy, 1966; Parson, 1982) propose that adaptation to structural changes in society are necessary as much as inevitable. Technological innovations can be disruptive in that sense, but can be also strategically used to modernise cities, improve their urban environments and ensure growth. In many ways, the social logic of modernisation and progress can be seen as the other half of the social logic of growth, the former being operationalised as the development of society and the latter as the development of the economy, but both being firmly and inseparably linked to each other (see Harvey, 1996). Therewith, the nodal point of efficiency is particularly strong within the logic of modernisation and progress. In the most widely used definition of smart cities in the EU, it is suggested that they signify the process where 'traditional networks and services are made more efficient through the use of information and communication technologies' (European Commission DGCCI, 2014). In the same definition, sustainability is too operationalised to enhance the necessity of efficiency across the board and 'for the benefit of its inhabitants and businesses' (ibid).

Efficiency is beneficial because it is progressive and is contrasted to the inefficient, unmodernised and underdeveloped 'traditional networks and services' (ibid). As such, efficiency is the end goal and signifies improvement, modernisation and progress. The dual signification of efficiency is therefore operationalised within the social logic of modernisation as well. In fact, Manzoor (2014) suggests that efficiency is often inherently tied with public administration and so its discoursing is highly present in EU politics (Borras and Radaelli, 2009). Government and governance efficiency is strongly tied with information and knowledge management, modernising traditional networks and services through the use of technology, but also through collaborations and partnerships with the private sector and in the case of smart cities the 'joining forces' of

‘cities and industries’ (European Commission, 2012a, para 1-2). Under this logic, information and communication technologies are presented as both a tool for modernisation and a signifier of it. Within the modernisation logic, technological determinism is disguised in its harder version under the political logic of technology as moderniser, unlike the prior techno fix political logic that signifies a softer technological determinism undercover within the innovation as driver and smart growth logic (see soft and hard technological determinism, Marx and Smith, 1994).

The social logic of modernisation and progress are highly present in discourse of the Strategic Implementation Plan (SIP) of the EIP-SCC, which was the first document produced by this new group formation. In its foreword the strategic plan is presented as ‘speeding up the transformation of European Cities into ‘Smart cities’’ (EIP-SCC, 2013, p.2). The nodal of innovation and the political logic of smart growth is there operationalised by the EIP-SCC as ‘focuses on industry led innovation as a key driver to achieve economic and social change in urban areas’ (European Commission, 2012a, p.2). EIP-SCC’s role, as interdiscursively produced within its very group formation, is to accelerate the transformation process of European cities. As such, the political logic of acceleration is implemented through the creation and operationalisation of the EIP-SCC or else it materialises. Thereof, the EIP-SCC can contribute to the web of meaning.

The main political logics identified in the SIP are the political logic of transformation and the political logic of strategic decision-making. These two logics are not entirely new and were indirectly discussed above as methods of responsabilisation as appeared in the Europe 2020 articulation as well as the public-private and governance discussions usually pointing the finger to the public sector, cities and citizens. The political logic of transformation that is tightly linked to the social logic of modernisation and progress refers to the transformation of European cities into Smart cities. This transformative process towards smartness is identified as pervasive, inevitable and necessary and as such needs to be accelerated even, which forms the very core of EIP-SCC’s identity.

According to the definition given in the SIP, ‘[s]mart cities should be regarded as systems of people interacting with and using flows of energy, materials, services and financing to catalyse sustainable economic development, resilience, and high quality of life’ (EIP-

SCC, 2013, p.5). Although not directly mentioned efficiency is implied through the systems approach. Systems of people interacting with flows towards sustainability is what makes cities smart. The political logic of transformation therefore suggests that smartness is intrinsic to the smart city systems defining the uses and interactions of information and flows as well as the actions taken upon them. Smartness is not the technology per se, but its design and even more so governance. As Gartner's (2011 in Albino et al., 2015) systems definition best explains:

> A smart city is based on intelligent exchanges of information that flow between its many different subsystems. This flow of information is analysed and translated into citizen and commercial services. The city will act on this information flow to make its wider ecosystem more resource-efficient and sustainable (p.6)

As such, what makes cities smart is the fact that its information and flows can be translated into useful data that can be in turn controlled, managed and governed. Intelligence and smartness are designed into the physical infrastructure of the smart city system of systems, but also to the services addressed to the citizens and consumers. As the definition continues 'these flows and interactions become smart through making strategic use of information and communication infrastructure and services in a process of transparent urban planning and management that is responsive to the social and economic needs of society' (EIP-SCC, 2013, p.5). What makes their design smart is the strategic use of icts, which brings us to the political logic of strategic decision-making and choice.

The smart city is a system of systems that acts over information flows of 'energy, materials, services and financing' that have been turned into relevant data (ibid). The smart city makes decisions towards efficiency and sustainability based on their data analysis a process that is assumed as neutral. The smart city is abstracted predominantly into a data monitoring machine and the main decision-making action it involves is 'the strategic use of information and communication infrastructure and services' so to achieve its goals. This decision equates a decision to 'become smart' (ibid) that is indirectly addressed to cities' administrations. In other words, the implication for cities is that the

‘flows and interactions’ that occur in their space, and in turn the systems of people that perform them including its citizens, are not smart by definition but can only ‘become smart’ through strategic use of icts (ibid). Technological determinism takes another form under the political logic of strategic decision-making and choice. Therewith, technology is not the driver of the process, but its design is. However, not technological design as technological development, but the design of a ‘smart governance operating framework designed to make cities sustainable’ (Gartner, 2011, in Albino et al. 2015, p.6). As such, what the political logic of strategic decision-making and choice entails is that smartness needs to be designed by initiative and implies expertise and knowledge as per necessity since smartness is presented as something that the systems of people and the flows and interactions they produce lack on their own. What is implied through the political logic of strategic decision-making and choice is therefore forms of governance that can extract that sort of expertise such as public-private partnerships and consortia that in turn signify ‘transparent urban planning and management’ (EIP-SCC, 2013, p.5).

Conclusively, the web of meaning for this level has been presented through predominantly the nodal points of innovation and efficiency, along with their dual significations, and social logics (of growth, of modernisation and progress) and the political logics (of smart growth, of sustainable growth, of acceleration, of transformation, of strategic decision-making and choice) of explanation. Within those, the various uses of technological determinisms have been signified. Evidently, the use of modalities of necessity have been fundamental to the created web of meaning and the articulations for and towards smartness. At last, concerning smart cities most of these modalities are addressed to cities as public sector representators that need to transform into ‘collective actors’ (see Vanolo, 2014), create partnerships and involve quite diverse stakeholders from industries and citizens. At the end of the day, according to the most widely used definition in the EU case, that appears in its websites since 2014, a ‘smart city is a place where the traditional networks and services are made more efficient through the use of digital and telecommunication technologies, for the benefit of its inhabitants and businesses’ (European Commission DGCCI, 2014, p.6). Although, this definition does not invoke the necessity for cities to step up to the smart city game directly, as it will be shown through the examination of the city level it indirectly does so through equating the smart city as a place. This entails that smartness can drive place-

making processes, but also that it can be achieved through them and echoes Debord's (2002) operationalisation of the spectacle. What matters is not the goal of a place to become a smart city, but that through such goal 'traditional networks and services are made more efficient through the use of digital and telecommunication technologies', i.e. modernised and grow, 'for the benefit of its inhabitants and businesses', i.e. society and economy. In Debord's (2002) words 'goals are nothing, development is everything. The spectacle aims at nothing other than itself' (Chapter 1, para. 14).

4.2 The City Level Perspective

In order to approach the city level through the two selected cases it is of prime importance to give a bit of historical context to the two European cities and their relation to their immediate regional and European context. That is significant at this point for a couple of reasons. First, such a contextualisation is important to connect the two levels the inquiry of this thesis is based on. Both Amsterdam and Barcelona are positioned as world cities and that is a significant part of their place-making strategies. Second, unlike the EU level, the city level is much more grounded into its material and physical reality as socio-spatial products of urban and political processes. So, in the context where the EU is pushing smart cities to European cities as discussed above, it is important to understand how that fits with Amsterdam's and Barcelona's overall regional strategies, politics and histories in a brief contextualisation of the two cities. As such, before the presentation of the web of meaning for each case an introductory context to each city is given.

The Web of Meaning in Amsterdam

The first contextual comment for the case of Amsterdam has to do with Amsterdam's past as a colonial power. Amsterdam's grace as a world city roughly begins in the 17th century with the foundation of the Dutch East Indies Company that made Amsterdam an international trade centre through the operationalisation of its port (Bontje et al., 2011). For centuries thereof, colonial trade has been the key instrument for Amsterdam's economic competitiveness and power in the European and global economies. However, as Bosma (2012a) suggests, unlike other countries with colonial pasts such as the UK, a post-colonial debate in the Netherlands has been devastatingly missing. As a result, presently in the Dutch society, '[t]here is no sense of continuity with the colonial past and the concepts of post-colonialism and multiculturalism are hardly connected' (Bosma, 2012a, p.193). This is significant for the case of Amsterdam in the post-colonial context of the 20th-21st century where Amsterdam seeks new ways to remain competitive. For example, Bontje et al.'s (2011) research suggests that in the transition to the 21st century Schiphol airport and the financial, ICT and creative sectors predominantly define Amsterdam's competitive advantage. There, they identify several social and political obstacles the city strategy is facing that could be better understood under a post-colonial

framework. For instance, issues around segregation, low education of non-western ethnic minorities, ethnic tensions, social imbalance in the city and (in)tolerance. Bosma (2012b) displays how the lack of a post-colonial debate becomes an issue of itself as regards to identity construction in the Netherlands. Furthermore, Abdou's (2017) research further shows that the lack of a post-colonial debate and the denial of racism in the Netherlands in conjunction with neoliberal urbanism push post-colonial citizens into even more vulnerable positions. As for example, in the case of Amsterdam Bijlmer 'the first black neighbourhood in the Netherlands' (p.192) that despite several waves of urban renewal since the 60s to this day 'remains the poorest district in the city of Amsterdam' (p.200). Keeping this context in mind is crucial for the case of Amsterdam, especially for understanding issues that arise around the right to the city of Amsterdam.

The second comment on the city of Amsterdam is its overall use of an urban-regional approach in its strategic development and positioning including its smart city strategy. In fact, as Bontje et al. (2011) suggest although a relatively small city for European city standards, medium-sized city, Amsterdam significantly gains its competitive points as a city-region, i.e. through the Amsterdam Metropolitan Area (AMA). The smart city strategy developed in Amsterdam is significantly tied with the AMA strategy seeking to transform the AMA into a smart city (ASC, 2012c) by aiming at sustainability, growth and quality of life (Mora and Bolici, 2017; Nesti, 2018). In Nesti's (2018) words, the ASC strategy is operationalised 'to transform the AMA into a smart city through the adoption of a sustainable economy, the efficient use or natural resources and the promotion of a better quality of life for citizens' (p.5). For Janssen-Jansen (2011) the AMA is an overall discursive 'shift to a more urban-regional narrative' (p.258). However, this discursive shift is also a paradigm shift that Janssen-Jansen (2011) describes as follows:

> Within formal Dutch planning institutions, a trend to move away from heavily-regulated planning to a more postmodern, communicative approach has gained momentum. Spatial concepts […] increasingly seem to become a matter of regional policy co-production between different regional agencies […] replacing the hierarchical practices of policy-making (p.258)

This paradigm shift comes as a response to planning and urban challenges of the 21st century as relevant to the context of Amsterdam (see Bontje et al., 2011). Conceptually the shift involves perceiving cities beyond their spatiality and material infrastructure that dominates traditionally institutionalised planning practices (Janssen-Jansen, 2011). Instead of a focus on cities as nodes of information in a global physical network, a further focus on cities as urban nodes is employed. This allows much more flexibility in thinking about the presented urban challenges and conceiving innovative solutions to deal with them (Janssen-Jansen, 2011) in a framework of 'inventive city-regions' (see Bontje et al., 2011).

The urban-regional perspective of Amsterdam, on the one hand, acknowledges that 'the city [is] merging physically and functionally with the surrounding countryside, and vice versa' (Janssen-Jansen, 2011, p.266). This merging socio-spatial process that extends the focus from the city to the metropolitan area, Lefebvre (1974, 2003) has argued is constitutive to any urban process and trickles down to the society-nature dialectic. Socio-spatial processes imply the appropriation and mastering over natural resources and environments, suggesting a process of centralisation. On the other hand, the urban-regional approach also concerns territory's competitive advantage within the European and global context. This concerns a connection process of the territory with the European and global economies, for example through connecting with the European streams of innovations that the EU supports. Specifically, in the case of Amsterdam Janssen-Jansen (2011) argues that this concerns a repositioning of the AMA as a 'sustainable European metropolis' (p.258). As such, beyond the immediate urban-regional level of the AMA, lies the wider urban-regional context of the European region that to some extent helps post-colonial Amsterdam to connect to the world. This connection is explicitly made through the conception of 'the metropolis as a key region in the struggle for sustainability' (p.266). There lies the recognition of interconnectedness in the networked society that suggests that sustainability cannot be achieved independently, especially when those are to be practiced under the logic of sustainable growth. In a city such as Amsterdam especially, where space is constricted and generally not affordable (Bontje et al., 2011), sustainable growth requires merging with the countryside and the wider-regional support systems, such as the EU ones, in order to ensure or sustain a competitive advantage in the global political economy. As such, the global metropolis seems to be

directly linked with the global economy through its regional positioning and advantage (Florida et al., 2009).

The conceptualisation of the 21st century metropolis revolves around two other complimentary conceptualisations: the global city and the informational city. The concept of the global city is operationalised by Saskia Sassen (2005) to represent 'the terrain where a multiplicity of globalization processes assume concrete, localized forms' (p.40). In turn, the concept of the informational city is operationalised by Manuel Castells (1989a) as 'the spatial expression of a new form of social organisation that is made up of technology, cultural information and social information as well as their interaction' (p.1). In conjunction to both, the paradigm shift towards a more urban-regional understanding reflects the conditions of the information society wherewith cities are both conceived as nodes in global networks of information as well as perceived as networks of nodes themselves (Castells, 1989a; 2004; Sassen, 2006). According to Castells (1993) European cities occupy such positioning in the global economy. Nonetheless, such positioning entails processes of transformation in communication to the global political economy that span from the crisis of the European identity to the bypassing of the national level through the formulation of direct global-local communication and a necessity of citizens' participation to ensure the grounding to the locality among others (ibid).

Although Castells (1993) makes a distinction between the world economy of colonies of the 16th century and the global economy of networks the 20th-21st, postcolonial scholars request the realisation of continuity in understanding this transition and its sociocultural implications (see Kayatekin, 2009). For the case of city of Amsterdam, it is important to keep in mind that the positioning of Amsterdam in the global economy might not be irrelevant to its prior position as a trade centre in the world economy.

The case of Amsterdam, although at a different level, is not estranged to the webs of meaning discussed in the case of the EU. In fact, the case of Amsterdam can be perceived as a place where to a great extent the EU logics have been tested for implementation taking for granted the particularities of the city. As such in many ways, Amsterdam smart city politics are interdiscursively linked with the EU smart city politics through the

discussed logics and nodal points, but with different operationalisation of those, due to the difference levelled perspective, identity and agency. One key difference between the EU and cities level is that the identity of European cities is invoked from a different perspective, and consequently, is operationalised discursively to dissolve differences among European cities. For the EU level, the particularities of cities although they might be acknowledged are not as important as the sustenance and invocation of their European identity. European cities radically differ from each other as economies, spaces, places, in diversity, in history, in politics and so on, as well as in terms of smartness (e.g. Vanolo, 2014; Angelidou, 2016). For the city level, therefore, the particularities of the city are fundamental to their identity, wherewith their European identity can be operationalised as well and differently from city to city. Discussing the two different cases of Amsterdam and Barcelona seeks to among others showcase that.

Amsterdam Smart City Programme 2009-2011

The first way the smart city politics in Amsterdam are connected to the EU discursive structure is through the material connection of funding. Within the social logic of growth, financial investment is a prerequisite, while working with public-private partnerships is a means to achieve it that are crucial points within the political logic of acceleration. The development of a smart city strategy in Amsterdam starts with the Amsterdam Smart City Programme (2009-2011) that is partly funded by the European Regional Development Fund (ERDF). The financial grounding of the programme is coordinated through the AIM, which is essentially a partnership between councils, universities and banks with a clear focus on the pooling of financial resources around the smart city theme. As such, the same rationale that interdiscursively created the EIP-SCC seems to be applicable here. At the end of the day, the existence of the political logic of pooling resources, whether financial, political or else is signified. This logic works hand in hand with the logic of acceleration and for the end goal of growth. After the completion of the programme the Amsterdam Smart City partnership is also created in line with the political logic of pooling resources. This is the key actor identified in the Amsterdam case.

The pooling of financial resources under partnership models has been fundamental to the ASC developments. According to Yescombe (2007) financing is an inherently crucial process to the various public-private partnership models as the relationship between the public and the private sector in terms of costs and risks is one of the key aspects defining them. In the case of ASC, the first key step with the ASC programme began with the application to the ERDF. The programme was developed under coordination of the AIM, which is essentially a partnership between councils, universities and banks and where there is a clear focus on the pooling of financial resources around the smart city theme. The attracted financial resources are therefore tightly linked to the processes of innovation and are operationalised to fund the projects, further attract partners and ensure commitments towards the smart city transition. According to Stock (2011), 'in the building of informational cities, the political will to start such a project in the first place, and to finance its first steps, is essential' (p.964, see also Mainka, 2018). Since Amsterdam is generally understood as an informational city, in its next step towards the development of ASC there seems to be no difference precisely because of the underlying logics of acceleration and growth that require the pooling of resources, commitment and investment remain the same.

Out of the founding partners of the ASC public-private partnership, the City Council of Amsterdam provides the political will: the pooling of political forces. Political will is generally necessary for the purposes of continuity but most importantly to address any financial risk by mitigating it to the public sector through the public-private model (Yescombe, 2007). The AIM plays the role of coordinating the pooling of financial resources and securing commitment and investment while the telecoms company Liander adds the technical expertise of network building. Notably, such strategy is very suitable to the case of Amsterdam that is historically a major financial centre (I Amsterdam, no date), to the extent of competing in replacing London as the new capital finance of Europe in a post-Brexit situation (Daniel, 2018; Roberts, 2016). This position of Amsterdam as an important financial centre in Europe, is perhaps one of the reasons why ASC seems to perform in accordance with the EU strategy way before tools such as the EIP-SCC are put in place.

Finance, therefore, plays a crucial role in spatial organisation through the processes of pooling and the hypothesis that investments must be worthy in order to be invested for. In other words, investments need to ensure the reproduction of the production of social relations in ways that can sustain capital that might involve profound ways of space enchantment. In the case of the smart city spectacle, this highly relies on the operationalisation of infrastructural technology and networks, i.e. spatial organisation equates investment is technology. The web of meaning surrounding the Amsterdam smart city programme was examined through two key texts that hold the personal accounts of two key figures involved in the development of the programme, but also in Amsterdam smart city politics in general. The first comes from Ger Baron who has been involved in the Amsterdam smart city strategy since the very beginning of its conceptualisation. Initially he was involved as ICT Programme and Cluster Manager at Amsterdam Innovation Motor, then as Smart Cities Programme and Cluster Manager at the Amsterdam Economic Board (2013-2014) and since 2015 as a Chief Technology Officer at the City of Amsterdam. The second comes from Joost Brinkman from the consultancy company Accenture who acted as the program manager of ASC programme during 2009-2011.

The backbone of the ASC Programme uses the nodal points of efficiency and sustainability in terms of the goals. In line with the developments in the EU at that time and more specifically the SET-plan, the goal of the programme is to test technologies that can reduce CO2 emissions. In the short term, several projects are developed to achieve that. In the long term, sustainable growth through fostering innovation is invoked (see Mora and Bolici, 2017). Baron (2012) articulates this as follows. To reach the ambitious climate goals of 40% CO2 reduction the strategy needed to go beyond ‘an energy conservation programme’ (p.2). The extra mile that will reach this ambitiousness was to be delivered by ‘develop[ing] the innovation that was needed’ between obvious energy saving actions such as insulation and the 40% CO2 reduction (ibid). The nodal point of innovation once again comes to support the nodal point of efficiency, in this case coming to the fore as much stronger. Innovation, through determinism, leads to efficiency. With reference to the political logic of pooling resources, processes for the development of innovation include living labs and project specific partnerships and collaborations. Regarding the operationalisation of the above, there are no substantial

differences to the EU case, and to a great extent the web of meaning created there is reproduced within the place-making process of Amsterdam smart city, with the necessary to the city level perspective differentiation. For the purposes of economic growth, that is operationalised as a social logic, and for Amsterdam to remain or gain its competitive advantage in the global economy, the pooling of resources and finance are key. At the same time, Amsterdam very eagerly draws upon the pathway of EU funding to start off its smart city strategy, establishing its connection to the regional innovation network with smart cities focus the EU develops at that time.

The first observation that sticks out as different is a political logic of reinvention. The political logic of reinvention is a re-articulation of the logic of transformation (transforming European cities to smart cities), but from the city level perspective. According to Baron (2012) the pressing question in Amsterdam was 'How could we make a city that already exists more intelligent?' (p.1). The brief answer to this as suggested was 'looking at the city differently' through a pragmatic perspective that aimed at harnessing its innovation (ibid). In the words of Brinkman (2011) Amsterdam had to '[re-invent] itself' while 'making use of the same infrastructure that is already available' (p.22). The particularity of the existing city of Amsterdam (see Angelidou, 2016) therefore becomes a focal point to its smart city transformation. In Baron (2012) the logic of reinvention is contextualised in difference to a top-down industrial logic that predominantly understands industrial innovation and hard infrastructural development and has been applied to built-from-scratch cities. As literature has indicated as well, a chain of difference between reinventing existing cities and inventing or constructing cities-from-scratch, that is the corporate smart city (see Hollands, 2015) is fundamental because different conceptions and perceptions of space are required. This can be parallelised with the discursive change noticed from the European Industrial Initiative to Smart Cities to the European Innovation Partnership on Smart Cities and Communities that attempts to approach innovation including but beyond industry. Baron (2012) goes as far as to argue that reinventing the smart city of Amsterdam entails a bottom-up perspective to innovation, meaning perhaps the city as collective actor, stakeholder platform and ecosystem perspective to innovation, a perspective that actively attempts to include its citizens and that is often framed as 'the Amsterdam approach' (see Baron, 2012; Brinkman, 2011). As such, the political logic of reinvention works together with

the logics of ecosystem facilitation and citizen participation that are fundamental for a bottom-up perspective to innovation. Through the operationalisation of these logics the nodal point of innovation is used to simultaneously brand Amsterdam's approach to innovation as its unique competitive advantage.

The distinction Baron (2012) draws between top-down and bottom-up innovation is important as it is further operationalised in supporting the particularity of Amsterdam as a place, beyond it being an existing city that is. As he argues the 'city is not a factory' producing physical infrastructure through industrial large-scale innovation, but an ecosystem producing living lab innovations that in fact more resemble applications. These as he views them are the real innovations needed that can achieve the ambitious goals set. Following this line of thought, Baron (2012) ends up suggesting that the smart city is less like a factory and more like an app store. In his own words: '[w]e are not building a smart city, but we are building a smart city app store' (Baron, 2012, p.1). The nodal point of information is crucial for the operationalisation of Baron's (2012) discourse. Again, in his own words: '[w]e think [information technology] is a key enabler. Information is everything […] information is key. We think smart cities are about information' (Baron, 2012, p.3). The nodal point of information takes us back to the transition from the information society to the innovation society discussed in the case of the EU, where the innovation focus has replaced an information focus. Unlike the EU case, Baron (2012) seems to put information and innovation in more of an equal footing, employing the logic of a soft technological determinism in seeing information technology as an enabler. Baron's (2012) rationale does not come through smart city developments, rather he roughly builds his own definition drawing on one of Amsterdam's known competitive advantages. According to Wood (2001), Amsterdam's innovation is not of the industrial type, but concentrated around information, knowledge, data production and governance:

> By conventional measures [...] Amsterdam is not among the most industrially innovative areas of the Netherlands [...] The city's advantage lies in the information sector. It supports a concentration of knowledge-based activities, especially in universities and research institutes (medical,

> economic and management) and in the private services, including information and data processing. (p.237)

Then, in a process of strategic place-making Baron (2012) builds his smart city app conceptualisation on Amsterdam's innovative position within the information society, and through that building the Amsterdam approach to innovation and smart cities. Saying 'smart cities are about information' (Baron, 2012, p.3), therefore means smart cities go beyond their physical infrastructure. Furthermore, building on Amsterdam's competitive advantage is a legitimate strategy to focus on information as a means for generating innovation. Baron (2012) operationalises the informational society and the information city as political logics to drive smart city developments in Amsterdam. He, therefore, accepts the information society as the social reality. In his words, '[t]he services and products that are developed are more and more user-centric because we have devices with all the information we want and all the information we need to do everything we want' (Baron, 2012, p.5). With his city-app store equivalence Baron (2012) attempts an expansion of the understanding of the city as a practico-material artefact to an understanding of the city as an urban form and reality (see distinction on the urban and the city, Lefebvre, 1996), arguing that for the case of Amsterdam at least the focus is on the urban. Conceptualising the city as an app store involves the conceptualisation of the city as something open that expands from merely its material form minimized in infrastructure and extends beyond it, i.e. looking at the city as a node of information and network of information (Castells, 1993). Not too far from a systems approach to smart cities, but with a focus on the individual in the information society social relations are in Baron (2012) abstracted into information about services and products, from and for users.

The political logic of informational determinism or else 'informationalism' (see Castells, 2004) is operationalised in Baron (2012). Informational determinism corresponds to a rather abstract determinism that eludes structure, agency and materiality (see Srinivasan et al., 2017). According to Srinivasan et al. (2017) information determinism is separate from technological determinism as it locates 'value of "information" in itself, rather than in the socio-material relations within which it circulates' (p.13). It is through this logic that Baron (2012) locates value in the smart city as an app store and not in the smart city as physical infrastructure. Looking at Amsterdam differently means, drawing the focus

from the city to the urban and developing urban innovation in contrast to industrial innovation. For example, in the following extract, Baron (2012) describes a project where a village in Spain becomes an extension of the urban node of Amsterdam:

> We are now doing a project in the small village of Peralada in the north of Spain. We want people to go there from Amsterdam and live there and still have access to the same doctor, the same classroom for the children […] It does not matter too much where you are. If you are connected to a city, even a village could be an application of a city using this perspective. We think you need apps for people, where information is gathered for all types of applications are attached to it, like this village. (Baron, 2012, p.5)

This extract is indicative of the extent to which this conceptual shift towards urban-regional discourses can be used to alter social and urban reality using information and application of technology. Within the logic of informational determinism, in an instance a whole village can be turned into an application for a city irrespective of physical and spatial proximity. Such relationship between city and village or city and country was always constitutive of the urban and according to Lefebvre (1996) reflected the culture-nature dialectic, wherewith the village and the country are the constitutive 'other' of the urban city. In that context, the centrality of the urban city was created dialectically both in material form and discursive content where power is concentrated. In Castells (2006) information society, wherewith Baron's (2012) example is located, physical or spatial proximity becomes irrelevant, whereas power lies with information. As such the shift towards an urban-regional approach involves various regional levels that are expressed within spatial proximity i.e. the geographical area of the Amsterdam metropolis where 'the city [is] merging physically and functionally with the surrounding countryside, and vice versa' (Janssen-Jansen, 2011, p.266), but also further and without i.e. the Peralada village in Spain.

Interestingly, Brinkman (2011) differs in perspective from Baron's (2012) as he follows a much more practico-material approach, focusing on the city and smart infrastructure. For him, the ASC programme supports 'sustainability through smart infrastructure' (p.22). The use of technology will bring efficiency, which in turn will enable citizens to

entrepreneur, and as such participate in producing innovation. Brinkman (2011) invokes the social logic of technological change accepting that technological change brings social change, i.e. rapid technological change and the pervasiveness of technology will bring smart cities. That is not to say that Baron (2012) does not abide to the social logic of technological change. To the contrary both Baron (2012) and Brinkman (2011) rely on this social logic for their articulations. The difference is that in Brinkman (2011) the more traditional political logic of technological determinism is operationalised to perpetuate the inevitability of technological change. The information society and the focus on information abundance, pervasiveness and exploitation that is shown in Baron (2012) through the political logic of informational determinism is yet another approach to the social of technological change that abstracts the effects of technology to its content.

Brinkman (2011) also looks at content through his perspective but focuses more on knowledge, its scarcity and the necessity for its dissemination and sharing. In his trail of thought, 'new generation of grids', 'smart grids', 'fiber optics' are technologies already available to be introduced into city infrastructure to enable sustainability. Once smart technologies get incorporated to the city, 'citizens of Amsterdam are enabled to make smart choices and have the opportunity to be smart entrepreneurs' (p.22). As such, technological change benefits citizens through enabling them to be better consumers and if desirable entrepreneurs. The application of smart technology in cities is therefore seen as beneficial because it structurally refreshes the operations of the market -satisfying consumers and allowing them to produce innovation, i.e. enabling produsage (see Burns, 2009). At the same time, a key aspect for Brinkman (2011) seems to be a drive to 'gain knowledge in behavioural change' (p.23) as well as to achieve behavioural change through the operationalisation of smart technologies. In fact, the application of smart technologies is seen to give a push toward behavioural change -'towards more sustainable behaviour'- while this push creates a demand pull for more technology (Brinkman, 2011, p.23). Baron (2012) on the other hand argues that '[i]t should not be about a technology push, but a demand pull. You have to work with people' (p.3).

All in all, Brinkman (2011) and Baron (2012) approach smart cities focusing on different, but complimentary aspects of the information society. Within a social logic of technological change, one aspect over determines technology and technological products

and the other information as such. The first focuses more on form, infrastructure and the city. The second on content, information environment and the urban. Both are however part of the very first steps of the Amsterdam smart city strategy and politics and despite any apparent differences co-constitute the Amsterdam approach. Baron's (2012) imagination of the smart city app store and focus on the urban is much more conceptual. As both key texts and literature show beyond conceptualisation the implementation of the projects and their results differ from the original expectations. As the two political logics of informational and technological determinisms speak directly to the urban-city dialectic their distinct operationalisations might suggest different interest groups and political imaginaries on the background.

Nonetheless, those do not appear as antagonistic to each other but to the contrary meet at the social logic of markets and overall, the ideology of neoliberalism. In fact, the debate around what comes first, technology push or demand pull showcases that the two authors have a different perception on understanding and approaching markets (see Godin, 2015; Rip and Kemp, 1998). Their individual accounts seek for the right recipe for cities to operationalise smart technologies while attending to both market and citizen/people/consumer needs. For instance, to achieve economic viability of smart city projects –a key principle for the ASC programme- Brinkman (2011) suggests that the means is the scaling of processes, while Baron (2012) suggests successful collaboration as a means towards economic viability. Notwithstanding, different technologies and projects might correspond to the different needs of the different identities and cannot all be addressed with living labs, citizenship participation and bottom-up approaches as both accounts signify. Those seem to be dependant to the goals and nature of a project. The different perceptions of Baron (2012) and Brinkman (2011) on markets, technology, and innovation processes are translated into different projects that ultimately test the endurance of the very neoliberal logic.

To conclude with the initial conceptualisations of the ASC Programme, it is important to reiterate the crucial role the political logics of informational and technological determinisms play. According to Lefebvre (2014a) 'determinism, belongs to ideology' (p.405) and the ideology it belongs to is that of neoliberalism. As Neubauer (2011) argues the newly developed informational determinism that focuses on the symbolic in fact

‘obscures the political intervention of neoliberalism and its hegemonic aspirations’ (p.208) as such helping its perpetuation. In the information age, technological determinism on its own cannot have this effect, which has given rise to informational determinism as its abstraction. The two co-exist as two sides of the technological change social logic. Equally, the two sides of the neoliberal ideology are (neo-)liberal economics and (neo-)liberal rights (Zizek, 2010). Within a framework of neoliberalism, Baron’s (2012) bottom-up proclamations and working with the people as well as Brinkman’s (2011) citizen consumer entrepreneurs are operationalisations that ‘[shift] citizenship […] towards a conception rooted in individual autonomy and freedom of “choice” and personal responsibilities and obligations’ (Kitchin et al. 2018, p.13). In Baron’s (2012) informational determinism, it is information that liberates the individual and provides choices, while in Brinkman (2011) (smart) technologies are to perform the task. Nonetheless, as Kitchin et al. (2018) put it ‘[i]n the neoliberal smart city “choice” is extended in space and time thanks to the proliferation of interconnected and location-aware devices’ (p.13).

Amsterdam smart city partnership 2013 onwards

Further to the ASC Programme the ASC Partnership is created (Mora and Bolici, 2017) with the purpose to develop the necessary ecosystem by creating links among various stakeholders and interested groups as a ‘multistakeholder platform organisation’ (van Winden, 2016, p.19). In the transition from the programme to the partnership, the logic of pooling of resources is slightly transformed. Although, financialisaton is still one of the core tasks of the partnership, ecosystem facilitation seems to be another important aspect. The ASC Partnership was introduced as ‘a unique partnership between businesses, authorities, research institutions and the people of Amsterdam’ the goal of whom ‘is to develop the Amsterdam Metropolitan Area into a smart city’ (Amsterdam smart city, 2013). The ASC platform that evolved out of the partnership involves the operation of the amsterdamsmartcity.com website as a networking online platform for the smart city ecosystem. As shown in Figure 11, the ASC is not the only actor in Amsterdam’s smart city ecosystem, however ASC is seen as ‘the heart of Amsterdam’s smart city ecosystem’ (van Winden, 2016, p.16). The roles of ASC vary from being the ‘[f]irst port of call for innovative project ideas’ through the website-platform, a ‘network

broker' for its partners, a 'connector between urban stakeholders', a '[p]rocess facilitator and trusted third (independent) party' to contributing to the city's branding (p.20). Within the ASC partnership the social logic of growth and the political logics of acceleration and pooling resources are operationalised here similarly to the EU case, but again from the city perspective. The ASC is also positioned within the political logics of place making and ecosystem facilitation, while the nodal point of efficiency seems to be key to its very construction. Notwithstanding, ASC's identity is constructed through these logics and its practice is defined by them.

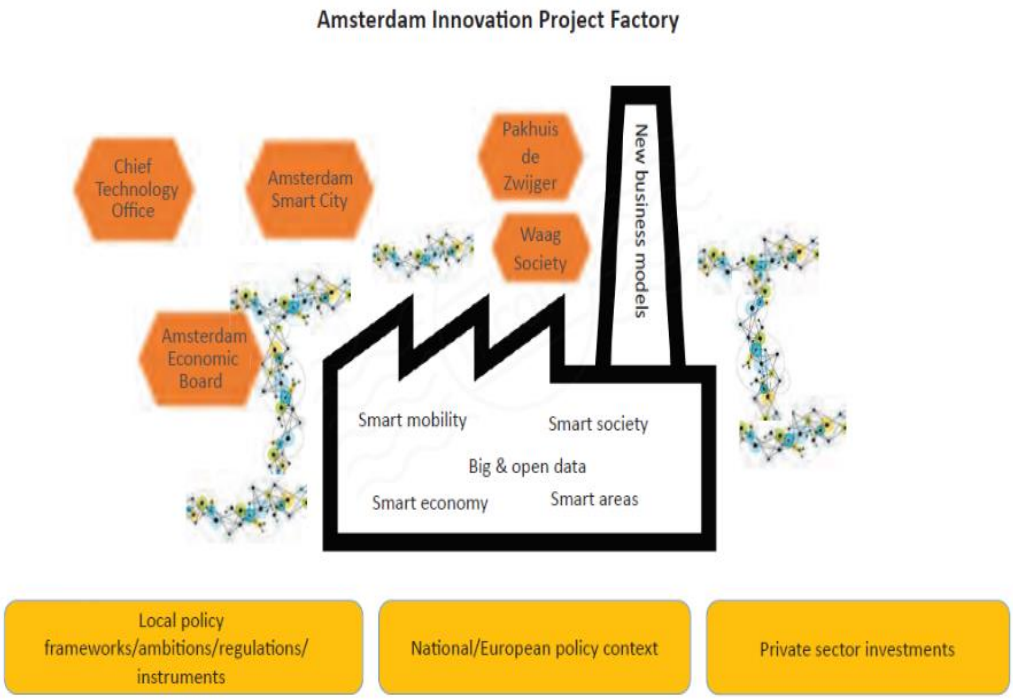


Figure 11: Amsterdam Innovation Project Factory. Source: van Winden (2016, p.16)

Due to its operationalisation as a platform, the partnership speaks to a wide audience that is lately addressed as 'smart city innovators'. Similarly, to the citizen entrepreneurship performed in Brinkman (2011), an appeal to citizens is constantly made in the partnership as that is considered an integral part to the Amsterdam approach to innovation. ASC presents itself as 'your innovation platform for a future proof city'. As such, the partnership keeps a soft technological determinism approach (Marx and Smith, 1994) that is defined by the nodal point of innovation. Innovation is key to the future as it seen as driving social change and sustainable change especially. The invocation of the logic of sustainable growth is particularly strong in the case of the ASC, in line with the initial goals set in the 2009-2011 Programme. Choosing a sustainability path is both necessary and inevitable. The platform project of the partnership is there to challenge stakeholders

‘to test innovative ideas and solutions for urban issues’ by connecting ‘smart city innovators’ in the area of Amsterdam contributing to the area’s ‘liveability’, ‘sustainable economic growth’ and new market development (Amsterdam Smart City, no date). The latest definition of ASC for a smart city reads as follows: ‘[f]or Amsterdam, a Smart City is a city in which social and technological infrastructures and solutions facilitate and accelerate sustainable growth, ultimately aiming to become a futureproof and liveable city’ (Van der Veen, 2016, para. 5).

As such, in the latest articulation of the partnership, the political logics of futureproofing and liveability are added in the mix. The aim is to use the means of innovation for future proofing, an idea that is closely related to discourses around sustainability and resilience (Thornbush et al., 2013), often with a focus on economic viability. According to Cities Today (2018) the six key attributes of a future-proof city are a dynamic technology ecosystem, talent, infrastructure, innovation capability, quality of life and market transparency, while the designated variables ensuring long-term future proofing potential are higher education infrastructure, innovation capability, international patent applications, technology firms, infrastructure and environmental quality. Short-term variables are more focused in economic representation of sustainability such GDP etc. Amsterdam scores 8th in the world in futureproofing according to JLL Global Research (2018) along with other outperforming Northern European cities such as London and Paris. According to the report, Amsterdam has ‘one of Europe’s fastest-expanding technology scenes, with the highest levels of tech start-ups per capita in the region, underpinned by its global connectivity and multilingual and highly educated workforce’ (JLL Global Research, 2018, p.5). Evidently then, the political logic of futureproofing is operationalised to according to the city’s economic advantages that can further help Amsterdam achieve sustainable growth, within the social logic of growth.

On the other hand, the political logic of liveability and liveable cities, although connected to sustainability discourses too, are further operationalised to refer to elements that ‘contribute to quality of life and wellbeing’ (Ley and Newton, 2010). Liveable cities are those whose urban systems perform in the direction of sustaining human wellbeing (housing quality/affordability, transport/mobility/access, human capital, social capital, mental/physical health) and urban environmental quality (air/water quality, solar access,

public/private green spaces, noise) (ibid). In the most recent definition, the smart direction is embedded in the 'social and technological infrastructures and solutions' that are operationalised to 'facilitate and accelerate sustainable growth' (Van der Veen, 2016, para. 5). Smart infrastructures and solutions are the means to sustainable growth. Accelerating growth is a socially beneficial practice especially since sustainable growth is perceived to equally subsume futureproofing and liveability. The political logic of futureproofing predominantly takes care of the realm of the economy, while the political logic of liveability takes care the realm of society. The two are separate until the come together under the logic of sustainable growth. Futureproof and liveable cities are those who manage an equilibrium between economic viability and social and environmental welfare in a framework of sustainable growth. They are cities that manage to balance economy and society in a mutually beneficial way, wherewith the social logic of growth drives social change. The discursive efforts to equate futureproofing with liveability (Van der Veer, 2016), or earlier on sustainable economic growth and high quality of life (Amsterdam Smart City, 2013) echo the separation of economy and society, as in civil society or society of needs and not political society according to Althusser (1967). Within the social logic of growth, civil society is a beneficiary because political society is entangled within political economy.

Castells' (1989a) framework for the informational city was proposed in a series of lectures under the title 'The city in the 1990s: Liveable for whom?'. Further on, Castells' (1993) proclaimed that 'the informational city is also the dual city […] because the informational economy has a structural tendency to generate a polarized occupational structure, according to the informational capabilities of the different social groups' (p.254). Eventually Castells (1993) notes that 'the fundamental urban dualism of our time […] is epitomized in the contrast between two urban lifestyles […] the cosmopolitanism of the elite [and] the tribalism of local communities' (p.255). This dualism derives from the inclusion of the cosmopolitans in the global city imaginary and the simultaneous exclusion of the locals who 'try to exert control over [their] spaces […] against the macro level forces that shape their lives' (ibid). Considering the case that post-colonial scholars bring about for the city of Amsterdam, and the problematic of further marginalisation of post-colonial identities experience through urban development (Abdou, 2017) the

liveable for whom question still holds: the smart city of the 21st century: liveable for whom? The Amsterdam smart city: liveable for whom?

Castells' (1993) dualism thesis derives from the soft informational determinism characteristic of his theory (see Calabrese, 1999). Harvey (1973, 2013) and Lefebvre (1970, 1974) would approach the same in terms of an inherent contradiction of capitalism. In a context where as Kitchin et al. (2018) suggest '[s]mart technologies […] [establish] a neoliberal subject grounded in individual responsibility' (p.13), the pressure towards the excluded is to be included and often times to include themselves into smartness. This 'neoliberal subject is not a "labourer" any more, but a "project"' (p.14) that is all encompassing and needs to be achieved. All identities must be included as, unlike the informational city, the smart city cannot be dual but equal and inclusive of all neoliberal subjects. Striving to achieve inclusivity has been the purpose of 'smart city projects that seek more effective forms of active citizenship and citizen empowerment - e.g. Living Labs, citizen-science, open source software, sharing platforms-participation' (ibid). However, as Kitchin et al. (2018) stress this 'is achieved by co-opting citizen contributions into wider economic and neoliberal imperatives' which is the very purpose of the project of the neoliberal subject (ibid).

Conclusively, in the case of Amsterdam the operationalisation of similar logics to the EU ones prevail as tailored to the city perspective, while with time the focus of the logics change as is the focus of the ASC partnership. Initially, the logic of financialisaton is used to politically pool resources and with time the logic of ecosystem facilitation is added. Initially, the political logic of reinvention is used as a transformative logic for Amsterdam, while the logic of place making, and the informational city are later added to support that. The nodal points of innovation and efficiency are crucial from the beginning while the nodal point of economic viability soon gains in importance. The political logics of futureproofing and liveability are lately crystallised as the logics towards growth (social logic), while the social logics of markets and technological change are crucial throughout in Amsterdam smart city politics. The social logic of technological change is supported by the working together of the political logics of technological and informational determinism, that at this stage seem crucial for furthering neoliberal ideologies and constructing the neoliberal subject of the smart city.

The Web of Meaning in Barcelona

A key identity for the city of Barcelona is that of the Catalan capital within the Spanish state. This is significant in the case of Barcelona as it signifies the Catalan-Spanish antagonism within the city's identity, place making as much as the production of its space and politics. Unlike the case of Amsterdam, where lack of the post-colonial debate is missing from the understanding of Dutch society, in Barcelona and Catalunya, Catalan politics and the debate over Catalan independence are definitive to the case of Barcelona. During periods of transition especially, there seems to be a definitive connection between Catalan politics and struggles over space. That is because Barcelona's positioning in the world occurs through bypassing the Spanish state, which equally explains the importance of both nationalist and municipalism politics in the city as they might connect through their anti-statist sentiments. Furthermore, Bernat and Whyte (2018) suggest that Catalan nationalism is often to be recognised as the misplaced result of economic inequality and state oppression that in turn result in various forms of civil protest.

In the beginning of the 19th century, for instance, Barcelona started expanding beyond its medieval walls (of the 13th century) which eventually led to their demolition in 1854. Other than the physical-spatial restrictions the walls were posing to the city and its residents and the hygienic reasons for their demolition, Barcelona's walls also had many symbolic connotations. Local politicians pressured for quite some time to be granted royal permission and Madrid approval for their demolition (Casellas, 2009). Campaigns such as '*Abajo las murallas!* -Down with the walls!'- (Subirana and Navarro, 2013) had highly political connotations for many as the walls signified the repression of Catalans from the Spanish state, defining the city's limits and constraining its growth (McDonogh and Martinez-Rigol, 2018). Upon their demolition, the projection of 'the Great Barcelona', an open city connected to the region and the world started developing (Monclus, 2000; Wynn, 1979). Nonetheless, Barcelona's 'constrained urban development' was continuous (Casellas, 2009). For example, Barcelona was not to be open to the seafront, which was a significant part of its medieval past of success before the Spanish War of Succession. Even Barcelona's expansion after the demolition with Plan Cerda, which was particularly significant to Barcelona's post-walls planning, was highly contested with the main criticism being it is has 'been 'imposed' on the Catalans by Madrid' (Wynn, 1979, p.202).

The repression of Catalans by Madrid, representing the Spanish state, being through walls of Barcelona or Cerda's Plan for its expansion is a theme that drives through the centuries up to the present. Very recently, the Catalan independence referendum of 2017 was met with police oppression before, during and after and leading to its mandate being cancelled (Bernat and Whyte, 2017). During fieldwork in Barcelona, Catalan flags and yellow ribbons were present in public space, hanging from balconies and windows in support of Catalan independence and/or Catalan political prisoners. Bernat and Whyte (2018) argue that beyond the nationalist constructions of the Catalan identity, Catalan repression in the present has deep roots in Franco's fascist rule through the economic oppression by both Spanish and Catalan elites of the post-fascism period (Bernat and Whyte, 2018).

In this context, Barcelona's identity as a Catalan Capital not only represents antagonisms within the Spanish state, but also romantizes the medieval golden age where Barcelona as the Catalan capital was 'a powerful city in the Mediterranean' (Casellas, 2009, p.816). As such, the signifier of Barcelona as the Catalan Capital and/or as a Mediterranean capital is an important part of the city's strategic place making. In early 20th century Barcelona is branded as 'the pearl of the Mediterranean' (Fava and Saida, 2017) or as the 'Paris of the South'. According to Monclus (2000), although the 'Paris of the South' vision was widely supported from intellectual and politicians of the time, it was also the planning strategy and urban policy of 'Lliga Regionalista'. The regionalist league was a nationalist party that according to Monclus (2000) expressed '[t]he aspiration of the industrial bourgeoisie and local elite […] to convert Barcelona into something like a real capital city of a European range' (p.58). In response to existing relations and sentiments with the Spanish state, often Catalan politicians were looking outwards for the development of the region, aspiring to recreate Catalan greatness and power by planning Barcelona as a European capital. Following the discourse of 'classical and monumentalising urbanism' at that time 'imposed in all the European capitals' (Monclus, 2000, p.58), the creation of monumental reference points that ensued greatness driven by the idea of urban art in public squares and buildings became the planning strategies that created Placa Catalunya, Placa Espagna and the Arch de Triumph among others. As Monclus (2000) argues that the transformation of the city of Barcelona from late 19th to early 20th century involved two parallel processes: a 'new image of a modern and cosmopolitan Barcelona' open to the world and 'a new sensibility towards conservation

and the promotion of the historic city' close to its Catalan roots (p.59). The latter, which was clearly expressed in the planning of the Gothic quarter echoes the discourse of 'historicist urbanism' which was also dominating planning in European capital cities especially (ibid). The 1929 Universal Exposition of Barcelona was 'a by-product of the same monumental and historicist planning of the beginnings of the century' (Monclus, 2000, p.59). In fact, the Paris of the South vision was initiated in the 1888 Exhibition where several urban plans where approved. As part of the Modernist movement, the two expos of 1888 and 1929 were in fact a 'first attempt to attract international tourism' (Casellas, 2009, p.815).

So moving forward to 1992, Barcelona strategically uses the Olympics to develop its sea front, attracting huge investment in the area, while opening up to the sea, rebranding the city as the 'capital of the West Mediterranean' and the 'Southern Door of Europe' (Monclus, 2000, p.61). Since then Barcelona becomes a highly touristic destination and urban development and strategic planning in the city revolves around the tourist industry (Fava and Saida, 2017), that has led to overtourism in the city (see Milano et al. 2018). Although over tourism is a global phenomenon as Milano et al. (2018) suggest it appears, plays out and dealt with differently in different cities. In cities like Barcelona and Dubrovnik for example anti-tourist movements and protests have appeared with graffiti's and posters indicating 'Tourism Kills' (see Martins, 2018; Milano et al. 2018; Panayiotopoulos and Pisano, 2019). Other cities like Amsterdam are framed as dealing better with their overtourism problems through creativity (Coffey, 2017). Nevertheless, the problem of overtourism in Barcelona highlights the antagonisms of a city that for years seems to have been developing for its tourists rather than its local residents (Fava and Saida, 2017) who have been at the same time dealing with austerity (Davies and Blanco, 2017).

Alike Amsterdam, Barcelona also has a metropolitan area strategy. The Barcelona Metropolitan Area (BMA) strategy with which its smart city strategy is connected 'entails consolidating the BMA as a world-class metropolis: one of the most attractive and influential European regions for global innovative talent' (PEMP, 2010, p.29) suggesting Barcelona's positioning in the world through the European region. The BMA strategy was set within the 2010-2020 timeframe, echoing the Europe 2020 timeframe and focuses

on branding Barcelona as the capital of the Mediterranean, yet more akin to Northern European economies in terms of growth and development (PEMP, 2010). Furthermore, Barcelona's niche positioning talks of 'a major Southern European centre for new technologies' (Barcelona City Council, no date, para. 2). At the same time, the above historical context is fundamental to the understanding of local spatial politics. For the case of Barcelona, therefore it is important to keep in mind that the city's Catalan identity and the relationships between the Catalan region and Spanish state play a role in the geometry of power of the city of Barcelona.

Although many of the so far discussed logics appear in the case of Barcelona, the case altogether has taken a significantly different discursive path since grassroots left-wing party Barcelona en Commu rose to power in 2015. As such, in the case of Barcelona local government politics are directly relevant to smart city politics especially since as Nesti (2018) suggests the role of government officials play in the smart city strategy of Barcelona is significantly more important than the role they play in the case of Amsterdam. In the case of Amsterdam, the main activities towards smartness have been outsourced from the local government to the innovation ecosystem and the ASC partnership as its facilitator. In the case of Barcelona partnerships occur with the support and upon the initiative of the municipality that holds at least a phenomenological sense of control over the developments. At this point, it is relevant to mention that differences between local politics, traditions, histories but also forms and roles of municipal government play a role in what is being discussed here, although they are out of scope of this thesis. Nonetheless, some of those become apparent in the case of Barcelona.

The key actor identified to be followed in the case of Barcelona was Barcelona City Council. However, the focus in the case of Barcelona is on the transitionary period of 2015 onwards when Barcelona en Commu received office in the municipality of Barcelona. The city's smart politics were already being developed by Cisco and centre and right-wing political parties as briefly presented below and so the context for Barcelona en Commu has been how to address the dominant smart city paradigm and agonistically challenge it.

Barcelona smart city 2011-2015

The first step towards a BSC occurred in February 2011 when Mayor Jordi Hereu signed an agreement with Cisco to participate in their 'Smart+Connected Communities' program. With this agreement, according to Cisco's (2011) press release, 'the Cisco® Urban Platform Reference Architecture [is placed] at the heart of the city's Barcelona 2020 vision to become a global reference model for sustainable urban development and the economic engine for Southern Europe' (para. 2). November of the same year the first Smart City Expo World Congress also takes place in Barcelona signifying Barcelona's smart city ambitions. Cisco's 'Smart+Connected Communities' is a project that 'acknowledges the essential role of the network as the platform to help transform physical communities to connected communities' (Cisco, no date, p.2). The recipe has been tried before in the from scratch development of Songdo in South Korea (Angelidou, 2014). Songdo was a huge project claimed to be a new city, but its developers have had trouble attracting inhabitants which in the words of Hollands (2015) point to the difference between a city and 'a giant business park' (Hollands, 2015, p.67). Nonetheless, Songdo was one of the first smart city cases widely discussed as a smart city prototype. Beyond Songdo, Cisco has been working with several other cities around the world in developing various smart city aspects. Unlike Songdo which required from scratch hard infrastructural developments, the project of Barcelona is Cisco's effort to work with an existing city focusing on soft infrastructural developments (see Angelidou, 2014). The agreement with Barcelona concerned the development of two major projects: (a) a unified telecommunications network that 'integrates all of city's Fiber Optic and Wi-FI into one' (Lopez I Ventura, 2014, para.9) and (b) the Urban Platform that 'provides an IT architecture model of the city, which is replicable and open sourced' (para.5). Altogether, this network governance platform entails a city operating system with various applications, control centres, and raw data collection as produced by sensors in the city, in line with Cisco's core expertise on network technologies.

As reported by Nesti's (2018) case study of the BSC of that period, connectivity is a nodal point in the strategy supported through the political logic of the network that as Castells (1996) has indicated is as much discursive as it is material. The political logic of the network is pushed by Cisco through an internet of things for smart cities prism, that

is often seen as the technical backbone of smart cities (Mohanty et al., 2016; Zanella et al., 2014). Similarly, to a smart city as system of systems understanding, Cisco's expertise focuses on connecting and managing urban services through the management of data information produced by the city. The rationale behind the smart +connected communities pitch is that it is in the power of the network to 'help transform physical communities to connected communities' (Cisco, no date, p.2) by connecting them into the internet of things. Connectivity as such can only be achieved through the intermediation of the network and the logic of objectification. The main concern of internet of things logic 'is related to the integration of the physical world with the virtual world of the Internet' (Haller, 2010, para. 3). The physical world consists of physical objects that include both inanimate objects such cars, machines, boxes and fridges and animate objects i.e. animals and humans. All these can be turned into the 'things' of the internet of things as 'entities of interest' (ibid). 'Buildings, rooms and things in the environment like rivers and glaciers can also be entities of interest' (ibid). In fact, 'any object including the attributes that describe it and its state that is relevant from a user or application perspective can be regarded as an entity of interest' (ibid). Smart cities as such concern the creation of a city-wide internet of things, which is a necessary in the context of the 4th industrial revolution (see Schwab, 2016). Within a logic of necessary transformation, Cisco's role is to help cities' transform through their expertise: 'Cisco helps cities gather, share, understand and act on data from and with other agencies, from and with city residents and visitors, and from and with business and social organizations. By leveraging the Internet of Everything, cities can integrate people, processes, data and things' (Cisco, 2014, p.2).

The mere connection of various communities into a city-wide network means production of data that can be in turn be managed efficiently. Since anything can be turned into an object/ thing and as such an entity of interest and their relationships can be turned into data, the Internet of Everything can be articulated. As such the nodal point of efficiency is operationalised as the benefit for cities and citizens. Cisco comes to cities providing technical know-how on how to deal with their urban problems with the help of networking technologies, by rephrasing them into necessary urban services. In a context of emergency where urban problems in cities are intensifying, Cisco appears as a rescuer offering solutions. Cisco's 'smart+connected communities' program is focused on

‘developing a growing portfolio of city-oriented solutions’ (Cisco, 2014, p.1). As a technology corporation, the logic of technological determinism is operationalised under the positioning of consultancy and technological expertise.

Cisco’s interest in Barcelona particularly regarded the creation of a model out of the existing city and the development of a new city protocol of how to think of the 21st century city as nodes of networks and information into a global network (Cisco, 2012). The purpose of the protocol involved creating the standards, frameworks and practices that can be replicated and shared among cities around the world:

> In the same way as the Internet Protocol shaped the original development of the Internet, the City Protocol will be discussed and developed internationally, setting up an evolutive protocol based on the agreement of a global community. It will deliver benefits within and between cities, by addres[s]ing urban development in an integrated systemic way (Cisco, 2012, para. 10)

Cisco’s initiative seeks to push towards institutional and technological standardisation around smart cities. Standards have been highly important for technological diffusion in the industrial age and even more so in the post-industrial information and knowledge based era where the importance of standards development has been rising (Sivan, 2000) along with the significance of intellectual property (Wark, 2004) and trade agreements (Hoekman and Nelson, 2018). The political logic of standardisation is crucial for the social logic of technological change. Technological standardisation works hand in hand with technological determinism and the logic of acceleration. Accelerating technological diffusion is fundamental to growth and so technological push with purpose of standardisation can be justified. Cisco’s city protocol pushes for standardised technology into cities through the smart+connected communities’ program. The city protocol can be read as a parallel and necessary lobbying effort for the development of global standards in order to further facilitate Cisco’s outreach (Metropolis, no date). In fact, in 2017, Cisco announced a 1billion investment program to help more cities become smart: ‘Cisco will bring the capital and expertise it takes to make smart city projects a reality’ (Menon in Cisco, 2017, para. 3). At the same time, Cisco’s platform, namely ‘Cisco Kinetic for Cities’ is advertised as a platform that helps cities make sense of their data, improve

quality of life in the city and make money from services while doing it (Cisco, 2017). What Cisco's platform offers is essentially an open to applications but centralised network that facilitates data governance through decentralised technology.

Soon after the agreement with Cisco in June 2011, right wing Mayor Xavier Trias took the municipality of Barcelona. His right-wing coalition implemented austerity in the municipal level, while operationalising the so-called Barcelona model of urban regeneration to achieve growth through partnerships (Davies and Blanco, 2017). The Barcelona model approach to urban regeneration signifies an innovative approach to urban regeneration and growth that was first tested in Barcelona in the Olympic Games of 1992 (Degen and Cabesa, 2012). In this approach, the hosting of the 1992 Olympic Games was as an investment strategy that essentially reconstructed its entire coastline at no cost for the city itself. To that point the coastline was the remains of a heavily industrial Barcelona. Through the approach of the 'Barcelona Model' and the creation of urban regeneration partnerships the Olympic village was constructed in the coast and Barcelona literally after centuries opened itself towards the sea. This opening was discursively accompanied with the repositioning of Barcelona as a Mediterranean capital, romanticizing Barcelona's medieval golden age when the Catalan capital Barcelona was 'a powerful city in the Mediterranean' (Casellas, 2009, p.816).

The Barcelona model is tightly connected to place-making as a key characteristic is its creative use of cultural capital for the purposes of growth, i.e. attracting investment, human capital and/ or tourism, much alike Florida's (2002) conceptualisation of the creative city. In the case of the 1992 Olympics, new icons as much as new spaces were constructed side by side as part of Barcelona's transformation. According to Monclus (2000) Barcelona from 'a "classic" industrial city [became] a "flexible city"' (p.60). Cultural icons such as Miro, Dali and Picasso supported the transition. With the request of the 1992 Olympics Barcelona declared that it is an attractive city both in terms of 'economic capital' and 'cultural capital' (Monclus, 2000; Richards, 2016). Barcelona's place-making statement was outwards looking, putting Barcelona into the world map 'as a business city, together with the corresponding mechanisms of attractiveness and marketing' (Monclus, 2000, p.60) but also creating new urban identities to brand itself 'as a leisure and cultural destination' (Richards, 2016, para. 4), also echoing a world city

statement. As such the 'Barcelona model' involves a government pull in its core conceptualisation -a pull of necessary resources for the purpose of urban regeneration and growth.

Cumulatively, the Barcelona Model operationalises the political logics acceleration, pooling of resources, strategic place making to consolidate the social logics of growth, modernisation and progress. The political logic of transformation from the perspective of the Barcelona model is operationalised through the logic of urban regeneration. The particularity of Barcelona is expressed as breathing fresh are to its urban reality, unlike in the case of Amsterdam where the logic of reinvention expresses a necessity to review the city's urban reality. At the same time, the logic of strategic place-making involves both inward and outward looking branding through the successful involvement of cultural capital and activities in urban regeneration processes for solving social problems (Degen and Garcia, 2012) as much as part of Barcelona's urban image and symbolism of Barcelona and especially part of its international image. Because of its use of cultural capital the model has been suggested to have a predominantly social character (Degen and Garcia, 20112) while also promoting a participatory approach to decision-making through institutionalisation of political participation (Blanco, 2009; Davies and Blanco, 2017) endorsing the political logic of consensus. Generally, social and political consensus is described as a key factor for Barcelona's success story and especially for changing the branding as well as the space of the city (Monclus, 2000). Trullen (1996) suggested that urban planning itself hasn't been as important as the processes through which consensus is achieved through coalitions and partnerships. The political logic of consensus acts as a support system to the political logic of pooling resources while attempting to equate consensus in politics with social consensus.

Although the model operationalises public-private partnerships to pool resources often at no cost for the municipality, participation in these processes is exclusive of the wider society and easily accessible for the political and economic elites. The model perpetuates power and inequality in a way that is tightly connected to Barcelona's urban development history through the decades (see for example Casellas, 2009; Monclus, 2000). According to Blanco (2009) the operationalisation of the so-called Barcelona model is in fact context dependant to different periods, territories and actors. So for example, in Davies and

Blanco's (2017) work activists argue that the 'extensive participatory infrastructure linked to the Barcelona Model, including the Municipal Council of Social Welfare and Citizen Agreement for an Inclusive Barcelona' has no legitimate power over decision-making processes but yet is something to defend (p.1525).

Going back to Mayor's Xavier Trias time, Davies and Blanco (2017) suggest that 'Trias owned the textbook neoliberal policy of surplus budgeting' (p.1523) and in two years managed to move the council from budgetary deficit to budgetary surplus operationalising the Barcelona Model. Among others, Trias focused on developing the Barcelona Smart City strategy believing that 'a Smart City strategy is essential to foster economic progress and improve people's wellbeing and quality of life' (Trias in Eurescom, 2015, para. 2). Ferrer (2017) who was the Director of BSC's programme and Deputy Chief Information Officer at Barcelona's City Council with Trias, notes that the BSC strategy began in 2011 with 'a new IT strategy […] aimed at introducing the use of new technologies in an innovative way in order to improve the overall operation and management of the city, fostering economic growth and strengthening citizens' welfare' (para. 11), i.e. the Cisco agreement. As he continues this strategy, which also led to the European Capital of Innovation Award in 2014, 'was strongly aligned with […] the European Union's strategy to improve its growth model for the next decade and create a more sustainable, smart and inclusive path for development' (para. 12). Another key logic operationalised in the case of Barcelona is that of the government pull. Very much unlike Amsterdam, the government pull for smartness in Barcelona (Galdon-Clavell, 2013) is necessary to drive growth in the European South. As smartness is coupled with growth and quality of life, two signifiers that are both desirable and necessary, the political logic of government pull is to consolidate the social logic of growth through the operationalisation of the nodal point of quality of life that seeks to establish the social benefits a smart city strategy can bring.

The benefits of smart cities for citizens and society are a core social antagonism. One way or another, despite ideological premises attempt to address this antagonism discursively either to neutralise it or to bring it to the fore. This plays out in the case of Barcelona quite vividly. The ownership of citizens data is for example a crucial point that Barcelona en Commu's strategy seeks to protect. Although as regards to the Cisco

agreement, it was repeatedly stressed that the telecommunications network and Urban platform were 'owned by the city' (Lopez I Ventura, 2014, para. 4), the meaning of that statement is debatable. As Townsend (2013) argues that corporations on the smart city race such as Cisco 'aim to be the electrician and the plumber' of smart cities (p.63) making their business model around providing, developing and maintaining smart city networks. Under this prism ownership, becomes much more convoluted as a dependency by necessity is created between corporation and city. The two need to remain in partnership for the smart city network to operate, be maintained and function while the corporation holds the expertise and control of the network. Questions of surveillance then also arise.

Within the BSC strategy of that time, there seems to be a strong focus on citizen's quality of life, needs, wellbeing and welfare that is stressed through repetition. In BSC strategy, smart city is acknowledged as a concept that works towards improving the 'quality of life for its citizens across the whole society' (BCN Smart city, 2015 para. 2). In fact, the social logic of modernisation and progress ensures quality of life. Through the modernisation of icts, a smart city achieves efficiency while according to Julia Lopez I Ventura (2014) from BSC technology is only 'a transversal tool' (para. 1) towards that end of quality of life. Through use of the nodal point of quality of life as signifier of economic growth, a causal relationship between the economy and society is created, wherewith economic growth benefits the society and in turn citizens. Although extensively used alongside efficiency, sustainability and icts in the smart paradigm (Galdon-Clavell, 2013; Nesti, 2018), the quality of life signifier 'remains an elusive concept' in comparison to the economic the rest, as what it means and how it is achieved is 'not made explicit' (Galdon-Clavell, 2013, p.718). The repetition of the elusive concept of quality of life works towards the support of the political logic of social benefits that is, in turn, operationalised to consolidate the social logic of growth.

Notably, during the mayor ship of Xavier Trias we are discussing in relation to the BSC strategy 'the participatory apparatus [was further distanced] from political decision-making' while 'the participatory infrastructure was of diminishing importance for activists too' (Davies and Blanco, 2017, p.1525). As a result of the austerity conditions of Xavier Trias mayor ship the 'centre of activist gravity in Barcelona shifted from

participation to resistance' (Davies and Blanco, 2017, p.1526). Trias' surplus budgetary policy of cuts was very closely tied to improving the efficiency of public administration so that it can respond to citizen's needs, which was precisely the focus of the BSC strategy (Nesti, 2018). Accordingly, quality of life was vaguely used to justify the BSC in times of crisis and austerity. This very point draws a line of difference between the BSC and the ASC strategies. The ASC was more focused on resource and energy efficiency, rather than government efficiency as the BSC, both of which are part of the EU politics. This ties with a more operational difference: despite the Barcelona Model the BSC is highly depended on the political leadership, whereas the ASC develops irrespectively through the ASC partnership model. This further brings about the European post-crisis context and the distinction between the European South and the European North. For both Amsterdam and Barcelona, a smart city strategy is operationalised within a social logic of growth as is in the level of the European Union. Nonetheless, despite certain similarities that we might draw in terms of the two cities such as both being existing cities (Angelidou, 2018), the conditions of the operationalisation are not the same due to various local, contextual and even historical factors. Accordingly, in relation to the EU, the theme of sustainable growth discussed earlier is articulated as 'efficient management of the city's services and resources' (BCN Smart City, 2015, para.1-3) or 'better public services' –efficient governance- and 'a more sustainable and efficient use of the city's resources' –resource efficiency- (Trias in Eurescom, 2015, para.2). The theme of smartness as modernisation is also present as in its basis a smart city has 'the use and modernisation of new information and communication technologies' (BCN Smart City, 2015, para.1-3). Nonetheless, in BSC there is a stronger focus on citizen's quality of life (nodal point), needs, wellbeing and welfare that both necessary due to the local turmoil round austerity, but also tied to the tradition of the Barcelona model.

Barcelona en Commu 2015 onwards

As already indicated, Trias' mayor ship was coupled with austerity, cuts and a shift from participation to resistance and so the 15M movement of 2011 marks 'an explosion of 'new urban activisms' […] including cooperatives, food and clothes banks, community gardens and social enterprises' (Davies and Blanco, 2017, p.1527). At the same time, the

post-2008 period signifies a transformational period where the signifier of Barcelona as the rose of fire is revived in local politics. Echoing another transitional period that of the early 20th, Barcelona as Rose of Fire signifies the social unrest, riots, street fires and bombings that dominated life in Barcelona due to the conditions of extreme inequality the dominated the city. City planning was at that time 'directed by land owning, financial and industrial interests' (Wynn, 1979, p.202) without consideration of the working classes. Barcelona was a highly industrial city, often compared to Manchester, and in turn hosted a huge number of working classes. As such, the mix of a powerful elite exploiting great numbers of working-class people created the revolutionary conditions of the early 20th century (Calavita and Ferre, 2000).

With the 15M movement, Barcelona was to an extent reconstituted as the Rose of Fire that stretched from street resistance, fires and barricades to the constitution and election of Barcelona en Commu in 2015. Mayor Ada Colau was herself a leading figure in the anti-eviction struggles over housing (Milica, 2017), arguably one of the most successful struggles of the period (Davies and Blanco, 2017) that can be easily reframed as a struggle over space. In fact, the rebirth of the signifier of the rose of fire connects the 20th and 21st century struggles as struggles over space (see CrimethlInc, 2012; Delclós, 2013). The period up until the election of Barcelona en Commu in many ways depicts Barcelona as a revolutionary city in the global community, with its social movements and grassroots communities teaching revolution to cities around the world. In turn, Barcelona en Commu represents the continuation of the political energy created at that period focusing on translating it into political action within the municipal level. Ideologically, Barcelona en Commu draws upon new or radical municipalism, that is popularised across Spain during that time, with Barcelona being a forerunner and promoting it at the European level but also internationally. Radical municipalism is a revival of Murray Bookchin's (1991) libertarian municipalism that 'represents a serious, indeed a historically fundamental project, to render politics ethical in character and grassroots in organization' (p.6). In the municipalist discourse, the city becomes a key actor into both local and global politics and seeks to 'return power to ordinary citizens' (Bookchin, 2017, para.10). As such, the city is first seen as a node of power and then becomes a redistributor of it. In 2017, Barcelona en Commu invited to Barcelona the 'global municipalist movement' for the summit of Fearless cities (no date), tightly

connected to the signifier of rebel cities protecting and promoting the right to the city (Harvey, 2013).

Smart city developments during Trias and throughout the social unrest of his time were addressed to Barcelona's global audiences rather than the 'local users of the new services' (de Hoop et al., 2018, p.9). Its focus was on attracting investment and capital rather than addressing the citizens. As a result '[w]hilst the smart city was being embedded in bus-stops, lamp posts, refuse bins, mobility systems, and machine-readable databases, and whose sensors and actuators were being interconnected through a developing Operating System, another smart Barcelona was becoming increasingly vocal and active' (ibid). This other smart Barcelona became the focus of Barcelona en Commu's strategy, whose perspective was formulated through the political logic of radical municipalism. Barcelona en Commu at first instance rejected the BSC strategy developed during the previous mayor ships, seeking to go beyond the smart city altogether (de Hoop et al., 2018). From its position of municipal power, Barcelona en Commu assessed the situation to find the ways through which they could operationalise a political logic of empowerment within the smart city paradigm. As a social logic as such Barcelona en Commu projects the social logic of equality and justice as a counter-hegemonic projection to the social logics of growth. The social logic of technological change is accepted, but its perception as modernisation and progress. Rather technological change is seen as a potential tool for transformation and empowerment according to the municipalist politics. With these in mind, Barcelona en Commu develops the Barcelona Digital City (BDC) signifier as a replacement to the BSM one to challenge the dominant smart city paradigm and develop an alternative smart city through a series of discursive and material practices.

In the early stages of the BSC, the discursive construction, from both the Cisco and the Tria's team, primarily concerned the transformation of local government and its services through ICTs. The rationale entailed a modernised government that can provide better services and improve citizen's quality of life. In 2017, and after the arrival of Francesca Bria as Chief Technology Officer of the city, the Barcelona City Council Digital Plan was published (Anjutament de Barcelona, 2017a). The Barcelona Digital Plan is an elaborate plan that includes government measures and accompanied guides to support

them discursively. The plan in fact concerns a government measure for open digitalisation and is supported by a series of other documents such as a code of technological practices for Barcelona City Council (Anjutament de Barcelona, 2017b), a supportive document around the concept of agile methodologies and transformation (Anjutament de Barcelona, 2017c), a technological sovereignty guide (Anjutament de Barcelona, 2017d), the ICT public procurement guide (Anjutament de Barcelona, 2017e) and the innovative public procurement guide (Anjutament de Barcelona, 2017f). In continuation of those in 2018 a government measure on ethical management and accountability on Barcelona's data commons was added to the plan (Anjutament de Barcelona, 2018). The plan in its totality borrows significantly its language from the free and open software movements, i.e. openness, agility, technological sovereignty, commons, and couples it with the municipalist ideals to empower citizens as users of the smart city.

The BDC construction is a challenge to the previous BSC strategy construction and the corporate smart city (March and Ribera-Fumaz, 2016). In fact, as Francesca Bria proclaims the Digital Plan of Barcelona proposes to rethink the concept of smart city (Bria in Tieman, 2017). The main rationale is that the use of technology can improve government as technology is perceived as 'the driving force' towards 'a smarter, fairer, more cohesive and sustainable city' (Anjutament de Barcelona, 2019a), i.e. the operationalisation of the social logic of technological change. Unlike, the previous cases however where the political logics of technological and informational determinism prevailed, the political logic operationalised here agonistically is the political logic of technological sovereignty.

In accordance with the municipalist logic of power redistribution, the digital plan in rational seeks to 'put citizens first' (ibid). The way this is approached strategically is through the development and use of agile methodologies towards digital transformation that allow the enforcement of the technological and data sovereignty principles (see Anjutament de Barcelona, 2017c; 2017d). In its implementation the strategy essentially 'involves rolling out open technologies and software for most of its technological processes and services' that encloses the technological and data sovereignty principles (Anjutament de Barcelona, 2017d, p.3). It is only through this condition that the citizen

is protected and has the control of their data (Anjutament de Barcelona, 2019b). As such, the action plan involves that 'public digital infrastructures [are] based on free software and open source, as well as open standards' (ibid) to ensure the technological sovereignty of the municipality and through its power redistribution the technological sovereignty of its citizens as users of public services. Ultimately, technological sovereignty 'denotes the capacity of citizens to have a say and participate in how the technological infrastructure around them operates and what ends it serves' (Morozov and Bria, 2018, p.24). Free and open source software technologies and standards are technologies that generally seek to not capitalize over its users. One of the main actions of the digital plan is the 'migration to free software' by '[e]nsuring that 70% of investments in new software developments go towards open source software' (Anjutament de Barcelona, 2017a, p.26).

The social antagonism of ownership of data is at the core of Barcelona en Commu's challenging of the smart city paradigm. Employing the political logics of transformation and empowerment as part of the digitisation process, they imagine and proclaim another smart Barcelona that is more equal and just. For that, they generally draw on the discourses of the free and open software as alternatives proprietary software. Non-proprietary software and especially free software are most likely to ensure data sovereignty as they abide to different modes of production and innovation models. However, as the city council cannot necessarily ensure that the use of more ethnically based technologies, for the purpose of data sovereignty 'an ethical data strategy' is required. This entails the conceptualization of data produced in the city as 'a common good and public infrastructure, such as water, electricity, roads and clean air' (ibid). Towards that end, the qualifier of data sovereignty that ensures the ownership and control of the produced data by the citizens has been operationalised. Operationalising the concept of technological sovereignty is the first step towards the right to the city (Morozov and Bria, 2018), operationalising data sovereignty is the first step against surveillance capitalism (see Zuboff, 2015). Both are part of a wider strategy that seeks practically find ways to go beyond the smart city and non-neoliberal alternatives altogether (Morozov and Bria, 2018): '[a] city that goes beyond Smart City, and that is more open, circular, inclusive and participatory' (google translate, Bria in Anjutament de Barcelona, no date, p.7).

In the municipalist approach, the city-government relationship is crucial. The city is deemed as the level closer to the citizens redistributing power through its policies and politics. In the Barcelona en Commu approach, the city council comes actively closer to the citizens so that they can serve the many, tackle inequality, protect citizens, democratize government institutions, create participatory processes and municipalize the economy among others. All that of course in the restrictive context of local government and its institutions within the capitalist context, where neoliberal smart city discourse is hegemonic and runs in parallel to the municipalisation and sovereignty processes (Morozov and Bria, 2018). This, in turn, makes the materialization of counter-hegemonic discourses even more difficult. Nonetheless, the Barcelona en Commu strategy with the digital plan can be assessed as a thorough discursive challenge towards the smart city paradigm. A strategic intervention that requires further alliances beyond the very city council and even the locality of Barcelona. As Morozov and Bria (2018) put it such intervention needs to connect with 'the activist and intellectual backbone for questioning the hegemony of the smart city agenda' (p.27).

The technological change this strategy abides to is a 'digital revolution at the service of the many, not the few' (google translate, Bria in Anjutament de Barcelona, no date, p.5). Within a technological sovereignty logic, technology is a means towards a democratic and sovereign city desired end (Anjutament de Barcelona, no date), one that supports the projected social logic of equality and justice. As such the digital revolution is to be used for the purpose of the democratization of the city and the processes of its production in order to ensure the right of all citizens to the city. In line with the logic of municipalism, '[t]he immediate goal of a libertarian municipalist agenda is […] to reopen a public sphere in flat opposition to statism, one that allows for maximum democracy in the literal

sense of the term, and to create in embryonic form the institutions that can give power to a people generally' (Boockhin, 1987, para. 5).

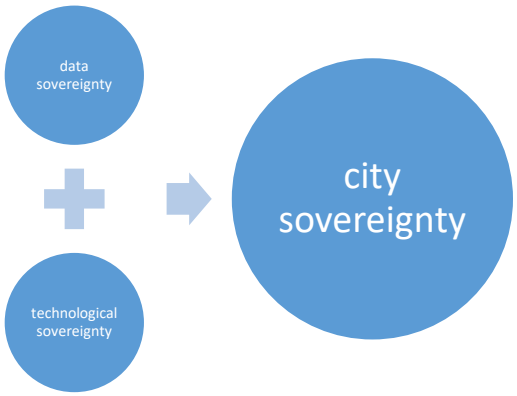


Figure 12: Relationship of sovereignty in the smart city context according to Barcelona en Commu

The strategy is constructed in three interrelated axes. The first axis is the axis of digital transformation that entails the use of technology and data for 'better' and 'more affordable services to citizens', government transparency and participatory processes while safeguarding 'data sovereignty, ethics and privacy' (Barcelona Digital City, no date b). Part of this axis is also to 'expand socially beneficial uses of data' and reconstituting '[h]igh-speed internet connectivity' as 'a right for all citizens' (ibid). The political logic of transformation as such is operationalised for the improvement and strengthening of the municipality, its services and operations and its relationship with citizens. Unlike the other cases, technology is here invested in the public sector not for the purpose of its modernisation, but tactically for its very transformation. The logic of transformation, for Barcelona en Commu is operationalised not in transforming the city space, but in transforming the municipality. The transformed municipality, in turn, representing the node of power in the city can redistribute power to the citizens, e.g through safeguarding their data and privacy and making high-speed connectivity a right for all citizens to ensure access. As such the digital transformation axis has a dual focus. On the one hand, it refers to digital transformation of the government itself with the purpose of 'making government more transparent, participative and effective' towards the end of been an inclusive and participatory government. On the other, it assigns agency to the government to in the process of digital transformation ensure that citizens' rights, data and privacy are protected. Government effectiveness entails both achieving digital

transformation within its institution and ensuring digital transformation in the city includes all.

The two other axes of digital innovation and digital empowerment seek to bridge gap between the economy and society. The axis of digital innovation operationalising the nodal point of innovation is the one that focuses on articulating an economic perspective to the digital plan. This entails the support of entrepreneurship while promoting 'inclusion in the digital economy'. It involves various actions that range from investment in research and development to promoting 'circular economy models […] as well as empowering sharing economy alternatives such as platform cooperatives and the maker movement' (Barcelona Digital City, no date c). What different from the other case is that innovation is understood and articulated as social innovation and it is not put under a growth framework. To the contrary, it is a responsibility of the city council that there is a favouring and promotion of social innovation instead of growth-based innovation, which is what the incorporation of the language of counterhegemonic technological movements is meant for. This axis dictates 'the use of digital technology to address social challenges' (ibid). In relation to the municipalist discourse, this axis works towards the key operation of 'the municipalization of the economy' (Bookchin, 1991, p.12). According to Bookchin (1991) the municipalisation of the economy is a process that withdraws the grasp of the economy from both capitalist state and capitalist unionism as part of the process of restating democratic and participatory processes. Essentially, municipalist discourse proclaims a decentralisation of the economy, as well as politics, and towards the liberation of the social realm:

> Libertarian municipalism proposes that land and enterprises be placed increasingly in the custody of the community more precisely, the custody of citizens in free assemblies and their deputies in confederal councils. How work should be planned, what technologies should be used, how goods should be distributed are questions that can only be resolved in practice (Bookchin, 1991, p.13).

Within this municipalist logic and ideology, therefore Barcelona en Commu finds itself in a space of agonism within the municipality of Barcelona seeking to do as much as

possible towards the municipalisation of the economy under the axis of digital innovation. To this point, this strategy has been so far deemed successful and widely acknowledged as ethnographic fieldwork also shows (see Calzada, 2017; Fuster Morrel, 2018).

Interrelated to this is the last axis of digital empowerment that seeks to consolidate all of the above by ensuring the empowerment and participation of all citizens in the digital economy and society. Digital technologies are to both 'create good jobs in communities across the city and fight inequality' while preservation of 'citizen's digital rights, gender equality and social inclusion' are also ensured (Barcelona Digital City, no date d). '[P]articipatory democracy, […] the collective intelligence of citizens' and 'boosting social innovation movements' are key aspects of digital empowerment (ibid). In practical terms, in order for the city council 'to promote this digital economy -and at the same time innovate internally [it needs] to support all the agents of innovation of the city, the companies, the start-ups, the universities, etc' (google translate, Bria in Anjutament de Barcelona, no date, p.7) unlike the corporate smart city paradigm that is dominated by high-tech companies and technological solutions (e.g Hollands, 2015). Furthermore, 'collective intelligence of all citizens [need to be integrated] in the political decision-making process through a platform of participatory democracy' (ibid). In many ways, the political logic of pooling resources is here operationalised as part of democratic participation and not partnerships. Again, this is different, because the projected social logic that seeks to be consolidated here is one of equality, justice and democracy, and not a social logic of growth.

Conclusively, through its municipalist logic Barcelona en Commu attempts to leverage the over determination of the economy and technological determinism, while promoting its own political imaginary of municipalism based on equality, justice and democracy. Towards that end, it is the political responsibility of the city council to protect rights and citizens directly by becoming 'custodians of their digital rights' (google translate, Bria in Anjutament de Barcelona, no date, p.68) or through empowering those technologies, models and innovations that are deemed as socially beneficial, just, inclusive and not exploitative. All in all, the BDC plan and strategy holds a 'belief in [the ability of] technology to transform the city' (google translate, Bria in Anjutament de Barcelona, no

date, p.6) but with municipal government control in contrast to merely allowing the neoliberal market to dictate the transformation. In the idealist version of municipalism, the control unit of the digital transformation are the citizens through their confederations and assemblies. Efforts towards confederations and assemblies have taken place during the Barcelona en Commu period, but the biggest efforts have been put towards institutional transformation, citizens' rights protection and support of social models and entrepreneurship.'[B]etter public services' do not merely happen through the use of technology but require the construction of an 'open, agile, efficient and participatory' government first which have been the main focus of this council (ibid). As such, the technology drives digital transformation, but the direction must be decided by the city, which will in turn decide the appropriate technologies and innovations. So far, Barcelona en Commu has been focusing on setting up the required processes towards that direction and empower the projects, models, initiatives and movements that favour it. The proposed direction is one of digital and social inclusion, sovereignty and equality. The municipalist goal that this sort of digital transformation works towards is 'a communitarian society oriented toward meeting human needs, responding to ecological imperatives, and developing a new ethics based on sharing and cooperation' (p.6).

4.3 Conclusive Remarks on the Conceived Space of Smart Cities

In this chapter, an analysis of the conception of smart cities within EU regional spatial politics and the local spatial politics of Amsterdam and Barcelona were presented. In the articulation of this thesis, those three individual cases have been approached to provide together an insight in the discursive-material construction of smart cities in European spatial politics. Therefore, the task for the concluding part of this chapter is to discuss how are all three webs of meaning together participate in the discursive-material construction of European smart cities. This is done in the first part on this section, while further on a more general discussion on the roles of cities and regions in the 21st century is provided linking the conclusive thoughts on this chapter back with the discussions of chapter one.

Socio-Spatial and Socio-Temporal Logics in European Spatial Politics

The social logics identified among all three cases are the social logic of growth, the social logic of technological change, the social logic of modernisation and progress and the social logic of social justice. According to Howarth (2018) '[s]ocial logics […] characterize social practices in different contexts by capturing their rules and elucidating the properties of the objects presupposed by the practice' (p.386). In the above analysis, only four social logics were characterised. Howarth (2018) suggests social logics 'are […] multiple and contextual' (ibid) and it is here recognised that the four social logics characterised in this chapter are certainly not exhaustive. However, the decision to characterize social logics in their most abstract form found in the texts was made to more clearly illuminate their socio-spatial nature in relevance to the discursive-material framework. Therefore, the three social logics identified are construed as socio-spatial logics that as such participate in the Lefebvrian framework of the production of space. In other words, they are not only conceived but are furthermore perceived and lived as discussed in the following chapters.

As identified in the cases of the EU and Amsterdam, the social logic of growth entails that growth is the purpose of society. Within capitalism as Lefebvre (1973) and Harvey (2014) discuss, growth is a signifier of a healthy good economy, as it is perceived as the

means through which society can grow and better itself. As such, the social logic of growth is highly entangled with neoliberal ideology (see Harvey, 2007) especially since as Lefebvre (1973) suggests there has not ever been an alternative to growth. As growth is both necessary and determined to the extent that it 'carries within itself its own ideology' the reproduction of capitalism can be sustained (Lefebvre, 1973, p.109). That is because, the social logic of growth is based on an understanding of society as the civil society of politics (with a focus on the ontic) and not as the political society (with a focus on the ontological) (see Althusser, 1962; Mouffe, 2005). Therefore, in the case of Barcelona, where the politics of Barcelona en Commu seek to address the political society instead, the logic of growth is not discursively entertained. Instead, the social logic of justice is employed.

The social logic of social justice entails a philosophical approach to society that defines equality, justice and rights on moral and ethical bases (see Harvey, 2009). According to their moral and ethical compass social justice theories significantly vary in their expression (Smith, 1994). Harvey (1996) for example characterises egalitarianism, utilitarianism, libertarianism, contractarianism, Marxism, communitarianism and feminism as distinct theories of social justice. Sabbagh and Schmitt (2016) categorise theories of social justice based on their character, i.e. distributional character that proclaims fair share, procedural character that proclaims fair treatment, retributive character that proclaims fair punishment for wrongdoing and restorative character that proclaims the righting of wrongs. As such how the social logic of social justice is employed is eventually dependant to the ideological premises of each discourse. For example, the absence of the social logic of growth in the articulations of Barcelona en Commu signifies that the logics is not agreeable to its ideology. Nevertheless, the logic is still present as the inescapable reality of capitalism (abstract space) in response to which the very alternative smart city imaginary is conceived. On the other hand, the absence of the social logic of social justice from the case of the EU is different. The Europe 2020 strategy that has been identified as key to European strategy of smartness and sustainability also proclaims inclusive growth as growth for all (see European Commission, 2010a). As such in the case of the EU, it could be argued that the social logic of justice becomes apparent through its absence or mild articulation, but it is very much contextually and implicitly there. In other words, since the overdetermination of

the economy occurs in the case of the EU through the assumed social logic of growth, the assumed social logic of justice can only be one based on theories of utilitarianism - the greatest good for the greatest number- and liberalism –the individual is autonomous and the free market just (see Harvey, 1996). In the cases of Amsterdam and Barcelona before 2015, more conflated articulations of this social logic would be expected that further to utilitarianism and liberalism might also involve a theorisation of contractarianism that seeks for a just distribution of resources at the level of the city that is just but not necessarily equal. In the case of Barcelona after 2015 under Barcelona en Commu, a theory of municipalism that is not included in Harvey's (1996) typology is the expressed logic for social justice. In Harvey's (1996) typology that would suggest a mix of theories of Marxism, feminism and communitarianism.

Furthermore, what theory of social justice is preferred in a discourse, based on what ideology, and whether the logic of growth is employed, influences ideologically the operationalisation of the social logic of technological change. The social logic of technological change entails that technology is the means for social change, or else society changes when technology changes as in technology drives history (see Marx and Smith, 1994). This logic can equally include a spectrum of views on technology: from top-down deterministic views of technology to bottom-up views of technology as a tool for social change who might or might not escape determinism themselves. In any case, the difference between the two extremes would be that the second employs an understanding of technology as an inherently political product (see Feenberg, 1999, 2010a, 2010b). Notably, the social logic of technological change is a projected social logic instead of an assumed social logic as the logics of growth and social justice are. Perceptions of technology are the product of ideologies of growth and social justice and accordingly changes society and social change occurs through the dynamic processes produced by these three social logics. Finally, the social logic of modernisation and progress is similarly defined the logic of technological change as both a projected (progress) and assumed logic (modernisation). Although, in the case of smart cities this logic is tightly linked to the logic of technological change, this logic has been defining the production of space through planning and spatial practices for centuries. This logic assumes and projects perceptions of space, where perceptions of space are the product of ideologies of growth and social justice and accordingly change society towards a

progressive and modernised ideal. As such, the social logic of progress and modernisation project a path to social change that is based on the production of modern and progressive spaces.

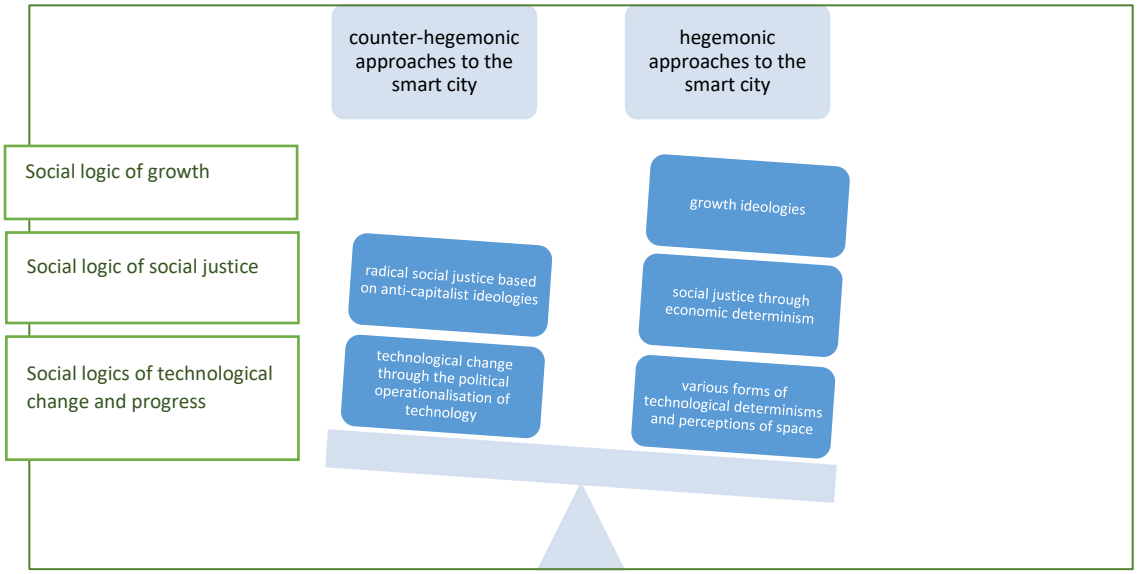


Figure 13: Generalised visualisation of the three social logics within hegemonic and counter-hegemonic approaches to the smart cities

Within a framework of hegemonic politics, it is suggested that all four social logics are part of the overall web of meaning surrounding smart cities in European spatial politics. In fact, the way the social logics of growth and social justice are employed or not employed, and in turn the way the social logics of technological change and modernisation are construed can define where discourses are positioned in a hegemonic and counter-hegemonic spectrum of approaches to the smart city. A generalised impression of this is presented in Figure 13. Evidently, the lack of a social logic alternative to growth is suggested as key to the problematic of hegemonic politics in agreement with Lefebvre's (1974) perception.

Further to the social logics and within the politics of hegemony, political logics are operationalised towards the consolidation of the assumed and projected social logics. Political logics are much more socio-temporal in their character. That is to say that they are 'negated, disarticulated, mediated and negotiated' (Howarth, 2018, p.386) throughout the political process and can be understood as characteristic of the discursive realm. As such, political logics are highly contingent and better showcase the details of the created webs of meaning. The political logics of all three cases are presented in Figure 14. The socio-temporal character of political logics has been identified within two types of expression. One, is the changing of political logics over time and between actors. For example, this is the case with the contextual specificity of the political logic of overcoming the crisis in the case of the EU; the political logics of smart growth and technology as a moderniser in the case of the EU that act in replacement/continuity of the logics of the information society and technology as a fixer; and the differences between the pre and during Barcelona en Commu periods in BSC strategy. The second expression is when political logics are operationalised as a re-articulation of another political logic e.g. the political logics of financialisaton, ecosystem facilitation,

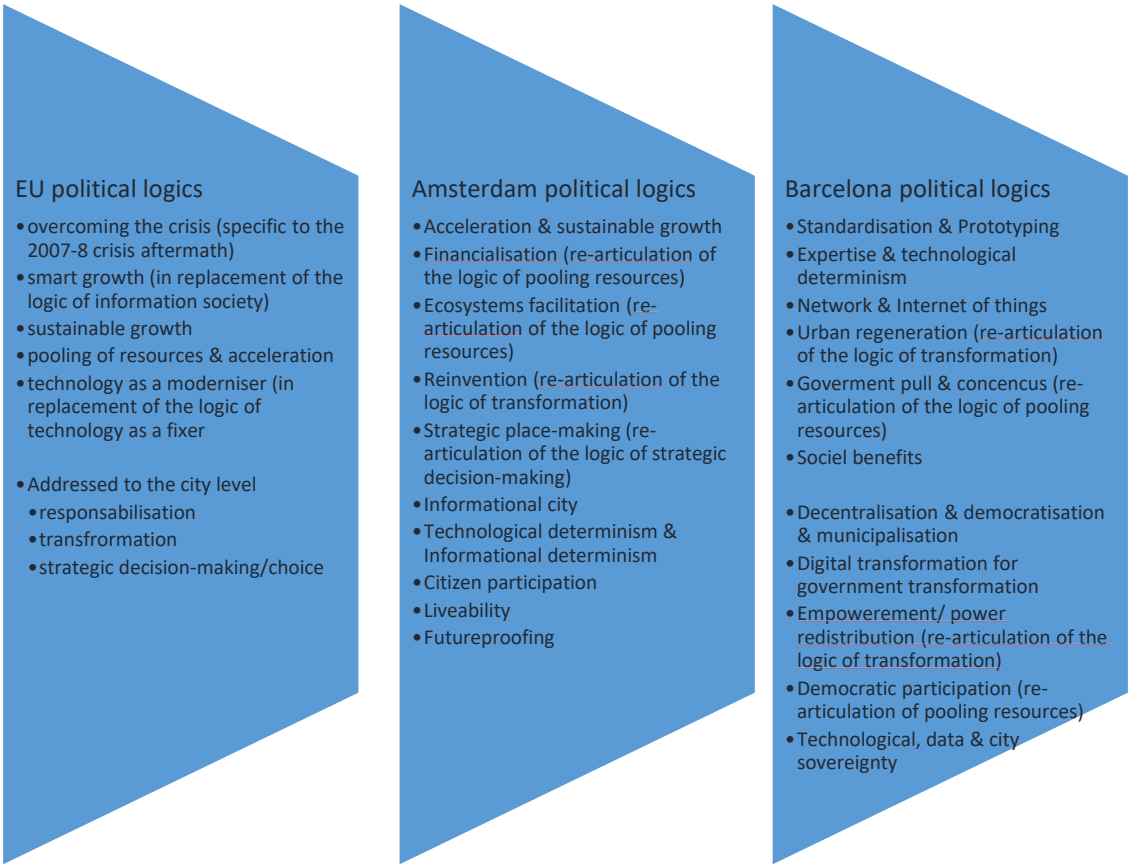


Figure 14: The political logics of the three cases

government pull, consensus and democratic participation as re-articulations of the political logic of pooling of resources within the cases of Amsterdam and Barcelona. Re-articulations[26] have been specifically identified in the cases of the city level perspective which makes sense as the context of local politics highly influence the discursive articulations. The main logics significantly rearticulated for the city perspective are the logics of transformation, strategic decision-making and pooling of resources. The first two concern two logics addressed to the city level from the EU regional perspective, while the latter can be understood as particular to this stage of capitalism as discussed below. Overall, in the case of Amsterdam the performed re-articulations concern the tailoring of the political logics to the local context based on Amsterdam's competitive advantages as a financial and informational centre (see also Castells, 1993). Those re-articulations are based on logics of equivalence. Similar is the case with the rearticulated political logics within the Barcelona model e.g. the logics of consensus and urban renewal as re-articulations of the logics of pooling of resources and transformation. The re-articulations provided through Barcelona en Commu on the other hand concern re-articulations based on logics of difference e.g. democratic participation as a democratic method of pooling of resources and citizen empowerment and power redistribution as method of transformation. In what follows, an extended discussion stemming from the identified socio-spatial and socio-temporal logics is provided, raising a few discussion points that are relevant to further contextualise the analysis of Chapter Five.

The Trans-urban and Trans-scalar processes of the European Context

According to Lefebvre's (1976[1973]) analysis of 19th-20th century transition in terms of growth there has been a move from a 19th century growth context where 'each capitalist produced on his account' (p.105) and 'the state did not as yet play the role of [the] regulator' (p.106) to the 20th century growth context where the 'state is […] responsible for growth' (p.106). As a result of this responsibility of the state, the social logic of growth has become inescapable to the extent that growth 'knows and recognises itself as end and means simultaneously' (p.109). Castells (1993) looking at the 20th-21th century

[26] These re-articulations are subject to the processes of characterisation and naming of the logics of critical explanation. Their purpose is to signify the contextual differences between the regional and city perspectives, but also the differences between the perspectives of the two cities even when similarities also exist.

transition provides an account on the 'transformations that are taking place in Western European cities at the end of the second millennium' (p.247). As transformations of that historical time Castells (1993) acknowledges 'a technological revolution centred on information technologies; the formation of a global economy, and the transition to a new society, the informational society, that, without ceasing to be capitalist or statist, replaces the industrial society as the framework of social institutions' (ibid). In the first chapter of this thesis, the same 'transformations' were discussed as the 21st century city context and expressions of the content of modernity at this time. With his characteristic informational determinism Castells (1993) proclaims that '[i]nformation becomes the critical raw material of which all social processes and social organizations are made' (p.249). At the same time, through the centralisation of information into nodes 'the renewal of the role of regions and cities as loci of autonomy and political decision-making' takes place. Castells (1993) articulation at that time is rather positive and hopeful as he talks of 'the revival of the city-state' as 'a necessary complement to the expansion of a global economy and the creation of a European state' (p.256) that will be 'the driving force in the making of a new European society' (p.250).

Castells (1993) in this particular analysis seems to neglect the political economy of this process that in the words of Brenner (1999) entails that 'urban regions occupy the highly contradictory interface between the world economy and the territorial state, they are embedded within a multiplicity of social, economic and political processes organised upon superimposed spatial scales' (p.447). As such 'processes of reterritorialization' often require the reconfiguration and rescaling of cities as well as states that is social, economic and political and always occurs in relationship to the global scale. As shown through the operationalisation of the political logics and especially the ones address from the EU regional to the city level, the responsabilisation of cities and in turn citizens seems to occur (also Vanolo, 2014; 2016). Following Lefebvre's (1976) logic, part of this responsabilisation might entail cities becoming responsible for growth and even more so cities becoming responsible for pooling the 'right' resources and making the 'right' decisions towards the end goal of growth. Through modalities of necessity cities that are deemed as public sector representators transform into 'collective actors' (see Vanolo, 2014) by creating partnerships, ecosystems and consensus among quite diverse stakeholders that span from industries to citizens. Furthermore, cities are called to

position themselves as the ‘right’ places for investments, economic development, talent, creativity, innovation etc. with the preposition that smartness can drive place-making processes in similar ways to Florida’s (2004, also Florida et al., 2009) recommendation for creative cities.

Europe is seen as a concrete social space that is highly productive in research and innovation. In such context, it is a prerequisite for smart cities to be able to harness the products of research and innovation and operationalise them towards smartness. As such, an indicator of smartness for European smart cities is the extent to which they are interlinked in the level of European research and innovation and have a strategy that connects their urban context to the trans-urban European context. Generally, according to Wood (2001), ‘cities are innovative to the extent that they enable local strengths to respond to complex, often global-scale opportunities’ (p.231). In turn, cities are smart when they are able to harness research and innovation as a means to ‘improve [their] urban environment’ (European Commission, 2012a, para.1-2) and when they can solve their urban problems through technological solutions (Kitchin, 2015), implying the techno fix imperative for improving urban environments. In its context, smart cities are measured and assessed according to how successful they are in (a) using technology to achieve efficiency, but also in (b) being innovative as ‘inventive city-regions’ (see Bontje et al., 2011). One form of efficiency is to be measured in the level of the city and its functions, while the other -innovativeness- is measured in regional context and in terms of the innovativeness of the technologies, practices and strategies used. Recognising, harnessing and producing research and innovation seems to become the means for the identification and employment of the required technologies. From the Commissions perspective, EIP-SCC was created to promote, mediate and facilitate this connection between the local and the EU level operating in between government pull and push. According to Brenner (2000) this entails a process of re-scaling that concerns ‘the construction of new institutional forms, or “regional armature” […], within major urban agglomerations in order to enhance place-specific competitive advantages’ (p.371).

The push of ‘smartness’ that the EU gave through Europe 2020, the EIP-SCC and the Seventh Framework Programme has been key to spreading the smart cities concept

around Europe (Vanolo, 2014). This spreading has been as much discursive as it has been material as operationalised through the EU funding mechanisms (see Ferrer Núñez, 2013). For instance, regional policy, from where the ASC's programme was funded, is the EU's main investment policy that 'targets all regions and cities in the European Union in order to support job creation, business competitiveness, economic growth, sustainable development, and improve citizens' quality of life.' (European Commission, no date, para. 1). Taking the case of Amsterdam as an example, the AMA and ASC strategies are clearly operationalising Amsterdam's competitive advantages by strongly positioning it within the European region. However, Amsterdam already holds a pretty good position within the European region due to its international trade centre past (see Castells, 1993). That is to say that the ASC programme is very much in line with the EU regional policy, while a focus oriented towards benefiting from Brussels is traditionally present (den Boer, 2017). As reported on the press release of the European Commission (2011a) the ASC project aimed 'to test smart technologies that save energy and facilitate sustainable choices by people and business in the Amsterdam region' (European Commission, 2011a, para. 1). Upon its completion, the ASC programme was awarded the Low Carbon Economies CityStar award in the RegionStars Awards (European Commission 2011a; 2011b; 2011c; 2011d). The RegionStars Jury states that ASC is 'a good example of applied innovation for major EU cities for a sustainable social-economic and urbanist development with major regional impacts' (European Commission, 2011a, para. 2). Then in 2016, Amsterdam was also awarded by the European Commission the European Capital of Innovation[27] (iCapital) award (). The direct connection between cities and the EU through funding creates a significant dependency. Several billion euros are specifically 'allocated in the pursuit of energy and technology efficient-cities […] at a time of widespread crisis in urban economies' (Vanolo, 2014, p.889), especially as regards to the local and national economies. For Amsterdam, as a major European city this dependency has been operationalised successfully in fact been turned into opportunity. Awards such as the iCapital involve funds that were allocated to further and extent the Amsterdam approach (Waag, 2017). Other than smartness being a strategic decision, it is also a competitive advantage that promises growth. As such cities have to strategize to gain it, or if they have it they can further develop it. In the case of

[27] Amsterdam was the second European city to be awarded the award, after Barcelona who acted as the first European Capital of Innovation in 2014.

Amsterdam, that dependency might not be as strong due to its financially strong position in the EU region. However, in terms of acquiring funding some cities' strategies, their success and continuity, are highly dependent on EU funding without the capacity to formulate unique approaches or any strategy without it, which further strengthens the position of already successful cities such as Amsterdam or Barcelona.

As Castells (2013) notes '[m]ajor European cities have become nodal centres of the new global economy' (p.12). This fact, on the one hand makes European cities important actors/nodes in the European region, while on the other cities can utilise their European identity to their convenience and benefit from EU institutions. This entails a more direct relationship between European cities and the European region that often bypasses the national intermediary level. Indeed, as Castells (2013) further notes the 21st century social trends suggest an identity crisis in European cities as the lines between the local, national and regional context blur and mingle. This process however is dependant to what Brenner (2000) calls the politics of scale. In the case of the EU, that constitutionally concerns a trans-urban institutional governance structure, appeals towards cities and citizens that bypass national levels are noticed discursively. That coincides with the overall progression of the 'glocalisation of national state power' already noticed since the 1990s (Brenner, 2000, p.371). The re-scaling processes that take place within this glocalisation process is 'the reorganisation of spatial planning systems to privilege the regional rather than the national scale of regulatory intervention and governance' (ibid). The EU, as a key structure within the global competition arena, operates as both government push for smartness and government pull of smartness. The push is more and more directed towards the city level, bypassing the national level although not entirely. The government pull concerns the pull of investment opportunities and global capital and is very industrially focused. Overall, cities are addressed as subjects when action from their level is required, while they become objects when application to their level is deemed as necessary. Cities as subjects refer to the public constitutional government aspect of cities, whereas cities as objects refer to the practico-material artefact of the city. At the same time, the space-place dynamic extensively plays out in this trans-urban/ trans-scalar European context. Smart cities might be places, but they urgently need to be understood as produced spaces as well. Towards that end, the next chapter draws on ethnography in place.

Chapter 5: Perceived space of Smart cities in European Spatial Politics

The purpose of this chapter is to answer the research sub-question of how spatial practices are operationalised within European smart cities politics. The analysis of this chapter focuses on the insights from the ethnography in place. Three sets of spatial practices that are discussed for each case were highlighted during ethnography in place. The first set concerns spaces of organisation that seek to organise knowledge and innovation such as partnerships, platforms and innovation spaces within a specified territory. The second set concerns the very organisation of events as temporally expressed spaces of organisation that further to organising knowledge and innovation seek to promote existent activities and practices often beyond the prescribed territory and locality. This set also involves the practices of branding and place-making and generally communication and public relations. Lastly, the third set of practices involves project development and implementation practices as spatio-temporal processes and outcomes of the discussed European spatial politics. All the above, are here perceived as discursive-material processes of spatialisation.

In what follows, the examples of such practices are discussed per case (Sections 5.1-5.3) in the form of storytelling predominantly because the three highly intersect within each case as well as among levels and cases. Ultimately, the aim of this chapter is to go beyond the presentation of these practices in each case and towards thinking those as spaces of antagonism and agonism, while making links to the processes of space conception discussed in the previous chapter. Notwithstanding, because this chapter relies on ethnography the presentation of analysis is significantly different from the previous chapter. The presentation of this chapter's analysis involves the construction of a narrative for each case, with the employment of several discursive instances collected during or after the ethnography, but without further employing any analytical tools. Additionally, this chapter incorporated discussion into its articulations.

According to Pugalis (2009) when connecting discourse with urban reality the processes of the materialisation of discourse and the extent to which certain discourses get materialised or not indicates the messiness of politics and policymaking (see Pugalis, 2009), but also the temporality of hegemonic processes. According to Dale and Burrell

(2008) organisation is a material process as it both involves material space as in the architectural built environment of the organisation as well as spatial practices. Spatial practices according to Lefebvre (1974) are operationalised to sustain the capitalist mode of production reproducing social relations of production into physical space and in ways that are appropriate and acceptable to the existent power structure. Spatial practices need to be reproducible and reproductive as they ensure the reproduction of the abstract space of capital. Upon reflection, the contradictory character of spatial practices is hidden behind the practices themselves and as per Lefebvre's theory create differences that can be strategically used as a basis to produce differential space. Furthermore, within the triadic model spatial practices are operationalised in dialectical relationship to the conception of space and entail assumptions on lived experiences. For instance, the first set of spatial practices (platforms as spaces of knowledge and innovation organisation) are tightly connected with different expressions of the political logic of pooling of resources discussed in the previous chapter. These practices seek to in material ways enhance and facilitate collaboration among and across different actors, groups, stakeholders etc., so to enhance and facilitate innovation. In many ways, their aim is to organise innovation into space, be it physical spaces, online platforms-networks or both.

This set of spatial practices is crucial in all cases as to a great extent concerns the spatialisation of their logics organising space towards their projected political imaginaries, i.e. enchanting space through linking meaning with matter (see Dale and Burrell, 2008). The second set of spatial practices (events as temporally expressed spaces of knowledge and innovation organisation) are also a form of pooling resources focused towards trans-urban organisation but also promotion and branding. Such temporally reoccurring events, when viewed as spatial practices, become the temporal manifestations and expressions of spatial politics. As temporal spaces of organisation those are emplaced in social and physical space. Emplacement in space concerns the 'construction of certain places for certain activities and certain people' and 'involves the processes of inclusion within and the exclusion from specific spaces' (Dale and Burrell, 2008, p.48). In turn, the signifying processes of inclusion and exclusion can be contextualised as spaces of antagonism and agonism. Finally, the third set of spatial practices (projects as spatio-temporal processes and outcomes of spatial politics) that are often used as smart cities signifiers bring about the same questions on inclusion and

exclusion, imaginaries, antagonisms and agonisms as well as directly connect discourse with urban reality and even more so spatial practices with lived experience.

Logically then, throughout this chapter the following question that is finally approached in chapter six is raised: What processes of inclusion and exclusion are the discussed spatial practices as spaces of organisation and organised space rely upon and how does that feedback to the conception of space, for instance when discussing the participation of citizens on project development? Before approaching this question however, the operational research question for this chapter is how is spatial practice approached in each case?

5.1 Spatialisation Processes in the Case of the EU

The ethnographic material for this case was mainly collected through the 2018 European Week of Regions and Cities and through the presence of the EIP-SCC at the 2018 Smart City Expo and Congress. Beyond that, an observation of the evolution of the EIP-SCC since its constitution has been also made through research into the development of EIPs within EU policymaking in general and following the eu-smartcities.eu website. The purpose of that was to add more insight into the discussion of the discourse-urban reality dialectic.

A main characteristic to the EU level is the attempted bridging of the local and regional under the coordination of the EU bodies, which is continuous and crucial to EU practice. Soon the answer to the question of how this bridging informs the development of spatial practice, was that the local-regional bridging is currently inherent to the employment of spatial practices in the EU as it appears in the terminologies around territorial cohesion and regional development policies. In other words, the spatial practices operationalised in the EU level and case must make links between regions and localities of different scales in order to be justified as acceptable within the social logic of growth. This trail of thought is inherent to the smartmentality device developed in the EU and derives directly from the discursive web of meaning discussed in the previous chapter. In what follows, spatial practices operationalised in the case of the EU are presented through (a) the story of the EIP-SCC becoming a quasi-governmental body for the coordination of EU funded smart cities projects and (b) the discussions and antagonisms that became apparent in the 2018 European Week of Regions and Cities.

How did the EIP-SCC become a quasi-governmental body for EU project coordination?

Image 1: the EIP- SCC booth in the 2018 Smart City Expo

In the Smart City Expo 2018, EIP-SCC was the main[28] representative of the European Commission displaying and discussing current smart city projects facilitated through the partnership. This was done through their own networking booth (see Image 1), matchmaking events and parallel events they organised in the Expo's agora which were focused on knowledge sharing from the existent projects as much as their promotion (see EIP-SCC, no date a). Representatives of the EIP-SCC would introduce existing projects and project representatives and discuss insights from the process of project development, coordination and implementation, including the importance of coordination to the overall process and the role of the European Commission. A great focus on the necessity of pooling resources in a trans-urban context and multi-stakeholder approach was stressed throughout the followed discussions as they were structurally incorporated in the process. At the same time, arising problems during coordination and the bureaucratic note the involvement of the European Commission adds to the processes were touched upon.

To give some context to this, a characteristic of European Smart Cities and Communities projects, mostly funded under Horizon 2020 but also ERDF, is the way they are organised within the EU coordination structure. First, in line with the regional and trans-urban approach objective each project involves various actors across European cities, usually having three main cities as leading cities, the so-called lighthouse cities, and few other

[28] Notably, there were other groups such as working groups that were affiliated with the EU, however the EIP-SCC certainly occupied the most space in the Expo.

cities as follower cities. The projects are designed and designated to be tested in the lighthouse cities, while the follower cities participate by having access to the produced knowledge and following the developments. The idea of the lighthouse cities and lighthouse projects is a common thread from the original industrial smart cities' initiative of the SET-Plan and the purpose of this practice abides to the objectives of replication and scaling (see also Cardullo and Kitchin, 2018). Ultimately, while a level of immaturity in the processes and projects is recognized, the aim is to develop projects that can be replicated and/or scaled beyond the lighthouse cities' test grounds. This immediately brings to the fore Lefebvre's (1976[1973]) reproducibility clause. According to this, each new repetition that seeks to reproduce the reproduction of social relations must be reproductive and reproducible, successfully creating a fantasy of newness. The aims of scaling and replication signify the process of the smart city spectacle, while projecting that to when scaling and replication of smart city projects and products are common and effortless suggests that the spectacle would have achieved its objective, which is 'nothing other than itself' (Debord, 2002, Chapter 1, para. 14). In other words, the spectacle would have successfully transgressed from the realm of thought and discourse (conceived space) to the material (perceived space).

In this context, the purpose of those knowledge sharing sessions held by the EIP-SCC are a fundamental part of this transgression process that ideally seeks to apply the imagination of smart cities into the urban reality. During these sessions several advices was shared as much as questions were raised. For example, it was early on stated by the EIP-SCC representative in one of the sessions that the cumulative experience of the running projects shows that it is not technology that is the problem in these projects, rather it is the collaboration between the actors, the structure of the created partnerships and often the government relations. Representatives from the Sharing cities EU project that runs since 2016 and claims replication to 100 cities suggested that in practice it takes about four years to go from planning to action, in other words from conception to materialisation (Sharing Cities, no date). In this process, however packaging of the produced knowledge is very important. As such in this project, the production of documents on the experience of the project is key for scaling up.

A key component in the scaling up process, in the pooling of resources logic, is the necessarily successful cooperation between public and the private partners. The Sharing Cities project, for instance, is coordinated by the Greater London Authority and it has stated that its project managers have produced a guide on how to gain your city leadership that is being shared with other cities in the replication process. This is a thought-through action that seeks to smoothen public-private cooperation, which as other project representatives pointed is not easy, sometimes between private partners themselves. Nonetheless, cooperation is a necessary objective for all EU smart city projects, but often times as discussed partners develop different understandings or lose track of the benefits of the project, project leaders have to spend their working hours on deal with coordinating the partners individually, while fearing how does that look for the projects, its progress and its funding. From the Commission point of view as their representative stated, the Commission is to only intervene when there sees failure between the private and public cooperation. As long as projects work and develop, the Commission is satisfied with its investment. Nevertheless, as they further noted indeed there have been cases where partners had to be talked into the projects again. Interestingly, in the example given this process entailed the reframing of their participation from a risk investment to a challenge in order to (re-)discover the unique gain for the partner.

The role of the EIP-SCC seems to be that of the facilitator and coordinator, providing support and guidance to the project teams through the assigned DGs of the European Commission. This does not fall too far from the objectives of the original constitution of EIP-SCC but differs significantly in terms of its original governance structure. Originally, the EIP-SCC's governance structure is composed by two entities: the High Level Group and the Stakeholder Platform (see Figure 15).

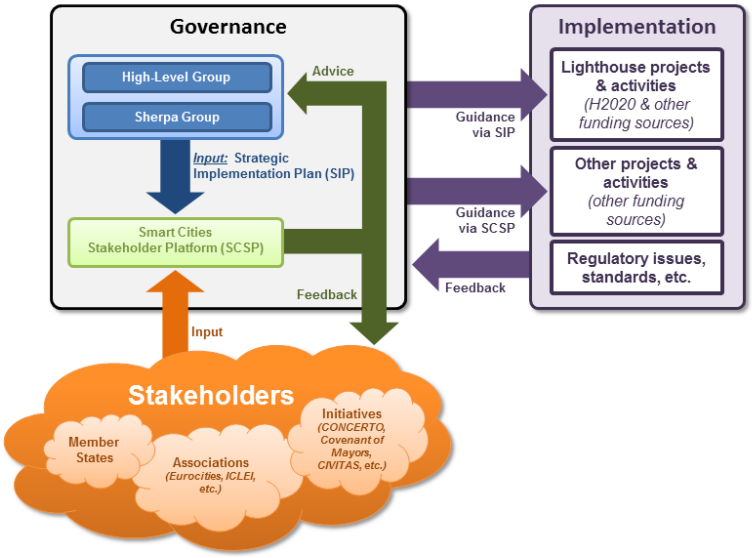


Figure 15: EIP-SCC governance structure as initially defined by the European Commission (2012).

The High Level group, selected by the Commission, was advisory to the Commission and included senior representatives of industry, cities, civil society, relevant EU initiatives in this area and the Commission as members (European Commission, 2012). It would be led by three Commissioners for Energy, Transport and Digital Agenda, representing the three intersected areas identified as relevant to smart cities. The Commissioners were the ones to select the rest of the members of the group. The group was responsible for the strategic orientation of SCC and the production of the strategic implementation plan where bottlenecks were identified and specifying actions to overcome them. Each member of the High Level Group, further appointed another member that constituted the Sherpa group and participated in the discursive production of the EIP-SCC. Overall, this format is rather common for EU related working groups. A significant addition to the model however was the Stakeholder Platform whose purpose was to address wider audiences. The Stakeholder Platform concerned EIP-SSC's (no date b) official website and had as purpose 'to accommodate the constituencies of the cities, communities and other public authorities, citizens, NGOs and relevant industrial sectors. Open to participation by all stakeholders and will report to the Commission' (European Commission, 2012, p.10).

In many ways, the Stakeholder Platform was imagined as the meeting point between the experts of the High Level Group with urban reality. That, of course, in a context where the High Level Group is given that identity by the European Commission upon its constitution. Although the group is presented as representing various stakeholders from the area of smart cities, with a connotation that this defines its expert status, it is important to note that no identity is socially predetermined, i.e. the expert status given is part of the identity assigned to the group itself. The very process of the constitution of this group involves an assumption of an expert perception of the area of smart cities and what needs to be done towards their acceleration. As Jorgensen and Phillips (2002) write '[i]t is not until someone speaks, of, or to, or on behalf of, a group that it is constituted as a group' (p.45). Within the governance structure, the High Level Group along with the assistance of it Sherpa Group, is therefore the group formation that is assigned to conceptualise a smart cities strategy and propose following actions, while the Stakeholder Platform is created as an additional space for all other stakeholders to get involved. The intersecting areas of 'energy, transport and information and communication' are already decided by the European Commission and EIP-SCC as a totality is assigned 'with the objective to catalyse progress in' those areas (European Commission, 2012, p.2). The purpose of the prescribed governance structure is two-fold. On the one hand, EIP-SCC seeks to make an intervention at the level of cities and on the other to act at the intersection of the three different sectors: energy, transport and ICT (European Commission, 2012). Positioned by the European Commission, the EIP-SCC is as a quasi-governmental body that will act as an intermediary agent between industry and cities, two actors that are seen as necessary to coordinate in a European level in order to bridge the local and regional urban systems in Europe. As such other than a specific identity, the EIP-SCC is also assigned a certain agency by the European Commission. That agency that seeks to mediate the local and European levels by intermediating cities and industries is how this new group formation is enchanted into space and as such obtains its power.

Since 2016, the EIP-SCC (no date c) started operating as a consortium managed PwC, Connectivity Alliance, MCI and UrbanDNA while retaining its strong ties with the European Commission. The consortium involves consultancy services based on a variety of expertise within the pre-organised governance structures of the involved organisations. Unlike the representational character that was originally infused within the High Level

Group, as a group of experts representing various sectors, the present consortium seems to focus more on effectively managing and coordinating projects, while being able to provide more technically oriented support and expertise. Further to this, the consortium seeks to promote the activities of EIP-SCC (no date d) and to in various ways connect cities, companies and financers into its marketplace through matchmaking and knowledge sharing activities. As such, the originally constitution of the stakeholder platform as a website marketplace remains the focal point where discourse meets urban reality although the overall governance structure has changed. There are many reasons as to why the governance structure might have occurred, but overall, the change signifies the limitations of discursive materialisation and the necessary adjustments to the conditions of the urban reality.

Part of these conditions were of course the overall developments and interests towards smart cities that has significantly spiked the last five years. On top of the literature reviews that have been provided by researchers comparing the term with others such as digital cities and sustainable cities (e.g. Ahvennemi et al., 2017; Bibri and Krogstie, 2017), attendance in the smart city expo for instance suggests that smart cities can be seen as an umbrella term for cities that use technology. In the case of the 2018 Smart City Expo for instance, other terms such as liveable cities, sharing cities, inclusive cities, green cities etc. were incorporated into the programme and can be understood as smart city expressions. In a context of understanding smartness as imperative such terms are not competing each other rather are understood as co-creating smartness through knowledge sharing and exchange. Interestingly therefore the imperative of knowledge sharing and exchange within coordinated governance structures, platforms and events, wherewith openness to all stakeholders is proclaimed and equal opportunity of expression is assumed further raises questions of agency. Partnerships and stakeholder approaches to policy in principle are operationalised in the name of the necessity of inclusivity and collaboration within however the logics of acceleration and growth. As such, power dynamics and antagonisms are concealed within these structures, while the spaces of agonism and difference are in turn numbed in their effect within the knowledge sharing and exchange frameworks. In effect, time-biased politics are used to conceal the political connotations of the discussed spatial politics.

In terms of conception, the EIP-SCC's identity was constituted through a) its formation as an EIP and b) its identity as responsible for tackling the societal challenge of smart cities. Based on this identity, agency was given to the EIP-SCC, and predominantly its High Level Group. Although, the very formation of EIPs was initially politically supported by the European Council and European Parliament, eventually achieved poor evaluation as an ambitious project that suffered in execution (Directorate General for Research and Innovation, 2014). When the political leadership of the European Commission changed hands in 2014 and under the new presidency of Jean Claude Juncker, neither the Innovation Union policy nor the recommendations for EIPs -that started under the presidency of José Manuel Barroso- were followed through by the latest Commissioner for Research and Innovation (Reillon, 2017a). The main criticism in the independent expert's group report on EIPs was that the structural guidelines on governance and operation that the European Commission gave were not clear and so EIPs have dived too deep into their societal challenge being unable to implement their operational plans (Directorate General for Research and Innovation, 2014). In other words, it was attested that the given agency and identity was not clear enough to ensure the necessary implementation and lead from the discursive -strategic implementation plan- to the materialisation of the discursive -operational implementation plan.

Unlike other EIPs, however EIP-SCC always given as the best example of successful EIPs. Despite the fact that generally EIPs have been politically dropped as a governance structure following the evaluation report of 2014, the successful ones, e.g. the EIP-SCC (Reillon, 2017a), 'remain active as coordination instruments for research and innovation activities at EU level' (Reillon, 2017b, para. 9). In other words, although the assigned identity and structure has overall been evaluated as unsuccessful as regards to its ultimate purpose that is the materialisation of discourse, EIP-SCC arguably managed to reconstruct its identity, sustain its agency and continue its operation and practice. In many ways, the reasons why EIP-SCC has achieved this can be connected to the power effects of its enchantment as a social space, which have contributed to its sustained existence. According to the 2014 evaluation, EIP-SCC's 'activities include the mapping and exchange of good practices, exchange of information, and networking activities' with 'the objective of aligning activities in their field and influence more or less directly the Horizon 2020 work programme regarding their societal challenge as well as other

partnerships at EU level' (Reillon, 2017a). Further to 2014 and with the transition to a consortium in 2016, EIP-SCC has transformed into a project coordinator and facilitator that its practices involve activities such as matchmaking, financing, consulting, and overall support.

Despite the fact that the background information of the details structural changes the EIP-SCC has undergone is not evident, it is fair to say that to a great extent urban reality transformed it towards its current status in line with the innovation and efficiency for the purpose of growth trail of thought discussed in the previous chapter. Although details of the discourse such as the governance structure are never fully materialised, or more accurately are not sustained with time, into spatial practice, the core elements of the discursive structure seem to be. The EIP-SCC takes on a new form, that of the consortium that to a great extent uses the original identity and agency given while also transforming it. Continuation is established through the fact that it is the social logic of growth that appears throughout as the core logic driving the operations irrespectively of the operational details. The consortium although not an institutionalised formation as the Commission attempted with the EIPs, entails a formation of the quasi-governmental lobbying type that has the agency to discourse and develop its own spatial practices, open to urban reality and supervised by the European Commission. The process of institutionalisation of EIPs attempted in their constitution never completed or was not sustained. Nonetheless, the agency of EIP-SCC was constituted, and today's consortium represents the evolution of its identity construction signifying the materiality of such discursive processes. The question is not only the extent to which the institutionalisation process succeeded discursively, but in what ways it succeeded materially and in dialectic.

How were existing spatial practices discussed and challenged in the 2018 European Week of Regions and Cities?

As the EWRC represents a meeting point for the EU regional policy, it also becomes a temporal space where EU and local perspectives are expressed in terms of the existent tools and practices, their operationalisation, but also their limitations. The EWRC is also a space for knowledge exchange and sharing from both perspectives. Good practices of economic and social development across European regions are promoted through events and the expo as for instance the RegioStars awards that are announced annually during the EWRC (see Image 2). The knowledge and information exchange that occurs during the EWRC is specifically addressed to actors who work within the EU institutional establishment either directly or indirectly and the EWRC is operationalised to promote the successes as well as the importance of the EU institutional structure to European development. Unlike the Smart City Expo, whose objective is to promote smart cities, the EWRC is to promote the regional- city bridging in conjunction with and as fundamental to the European identity.

Image 2: RegioStars 2018 Awards announcement board at the Expo of the European Week of Regions and Cities

Overall, the European Week of Regions and Cities participates in the process of materialisation of European smart cities as a space of organisation where knowledge is shared, exchanged and occasionally debated for the purposes of widely sharing spatial

practices as well as conceptualisations of European cities. Predominantly, the conception of cities occurs in a mix with the concepts of region and territory, and among the urban-rural and local-global dialectics. Antagonisms that rose in this level showcased this tension and go beyond the case of smart city politics. At the same time, in terms of the panels and discussions themselves the space of challenges were minimal and directed abstractly to EU policy or tools. There was a sense of politics of agonism but those were minimal too. Spatial practices were discussed and challenged in line with the nature of the politics of conception, so within the sphere of dominant discourses, i.e. without a challenge to the EU structure. Most discussions were focused in the scrutiny of existent tools of representation. All in all, we can see the EWRC as a space for negotiation of urban reality. In terms of rhythmanalysis, the event generally was characterised by polyrhythmia (no conflict, no unification either)[29]. In what follows, antagonisms that emerged during my ethnographic participation are discussed.

The first wide antagonist theme concerns the local-European relationship (as also discussed in Chapter Four as the responsabilisation of cities). Through the EWRC as a temporal space of organisation, a significant effort is made in the EU to bridge the local with the institutional European level, with the operationalisation of the collective European identity. This is expressed for example in Jean Claude Juncker's (2018), Vice President of the European Commission, opening speech: 'I am delighted to be here […] because we are going to be talking I do hope about the future of Europe, the future of our cities, regions, villages and the future of the European Union and all of these are inseparable'. This inseparability is fundamental to the very EU structure and tightly ties its discursive production, practice and legitimacy with the European urban reality and space. Nonetheless, what seems to be the case is that this inseparability is invoked precisely because there is a huge gap and separation between those various levels in practice and in some senses urban (material) reality (in effect ignoring geometries of power). Discursively in EU policy and strategy, the inseparability of all of those different levels are generally abstracted into the concept of territorial cohesion, which is

[29] Notably however, arrhythmia (some sense of conflict) was much more present outside of the event in the city of Brussels.

fundamental to the EU's regional or cohesion policy since the 1990s (Abrahams, 2014; Servillo et al., 2011).

Image 3: The tagline for the 2018 European Week of Regions and Cities

The concept of territorial cohesion is tightly tied with competitiveness and sustainable development (BMUB, 2007) as well EU harmonisation and balance (Territorial Agenda of the European Union, 2011). On the on hand, territorial cohesion seems to be an overarching concept operationalised in several ways as the end goal of various policies and strategies and as regards to European spatial policy especially. As Abrahams (2014) also argues the concept is predominantly used as an essentialist model for development. This aspect of territorial cohesion is inward looking seeking the unification of space (Debord, 2002) through the operationalisation of the identity of the European and the myth of Europe. In fact, as Gillingham (2018) stresses on his historical analysis of the EU, in the very basis of the European construction lies the use of 'myth as a method' which in turn has historically produced the EU. For instance, in the times of the European enlargement, the Single Market and the EURO, two main strategies that fundamentally changed European urban reality, European federalist Jacque Delors, president of the European Commission from 1985 to 1995, used the myth of European cohesion and integration in promoting the policies that according to Manzella and Mendez (2009) marked a new era for EU's regional and cohesion policy. The same strategies and policies have achieved the level of complexity characteristic of the EU that have been dominating

since the 2007-2008 crisis and, for many, have in its aftermath revealed the flaws of the EU structure (Gillingham, 2018).

At the same time, EU's creation myth is traced back in the aftermath of WWII, where the necessity for peacekeeping and cooperation within a European Community was imagined (Gillingham, 2018). The first treaty precursor of the EU was the European Coal and Steel Community, an industrial co-operation imagined by its first president Jean Monnet and the French Minister of Foreign Affairs Robert Schuman. As such the EU's creation myth involves European cohesion in response to the rest of the world. This is expressed through an industrial cooperation and in its evolution, from treaty to treaty is translated into the EU's sets of spatial practices, tools of representation and political imaginaries. In turn, the other aspect of territorial cohesion signifies territorial attractiveness in relation to the external to the EU world, which translates into economic indicators such as growth and jobs, in the context of global competition (Servillo at al., 2011) also promoting cohesion in a protective manner towards the external and inevitable forces of globalisation.

Most importantly, the territorial focus is operationalised in the EU level to include various types of territories that are usually urban such as neighbourhoods, cities, regions or specified areas as described in the glossary of STRAT-board, a visual tool that presents an overview of the Sustainable urban development and Integrated Territorial Investment strategies (European Commission, no date a). As such EU's complex institutions has developed the ways and mechanisms to impact cities and regions, or vaguely territories, without direct political authority over them (beyond responsabilisation of cities, the objectification of territories as measurable quantified places occurs). This seems to create a paradoxical relationship to the local level that ties to the fact that Europe competes globally as a single market. The top-down discursive process of shaping European urban reality and space, even when not antagonistically challenged, it is structurally challenged within the discursive-material relationship or else following Pugalis (2009) the counter process of the shaping of discourse by urban reality, which was easily noticeable in the discussions at the EWRC. For example, in one of the panels where the localisation of the UN's sustainable development goals were discussed, the concept of territory was scrutinised by a representative from Madrid as having no functional use in terms of local

politics and in turn to the relationship of cities with their citizens. In fact, a common problem is that most territorial strategies are developed from the perspective of nation-states although usually they ought to be implemented in the local level. This creates issues that are discussed in terms of translation: how to localise top-down designed process? In another panel on local and regional authorities fostering the energy transition, a representative of the European Commission, used the local level as both a signifier and a driver of the smart cities transition (see Image 4 as another example of the same). Similarly, to localising the SDGs, the key question for the Commission is how to translate the SET-Plan to the local level, i.e. how to localise EU policy and strategy? Notably, similar discussions especially as regards to localising the SDGs took place in the Smart City Congress in Barcelona.

Image 4: Text from UrbanAct promotion pillar

In this context, the significance of the EWRC from the perspective of the EU gains even more meaning in: (a) communicating the discursive essentialisms that the EU structure requires to legitimise itself, (b) promoting its existent and new tools of representation, (c) showcasing the preferred spatial practices as well as (d) meeting and reflecting upon

the urban reality. As such, the EWRC operates as a showcase of the practices, developments and trends in EU policy while the local-European bridge is put under scrutiny. This bridging more and more has two main routes. One is the more traditional route of establishing material relations with institutional bodies across all levels. According to Juncker (2018) the 'EU is the virtuous intersection between the local, regional, national, and continental, they all go hand in hand', i.e. the over determined inseparability of the levels is precisely what often makes the EU the same as Europe. This route concerns the spatial practices and tools of representation used and promoted as well as glocalisation processes in form. The second route that has been further developing since the appearance of conceptualisation of Europe as an information society (Shahin, 2008), concerns the development of an ongoing relationship between citizens and EU institutions and primarily concerns the content of glocalisation processes. The development of such a relationship is necessary as it attempts to deal with the fact that although the EU is present in many regions and cities, helping financially territorial development, its presence is sometimes 'not visible enough' (Juncker, 2018). As such part of the problem of the dysfunction between the local and European level is that often citizens are not aware of the EU involvement, while local politicians appropriate the gains (ibid). This account is evidently in an antagonistic relationship with Madrid's representative who argued that it is difficult to operationalise the European structure into local politics precisely because of the existence of the national state context and top-down trans-urban decision-making processes.

At the same time, Juncker (2018) stresses that the purpose of developing a direct relationship with citizens is not to bypass the national level, but to nurture a direct relationship with the European citizens and the local level, which is fundamentally crucial in the current climate of Euroscepticism. Towards this end for example, the EUandME campaign was launched at the 2018 European Week of Regions and Cities, a campaign that intends to approach European citizens and inform and raise awareness on the areas the EU is supporting citizens (see European Union, no date b). Among others, the campaign uses the means of short films to showcase the areas the EU is directly influencing local development. Most importantly, the campaign is structured according to themes that contain several topics framed as 'passions'. For example, the digital theme contains three topics European citizens might be 'passionate about': no roaming charges,

internet, personal data. The citizens are then invited to explore those topics on the website by watching the short film or reading stories of citizens around them, while also reading about all the things the EU does to support their 'passion' such as the financial resources the EU provides across Europe. As Juncker (2018) noted only between 2014-2020, there has been about 80 billion euros directed towards energy efficiency projects and 40 billion euros on research and innovation, that have materially funded or co-funded regional and local development projects, something about European citizens are often ignorant to.

However, precisely because of European essentialism and the rusty bridge between the EU and citizens, the appeals to citizens by the EU come across as populist, especially since they seek to address the identity of European citizens in a trans-local space and according to European average demographics. In this approach, citizens are not approached as political entities, but as media consumers and recipients of populist messages in the context of the rise of populism as a communication phenomenon that concerns both content and style (deVreese et al., 2018). Because the EU has no direct political authority over the local level and its citizens, the bridge is created discursively through the invocation of European cohesion, the European identity and the myth of Europe and materially through funding and investment mechanisms such as the European Regional Development and Cohesion Funds that seek to solidify this bridge with the local. Nonetheless, this is not enough to connect with the citizens directly and so empty populism is addressed to the European citizens, articulating the above relations in an assumingly personal and relatable manner. This often results in populist campaigns in both style and content, including the EUandME (2018) campaign, the 'Digital is Natural' campaign (Digital Single Market, 2013) or 'The Clickers' campaign (Digital Single Market, 2012).

Image 5: Screen room before the presentation of EUandMe campaign

All in all, to a great extent the local-European level dialectic is very much related to the local-global dialectic that has been extensively discussed in globalisation and urban theory theories and literatures (see Sassen, 2001). Beyond that in very practical terms, the situation seems to be that while cities are more and more responsible to deal with their urban problems while tackling climate change and promoting sustainability, and smart cities especially (see Vanolo, 2014), the solutions are produced through complex trans- urban systems with institutions such as the EU or the UN providing the roadmaps and guidelines. Since such institutions with nation states are developing policy and strategy in the macro level in the context of a globalised world, it is anticipated that some sort of localisation process is in turn necessary to actually translate this into the local level. As Roudometof (2016) suggests '[t]he interplay between the localization of the content of modernity and the globalization of the forms of modernity is recurrent' (p.60) and furthermore is concurrent. As such, in the words of Brenner (1999) 'urban regions occupy the highly contradictory interface between the world economy and the territorial state, they are embedded within a multiplicity of social, economic and political processes organised upon superimposed spatial scales' (p.447). In this sense, 'processes of reterritorialization' often require the reconfiguration and rescaling of cities as well as states that is social, economic and political and always occurs in relationship to the global scale. In the case of smart cities, certain processes of reterritorialization embedded into

modernisation processes that include the form and content of modernity become substantial.

The restructuring of European cities into smart cities in the post-crisis context is constructed upon a complex system of financial dependency between the local and the EU levels that Weissenbacher (2018) suggests echoes theories of dependency. What have been often studied as European integration processes can be critically reframed as European dependency theory (Weissenbacher, 2018). In times of austerity, the amounts offered by the EU towards smartness and sustainability, aiming at enhancing territorial attractiveness (Servillo et al., 2011), are in turn very attractive to the local level of cities with limited budget. The discursive construction of smart cities as necessary and pervasive is therefore materially trickled down to the local level through the EU's funding mechanisms. Equally, EU's investment mechanisms are also operationalised. The same processes occur externally to the EU in relation to the developing world. As discussed in another panel on the urban dimension of global agendas in the EU, due to its urbanisation rates the EU can be considered as an urban expert in position to advice developing countries in Africa for example (see Bond, 2017). Therefore, since 2017, the EU External Investment Plan, which was also called the Juncker Plan initially, aims to boost investment towards sustainable development in both African and European countries. Under the prism of modernisation, the processes are very similar irrespectively to whether they are expressed internally or externally to the EU. Discourses over

developed, developing or underdeveloped world or countries, now translates into territories whose scale can vary substantially.

Image 6: EU Conference room

This brings us to the ability of the operationalisation of territory to flatten the antagonistic relationships between the region and the city and the urban and the rural. A territory can involve any spatial scale in any of its modalities and altogether. Ultimately, in terms of the networked society there seems to be no difference. The necessity and pervasiveness of the digital is meant for everywhere. In another communication called 'Europe goes Digital' the problem of not having a connection at the peak of a mountain is visually represented, while the argument for how there are different levels of development and digital literacy across Europe is made (European Parliament, 2015). Often, there seems to be a standard for the necessary development that needs to be reached across the board. Currently, all the instruments and tools of the EU are operationalised to achieve this be it strategy, policy, funding schemes and mechanisms and so on. For instance, community-led local development (CLLD) that is considered EU's bottom-up development tool, allowing local communities to decide on the allocation of their own funds while promoting the decentralisation of development. The funding scheme have traditionally targeted rural areas as discussed in a panel. It was there argued that it entails a transparent approach to funding where local communities and stakeholders decide how to spend the

funds directly. Historically, the CLLD precursors LEADER 1 and 2 have orchestrated the transformation of several European rural areas. Interestingly, since 2014 CLLD is available for urban development projects as well. This has been articulated due to the blurring between the rural and the urban, nevertheless opening the competition between rural and urban areas. As an effect, projects that involve the development of rural and urban areas in conjunction, i.e. territorial projects are more likely to get funded these days, and a few examples were given on how this has changed the conceptualisation and application processes. In fact, that seems to be a common theme as regards to applying for funding as talking the language of the call is crucial to a successful application. Although the rural-urban relationship was not extensively discussed beyond that in this panel, it was prevalent in others and especially on the panel on local and regional authorities fostering the energy transition that was the most directly relevant to smart cities as well. In this respect, great concern was expressed regarding inequality, burden sharing and co-dependency between them. between rural and urban areas.

All in all, there seems to be a substantial difference among the various takes on the operationalisation of territory that is dependant to the institutions or levels they represent. Representatives from the local levels are more critical to the essentialism characterising the territorial cohesion concept for instance. Although, all would agree that the implementation in the local level is crucial, the urban reality in connection to regional and national levels cannot be neglected. One crucial point made was about the difficulty to generally compare regions and cities by abstracting them into territories, but also in practical terms. That is to say that local representatives can more clearly see that different regions and cities have different rural-urban relationships, whether compared within a national context or between different national contexts. Accordingly, different national contexts have different decision- making and legislative processes, for example, and there is no way local or regional levels can bypass those. Additionally, a region with a big urban centre to an extent expects the rural area of the region to share the urban centre's burden, e.g. renewable energy is usually produced for the city by the county. Although this is often a spatial practice of necessity, it significantly alters the lived experience of rural areas as an externality. This, as expressed by a local representative, in turn leads local representatives to discuss energy transition in terms of economic rather than environmental incentives for the purposes of local politics. The example used was,

if windmills need to be installed in a specific location, to power an urban centre, the region can use the money from the land sell to create funds that the local community decides how to spend. Without such economic incentives, it is hard to politically sustain the benefits of energy transition to rural areas that are structurally more sustainable. This problematique echoes Lefebvre's (1996) analysis of the urban-rural (county) relation that dates back to the medieval cities and has been intensifying since modernity. As he argues the relationship represents a deeper antagonism between nature and culture and according to Harvey (2014) can be also expressed in the antagonism between nature and capital. Culture (and capital) can only expand at the expense of nature, which in turn explains the necessity for operationalising economic incentives over environmental ones.

5.2 Spatialisation Processes in the Case of Amsterdam

The ethnographic material for this case was mainly collected through the 2018 WeMakeThe.City Festival and especially the events and materials organised by the ASC partnership. Amsterdam was also present in the 2018 Smart City Expo within the regionally organised booth of Holland, showcasing the regional perspective that has been developed in their smart city politics, while Deputy Mayor Udo Kock also participated in the 2018 Sharing Cities Summit. In what follows, spatial practices operationalised in the case of the Amsterdam are presented through (a) an elaboration on the so-called Amsterdam approach and the role of the ASC partnership, (b) insights from Amsterdam projects and (c) the discussions and antagonisms that became apparent in the 2018 WeMakeThe.City festival that is viewed as a place-making practice-event-text.

What is the Amsterdam approach and what has been the role of ASC?

To begin with the so-called Amsterdam approach is tightly connected with the nodal points of collaboration, innovation and knowledge sharing from a bottom-up perspective. The Amsterdam Approach is a key aspect of the development of the ASC partnership and the WeMakeThe.City festival can be perceived as the spectacular celebration of this approach. The Amsterdam Approach endorses collaboration, knowledge and information sharing in the city in rather material ways, for example through inclusive projects, partnerships, events and festivals. As such, the Amsterdam approach is seen as being collectively developed through Amsterdam's ecosystem (Zygiaris, 2013) or what is also called the 'Amsterdam innovation project factory' (van Winden, 2015, p.16). The ecosystem involves government, knowledge institutions, business and civil society in participatory processes for project development as represented in the popularisation of Quadre Triple Helix model (Waart et al., 2015) or else the 4Ps approach. The usual PPPs have here transmuted into the idea of public-private-people partnerships (PPPPs) that seek to position citizens as a third stakeholder group (see for example in Marana et al., 2017). For that, the Amsterdam Approach is presented as a bottom-up and citizen inclusive approach (den Boer, 2017). This appears to be the later approach to the ASC partnership as well (see van der Veen, 2016) with its networking website platform operating as a space for collaboration and innovation open to all. Overall, the Amsterdam approach claims inclusivity and multiplicity of the smart city lived experience -with the incorporation of citizens as a stakeholder- in its conception processes and spatial

practices. In this section, the operationalisation of the Amsterdam approach within the ASC partnership is discussed under the discourse-urban reality dialectic while underlying antagonisms are brought to the fore.

In the case of the ASC the operationalised partnership model, 'a unique partnership between businesses, authorities, research institutions and the people of Amsterdam' is used as a method of collaboration in order to 'develop the Amsterdam Metropolitan Area into a smart city' (Amsterdam smart city, 2013). This model is operationalised in many different levels from the governance structure of the partnership itself to the governance of individual projects. The identity of the ASC is constituted through its identification as (a) 'a unique partnership' and (b) its practice with the aim to develop Amsterdam into a smart city. Thereof, it is through the relations of the partners and the practices of the partnership that the identity of the ASC is developed. Three operationalisations are discussed below: the pooling of financial resources, living labs and insights from specific projects.

One function of the ASC is to be a space of organisation for material resources through the organisation of the various partners securing the financing of the wider project of the smart city. This function talks of ensuring the appropriate investment for the purpose of growth (Harvey, 2014) that is signified in the smart city transformation. The founding partners of ASC such as the City Hall, AIM, Liander and KPN initially develop the smart city vision and organise the necessary resources around it, including the funding application to the EU with which they achieve recognition as the first smart city in Europe (Nesti, 2018). Beyond that, however the necessary technologies and networks towards the smart city vision need to be produced, applied and/ or tested. For that, another type of partners, the strategic partners that invest in specific project actions are part of the grand ASC partnership scheme. In this function of the ASC, spatial organisation occurs according to the smart city transformation vision through smaller project related partnerships that test ideas and technologies in the living lab of the city. As the partnership progresses and its coordinating office stabilises –especially since 2016- its success is measured through the numbers of partners, commitments and projects it hosts. In the WeMakeThe.City Festival, for instance, a kick-off event for the ASC partnership took place marking a new period of the partnership as stated, since the partners

committed for another four years of collaboration. In line with the overall spectacular nature of the festival, the partnership was equated to a movement that everybody is invited to join perpetuating the claims of openness, inclusivity and multiplicity of the Amsterdam approach.

The people's approach of Amsterdam has from the very beginning focused within the conceptualisation of the city as a laboratory and smart city projects as living labs. Living labs have been popularised as a concept and practice in the past decade, but more importantly have been presented as essential for Europe to remain competitive (Eriksson et al., 2005). The concept has been incorporated within the Europe 2020 strategy and has been intrinsically connected with EIP-SCC (Ruijsink and Smith, 2016). The spatial practice of living labs is perceived as the response to the challenge of involving users to the development of products or innovation processes, especially in the ICT sector (see Folstad, 2008). In the case of ASC, living labs are justified as being able to access the reality of everyday life and harness user/citizen expertise. In other words, provide an account or representation of the lived experience of space. In the words of Brinkman (2011) they entail that the developed projects 'focus on real life experience and potential adaptation of technology and services' (p.23). In the words of Baron (2012) '[w]orking with people in a real environment really gives us the opportunity to develop new products and services that are relevant for them' (p.3).

Although living labs differ from 'traditional laboratories' as Brinkman (2011, p.23) points out, they remain an attempt to bring the scientific method into the process of innovation. If R&D fulfils such role in the level of industry and industrial innovation, living labs are perceived to perform a similar function for the bottom-up innovation the Amsterdam approach seeks (see Baron, 2012). In fact, the concept of living labs is also key to the understanding of Baron's (2012) city as an app store discourse. Baron (2012) claims that 'one of the lessons [they] have learned [throughout the ASC Programme was that] [i]t is not an urban planning story' (p.5), because '[t]he city is not a factory any more' (p.4) rather 'the city is becoming more and more of an open platform' (p.5). The apprehension of the city as 'an open platform' and 'app store' requires a different approach to innovation one that focuses on empirical evidence harnessed in the lab of the city itself. The use of expressions such as 'real life experience', 'real environment' or 'normal environment' signals such focus. The aim is to conduct the experiments, to test the products in real life conditions, i.e. not in controlled and organised labs, but in open living labs.

Image 7: Signs towards the ASC smart city experience lab

Living labs aim to come closer to the experience of place and space and harness the expertise of the user for the purpose of product development, while ensuring their innovative character since the user also holds the experience of reality. As such living labs are conceived as a spatial practice that can solve the problem of representation of

the lived experience. Notably, there are many ways to approach living labs as a method and different projects have different requirements. As evident in both Brinkman (2011) and Baron (2012) for instance not all projects of the ASC programme followed the method of living labs and some living labs were more successful in incorporating the lived experience than others. All in all, the extent to which the lived experience is represented in the experiment and people-citizens-users-consumers become part of the development of products and services seems to be project dependent. For example, in a project where a technology push occurs, say in pushing smart meters into households (European Commission 2011c; 2011d) behavioural change is the objective and the living lab revolves around the user experience and education while testing the product after its development. According to Brinkman's (2011) more pragmatic approach the extent and the type of citizen involvement depends on the project as much as how and if the living lab method is used. In fact, Baron (2012) asserts that they managed to do 'a few real living labs' where people were 'in their normal environment, in their normal way of living, shopping and so on' (p.3), which again remain open to scrutiny as regards to the ability of scientific method to represent reality. Another method popular in Amsterdam is the so- called citizen science method predominantly promoted by the art, science and technology institute WAAG society a key stakeholder of the smart city ecosystem representing the civil society, also co-organisers of the WeMakeThe.City festival. Since citizen inclusion has overall been the exposed nerve of smart cities (Galdon- Clavell, 2013), the citizen science method seeks to involve the citizen into the science making. In the following part, a few examples of projects are discussed to comprehend the operationalisation of those citizen inclusive methods and the extent to which they can represent the lived experience as it is, but also whether they are inclusive enough.

Insights for Amsterdam projects: the Amsterdam projective city

To begin with it is relevant to bring Boltanski and Chiapello's (2007) theorisation of the appearance of the projective city since the '90s to the fore that implies 'a general organization of society in project form' (p.105). According to this, projects are constantly initiated testing various ideas and products in the field of the city. Some fail, some succeed, some continue, some are dropped, some are more complicated than others. Equally, actors move from one project to another, while spatial practices and tools of representation are constantly examined under the context of urban reality. Spatial

conceptions and practices are tested in the lived environment, actively seeking the feedback of the lived experience and lived space. The projective city seeks to reach out towards lived space and experience. Nonetheless, according to Boltanski and Chiapello (2007), the projective city 'is founded on the mediating activity employed in the creation of networks, making it valuable in its own right, independently of the goals pursued or the substantive properties of the entities between which the mediation is conducted' (p.107). As such, the spatial practice of smart city projects and the partnerships through which those are supported are more important than the projects' aims. Based on Lefebvre's triadic model, the dialectical relationship between perceived and conceived space is overdetermined and seeks to represent the lived experience within the intellectual-practical relationship denying the contradictory impact this overdetermination creates. The results of the projects are far less important than their mere existence and numbers, the networks through which those are created, and the financial investments made towards them. The latter three are important signifiers of growth processes or else abstract space: the space produced in capitalism (Lefebvre, 1992). The results of projects do not always abide to this category especially when they do not manage to totally materialise a discourse, an initial conception in the field. Precisely because the processes followed are open-ended the results and outcomes of projects can be perceived as contradictory space: the fragmentary effect of abstract space that makes spatial contradictions and paradoxes apparent (Lefebvre, 1992). Following a few projects from Amsterdam are discussed in their contradictions and the antagonisms they reveal. The projects were revealed through ethnography in place and further information on them was collected online.

Image 8: Amsterdam's bricked Utrechtstraat

One key project that was widely promoted in the early years of the ASC partnership and programme was the Climate Street project. The project was highly promoted by ASC as a signpost sustainable public space project (see Amsterdam Smart City, 2010) and was directly linked to the goals towards reduction of CO2 emissions within the overall Amsterdam's Climate Programme. The aim of the ASC programme was the reduction of CO2 emissions in living spaces, working spaces, mobility and public spaces. Popular projects developed during that period were looking into smart meters, co-working spaces, sustainability among others. The Climate Street was one of them seeking to employ a holistic approach to CO2 emission reductions using the shopping street 'Utrechtstraat' in the central Amsterdam as a field of operation (Amsterdam Smart City, 2010a). As introduced in the ASC website, Utrechtstraat becomes 'a living lab right in the centre of Amsterdam [that] will test sustainable initiatives' (Amsterdam Smart City, 2016a, para. 2) with the aspiration to 'become the first living sustainable showroom in the world' (para. 4). The project did not explicitly aim on scaling but was more focused on replication. The ambition was for Utrechtstraat to be an ongoing project of sustainability that would include smaller-scale projects exporting the initiatives considered successful both on the street as a public space and inside the shops as businesses. On top of the characteristic bricked buildings of Utrechtstraat (see Image 8), the Utrechtstraat showroom was imagined as a smart place to visit linked with Amsterdam's branding

focused smart city strategy. The sustainable initiatives concerned both public space and inside the shops' initiatives in collaboration with the shop owners. The initiatives on public space included waste collection management, sustainable street lighting and solar powered tram stops (Amsterdam Smart City, 2010a). The initiatives inside the shops were focused on monitoring and minimizing energy consumption and included smart meters, lamps and plugs. As ASC website indicates '[t]he project was initiated by the entrepeneurs of the Utrechtsestraat, together with Vodafone, JCDecaux, Philips, Tauw, van Gansewinkel, PostNL, Club van 30, Ziut and Duncker' (Amsterdam Smart City, 2016a, para.8). Further than the constitutional relationships enchanted in space through the financial backers and investors, the ASC is constituted through the development of the different projects and its relationship to project-related partners some of which are strategic partners, and some are more operational. In this case, the shop owners who participated in the Climate Street project are eagerly portrayed as entrepreneurs, which is the dominant way of assigning agency to citizens in Amsterdam as well, and they are portrayed as initiating the project and to an extent owning it.

In the situation of the Utrechtstraat, a street in the centre of Amsterdam, with its old buildings and infrastructure, the shop owners 'entrepreneurs' are the subjects who best hold the lived experience of place and space along with their clients, tourists and other users. Interestingly, in their evaluation of the project van de Busse and van Winden (2016) clarify that the project started with lots of excitement, but it was hard to coordinate. Mid-way a project manager was hired to facilitate the co-ordination but eventually the project was dropped in 2012. One of the main issues was the coordination of the partners as well as sustenance of their interest. For example, some solutions e.g. applying smart lamps in the shops are quite straightforward and do not require further commitment from partners. Overall, for all its ambition, Climate street successful results were the development of the smart meter Toon which became a marketable product throughout Dutch households ever since and the energy management of shops through the smart meter, lamps and plugs provided to the shop owners during the running of the project (van de Busse and van Winde, 2016).

The main characteristic of these is the fact that they are energy saving products that can be widely sold to consumers. The extent to which the goals of emissions reductions have

succeeded becomes irrelevant. What matters is the relations established through the project. In van de Busse and van Winden's (2016) words for example 'Quby, a start-up involved in the development of the display, tested a display in the Climate Street project and sold it to Eneco (a major electric utility), which is now marketed nationwide as 'Toon' and that has sold over 100,000 energy displays to date' (p.30). In other words, the success of the Climate Street has shrunk into the success of the Toon buy-out, i.e. the development of a marketable product that managed to scale up after it was tested on the Utrechtstraat living lab. Overall, the Utreechtstraat project shows how the living labs and citizen inclusivity discourse is far from the urban reality. The difficulties the project faced and the gap between the imagination of the Utrechtstraat showroom and the reality of Utrechtstraat today are merely part of the process of the projective city. At the end of the day, a marketable product resulted from this project and the shop owners were provided with energy saving technologies. The extent to which this has produce a significant reduction to the CO2 emissions again becomes irrelevant.

Smart city multinationals such as IBM and Cisco were also involved in the first steps of Amsterdam smart city by developing the technology behind another project focused on a smart energy network. In collaboration with energy provider Nuon they developed a smart energy network for households to connect with their smart meter devices and monitor their consumption. Notably, the project highly focused on changing consumer behaviour and was promoted as reducing energy consumption through the deployment of smart meters. IBM, Cisco and Nuon were the three partners responsible for applying the technology to 500 households, while other partners involved housing corporations Far West and Ymere, Home Automation Europe, ROC Amsterdam, the University of Amsterdam and Grid Operator Alliander (de Beer, 2009; Cisco, 2009). Altogether, this network of partners defined the living lab and its conditions. The involvement of smart city expert multinationals such as Cisco and IBM was a crucial element of this partnership.

Overall, the fact that such high-tech companies have the know-how, company size and expertise ready to apply in such projects accelerate the processes as well as define their power over the smart city transition. This of course is the case for most high-tech companies nowadays. In this case, IBM working with the energy supplier Nuon

developed the required applications and software information systems of the energy management system, while Cisco developed the energy network in the households. This project has been showcased in the European Region Awards of 2011 where Amsterdam smart city was awarded as a CityStar promoting sustainable energy in cities. In this context, the co-funder EU frames the whole ASC Programme and its projects as successful in promoting sustainable energy in cities and in turn changing consumer behaviour and promoting energy consumption awareness (RegioStars Awards, 2011). Within the projective city context however, the extent to which the project was successful becomes irrelevant. What's important instead is that smart city experts such as IBM and Cisco gained access to the Amsterdam smart city market and from that point onwards continued to be involved in projects through the ASC. For example, Cisco worked with Phillips and Alliander on a Smart Lighting Project. In van de Busse and van Winden's (2016) evaluation we read how this project came about:

> The project started with a local request: the city borough of Amsterdam Southeast had been investing for some years to revitalise one of its central squares: the Hoekenrodeplein. […] The city borough's leaders want to turn this place, which has had a somewhat bad reputation for safety during the 1990s and early 2000s, into a square where visitors and inhabitants can safely congregate, linger, and spend some money. […] One of the city managers contacted the Amsterdam Smart City organisation to hear what would be possible and if a project team could be assembled. After some negotiations in the ASC board, it was decided that KPN would take up the challenge and lead a team of three partner companies (Philips, Cisco and Alliander) (p.24)

Arguably, the role of ASC in putting a project partnership together to address the borough's request is substantial. Nonetheless, the main reason van Busse and van Winde (2016) give for the success of the project is that 'firm-specific expertise [was] pooled into a smart light pilot' (ibid). Let's take for example the expertise Cisco provided to the project. According to van Busse and van Winde (2016) 'Cisco initiated the project, co-defined the concept's functionality with the City of Amsterdam, and orchestrated the partner ecosystem' (p.24-25). Through prior involvement with Smart lighting Cisco has concluded that it constitutes a viable business model and it is worthy of investment,

which was not the case for all partners in the Climate street project for example. As Cisco's representative states '[f]or us, only doing pilot projects is not very relevant anymore: it is ok to invest money in a project, but it has to have a clear potential to generate money and be scalable beyond the pilot' (Boorsma in van Busse and van Winde, 2016, p.25).

For multinationals like Cisco scalability is crucial as their fields of operations is much wider. Replicability is much less of an issue since their corporal size can accommodate modifications. Scalability however is fundamental to their business model and survival. As such, the specific project fits Cisco's and other partners current interests 'having clear strategic value for the firm's products and services as a whole' (p.26) to the extent that a reduced rate was offered to the borough- client. The potential of scalability and replicability of the project beyond the pilot is considered as the main reason for this. In other words, the project was evaluated as worthy of investment. Again, similarly to the Climate Street the success of the project is measured according to its economic importance and based on financial investment from the perspective of the partnership. The role of ASC becomes operational in assembling the right partners to produce the right product for the requirements of the borough client. As such the mediation of the ASC in the context of the projective city becomes fundamental to the development of smart city projects as well as the smart city ecosystem overall.

At the same time, issues around citizen's rights and data protection rise. 'In the upscaling process' of the smart lighting project for example, 'the pressing issues (which also holds for similar ones that collect data about citizens) are predominantly privacy-related and centred on data protection' especially since citizens are not at all involved in the project except as users (van Busse and van Winde, 2016, p.27). This generally becomes a pressing issue in ASC altogether and with time a focus towards citizens is developed through the engagement of civil society such as the Waag institute, which is the organisation that represents citizens in the partnership model. Within economic rationales, the technological determinism against citizens thread that seems to be implied in several of the projects, along with the citizen as consumer thread are contradicted with the citizen's right to privacy and data protection thread. With the incorporation of the Waag society as partner the ASC changes towards a public-private-people partnership

(van der Veen, 2016) as a response to the urban reality and challenges presented through the projects. Yet, the extent to which the civil society organisation can represent the lived experience and citizens is again limited.

The Waag society quite early on and due to its science, technology and the arts focus developed an interest into citizens in the smart city context and began its so called 'Smart Citizen' lab, which with the support of the ASC, concerned the coordination of a large scale testing of the Smart Citizens kit: an open source tool that measures air and noise quality developed by Fab Lab Barcelona for the direct use of citizens. The Smart Citizen Kit Amsterdam project decided to test the kit in a coordinated project (Waag, 2014). By putting ads in newspapers, they invited people in the city of Amsterdam to join the project as volunteers unexpectedly attracting a quite significant as the project's report states (see Herniquez, 2016). The volunteers were split into groups and were to decide on the development of a solution to their urban interest, e.g. wind energy, air quality, noise pollution. As read in Hernisquez's (2016) report the citizen science approach followed was:

> They hypothesized that the best way to do [citizen science] was to host some workshops in which volunteers come together and work with an out-of-the-box, low cost, sensor kit and receive proper mentorship from in-house experts. Along with the goals of increasing technological proficiency and creating greater community awareness of urban environmental issues, it was hoped that the workshop would function as an inclusive design space where citizens could organize around urban issues they care about, propose meaningful solutions, and create a fruitful interplay between citizens, researchers and policy makers that would translate the will of the community into progressive public policy (p.25)

Reading through the report, the practice of citizen science was significantly different to the aspirations in several ways. As the report concludes '[a]t its best, citizen science is an epistemic tool that can complement, not replace, the tried and true methods of expert-driven scientific inquiry' (p.78). As recognised, two key challenges to the project were the sustenance of motivation of citizens and teaching them software and hardware skills. The main success of the project was the raising of awareness to discussed topics and

issues. Unlike, the projects discussed above the project did not have an economic incentive and was experimental on its basis providing a good overview of issues surrounding citizen involvement and participation.

Citizen science approaches, and perhaps some living labs approaches, seek to move away from the citizen as consumer to the citizen as entrepreneur, innovator and maker. In both cases however, the citizen is not perceived as a political actor, but as a participant and volunteer whose knowledge of the lived experience is to be extracted (living labs approach) or transformed (citizen science approach). Within the citizens-as-entrepreneurs approach, two overarching themes need to be highlighted as they are assumed in the development of smart city projects. The first is defined by the existent relationship of citizens with technology. Considering that technology is the fundamental tool to be operationalised in those projects technical know-how and expertise are crucial. In the case of the smart citizen kit project for example, some participants had some technical know-how, while others did not. Although there was technical support provided in the lab and some teaching of the tools was provided, an accessibility issue based on technical capability was soon created. Furthermore, those with the technical know-how, that also fit better with the citizen as entrepreneur profile, occupy the position of experts within the small group dynamics and again become the developers of the technology. These dynamics in their abstract form mirror in the microscale the overall macroscale geometries of power of technological development. The second interrelated theme is the relationship of citizens with time and commitment. Considering that participants are volunteering their time and possibly participating during their free time, their engagement, motivation and willingness to participate depend on many assumptions around, for instance, how time consuming the project might be, whether it is worthy, whether it is a priority etc. To be more specific, further to the workshops the groups were expected to meet independently to discuss their project and make it happen. At the same time, the duration of the project is time specific and limited from the organisers' timeframes. For those who identify or fit with the entrepreneur profile and might have some gain from participating in the project that might not be as big of an issue as to those who decided to do this in their leisure time, such as the case of a few retired people who early on dropped out. For instance, the three smart citizens that managed to complete the project and are interviewed in the final report were a software engineer, a sound engineer

and a geo-information science and sensors PhD student. Altogether, not an extensive research such as the one Cardullo and Kitchin (2018) performed on EIP-SCC, the review of the Amsterdam approach and projects also signifies to the four themes they have identified as characteristic of citizen projects: scaling, replication, nudging behaviour, technological solutionism.

Celebrating the Amsterdam Approach through the WeMakethe.City spectacle

This representation of citizens as entrepreneurs became quite evident during the WeMakeThe.City festival, but also in the very branding of the festival itself that is closely connected to the place-making of the city of Amsterdam. The WeMakeThe.City festival is a festival to 'celebrate urban living' and '[address] important urban issues in the metropolitan region of Amsterdam' (wemakethe.city, no date a, para. 1). The festival was spread throughout the city with numerous events of a variety of city related topics, making a clear connection in between space conception processes and spatial practices in both a local and trans- local global level, while its multi-venue festival open experience incorporated the lived experience. The programme of the festival other than being divided into themes, had also different target groups with some days of the festival being targeted to local practitioners, and thus those events were predominantly in Dutch, whereas others took place in English and were targeted to international practitioners focusing more on trans- local knowledge sharing. Faithful to the regional logic followed in Amsterdam, the festival seeks to make links within and without the city and further promote the Amsterdam approach to spatial practice. In what follows, insights from two events in particular are presented the opening night that set the aspirations of the festival overall and the Next Generation cities conference, which was co-organised by the ASC partnership and had a smart city focus.

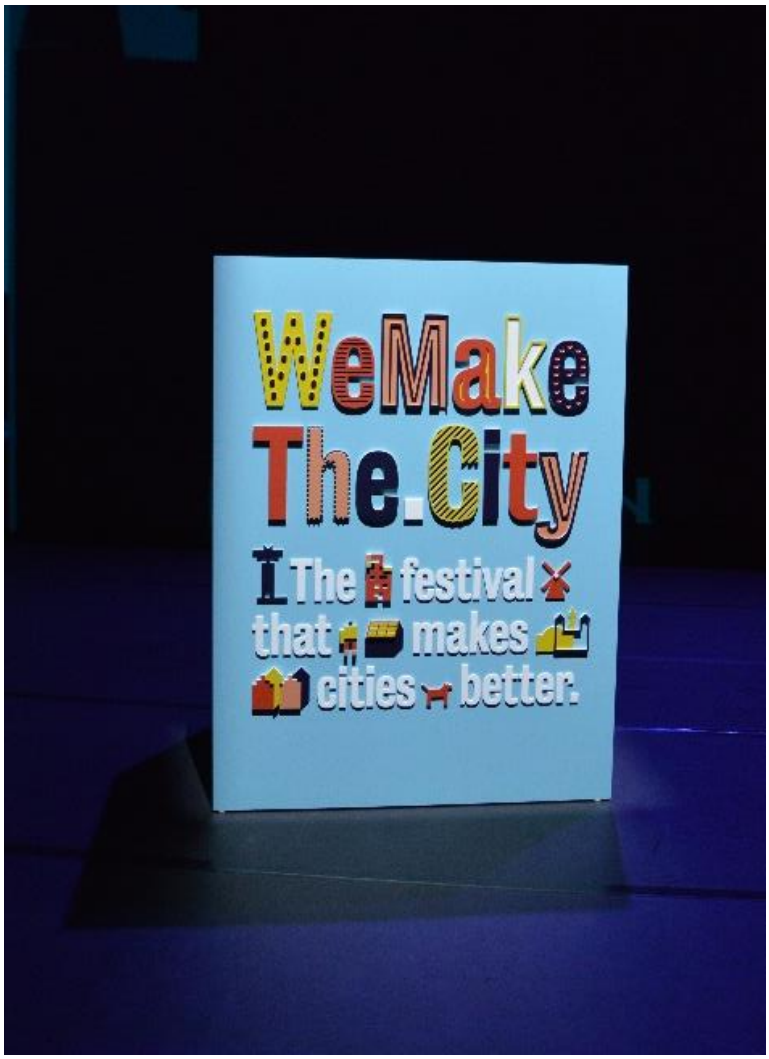


Image 9: WeMakeThe.City opening night podium

The opening night of the festival with the tagline of setting the urban agenda of tomorrow had the ambition to answer through its keynotes the following key questions: 'What kind of city do we want to live in, in five, ten or fifteen years time? And how do we make the city of the future; inclusive, sustainable, affordable, safe and prosperous?'. The presented rationale focused on the social challenges urbanisation and digitalisation bring talking about 'places [in cities] where social issues and discomforts can accumulate'. Particular to the case of the metropolitan area of Amsterdam it is mentioned that although it 'is currently thriving […] our city is also under pressure', transforming the question to 'What choices must be made in order to create a liveable, safe, and accessible metropolitan area with a job and living space for everyone?' Subsequently and in accordance to the festivals branding how to transform an inclusive and collective effort 'we' to ensure 'sustainable change' and 'a fairer society' where 'citizens are explicitly involved' along government and market.

The aim of the opening night was to initiate discussions around all these issues passing the torch to the subsequent events to get more in depth in the following days. The opening night was centred around Kate Raworth's keynote on doughnut economics, who talks about a framework for understanding economies beyond growth models. As she dictates '[a] healthy economy should be designed to thrive, not grow' (Raworth, 2018). According to Raworth (2012) inclusive and sustainable development of the economy should be positioned in between an outer circle of the 'environmental ceiling', that includes present environmental issues such as climate change and biodiversity loss, and the inner circle of the 'social foundation', that includes an array of issues such as coverage of basic needs (food, water, health, education), gender equality, social equity, job security etc.

Beyond Raworth's keynote, interestingly, all interventions of the opening night were assigned to all-women panels and keynote speakers adhering to an intersectional approach for delivering the message of inclusivity and multiplicity the festival's branding represents. Nonetheless, as became evident from commentary during the festival the achieved intersectionality of the opening night, although very welcomed, does not represent the reality of power and identity in spatial politics, with panellists stating that there is lots of work to be done towards that end. At the same time, male dominated panels that were the experience the rest of the days also do not represent the reality of spatial politics according to Barcelona's CTO. In fact, as Francesca Bria commented on the CTO panel of the Next Generation Cities conference, where she was the only woman CTO out of the five panellists, there are more women CTOs in Europe. As such, during the WeMakeThe.City festival antagonisms and agonisms around representation became very evident. On the one hand, talking about collective effort, inclusive panels, citizenship participation and city might to a great extent be an honest aspiration to achieve such goals within the context of the spectacle. On the other hand, within the context of the spectacle questions are raised when those aspirations are put in the context of the economy as a third stakeholder next to the government and the market. This is where the distinction between politics and the political is drawn and the meaning of agonism is further revealed (Mouffe, 2015). That is to say that within the WeMakethe.City festival there are instances of agonism from individual participants, but the festival overall is operationalised towards the elaboration and sustenance of Amsterdam's spectacle

through discoursing and celebrating the Amsterdam approach within a context of place branding and boosting the local ecosystem. In terms of rhythm, polyrhythmia was certainly the case at this event (sense of co-existence). Notably, a projected rhythm of eurhythmia (constructive co-existence and co-creation) is manifested through the festival's spectacle.

The spectacular element of the festival was found in various utterances. First, the very opening night itself took place in a large theatre with a 180o live screen (see Image 10) that split into half for the keynote speakers to come out, a live show type host as well as tailor made entertainment in between keynotes and panels including a festival jig. Indeed, it seems like there is significance in the incorporation of fun and festive notes into the discussion of the future of cities, justice and inequality. This significance can be found in the construction of the identity of city-makers, i.e. the entrepreneurial citizens and the discoursing that of this identity as all-inclusive and inherently equal due to its incorporation of multiplicity. Nonetheless, it is telling that it is the audience of the opening night and the identities that this audience represents that is greeted by the host and festival directors as 'city-makers' adhering to the festival's identity building.

Image 10: 180 degrees screen of the Opening Night

In its totality, the branding of the festival is an operationalisation of the necessary link between smart cities and place-making, reproducing the idea that smart cities are perceived as having a strong sense of place that contributes to their economy. Smart cities are also inclusive places that are made from its people. As such, agency for the practice of city making in the festival's branding is assigned to a collective 'we'. The city of the future is a collective effort that needs to be made 'together' (wemakethe.city, no date a, para.2). One aspect of the collective 'we' is thus to signify collaboration and working together, a signifier of the Amsterdam Approach. Another aspect is to be an inclusive 'we'. The answer to the question 'who are we?' is:

> Everyone connected to the city, in whichever way. Most of the time, we play several roles at once. We're a municipal worker, an inhabitant, a father, mother, commuter, visitor. All kinds of people from all different backgrounds, in all kinds of manifestations. (wemakethe.city, no date a, para 3)

'We' is 'everyone' in all their different 'roles' and 'backgrounds', 'in all kinds of manifestations'. This vaguely inclusive 'we' does not seek to include specific identities in terms of identity politics or intersectionality, but vaguely focuses on identities obtained

Image 11: Photo from the city of Amsterdam with smart screen ad of the festival

through performed social roles relevant to the city, everyday life and their making. These social roles can be defined by actions related to the city e.g. visiting, commuting, inhabiting and/ or by paid or unpaid work related or just taking place in the city e.g. municipal worker, father, and mother. It is that connection to the city that ascribes an overarching identity to those roles, that of the city-maker. At the same time, exactly because the construction entails that 'we' is everyone and everyone is part of the 'we', these roles are equalised and so any socially determined power becomes irrelevant and insignificant. This articulation makes more sense when considering the denial of a post-colonial debate in the Netherlands (Bosma, 2012). In effect the articulation continues this by ignoring the geometries of power in the city.

Image 12: Photo from the city of Amsterdam with the festival's ad on the smart screen

In the video promo of the festival, more identities are used in the definition of we, e.g. secretary, assistant, drone driver, to make an extra point. Other than 'we' being everybody, anybody can be 'we' (WeMakethe.City, 2018). This discoursing makes more sense in the context of who makes the city. The rationale is that everyone and anybody are part of the 'we' because 'We all make the city. By simply being there, or by actively contributing' (wemakethe.city, no date a, para 3). Interestingly, a distinction between being an active or a passive contributor to city making is made. The rationale is that the city is made irrespectively of intention. Arising is the question as to whether the power and significance of the contribution differs. Everyone makes the city implies that everyone participates in city making, a statement that bypasses discussions around

inequality, misrepresentation or access. Is the power of a city official consultant equal to that of a working-class inhabitant? Do issues of diversity or intersectionality become obsolete in the city- making narrative? In other words, beyond a discursive construction of an all- encompassing we, questions of materialisation arise. Within a spectacular narration indeed we can all make the city, i.e. 'everyone who is connected to the city in whichever way' can make the city, but the question remains as to whether everybody and anybody are indeed making the city. There are two signifiers that need to be problematized here. First, in this construction there is an attempt to move beyond citizenship. On the one hand that is necessary because the incorporation of citizens generally, let alone in their political agency, is difficult and on the other because the reconstruction of citizenship under a city-making framework can prove handy, when for instance, to take two extremes, the citizen banker and the citizen garbage collector can be equally city-makers. Secondly and most importantly, the purpose of city-making along with place-making is to move away from an understanding of space production as a political process, depoliticising and neoliberalising spatial politics.

The city-maker signifier to a great extent points to the notion of the inhabitant, that is bodies that experience everyday life in space. 'Cities are made by everyone. By people who are pioneering, persevering, playing, designing, teaching, making policies, enforcing, developing, trying, breaking, building and rebuilding, dreaming, working, intervening, talking, parenting, enjoying' (wemakethe.city, nodate a, para. 4). As such, city-making occurs through activities that happen in the city, through passive contributions, and practices that explicitly make the city, through active contributions.

However, as signalled in the work of Henri Lefebvre, space and the city are not representative, equal, just or inclusive as they are produced within capitalist reproduction. His conceptualisation of the right to the city entails that when fully granted, everyone has the right to participation in production of urban space as much as everyone has the right of space appropriation, which is contrary to what takes place within neoliberal urbanisation (see Purcell, 2002). The difference of Lefebvre's everyone from the spectacular we discussed thus far is that the right to the city talks about making provisions to ensure that everyone is part of the 'we' instead of assuming that everyone is we. For Lefebvre, such an endeavour goes beyond the notion of citizen and citizenship to those

who inhabit the city as bodies that have urban lived experiences in space (Purcell, 2002). The difference between the citizen and inhabitant is that '[u]nlike the indirect nature of liberal-democratic enfranchisement in which the voice of citizens is filtered through the institutions of the state, the right to the city would see inhabitants contribute directly to all decisions that produce urban space in their city' (Purcell, 2002, p.112). Although city making also moves away from citizenship and draws inspiration from the notion of the inhabitant, its place making approach hinders a radical understanding of the processes involved.

Place-making indicates an understanding of city as a place. Within the place- space dialectic space is seen as something more abstract than place- whereas place is experienced (see Tuan [1977] 2001) and place has agency (Massey, 1991). Lefebvre's overall approach incorporated the experience and agency of place inherently to all aspects of the trialectic, conceived, perceived and lived space as they all involve the experience of space as place. Smart cities as a branding and place- making strategy involve discoursing and exporting practices and knowledge to attract visitors and brand equity. Nonetheless, as Doreen Massey (1991) has long argued place(s) have multiple identities at once and are on- going never ending processes, not fixed in space with crystal clear borders. For her, the question is one of power- what experiences and whose experiences are counting for the representation of smart city as place. As such, beyond the spectacular proclamation of an all-inclusive we, what matters in this framework is who produces the city as much as who tells the story of the place-making production experience.

At the same time, within the place-making perspective the city is less confined and bordered rather it is its metropolitan region that is defined by all actions taken within it. This is made possible through the projection of urbanisation trends and a focus on the urban in the urban-city dialectic. As explained in the website:

> Urban living is everywhere. In the future, as more and more areas will fuse, the metropolitan region will acquire a big city dynamic. We anticipate this development, by including the region. Everything we do in the city has an impact on its region and vice versa. A city is more than just a place owning city rights. It is all actions of all people combined. (wemakethe.city, nodate a, para. 5)

Finally, the WeMakeThe.City festival is tightly connected to the overall strategic positioning of Amsterdam. I Amsterdam is the quite infamous motto that the City of Amsterdam brands its city with through the city marketing organisation Amsterdam Marketing. Because ‘Amsterdam's appeal lies in its rich cultural heritage, diverse and creative culture, commercial dynamism and high quality of life’, the brand is made to support that anyone who lives, works, studies or even visits Amsterdam, is Amsterdam, embracing the belief that ‘the city's strongest asset is its people’. Because Amsterdam is its people, we as people are Amsterdam which is then turned into I Amsterdam to express a choice for the city as well as pride, confidence and dedication to the city. Interestingly, this relation between the city and its people, including visitors, whether expressed as a collective ‘we’ or a singular ‘I’ turns into feedback loop. A clear and well-known example is the I Amsterdam letters positioned in key locations of the city, predominantly for visitors to be photographed at but also to create a visual memory of the brand. Through the action of being photographed in front of the recognisable letters, the visitor too endorses the city of Amsterdam. Similarly, partners are urged to use the logo to endorse the city’s branding and participate in its marketing (See Image 13).

Image 13: Photo of I Amsterdam sign in reverse

Nonetheless, the WeMakeThe.City and I Amsterdam brands evidently follow the same principles that make Amsterdam’s brand as place. Together, they both endorse the idea

that the city is its people because people make the city. As such, WeMakeThe.City can be seen as an extension, continuation or upgrade of the I Amsterdam brand one that though focuses on the collective ‘we’ other than the singular ‘I’ and implies a more action-oriented approach to the city. The constructed ‘we’ is the sum of the individual ‘I’s and as such it is the singular neoliberal subject squared over and over. This ‘we’ the way it is articulated here is only possible as long as the ‘I’s are equal. The purpose of Amsterdam’s place-making is to target both internal and external audiences through the collective ‘we’ fantasy, linking everyone together in the experience of place. Smartness in only but an aspect of this process, considering the extent to which Amsterdam’s economic strategy relies on tourism and its world-informational city positioning.

Image 14: Compilation of photos at the Amsterdam Central Station showing how wallwide screens are used for place-making advertising the city’s attractions

5.3 Spatialisation Processes in the Case of Barcelona

The ethnographic material for this case was mainly collected through the 2018 Sharing Cities/ Smart City Expo and Congress, while some insights were also drawn through the attendance of Barcelona's CTO Francesca Bria to the WeMakeThe.City Festival. In what follows, spatial practices operationalised in the case of the Barcelona are presented through (a) the story of the transformation of Barcelona Active; (b) the discussions, agonisms and antagonisms that became apparent through the incorporation of the 2018 Sharing Cities Summit in the 2018 Smart City Expo and Congress that is viewed as an action of agonism; and (c) two of its widely popularised city projects.

Can the governmental agency of Barcelona Activa become a space of agonism?

Barcelona Activa was created in 1986 by the Barcelona City Council as a governmental agency with the objective 'to boost entrepreneurial activity and foster employment in the city' (Barcelona Activa, no date a). Since then Barcelona Activa has been concerned with the development of the local economy of the metropolitan area. In over 30 years of activity, Barcelona Activa has been providing services for the professional development of individuals, created numerous companies and hosted numerous events (Barcelona Activa, no date b). Traditionally, it has also supported women in business. As such Barcelona Activa has for decades played a central role to the local economy of Barcelona often praised as proposing an example of local economic independence (Zastawny, 2015). As an organisation Barcelona Activa has been key for the development of the Barcelona Model with its focus on cultural and human capital within urban regeneration. In fact, Barcelona Activa is the spatial emplacement of the Barcelona Model conceptual framework for urban development.

Barcelona Activa is a governmental incubator and its spatial organisation consists of several 'networking facilities'. Those facilities include training and support centres and several incubation spaces for different types of businesses at different levels of development (Barcelona Activa, 2016). Some of these facilities date back to 1988 as for instance the Glories Business Incubator and some have a niche focus such as the m-Startup-Barcelona incubator opened in 2014 during Xavier Trias mayorship. Barcelona Nord Technology Park opened in 1995 addresses 'technology-based innovative

businesses in the growth stage' (ibid), while the Convent de Sant Agusti opened in 1998 to address the alternative economy framed as 'a focal area for entrepreneurial programmes for specific collectives and traditional sectors' (ibid) with a cultural and social sensitivity in the use of arts and especially music and new technologies. As such, Barcelona Activa (2018a) with its 18.500m2 of innovation and incubation spaces supports the local economy through its variously focused centers. At the same time, different mayorships operationalise the agency in accordance to their political imaginaries.

Economic development and local growth are key for Barcelona Activa as the logic of acceleration for the purposes of growth is inscribed within the purpose of the operations of Barcelona Activa from its very beginning. Through its services and facilities Barcelona Activa nurtures local ecosystems of innovation for the purposes of development and growth. Additionally, since 2000 and in line with the Barcelona Model, strategic planning and place making in Barcelona has witnessed the spatialisation of these ecosystems through urban development gentrification projects such as is the case with 22@ District. The development of this district has been widely discussed as exemplary. In the 2018 Smart City Expo, former mayor of Barcelona Joan Clos (1997-2006) illustrated the thinking behind 22@ District and how it represents a good example of the Barcelona model.

22A district of Barcelona was a declining former industrial zone that in 2000 was set for urban regeneration and development into a technological district (Battaglia and Tremblay, 2011) coinciding with the strategy for the development of the Barcelona's metropolitan area (Nesti, 2018). In the Expo, Joan Clos explained that in Barcelona policy they name districts according to their characteristics: 22 stands for industry and A for chemicals. Since district 22A in the area of Poblenou was set to become a technological district they chose to replace the A with @ to indicate the digital. This rebranding of the district however goes beyond a mere renaming. According to Joan Clos, the aim was to change the district without removing the industry and its spaces, but through repurposing them. The aim was to repurpose the district creatively into a district with places to work while also creating new jobs and making it attractive and competitive internationally. The elaborate urban planning process took place from 2000 until 2008

and involved the following clusters: Media, Energy, MedTech, ICT, and Design. Each cluster's strategy was spatially organised into the district and involved the organisation of its cluster related companies, institutions, specific spaces, technological centres, universities, incubators, residences dissemination spaces into the district but also in connection to each other (22Barcelona, no date). The development strategy conceptualisation looked to create local and global innovations into the knowledge economy by operationalising Etzkowitz and Leydesdorff's (2000) triple helix innovation system model that involves government, industry and university (see 22 Barcelona, no date). In 2009, Barcelona Activa's activities was structurally aligned with this urban regeneration of Barcelona 22@ as some of its core facilities moved into the district. The m-Startup Barcelona incubator of Barcelona Activa opened in 2014 is hosted in the famous for its sustainable architecture Media TIC Building (22Barcelona, no date) where the opening night of the 2018 Sharing Cities Summit took place. Also framed as the Smart City Campus, district 22@ also hosts the Cisco New Innovation Centre created for the purposes of the partnership with the City of Barcelona 'an example of a self-sufficient, intelligent and zero-emission building' (Cisco, no date).

Battaglia and Tremblay (2011a) examine the case of Barcelona as the emergence of 'new models of regional development based on the relation between territory and socio-economic innovations' (p.3). Beyond cultural or creative quarters as 'the product of interactions between urbanization, culture and creativity' (Battaglia and Termblay, 2011b, p.4) popularised by Florida (2002), Battaglia and Tremblay (2011a) look into the cases of technopoles as 'local productive systems that permit the implementation of new economic organization of regional growth based on the high- technology industry' (p.4). The case of 22@ is precisely a well- elaborate plan to achieve such results and as Joan Clos proudly conveyed has played a key role for the present recognition of Barcelona as a smart city. What's crucial in these processes as highlighted in Battaglia and Termblay (2011a; 2011b) is the role of decision-makers in the transformative regeneration process as well as its governance, since as Joan Clos also indicates such processes are highly disputed all the way through and achieving a level of consensus is fundamental. The question then is what the processes are through which consensus is achieved as well as who is asked to consent, which brings the discussions on citizen participation and the right to the city to the fore.

The ‘Barcelona model’ is often promoted and considered as having a social character due to its cultural capital focus (Degen and Garcia, 20112) but also through the promoting of a participatory approach to decision-making through institutionalisation of political participation (Blanco, 2009; Davies and Blanco, 2017). Generally, social and political consensus is described as a key factor for Barcelona’s success story and especially for changing the branding as well as the space of the city (Monclus, 2000). Trullen (1996) suggested that urban planning itself hasn’t been as important as the processes through which consensus is achieved through coalitions and partnerships. On the one hand, the model depends on a public-private partnerships approach and strategic urban planning, while on the other participation in these processes is exclusive of the wider society and easily accessible for the political and economic elites. As such, it perpetuates power and inequality in a way that is tightly connected to Barcelona’s urban development history through the decades (see for example Casellas, 2009; Monclus, 2000). According to Blanco (2009) the operationalisation of the so-called Barcelona model is in fact context dependant to different periods, territories and actors. So for example, in Davies and Blanco’s (2017) work activists argue that the ‘extensive participatory infrastructure linked to the Barcelona Model, including the Municipal Council of Social Welfare and Citizen Agreement for an Inclusive Barcelona’ has no legitimate power over decision-making process but yet is something to defend (p.1525). Notably, during the mayor ship of Xavier Trias ‘the participatory apparatus [was further distanced] from political decision-making’ while ‘the participatory infrastructure was of diminishing importance for activists too’ (ibid).

In the case of 22@, for instance, according to Joan Clos’ account the repurposing of 22A into 22@ was achieved with zero costs for the municipality. This is framed as a successful strategy considering the limited resources councils have access to. Instead in order to avoid public investment for the repurposing, the method of trade-offs was operationalised. Joan Clos mayor ship doubled the height of buildability rights in the district to attract the necessary real estate investment to repurpose the space. Joan Clos framed this as an exchange between buildability rights and private sector investment in infrastructure of the city. As such, it seems that in this dynamic the municipality is involved in the development of the district in the level of conceptualisation and permissions/ allowances acting as a facilitator to private investment while framing it as

a win-win situation. Later, a similar strategy was followed were buildability rights were again increased if a commitment was made for some buildings to be purposed for social housing or co-working spaces. The buildability increase strategy led to an altogether increase of 4 million square metres floor space in Barcelona mostly used for productive purposes, while only 800.000 m2 were assigned to housing, facilities and services for the community (22Barcelona, no date).

The reason why this is discussed here is to reframe this 'no-cost' trade-off strategy as spatial practice based on an unequal relationship between the lack of material resources of cities and the necessity but also capacity of private sector investment. Municipalities with no financial resources will have to outsource their spatial development to the private sector risking several social, economic and political results including gentrification and alienation of communities and citizens. At the same time, through such trade-offs and partnerships within the Barcelona model, although the municipality and various actors might be included or have a say in the conceptual development of the city (the urban) the practico-material artefact of the city belongs to private investment and capital. This has for example been particularly evident in the development of Barcelona's tourist sector. As since the 1992 Olympics the Barcelona Model more and more transformed into a branding strategy, and Barcelona has been positioned as a global city, the tourist industry has significantly transformed the city (McDonogh and Martinez-Rigol, 2018). Whole parts of the city are dominated by the tourist industry, while others experience gentrified development. Both have created tensions in the post- crisis era especially, with the anti-eviction movement, that the leading figure of Ada Colau came from, as well as the anti-gentrification movement (Mead, 2019) often represented with the frame of 'Tourism kills' (See Image 15). This situation signifies the phenomena of overtourism. As Panayiotopoulos and Pisano (2019) put it '[o]vertourism, albeit a new term, deals with

old problems' (p.394) expressed between utopias and dystopias of growth and social justice.

Image 15: Anti-eviction posters in public space

Urban development whether framed as 'regeneration' or 'repurposing' in effect also spatializes innovation for the purpose of and through reforming capital (Harvey, 2014) adhering to the social logic of growth. In the backbone of such processes however we have a two-folded integration process that coincide with Dale and Burrell's (2008) dialectical relationship of space and organisation. On the one hand, spatial integration is necessary. Geographical proximity of organisations and institutions, which the clustering of the district according to the specific industries was meant for, responds to the perceived convergence of those industries while seeking to facilitate it in the material realm through appropriate spatial organisation. On the other hand, relational integration is also necessary. Relational integration refers to the social proximity of the clusters, among the district, within partnerships etc., but also their integration with local groups outside the industries such as local communities. For instance, dissemination spaces, social housing or co-working spaces in the area as a side note to the main purpose of the district seeks to address the relational integration of the district with the community. In the case of 22@ District, the district is enchanted spatially as an innovation district in conjunction with a strategy for the local economy and existent infrastructure, linking meaning with matter, and is emplaced spatially within the necessary technological

clusters that are perceived as capable to achieve the attractiveness and productive use of the district. The organisation of district 22@ as a space comes in dialectical relationship with the spaces of organisation it is placed to host, while the inclusion of certain activities, spatial practices and even identities against the exclusion of others is inherently build into the process.

In the context of its more agonistic approach, Barcelona en Commu put considerable effort into operationalising Barcelona Activa towards the promotion of social innovation and the local social solidarity economy (Barcelona Activa, no date c, Porro, 2018; Torres, 2016) as well as dealing with the externalities the thus far development policies have created. As we read in Alvaro Porro (2018) -Commissioner for Social Economy, Local Development and Consumptions with Barcelona en Commu- 'the Barcelona City Council has had to politically position itself, get involved and act' (p.195). According to Vidal and Fuster Morrell (2018) there are 'four main dimensions to governance that cities can combine' and 'which are not mutually exclusive' (p.60). These dimensions can be understood as perceptions of the city as actor in conditions of the sharing economy. According where the city can act in the capacity of monitoring, regulating, promoting and collaborating.[30]

In the case of Barcelona, one of the first actions of Barcelona en Commu as regulator was to demand only legally licensed properties to be advertised in platforms such as Airbnb (Rubyo-Pueyo, 2017). In parallel the city council actively delayed new permits of such property licenses. The uncontrollable development of of property targeted to tourists within the Airbnb platform has been an issue that many cities around the world face, while only recently municipalities started putting regulations in place to limit its effects. One key externality of the operations of the Airbnb platform is unaffordable housing for residents, for instance in areas such as Poblenou where district 22@ is located (Rodes, 2018). Additionally, as the research of Juliet Schor (2017, also Schor and Attwood Charles, 2017) who keynoted the opening evening of the Sharing Cities summit,

[30] '[T]he city as monitor' refers to the monitoring of economic developments in order to decide when and how to intervene (p.61). '[T]he city as a regulator' refers to changing and adapting its regulatory rules accordingly to developments (ibid). '[T]he city as promotor' refers to intervening directly and indirectly with the aim of politically promote sharing practices and the sharing economy and finally 'the city as collaborator' refers to when the city actively participates in the sharing economy through creating partnerships for instance (ibid).

shows for-profit platforms such as Airbnb impact income and labour inequality through for instance perpetuating racial discrimination. Barcelona en Commu's regulatory action as such operationalised the power of the local government to influence this uncontrollable development by creating a barrier-restriction as well as using a strategy of delay. These two strategies together had as effect not the control of future development, but through exerting a level of control buying sometime for the municipality to further develop its strategy on the sharing economy.

Further to this initial move, Barcelona en Commu decided to operationalise the governmental agency of Barcelona Activa for the purposes of promoting the social economy while employing the council's collaborative capacity with the sharing economy. The explicit focus was on promoting and lowering the barriers for organisations that operate under the prism of alternative economy and social innovation creating a supportive environment for alternative models of production such as coops and sharing-oriented platforms. As Porro (2018) explains the approach followed included 'determination to intervene when the impact of the city requires it' but also distinguishing among the various platforms and 'generating the policies and resources for those projects that are indeed making contributions to the common good' (p.197). Ultimately, the direction of actions taken were working within the logics of decentralisation and municipalisation of the economy, wherewith the operationalisation of Barcelona Activa was an available means. This was framed by Barcelona en Commu as a transformation.

In 2016, Barcelona Activa was given new mission and values. Moving away from the prioritisation of the unit of the entrepreneur the new mission was set to focus on collective enterprises such as coops and support local small and medium- scale businesses instead of facilitating multinationals. The inflicted values to the transformation were transparency, decentralisation, community and social engagement. Organisationally, the first action was to replace the Directorate of Alternative Economies with the Directorate of Local Social and Economic Development. The new directorate has as mission to develop services, resources, and tools provided by Barcelona Activa (2017) to strengthen the contribution of the Cooperative, Social, and Solidarity Economy towards a 'fair and sustainable development' as well as define, drive and facilitate the territorialisation strategy under Barcelona Activa's local development policy. One of the key policies

developed during that period was the 2016-2020 Employment Strategy which have been praised as a substantial move towards inclusive growth (Joseph Rowntree Foundation, 2017). According to Rubio-Pueyo (2017) and especially because of the activities of Barcelona Activa '[t]oday, Barcelona is considered a municipal start-up incubator devoted specifically to projects in the social economy, which aim to stimulate women-led initiatives, community-based proximity businesses, and cooperatives for social innovation in mobility, cultural activities, and sustainable tourism' (p.16).

As such, Barcelona en Commu chose to intervene with creating a temporary barrier-restriction to the property development sector, while it began to collaborate and promote sharing and collaborative economy. Barcelona en Commu organised certain actions towards the promotion and facilitation of collaborative economies. La Communificadora has been a programme of Barcelona Activa aiming at 'people who want to participate in the transformation of the economy with collaborative projects with a strong community dimension' (Barcelona Emprenedoria, no date, para.3). It involves training, advice, mentorship, workshops as well as technical support. Barcelona en Commu has co-organised or supported events relevant to collaborative economies such as Procomuns or the Sharing Cities Summit 2018, often in close cooperation with groups such as the Barcola and Dimmons group (Miret Garriga, 2017; Procomuns, no date a). As such, Barcelona en Commu seeks to move towards a public-cooperative partnership model (see Mayo et al., 2019) instead of a public-private one.

In terms of spatialisation in 2016, the facility El Far in the area of Barceloreta was incorporated into Barcelona Activa (2016) specifically 'dedicated to promoting and fostering socio-economic innovation'. This facility is now called Innoba officially opened in 2018 (Ajuntament de Barcelona, no date a) and was widely promoted in the 2018 Smart City expo by city officials as a new approach to innovation. Its ambition is to

> become the benchmark centre for Social and Economic Innovation, a process that is aimed at exploring new ideas, organisations, services, products and models that meet needs by creating new relations, collaborations and social and economic changes. It has a clear vocation for disseminating and co-producing Social and

> Economic Innovation at the service of the city and the citizens. (Ajuntament de Barcelona, no date a, para. 1).

Barcelona en Commu's strategy has been to structurally open Barcelona Activa more towards the community through promoting social innovation or collaborative economy as well as disseminating information around it. This has given a push and advantage to alternative modes of production such as co-ops and peer-to-peer models. As such, by lowering the barriers for those alternative models through active collaboration Barcelona en Commu operates within the logic of disseminating power back to the community, acting as a facilitator for alternative practices. Without accepting the logic of growth, but operationalising a logic of local development it attempts to reframe it within a local social economy perspective as a minor step towards challenging hegemony. As such, externalities of the global city Barcelona are grounded into the local development, through reaching out for global connection and networking on the basis of radical politics, for example with organising events on municipalism such as the Fearless Cities event that began in 2017 or the organisation of the 2018 Sharing cities Summit among others. With a pragmatic approach to politics, Barcelona en Commu agonises against the hegemonic order, acknowledging the antagonistic relationship but without feeding it. Instead, the praxis is concentrated in telling a different story, promoting a different approach to the economy whose focus is on the community and co-organisation.

Infiltrating the 2018 Smart City Expo and Congress: differential space and directing the discussion towards 'the right to the (smart) city'

The Sharing Cities Summit and the Smart City Expo and Congress are two separate events that in 2018 were coordinated to take place at the same time. The city council of Barcelona, although not the main organizer, was a co-host in both events and agonistically used its involvement towards its overall political agenda of redefining the smart city. An interesting dynamic was created between the two events that was both discursive and material. In effect, the Sharing Cities Summit infiltrated the Smart City Expo and Congress occupying space in both the Expo and Congress. In what follows, how that occurred is presented.

The Sharing Cities Summit is predominantly addressed to the member cities of the Sharing Cities Alliance that is a knowledge and tools sharing network for cities and city officials founded in the 2017 summit in New York and coordinated from Amsterdam. As such, the summit is the spatio-temporal gathering of this network and involves workshops of knowledge and experience sharing between city representatives and invited speakers. In the 2018 edition in Barcelona, upon the completion of the networks gathering a Sharing Cities public event was organised to open the summit to the public through a set of presentations and keynotes in relation to what was discussed in the closed sessions. The opening of the Summit to the public and the community coincides with the overall logics of empowerment and democratic participation operationalising event hosting and organising as a spatial practice. At the same time, this spatial practice in effect further strengthens and bonds the Barcelona Procomuns (no date b) community that is 'a forum for the co-creation of public policies for a commons collaborative economy' in Barcelona (google translate, para. 1). The opening of the public event has as purpose to give access to the public, while it also plays the role of a Procomuns meet-up, i.e. to become a meeting of co-creation (eurythmia is projected).

Beyond, the presentations and panels of the evening therefore, co-creation activities are designed from the co-organising members of the Dimmons group of the Open University of Catalonia. The Dimmons Group researches the digital commons and the platform economy thorough the perspective of collaborative research, method and action for a commons-oriented society. The Procomuns forum and the Barcola working group that is more institutional in nature and involves the city council, Barcelona Activa and the Dimmons group, but also further organisations that adhere to the principles of commons and collaborative economy are two key organisational structures for the promotion of commons and collaborative economy principles in Barcelona. Beyond promotion these groups actively seek to collaborate towards furthering their activities and reflecting on the issues at hand. For instance, the public event involved co-creation practices (see Image 16) including rating, commenting and general feedback on the newly agreed

principles of the 2018 Sharing Cities Summit declaration (see Image 17, also Sharing Cities Action, no date a).

Image 16: Co-creation activities

These initial events took place before the start of the SCEWC in the famous Media-TIC building of district 22@ operationalising the existent facilities of the city for the promotion of the commons and collaborative economy. The commons and collaborative economy imply the logics of municipalisation and democratisation among others and can be perceived as the promoted approach to the sharing economy by the Barcola-Procomuns ecosystem that includes the institutions of the Barcelona City Council and Barcelona Activa. In turn, the sharing city that adheres to the commons and collaborative

Image 17: 2018 sharing cities summit declaration of principles as presented in the Expo space

approach principles is seen as an alternative and challenge to the corporate smart city. This became evident in the main outcome of the 2018 Sharing Cities Summit that was the update and expansion of the Sharing Cities declaration of 2017. The main purpose of the declaration was to better reflect the different viewpoints of cities on the platform economy as well as the existence of different platform models (Sharing Cities Action, 2018). Notably, reading through the principles it becomes evident how the discursive articulations of the Barcelona representatives influenced the 2018 declaration, which can be understood a practice of agonism in itself. To be more specific, a differentiation of platforms was presented as the first principle with the aim to 'distinguish digital platforms and platform activity which are not built on truly collaborative models, from platform models that are collaborative and constitute opportunities for the city's economic activity' (Sharing Cities Action, 2018, para. 4). The qualities characterising collaborative platforms were thereof defined, some for example were adhering peer-to-peer relationships, fair economic models and retributions or participative community governance. This distinction is based on the functions and impact of platforms rather than whether platforms are profit-driven or not. Nonetheless, this distinction is operationalised against profit-driven market logics and for the purposes of obtaining a minimal control over economic activities that might hinder a city's spaces, economies etc.

Based on these criteria the principle means that platforms that essentially offer the same service such as rental platforms Airbnb and Fairbnb shall be approached differently in policy which also reflects the approach Barcelona en Commu has followed in the city council. Within this logic Fairbnb (no date) which is promoted as an ethical alternative to Airbnb is to be viewed as a platform that can potentially help the city's economic activity instead of having a negative impact through externalities that are hard to control, i.e. gentrification, house rent increases, discrimination. That is because the platform that is due to come live in September 2019 to a great extent adheres to commons and collaborative economy principle as it collaborates with city councils to ensure the legality of rented properties, while it gives back 50% of its revenues to community projects selected by citizens. Beyond the platform differentiation principle, principles based on the data, technological and city sovereignty rationale of Barcelona as well as the right to the commons and the city are incorporated into the 2018 edition highlighting the impact Barcelona's discourse within the summit.

The sharing cities network is yet another network of knowledge exchange and sharing following the logic of pooling resources. Its main characteristic is that it does not address various stakeholders, but cities as constituencies, i.e. in their government capacity. The main purpose is to share practices, tools, regulations and overall ways different cities have dealt with platforms and the sharing economy in the city scale. That is because interestingly, the city scale seems to be the only scale that especially big platforms such as Airbnb and Uber can be or are being regulated. However, cities differ from each other various ways and especially in their politics. Amsterdam deputy mayor for Economy, Udo Kock summarizing the mayors' meetings at the public event pointed out that in the processes of the summit and while working towards the declaration, they tried to remain practical and stay away from ideological debates. For him, the key lies in the balance of regulation and innovation, and how one regulates sufficiently without hindering the evolution of innovation and innovative platforms, including big platforms such as Airbnb. As such, the question is when it is appropriate for government to intervene and how without hindering the market economy. To his view, for example, social justice cannot be an objective for the sharing economy as this would overburden the term, which is a key ideological difference with Barcelona's current strategy. In the case of Barcelona, social justice is and can be the ultimate objective of the sharing economy. In other words, the praxis of sharing can be the means towards achieving social justice if the concept of sharing is based on ethical social relations, i.e. commons and collaborative economy principles. What seems to have occurred in the mayors' meetings of the summit is the creation of a culture of multiplicity that constitutionally allows the less conventional practices of Barcelona to co-exist in equal footing, i.e. the distinction between platform models.

As such the sharing cities summit is agonistically transformed through the participation of Barcelona and the incorporation of its discourse on sovereignty within the 2018 declaration, acknowledging the existence of multiple pathways to the sharing economy, including the one towards social justice that is not agreeable to Amsterdam's Deputy Mayor but is nevertheless accepted as a pathway. All in all, the days of the summit organised before and outside the Expo, were strategically used to further promote the Barcelona approach of the sharing economy both within and without the sharing cities network. As indicated on the Barcelona Digital city announcement the hosting of the

Sharing Cities Summit 'is the result of internationalisation work by Barcelona City Council which has led to collaborative agreements with other global cities such as New York' (Ajuntament de Barcelona, no date b, para. 6). New York hosted the 2017 edition of the Summit, while Amsterdam hosted the 2016 one, which was the first of its kind. In the 2018 edition, Barcelona's internationalisation approach through which it promotes municipalisation and democratisation logics empowers the sharing collaborative economy within the Sharing Cities network, which generally discusses the circular economy acceleration catalysing open innovation and economic growth.

Notably, the internationalisation approach is not new to Barcelona politics, but also to the spatial practice of event hosting and organising. In fact, the spatial practice has been crucial to the Barcelona model and the government pull logic, as for instance, the tourist status of Barcelona was achieved in the aftermath of hosting the 1992 Olympic Games. The momentum creating from the Olympics was also held with the organisation of other smaller attractive events and festivals as well as the attraction of investments and the creation of new spaces, in the regenerated areas especially i.e. the Olympic village was transformed into multi-purpose buildings with incentives given from the city council. But even before the Olympics as Monclus (2000) argues the use of events for place-making and economic development 'is nothing new in the case of Barcelona […] the 1888 and 1929 Exhibitions were two key events –fitting into this flagship category which were

Photo 18: Photo from the outside of Fira Barcelona building where the Smart City Expo was hosted

used in order to improve the prestige of the city' (p.60). This has resulted into an economy of flagship events organising in Barcelona that involves huge experience in hosting international events, available infrastructure for various events sizes but also experience in operationalising them within their urban strategy and using their momentum. Within the overall set of spatial practices included in the Barcelona model, hosting key events is an essential part for the city's place-making, branding and spectacle (Harvey, 1993). Notably, on the topic of technology only, other than the Smart City Expo organised in Barcelona since 2011, Barcelona also hosts the annual Smart Mobility Congress, the Mobile World Congress, the Internet of Things World Congress and smaller technological gatherings such as Block chain Solutions World or AI and Cognitive Systems Forum.

Following the same internationalisation logic, Barcelona en Commu has been operationalising the available infrastructure and networks organising events that support their political underpinnings and logics positioning Barcelona as a rebel city (see Harvey, 2013; 2016). For instance, in 2017, Barcelona en Commu organised the first international municipalist summit 'Fearless cities' for the purpose of building global municipalist networks. Notably, this event was organised by Barcelona en Commu as a political group, while other events that are (co-)hosted by the municipality a more partisan profile is created. That is to say that Barcelona hosting of the 2018 Sharing Cities Summit, further to the internal to the network agonistic approach, is a praxis of agonism as it infiltrates the SCEWC. In this aspect discussed below, Barcelona en Commu operationalises the power of the city council status giving space to the sharing collaborative economy community and ecosystem.

Beyond the public event, the summit continued within the Smart City Expo and Congress with a sharing cities booth next to the Barcelona's city council booth within the expo and within the special theme on inclusive and sharing cities that was part of the 2018 congress. In practical, this is regarded as a continuation of the summit within the SCEWC. Additionally, a vibrant programme was taking place on the sharing cities booth that once again operationalised co-creation methodologies including live co-writing for the documentation of the event adhering to and promoting the collaborative focus throughout (see Sharing Cities Action, no date b; Teixeidora, 2018). Beyond the internal agonism within the sharing cities summit therefore, the summit is agonistically operationalised to 'further enhance the programme for the Smart City Expo World Congress 2018' (Ajuntament de Barcelona, no date b, para. 6). As stated by Amsterdam's Deputy Mayor in the public event, the mayors have tried to stay away from ideological differences. Within the context of the SCEWC, where various stakeholders were represented ideological differences became much more apparent and harder to ignore. The main antagonism that started to arise more clearly was the corporate smart city and the sharing collaborative city dynamic. The purpose of the infiltration was that the sharing collaborative city is provided as an alternative to the corporate city. As such, sometimes the experience of us vs. them logic was felt in the sharing cities booth, antagonising the rest of the Expo, while panels and discussions in the main congress were more conservative on the operationalisation of this logic following a less adversary and more agonistic approach.

Image 18: Posters in the city of Barcelona advertising three different events

Within the Expo and Congress, the corporate smart city is highlighted especially through the presence of high-tech corporations that also occupy a lot of physical space, showcasing their state-of-the-art technologies. Following those there are smaller companies, in smaller booths, that are offering unique and tailored products of smaller scale or greater specialisation. Smaller tech companies often work with software, either developing specific applications or platforms, for instance city apps, or in the domain of specialised software engineering, for instance medical software. In this group, there is a variety of expertise that also includes former start-ups that have crossed the start-up threshold with their product or service. As part of this group in terms of size, are the sharing economy platforms and projects that were predominantly concentrated around the sharing cities and Barcelona city council booths. Interestingly, platforms such as Airbnb and Uber were not represented in the Expo.

Image 19: Collage of high- tech companies booths at the EXPO

In more than one occasion representatives of the high-tech group described data as the new oil and the development of networks and applications as building pipeline infrastructure, in order to stress the importance of data and/ or position their product in the line and mode of production. This makes sense when considering the current capitalist development as a re arrangement of production or in Lefebvre's terms repetition where the production of relations of production are transformed. In this context, the marketing of products and services is key for ensuring a space in the smart cities developing market. High- tech corporations evidently have the advantages of size, outreach, expertise, first-movers etc. as regards to building the pipeline infrastructure and maintaining it as the plumbers and electricians of smart cities (Townsend, 2013). Smaller tech companies have the advantages of flexibility, innovation, specialisation etc., and their role is equally crucial in developing the smart cities market. As follows, a big part of the SCEWC, and Expos in general, involves corporate networking, matchmaking, business deals and can be seen altogether as a spatial practice of market building. Another big part, which can also be seen as a spatial practice, involves showcasing, but also the showing off of products and services that in this case varied from robots, self-driving cars, smart lighting and facial recognition technologies to cleaning cars, power batteries, bicycles and apps.

Image 20:Collage of European cities and regions booths from the EXPO

However, due to the nature of this market, where cities are the node, the representation of cities has become necessary with time. In many cases cities are clients of the services or products, while citizens are their consumers. The specific dynamics of course change depending on the service or product but what is important is that cities are in position to define the city experience through their decision making as clients of the smart cities market. Therefore, beyond the corporate smart city representative booths, the rest of the expo was dominated by numerous booths of regions and cities that either are or aspire to

identify as smart regions and cities, or any other related term. Notably, those predominantly represented cities and regions of Europe and Asia. These booths were spaces of networking, promotion and place-making representing the uniqueness of the cities and regions. Some booths were focused on promoting the smart cities projects of their area and the organisations involved. This included parallel talks and panels of promotion and knowledge sharing. Other booths were focused to attract investments and other provided an elaborate rationale on their approach to smart cities (see Image 20 for examples). Despite the apparent differences in approaches and levels of smartness, in all cases, place-making and networking seems to underlie the purpose of participation. For many cities and regions, the participation in the Expo is a strategic decision to engage with the smart cities market and networks.

Image 21: Image from the Expo's bridge focusing on 'the right to the (smart) city' booth

In this context, the presence of the Barcelona city council's booth is especially interesting again signifying the commitment to the overall strategy of rethinking the smart city and challenging hegemonic approaches to it. In line with the overall strategy of the current council to redefine the smart city and in turn Barcelona as a (smart) city, 'the right to the (smart) city' was the theme under which the Barcelona city council booth was structured (see Image 21). Image 21 was specifically taken in order to represent the centrality of the

Barcelona city Council's booth in the space of the Expo and how the choice to convey the right to the (smart) city message spatially represents its overall strategy.

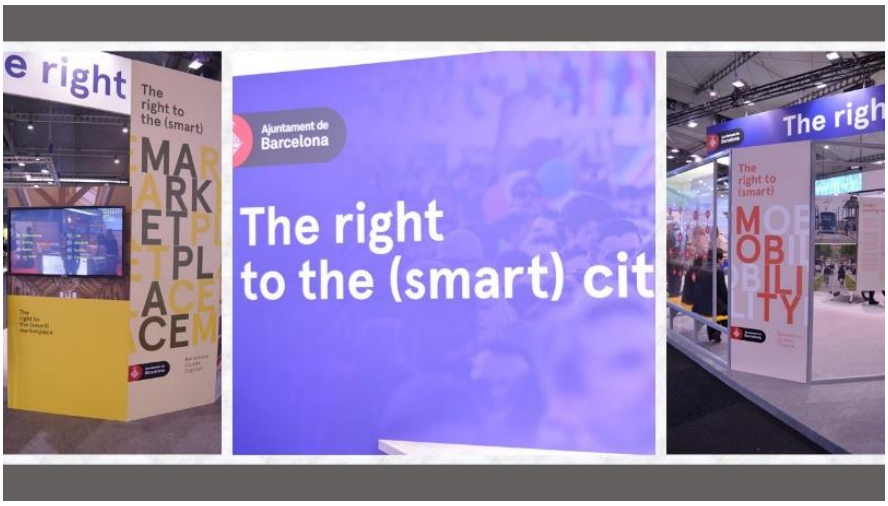


Image 22: Collage from the Barcelona City Council booth at the Expo

The closing panel of the main congress was organised by the Barcelona City Council under the 'the right to the (smart) city' title and concluded the Expo (SCEWC, 2018). As Mayo Fuster from the Dimmons group there indicated the 2018 edition of SCEWC is the first time that citizens have had access to the event through their participation of the sharing cities summit. Participants of the summit were given free access to the Expo, the main Congress and the Inclusive and Sharing Cities theme conference. That in itself is a very material act of empowerment towards the right to the (smart) city, expressed as the sharing cities summit providing access to the Expo. As the booth represented the right to the (smart) city involves several rights that stretch from digital and access rights, to the right to mobility or the right to the marketplace (see Image 22). The role of the city based on the municipalist logic is to safeguard, ensure, provide and protect these rights, through democratising and power redistribution processes. What is particular to the smart component is that, as CTO Francesca Bria (2017) explains elsewhere is rethinking how government works, what is its relation to citizens and how can technology be used as a tool to implement government policies instead of driving them (see also Morozov and Bria, 2018). Part of this rethinking is a rethinking of how spatial practices are or can be operationalised agonistically, numerous examples of which are showcased in the case of Barcelona. The fact that the SCEWC happens in Barcelona since 2011 and the Barcelona City Council has access to it was supportive of the decision to bring the Sharing Cities summit to Barcelona. In effect, the bringing of the sharing cities summit into the SCEWC entails ensuring that cities and councils are empowered, and through them citizens, while

the sharing collaborative economy is also empowered and supported within an Expo context that traditionally favours hegemonic approaches to the smart city through the market development logic. Even, the existence of the Inclusive and Sharing Cities theme that had its own programme and predominantly involved speakers from cities and regions, either city officials or practitioners was a way of operationalisation of the overall strategy. Furthermore, Barcelona City Council organised several panels in the main stage of the congress where the presence of Mayor Ada Colau and CTO Francesca Bria and several other organisers of the sharing cities summit dominated. In terms of rhythms, at the SCEWC there was a greater multiplicity. Instances of conflict (arrhythmia) did occur, all the while polyrhythmia dominated around the Expo and Congress. In the Sharing Cities Summit booth, there was a sense of eurhythmia as well (co-creation, co-existence).

Insights for Barcelona projects: Barcelona experimental city-citizen centric projects

Founder of the Free Software Foundation Richard Stallman has cooperated with Barcelona's CTO Francesca Bria as consultant to the city's strategy. At the 2018 WMC festival they discussed the developments together, which was revealing on the tensions around technological decentralisation. Richard Stallman has always been a supporter of the full decentralisation of operating systems using free software. Francesca Bria promotes a move away from the dominant smart paradigm towards a more citizen inclusive paradigm where public space is available to citizens, the future of work and rights is ensured, and the technology is prescribed on a later stage as per the necessary needs. Data sovereignty is crucial for Bria, she describes encryption needing to be a human right and data belongs to the citizens. Data commons means building future services that create service value and not surplus value. The importance of viewing data rights as social rights is based on the projection that in the future data will mediate all other rights. However, the politics of Richard Stallman are completely different. The decision of Barcelona to regulate that 70% of the money for software at the Barcelona City Council is to be invested in free and open software was a product of their collaboration although Richard Stallman suggested that it had to be 100%. Richard Stallman is also of the view to completely debunk the terms of sharing economy and smart cities. As he explained the sharing economy involves an economy of sweat which gives a rather negative connotation to the usually positive idea of sharing. As regards to

smart cities he invited everyone to replace smart with spy as most apps spy on users in ways that are very easy to detect. Richard Stallman advised the city on the consideration of ethical questions and legitimacy. The city of Barcelona is only a level of government, according to Richard every public agency has the moral duty and obligation to control its computer activity. Within its digital sovereignty strategy, Bria suggests that the city hall empowers the pre- existent free software movement in Barcelona through its decisions. The logic of Bria is that investing public money into free software is an act of democratisation and empowerment as it implies city sovereignty through data and technological sovereignty. According to Stallman proprietary software has back doors which makes it unsafe for cities. Free software in government is the solution. Francesca supports the GDP European citizen rights as she interprets that protects citizens right when Richard says that they want to read it like that.

There are two projects that representatives of the CTO office including Francesca Bria always mention: the Decode project and the Decidim platform. In this section, the two projects are discussed as operationalised spatial practices under the experimental cities' prism. For Calzada (2018), 'experimental cities approaches-embodies by grassroots movements, living labs, and co-operative platforms-consistently position local communities as the designers and proactive instigators of urban experiments' (p.3). To an extent, there is the expectation that such experimental counter-hegemonic or agonistic projects are contributing towards the right to the (smart) city. What is discussed is the ways the two projects seek to achieve that but also any perceived limitations.

Decode: protecting rights

The Decode project is one of the most well-promoted European projects co-ordinated by Barcelona City Council often presented as an example to the ground-breaking work taking place in Barcelona in terms of research and innovation (Nesta, 2018). The five million project, which has been fully funded by the European Commission under Horizon 2020 and stands for 'Decentralised Citizens Owned Data Ecosystem' (European Commission, 2017). The project's timeframe is 2016-2019 and involves three private partners from the UK and Sweden, five research organisations from the UK, the Netherlands, Spain and France, 4 higher education institutions from Spain, the

Netherlands, the UK and Italy and the two municipalities of Barcelona and Amsterdam (ibid). The latter are designated to test the developed technologies in their cities through application into four existing or under development smart city projects (Bass et al., 2018). Decode project promotes a data as commons logic starting from a recognition of the exploitation and value creation over users' data occurring in today's digital societies. The project aspires to create data commons, in response to data exploitative models, by empowering citizens to reappropriate data (Anjutament de Barcelona, 2019b). The project involves cryptography and blockchain technologies in order to ensure citizens' capacity to control their data activities and ensure the created pools of data are public in the sense of the commons, while personal and private data are protected. All in all, Decode seeks to provide tools that put individuals in control of whether they keep their personal information private or share it for the public good.

Commons-based peer production scholar Yockai Benkler (2019), who was also an invited keynote speaker of the Barcelona City Council in the 2018 SCEWC, writes about the project:

> Barcelona's DECODE project, supported by European funding, presents an instance where participatory processes can inform a public-commons partnership where the objective of the project is to produce a publicly-funded privacy and identity protection system, that can be used by residents as a way of asserting facts about themselves without compromising the full trace of their behaviour. The project, still in development, offers a model for cities harnessing their convening and fiscal sources to help create commons-based sources of resistance to the emerging market models of surveillance-based behavioural marketing (para. 13)

In response to the corporate smart city of surveillance capitalism (see Subboff, 2019), the project seeks to empower citizens with a control over their data using technology. The project is an operationalisation of the logic technological and data sovereignty in a smart city context means citizen and city sovereignty. In practice, this is achieved through the operationalisation of the principles of technological decentralisation and data ownership.

In terms of the developed technology, Decode seeks to operationalise blockchain technology in order to develop 'a modular privacy-aware IoT hub with a free and open source operating system' (European Commission, 2017, p.1). Decode thus supports the use of decentralised technologies under a free and open software mode of production, or else commons-based peer production against proprietary software. The aim is to achieve a level of decentralisation at the end-use side of smart city services and products in this way redistributing power back to citizens. As such using decentralised technology for digital sovereignty. This comes in response to the overall centralisation of power and data within the corporate smart city front.

The centralisation vs. decentralisation debate at the level of technology has always been at the core of technological debates since the '90s. Free and open technologies movements have traditionally operationalised decentralisation of technological development against the centralisation inscribed in proprietary software and hardware through patents and intellectual property rights. At the core of this fight is the social antagonism around ownership. The Decode project is a material way of dealing with that antagonism at the level of data, i.e. data ownership. The logic behind it is that operationalising the following. Through a strategic government pull of funds and resources, i.e. EU funding, the city of Barcelona as protector of its citizen's rights develops a technology that redistributes power, by allowing the end-user citizen to decide how their data is going to be used. This is made possible using blockchain technology and several levels of encryption. As such, the very project can be viewed as an agonistic project. On the one hand, it seeks to develop a technology based on these principles. On the other, it produces knowledge through the project development and its reports that is of the counter-hegemonic agonistic nature. The project builds on the free and open technology movements that have traditionally provided counter-hegemonic approaches to centralisation logics of standardisation, proprietary ownership and technological determinism through decentralisation logics of openness, freedom, peer-to-peer production and commons. The Decode project as well as the overall Barcelona strategy bypasses differences within the free and software movements (see Berry, 2008) by focusing on the fact that '[l]egally speaking, there is no difference between the definition of free software and the open source guidelines' (Anjutament de Barcelona, 2017d, p.6). Within the movement, the appropriation of openness by high-tech corporations e.g.

Google and dominant discourses has been a reality over the past decade (Berry, 2008; Mosemghvdlishvili and Jansz, 2018).

Beyond openness, other concepts are on the verge of appropriation are commons and decentralisation as well. These are no more technologies or concepts that explicitly belong to the non-proprietary logics of technological development but are being incorporated within proprietary business models. The analysis of Mosemghvdlishvili and Jansz (2018) of Google's appropriation of openness is one example. In the case of smart cities, Cisco is also using the concept of network decentralisation in their City Protocol. According to Berry's (2008) as regards to the appropriation of openness by high-tech property-based corporations, the flattening of the meaning of free is attempted moving away the discussion from the original basis of ownership. Decentralised models and modes of thinking are more and more supported as they can produce innovation. The appropriation of openness means that innovation and technology can be products of decentralised production or thinking, but at the end of the day the product or service is owned by a centralised entity such as a corporation or platform that can produce profit. This debate also trickles down to the discussions around the platform economy. Within these discussions it becomes evident that there are various levels of centralisation and decentralisation in technological development that various discourses operationalise, showcasing that network decentralisation does not necessarily mean a decentralised technological framework, operating system and overall qualities that have been promoted by the free and open software movements as counterhegemonic in the past.

Under Lefebvre's theory of difference, the situation can be read as follows. During the internet boom repetition of the 90s, the free and open technological movements and approaches rose as differences 'on the margins of the homogenized realm […] in the form of resistances' as the differential space of technological development (Lefebvre, 1974, p.373). At that time, those were produced differences that escaped the norm of technological development. However, as Lefebvre insists differential space is in a constant antagonistic relationship with the abstract space of capital within the logic of which proprietary technology is produced. So, after a series of repetitions, the appropriation of the openness differential sign signals a process of reduction that seeks to bring it back into the capitalist technological development framework of production.

This means essentially turning it into an induced difference that is accepted and desirable in the current repetition, i.e. absorbed within the homogeneous realm of technological development. The freedom movement on the other hand still operates on the margins as a produced difference of the 90s repetition and that is predominantly because it denies ownership and cannot be monetised in principle. As Richard Stallman (2006) often reiterates freedom is not having a master.

The question of ownership within internet of things smart cities conditions becomes fundamental, especially since one of the effects of the blurring of lines in the cyborg world entails a level of ownership obscurity, as it concerns data in particular. For example, the Decode project is expected to be give 'power to the people' (European Commission, 2017, para. 1), 'back control over their data online' (Nesta, 2017, para.1), while for the European Commission (2018) it is in fact blockchain technology that 'give[s] people more control over their data' (European Commission, 2018, para.1). Since ownership of data is hard to achieve, the project seeks to give control over data instead i.e. giving power to the end-user citizen, as a strategy to battle the exploitation of their data based on the data ownership of terms and conditions (Ritter and Mayer, 2017; Dosis and Sand- Zantman, 2019). As such the project can be seen as a defensive agonistic strategy against the current obscure conditions of data ownership.

Decidim: democratic social action

The Decidim platform is a free and open source software platform developed in Barcelona whose purpose is to enhance participatory democracy. As the word decidim in Catalan means 'let's decide' or 'we decide' the digital platform is intended as 'a political network for democratic participation' (Decidim, no date a, para.3). The platform's development occurred within Barcelona's Laboratory for Democratic Innovation that is 'an interdisciplinary, inter-institutional group' coordinated from the Barcelona City Council and involves 'researchers, communicators, programmers, engineers and, indeed, anyone interested' beyond the city council (Anjuntament di Barcelona, no date c, para.3). This group formation, as yet another example of pooling of resources logic, collaborated to develop the first instance of the platform decidim.barcelona for citizen participation to the Barcelona City Council. The group also

forms the metadecidim community, the community responsible for promoting, managing and further developing the platform (Decidim no date a; no date b).

Although, Decidim was publicly funded by Barcelona's City Council by 90%, it was also supported by a wider community of activists, developers and researchers and even companies with the aim to generally '[empower] social processes as a platform for massive social coordination for collective action independently of public administrations' (para.4). As a representative indicated in a presentation of the platform at the 2018 SCEWC, the metadecidim community effectively works through consensus by using the platform to organise itself. In the question as to what would happen to decidim in the case of a government change, they suggested that effort is made to not be as dependent to the city for funds rather to the community in general. That is practically the case with the development of the code of the platform per se that is based on the principles of free and open software and beyond the core team has over 40 contributors at the software development platform of GitHub (no date). Inscribed in the free and open code basis of the platform is the idea that it can be modified and further developed accordingly to specific organisational needs and purposes. To a great extent this allows the platform to evolve irrespectively of its decidim.barcelona instance, while again the allocated funds reach out and beyond Barcelona.

In line with Barcelona en Commu's logics of municipalisation, digital- government transformation and overall democratisation, the purpose of decidim.barcelona was to enhance citizen participation in governmental processes through the use of Decidim as 'digital infrastructure' (para. 4). Beyond decidim.barcelona, the platform has been used as 'digital infrastructure' by various forms of organisational structures such as municipalities, national and regional governments, cooperatives and NGOs. In the grander scheme of things, the metadecidim community proclaims that 'Decidim comes to fill the gap of public and common's platforms, providing an alternative to the way in which private platforms coordinate social action (mostly with profit- driven, data extraction and market-oriented goals' (para.9). This is built within the rationale of its development that in principle has recognised, on the one hand, a crisis of democracy and representative democracy and processes and, on the other, the rise of the networked society and cognitive capitalism. Amongst the two, social movements such as the squares

movements from 2011 onwards and the free software movement are produced as differential spaces that the decidim platform builds upon and is built upon. The metadecidim community operates in a technopolitical sphere that acknowledges how technology is not neutral and chooses to design technology that protects and ensures participation in democratic processes. In other words, operationalising technical knowledge and production for participatory democracy.

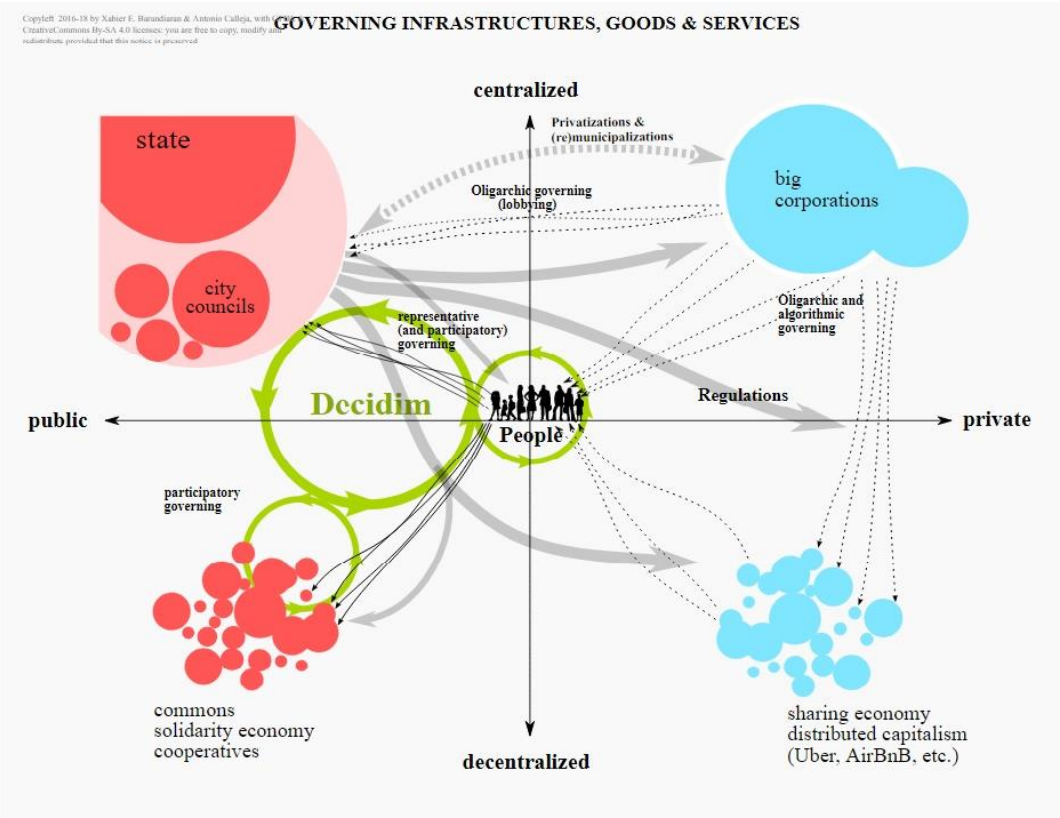


Figure 16: The Decidim model for a democratic society. Source: docs.decidim

The positionality of Decidim within the structures and flows of governing of infrastructures, goods and services is below represented by the metadecidim group as a pragmatic approach to a democratic society nowadays (Figure 16). Similarly, to the Decode project, Decidim seeks to intervene in society to both safeguard and promote the right to participation in governing. Positioning the platform as digital infrastructure next to the people across the public axis, Decidim offers a solution to the stalemate of the crisis of democracy, as represented in the public-commons separation to the left, that is essentially on a standoff with private corporations and economies that represent platform and surveillance capitalism and datacracy as expressions of cognitive capitalism, to the right (see Decidim, no date a). Among the flows exchanged between government levels

and corporations that range from regulations to lobbying pressure, in the middle of the axis stand 'the people' as the users of infrastructure, goods and services produced and dependant of these governing processes. Following a pragmatical perspective decidim is positioned as a platform of mediation between government and people, presenting an alternative to the commonsensical spatial practice of governing as a balance between public governments and private actors. Through the decidim model, digital infrastructure is created to actively allow, enhance and support the participation of people in governing. Furthermore, through its metadecidim community the platform connects commons and solidarity economy contributing to the extended understanding of the public beyond government and supporting public-commons partnership (Benkler, 2019). In this way, decidim stands in between centralised government practices (representative democracy) and decentralised participatory governing practices (direct democracy) seeking to this way bridge the gap between the public as government and public as commons by facilitating the participation of the people.

By design Decidim platform contains features and functions that embody and enhance the principles of democratic participation. These principles are shielded within Decidim's 'social contract' that must be followed and endorsed by all its members and partners and are: 1) free and open content; 2) transparency, traceability and integrity; 3) equal opportunities, democratic quality and inclusiveness; 4) privacy with verification; and 5) democratic commitment, responsibility and collaboration (para. 5). The platform within its architecture provides a set of 'components' that can be combined within 'spaces' creating a tailored to organisational needs toolkit. Components such as 'meetings, proposals, blogs, debates, static information pages, surveys, results and comments' are to be combined within 'participatory spaces' such as 'Initiatives, Processes, Assemblies and Consultations' (para. 6). For example, in the case that an organisation seeks to organise 'a participatory budgeting process' the platform could be operationalised as follows:

> at an early phase, public meetings can be opened for citizens to analyze different needs classified by districts […] these meetings can lead to the design of a survey. The survey results can next be used to define a set of categories for projects to be proposed. The proposal component might then

> be activated for participants to create and publish their projects as solutions to the identified needs. These proposals can be commented on. After a period of deliberation, the voting component can be activated to select among the projects using a budget-expenditure system. Participants can then be called to a public meeting to evaluate the results and an assessment survey can then be launched for those who could not attend the meeting. Finally, the accountability component can be activated to monitor the degree of execution of the selected projects and people can comment on it. (para. 5)

In terms of participation, the representative of decidim suggests that certain topics and issues can more easily drive participation. When a debate on a topic of interest is opened participation is higher. In relation to that Aragon et al. (2017) research shows that when proposals are met with negative comments users are more likely to engage in discussion of the proposal casually promoting deliberation over the proposal (Decidim, no date b).

In the presentation of Decidim at the 2018 SCEWC, the internet was presented as a space of struggle and dispute instead of a freedom space as imagined in its dawn (e.g. Barlow, 1996). In order to present an alternative to the coordination of social action, the latest developments of decidim's code seek to add the features of a social media network to be though structured around political participation. These features will range from adaptive interface, to collaborative workspaces, user groups and gamification badges (e.g likes). The intention is to altogether 'present an alternative to the existing model of digital economy sponsored by corporate digital platforms (Amazon, Airbnb, Uber, etc.)' (para. 9) through the creation of an explicitly political social media platform. This direction decidim is taking is particularly interesting as it recognises the important role social media play in identity construction. At the same time, instead of moving political action into corporate owned social media the argument seems to be to move social media aspects into the explicitly political platform of decidim in hope that this might further support participation as well as corelate social action with political action. Altogether, in the case of Barcelona alternative imaginaries of the sharing-platform economy and smart cities are produced as differential space seeking to challenge corporate-led hegemonic imaginaries (e.g. Morozov and Bria, 2018; Morell Fuster, 2018).

5.4 Conclusive Remarks on the Perceived Space of Smart Cities

The purpose of this chapter was to answer the second research sub-question of how spatial practices are operationalised within European smart cities politics by focusing on the analysis of insights from ethnography in place. Three sets of spatial practices (or else discursive-material processes of spatialisation) were discussed for each case: spaces of organisation, organisation of events and project development and implementation practices as spatio-temporal processes and outcomes of the discussed European spatial politics. The sets of practices were discussed per case (Sections 5.1-5.3) through the production of narrative analysis in order to emphasize the intersection of the cases and levels.

In the case of the EU, the creation and development process of the EIP-SCC was presented showcasing that despite discontinuity in the institutional processes, the discursive structure and its core elements such as innovation and efficiency sustain. Although, EIP-SCC did not materialise as an institutional body of the EU as originally intended, it materialised as a quasi-governmental body. Furthermore, the ethnography of 2018 EWRC clearly showed how materialisation processes meet translation challenges from the regional to the local-city level and this often becomes a main reason why a move away from top-down processes becomes desirable. Nonetheless, such move cannot be merely discursive, but needs to involve practical and material elements of inclusion. This became even more clear in the cases of Amsterdam and Barcelona.

In the case of Amsterdam, the Amsterdam approach and the role of ASC were first presented showcasing such a local level inclusive approach and second certain projects that resulted from that approach were discussed. In this case, the contradictions and antagonisms that result from the discursive-material gap within spatialisation processes such as project development were revealed. At last, in the case of Amsterdam, the role of the spectacle for place-making processes was also revealed through the WeMakeThe.City festival.

In the case of Barcelona, the efforts of Barcelona en Commu to promote and facilitate, spaces of agonism through the operationalisation of existent spaces of organisation, such as Barcelona Activa, or events, such the Sharing Cities Summit, were presented. In this

case, a more radical understanding of spatial politics was noticed and the well-thought through strategic decisions toward citizen empowerment were evident. The review of the Decode and Decidim projects further showed that there are substantially different agonistic strategies to be followed and the context of project development is crucial, i.e. who is it involved/included and how.

Part of the aim of this chapter was to avoid a stand-alone narrative representation of spatial practices in each case, but to further instigate thinking those as spaces of antagonism and agonism. For that reason, an attempt to further summarize or generalise in this chapter has been avoided. The goal of this approach was for the narrative to '[supply the answer before the question is asked' for '[t]he narrative itself is the answer' (Nehamas, 1985 in Flyvbjerg, 2006, p.240). Finally, this chapter is ought to be perceived as a bridge chapter between previous Chapter Four (conceived space) and following Chapter Six (lived space), where final reflections and conclusions are made from the perspective of lived space that is also the space of experience of the analyst.

Chapter 6: The Lived Space of European Smart Cities-Reflections and Concluding Thoughts

This thesis set the dual research aim of (a) uncovering the political behind smart city spatial politics in order to (b) ultimately provide a deeper understanding of what 'the right to the smart city' entails. For that the necessity of the development of a project specific discursive-material framework was argued for with the purpose to provide a political analysis of European smart cities politics. Three sub-research questions were set based on Lefebvre's (1974) triadic model of space production (see Figure 3) in order to answer the overarching question of how smart cities are produced within European spatial politics.

European spatial politics were approached in two levels (European-regional/city-local) and through three cases (EU, Amsterdam, Barcelona). Chapter four focused on presenting the conception of smart cities among the cases employing political discourse analysis to uncover the underpinning social and political logics. Chapter five focused on presenting spatial practices uncovered during ethnography for each case to approach spatialisation processes. The two chapters together engaged with the first aspect of the research aim providing a discursive-material political analysis of smart cities space conception and perception. The purpose of this final chapter is to conclude this thesis by further problematising the conception and perception of smart cities within European smart politics under a 'right to the smart city' prism (see Kitchin et al., 2018). As such, chapter six answers the third and final research sub-question that completes the triadic model of how European spatial politics on smart cities are experienced from the perspective of the analyst.

Therefore, this final chapter answers the research not through further analysis, but through discussion and reflection over the empirical findings and the analytical process. In this thesis, the uncovering of the political underscoring smart city politics was delivered through the incorporation of the theories of space and hegemony into the framework so that an explicitly political vocabulary was created. In this chapter, empirical findings and theoretical insights are further processed towards a deeper understanding of the right to the smart city. Ultimately, how does a deeper understanding

of the right to the smart city look like based on the theoretical and empirical work done in this thesis?

This final chapter is structured into three parts that conclude this thesis. The first part discusses the production of smart cities in a cyborg world of discursive-material geometries of power raising a few points and proposing a way of understanding the processes of smart cities space production. The second part reflects on the analytical process and findings with respect to citizenship and the right to the smart city. Finally, the third part gathers this thesis' contributions and recommendations.

6.1 Discursive-Material Geometries of Power

The integrated discursive-material framework of this thesis was premised on the assumption that the production of European smart cities occurs within the blurry lines of trans-urban systems and networks that express geometries of power locally, territorially, nationally, regionally and globally. Per se, under the discursive-material prism European smart cities are the always-incomplete products of highly intersecting discursive-material urban processes. This part further opens the discussion of the overall production of smart cities as conceived, perceived and lived space in the cyborg world considering the trans-urban (Sassen, 2007) and transcalar (Brenner, 1999; 2000) geometries of power (Massey, 1999) and the possibilities and limitations those produce through contradiction in the level of the city (Castells, 1993; Harvey, 2013; Lefebvre, 1974; Sassen, 2014). The operational question to achieve this discussion is formulated around Lefebvre's (1973) conceptualisation of abstract space as the space of capital that as such is inherently contradictory and produces difference. Grounding this into the lived experience of the autoethnography the question: where was the differential space of smart cities as the negation of abstract space found within the cases? Most importantly, what are the possibilities and limitations of that space as construed from the perspective of the analyst?

This thesis predominantly approached the political economy of the cyborg world through Lefebvre's (1973) concept of repetition as a fundamental process responsible for reproducing the social relations of production through concealing contradictory produced differences under the veil of the spectacle (Debord, 2002). This thesis also consulted

Moulier-Boutang's (2012) articulation of the current phase of capitalism as cognitive in form and content. Cognitive capitalism focuses on harnessing collective intelligence directing it towards the production of innovation that, in turn, as content powers a form of production 'based on digital networks articulated by the Internet' (p.65). Which is why and where, perceptions on technology and its relationship to social change become of prime importance. In this respect, literature on sharing and platform economy clearly pictures that the developments and efforts towards harnessing collective intelligence are multi-layered and multi-sided (e.g. Codagnone et al., 2018; Morell Fuster, 2018; Schor et al. 2016; Sharp, 2018). For instance, Codagnone et al. (2018) display the cruciality of innovation and social justice rhetorics play in platform politics. Vidal and Morell Fuster (2018) categorise different policies within different dimensions of governance that illustrate different roles of city governments can play in the sharing economy. Others focus on the effect of platform economics on labour, inequality and social relations in general (e.g. Ravenelle, 2017; Schor, 2017; Schor and Attwood-Charles, 2017). Yet, as Lefebvre's conceptualisation goes the repetition is only possible when it disguises the existent geometries of power under a false newness. To a great extent, in the current repetition named cognitive capitalism the newness as depicted in the softwarisation of society (see Berry, 2014) smart cities, internet of things, AI and generally algorithmic governance (see Coletta and Kitchin, 2017) conceals under the spectacle the very production of everyday life through code (see Kitchin and Dodge, 2011) and technology in general. Unlike traditional city planning, smart city planning highly relies on the production of space through hard and soft technological infrastructures (e.g. Angelidou, 2016).

In chapter four, the political logic of pooling of resources was discussed. The logic of pooling of resources has been present in all three cases, although operationalised differently within the different webs of meaning. The operationalisation was highly dependent on the accompanied social logics (e.g. growth, social justice) but also underpinning ideologies, the overall web of meaning created and finally the influence of the perspective of each level (local-regional). In chapter five, the ways in which the political logic of resources has been operationalised through and in spatial practices was further explored within the cases. In this exploration, agonistic ways in which this political logic has been operationalised in the case of Barcelona, as part of the

‘reimagining the smart city’ and the ‘right to the smart city’ quests (see Morozov and Bria, 2018) were extensively discussed. At the same time, the ways in which the same logic has been operationalised in the construction of the ASC and EIP-SCC partnerships and their role as ecosystem mediators-facilitators was also discussed. Ultimately, although the logic was characterised as socio-temporal in chapter four, chapter five highlighted how at this phase of cognitive capitalism the spatialisation of this logic is particularly crucial to produce the space of smart cities. That is because the spatialisation of the logic of pooling of resources in all three cases involves a range of actions that both organise space and are organised in space through the processes of emplacement and enactment (see Dale and Burrell, 2008). In what follows, a wider discussion around ways of organisation of resources in the phase of cognitive capitalism is provided drawing upon empirical findings from the cases in conjunction with the framework provided in chapter two. The focus is whether the organisation of resources for the purposes of social change (be it within the social logic of growth, social justice and/or technological change) can be seen as the differential space within which hegemony is to be challenged under a right to the smart city prism.

In the cases of the EU and Amsterdam, the construction of the EIP-SCC and the ASC partnership has been presented. Both partnerships act as mediators and facilitators of a network of partners, often called ecosystem, as well as promoters of their activities and practices. As such, both partnerships are spaces of organisation that also contribute to the organisation of space as their practice mainly concerns the mapping, facilitation, mediation and management of various types of resources, e.g. financial resources, project specific resources and human resources. The main difference between the two is their perspective due to their level of operation. ASC operates within and for the local ecosystem of Amsterdam, while EIP-SCC operates within and for an ecosystem of regional European scale that is much more abstract. As such, ASC takes upon a more explorative approach on its development that fits the local context of city of Amsterdam, its entrepreneurs and its economy and is characterised by more flexibility in its operation. To the contrary, the EIP-SCC seems to be to an extent constrained by the supervision of the European Commission and various levels of bureaucracy this might entail as well as generally political developments in the EU level. Nonetheless, the creation of both

partnerships involved a website-platform where information and knowledge can be shared and through which the respective ecosystems are to be nourished and sustained.

Extensive discussions on the sharing economy and cities occurred in the SCEWC during ethnography, while Morozov and Bria's (2018) proposition is to understand developments there as integral part of smart cities developments. As they write:

> In the context of this essay, "smart" refers to any advanced technology deployed in cities with the intent of optimizing the use of resources, producing new resources, changing user behavior, or promising other kinds of gains in terms of, for example, flexibility, security, and sustainability. These gains accrue primarily due to feedback loops inherent in the deployment and use of intelligent devices featuring connectivity, sensors, and/or screens.
>
> Such a capacious definition helps us to avoid the artificial limits imposed by the industry itself, making it possible to consider services offered to and in cities by firms from Google to Uber, which otherwise would not be present alongside the numerous self-described "smart city" products and solutions offered by the likes of Cisco or IBM. (Morozov and Bria, p.4)

Further to this, this thesis hints that beyond the expression of platforms as technologies, underlying there is also an organisational component that in smart city discourses specifically coincides with the logic of partnerships and networks. For example, the public-private partnerships examined in this thesis connect entrepreneurs, companies, councils, banks, NGOs etc. with each other for the purpose of creating project-related partnerships that can produce innovation. Those project related partnerships might in the end produce a technological solution-product. In the case of ASC for instance, one of its main tasks is to connect various stakeholders in a network to share innovative solutions with the purpose to accelerate the production of innovative smart city solutions. With time the online platform has started to also operate as a social network for 'innovators' holding space for the Smart City Academy of knowledge sharing. The same logic is generally applied to start-up and hackathon cultures and various forms of accelerators as

for example technological districts. All in all, ‘smart’ might refer to technology as Morozov and Bria (2018) suggest, but this thesis also suggests that there is an also a socio-spatial organisational component underlined in smart cities developments that ties ‘smart’ with governance and innovation.

Moulier-Boutang (2012) suggests that one of the advantages of cognitive capitalism is that it is tightly tied to the very conceptualisation of the internet as an end to end network and the principle of inter-operability. That is to say that cognitive capitalism builds those principles in its mode of production as ‘the physical and logical layer of the network of networks was designed deliberately as a platform that was simple and “dumb”’ (p.66). If therefore platformisation is accepted as a generalised form of organisation in cognitive capitalism, platforms (and here partnerships are also understood as platforms) are spaces of organisation, spaces of mediation and facilitation and as such organise and produce space and in turn social relations. The purpose of their simplicity and dumbness is Moulier-Boutang (2012) argues to ‘simplify the technical organisation and complicate the knowledge and the content that pass through it’ (p.66). As such the purpose of platforms can be perceived as providing an organisational solution for information and knowledge management of the targeted ecosystems.

Platforms of different types can therefore be broken down as providers of a form of mediation and facilitation of networks, and most importantly social relations, specifically (re-)produced through the very operations of the platform. For instance, Uber reproduces social relations of production by creating a for profit network of drivers and commuters. Airbnb reproduces social relations of production by creating a for profit network of lodgers and property owners. Fairbnb does the same but with inscribing an ethical approach to its the network so that any profit made is redistributed to the community. This way Fairbnb differentiates itself as it acknowledges its operation reproduces social relations of production and chooses to do so ethically, within its own framework of social justice. Notwithstanding, in every platform the underlying logics define the details of organisation and operation. In ASC’s website for example, it is suggested that one of the purposes of the partnership-platform is that the ‘right ecosystem is facilitated’ (Van der Veer, 2016), in this case meaning the right ecosystem for the purposes of sustainable growth, liveability and futureproofing for the city of Amsterdam. In effect, the

management of knowledge and information is treated as resources that when appropriately organised produces the innovation necessary for growth, where innovation is the content of the cognitive capitalism form (Moulier-Boutang, 2012). A spatial understanding of platforms, therefore, effectively indicates that the purpose of platforms is the spatialisation of innovation through the creation of productive networks and territories. As Moulier-Boutang (2012) notes '[i]nnovation is no longer, or is not only, solely within the individual company; it is wherever the territory provides a productive territory or network' (p.54). Platforms and partnerships as such are upon the task to define the productive territory, network, ecosystem of interest and sustain it. Altogether, both platforms and partnerships are networks in terms of both their morphology and logic (see Castells, 1996) and in the context of cognitive capitalism as the current phase of the political economy entail abstract space. For Lefebvre (1974) the negation of abstract space is differential space where right to the city politics are to be organised.

Overall, the rise of Barcelona en Commu to the city council of Barcelona signifies, in Gramscian terms, a movement of political, intellectual and moral leadership from civil society to political society. Broadly speaking, a group of civil society participates in the 'war of position' through their election into the Barcelona City Council, from where they develop agonistic practice (discursive and material) so to participate in the processes of counter-hegemony. Barcelona en Commu can be seen as a political party of, in Gramscian vocabulary, intellectuals, of 'organisers of culture' (see Gramsci, 1971) that as a group enters the political society with the agenda to empower civil society through a position of, at least, relative power. Furthermore, understanding the importance of the category of organic intellectuals in the counter-hegemonic process, but also all the categories of intellect, Barcelona en Commu invests into the production of spaces that can accommodate and nurture them. For instance, as presented in chapter five, the transformation of Barcelona Activa and the La Communificadora programme, the hosting of the Sharing Cities Summit, the development of a right to the 'smart' city campaign, and the participation in groups such as Barcola and Procomuns. All of the above, equally involve discursive and material productions of differential space.

Although on the level of the city of Barcelona, the 2015 moment of Barcelona en Commu signifies the achievement of hegemony, the material reality of this achievement as many

of its representatives' often state is much more complicated. The existent geometries of power that organise hegemony in urban, local, trans-local, trans-urban, national, regional and overall multi-scalar ways (see Brenner, 2000) suggest that Barcelona en Commu remains as an actor of counter-hegemony within the hegemony of political society. Although in the city council, its power is limited due to various reasons such as the politics of the Catalan context or the political organisation of the national and regional context that defines the political power of the Barcelona Council. Nonetheless, the presence of Barcelona en Commu there seems to suggest a 'passive revolution' produced through their practice in the city council that extends beyond its local context. Specifically, from its position Barcelona en Commu translates contradiction into difference through agonism as seen in its monitoring and regulatory activities as regards to property licenses and the regulation of 70% of purchases of software to be free and open source. The pooling of resources of Barcelona en Commu's is therefore significantly different from the other two cases because its purpose is to participate in the counter-hegemonic struggle. Particularly, the purpose is to widen the possibilities of counter-hegemonic struggle through empowering it. This occurs in a number of ways including facilitation of already existent counter-hegemonic ecosystems such as the free and open source movements and cultures of co-operativism and commoning, the widening of the ways policy is developed and the focus on protection of citizen rights, including digital rights.

At the same time, hegemony is expected to seek to neutralize those differences through tactics of pacification and appropriation 'so as to satisfy them in a way that neutralizes their subversive potential' (Mouffe, 2013, p.73). This has already been noticed in literature as regards to citizens participation and the production of neoliberal citizenship for example (e.g. Cardullo and Kitchin, 2018; Kitchin et al. 2018; Morozov and Bria, 2018; Vanolo, 2016). The same has been noticed in terms of the cooptation of openness, commons and decentralisation (e.g. Berry, 2008; De Angelis and Harvie, 2013; Fournier, 2013; Mosemghvdlishvili and Jansz, 2018; Schor et al. 2016). In the case of Barcelona specifically, complaints of creating time-wasting bureaucracy is often directed towards Barcelona en Commu (Codagnone et al., 2018). Such neutralisation processes are predominantly performed in the discursive realm precisely because the subversive potential of difference extends to the material. The purpose of neutralisation therefore is

to hold back the materialisation of difference into space or else the expansion of differential space through its organisation against the abstract space of hegemony.

Beyond processes of neutralisation, Barcelona en Commu also faces limitations from the particularities of its local context as discussed in chapter four. Although Barcelona en Commu managed to remain in council under Ada Colau's leadership for the second time in 2019, it was significantly defeated in many neighborhoods by pro-independence Catalan parties and generally came second (see Gilmartin, 2019; Vasquez, 2019). As it stands, the re-election of Ada Colau 'required the unlikely support of Ciudadanos' candidate (and former French PM) Manuel Valls who promised her the votes solely to avoid a pro-independence mayor' (Gilmartin, 2019, para.4). Such loss has been significantly attributed to Barcelona en Commu's political approach to the Catalan case for independence. As Ada Colau has repeatedly stated as the mayor of Barcelona she is not supporting the Catalan independence although she has been supporting the conduction of a referendum (e.g. Ballano Colau, 2017), which has been many times read as an unclear stance from Barcelona en Commu as regards to Catalan politics (Gilmartin, 2019; Vasquez, 2019). As such, in its second round in the city council Barcelona en Commu stands between separatists and non-separatists parties and has to further deal with various forms of rising Catalan nationalism strengthened as it has been since the 2017 political developments in between the Catalan regional government and the Spanish State. This, of course, is tightly connected with the geometries of power playing out in Barcelona as the Catalan Capital within the Spanish state (see Bernat and Whyte, 2018) and further raises questions of durability and endurance for Barcelona en Commu (see Gilmartin, 2019).

Will Barcelona en Commu be able to keep its momentum and further contribute to counter-hegemonic politics when local politics seem to demand its energy and attention? In addition, what will happen when and if Barcelona en Commu further loses support in the practice of its politics considering it does no more hold a majority in council? Such questions currently linger over Barcelona en Commu's overall smart city politics. For this purpose, lots of Barcelona en Commu's work in relation to smart cities have been following an outgoing internationalist approach directly promoting the practices beyond the locality. If multi-scalar geometries of power are key to the sustenance of hegemony,

then counter-hegemony and the organisation of culture in Gramscian (1971) terms will have to match this multi-scalarity to stand a chance.

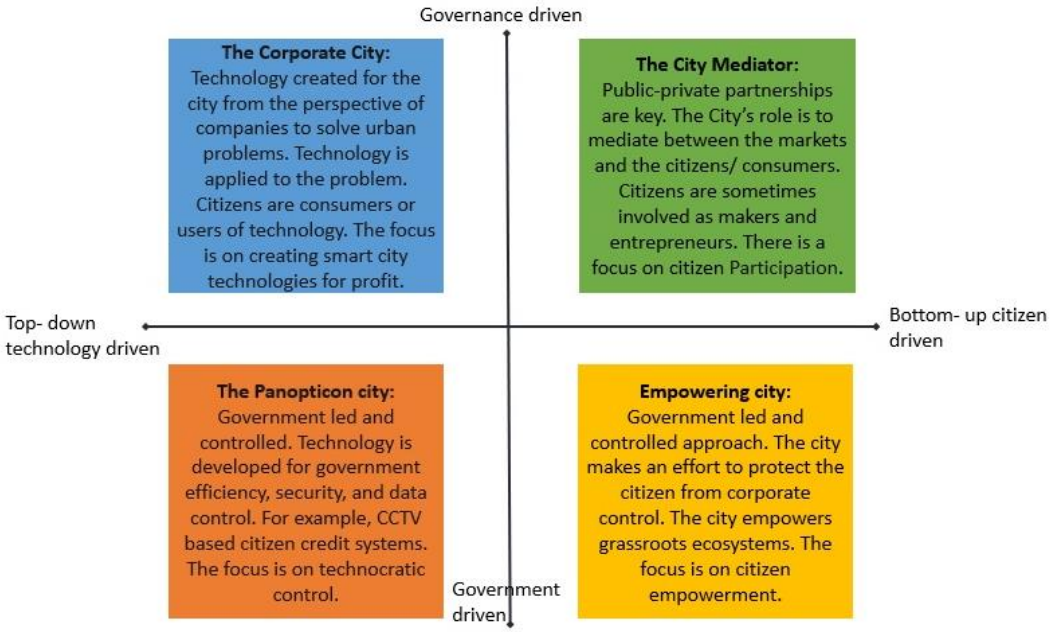


Figure 17: Proposed model for positioning smart cities strategies, projects and imaginaries

Nonetheless, what becomes clear from this discussion, but also throughout the empirical chapters four and five is that all those different imaginaries and logics exist simultaneously and in relationship with each other. This is particularly evident in the case of Barcelona and that became very apparent in the discussions at the SCWEC and the WMC festival. Any counter-hegemonic politics of differential space are by default organised within the context of the social hegemony of capitalism. As a result, this thesis makes a final proposition on how to understand the organisation of smart city strategies, projects and imaginaries based on the assumed and projected social logics of growth, social justice and technological change (see Figure 17). This concerns a conceptual model of assessment of smart city developments that considers four components developed in two axes. The horizontal axis positions technological determinism and top-down technological development on one side and bottom-up citizen driven technological development including open source technological development on the other. Such an axis coincides with both theories of technology (e.g. Feenberg, 2010), findings of critical smart cities literature (e.g. Cardullo and Kitchin, 2018) as well as the empirical findings of this thesis. At the same time, such an axis incorporates the very logic of the right to the smart city that suggests a necessary move towards the righthand side of the axis. As

such, top-down technological development concerns the production of abstract space, while bottom-up citizen driven movements of technological development the production of differential space. The vertical axis positions government driven approaches to smart cities policy and strategy in the bottom and governance driven approaches that includes PPP models on the top. On the one hand, this axis depicts the move from government to governance models suggested by contemporary theory and literature (e.g. Castells, 2005; Eagleton-Pierce, 2014; Mazzucato, 2011; Moulier-Boutang, 2012; Salamon, 2001). On the other, this axis incorporates the empirical findings of this thesis in conjunction with the findings of critical smart cities literature that showcase a variety of smart cities approaches depending on the understanding of the role of government as public sector and governance as the necessity of public-private cooperation. The vertical axis can be also read as the axis of time. The time of governance is to be perceived as an accelerated time of growth, while the time of government is slower and much more bureaucratic. From the constructed matrix, four types of smart cities are abstracted that are to be understood as smart city conceptions and perceptions that through their spatialization become part of the lived experience of cities:

(a) The corporate smart city on the top left coincides with the findings of critical smart cities literature (e.g. Hollands, 2015; Soderstrom et al., 2014; Townsend, 2013) and concerns the imaginaries of big corporations such as Cisco, Siemens and IBM. There technology is developed for profit to be applied into cities, while the cooperation with the public is necessary. In the corporate smart city arrangement city councils and/or citizens are clients and consumers of the smart cities market and smart technologies are the product.

(b) The panopticon smart city on the bottom left differs from the corporate smart city mainly on its purpose. The technology developed for the panopticon smart city has as purpose the efficiency and control of city space by the city government. As such, it is developed to solve government specific issues such as policing and security. This concern explicitly centralised forms of technology that involve control centres and various levels of surveillance through algorithmic control (e.g. Kitchin et al., 2017b; Subboff, 2019).

(c) The smart city mediator on the top right would be the model followed in Amsterdam as discussed in this thesis. The city mediator takes a neutral position in between the market and citizens-consumers and only regulates those in the city level if necessary. Citizen participation is an important aspect of this type of smart city as part of the mediation processes and citizens might occupy a variety of roles among those, e.g. entrepreneurs, innovators, makers that Kitchin et al. (2018) talk of as neoliberal citizen subjects.

(d) Finally, the empowering smart city on the bottom right would coincide with the case of Barcelona and specifically through Barcelona en Commu. The role of the city in this model is to empower citizens through empowering grassroots technological development and/or to protect citizens and their rights through policy and regulation. There also lies the form of public-cooperative partnerships instead of public-private (see Mayo et al., 2019). The city government is in this case positioned in the service of the citizens in their political expression rather than as neoliberal subjects (see Kitchin et al., 2018).

For the purposes of clarity, an example of how this model could be used is showcased in Figure 18. The cities of Barcelona, Amsterdam and Songdo have been roughly positioned in the proposed model for understanding smart cities developments (see Figure 17).

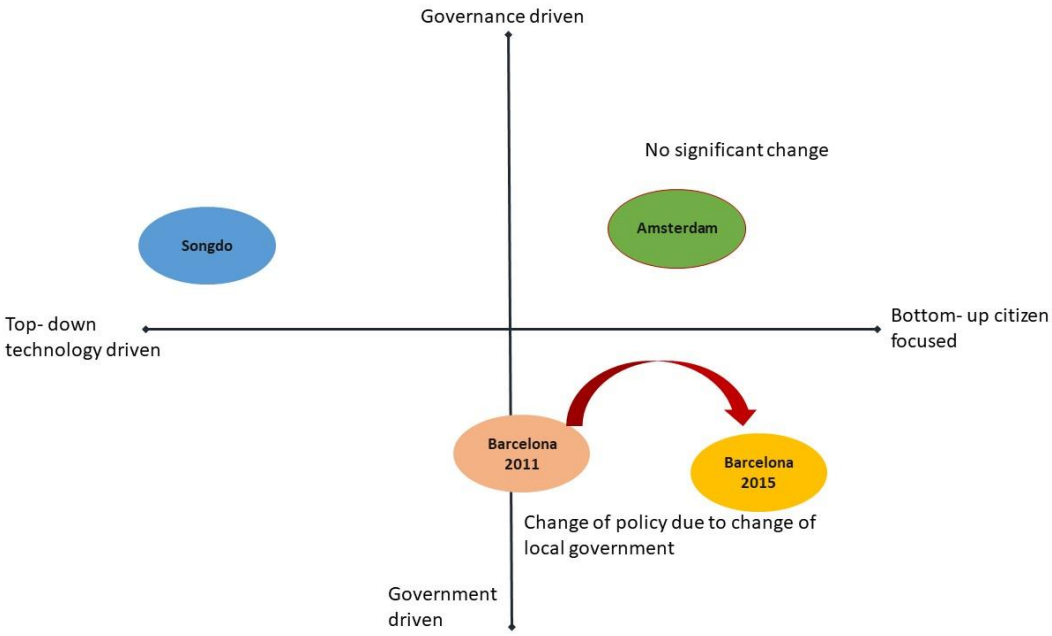


Figure 18: Example of the use of the model

Barcelona and Amsterdam are positioned based on the findings of this thesis and Songdo based on existent literature (e.g. Angelidou, 2014; Hollands, 2015). The main purpose of this example is to showcase how the Barcelona 2011 and 2015 smart cities strategies might differ. However, it is important to note that it is not here argued that this move towards the right bottom due to the change of local government suggests the disappearance of the 2011 approach. To the contrary, the presence of Cisco in Barcelona that was part of the 2011 agreement is still significantly strong and has been the main reasons against which the very 2015 strategy has been developed. Perhaps a more poignant way to use this model would be to assess specific smart city projects within the same city or similar types of projects applied in different cities etc.

6.2 Reflection: Towards the Right to the Smart City

Following the above discussion and findings this part more directly engages with the imaginary and reality of the right to the smart city. First, this research empirically confirms several of the issues critical smart cities literature has already risen that has led most recent to 'the right to the smart city' agenda (see Cardullo et al., 2018). The corporate smart city is present in the cases whether represented in stakeholders and industrial organisation (see Kitchin et al., 2017a), in the case of the EU or as an integral part of the city ecosystems in the cases of Amsterdam and Barcelona. By integral part here is meant that corporations being representatives of private interest of capital have had a huge say in the construction of the smart cities market that make city councils the clients and citizens the consumers-users. In the case of the EU, the responsabilisation of cities takes place (also Vanolo, 2014), while as Cardullo and Kitchin (2018) suggest citizens are mainly approached within a neoliberal logic. Various forms of technological determinisms (see Marx and Smith, 1994; Shrinivasan et al., 2017) are crucial components for the development of this market. At the same time, the approach of citizens as neoliberal subjects (Kitchin et al., 2018) in effect neutralises any notion of political citizenship. Among those observations, the case of Barcelona that has been identified in literature as promising on the basis of its smart city politics developments showcases a direction 'to envisage an alternative smart city founded on the principles of "the right to the city" ' (Kitchin et al., 2018, p.21).

As Kitchin (2018, also Cardullo et al., 2019) discusses the right to the smart city, as is the right to city, can be discussed as either a set of rights or an all-encompassing right in the way Lefebvre (1968; see also 1996) conceptualised it as the 'right to urban life' and the 'right to space'. In its core, Lefebvre's (1968) right to the city concerns a spatial reimagination of politics that involves access to decision-making, policymaking, planning and governance of the city by its inhabitants/city dwellers and not by its citizens. That is because Lefebvre sees citizenship as dependant to its relation to the state, while 'the right to the city would see inhabitants contribute directly to all decisions that produce urban space in their city' (Purcell, 2002, p.112). That is to say that Lefebvre's (1996) radical approach to the right to the city is altogether an utopian framework to work towards; a framework 'to open up through thought and action towards possibilities […] [its aim being] to allow its problems to enter into consciousness and political policies' (Lefebvre, 1996, p.63). Perceiving the developments in Barcelona under such framework, further showcases the importance of the political work done in the city that due to the 21st century multi-scalar conditions reaches much farther than its locality. At the same time, it also showcases the difficulties and limitations of this work considering 'that the more the city is extended, the more its social relations deteriorate' (Lefebvre, 2014b, p.203), which for example was shown in the politics of Barcelona en Commu. Perhaps the more internationalist focus of Barcelona en Commu to extend this important work through a rebel city (see Harvey, 2013) place-making and build European-global network of solidarity, is not completely detached from the 2019 elections outcome that's lead to a loss of power over the immediately local and regional issues of the Catalan capital. This frames the urgency of the right to the smart city politics beyond the responsibility of a single city. At the moment and too often, the developments in Barcelona are looked upon as leading the alternative smart city imaginary, but to avoid the further responsabilisation of the city of Barcelona as a rebel smart city research might need to focus on providing right to the smart city frameworks for cities and citizens to further think through.

As the corporate smart city leads global narratives (see Soderstorm et al., 2014), '[c]ity dwellers (citadins) see their formal rights as citizens (citoyen) reduced' (Lefebvre, 2014b, p.204) or not see as such reductions occur under the domination of technological deterministic spectacular narratives that express rights in their neoliberal form. Rights

today are lost within terms and conditions, tracking systems, geo-locations and streams of data that make up the cyborg life of convenience. Furthermore, as Lefebvre (2014b) comments in his latest text 'the planetarization of the urban' has transformed 'the milieu of life and the quality of the environment' into 'an urgent, politically central status' profoundly transforming 'the prospects of action' (p.205). The cyborg life of convenience that is also framed as more sustainable relies upon numerous externalities and contradictions (see Harvey, 2014; Moore, 2015) that range from health issues to the environmental impact of the required technologies and infrastructures. For example, most recently, the race over the development of 5G infrastructure has spiked where in countries such as the UK the spectacular rolling out this technology is operationalised. 5G infrastructure as this infrastructural technology is deemed crucial for the spatial imaginary of the internet of things (Wired, 2018; see also European Commission, 2019). However, many scientists are concerned with short-term and long-term health effects 5G technology might pose which has led to a number of grassroot campaigns against 5G (see 5gspaceappeal.org; bioinitiative.org; Deutsch, 2019; Horwitz, 2019), which are in turn treated as conspiracy theories by popular media to justify the roll-out (e.g. Hern, 2019; Weiss, 2019). Furthermore, research focus on the political economy of the perceived immaterial to highlight its materiality (e.g. Mahmoudi and Levenda, 2016; Roos et al., 2016).

Echoing Lefebvre, Harvey (2008) writes that the importance of the right to the city is that, at this point, any revolutionary change 'has to be urban, in the broadest sense of that term, or nothing at all' (p.40). In Lefebvre's (2014b) framework the right to the city 'social and political action [is to] be formulated and rearticulated in relation to specific problems that, even if they are concrete, concern all dimensions of everyday life' (p.205), i.e. are urban. As such considering 'the planetarisation of the urban' (Lefebvre, 2014b, p.205) right to the smart city framework of understanding presupposes that, for example, issues of migration, climate justice and postcolonialism produced through externality and contradiction under capitalism need to be politically articulated as urban problems. For such a demanding synthesis to occur Lefebvre (2014b) concludes that perhaps a first step concerns the reassociation of the citizen with the city dweller (or the inhabitant in Purcell, 2002). Lefebvre (2014b) writes:

> The citizen (citoyen) and the city dweller (citadin) have been dissociated. Being a citizen used to mean remaining for a long period of time in a territory. But in the modern city, the city dweller is in perpetual movement—constantly circulating and settling again, eventually being extricated from place entirely, or seeking to do so. Moreover, in the large modern city, social relations tend to become international, not only due to migration processes but also, and especially, due to the multiplicity of communication technologies, not to mention the becoming worldwide (mondialisation) of knowledge. Given such trends, isn't it necessary to reformulate the framework for citizenship (la citoyenneté)? The city dweller and the citizen must be linked but not conflated. The right to the city implies nothing less than a revolutionary concept of citizenship. (p.205)

Towards the direction of a revolutionary concept of citizenship, a few reflections-observations surface from the analysis and findings of this thesis. First, as regards to the right to the smart city the right to technology is crucially implicated. This is empirically evident in (a) Barcelona's articulation and strategy where technological sovereignty and data sovereignty leads to city sovereignty within the logic of digital transformation for government transformation (see Figure 12); (b) against the corporate city positioning of alternative imaginaries (see Morozov and Bria, 2018; also Bria, 2017) and; (c) the signified role of free, open source, peer to peer and commons movements therewith. The democratisation of technological development (see Feenberg, 2010) is a fundamental aspect of smart city politics. As long as dominant and hegemonic discourses perceive technology as a neutral tool to be applied into cities and improve citizens' quality of life, counter-hegemonic right to the smart city approaches need to engage in practices that perceive technology in its most urban form. In other words, in the cyborg world the production of technology and technological development equate the production of space: as conceived, perceived, lived. Beyond the operationalisation of technology towards social change and justice, a conceptualisation of technology as space is here proposed. The planetarisation of the urban (Lefebvre, 2014b) extends Marx's (1993) conceptualisation of the annihilation of space by time through the development of the abstract space of technology. The development of the technology of differential space

might be key to social and political action, with however paying attention to the neutralisation and co-optation strategies that have been definitive to counterhegemonic politics of technology movements.

Secondly and crucially, empirical findings of this thesis suggest several rights that might need to be attributed to citizens towards the right to the smart city. Nonetheless, rights such as rights to privacy, access and participation seem miniscule in front of rights such as the right to smart city policy, place-making, project development or the right to define participation and citizenship altogether. For instance, in the case of Amsterdam Bijlmer, Abdou (2017) concludes:

> Three interventions are still necessary to alter the trajectory of this neighbourhood: the inclusion of the residents in the planning phases of urban renewal, a deeper understanding of the historical context surrounding their arrivals and a national dialogue on the topics of Dutch racism and the legacy of slavery' (p.200).

In this case, the question would be how to incorporate postcolonialism and the particularity of the Bijlmer neighbourhood into the concept of a trans-local or even international citizenship? In the example of the WMC festival, the articulation of the inclusive 'we' have been an attempt to address the particularity of Amsterdam context by perpetuating the absence of a postcolonial debate and bypassing it as an issue (Bosma, 2012a). In this case, urban problems of uneven development and inequality are expressed as urban but without a radical conceptualisation of citizenship that can reflect the right to the city. For the case of Barcelona, how to incorporate the particularities of the Catalan and the Barcelona context into a radical citizenship? And at the same time, how to also incorporate transnational regional citizenship such the European?

At this early stage of the right to the smart city naturally the questions are more than the answers. What is clear however, is that a radical conceptualisation of citizenship, and in turn, of the right to the smart city in the terms of Lefebvre (2014b) needs to at this stage to be both imagined and realised. Political theory on citizenship, theories of cosmopolitanism, global citizenship and postcolonial citizenship might or might not be

of help to the task of a radical conceptualisation of citizenship. On the one hand, connecting citizenship to city dwellers might involve bypassing the institutional links with citizens. At the same time, some form of organisation will have to hold in particular as response to the neoliberalisation of the citizen subject. More radical imaginaries and collaborations bridging social science and architecture for instance are required. Inspired by utopian ideals of socialist resorts, Panayiotopoulos and Pisano (2019) produce an urban armature for Dubrovnik, stressing the need for connectivity, continuity, and radical interventions to address issues of segregation and marginalisation of local groups such as students and seasonal workers. As such, a significant review of existent notion(s) of citizenship and its limitation will be required and furthermore will have to be transgressed into a smart city technological environment.

6.3 Conclusion

This thesis set the dual research aim of (a) uncovering the political behind smart city spatial politics in order to (b) ultimately provide a deeper understanding of what 'the right to the smart city' entails. For that the necessity of the development of a project specific discursive-material framework was argued for with the purpose to provide a political analysis of European smart cities politics. Three sub-research questions were set based on Lefebvre's (1974) triadic model of space production in order to answer the overarching question of how smart cities are produced within European spatial politics. The three empirical cases showed that although there are particularities for each case in the conception and perception of smart cities, the existent geometries of power within the context of the planetarisation of the urban have a homogenising effect that as theory and literature on cities generally suggest are inescapable. As such, smart cities are first and foremost produced as abstract space, with technology being the means and the end of the production, (i.e. technology as space), while the production of differential space as seen in the case of Barcelona strives to challenge its hegemony.

This thesis primary contribution to the critical smart cities' literature was a discursive-material inquiry into European spatial politics on smart cities. Findings were organised into a conceptual model for understanding smart city developments that contains four types of roles for smart cities: the corporate smart city, the panopticon smart city, the smart city mediator and the empowering smart city (see Figure 17, Section 6.1). This

conceptual model was developed reflectively between the findings of this thesis and existent literature on smart cities and as such is not constrained to European spatial politics. In Appendix B, an example of how this model could be conceptually used has been provided.

Further to this, building on a preliminary understanding of the right to the smart city developed in 2015 (see Mangalousi, 2018) this thesis intentionally incorporated Henri Lefebvre's (1968; 1991 [1974]; 2003 [1970]) cumulative work to achieve a deeper understanding of the right to the smart city. At the same time, this incorporation seeks to contribute a take on his metaphilosophical thinking to the critical smart cities' literature, especially through the incorporation of his theory of the production of space in the framework. Based on his work and in conjunction with the empirical findings, this thesis concludes that the right to technology is an important component for achieving the right to the smart city and that a conceptualisation of technology as space in Lefebvre's terms is urgent. This thesis also concludes that a radical conceptualisation of citizenship is fundamental to the right to the smart city. While a conceptualisation of technology as space is a relatively easy task for scholarship to follow, a radical conceptualisation of citizenship requires extensive transdisciplinary work and furthermore activism as within a Lefebvrian framework the lived experience might hold much more insights than mere theoretical explorations. Therefore, this thesis recommends that future research on critical smart cities literature (a) further focuses on the conceptual and theoretical articulations of technology and citizenship in order to contribute towards the imagination a right to the smart city framework; and (b) further develops activist methodologies towards its realisation in order to contribute towards the development of an international 'right to the smart city' ecosystem of organisers of culture that can help towards the operationalisation of the framework in cities.

Furthermore, this thesis' secondary contribution has been to develop an integrated discursive-material framework for studying the smart city. This was performed by integrating Henri Lefebvre's (1974) theory of space with Gramscian (1971) approaches to hegemony (Laclau and Mouffe, 1985; Massey, 1992; 1995) and thereof developing a methodology to approach European smart city politics. This aspect of this thesis entails a contribution to the comprehension of the discursive-material relationship that is being

slowly and steadily developed by a number of scholars and traditions (e.g. Barad, 2007; Carpentier, 2017) and has been a parallel work to this thesis project through conference participation and book reviews (e.g. Mangalousi, 2016; 2018a). The developed integrated framework and methodology ultimately presented in this thesis could be potentially replicated, although with the awareness that project specific twitches and developments might be necessary. Notably it is important to stress that this integrated framework of this thesis was developed with the intention to provide an articulation of the discursive-material relationship for better understanding the smart city as such a framework was lacking, but not with the intention of replicability. Thus, it is here acknowledged that mere replicability without an actual engagement with the conceptual work underlying the framework might be difficult to achieve, considering this thesis is a particularly dense project.

To conclude, on the one hand, this thesis has produced a clear contribution to knowledge through its theoretical and empirical contribution to the critical smart cities literature and the theoretical and methodological development of the discursive-material relationship. On the other, as the final words are being written this thesis asks more questions than it answers. Nonetheless, it is important to reiterate that the objective of this thesis has been to engage into intellectual analysis within a spatial ontology towards the direction of, in Lefebvre's (1976) terms, distinguishing the 'new' from the 'false new' within smart city politics. In that accord, this thesis entails that the production of smart cities under conditions of hegemony hugely relies on the spectacularisation of technology for the purposes of growth, while citizens and city dwellers and their rights are swept in the process. Ultimately, the right to the smart city will require extensive activist-academic political work (Fuller and Kitchin, 2004; O'Flynn and Panayiotopoulos, 2015) that is transdisciplinary and clearly organised in support of the counter-hegemonic struggle.

Appendix

Attached is the email proof of the ethical approval of this thesis

From: ethicsapp@leicester.ac.uk <ethicsapp@leicester.ac.uk>
Sent: 23 July 2018 12:03
To: Karatzogianni, Athina (Dr.) <Athina.K@leicester.ac.uk>
Subject: Ethical Approval System: Application Approved

Dear Athina (Dr.) Karatzogianni,

The Reviewers have approved the following application.
Applicant: Dafni Mangalousi (dm344)
Title: The discursive- material construction of European Smart Cities

Application Reference: 16444-dm344-ss/mc:media&communication
Principal Investigator: Mangalousi, Dafni (dm344)
Title of Research: The discursive- material construction of European Smart Cities

You can view this application by going to the Ethical Approval System at:
https://ethicsapp.le.ac.uk/ethics/applications.aspx?app=kzBdHVgiB3+MD2IQ7YUOBg==

Ethical Approval System Admin (ethics@le.ac.uk)

Bibliography

Abdou, A. (2017). Exploring notions of fair practice in urban renewal and the position of post-colonial citizens in Amsterdam's Bijlmer. *Journal of European Studies*, 47(2), pp.190-202. doi:10.1177/0047244117700075.

Abrahams, G. (2014). What 'Is' Territorial Cohesion? What Does It 'Do?: Essentialist Versus Pragmatic Approaches to Using Concepts. *European Planning Studies*, 22(10), pp.2134-2155. doi: 10.1080/09654313.2013.819838.

Adam, B. (1990). *Time and social theory*. Oxford: Polity Press.

Adam, B. (1995). *Timewatch: the social analysis of time*. Cambridge: Polity Press in association with Blackwell Publishers.

Adam, B. (2004). Memory of Futures. *KronoScope*, 4(2), pp.297-297. doi: 10.1163/1568524042801392.

Adams, P. C. (2009). *Geographies of media and communication: A critical introduction*. Chichester: Wiley-Blackwell.

Adams, P. C. (2011). A taxonomy for communication geography. *Progress in Human Geography*, 35(1), pp.37-57. doi: 10.1177/0309132510368451.

Adams, P. C., & Jansson, A. (2012). Communication Geography: A Bridge Between Disciplines. *Communication Theory*, 22(3), pp.299-318. doi: 10.1111/j.1468-2885.2012.01406.x.

Ahvenniemi, H., Houvila, A., Pinto-Seppä, I., & Airaksinen, M. (2017). What are the differences between sustainable and smart cities?. *Cities*, 60 (Part A), pp.234-245. doi:10.1016/j.cities.2016.09.009

Aiello, G., & Tosoni, S. (2016). Going About the City: Methods and Methodologies for Urban Communication Research. *International Journal of Communication*, 10 (2016), pp.1252-1262. doi: 1932–8036/20160005.

Albino V., Berardi U., & Dangelico M. R. (2015). Smart Cities: Definitions, Dimensions, Performance, and Initiatives. *Journal of Urban Technology*, 22 (1), pp.3-21. doi: 10.1080/10630732.2014.942092.

Alizadeh, T. (2018). Crowdsourced smart cities versus corporate smart cities. Paper presented at the the 4th planocosmo international conference, Bandung, Indonesia.

Alizadeh, T., Sarkar, S. & Burgoyne, S. (2019). Capturing citizen voice online: Enabling smart participatory local government. *Cities*; 95 (2019), pp.102400. doi: 10.1016/j.cities.2019.102400.

Althusser, L. (1962). *Contradiction and Overdetermination* [online]. Available at: https://www.marxists.org/reference/archive/althusser/1962/overdetermination.htm (Accessed 6 June 2019).

Althusser, L. (2014). *On the Reproduction of Capitalism: Ideology and Ideological State Apparatuses*. 2014 Edition. London: Verso.

Alvares León, L.F (2018). A blueprint for market construction? Spatial data infrastructure (s), interoperability, and the EU Digital Single Market. *Geoforum*, 92, pp.45-57. doi:10.1016/j.geoforum.2018.03.013.

Amin, A. &Thrift, N. (2002). *Cities: Reimagining the Urban*. London: Polity.

Amsterdam Campus (no date). Available at: http://www.campus.amsterdam/ (Accessed 20 September 2019).

Amsterdam Climate Office (2008). New Amsterdam Climate: Summary of plans and ongoing projects. Available at: http://mycovenant.eumayors.eu/docs/document/280_1323081175.pdf (Accessed 8 May 2018).

Amsterdam Economic Board (no date). Amsterdam Metropolitan Area. Available at: https://www.amsterdameconomicboard.com/en/amsterdam-metropolitan-area (Accessed 25 May 2018).

Amsterdam Innovation Motor (no date). Available at: http://www.technopolicy.net/index.php/about-us-/3-general-information/41-institutional (Accessed 14 May 2018).

Amsterdam Smart City (no date a). Available at: https://amsterdamsmartcity.com/network/amsterdam-smart-city (Accessed 24 April 2018).

Amsterdam Smart City (no date b). Available at: https://amsterdamsmartcity.com/visit/visit-the-smart-city-experience-lab (Accessed 12 May 2018).

Amsterdam Smart City (no date c). Available at: https://amsterdamsmartcity.com/visit/smart-city-embassy (Accessed 12 May 2018).

Amsterdam Smart City (no date d). Available at: https://amsterdamsmartcity.com/p/about (Accessed 12 May 2018).

Amsterdam Smart City (2010b). Climate Street Amsterdam. Available at: https://www.youtube.com/watch?v=g4SoFQkYcmw (Accessed 12 May 2018).

Amsterdam Smart City (2010c). 5 new Amsterdam Smart City Projects. Available at: https://www.youtube.com/watch?v=NiXTpLpmVhg (Accessed 12 May 2018).

Amsterdam Smart City (2011). Amsterdam Smart City-Smart Stories. Available at: https://www.youtube.com/watch?v=b27FyhhF5Jk&t=43s (Accessed 12 May 2018).

Amsterdam Smart City (2012a). Accenture, Partners, 22 September. Available at: https://web.archive.org/web/20120922033752/http://amsterdamsmartcity.com:80/partners/detail/label/Accenture (Accessed 14 May 2018).

Amsterdam Smart City (2012b). Amsterdam Innovation Motor, Partners, 22 September. Available at: https://web.archive.org/web/20120922030014/http://amsterdamsmartcity.com:80/partners/detail/label/Amsterdam%20Innovation%20Motor (Accessed 14 May 2018).

Amsterdam Smart City (2012c). About ASC. 21 November. Available at: https://web.archive.org/web/20121121230955/http://amsterdamsmartcity.com:80/about-asc (Accessed 7 September 2019).

Amsterdam Smart City (2013). Amsterdam Smart City. Available at: https://www.youtube.com/watch?v=FinLi65Xtik&t=2s (Accessed 12 May 2018).

Amsterdam Smart City (2015). Amsterdam Smart City-The future starts now. Available at: https://www.youtube.com/watch?v=ZMUvQZqvjFg (Accessed 24 April 2018).

Amsterdam Smart City (2016a). Climate Street Amsterdam (Klimatstraat). Available at: https://amsterdamsmartcity.com/projects/climate-street (Accessed 12 May 2018).

Amsterdam Smart City (2016a). Amsterdam Smart City online community. Available at: https://www.youtube.com/watch?v=Q1qCUUorq7c (Accessed 12 May 2018).

Amsterdam Smart City (2016b). Twopager Amsterdam Smart City. *Issuu.* 19 May. Available at: https://issuu.com/amsterdamsmartcity3/docs/asc-twopager-0416 (Accessed 12 May 2018).

Anderson, B. R. O'G. (2006). *Imagined communities:reflections on the origin and spre ad of nationalism.* New edition. London: Verso.

Ajuntament de Barcelona (no date a). Innoba [webpage]. *Social and Solidarity Econom y*. Available at: https://ajuntament.barcelona.cat/economia-social-solidaria/en/innoba (Accessed 1 August 2019).

Ajuntament de Barcelona (no date b). The Sharing Cities Summit chooses Barcelona [w ebpage]. *Barcelona Digital City*. Available at: https://ajuntament.barcelona.cat/digita l/en/noticia/the-sharing-cities-summit-chooses-barcelona_581864 (Accessed 1 Augu st 2019).

Ajuntament de Barcelona (no date c). Democratic Innovation [webpage]. *Democratic C ity*. Available at: https://ajuntament.barcelona.cat/innovaciodemocratica/en/about (A ccessed 1 August 2019).

Anjutament de Barcelona (2017a). *Barcelona City Council Digital Plan: A government measure for open digitisation: free software and agile development of public admini stration services*. Available at: https://ajuntament.barcelona.cat/digital/sites/default/f iles/LE_MesuradeGovern_EN_9en.pdf (Accessed 12 May 2018).

Anjutament de Barcelona (2017b). *Code for Technological Practices for Barcelona Cit y Council*. Available at: https://ajuntament.barcelona.cat/digital/sites/default/files/gui a_adt_2_codi_de_practiques_tecnologiques_en_2017_af_9en.pdf (Accessed 12 May 2018).

Anjutament de Barcelona (2017c). *Agile Methodologies at Barcelona City Council*. Av ailable at: https://ajuntament.barcelona.cat/digital/sites/default/files/guia_adt_3_met odologies_agile_en_2017_af_9en.pdf (Accessed 12 May 2018).

Anjutament de Barcelona (2017d). *Barcelona City Council Technological Sovereignty Guide.* Available at: https://www.barcelona.cat/digitalstandards/en/tech-sovereignty/0.1/_attachments/barcelona_tech_sovereignty_0.1.en.pdf (Accessed 12 May 2018).

Anjutament de Barcelona (2017e). *Barcelona City Council ICT Public Procurement Guide*. Available at: https://ajuntament.barcelona.cat/contractaciopublica/sites/default/files/barcelona_city_council_ict_public_procurement_guide_1.pdf (Accessed 12 May 2018).

Anjutament de Barcelona (2017f). *Innovative Public Procurement Guide*. Available at: https://ajuntament.barcelona.cat/contractaciopublica/sites/default/files/innovative_public_procurement_guide_2017_0.pdf (Accessed 12 May 2018).

Anjutament de Barcelona (2018). *Barcelona City Council Digital Plan: Government measure concerning ethical management and accountable data: Barcelona Data Commons*. Available at: https://ajuntament.barcelona.cat/digital/sites/default/files/2018_mesuradegovern_en.pdf (Accessed 12 May 2018).

Anjutament de Barcelona (2019a). Publication of the Balance of the Barcelona Digital City Plan (2015-2019). *Barcelona Digital City* [Blog] 27th June. Available at: https://ajuntament.barcelona.cat/digital/en/blog/dsiplay-nous-models-dincubacio-i-financament-per-projectes-socials-innovadors?page=3 (Accessed 1st August 2019).

Anjutament de Barcelona (2019b). *Barcelona Digital City: Putting technology at the service of people*. Available at: https://ajuntament.barcelona.cat/digital/sites/default/files/pla_barcelona_digital_city_in.pdf (Accessed 1st August 2019).

Aronowitz, S. (2007). The ignored philosopher and social theorist: the work of Henri Lefebvre. *Situations: Project of the Radical Imaginations*, 2(1), pp.33-155.

Andersen, A. N. (2003). *Discursive analytical strategies:Understanding Foucault, Koselleck, Laclau, Luhmann*. Bristol: Policy Press.

Angelidou, M. (2014). Smart City Policies: A Spatial Approach. *Cities*, 41(1), pp.3-11. doi:10.1016/j.cities.2014.06.007.

Angelidou, M. (2016). Four European smart city strategies. *International Journal of Social Science Studies*, 4, pp.18-30. doi:10.11114/ijsss.v4i4.1364.

Antonini, E. & Mussinelli, E. (2018). Toward the smart city and beyond. *Techne:Journal of Technology for Architecture and Environment*, Special Issue (1), pp.26-27. doi:10.13128/Techne-23567.

Aragón, P. et al. (2017). Deliberative Platform Design: The case study of the online discussions in Decidim Barcelona. In *International Conference on Social Informatics* (pp.277-287). Cham: Springer.

Arsenault, A., & Castells, M. (2008). The structure and dynamics of global multi-media business networks. *International Journal of Communication*, 2, pp.707-748. doi:1932-8036/20080707.

Ash, J. Kitchin, R. & Leszczynski, A. (2015). Digital turn, digital geography?. The programmable city working paper 17, Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2674257 (Accessed 7 September 2019).

Aurigi, A. (2016). *Making the Digital City: The Early Shaping of Urban Internet Space*. NY: Routhledge.

Aurigi, A., & De Cindio, F. (2008). *Augmented urban spaces: articulating the physical and electronic city*. Burlington, VT; Aldershot, Hants, England: Ashgate.

Appadurai, A. (1990). Disjuncture and Difference in the Global Cultural Economy. *Theory Culture Society*, 7, pp.295-310, doi: 10.1177/026327690007002017.

Appadurai A. (1996). *Modernity at large: cultural dimensions of globalization*. Minneapolis, Minn: University of Minnesota Press.

Aribilosho, M. & Usoro, A. (2016). A review on smart cities: impact of technology and social factors (Report). *Computing and Information Systems*, 20(1), pp.21. ISSN 1352-9404.

Bakıcı, T., Almirall, E., & Wareham, J. (2013). A Smart City Initiative: The Case of Barcelona. *Journal of the Knowledge Economy*, 2 (1), pp.135-148. doi:10.1007/s13132-012-0084-9.

Ballano Colau, A. (2017). Statement from Ada Colau Ballano on Catalonian independence referendum, Mayor of Barcelona. *SENSCOT*. 5 October. Available at: https://senscot.net/statement-from-ada-colau-ballano-on-catalonian-independence-referendum-mayor-of-barcelona/ (Accessed 20 September 2019).

Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Raleigh, NC: Duke University Press.

Barbour J. (1999). *The end of time: the next revolution in our understanding of the universe*. London: Phoenix.

Barcelona Activa (no date a). Who we are [webpage]. Available at: https://www.barcelonactiva.cat/barcelonactiva/en/all-about-barcelona-activa/who-we-are/index.jsp (Accessed 1 May 2019).

Barcelona Activa (no date b). 30 years of Barcelona Activa [webpage]. Available at: https://www.barcelonactiva.cat/barcelonactiva/en/all-about-barcelona-activa/30-anys.jsp (Accessed 1 May 2019).

Barcelona Activa (no date c). Barcelona Activa with the solidarity economy [webpage]. Available at: https://www.barcelonactiva.cat/barcelonactiva/en/all-about-barcelona-activa/altres-economies/index.jsp (Accessed 1 May 2019).

Barcelona Activa (2016). Activity Report 2016. Available at: https://www.barcelonactiva.cat/barcelonactiva/images/en/Memoria-activitats-2016-EN-DEF_tcm103-48291.pdf (Accessed 1 May 2019).

Barcelona Activa (2017). Activities Report 2017. Available at: https://www.barcelonactiva.cat/barcelonactiva/images/en/Memoria-activitats-2017-CAT-en-GB-canvis_tcm103-48914.pdf (Accessed 1 May 2019).

Barcelona Activa (2018a). 30 Years of Barcelona Activa [youtube video]. Available at: https://www.youtube.com/watch?v=HCLtKZ8obaI

Barcelona Activa (2018b). Activity Report 2018. Available at: https://www.barcelonactiva.cat/barcelonactiva/images/en/Memoria-activitats-2018-EN-WEB_tcm103-51032.pdf (Accessed 1 May 2019).

Barcelona Emprenedoria (no date). La Comunificadora: Impulse program for projects of collaborative economy [webpage]. Available at: https://emprenedoria.barcelonactiva.cat/emprenedoria/en/programs/la-comunificadora.jsp (Accessed 1 May 2019).

Barlow, J., P. (1996). A declaration of the independence of cyberspace [online]. Available at: https://www.eff.org/cyberspace-independence (Accessed 1 May 2019).

Baron, G. (2012). Amsterdam Smart City's initiatives in the field. *La Fabrique de la Cite*. 31 August. Available at: https://www.thecityfactory.com/fabrique-de-la-cite/data.nsf/64FD0370CA3AE606C1257B8000365CFF/$file/actes_amsterdam_smart_city_baron_0.pdf (Accessed 30 April 2018).

Batty, M. (2012). Smart cities, big data. *Environment and Planning B: Planning and Design*, 39(2), pp.191-193. doi:10.1068/b3902ed.

Beck, U. (1992). *Risk Society: Towards a New Modernity*. New Delhi: Sage.

Beck, U. (1999). *What is globalization?*. Oxford: Polity Press.

Benjamin, W. (1999). *The arcades project*. (Trans) Tiedemann R. Cambridge, Mass; London: Belknap Press.

Benkler, Y. (2019). From the imagined community to the practiced community [online]. *Barcelona Metropolis*. January 2019. Available at: https://www.barcelona.cat/metropolis/en/contents/imagined-community-practice-community (Accessed 1st May 2019).

Bernat, I., & Whyte, D. (2017). Postfascism in Spain: The Struggle for Catalonia. *Critical Sociology*, pp.1-16. Doi:10.1177/0896920519867132.

Bernat, I., & Whyte, D. (2018). Ignasi Bernat and David Whyte – Catalonia and Spanish nationalism. *Brave New Europe*, EU politics. 19 October. Available at: https://braveneweurope.com/ignasi-bernat-and-david-whyte-catalonia-and-spanish-nationalism (Accessed 17 September 2019).

Berry, D. (2008). *Copy, rip, burn: the politics of copyleft and open source*. London: Pluto Press, London.

Berry, D. (2011). *The philosophy of software: code and mediation in the digital age*. New York: Palgrave Macmillan.

Berry, D. (2014). *Critical Theory and the Digital.* London: Bloomsbury.

Bibri, S.E., & Krogstie, J. (2017). On the social shaping dimensions of smart sustainable cities: A study in science, technology, and society. *Sustainable Cities and Society*, 29, pp.219-246. doi:10.1016/j.scs.2016.11.004.

Bijker, W.E, & Law, J. (1992). *Shaping Technology/Building Society: Studies in Socio-Technical Change*. Cambridge, MA: MIT Press.

Bioinitiative (no date). [www]. Available at https://bioinitiative.org/.

Blum, A. (2003). *The imaginative structure of the city.* Montreal; Ithaca: McGill-Queen's University Press.

BMUB (2007). Territorial Agenda of the European Union. *BMUB*, 25 May. Available at: https://ec.europa.eu/regional_policy/sources/policy/what/territorial-cohesion/territorial_agenda_leipzig2007.pdf (Accessed 2 May 2019).

Boltanski, L., & Chiapello, E. (2002). The new spirit of capitalism. In *Proceeding of the Conference of Europeanists*, Chicago, March, 14-16, 2002, pp.1-29. Available at: http://www.darkmatterarchives.net/wp-content/uploads/2011/11/boltanskiSPIRITofCapitalism.pdf (Accessed 9 September 2019).

Boltanski, L., & Chiapello, E. (2007). *The new spirit of capitalism*. London: Verso.

Bond, P. (2017). The Political Economy of Africa and Dependency Theory. In U. Kufakurinani et al. (Eds.) *Dialogues on Development Volume I: on Dependency.* Young Scholars Initiative of the Institute of New Economic Thinking, pp.67-71.

Bontje, M., Musterds, S., & Pelzer, P. (2011). *Inventive-City Regions: Path Dependence and Creative Knowledge Strategies*. Farnham: Ashgate Publishing Limited.

Bookchin, D. (2017). Radical Municipalism: The Future We Deserve. *Resilience* [online] 10th August. Available at: https://www.resilience.org/stories/2017-08-10/radical-municipalism-the-future-we-deserve/ (Accessed 1st May 2019).

Bookchin, M. (1987). Libertarian Municipalism: The New Municipal Agenda. *Anarchy* Archives [online]. Available at: http://dwardmac.pitzer.edu/Anarchist_Archives/bookchin/libmuni.html (Accessed 1st May 2019).

Bookchin, M. (1991). *Libertarian Municipalism: An Overview*. Available at:

https://theanarchistlibrary.org/library/murray-bookchin-libertarian-municipalism-an-overview.pdf (Accessed 1st May 2019).

Borja, J., & Castells, M. (1997). *Local and Global: Management of cities in the information age*. London: Earthscan.

Bosma, U. (2012a). Why is there no post-colonial debate in the Netherlands? In U. Bosma (Ed.), *Post-colonial Immigrants and Identity Formations in the Netherlands*. Amsterdam: Amsterdam University Press. pp.193-212. Available at: http://www.jstor.org/stable/j.ctt45kfpq.12

Bosma, U. (Ed.) (2012b). *Post-colonial Immigrants and Identity Formations in the Netherlands*. Amsterdam: Amsterdam University Press. Available at: http://www.jstor.org/stable/j.ctt45kfpq.12

Braswell, S. (2016). Could Amsterdam become Europe's new financial capital?. *Ozy*, 9 August. Available at: https://www.ozy.com/fast-forward/could-amsterdam-become-europes-new-financial-capital/71110 (Accessed 19 September 2019).

Brenner, N. (1999). Globalisation as Reterritorialisation: The Re-scaling of Urban Governance in the European Union. *Urban Studies*, 36(3), pp.431–451. doi:10.1080/0042098993466.

Brenner, N. (2000). The Urban Question: Reflections on Henri Lefebvre, Urban Theory and the Politics of scale. *International Journal of Urban and Regional Research*, 24(2), pp.361-378. doi:10.1111/1468-2427.00234.

Brenner, N., Marcuse, P., & Mayer, M. (2012). Cities for People, Not for Profit: Introduction. In N. Brenner, P. Marcuse, & M. Mayer (Eds.), *Cities for People, Not for Profit: Critical Urban Theory and the Right to the City*. New York: Routledge. pp.1-10.

Breslin, S., & Higgott, R. (2003). New regionalism(s) in the global political economy. Conceptual understanding in historical perspective. *Asia Europe Journal*, 1(2), pp.167-182. doi:10.1007/s103080300.

Breuer, J., Walravens, N., & Ballon, P. (2014). Beyond Defining the Smart City. Meeting Top-Down and Bottom-Up Approaches in the Middle. *TeMA: Journal of Land Use*, Special issue (june 2014), pp.153-164. doi:10.6092/1970-9870/2475.

Brinkman, J. (2011). Supporting sustainability through smart infrastructures: The case of Amsterdam. *Network Industries Quartely*, 13 (3), pp.22-25.

Brown, T. (2016). Sustainability as Empty Signifier: Its Rise, Fall, and Radical Potential. *Antipode*, 48, pp.115- 133. doi:10.111/anti.12164.

Burd, G. (2008). The Mediated Metropolis as Medium and Message. *International Communication Gazette*, 70(3-4), pp.209-222. doi:10.1177/1748048508089948.

Burgess, J., P. (2002). What's So European About the European Union?: Legitimacy Between Institution and Identity. *European Journal of Social Theory*, 5(4), pp.467-81. doi: 10.1177/136843102760513866.

Burns, A. (2009). Creation. *Transforming Audiences*, London, 3-4 Sep. 2009. Available at: https://produsage.org/node/67 (Accessed at 16 September 2019).

Butler, C. (2012). *Henri Lefebvre: Spatial Politics, Everyday Life and the Right to the City*. NY: Routhledge.

Calabrese, A. (1999). The Information Age According to Manuel Castells. *Journal of Communication*, Review and Criticism, summer 1999, pp.172-186. Available at: https://spot.colorado.edu/~calabres/Castells%20Review.pdf (Accessed 17 September 2019).

Calavita, N., & Ferrer, A. (2000). Behind Barcelona's Success Story: Citizen Movements and Planners' Power. *Journal of Urban History*, 26(6), pp.793–807. doi:10.1177/009614420002600604.

Cardullo, P., & Kitchin, R. (2018). Smart urbanism and smart citizenship: The neoliberal logic of 'citizen-focused' smart cities in Europe. *Environment and Planning C: Politics*, 37(5), pp.813–830. doi: 10.1177/0263774X18806508.

Cardullo, P., Di Feliciantonio, C., & Kitchin R. (Eds.) (2019). *The right to the smart city*. West Yorkshire: Emerald Publishing.

Carpentier, N. (2017). *The Discursive-Material Knot: Cyprus in Conflict and Community Media Participation*. NY: Peter Lang.

Carpotti, F. (2018). Spaces of visibility in the smart city: Flagship urban spaces and the smart urban imaginary. *Urban Studies*, 56(2), pp.2465-2479. doi:10.1177/0042098018798597.

Casellas, A. (2009). Barcelona's Urban Landscape: The Historical Making of a Tourist Product. *Journal of Urban History*, 35(6), pp.825-832. doi:10.1177/0096144209339557.

Castells, M. (1977). *The Urban Question: A Marxist Approach*. Cambridge: The MIT Press.

Castells, M. (1989a). The informational city: a framework for social change. In B. Wellman and J.K. Bell (Eds.) *The city in the 1990s: Livable for whom?,* Research Paper 184, Lecture 3. The Centre for Urban and Community Studies. University of Toronto. ISSN: 0316-0068.

Castells, M. (1989b). *The Informational City: Information Technology, Economic Restructuring and the Urban-Regional Process*. Oxford and Cambridge: Blackwell Publishers.

Castells, M. (1989c). Social Movements and the Informational City. *Hitotsubashi journal of social studies*, 21(1), pp.197-206. doi:10.15057/8417.

Castells, M. (1993). European cities, the informational society, and the global economy. *Tijdschrift voor Econ. en Soc. Geografie*, 84(4), pp.247-257.

Castells, M. (1996). *The rise of the network society* (Vol. 1). Oxford: Blackwell Publishers.

Castells, M. (2004). Informationalism, Networks and the Network Society: A Theoretical Blueprint. In M. Castells (Ed.) *The Network Society: A Cross-Cultural Perspective*, Cheltenham: Edward Elgar. pp.3-45.

Castells, M. (2005). The network society from knowledge to policy. In M. Castells & G. Cardoso (eds.) *The network society from knowledge to policy*. Washington: Centre for Transatlantic Relations.

Castells, M. (2008). The New Public Sphere: Global Civil Society, Communication Networks, and Global Governance. *Annals of the American Academy of Political and Social Sciences*, 616(1), pp.78-93. doi: 10.1177/0002716207311877.

Castells, M., & Cardoso, G. (2005). *The Network Society: From Knowledge to Policy*. Massachusetts: Centre for Transatlantic Relations.

Castells, M., & United Nations Research Institute for Social Development. (1999). Information technology, globalization and social development. *UNRISD*, Discussion Paper No. 114, September 1999.

Calzada, I. (2018). (Smart) Citizens from Data Providers to Decision-Makers? The Case Study of Barcelona. *Sustainability*, 10(9), pp.3252. doi:10.3390/su10093252.

Capdevila, I., & Zarlenga, M.I. (2015). Smart city or smart citizens? The Barcelona case. *Journal of Strategy and Management*, 8(3), pp.266-282. doi:10.1108/JSMA-03-2015-0030.

Certeau, M. d. (1984). *The Practice of Everyday Life.* Berkeley: University of California Press.

Charnock, G. (2010). Challenging New State Spatialities: The Open Marxism of Henri Lefebvre. *Antipode*, 42(5), pp.1279-1303. doi:10.1111/j.1467-8330.2010.00802.x.

Chikamori, T. (2009). Between the 'Media City' and the 'City as a Medium'. *Theory, Culture & Society*, 26(4), pp.147-154. doi:10.1177/0263276409104972.

Chun K., Hui W., & Keenan T. (2005). *New Media, Old Media: A History and Theory Reader*. Florence; New York: Routledge.

Cisco (no date). Barcelona Co-Innovation Center [webpage]. Available at: https://www.cisco.com/c/m/es_es/innovationcenter/barcelona-en.html#~stickynav=1 (Accessed 2 May 2019).

Cisco (2009). IBM and Cisco Collaborate on City of Amsterdam Smarter Energy Project. 15 July. Available at: https://newsroom.cisco.com/press-release-content?type=webcontent&articleId=5024744 (Accessed 2 May 2019).

Cisco (2010). Smart+ Connected Communities: Changing a City, a Country, the World. Available at: https://www.cisco.com/c/dam/en_us/solutions/industries/docs/scc/09CS2326_SCC_BrochureForWest_r3_112409.pdf (Accessed 12 August 2019).

Cisco (2011). Cisco Collaborates With Barcelona to Support '2020 Vision' for Sustainable Urban Management and Economic Growth. 17 February. Available at: https://newsroom.cisco.com/press-release-content?type=webcontent&articleId=5918850 (Accessed 12 August 2019).

Cisco (2012). Barcelona and Cisco announce Strategic Initiatives to Transform the City into a Global Urban Reference Model. 2 March. Available at: https://newsroom.cisco.com/press-release-content?articleId=680179 (Accessed 12 August 2019).

Cisco (2012a). Barcelona, GDF SUEZ and Cisco announce the launch of the City Protocol. 27 August. Available at: https://newsroom.cisco.com/press-release-content?type=webcontent&articleId=998539 (Accessed 12 August 2019).

Cisco (2017). Cisco Announces $1 Billion Program for Smart Cities. 14 November. Available at: https://newsroom.cisco.com/press-release-content?type=webcontent&articleId=1895705 (Accessed 12 August 2019).

Cities Today (2018). The six attributes of future-proof cities. 23 March. Available at: https://cities-today.com/industry/six-attributes-future-proof-cities/ (Accessed 17 September 2019).

Codagnone, C., Karatzogianni, A., & Matthews, J. (2018). *Platform Economics: Rhetoric and Reality in the 'Sharing Economy'*. West Yorkshire: Emerald Publishing.

Coffey, H. (2017). Amsterdam has a new solution for over tourism. *Independent*, 23 October. Available at: https://www.independent.co.uk/travel/news-and-

advice/amsterdam-overtourism-solution-tourists-technology-van-gogh-museum-canal-boat-rides-a8015811.html (Accessed 17 September 2019).

Coletta, C. & Kitchin, R. (2017). Algorhythmic governance: Regulating the 'heartbeat' of a city using the Internet of Things. *Big Data & Society*, 8; 4(1; 2), pp.61-77. doi: 10.1177/2053951717742418.

Couldry, N. (2008). Mediatization or mediation? Alternative understandings of the emergent space of digital storytelling. *New media & society*, 10 (3), pp.373-391. doi:10.1177/1461444808089414.

Couldry, N., & McCarthy, A. (eds) (2004). *MediaSpace: Place, Scale and Culture in a Media Age*. London: Routhledge.

Cox, R.W. (1983). Gramsci, Hegemony and International Relations: An Essay in Method. *Millennium-Journal of International Studies*, 12(2), pp.162-175. doi:10.1177/03058298830120020701.

Cowley, R., Joss, S., & Dayot, Y. (2018). The smart city and its publics: insights from across six UK cities. *Urban Research & Practice*, 11(1), pp.53-77.

Crang, M. (2000). Public Space, Urban Space and Electronic Space: Would the Real City Please Stand Up?. *Urban Studies*, 37(2), pp.301-317. doi:10.1080/0042098002203.

Crehan, K. (2002). *Gramsci, culture and anthropology*. London: Pluto Press.

CrimethInc (2012). 'The Rose of Fire has Returned!': The struggle for the streets of Barcelona. *CrimerthInc.* [Online] 19th April. Available at: https://crimethinc.com/2012/04/19/the-rose-of-fire-has-returned-the-struggle-for-the-streets-of-barcelona (Accessed 1st May 2019).

Dale, K., &, Burell, G. (2008). *The spaces of organisation and the organisation of space: power, identity and materiality at work*. London: Palgrave MacMillan.

Daniel, E. (2018). Which cities could be the new financial centre after Brexit?. *Verdict*, 18 September. Available at: https://www.verdict.co.uk/financial-centre-of-europe-post-brexit/ (Accessed September 2019).

Datta, A. (2018). The Digital Turn in Postcolonial Urbanism: Smart citizenship in the making of India's 100 smart cities. *Transactions of the Institute of British Geographers*, 2018(43), pp.405–419. doi:10.1111/tran.12225.

Davidson, M. (2010). Sustainability as ideological praxis: The acting out of planning's master-signifier. *City*, 14(4), pp.390-405. doi: 10.1080/13604813.2010.492603.

De Angelis, M., &, Harvie, D. (2013). The Commons. In M. Parker, G. Cheney, V. Fournier and C. Land (ed.) *The Routledge Companion to Alternative Organization*. London: Routledge. pp.280-294.

De Beer, M. (2009). IBM and Cisco team partnet in Amsterdam Smart City project. *Smart Energy International.* 25 August. Available at: https://www.smart-energy.com/top-stories/ibm-and-cisco-team-partnet-in-amsterdam-smart-city-project/ (Accessed 2 May 2019).

Decidim (no date a). Decidim: a brief overview. *Decidim docs*. Available at: https://docs.decidim.org/whitepaper/en/decidim-a-brief-overview/ (Accessed 2 May 2019).

Decidim (no date b). [www] Available at: https://decidim.org/ (Accessed 2 May 2019).

Debord, G. (2002). The Society of the Spectacle. Translated by Ken Knabb. Available at: http://www.bopsecrets.org/SI/debord/ (Accessed 9 September 2019).

De Hoop, E., Smith, A., Wouter, B., Macrorie, R., Marvin, S., &, Raven, R. (2018). Smart Urbanism in Barcelona: A Knowledge Politics Perspective. In J.S. Jensen, M. Cashmore and P. Späth, (Eds) *The Politics of Urban Sustainability Transitions: Knowledge, Power and Governance*, London: Routledge, pp.33-52.

Delclós, C. (2013). The battle for space in Barcelona: the 'rose of fire'. *Open Democracy* [online] 5th March. Available at: https://www.opendemocracy.net/en/opensecurity/battle-for-space-in-barcelona-rose-of-fire/ (Accessed 2 May 2019).

Department of Economics and Social Affairs- Population Division (DESA- PD) (2014). World Urbanization Prospects The 2014 Revision. Available at:

http://esa.un.org/unpd/wup/FinalReport/WUP2014-Report.pdf (Accessed 9 September 2019).

De Saussure, F. (2011). *Course in General Linguistics*. W. Baskin (Trans.) In P. Meisel and H. Saussy (Eds.). Columbia University Press. Available at: http://www.jstor.org/stable/10.7312/saus15726 (Accessed 2 May 2019).

Desouza, K. C., & Bhagwatwar, A. (2012). Citizen apps to solve complex urban problems. *Journal of Urban Technology*, 19(3), pp.107-136. doi:10.1080/10630732.2012.673056.

Deutsch, J. (2019). Anti-antennae warriors stall 5G rollout in Brussels, 5 November. *Politico*. Available at: https://www.politico.eu/article/5g-radiation-health-cancer-21-century-tinfoil-hatters-take-brussels/ (Accessed 20 September 2019).

Digital Single Market (2012). Granny goes Roaming [Youtube Video]. 29 June. Available at: https://www.youtube.com/watch?v=RHfDuKQDO4Q&list=PLyMUk47rPuqoK63wy7FHPjyVcTywKyEor (Accessed 2 May 2019).

Digital Single Market (2013). Digital is Natural [Youtube Video]. 30 September. Available at: https://www.youtube.com/watch?v=aMTQBCZIBTo (Accessed 2 May 2019).

Directorate-General for Research and Innovation (2014). *Outriders for European Competitiveness European Innovation Partnerships (EIPs) as a Tool for Systemic Change*. Brussels: European Commission.

Dosis, A. & Sand-Zantman, W. (2019). The Ownership of Data. July 16. Available at http://dx.doi.org/10.2139/ssrn.3420680.

Eade, J. (2001). *Placing London: From Imperial Capital to Global City*. Berghahn Books.

Eagleton-Pierce, M. (2014). The concept of governance in the spirit of capitalism. *Critical Policy Studies*, 8(1), pp.5-21. doi: 10.1080/19460171.2014.883854.

Eckardt, F. (eds) (2007). *Media and Urban Space: Understanding, Investigating and Approaching Mediacity.* Berlin: Frank & Timme GmbH.

Eger, J., M. (2009). Smart Growth, Smart Cities, and the Crisis at the Pump A Worldwide Phenomenon. *I-Ways*, 32(1), pp.47–53. doi:10.3233/IWA-2009-0164.

EIP-SCC (no date a). EIP-SCC matchmaking event and participation at Smart City Expo World Congress 2018. *EIP-SCC*. Available at: https://eu-smartcities.eu/events/eip-scc-matchmaking-event-and-participation-smart-city-expo-world-congress-2018 (Accessed 1st May 2019).

EIP-SCC (no date b). The Marketplace of European Innovation Partnership on Smart Cities and Communities. *EIP-SCC* [Website]. Available at: www.eu-smartcities.eu. (Accessed 1st May 2019).

EIP-SCC (no date c). Meet the Team. *EIP-SCC* [Website]. Available at: https://eu-smartcities.eu/page/meet-team (Accessed 1st May 2019).

EIP-SCC (no date d). The EIP-SCC Marketplace Matchmaking: connecting urban project promoters and financiers. *EIP-SCC* [Website]. Available at: https://na.eventscloud.com/ehome/index.php?eventid=334432& (Accessed 1st May 2019).

Ekers, M., Hart, G., Kipfer, S. & Loftus, A. (Eds) (2012) *Gramsci: Space, Nature, Politics*. Hoboken: John Wiley & Sons, Incorporated.

Elden, S. (2007). There is a Politics of Space because Space is Political. *Radical Philosophy Review*, 10(2), pp.101-116. doi: radphilrev20071022.

Eriksson, M., Niitamo, V., P., & Kulkki, S. (2005). State-of-the-art in utilizing Living Labs approach to user-centric ICT innovation – A European approach. Available at: http://84.88.32.6/openlivinglabs/documents/SOA_LivingLabs.pdf (Accessed 15 May 2018).

Ertiö, T. P. (2015). Participatory Apps for Urban Planning— Space for Improvement. *Planning Practice & Research*, 30(3), pp.303-321. doi:10.1080/02697459.2015.1052942.

EU Science and Innovation (2016). Amsterdam-Winner European Capital of Innovation 2016, 7 April. Available at: https://www.youtube.com/watch?v=IlK5sa3MG8E (Accessed 7 October 2018).

Eurescom (2015). Becoming smart is a transitional process: Interview on Smart Cities with Xavier Trias, former mayor of Barcelona. Winter 2015. Available at: https://m.eurescom.eu/news-and-events/eurescommessage/eurescom-message-winter-2015/becoming-smart-is-a-transitional-process-interview-on-smart-cities-with-xavier-trias.html (Accessed 7 October 2018)

European Commission (no date a). Glossary. *STRAT-Board: Territorial and Urban Strategies Dashboard.* Available at: https://urban.jrc.ec.europa.eu/strat-board/#/glossary. Accessed 2 May 2019).

European Commission (no date b). Smart Cities. Available at: https://ec.europa.eu/digital-single-market/en/smart-cities (Accessed 7 October 2018).

European Commission (no date c). Smart Cities. Available at: https://ec.europa.eu/info/eu-regional-and-urban-development/topics/cities-and-urban-development/city-initiatives/smart-cities_en (Accessed 7 October 2018).

European Commission (no date d). What is Regional Policy?. Available at: http://ec.europa.eu/regional_policy/en/policy/what/investment-policy/ (Accessed 25 May 2018).

European Commission (2010a). Communication from the Commission Europe 2020: A European strategy for smart, sustainable and inclusive growth. Available at: www.eur-lex.europa.eu (Accessed at 22 August 2018).

European Commission (2010b). Communication from the Commission A Digital Agenda for Europe. Available at: www.eur-lex.europa.eu (Accessed at 22 August 2018).

European Commission (2010c). Communication from the Commission: Europe 2020 Flagship Initiative Innovation Union. Available at: http://ww.w.xploit-eu.com/pdfs/Europe%202020%20Flagship%20Initiative%20INNOVATION.pdf (Accessed 7 Ocotober 2018).

European Commission (2011a). Amsterdam Smart City, *Projects*, 28 April. Available at: http://ec.europa.eu/regional_policy/en/projects/best-practices/netherlands/2115 (Accessed 24 April 2018).

European Commission (2011b). Commission reveals winners of "RegioStars Awards" celebrating Europe's most innovative regional projects [Press Release]. 23 June. Available at: http://europa.eu/rapid/press-release_IP-11-775_en.htm?locale=en (Accessed 30 April 2018).

European Commission (2011c). Regiostars Awards 2011: Amsterdam Smart City [video]. Available at: http://ec.europa.eu/regional_policy/en/information/videos/regiostars-awards-2011-amsterdam-smart-city (Accessed 30 April 2018).

European Commission (2011d). Regiostars Awards 2011: Amsterdam Smart City (story) [video]. Available at: http://ec.europa.eu/regional_policy/en/information/videos/regiostars-awards-2011-amsterdam-smart-city-story (Accessed 30 April 2018).

European Commission (2012a). Smart Cities and Communities Communication (MEMO). Available at: http://europa.eu/rapid/press-release_MEMO-12-538_en.htm (Accessed 7 October 2018).

European Commission (2012b). Communication from the Commission- Smart Cities and Communities-European Innovation Partnership. Available at: https://ec.europa.eu/digital-single-market/en/news/smart-cities-and-communities-european-innovation-partnership-communication-commission-c2012 (Accessed 7 October 2018).

European Commission (2016). Amsterdam is the European Capital of Innovation 2016. 8 April. Available at: http://ec.europa.eu/research/index.cfm?pg=newsalert&year=2016&na=na-080416 (Accessed 12 August 2019).

European Commission (2017). Decentralised Citizens Owned Data Ecosystem [wiki]. *CORDIS*. Available at: https://cordis.europa.eu/project/id/732546 (Accessed 12 August 2019).

European Commission (2018). Blockchain to give people more control about their data. *Projects Story*. 9 April. Available at: https://ec.europa.eu/digital-single-market/en/news/blockchain-give-people-more-control-about-their-data (Accessed 2 May 2019).

European Commission (2019). European Commission to harmonise the last pioneer frequency band needed for 5G deployment. 14 May. Available at: https://ec.europa.eu/digital-single-market/en/news/european-commission-harmonise-last-pioneer-frequency-band-needed-5g-deployment (Accessed 22 September 2019)

European Commission- Directorate- General for Communication Citizens Information (DGCCI) (2014). The EU explained: Digital agenda for Europe. Available at: https://eige.europa.eu/resources/digital_agenda_en.pdf (Accessed 7 October 2018).

European Innovation Partnership on Smart Cities and Communities (EIP- SCC) (2013). Strategic Implementation Plan. October. Brussels: European Union. Available at: https://eu-smartcities.eu/sites/default/files/2017-09/SIP.pdf (Accessed 7 October 2018).

European Innovation Partnership on Smart Cities and Communities (EIP- SCC) (2014). Operational Implementation Plan- First Public Draft. Available at: https://www.smartcities.at/assets/Uploads/operational-implementation-plan-oip-v2-en.pdf (Accessed 7 October 2018).

European Parliament (2015). Europe Goes Digital [Youtube Video], 3 March. Available at: https://www.youtube.com/watch?v=ODBTntmi0AU (Accessed 2 May 2019).

European Union (no date a). Environment. Available at: https://europa.eu/european-union/topics/environment_en (Accessed 16 September 2019).

European Union (no date b) EUandMe [Website]. Available at: https://europa.eu/euandme/frontpage_en (Accessed 2 May 2019).

Fairbnb (no date). [www] Available at: https://fairbnb.coop/ (Accessed 2 May 2019).

Fairclough, N. (1995*). Critical Discourse Analysis: The Critical Study of Language.* London: Longman.

Fairclough, N. (2013). Critical discourse analysis and critical policy studies. *Critical Policy studies*, 7 (2), pp.177- 197. doi: 10.1080/19460171.2013.798239.

Fairclough, N., & Wodak, R. (1997). Critical Discourse Analysis. In T. van Dijk (ed.) *Discourse as Social Interaction*. London: Sage. pp.258-284.

Falkheimer, J., & Jansson, A. (2006). *Geographies of communication: the spatial turn in media studies*. Göteborg: Nordicom.

Fava, N., & Saida, R. (2017). From Barcelona: The Pearl of the Mediterranean to Bye Bye Barcelona. In N. Bellini and C. Pasquinelli *Tourism in the city: Towards an integrative agenda on urban tourism*, doi:10.1007/978-3-319-26877-4_20. pp.285-295.

Featherstone, D. (2012). Gramsci in Action: Space, Politics, and the Making of Solidarities. In M. Ekers, G. Hart, S. Kipfer, & A. Loftus (Eds) *Gramsci: Space, Nature, Politics.* pp.65-82. doi:10.1002/9781118295588.ch3.

Featherstone, D., & Painter, J. (Eds.) (2013). *Spatial Politics: Essays For Doreen Massey*. Chichester: Wiley-Blackwell.

Feenberg, A. (1990). Post-industrial discourses. *Theory and Society:Renewal and Critique in Social Theory*, 19(6), pp.709-737.

Feenberg, A. (1999). *Questioning Technology*. London: Routledge.

Feenberg, A. (2010a). Marxism and the critique of social rationality: from surplus value to the politics of technology. *Cambridge Journal of Economics*, 34(1), pp.37-49. doi: 10.1093/cje/bep006.

Feenberg, A. (2010b). *Between reason and experience: essays in technology and modernity*. Cambridge, Mass: MIT Press.

Feenberg, A., & Fiersen, N. (Eds) (2012). (*Re)Inventing the Internet: Critical Case Studies* Sense Publishers: Rotterdam, NL.

Ferrer Núñez, J. (Ed.) (2013). Financial models for smart cities. *Smart Cities Stakeholder Platform*, Finance Working Group, Guidance Document. Available at: https://uraia.org/documents/109/2013_-_Smart_Cities_Platform_European_Union_-Financing_Models-ENG.pdf (Accessed 18 September 2019).

Fini, G., & Caschetto, S. (2014). Smart Policies and Metropolitan Vision: the Spatial Dimension in the Experience of Amsterdam Smart City Platform. *TeMA -Journal of Land Use, Mobility and Environment*, *7*(3), 285-300. https://doi.org/10.6092/1970-9870/2812

Fischer, F. (2000). *Citizens, Experts and the Environment.* Durham: Duke University Press.

Fischer, F. (2003). *Reframing Public Policy*. Oxford: Oxford University Press.

Fischer, F & Forrester, J. (Eds) (2003). *The Argumentative Turn in Policy Analysis and Planning*. Durham: Duke University Press.

Flagel O., &, Harmonn, B. (1986). Digital thinking and technological progress. *Journal of economic issues*, 20(2), pp.551-60. doi: 10.1080/00213624.1986.11504526.

Fligstein, N., & Dioun, C. (2015). Economic Sociology. *International Encyclopedia of the Social & Behavioral Sciences (Second Edition)*, 2015, pp.67-72. doi:10.1016/B9780080970868320487.

Florida, R.L. (2002). *The Rise of the Creative Class and how it's Transforming Work, Leisure, Community and Everyday Life.* New York: Basic Books.

Florida, R.L. (2004). *Cities and the Creative Class.* London: Routledge.

Florida, R.L., Mellander, C., & Gulden, T. (2009). Global Metropolis: The Role of Cities and Metropolitan Areas in the Global Economy. *Working Paper Series*, March 2009, Martin Prosperity Research. REF. 2009-MPIWP-002. Available at: https://www.creativeclass.com/rfcgdb/articles/Global%20metropolis.pdf (Accessed 16 September 2019)

Flyvbjerg, B. (2006). Five misunderstandings about case study research. *Qualitative Inquiry*, 12 (2), pp.219-245. doi: 10.1177/1077800405284363.

Følstad, A. (2008). Living labs for innovation and development of information and communication technology: a literature review. *The Electronic Journal for Virtual Organizations and Networks*, 10 (7), pp.99-131.

Forchtner, B. (2011). Critique, the discourse–historical approach, and the Frankfurt School, *Critical Discourse Studies*, 8:1, pp.1-14. doi: 10.1080/17405904.2011.533564.

Foucault, M. (1972). *The Archaeology of Knowledge*. London: Tavistock.

Foucault, M. (1995). *Discipline & Punish: The Birth of the Prison.* NY:Vintage Books

Foucault, M. (2001). *The Order of Things: An Archaeology of the Human Sciences*. NY: Routledge.

Foucault, M. (2006). *The History of Madness*. 2nd Ed. NY: Routledge.

Fournier, V. (2013). Commoning: on the social organisation of the commons. *M@n@gement*, vol. 16(4), pp.433-453. doi:10.3917/mana.164.0433.

Friedmann, J. (1986). The World City Hypothesis. Development and Change, 17(1), pp.69-83. doi: 10.1111/j.1467-7660.1986.tb00231.x.

Fuller, D., & Kitchin, R. (2004). Radical theory/critical practice: Academic geography beyond the academy? In D. Fuller & R. Kitchin (Eds.*), Radical theory/critical praxis: Making a difference beyond the academy?* (pp.1-20). Vernon and Victoria, BC: Praxis Press.

Fumagalli, A. (2011). Twenty theses on contemporary capitalism (cognitive biocapitalism). *Angelaki: Journal of Theoritical Humanities*, 16 (3), pp.7-17, doi:10.1080/0969725X.2011.626555.

Galdon-Clavell, G. (2013). (Not so) smart cities?: The drivers, impact and risks of surveillance-enabled smart environments. *Science and Public Policy*, 40(6), pp.717-723. doi: 10.1093/scipol/sct070.

García, M., & Claver, N. (2003). Barcelona: governing coalitions,visitors, and the changing city center. In L. M. Hoffman, S. S. Fainstein, and D. R. Judd, (Eds) *Cities and visitors: regulating people, markets, and city space*. Hoboken, New Jersey (USA): Wiley-Blackwell. pp.113-125.

García-Ramon, M. & Albet, A. (2000). Pre-Olympic and post-Olympic Barcelona, a "model" for urban regeneration today?-Commentary. *Environment and Planning A*, 32 (8), pp.1331–4. doi:10.1068/a3331.

GaWC (n.d). What GaWC is about? Available at: https://www.lboro.ac.uk/gawc/group.html (Accessed at 6 September 2019)

Geras, N. (1987). Post-Marxism?. *New Left Review*, 163, pp.40–82. Available at: https://newleftreview.org/I/163/norman-geras-post-marxism (Accessed 8 October 2019).

Giannone, D. & Santaniello, M. (2018). Governance by indicators: the case of the Digital Agenda for Europe, *Information, Communication & Society*, pp.1-14. doi:10.1080/1369118X.2018.1469655.

Gibbs, D. (2001). Harnessing the Information Society? European Union Policy and Information and Communication Technologies. *European Urban and Regional Studies*, 8(1), pp.73-84. doi: 10.1177/096977640100800107.

Gibbs, D., Krueger, R., & MacLeod, G. (2013). Grappling with Smart City Politics in an Era of Market Triumphalism. *Urban Studies*, 50(11), pp.2151-2157. doi:10.1177/0042098013491165.

Gibson, D. V., Kozmetsky, G., & Smilor, R. W. (Eds.) (1992). *The technopolis phenomenon -- smart cities, fast systems, global networks*. Lanham, Maryland, USA.: Rowman & Littlefield Publishers.

Giddens, A. (1984). *The constitution of society: outline of the theory of structuration*. Berkeley and Los Angeles: University of California Press.

Giddens, A. (1990). *The consequences of modernity*. Stanford: Stanford University Press.

Giddens, A. (1991). *Modernity and self-identity*. Cambridge: Polity Press.

Giffinger, R., Fertner, C., Kramar, H., Kalasek, R., Pichler-Milanovic, N., &, Meijers, E. (2007). *Smart Cities: Ranking of European Medium-sized Cities*. Vienna: Centre of Regional Science.

Giffinger, R., &, Gudrun H. (2010). Smart Cities Ranking: An Effective Instrument for the Positioning of Cities?. *ACE Architecture, City and Environment*, 4 (12), pp.7–25.

Gilmartin, E. (2019). Spain's fight to take back the city. *Tribune*. 24 June. Available at: https://tribunemag.co.uk/2019/06/spains-fight-to-take-back-the-city?fbclid=IwAR0suueMVaV78vRiP-xL4awJEOZ8L6FR9CYMAHnCg1kk0-eJdCoK1H-B24E (Accessed 20 September 2019).

GitHub (no date). Decidim [wiki]. Available at: https://github.com/decidim/decidim (Accessed 2 May 2019).

Glasmeier, A., & Christopherson, S. (2015). Thinking about smart cities. *Cambridge Journal of Regions, Economy and Society*, 8(1), pp.3-12. doi: 10.1093/cjres/rsu034.

Glasze, G. (2007). The Discursive Constitution of a World-Spanning Region and the Role of Empty Signifiers: The Case of Francophonia. *Geopolitics*, 12(4), pp.656-679. doi: 10.1080/14650040701546103.

Glynos, J. (2008). Ideological Fantasy at Work. *Journal of Political Ideologies*, 13(3), pp.275-296. DOI: 10.1080/13569310802376961.

Glynos, J. & Howarth, D. (2007). *Logics of Critical Explanation in Social and Political Theory*. London, NY: Routhledge.

Glynos, J., Howarth, D., Norval, A. & Speed, E. (2009). *Discourse Analysis: Varieties and Methods*. August. National Centre of Research Methods. Available at: http://eprints.ncrm.ac.uk/796/1/discourse_analysis_NCRM_014.pdf (Accessed 9 September 2019).

Glynos, J., Klimecki, R., & Willmott, H. (2012). COOLING OUT THE MARKS. *Journal of Cultural Economy*, 5(3), pp.297-320. DOI: 10.1080/17530350.2012.675885

Glynos, J., Klimecki, R., & Willmott, H. (2015). Logics in policy and practice: a critical nodal analysis of the UK banking reform process. *Critical Policy Studies*, 9(4), pp.393-415. doi: 10.1080/19460171.2015.1009841.

Godin, B. (2015). Technological Change What do Technology and Change stand for?. *Project on the Intellectual History of Innovation*, Working Paper No. 24. Available at: http://www.csiic.ca/wp-content/uploads/2015/12/Paper24_TC.pdf (Accessed 9 September 2019).

Graham, M. (2011). Time machines and virtual portals: The spatialities of the digital divide. *Progress in Development Studies*, 11(3), pp.211-227. doi: 10.1177/146499341001100303.

Graham, S. (2002). Bridging Urban Digital Divides? Urban Polarisation and Information and Communications Technologies (ICTs). *Urban Studies*, 39(1), pp.33-56. doi: 10.1080/00420980220099050.

Graham, S. (2004a). *The cybercities reader*. London [etc.]: Routledge.

Graham, S. (2004b). Beyond the “dazzling light”: From dreams of transcendence to the “remediation” of urban life: A research manifesto. *New Media & Society*, 6(1), pp.16–25. doi:10.1177/1461444804039905.

Graham, S., & Marvin, S. (1996). *Telecommunications and the City: Electronic Spaces, Urban Places*. London: Routledge.

Gramsci, Antonio (1971): *Selections from the Prison Notebooks*. London: Lawrence & Wishart.

Green, D., & Joseph, D. (2015). The Digital Spatial Fix. *TripleC*, 13(2), pp.223-247. doi:10.31269/triplec.v13i2.659.

Greenfield, A. (2013). *Against the Smart City*. New York: Do Projects.

Gretzel, U., Sigala, M., Xiang, Z., & Koo C. (2015). Smart tourism: foundations and developments. *Electron Markets*, 25(3), pp.179-188. doi:10.1007/s12525-015-0196-8.

Griggs, S., Hall, S., Howarth, D & Seigneuret, N. (2017). Characterizing and evaluating rival discourses of the ‘sustainable city’: towards a politics of pragmatic adversarialism. *Political Geography*, 59 (July), pp.36-46. doi:10.1016/j.polgeo.2017.02.007.

Haarstad, H. (2017). Constructing the sustainable city: examining the role of sustainability in the ‘smart city’ discourse. *Journal of Environmental Policy & Planning*, 19(4), pp.423-437. doi: 10.1080/1523908X.2016.1245610.

Hall, P. (1984). *The world cities.* 3rd ed. London: Weidenfeld & Nicolson.

Harraway, D. (1985). *Simians, Cyborgs and Women: The Reinvention of Nature*. London, UK: Free Association Books.

Haraway, D.J. (1988). Situated knowledges: The science question in feminism as a site of discourse on the privilege of the partial perspective. *Feminist Studies*, 14, pp.575-599.

Hardt, M., & Negri, A. (2001). *Empire*. Cambridge, MA: Harvard University Press.

Harrison, J. & Hoyler, M. (Eds.) (2018). *Doing Global Urban Research*. London: Sage Publications Ltd.

Harvey D. (1985). *The urbanization of capital*. Oxford: Blackwell.

Harvey, D. (1996). *Justice, Nature and the Geography of Difference*. Oxford: Blackwell.

Harvey D. (2001). *Spaces of capital: towards a critical geography*. Edinburgh: Edinburgh University Press.

Harvey, D. (2003). The right to the city, *International Journal of Urban and Regional Research*, 27(4), pp.939-941. doi: 10.1111/j.0309-1317.2003.00492.x.

Harvey, D. (2007). *A brief history of neoliberalism*. New edition. Oxford; New York: Oxford University Press.

Harvey, D. ([1973], 2009). *Social Justice and the City*. Rev. ed. Atlanta, GA: University of Georgia Press.

Harvey D. (2011). *The enigma of capital: and the crises of capitalism*. Oxford; New York: Oxford University Press.

Harvey, D. (2013). *Rebel cities: from the right to the city to the urban revolution*. Paperback edition. London: Verso.

Harvey, D. (2014). *Seventeen contradictions and the end of capitalism*. London: Profile Books.

Harvey, D. (2016). Culture and cities: the challenge of tourism. *L'artenativa 2016*. 14 November. Available at: http://www.cccb.org/en/multimedia/videos/culture-and-cities-the-challenge-of-tourism/225261 (Accessed 2 May 2019).

Hassan, R. (2003). Network Time and the New Knowledge Epoch. *Time & Society*, 12(2), pp.225-241. doi: 10.1177/0961463X030122004.

Henneman, S., & Derruder, B. (2014). An Alternative Approach to the Calculation and Analysis of Connectivity in the World City Network. *Environment and Planning B: Planning and Design*, 41(3), pp.392-412. doi:10.1068/b39108.

Hern, A. (2019). How baseless fears over 5G rollout created a health scare. *The Guardian*. 26 July. Available at:

https://www.theguardian.com/technology/2019/jul/26/how-baseless-fears-over-5g-rollout-created-a-health-scare (Accessed 20 September 2019).

Higgott, R. (1999). Economics, politics and (international) political economy: The need for a balanced diet in an era of globalisation, *New Political Economy*, 4(1), pp.23-36. doi: 10.1080/13563469908406383.

Higgott, R. (2002). The political economy of globalisation: can the past inform the present?. [Draft paper]. Available at: https://warwick.ac.uk/fac/soc/pais/research/researchcentres/csgr/research/keytopic/other/higgott_nov02.pdf (Accessed at 6 September 2019)

Highmore, B. (2001 Ed.). *The everyday life reader*. London: Routledge.

Hill, D. (2013). On the smart city; or a 'manifesto' for smart citizens instead, *City of Sound*, February. Available at: http://www.cityofsound.com/blog/2013/02/on-the-smart-city-a-call-for-smart-citizens-instead.html (Accessed 23 August 2018).

Hiss, T. (1991). *The experience of place*. New York: Vintage Books.

Hoekman, B., & Nelson, D. R. (2018). 21st Century Trade Agreements and the Owl of Minerva. Robert Schuman Centre for Advanced Studies Research Paper No. RSCAS 2018/04. January 2018. Available at: http://dx.doi.org/10.2139/ssrn.3157110.

Højgaard, L., & Søndergaard, D., M. (2011). Theorizing the complexities of discursive and material subjectivity: Agential realism and poststructural analyses. Theory & Psychology, 21(3), pp.338-354. doi:10.1177/0959354309359965.

Höjer, M., & Wangel, J. (2015). Smart Sustainable Cities: Definition and Challenges. In L. M. Hilty & B. Aebischer (Eds.), *ICT Innovations for Sustainability, Advances in Intelligent Systems and Computing*, pp.333–349. New York: Springer.

Hollands, R. G. (2008). Will the real smart city please stand up? *City*, 12(3), pp.303-320. doi: 10.1080/13604810802479126.

Hollands, R. G. (2015). Critical interventions into the corporate smart city. *Cambridge Journal of Regions, Economy and Society*, 8(1), pp.61-77. doi:10.1093/cjres/rsu011.

Hopkins, A. G. (Ed) (2006). *Global history: interactions between the universal and the local*. London: Palgrave MacMillan.

Horwitz, J. (2019). 5G is live in 3 countries, but we still need answers on health risks. 19 April. *Venturebeat.* Available at: https://venturebeat.com/2019/04/19/5g-is-live-in-3-countries-but-we-still-need-answers-on-health-risks/ (Accessed 20 September 2019).

Howarth, D. (2000). *Discourse*. Buckingham, UK: Open University Press.

Howarth, D. (2005). Applying discourse theory: The method of articulation. In D. Howarth & J. Torfing (Eds.), *Discourse theory in European politics*. Hampshire & New York: Palgrave Macmillan. pp.316–349.

Howarth, D. (2010). Power, discourse, and policy: articulating a hegemony approach to critical policy studies. *Critical policy studies*, 3(3-4), pp.309-335. doi: 10.1080/19460171003619725.

Howarth, D. (2018). Marx, discourse theory and political analysis: negotiating an ambiguous legacy. *Critical Discourse Studies*, 15(4), pp.377-389. doi: 10.1080/17405904.2018.1457550.

Howarth, D. R., & Torfing, J. (2005). *Discourse theory in European politics*. Hampshire & New York: Palgrave Macmillan.

Howarth, D., Norval, A. J. & Stavrakakis, Y. (Eds) (2000). *Discourse theory and political analysis: Identities, hegemonies and social change*. Manchester: Manchester University Press.

Hoyler, M. & Watson, A. (2012). Global media cities in transnational media networks. *Tijdschrift economische en sociale geografie*, 104 (1), pp.20-26. doi:10.1111/j.1467-9663.2012.00738.x

I Amsterdam (no date). FinTech in Amsterdam. Available at: https://www.iamsterdam.com/en/business/key-sectors/financial-and-fintech (Accessed 19 September 2019).

Innis, H.A. (1950). *Empire and communications*. London: Oxford University Press.

5G space appeal (no date). International Appeal: Stop 5G on Earth and in Space. Available at: https://www.5gspaceappeal.org/the-appeal. (Accessed 20 September 2019).

Jackson, D.J. (2011). What is an Innovation Ecosystem?. Arlington, VA: National Science Foundation. Available at: http://erc-assoc.org/content/what-innovation-ecosystem (Accessed 9 September 2019).

Janssen-Jansen, L. B. (2011). From Amsterdam to Amsterdam Metropolitan Area: A Paradigm Shift. *International Planning Studies*, 16(3), pp.257-272. doi: 10.1080/13563475.2011.591145.

Jansson, A. (2004). MediaSpace: Place, Scale and Culture in a Media Age by Nick Couldry and Anna McCarthy reviewed in *European Journal of Communication*, 19(4), pp.551-554.

Jansson, A. (2005). For a geography of communication. In: *Kulturstudier i Sverige. Nationell forskarkonferens*, Norrköping 13–15 juni 2005. Malmo: ACSIS, pp.1-16.

Jansson, A. (2007). Texture: A key concept for communication geography. *European Journal of Cultural Studies*, 10(2), pp.185-202. doi: 10.1177/1367549407075904.

Jansson, A. (2010). *Geographies of Media and Communication: A Critical Introduction* (Vol. 32, pp.537). London: Sage Publications, Inc.

Jansson, A. (2012). Mediatization and Social Space: Reconstructing Mediatization for the Transmedia Age. *Communication Theory*, 23, pp.279-296. doi:10.1111/comt.12015.

Jansson, A., & Falkheimer, J. (2006). Towards a geography of communication. In J. Falkheimer & A. Jansson (Eds.), *Geographies of communication: The spatial turn in media studies*. Göteborg, Sweden: Nordicom. pp.9–25.

Janzen, R. (2002). Reconsidering the Politics of Nature: Henri Lefebvre and The Production of Space. *Capitalism Nature Socialism*, 13(2), pp.96- 116. doi: 10.1080/10455750208565481.

Jenkins, H. (2008). *Convergence culture: where old and new media collide*. London; New York: New York University Press.

JLL Global Research (2018). City Momentum Index 2018: Agility, Talent and Technology. Available at: http://cities-research.jll.com/Research/JLL-City-Momentum-Index-2018.pdf?81bceddd-90fd-478a-b4f0-6cba9ed8c213 (Accessed 17 September 2019).

Jonas, A.E.G.(2011). State, Territory, and the Internationalization of Capital: Critical Reflections on the Selected Writings of Nicos Poulantzas and Henri Lefebvre. Review Essay. *Environment and Planning D: Society and Space*, 29(5), pp.938-945. doi:10.1068/d490.

Jørgensen, M. (2016). Discourse analysis, new materialism, politics & critique. Unpublished keynote from *17th Discourse Net conference: reflexivity and critique in discourse*.

Jørgensen, M., & Phillips, L. (2002). *Discourse analysis as theory and method*. Thousand Oaks, Calif; London: Sage.

Joseph Rowntree Foundation (2017). Case Study: Developing an Inclusive Growth Agenda in Barcelona [web blog]. 24 January. Available at: https://www.jrf.org.uk/case-study-developing-inclusive-growth-agenda-barcelona (Accessed 1 August 2019).

Junker, J. C. (2018). European Week of Regions and Cities-Opening Session [Youtube Video]. *European Commission.* Available at: https://www.youtube.com/watch?v=TBcdN80pfi4 (Accessed 1 August 2019).

Karvonen, A., Cugurullo, F., & Caprotti, F. (Eds). (2018). *Inside Smart Cities: Place, Politics and Urban Innovation*. London: Routledge.

Katznelson, I. (1993). *Marxism and the City*. NewYork: Oxford University Press.

Kayatekin, S.A. (2009). Between political economy and postcolonial theory: first encounters. *Cambridge Journal of Economics*, 33(6), pp.1113–1118. doi:10.1093/cje/bep067.

Kellner, D. (2002). Theorizing Globalization. *Sociological Theory*, 20(3), pp.285-305. doi: 10.1111/0735-2751.00165.

Kingma, S.F., Dale, K. & Wasserman, V. (Eds.) (2018a). *Organizational Space and Beyond: The Significance of Henri Lefebvre for Organization Studies*. NY: Routhledge.

Kingma, S.F., Dale, K. & Wasserman, V. (2018b). Introduction: Henri Lefebvre and Organization Studies. In S.F. Kingma, Dale K. and Wasseman, V. (Eds)

Organizational Space and Beyond: The Significance of Henri Lefebvre for Organization Studies. NY: Routhledge. pp.1-24.

Kipfer, S. (2008). How Henri Lefebvre Urbanized Gramsci: hegemony, everyday life and difference, in *Space, Difference, Everyday Life: Reading Henri Lefebvre* (Eds.) Kanishka Goonewardena, Stephan Kipfer, Richard Milcrom & Christian Schmidt, NY: Routhledge.

Kipfer, S. (2012). City, Country, Hegemony: Antonio Gramsci's Spatial Historicism. In E. Michael et al. (ed.) Gramsci: Space, Nature, Politics. Oxford, UK: Oxford, UK: John Wiley & Sons Ltd. pp.83-103.

Kipfer, S., Saberi, P. & Wieditz, T. (2013). Henri Lefebvre: Debates and controversies. *Progress in Human Geography*, 37(1), pp.115-134.

Kitchin, R. (2011). The programmable city. *Environment and Planning B: Planning and Design*, 38, pp.945-951.

Kitchin, R. (2014). The real-time city? Big data and smart urbanism, *GeoJournal*, 79(1), pp.1-14.

Kitchin, R. (2015). Making sense of smart cities: addressing present shortcomings. *Cambridge Journal of Regions, Economy and Society*, 8(1), pp.131-136. doi: 10.1093/cjres/rsu027.

Kitchin, R. (2016). The ethics of smart cities and urban science, *Philosophical transactions.Series A, Mathematical, physical, and engineering sciences*, 374(2083).

Kitchin, R. (2018). Towards a genuinely humanizing smart urbanism. Pre-print Chapter 14 in *The Right to the Smart City* edited by Cardullo, P., di Feliciantonio, C. and Kitchin, R. Emerald, Bingley. Available at: https://osf.io/preprints/socarxiv/5jkx4 (Accessed 7 September 2019).

Kitchin, R. (2019). The Timescape of Smart Cities. *Annals of the American Association of Geographers*, 109, pp.1-16. doi:10.1080/24694452.2018.1497475.

Kitchin, R., Coletta, C., Evans, L., Heaphy, L., & Mac Donncha, D. (2017a). Smart cities, urban technocrats, epistemic communities, advocacy coalitions and the 'last mile' problem. *it – Information Technology*, 59(6), pp.275-284.

Kitchin, R., Coletta, C., & McArdle, G. (2017b). Urban informatics, governmentality and the logics of urban control. *Programmable City Working Paper 25*. Available at: https://osf.io/preprints/socarxiv/27hz8/ (Accessed 9 September 2019).

Kitchin, R., Cardullo, P. & di Feliciantonio, C. (2018). Citizenship, Social Justice and the Right to the Smart City. Pre-print Chapter 1 in *The Right to the Smart City* edited by Cardullo, P., di Feliciantonio, C. and Kitchin, R. Emerald, Bingley. Available at: https://osf.io/preprints/socarxiv/b8aq5 (Accessed 7 September 2019).

Kitchin, R., & Dodge, M. (2011). *Code/space. Software and everyday life*. Cambridge, MA: The MIT Press.

Kitchin, R., & Dodge, M. (2017). The (In)Security of Smart Cities: Vulnerabilities, Risks, Mitigation, and Prevention, *Journal of Urban Technology*, pp.1-19.

Kittler, F., & Griffin, M. (1996). The city is a medium. *New Literary History*, 27(4), pp.717-729.

Klein, N. (2014). *This changes everything: Capitalism vs. The Climate*. Simon & Schuster.

Kratke, S. (2003). Global media cities in a worldwide urban network. *European Planning Studies*, 11(6), pp.605-628.

Krakte, S. & Taylor, P. (2004). A world geography of global media cities. *European Planning Studies*, 12(4), pp.459-477.

Laclau, E. (1990). *New reflections on the revolution of our times*. London: Verso Books.

Laclau, E. (1996). *Emancipation(s)*. London: Verso Books.

Laclau, E. (2014). *The rhetorical foundations of society*. Verso Books.

Laclau, E., & Mouffe, C. (1985). *Hegemony and social strategy. Towards a Radical Democratic Politics*. London, New York.

Laclau, E., & Mouffe, C. (1987). Postmarxism without Apologies. *New Left Review*, Vol. 166, pp.79-106.

Lazaroiou, G., C., & Roscia, M. (2012). Definition methodology for the smart city models. *Energy*, 47 (1), pp.326-332 doi: 10.1016/j.energy.2012.09.028.

Lefebvre, H. (1973/ 1976). *The Survival of Capitalism*. Translated by Frank Bryant.

Lefebvre, H. (1974/ 1991). *The production of space*. Oxford: Basil Blackwell.

Lefebvre, H. (1996). *Writings on cities* (E. Kofman & E. Lebas, Trans.) Cambridge, MA: Blackwell.

Lefebvre, H. (1970/2003). *The urban revolution*. Minesota: University of Minesota Press.

Lefebvre, H. (2003). *La Revolution Urbaine*. Translated by Robert Bononno. Minneapolis, London: University of Minesota Press.

Lefebvre H. (1992/2004). *Rhythmanalysis: space, time, and everyday life*. London: Continuum.

Lefebvre, H. (2009a). *State, Space, World: Selected Essays.* Edited by Neil Brenner and Stuart Elden. Translated by Gerald Moore, Neil Brenner and Stuart Elden. Universite of Minesota Press.

Lefebvre, H. (1940/2009b). *Dialectical Materialism*. University of Minesota Press

Lefebvre H. (2014a). *Critique of everyday life: The One- volume edition*. London: Verso.

Lefebvre, H. (2014b) Dissolving City, Planetary Metamorphosis', Environment and Planning D: Society and Space, 32(2), pp.203-205.

Lefebvre, H. (2016). *Metaphilosophy*. Verso Books.

Lélé, S. M. (1991). Sustainable development: A critical review. *World Development*, 19(6), pp.607-621. Available at: http://www.atree.org/sites/default/files/pubs/slele/journal-publications/Lele_SusDev_review_WDev.pdf (Accessed 23 March 2015).

Leurs, K., Georgiou M., McQuire S., Vuolteenaho, J, & Sumiala, J. (2015). The politics and praxis of media-city research: A duo interview with Myria Georgiou and Scott McQuire. *Observatorio (OBS*) Journal*, Special issue: Media City: Spectacular, Ordinary and Contested Spaces, pp.193-208.

Ley, A. & Newton, P. (2010). Creating and sustaining liveable cities. In S. Kallidaikurichi & B. Yuen (Eds) *Developing Living Cities*, pp.191-229. doi:10.1142/9789814304504_0008.

López i Ventura, J, (2014). Case Study: Barcelona's Smart City Strategy, 19 September. Available at: https://www.c40.org/case_studies/barcelona-s-smart-city-strategy (Accessed 19 September 2019).

Lynch, M. (2016). Social Constructivism in Science and Technology Studies. *Human Studies; A Journal for Philosophy and the Social Sciences*, 39(1), pp.101-112.

Macpherson, L. (2017, 7 Sept). 8 Years On, Amsterdam Still Leading the Way as a Smart City. *Towards Data Science*. Available at: https://towardsdatascience.com/8-years-on-amsterdam-is-still-leading-the-way-as-a-smart-city-79bd91c7ac13 (Accessed 12 May 2018).

Madsen, D. (2016). Liberating Interdisciplinarity from Myth: An Exploration of the Discursive Construction of Identities in Information Studies. *Journal of the Association for Information Science and Technology*, 67(11), pp.2697-2709. doi:10.1002/asi.23622.

Madsen, D. (2017). At the Interface of Disciplines: Interdisciplinarity as a Driver of Curriculum Innovation. In C.T. Tackney & M. Zølner (eds), *Curriculum at the Interface: The European Higher Education Area and Copenhagen Business School.* Academy of Management, Briarcliff Manor, NY, 77th Annual meeting of the Academy of Management, Atlanta, United States, 04/08/2017. doi:10.5465/AMBPP.2017.13651symposium.

Madsen, D. (2018a). Conspicious by Presence: The Empty Signifier of 'Interdisciplinarity' and the Representation of Absence. In M. Schröter & C. Taylo (eds), *Exploring Silence and Absence in Discourse: Empirical Approaches*. Palgrave Macmillan, Cham, Postdisciplinary Studies in Discourse, pp.359-390. doi:10.1007/978-3-319-64580-3_13.

Madsen, D. (2018b). Epistemological or Political? Unpacking Ambiguities in the Field of Interdisciplinarity Studies. *Minerva*, 56(4), pp.453-477. doi:10.1007/s11024-018-9353-5.

Mahmoudi, D., & Levenda, A. (2016). Beyond the Screen: Uneven Geographies, Digital Labour, and the City of Cognitive-Cultural Capitalism. *TripleC*, 14(1), pp.99-120. doi:10.31269/triplec.v14i1.699.

Mainka, A., Hartmann, S., Meschede, C., Stock, W.G. (2015). Mobile Application Services Based Upon Open Urban Government Data. *iConference 2015 Proceedings*, pp.1-15.

Mangalousi, D. (2016). Review of the book Discourse Theory and Critical Media Politics by Lincoln Dahlberg and Sean Phelan (Eds.). *International Journal of Communication*, 10, 6090-6096, doi:1932–8036/2016BKR0009.

Mangalousi, D. (2018). Smart cities europeenes, citadins et "droit a la ville" sus le capitalism, Digital Polis, (Eds) Alessia de Biase, Nancy Ottaviano et Ornella Zaza. Paris: L'oeil d'or, 2018, 99-110, Print. **(English original accessed from academia.edu)

Mangalousi, D. (2019). Review of the book The discursive-material knot: Cyprus in conflict and community media participation by Nico Carpentier. *Critical Discourse Studies*, 16(4), pp.491-493. doi:10.1080/17405904.2019.1589549.

Manovich,L. (2012). Media After Software. Available at: http://softwarestudies.com/cultural_analytics/Manovich.Media_after_software.2012.pdf (Accessed 6 September 2019)

Mansell, R. (2012). *Imagining the Internet: Communication, Innovation and Governance*. Oxford: Oxford University Press.

Mansell, R. (2014). Here comes the revolution: the European digital agenda. In: Donders, Karenand Pauwels, Caroline and Loisen, Jan, (eds.) *The Palgrave Handbook of European Media Policy*. Palgrave Macmillan, Houndmills, Basingstoke, Hampshire, UK, pp.202-217. ISBN 9781137032171

Manville, C. et al. (2014). Mapping smart city in the EU. *European Parliament*. Available at: http://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/507480/IPOL-ITRE_ET(2014)507480_EN.pdf (Accessed 14 May 2018).

Manzella, G., P., &, Mendez, C. (2009). The turning points of EU Cohesion Policy. *Report Working Paper*. Available at: https://ec.europa.eu/regional_policy/archive/policy/future/pdf/8_manzella_final-formatted.pdf (Accessed 14 May 2018).

March, H., &, Ribera-Fumaz, R. (2016). Smart contradictions: The politics of making Barcelona a Self-sufficient city, *European Urban and Regional Studies*, 23(4), pp.816–830. doi: 10.1177/0969776414554488.

Marchart, O. (2004). Politics and ontological difference. In S. Critchley & O. Marchart (Eds.), *The Laclau Reader* (pp.54–72). London: Routledge.

Marres, N. (2012). On some uses and abuses of topology in the social analysis of technology (or the problem with smart meters) (Report). *Theory, Culture & Society*, 29(4), pp.288-310.

Martin, C., Evans, J. and Karvonen, A. (2018) Smart and sustainable? Five tensions in the visions and practices of the smart-sustainable city. *Technological Forecasting and Social Change*, 133 (August 2018), pp.269-278. doi:10.1016/j.techfore.2018.01.005

Martins, M. (2018). Tourism Planning and Tourismphobia: An Analysis of the Strategic Tourism Plan of Barcelona 2010-2015. *Journal of Tourism, Heritage & Services Marketing*, 4(1), pp.3-7.

Marvin, S., Luque- Ayala, A., & McFarlane, C. (Eds.) (2015). *Smart Urbanism: Utopian vision or false dawn*. NY: Routhledge.

Marx, K. (1993). *Grundrisse: Outlines of the Critique of Political Economy*. Translated by Martin Nicolaus. Reprint edition. Penguin Classic.

Marx, L., & Smith, M.R. (1994). Introduction. In M.R. Smith and L. Marx (Eds.) *Does Technology Drive History?: The Dilemma of Technological Determinism*. Cambridge (MA): MIT Press. pp.ix-xv.

Massey, D. (1991). A global sense of place. *Marxism Today*, 38, pp.24-29.

Massey, D. (1992). Politics and space-time, *New Left Review*; 196, pp.65-84.

Massey, D. (1994). *Space, Place, Gender*. University of Minesota Press.

Massey, D. (1995). Thinking Radical Democracy Spatially. *Environment and Planning D: Society and Space*, 13(3), pp.283-288.

Massey, D. (1999). Imagining Globalization: Power-Geometries of Time-Space, in Brah, A., Hickman, M.J. and an Ghaill, M.M. (eds.) *Global Futures: Migration, Environment and Globalization*. London: Palgrave Macmillan UK, pp.27-44.

Massey, D., Research Group, H.G., Bond, S. and Featherstone, D. (2009). The Possibilities of a Politics of Place Beyond Place? A Conversation with Doreen Massey, *Scottish Geographical Journal*, 125(3-4), pp.401-420.

Massey, D. (2005). *For Space*. London, UK: Sage

Massey, D. (2006). Space, Time and Political Responsibility in the Midst of Global Inequality (Raum, Zeit und politische Verantwortung inmitten weltweiter Ungleichheiten). *Erdkunde*, pp.89-95.

Massey, D. (2007). *World city*. Cambridge: Polity.

Massey D., &, Jess P. (1995). *A place in the world?: places, cultures and globalization*. Oxford: Oxford University Press.

Massey, D., Allen, J. & Pile, S. (1999). *City Worlds*. London: Routhledge.

Matsaganis, D., M. (2016). Multi- and Mixed- Methods Approaches to Urban Communication Research: A Synthesis and the Road Ahead. *International Journal of Communication*, 10, pp.1331- 1350. doi:1932–8036/20160005.

Mattelart A. (2000). *Networking the world: 1794-2000*. Minneapolis: University of Minnesota Press.

Mazzucato, Mariana (2011). *The Entrepreneurial State*. London: Demos.

Mayo, M., Mendiwelso-Bendek, Z., & Packham, C. (2019). Promoting the 'Take Part' Approach. In Tam H. (Ed.), *Whose government is it?: The renewal of state-citizen cooperation* (pp.213-228). Bristol: Bristol University Press. Available at: http://www.jstor.org/stable/j.ctvcb59gp.18

McCann, D. (2010). *The Political Economy of the European Union.* Cambridge: Polity Press.

McDonogh, G., & Martinez-Rigol, S. (2018). *Barcelona*. Cambridge: Polity Press.

McQuire, S. (2006). The politics of public space in the media city. *First Monday*, Special Issue #4: Urban Screens: Discovering the potential of outdoor screens for urban society, Available at: http://firstmonday.org/ojs/index.php/fm/article/view/1544

McQuire, S. (2008). *The media city: media, architecture and urban space*. Los Angeles, Calif: Sage.

McQuire, S. (2016). *Geomedia: Networked Cities and the Future of Public Space*. Cambridge, UK: Polity Press.

Mead, R. (2019). The Airbnb Invasion of Barcelona. The New Yorker [online]. 29 April. Available at: https://www.newyorker.com/magazine/2019/04/29/the-airbnb-invasion-of-barcelona (Accessed 1 August 2019).

Metropolis (no date) City Protocol Available at: https://www.metropolis.org/node/971 (Accessed 12 August 2019).

Milano, C., Cheer, J. M., & Novelli, M. (2018). Overtourism: a growing global problem. *The Conversation*, 18 July. Available at: https://theconversation.com/overtourism-a-growing-global-problem-100029 (Accessed 17 September 2019).

Milica Magazine (2017). The Rose of Fire: Ada Colau, Mayor of Barcelona. 4 October. Available at: http://milicamagazine.com/en/the-rose-of-fire/ (Accessed 17 September 2019).

Miret Garriga, M. (2017). DIY for expanding the commons collaborative economy [blogpost]. 30 January. Available at: http://www.didiy.eu/blogs/diy-expanding-commons-collaborative-economy (Accessed 1 May 2019).

Misoczky, Maria Ceci, & Oliveira[2], Clarice Misoczky de. (2018). The city and the urban as spaces of capital and social struggle: notes on Henri Lefebvre's enduring contributions. *Revista de Administração Pública*, 52(6), pp.1015-1031. doi:10.1590/0034-761220170122.

Molano Camargo, F. (2016). El derecho a la ciudad: de Henri Lefebvre a los análisis sobre la ciudad capitalista contemporánea. *Folios*, (44), pp.3-19. Available at:

http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0123-48702016000200001&lng=en&tlng=es (Accessed 9 September 2019).

Monclus, J. (2000). Barcelona's planning strategies: From 'Paris of the South' to the 'Capital of West Mediterranean'. *GeoJournal*, 51, pp.57-63. doi:10.1023/A:1010890320915.

Mora L. and Bolici R. (2017). How to Become a Smart City: Learning from Amsterdam, in Bisello A., Vettorato D., Stephens R. and Elisei P. (eds) *Smart and Sustainable Planning for Cities and Regions: Results of S SPCR 2015*. Cham: Springer, pp.251- 266.

Morell Fuster, M. (Ed.) (2018). *Sharing Cities: A worldwide overview on platform economy policies with a focus on Barcelona*. Barcelona: Oberta UOC Publishing.

Morozov, E., & Bria, F. (2018). *Rethinking the Smart City: Democratising Urban Technology*. [online] Rosa Luxemburg Stiftung: NY. Available at: http://www.rosalux-nyc.org/wp-content/files_mf/morozovandbria_eng_final55.pdf

Moore, J. W. (2015). *Capitalism in the Web of Life*. London: Verso.

Morse, Suzanne W. (2014). *Smart communities : how citizens and local leaders can use strategic thinking to build a brighter future*. 2nd ed.. San Francisco, California: Jossey-Bass.

Mosco V. (2009). *The political economy of communication*. London: Sage.

Mosemghvdlishvili, L. and Jansz, J. (2018). Free your 'most open' Android: a comparative discourse analysis on Android. *Critical Discourse Studies*, pp.1-16.

Mouffe, C. (1979) *Gramsci and Marxist theory*. London: Routledge and Kegan Paul.

Mouffe, C. (Ed.) (2005). *On the political*. London, UK: Routledge.

Mouffe, C. (2013a). *Agonistics: Thinking the world politically*. London, UK: Verso.

Mouffe, C. (2013b). Space, Hegemony and Radical Critique, In Featherstone, D., & Painter, J. (Eds.) *Spatial Politics: Essays For Doreen Massey*. Wiley-Blackwell.

Mouffe, C. (2014, March 27). Activist: Agonistics: thinking the world politically [video file]. Available at: https://www.youtube.com/watch?v=2yHX_6FGsvs

Moulier Boutang, Y. (2012). *Cognitive capitalism*. Cambridge: Polity.

Murugadas, D., Vieten, S., Nikolic, J. & Mainka, A. (2015). The informational world city London. *Journal of Documentation*, 71(4), pp.834-864.

Nesta (2017). EU project launched to give people back control over their data online [blogpost]. 16 May. Available at: https://www.nesta.org.uk/news/eu-project-launched-to-give-people-back-control-over-their-data-online/ (Accessed 2 May 2019).

Nesti, G. (2018). Defining and assessing the transformational nature of smart city governance: Insights from four European cases, *International Review of Administrative Sciences*, 0 (0), pp.1- 18.

Neubauer, R. (2011). Neoliberalism in the Information Age, or Vice Versa? Global Citizenship, Technology, and Hegemonic Ideology. *Triple C*, 9(2), pp.195-230. ISSN 176-670X.

Niederer, S., Priester, R. and Williamson, B. (2015). Smart Citizens: Exploring the Tools of the Urban Bottom-Up Movement; Educating the smart city: Schooling smart citizens through computational urbanism, *Big Data & Society*, 25 (2), pp.137-152.

Nilssen, M. (2018). To the smart city and beyond? Developing a typology of smart urban innovation, *Technological Forecasting & Social Change*,

Noveck, B., S. (2015). *Smart Citizens, Smarter State: The Technologies of Expertise and the Future of Governing*. Cambridge: Harvard University Press

O'Flynn, M., & Panayiotopoulos, A. (2015). Activism and the Academy in Ireland: A Bridge for Social Justice. 9(1), pp.54-69. ISSN:1911-4788.

Offe, C. (2009). Governance: An "Empty Signifier"? *Constellations*, 16(4), 550. doi: 10.1111/j.1467-8675.2009.00570.x.

Orr, J. (2012). Materializing a Cyborg's Manifesto, *WSQ: Women's Studies Quarterly*, 40(1), pp.273-280.

Osborne, P. (1995). *The politics of time: Modernity and Avant- Garde*. London: Verso.

Panayiotopoulos, A., & Pisano, C. (2019). Overtourism Dystopias and Socialist Utopias: Towards an Urban Armature for Dubrovnik. *Tourism Planning & Development*, 16(4), pp.393-410. doi: 10.1080/21568316.2019.1569123.

Panizza, F. & Miorelli, R. (2013). Taking discourse seriously: discursive institutionalism and post- structuralist discourse theory. *Political studies*, 61. P.301-318, doi: 10.1111/j.1467-9248.2012.00967.x.

Parsad, A. (2016). Cyborg Writing as a Political Act: Reading Donna Haraway in Organization Studies. *Gender, Work & Organization*, 23(4), pp.431-446. Doi: 10.1111/gwao.12128.

Pericay Coll, G. (2011). Barcelona is becoming an international reference point for smart cities. *Catalan News* [Online] 30th November. Available at: https://www.catalannews.com/business/item/barcelona-is-becoming-an-international-reference-point-for-smart-cities (Accessed 1st May 2019).

Pla Estratègic Metropolità de Barcelona (PEMB) (2010). Barcelona Vision 2020 Available at: https://pemb.cat/public/docs/849_an_pemb_2020_angles.pdf (Accessed 12 August 2019).

Porro, A. (2018). The Barcelona City Council with the local platform economy. In M. Morell Fuster (Ed.) *Sharing Cities: A worldwide overview on platform economy policies with a focus on Barcelona*. Barcelona: Oberta UOC Publishing. pp.195-224.

Pratt, A. C. (2011). The cultural economy and the global city. *International Handbook of Globalization and World Cities*. P. Taylor, B. Derudder, M. Hoyler and F. Witlox (eds). Cheltenham, Edward Elgar: 265-274.

Procomuns (no date a). Barcola [webpage]. Available at: http://procomuns.net/en/about-2/barcola/ (Accessed 1 May 2019).

Procomuns (no date b). Proposit [webpage]. Available at: http://procomuns.net/ca/proposit/(Accessed 1 May 2019).

Purcell, M. (2002). Excavating Lefebvre: The right to the city and its urban politics of the inhabitant. *GeoJournal*, 58, pp.99-109.

Purcell, M. (2014). Possible Worlds: Henri Lefebvre and the Right to the City. *Journal of Urban Affairs*, 36(1), pp.141-154.

Pugalis, L. (2009). A Conceptual and Analytical Framework for Interpreting the Spatiality of Social Life. *FORUM Ejournal* (December 2009), p.77-98 doi: 1345-5019-2009-06.

Ravenelle, A. (2017). Sharing economy workers: selling, not sharing, *Cambridge Journal of Regions, Economy and Society*, 10.

Raworth, K. (2012). A safe and just space for humanity: Can we live within the doughnut?. *Oxfam Discussion Papers*. Available at: https://www-cdn.oxfam.org/s3fs-public/file_attachments/dp-a-safe-and-just-space-for-humanity-130212-en_5.pdf (Accessed 2 May 2019).

Raworth, K. (2018). A healthy economy should be designed to thrive, not grow. [TEDx Talk]. April. Available at: https://www.ted.com/talks/kate_raworth_a_healthy_economy_should_be_designed_to_thrive_not_grow?language=en (Accessed 2 May 2019).

Redshaw, T. (2017). Bitcoin beyond ambivalence: Popular rationalization and Feenberg's technical politics. *Thesis Eleven*, 138(1), pp.46-64.

Reillion, V. (2017a). European Innovation Partnerships. *European Parliamentary Research Service.* May 2017. Available at: http://www.europarl.europa.eu/RegData/etudes/ATAG/2017/603938/EPRS_ATA%282017%29603938_EN.pdf (Accessed 2 May 2019).

Reillion, V. (2017b). EU Public Private Partnerships in Research. *European Parliamentary Research Service Blog.* 23 May. Aailable at: https://epthinktank.eu/2017/05/23/eu-public-private-partnerships-in-research/ (Accessed 2 May 2019).

Reisigl, M. (2017). The Discourse-Historical Approach. In J. Flowerdew, & J.E. Richardson (Eds) *The Routledge Handbook of Critical Discourse Studies*. Routledge: London.

Reisigl, M. and Wodak, R. (2016). The discourse-historical approach (DHA). In R. Wodak and M. Meyer (eds.), *Methods of critical discourse studies* (pp.23–61). London: Sage.

Responsible Business (2017) Top 10 Smart Cities of 2017. Available at: http://www.responsiblebusiness.com/channels/cities-urbanisation-news/top-10-smart-cities-2017/ (Accessed 14 May 2018).

Rip, A., & Kemp, R. (1998). Technological change. In S. Rayner & E.L. Malone (Eds.) *Human choice and climate change. Vol. II, Resources and Technology.* Columbus, Ohio: Battelle Press, pp.327-399. Available at: http://kemp.unu-merit.nl/Rip%20and%20Kemp.pdf (Accessed 16 September 2019).

Ritter, J., & Mayer, A. (2017). Regulating Data as Property. *Duke Law & Technology Review*, volume 16, pp..220-277.

Rivera Rodriguez, N., & Morell Fuster, M. (2018). Public innovation in platform economy policies: Platforms, policy labs, and challenges. In M. Morell Fuster (Ed.) *Sharing Cities: A worldwide overview on platform economy policies with a focus on Barcelona*. Barcelona: Oberta UOC Publishing. pp.25-58.

Roberts, H. (2016). Could Amsterdam be Eutope's new capital of finance?. *Financial Times.*15 July. Available at: https://www.ft.com/content/553a9c82-4380-11e6-9b66-0712b3873ae1 (Accessed 23 August 2018).

Robinson, J. (2002). Global and world cities: a view from off the map. *International Journal of Urban and Regional Research*, 26(3), pp.531-554.

Roderick, I. (2016). *Critical Discourse Studies and Technology: A Multimodal Approach to Analysing Technoculture*. London, NY: Bloomsbury Publishing.

Roos, A., Kostakis, V., & Giotitsas C. (2016). Introduction: The Materiality of the Immaterial: ICTs and the Digital Commons. *TripleC*, 14(1), pp.48-50. doi:10.31269/triplec.v14i1.738.

Roose, J. (2016). About Amsterdam Smart City. *Amsterdam Smart City Pages*, 11 February. Available at: https://amsterdamsmartcity.com/p/about (Accessed 4 MAy 2018).

Roy, A. (2009). The 21st century metropolis: new geographies of theory. *Regional Studies*, 43(6), pp.819–30.

Rubio-Pueyo, V. (2017). *Municipalism in Spain: From Barcelona to Madrid, and Beyond*. Rosa Luxemburg Stiftung: New York.

Ruijsink, S., &, Smith, A. (2016) Transformative Social Innovation: European Network of Living Labs: summary report. TRANSIT: EU SSH.2013.3.2-1 Grant agreement no: 613169

Russo, F., Rindone, C., &, Panuccio, P. (2014). The process of smart city definition at an EU level. *The Sustainable City*, IX(2), pp.979-989.

Sabbagh, C., & Schmitt, M. (Eds.) (2016). *Handbook of Social Justice Theory and Research.* New York: Springer.

Sachs, J. (2015). *The age of sustainable development*. Columbia University Press

Salamon, L.M. (2001) The new governance and the tools of public action: an introduction. *Fordham Urban Law Journal*, 28, pp.1611-2037.

Sassen, S. (1991). *The Global city: New York, London, Tokyo*. Princeton University Press.

Sassen, S. (2002). *Global networks, linked cities*. London: Routledge.

Sassen, S. (2005). The global city: introducing a concept. *Brown Journal of World Affairs*, XI (2), pp.27-43.

Sassen, S. (2007). Urban sociology in the 21st century. In C. Bryant, & D. Peck (Eds.), *21st century sociology*. (pp.I-476-I-487). Thousand Oaks, CA: SAGE Publications

Sassen, S. (2014). The City: today's frontier zone. *Glocalism: Journal of Culture, Politics and Innovation*, 3, pp.1-4. doi:10.12893/gjcpi.2014.3.1.

Schäfer, M. (2018). The fourth industrial revolution: How the EU can lead it. *European View*, 17, pp.5-12. doi:10.1177/1781685818762890.

Schaffers, H., Komninos, N. and Pallot, M. (2012). Smart cities as innovation ecosystems sustained by the future internet. *FIREBALL White Paper*, Available at: http://www.fireball4smartcities.eu/wp-content/uploads/2012/05/FIREBALL-White-Paper-Final2.pdf (5 July 2017).

Schiller, D. (2000). *Digital capitalism: Networking the global market system*. MIT press.

Schmid, C. (2014). The trouble with Henri: Urban Research and the Theory of the Production of Space. In Stanek, L., Moravansky, A., & Schmid, C. (Eds.), pp.27-48. Surrey: Ashgate

Schmidt, V. A. (2008). Discursive Institutionalism: The Explanatory Power of Ideas and Discourse. *Annual Review of Political Science*, 11, pp.303–26.

Schmidt, V. A. (2011). Speaking of change: why discourse is key to the dynamics of policy transformation. *Critical policy studies*, 5(2), pp.106-126.

Scholte, J.A. (2000). *Globalization: A Critical Introduction*. London: Macmillan

Scholte, J.A. (2008). Defining Globalisation. *World Economy*, 31(11), pp.1471-1502.

Schor, J.B. (2017). Does the sharing economy increase inequality within the eighty percent?: findings from a qualitative study of platform providers. *Cambridge Journal of Regions, Economy and Society*, Volume 10, Issue 2, July 2017, Pages 263–279. doi:10.1093/cjres/rsw047.

Schor, J.B., & Attwood-Charles, W. (2017). The "sharing" economy: labor, inequality, and social connection on for-profit platforms. *Sociology Compass*. 11:e12493. doi:10.1111/soc4.12493.

Schor, J. B., Fitzmaurice, C., Attwood-Charles, W., Carfagna, L. B., & Dubois Poteat, E. (2016). Paradoxes of openness and distinction in the sharing economy. *Poetics*, 54, pp.66–81.

Schroff, S. &, Street, J. (2018). The politics of the Digital Single Market: culture vs. competition vs. copyright. *Information, Communication & Society*, pp.1305-1321, doi:10.1080/1369118X.2017.1309445.

Schwab, K. (2016). The Fourth Industrial Revolution: What it means, how to respond. *World Economic Forum*, 14 January. Available at: https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/ (Accessed 12 February 2018).

Schwanen, T. (2015). Beyond the Instrument: smartphone app and sustainable mobility. *EJTIR*, 15, pp.675-690.

Scott, A. (2012). *A world in emergence: cities and regions in the 21st century*. Cheltenham: Edward Elgar.

Scott, J., A. (2014). Beyond the Creative City: Cognitive–Cultural Capitalism and the New Urbanism. *Regional Studies*, 48 (4), pp.565-578. doi:10.1080/00343404.2014.891010.

Selwyn, N. (2004). Reconsidering political and popular understandings of the digital divide. *New Media & Society*. 6(3), pp.341-362.

Silverstone, R. (2005). Mediation and Communication in C. Calhoun et al (eds.) *The International Handbook of Sociology*. London: Sage

Silverstone, R. (2007). *Media and morality: On the rise of the mediapolis*. Cambridge, UK: Polity Press.

Sivan, Y. (2000). Knowledge Age Standards: A brief introduction to their dimensions. In K. Jakobs (ed.) *Information Technology Standards and Standardization: A Global Perspective*, Idea Group Publishing, ISBN 1-878289-70-5, 2000. pp.1-18.

Sharing Cities (no date). About [webpage]. Available at: http://www.sharingcities.eu/sharingcities/about (Accessed 1 August 2019).

Sharing Cities Action (no date a). The Summit 2018 in Pictures [webpage]. Available at: http://www.sharingcitiesaction.net/summit-in-pictures/ (Accessed 1 August 2019).

Sharing Cities Action (no date b). Sharing Toolkit [webpage]. Available at: http://www.sharingcitiesaction.net/sharing-toolkit/ (Accessed 1 August 2019).

Sharing Cities Action (2018). Declaration of Sharing Cities. [webpage]. Available at: http://www.sharingcitiesaction.net/declaration/ (Accessed 1 August 2019).

Sharing Cities Alliance (no date). About us [webpage]. Available at: https://www.sharingcitiesalliance.com/about-us (Accessed 1 April 2019).

Sharp, D. (2018) Sharing Cities for Urban Transformation: Narrative, Policy and Practice. *Urban Policy and Research*, 36(4), pp.513-526. doi: 10.1080/08111146.2017.1421533.

Shelton, T., Zook, M., & Wiig, A. (2015). The 'actually existing smart city'. *Cambridge Journal of Regions, Economy and Society*, 8(1), 13-25. doi: 10.1093/cjres/rsu026

Shelton, T., & Lodato, T. (2019). Actually existing smart citizens: Expertise and (non)participation in the making of the smart city. *City*, 23(1), pp.35-52, doi: 10.1080/13604813.2019.1575115.

Shields, R. (1999). *Lefebvre, Love and Struggle: Spatial Dialectics*. London: Routledge.

Shields, R. (2013). Lefebvre and the Right to the Open City?. S*pace And Culture*, 16(3), pp.345-348.

Smart City Embassy (no date). About Available at: http://www.smartcityembassy.nl/about/ (Accessed 12 May 2018).

Smart City Expo World Congress (no date). Past editions Available at: http://www.smartcityexpo.com/en/the-event/past-editions (Accessed 12 August 2019).

Smart City Expo World Congress (2018). The right to the Smart City [youtube video]. 3 December. Available at: https://www.youtube.com/watch?v=PT_sspvFeIw&list=PLscvPrzqnyFrFrlSIx7pSLvqTtNAkXTgK&index=10 (Accessed 12 August 2019).

Smith, D.M. (1994). *Geography and Social Justice*. Oxford: Blackwell

Söderström, O., Paasche, T., & Klauser, F. (2014). Smart cities as corporate storytelling, *City*, 18(3), pp.307-320.

Soja, E.W. (2010). *Seeking spatial justice*. Minneapolis: University of Minnesota Press.

Soja, E.W. (1998). Thirdspace: Journeys to Los Angeles and other Real-and-Imagined Places. *Capital & Class*, 22(1), pp.137-139.

Srinivasan, J., Finn, M., & Ames, M. (2017). Information determinism: The consequences of the faith in information. *The Information Society*, 33(1), pp.13-22. doi:10.1080/01972243.2016.1248613.

Stallman, R. (2006). The Free Software Movement and the Future of Freedom [transcript]. *FSFE*. 9 March. Available at:

https://fsfe.org/freesoftware/transcripts/rms-fs-2006-03-09.en.html (Accessed 2 May 2019).

Stanek, L. (2008). Space as Concrete Abstraction: Hegel, Marx, and Modern Urbanism in Henri Lefebvre. In *Space, Difference, Everyday Life: Henri Lefebvre and Radical Politics* (pp.62-79). London: Routledge.

Stanek, L. (2011). *Henri Lefebvre on Space: Architecture, Urban Research, and the Production of Theory.* University of Minesota Press.

Stavrides, S. (2013). Contested Urban Rhythms: From the Industrial City to the Post-Industrial Urban Archipelago. *The Sociological review*, 61(1), pp.34-50.

Stock, W. (2011). Informational cities: analysis and construction of cities in the knowledge society. *Journal of the American society for information science and technology*, 62(5), pp.963- 986.

Streule, M. (2014). The Trend Towards Transdisciplinarity: A Critical Evaluation of an Ambivalent Practice in Qualitative Urban Studies. *Forum: Qualitative Social Research*, 15 (1), Art. 17. doi: 10.17169/fqs-15.1.1995

Subboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. Profile Books.

Subirana, J., & Navarro, P. (2013). *Barcelona ABC: albhabet d'una Ciutat= A city alphabet*. Barcelona: Ayuntamiento de Barcelona. Dirección de Servicios Editoriales.

Tam, H. (Ed.). (2019). *Whose government is it?: The renewal of state-citizen cooperation*. Bristol: Bristol University Press. Available at: http://www.jstor.org/stable/j.ctvcb59gp

Taylor, P., J. (2000). World cities and territorial states under conditions of contemporary globalization. Political Geography, 19(1), pp.5-32. doi: 10.1016/S0962-6298(99)00060-8.

Taylor, P., J. (2004). *World City Network: A Global Urban Analysis*. London: Routledge.

Taylor, P., J., & Catalano G. (2001). Measurement of the World City Network. Available at: http://doc.ukdataservice.ac.uk/doc/4447/mrdoc/pdf/a4447uab.pdf (Accessed 11 September 2019).

Taylor P., J., & Aranya, R. (2008). A Global 'Urban Roller Coaster'? Connectivity Changes in the World City Network. *Regional Studies*, 42(01), pp.1-16. doi:10.1080/00343400601145202.

Taylor, P., J. et al. (2011). *Global Urban Analysis: A Survey of Cities in Globalisation*. London: Earthscan.

Teixeidora (2018). Share Barcelona-Sharing Cities Summit 2018 [wiki]. Available at: https://www.teixidora.net/wiki/Share_Barcelona_2018_es_documenta (Accessed 2 May 2019).

Territorial Agenda of the European Union 2020 (2011). Available at: https://ec.europa.eu/regional_policy/sources/policy/what/territorial-cohesion/territorial_agenda_2020.pdf (Accessed 2 May 2019).

Thornbush, M., Golubchikov, O. & Bouzarovski, S. (2013). Sustainable cities targeted by combined mitigation-adaptation efforts for future-proofing. *Sustainable Cities and Society*, 9, pp.1-9. doi:10.1016/j.scs.2013.01.003.

Thrift, N. & French, S. (2002). The automatic production of space. *Transactions of the Institute of British Geographers*, 27(3), pp.507-526.

Tieman, R. (2017). Barcelona: smart city revolution in progress. Financial Times [online] 26th October. Available at: https://www.ft.com/content/6d2fe2a8-722c-11e7-93ff-99f383b09ff9 (Accessed 1st May 2019).

Torfing, J. (1999). *New theories of discourse: Laclau, Mouffe and Zizek.* Oxford, UK:

Blackwell Publishers.

Torfing, J. (2005). In Howarth, D. R., & Torfing, J. (Eds.) *Discourse theory in European politics.* Hampshire & New York: Palgrave Macmillan.

Torres, C. M. (2016). Barcelona Activa aposta pels projectes d'economia social i solidària. *Beteve.* 13 March. Available at: https://beteve.cat/economia/barcelona-activa-aposta-pels-projectes-deconomia-social-i-solidaria/ (Accessed 2 May 2019).

Tosoni, S., & Ridell, S. (2016). Decentering Media Studies, Verbing the Audience: Methodological Considerations Concerning People's Uses of Media in Urban Space, *International Journal of Communication*.10 (2016), pp.1277-1293. doi:1932–8036/20160005.

Townsend, A. (2013). *Smart Cities: Big Bata, Civic Hackers, and the Quest for a New Utopia*. New York: W.W. Norton and Company.

Tranos, E., & Gertner, D. (2012). Smart networked cities? Innovation. *The European Journal of Social Science Research*, 25(2), 175. doi: 10.1080/13511610.2012.660327

Tuathail, G.Ó (2000). The Postmodern Geopolitical Condition: States, Statecraft, and Security at the Millennium. *Annals of the Association of American Geographers*, 90(1), pp.166-178.

Turley, L., & Semple, A. (2013). Financing Sustainable Public-Private Partnerships. *International Institute for Sustainable Development*, February. Available at: https://www.iisd.org/pdf/2013/ppp_financing.pdf (Accessed 19 September 2019).

UN DESA (2015). Preparing the world for important population changes [online video]. Available at: https://www.youtube.com/watch?v=wwk3bWHoFC0 (Accessed 9 September 2015).

UN DESA (2015). World's population increasingly urban with more than half living in urban areas [www] UN DESA. Accessed at: http://www.un.org/en/development/desa/news/population/world-urbanization-prospects.html (Accessed 9 September 2015)

Ufer, U. (2015). Urban Access: Contested spaces and Contested Politics. *Focaal—Journal of Global and Historical Anthropology*, 72 (2015), pp.64–77. doi:10.3167/fcl.2015.720106.

Van den Hove, S., McGlade, J., Mottet, P., &, Depledge, M.H. (2011). The Innovation Union: a perfect means to confused ends?, *Environmental Science & Policy*, 16, pp.73-80.

Van den Veen, E. (2016). Frequently Asked Questions. *Amsterdam Smart City Pages*. 23 February. Available at: https://amsterdamsmartcity.com/p/faq (Accessed 24 April 2018).

van Waart, P., Mulder, I., de Bont, C. (2015). A participatory approach for envisioning a smart city. *Soc. Sci. Comput. Rev. (2015)*, 34(6), pp.708-723. doi: 10.1177/0894439315611099.

Van Winden, W. (2016). Amsterdam's smart city ecosystem. In van Winden et al., (Eds) *Organising smart city projects: Lessons from Amsterdam*. Amsterdam: Amsterdam University of Applied Sciences, pp.15- 19.

Van Winden, W. et al. (2016). *Organising Smart City Projects: Lessons from Amsterdam*. Amsterdam: Hogeschool van Amsterdam.

Vanolo, A. (2014) Smartmentality: The smart city as a disciplinary strategy. *Urban Studies*, (51) 5, pp.883-898.

Vanolo, A. (2016). Is there anybody out there? The place and role of citizens in tomorrow's smart cities. *Futures*, 82, pp.26–36.

Varsanyi, M. W. (2000). Global cities from the ground up: a response to Peter Taylor. *Political Geography*, 19(1), pp.33-38. doi:10.1016/S0962-6298(99)00061-X.

Vázquez, S. (2019). Losing Barcelona. *Jacobin*. 8 June. Available at: https://www.jacobinmag.com/2019/06/barcelona-elections-colau-catalunya (Accessed 20 September 2019).

Vidal, V., & Morell Fuster, M. (2018). Sharing Cities: Overview of public policies of platform economy. In M. Morell Fuster (Ed.) *Sharing Cities: A worldwide overview on platform economy policies with a focus on Barcelona*. Barcelona: Oberta UOC Publishing. pp.59-90.

Virilio P. (1991). *The lost dimension*. New York: Semiotext(e).

von Fintel., K. (2006). Modality and Language. In D. M. Borchert (Ed), *Encyclopedia of Philosophy–Second Edition.* Detroit: MacMillan Reference USA. Available at: http://mit.edu/fintel/www/modality.pdf (Accessed 2 May 2019).

Vuolteenaho, J., Leurs K., & Sumiala, J. (2015). Digital urbanisms: Exploring the spectacular, ordinary and contested facets of the media city. *Observatorio (OBS*) Journal*, Special issue: Media City: Spectacular, Ordinary and Contested Spaces, pp.1-21.

Yanow, D. (2000). *Conducting Interpretive Policy Analysis*. London: Sage Publications.

Yescombe, E., R. (2007). *Public-Private Partnerships: Principles of Policy and Finance.* Oxford: Butterworth-Heinemann.

Yigitcanlar, T. (2010). Informational city. In R. Hutchison (Ed), *Encyclopedia of Urban Studies*, Vol. 1. Sage, New York, NY. pp.392-395.

Yin, R. K. (1994). *Case study research: Design and methods* (2nd ed.). Newbury Park, CA: Sage Publications.

Youngs, G. (2007). *Global political economy in the information age: power and inequality*. London: Routledge.

Waag (2014). Smart Citizen Kit. Available at: https://waag.org/en/project/smart-citizen-kit (Accessed 2 May 2019).

Wark, M. (2004). *A Hacker Manifesto*. Cambridge, MA: Harvard University Press.

We Make The City (2018). WeMakeThe.City. [Youtube Video]. 4 April. Available at: https://www.youtube.com/watch?v=_eaDdM0olgc

Weiss, S. (2019). Bird-killing, cancer-causing 5G is the internet's new favourite conspiracy theory. 12 June, *Wired*. Available at: https://www.wired.co.uk/article/5g-health-risks-concerns (Accessed 20 September 2019).

Weissenbacher, R. (2018). Peripheral integration and disintegration in Europe: the 'European dependency school' revisited. *Journal of Contemporary European Studies*, 26(1), pp.81-98. doi: 10.1080/14782804.2017.1302875.

Wenman, M. A. (2003). Laclau or Mouffe? Splitting the Difference. *Philosophy & Social Criticism*, 29(5), pp.581–606.doi:10.1177/01914537030295005.

West, K. (2011). Articulating discursive and materialist conceptions of practice in the logics approach to critical policy analysis. *Critical Policy Studies*, 5(4), pp.414-433. doi: 10.1080/19460171.2011.628033.

Wiig, A. (2016). The empty rhetoric of the smart city: from digital inclusion to economic promotion in Philadelphia. *Urban Geography*, 37(4), pp.535-553. doi:10.1080/02723638.2015.1065686.

Wiig, A. (2017). Secure the city, revitalize the zone: Smart urbanization in Camden, New Jersey. *Environment and Planning C: Politics and Space*, 36(3), pp.403-422. doi: 10.1177/2399654417743767.

Willis, K., & Aurigi, A. (2017). *Digital and Smart Cities*. London: Routledge.

Wired (2018). What is 5G and when will it come to the UK? 5G networks explained. 23 May. Available at: https://www.wired.co.uk/article/what-is-5g-vs-4g. (Accessed 22 September 2019).

Wolfram, M. (2012). Deconstructing Smart Cities: An Intertextual Reading of Concepts and Practices for Integrated Urban and ICT Development. In M. Schrenk, V.V. Popovich, P. Zeile, & P. Elisei (Eds.), *Proceedings REAL CORP 2012*. ISBN: 978-3-9503110-3-7 (Print). pp.171-181.

Wood, P. (2001). Conclusions: Innovative Cities in Europe. In J. Simmie (Ed), *Innovative Cities*, pp.231-249.

Wynn, M. (1979).
Barcelona – planning and change 1860 – 1977, *Town Planning Review*, 50(2), pp.18 5203. ISSN 00410020.

Zastawny, D. (2015). Barcelona Activa: One City's Approach To Fostering Economic Independence. *Respublica* [blogpost]. Available at: https://www.respublica.org.uk/disraeli-room-post/2015/05/18/barcelona-activa-one-citys-approach-to-fostering-economic-independence (Accessed 2 May 2019).

Zikken, N. (2016). Partnerships Amsterdam Smart City. *Amsterdam Smart City Pages*. 28 December. Available at: https://amsterdamsmartcity.com/p/become-a-partner (Accessed 24 April 2018).

Zikken, N. (2017). Community Guidelines. *Amsterdam Smart City Pages.* 4 May. Available at: https://amsterdamsmartcity.com/p/guidelines (Accessed 12 May 2018).

Žižek, S. (2000). Class struggle or Postmodernism? Yes, please!. In J. Butler, E. Laclau & S. Žižek, *Contingency, hegemony, universality: Contemporary dialogues of the left*. London: Verso.

Zizek, S. (2010). *Living in the end times*. London: Verso.

Zuboff, S. (2015). Big other: Surveillance capitalism and the prospects of an information civilisation. *Journal of Information Technology*, (2015) 30, pp.75–89. doi:10.1057/jit.2015.5.

Zygiaris, S. (2013). Smart city reference model: assisting planners to conceptualize the building of smart city innovation ecosystems, *Journal of the Knowledge Economia*, 4 (2), pp.217-231, doi: 10.1007/s13132-012-0089-4.

22Barcelona (no date). 22Barcelona: The Innovation District. Available at: https://www.brookings.edu/wp-content/uploads/2016/07/06_barcelona_22_presenation.pdf (Accessed 2 May 2019).