

Participation in the Smart City
An Ethnographic Study of Citizen Engagement in Dublin



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by
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Végül szeretnék köszönetet mondani anyukámnak, aki nélkül soha nem születhetett volna meg ez a szakdolgozat.

Abstract

This thesis provides ethnographic insights into the nature of smart urban projects; secondly, it provides a theory explaining the motivation for participation as well as the benefits gained through engagement. Smart urban projects are celebrated for helping to improve social cohesion and aim make life more effective in the city by using ICTs. However, the voluntary nature of the collaborations calls for alternative legitimising routes to ensure the longevity and success of the projects. As many of the projects still pivot from their original goal or remain a fragment, it is worthwhile to ask the question: why is this activity so widely supported by public and private stakeholders and why do so many people try to engage in similar endeavours? Mapping, counting, visualising platforms appear to allow the collaborators to create a replica of their subjective cityscape. In the absence of money and traditional institutions trust is ensured by shared vision and common comprehension of underlying power structures. Creating their own version of the city, people are able to fully participate in their imagined society. By being part of this endless process of collaborative production their efforts are exchanged for urban citizenship. The thesis concludes by highlighting the incentive behind mapping, counting and visualizing projects appearing so often in smart cities. Based on my ethnography, I show the participatory nature of these projects and explain what brings about this emerging expertise.

Introduction

The new citizenship can be defined for each individual and for each social group as a possibility, (as a right) to recognize and master (individually and collectively) its own conditions of existence (material and intellectual), and this simultaneously as a political actor, as a producer, as a citizen-user-consumer, in its place of residence, its city and its region, its professional and non-work related activities as well as in its nation and the world. – Henri Lefebvre

Global flows, such as urbanisation, environmental degradation and unsustainable resource use have created a set of difficulties for governments and local authorities. From the 1970s onwards increasing pressure came from supranational organisations to bring economic growth and environmental goals under the same agenda. Sustainable development therefore became the leading principle for decision making. Defining, measuring and operationalising this imperative is however not without problems. As a response, a diverse set of solutions were proposed, many of which approach the phenomenon in its complexity and propagates action on a city-level. The ‘smart city’ is one of these responses. When we speak of ‘smart cities’ we are referring to processes emerging in cities, processes that result from the interaction between ever-changing data assemblages, which are nested in broader apparatuses: ideologies, practices, tools, institutions, social groups, etc. This view acknowledges that smart cities are more than ‘everyware’ present in the fabric of the city. The smart city enabled by information and communication technologies denotes, on the one hand, the development of a knowledge economy, and, on the other hand, both the urban economy and governance being driven by innovation, creativity and entrepreneurship, all enacted by smart people.

Accordingly, smart city initiatives encourage citizen participation on many levels: collaborating with different stakeholders, participating in local governance, finding innovative solutions to urban challenges. In fact, citizen engagement is currently regarded as

a critical condition for the successful implementation of smart city strategies and it has become tool for assessing their impact. To enable participation the city is encouraged to provide physical and digital spaces for action. Hackatons, workshops, forums, open-source maps and diverse online tools shape the modes of engagement. They are celebrated for facilitating connections and knowledge sharing among citizens from various backgrounds. In this context, digital urban dashboards take up a central role. They are designed to display real-time information on various phenomena in the city, creating a digitally readable, visible and intelligible urban reality (see Lefebvre 1991). Alongside dashboards, many collaborative smart projects recently appeared with a focus on counting, classifying, mapping, and digitally visualising urban phenomena, such as community groups, services or different events. Together these platforms represent a powerful urban epistemology and provide seemingly neutral information about the urban environment. These representations, however, are never free of the ideologies and biases of their creators. They may well obscure existing inequalities or instantiate new ones. But, more broadly, they display fragments of imagined cityscapes that actively shape contemporary urban activity.

Anthropology provides us with theoretical concepts drawn from cross-cultural research and methods that allow for an immersive study of human life in action. To enquire about the seemingly mysterious nature of citizen engagement in a complex environment, I will focus herein on the ways smart cities actively shape social relations. In order to address this challenge, I will first explore how cities shape social relations. According to several venturesome scholars, especially Jane Jacobs (1969) and Edward Soja (2003), much can be gained by turning back to the lessons available in ancient cities. Following Soja, I use the concept of *synekism*, the continuously evolving source of social synergy as an entry route to the work of Henri Lefebvre, the most influential theorist of cities and their social relations.

His ideas allow us to study the conceived, perceived and lived experiences of citizens in new ways and provide us with insights in terms of meaning-making in the smart city. Then, Benedict Anderson's (1991) ideas on nation-building will help re-introduce us to our own digital colonisers and their imagined territories. Tracing through the colonial institutions of power, we will be able to see how mapping projects and digital dashboards are creating narrative of imagined communities. Finally, I will look at these citizens as experts who emerge in specific problem-spaces and let Paul Rabinow navigate as they move through the recent past and near-future in a (nonlinear) space (2008:2).

Wishing to study complex phenomena, I needed to choose a method that is able to tap into the often-invisible web of meanings that exists behind a term like citizen engagement. In an environment that is at the intersection of private and public interests, conducting ethnographic research completed by semi-formal interviews with stakeholders proved to be a very insightful experience. Trying to understand the values, visions and lived experiences emerging from contemporary urban activity, my research closely examined the creation of a community project prototype within an EU-funded urban resilience framework. The project, a digital innovation dashboard, aimed to display and connect hundreds of registered and many more unregistered communities within a city region. Having created the prototype the long-term goal was to be integrated in the city council's Local Economic and Community Plan. I joined the project at a stage where the preliminary concept and structure of the dashboard had already been designed. Then, I followed and participated in the creative process on- and offline for approximately three and a half months. I studied the apparatuses emerging around the project, the participation of the various stakeholders in the network that enabled the creation of the prototype, the decision-making practices and the conditions for implementation. My findings reveal how emerging experts participate and engage with the city as well as the values and ideologies that lead them in their activity. I also relate these

findings to the outcomes of such projects.

The thesis, then, consists of four chapters. In the first chapter I attempt to show how the diverse challenges caused by global flows such as intensive urbanisation processes, environmental concerns, the increased use of technology have left decision makers floating in an air of uncertainty. Efforts to improve the quality of life in cities, while continuously maintaining economic growth and prioritise environmental goals have all called forth ‘smart’ solutions. A smart city in this thesis is studied in its complexity, including people, their practices and together with the enabling smart urban environment. The second chapter focuses on the relationship between city and citizen. Spatial theory lives its renaissance as more and more disciplines regard space an inherently social entity. I will also try to show how dashboards and other digital platforms enhance our lived, perceived and conceived experience of the city. The third chapter provides an ethnographic description of the creation process of the digital innovation dashboard linking theory to engagement in the smart city. The description provides insights into diverse processes. It describes the communication of the participants, the expansion of the network, the knowledge exchanges and the creation of the digital dashboard. In my final chapter, I will try to highlight the incentive behind mapping, counting and visualizing projects appearing so often in smart cities. Based on my ethnography, I will also explore the participatory nature of these projects and explain what brings about this emerging expertise.

My thesis, firstly, will provide insights on the nature of smart urban projects; secondly, it will provide a theory explaining the motivation for participation as well as the benefits gained through engagement. These projects are celebrated for helping to improve social cohesion and make life more effective in the city by using ICTs. However, the voluntary nature of the

collaborations calls for alternative legitimising routes to ensure the longevity and success of the projects. As many of the projects still pivot from their original goal or remain a fragment, it is worthwhile to ask the question: why is this activity so widely supported by public and private stakeholders and why do so many people try to engage in similar endeavours?

Mapping, counting, visualising platforms appear to allow the collaborators to create a replica of their subjective cityscape. In the absence of money and traditional institutions trust is ensured by shared vision and common comprehension of underlying power structures.

Creating their own version of the city, people are able to fully participate in their imagined society. By being part of this endless process of collaborative production their efforts are exchanged for urban citizenship.

Chapter 1: The Rise of the Smart City

Something prior must have happened to introduce uncertainty, a loss of familiarity; that loss, that uncertainty is the result of difficulties in our previous way of understanding, acting, relating. (Foucault 1994: 598)

According to the *World Urbanisation Prospects* issued by the United Nations last year, the proportion of the world's population living in urban areas is expected to increase to 66 per cent by 2050. This intensive urbanisation process, bringing about increasing consumption levels and disproportional energy use, has become a pressing issue. Governments and city leaders face diverse set of challenges in a midst of uncertainty: there are now global questions of environment and sustainability; then there is the exponentially growing pace of tech change and the need for new tech markets. In response to these set of difficulties we see the smart city appearing within a broad 'problematization' of urban life and governance, or as Paul Rabinow expresses the notion of a problematisation,

[*It is a*] kind of general historical and social situation saturated with power relations, as are all situations, and imbued with the relational 'play of true and false,' a diacritic Marking a subclass of situations as well as a nexus of responses to that situation. Those diverse but not entirely disparate responses, it follows, themselves form part of the problematization over time as it develops or unfolds. (Rabinow 2001:139)

For Rabinow as well as for Foucault, the key challenge is to critically examine not just the new solutions but also the 'the soil that can nourish them' (Foucault 1997:118). The story of the rise of 'smart cities', then, is the story of a growing uncertainty, the problematisation of urban life, the contested solutions and forms of expertise that have arisen. A brief history of these recent developments is useful. Exactly a decade ago, in 2005 the Clinton Foundation invested in a network equipment producer company to help make cities more sustainable. Marking the first milestone in the history of smart cities. Cisco, after dedicating a five years

of research and \$25million dollars to the incentive, launched its Smart and Connected Communities division to respond to challenges of rapid urbanisation and sustainable development.

However, behind this rapid period of challenge and proposed solution one finds a long process of institutionally placing sustainability at centre stage. Sustainable ways of living have long been a topic of discussion at the United Nations and other supranational organisations. The two-sided incentive to support economic development while paying attention to environmental concerns called for a complex solution-net satisfying the needs of the various stakeholders. Since then smart cities have been seen as efforts to respond to complex sets of difficulties in a constantly changing environment. It is my view that the development of the concept of sustainability (and later sustainable development) helped bringing about the phenomenon of smart cities. In their present form smart cities are not only a bundle of technological solutions – slowly and invisibly they brought about a phenomena that is now present in all layers of urban life and affect each and every citizen. Apart from being ever-present they are now expected to find remedy for the problems of our future cities.

The report on the *World Urbanisation Prospects* closes with the following paragraph:

“Successful sustainable urbanization requires competent, responsive and accountable governments charged with the management of cities and urban expansion, as well appropriate use of information and communication technologies (ICTs) for more efficient service delivery” (2014:18). This multi-layer phenomenon provides the background to my study in which I examine the role of the citizens and their interactions in the smart urban environment.

The international environmental policy strategies reflect on contemporary environmental thinking and studying them allows us an insight to today's sustainability agenda. To understand the complex context in which the city becomes a critical point of (re)action, first,

I would like to examine the process through which Environmental Action Programmes (EAPs) try to provide solutions to these pressing global challenges. I will reach out to the documents on the environmental policy history of the European Union dating back to 1971. They are designed to provide a framework for the European Commission's (EC) activity regarding the environment. The history of the EAPs, on one hand, allows us to see how the atmosphere of decision-making is becoming increasingly characterised by a growing reliance on indicators. This is seen by Sally E. Merry as an "instance of the dissemination of the corporate way of thinking and governance into broader social spheres" (2011:83). On the other hand, from the 1970s onwards we are also able to observe how economic development and environmental goals are being brought under the same agenda under the flag of sustainable development, and how it is then slowly developed into an ethical imperative. "The goals of economic and social development must be defined in terms of sustainability in all countries - developed or developing, Market-oriented or centrally planned," writes Gro Brundtland in her famous report, *Our Common Future: Report on the World Commission on Environment and Development* (1987). My quest in the next section will be to trace how this concept translates into action.

Policy History

In 2050, we live well, within the planet's ecological limits. Our prosperity and healthy environment stem from an innovative, circular economy where nothing is wasted and where natural resources are managed sustainably, and biodiversity is protected, valued and restored in ways that enhance our society's resilience. Our low-carbon growth has long been decoupled from resource use, setting the pace for a global safe and sustainable society. -- The 7th Environment Action Programme to 2020 – 'Living Well, Withing the Limits of Our Planet'

Numerous action-plans and policies were formed in the past four decades reflecting the problem perceptions of the member states. While in the 1970s the Environmental Action

Programmes looked at linear cause-effect phenomena, from the 1990s onwards a global, interlinked, systemic approach was adopted (European Environment Agency, 2015:23). These documents however are not capable of obliging the EU countries in terms of their regulations. The overview of the EAPs since the 1970s makes it clear that the environmental frameworks have always been subject to economic and political change on a national and international scale. As a response the EAPs gradually adopt "a more holistic, integrated approach, looking for synergies between business and environmental goals" (Hey, 2005: 18). Following through the Environmental Action Programmes, it is easily observable how sustainable development has finally become identified as the main objective of environmental policy (Connelly, 2007).

The first Environmental Action Programme was the forerunner of today's Sustainability Development framework. It established that "economic development, prosperity and the protection of the environment are mutually interdependent." (Hey, 2005: 18). The effect of the first and the second programme – the second being only a necessary continuation – are criticised for their optimism. Their overall aims were, "the prevention, reduction and containment of environmental damage, the conservation of an ecological equilibrium, the rational use of natural resources" (Hey, 2005: 18). Nevertheless, the practical steps accompanying these far-reaching goals were less comprehensive, and focused on tackling single environmental problems, such as problems with water or air quality. Taking a step towards a more integrated framework, the third EAP a decade later adopted an emission oriented approach, but also a completely novel perspective as a whole. It examined the positive and negative impacts the environmental policies had on the Internal Market as well and ensured that environmental emissions are harmonised in order to avoid negative effects on industry competitiveness (Hey, 2005: 19). The programme's goals show close conceptual

ties with the first global strategy for Sustainable Development (1980) and highlight areas such as “waste avoidance, efficient resource use, and integrated environmental technologies” (Hey, 2005: 20) among its objectives.

A turning point precedes the fourth EAP, when in 1987 for the first time environmental protection receives a chapter in the Treaty. (Hey, 2005: 20) The fourth EAP therefore comes forward with a new approach: environmental protection is treated “as an integrated activity within the whole production process” (Hey, 2005: 20). It is the first step towards the paradigm shift that resulted in the integration of environmental policy into economic decision making (Hey, 2005: 21). The social and economic context also helped pushing the sustainability agenda forward. By the end of the 1980s the Climate Change debate entered the arena and brought about long-term thinking in terms of effective policy measures. The use of various economic instruments was proposed such as environmental taxes and other initiatives that were finally authorised by the Dublin Declaration in 1990. Among the many factors that supported this shift global leadership was one of the key incentives especially before the UNCED Conference taking place in Rio de Janeiro in 1992. Apart from the preparations for the conference, a strong political dynamic in support of environmental issues was formulating that together resulted in the Fifth EAP that promised an ecological structural change. The philosophical concept of sustainable development in this Action Programme was based on the *Brundtland Report* that concludes the following:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: (1) the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and (2) the idea of limitations imposed by the state of technology and social organization of the environment's ability to meet present and future needs. (Brundtland, 1987)

The Member States' response nevertheless was not as enthusiastic as the goals set in the 5th EAP. The lack of support from the member states made the Commission realise the limits of their influence and resulted in a future characterised by avoiding ambitious new proposals. By the beginning of the 1990s a number of contradictory trends emerged as a result of this process. Sustainability, however, managed to remain on the agenda and was strengthened by the Amsterdam Treaty in 1997. The EU environmental policy history in the late nineties refers to a regulatory boom that included a “new complex and holistic framework legislation”, a “new target oriented legislation” a “revision or modernisation of existing legislative programmes”, “introduction of many new environmental policy instruments”, a “new procedural legislation (...) strengthening civil society rights, notably the three Aarhus pillars: freedom to information, participation rights and access to justice (Hey, 2005: 25-26). Apart from these, a more participatory policy preparation process can be observed as well. In the end, however, the concerns of the member states manage to shape the 6th EAP which in turn only identifies key themes and principles. The EAP's new governance approach – that involves private and public stakeholders in the decision-making process - is criticised as well, stating that it changes the Commission's role from initiator of change to “manager of policy processes” (Hey, 2005: 27).

The seventh Environmental Action Programme that leads up to 2020 came to effect in January 2014. Among others, the European Environmental Bureau judged the 6th EAP to partly be a failure, so the expectations were high regarding the following event. The 7th EAP tried to match the expectations by adopting a longer term vision up until 2050 in which societies can live well within the limits of the planet. This action-plan includes among its goals to achieve a resource efficient, low-carbon economy and to protect EU citizens from environment-related pressure (see 7th EAP document). Moreover, the sustainability of the

Union's cities is set as one of the priority objectives. The objectives of the programme touch on nine areas through which the sustainable European vision has to be approached. The 7th EAP acknowledges that prosperity is based on natural capital that has to be protected and conserved. It advocates for a healthy environment and resource efficiency, it supports evidence-informed decision making by making good-quality data accessible as well as funding scientific endeavours. By relying on the forecast that by 2020, 80% of the EU's population is likely to live in urban and peri-urban areas it urges the creation of sustainable urban activities, the sharing of best practices and the promotion of innovative solutions (Official Journal of the European Union, 2013:196).

Figure 1: 7 EAP priority objectives



Concepts and Operationability

The sustainability framework brought about a structured solution-net that answers to cities'

economic, social and environmental needs. The smart cities concept refers to a part of this web of ideas and urban practices and also helps by transforming global principles to local processes. Before turning to the smart city concept, therefore, I would like to tease out the ways the concept of sustainable development has been formulated with a special attention to attempts of operationalisation and its recent focus on cities. A lot has happened since the term ‘sustainability’ first gained global attention and sustainable development became a political concept. As it is a complex problem it has been very difficult to translate into practical measures. John Elkington’s Triple Bottom Line approach has been one of the first to attempt to measure sustainability along the lines of three dimensions: social, environmental (ecological), and financial. Jeffrey Sachs, a leading expert on sustainability, names good governance as essential to a successful sustainable strategy. He also names urban sustainability and smart cities as part of the strategy. Finally, in this section I will look at a very distinctive measurement system, The Circles of Social Life, promoted by public-private collaborations.

The term ‘sustainability’ first gained global attention in 1972 at the UN conference on the Human Environment in Stockholm although it has been used before in the context of fisheries and forest management. The concept gradually gained importance and it has become the core of global and European decision-making practices. The history of the political concept of sustainable development is marked by numerous documents and global events. One of the first internationally recognised reports to use the term sustainable was ‘Limits to Growth’ written in 1972. In 1980 the precursor of the concept was coined in the World Conservation Strategy stating that conservation of nature and development to fight poverty are mutually interdependent. In 1987, Gro Brundtland’s report on *Our Common Future* also emphasised the link between the economy and the environment, adding social, cultural and global

perspectives to the concept: “the environment does not exist as a sphere separate from human actions, ambitions, and needs, and therefore it should not be considered in isolation from human concerns. The environment is where we all live; and development is what we all do in attempting to improve our lot within that abode. The two are inseparable’ (1987: 14). The UNCED held in Rio de Janeiro in 1992 further strengthened the concept. The agenda reassured the main pillars of sustainable development and addressed the lifestyle of the civilisation for the very first time. The ten-year anniversary brought about the renewal of the sustainability strategy agreed upon in the Rio conference, and finally, the twentieth brought about the formulation of practical development goals.

It has been a long journey from the maxim of ‘do no harm’ to the complex circles of sustainability. As sustainable development gained more and more political importance the concept has been refined many times. The Tripple Bottom Line approach is seen as a prelude to contemporary concepts. John Elkington’s win-win-win solution names three dimensions to measure sustainability: social, environmental (ecological), and financial (Elkington, 1994: passim). The Triple Bottom Line approach, or the three pillars of sustainability, has been widely adopted regardless of sector or political identity. He describes a world governed by “civilised capitalism” (James, 2015:13) where international institutions become more powerful, the government’s role is less influential and businesses stand in the focus of attention (Elkington, 1994). Furthermore, in this view, sustainable development in the 21st century is brought about primarily by businesses through seven areas of revolutions: Markets, values, transparency, life-cycle technology, partnerships, time, corporate governance (Elkington 1994). The operationability of sustainable development in his view is achieved by auditing progress along the three dimensions and measurements are described as essential to proclaim success. The Tripple Bottom Line was, however, primarily criticised for giving

forks to cannibals, for conceptualising a market-based sustainable development.

The ethical reading of the sustainable development framework provides goals towards which nations should aspire. It describes a vision, a futuristic image that is achievable through constraints and active participation. Jeffrey Sachs sees sustainable development as an intellectual and ethical pursuit that develops under the pressure from the Sustainable Development Goals. “As an intellectual pursuit, sustainable development tries to make sense of the interactions of three complex systems: the world economy, the global society, and the Earth’s physical environment” (Sachs, 2015:5). In his imagined world “economic progress is widespread; extreme poverty is eliminated; social trust is encouraged through policies that strengthen the community; and the environment is protected from human induced degradation” (ibid.). Sachs believes that besides taking the social, environmental and economic dimension into consideration, a fourth pillar can help achieving sustainable development goals: that is “good governance” “by major social actors including government and businesses” (Sachs, 2015: 4). A special advisor on the Millennium Development to the UN Secretary General and founder of the Sustainable Development Solutions (SDSN), he is an advocate for using sustainable development as a framework for action. He names the year 2015 as a decisive year for setting sustainable development goals among which he gives high priority to the creation of critical sustainable systems in cities (i.e. smart urbanisation) and the need for technological breakthrough. He argues that the way a “city plans and prepares for the future is decisive in determining its prospects for sustainable development” (2015: 367).

The Circles of Social Life concept takes us closer to operationability as well as to an urban-centred approach. It focuses on cities or urban regions and the method claims to help apply globally determined principles to a unique social, geographic and economic setting. The

Circles of Social Life concept treats issues of sustainability “in relation to other core conditions of human life” (James 2015: xiv). This concept determines also four main areas with the help of which it is able to tackle the problems of the concept of sustainability. An urban profile for example is based on the following pillars: economics, ecology, politics and culture. These then consist of seven sub-domains – such as technology and infrastructure, ethics and accountability, identity and engagement or materials & energy. These sub-domains are assessed on a nine-point scale (see James 2015: viii), from critical to vibrant sustainability. The table below shows Melbourne’s exemplary score on identity and engagement and its critical situation in terms of energy or waste. This approach was adopted by the “Cities Programme” of the United Nations Global Compact. The UN Global Compact aims to create a sustainable and inclusive global economy with the help of business. Cities, as well as corporations were urged to join the Compact to show their commitment to positive change thereby informally introducing them as stakeholders in the private sector.

Figure 2: Sustainable Urban Profile, Melbourne

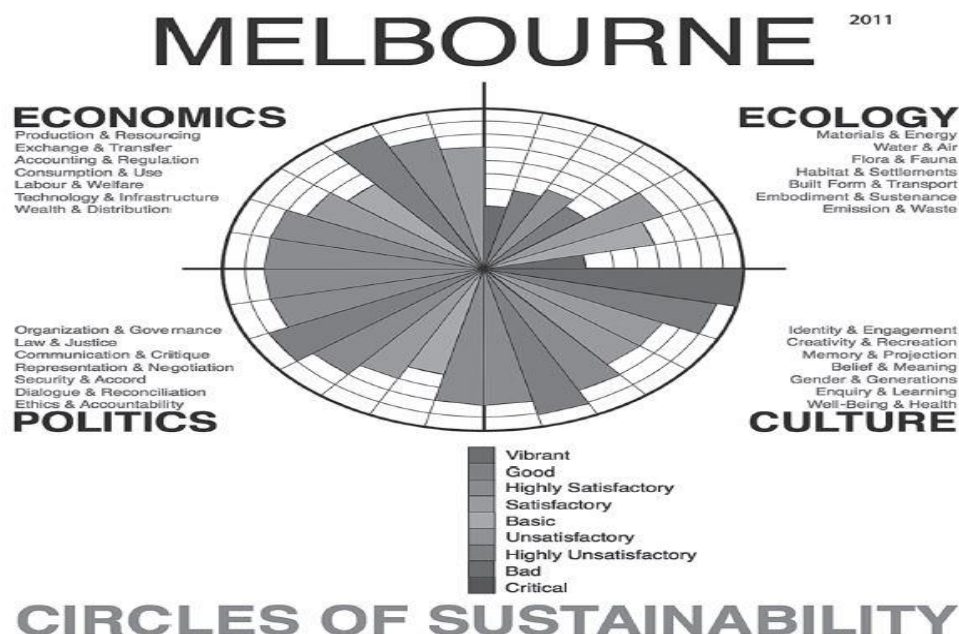


FIGURE 1.2 Urban Sustainability Profile of Melbourne, 2011

(source: James 2015:16)

Smart Cities and their Citizens

The notion of a 'smart city' is seen to refer more broadly to the development of a knowledge economy within a city-region. From this perspective, a smart city is one whose economy and governance is being driven by innovation, creativity and entrepreneurship, enacted by smart people. Here, ICTs are seen as being of central importance as the platform for mobilising and realising ideas and innovations, especially with respect to professional services. In and of itself, however, the embedding of ICT in urban infrastructure is not seen to make a city smart. In other words, it is how ICT, in conjunction with human and social capital, and wider economic policy, is used to leverage growth and manage urban development that makes a city smart. (Kitchin, 2014: 2)

The emergent nature of the contemporary problem-spaces calls for studying these overarching notions in their complexity (see also Rabinow 2001). A complex system from an economics point of view is studied through its "emergent properties", the "characteristics that emerge from the interactions of the components to produce something that is "more than the sum of its parts." Jeffrey Sachs describes Sustainable development as the science of such complex systems. In these systems behaviours and patterns are difficult to examine, since they are not easily visible through the underlying components (see Sachs, 2015:7). Luís Bettencourt looks similarly at urban development, in which a city is a complex, constantly changing phenomenon. In this context a smart city can be seen as part of a problematisation, a set of responses to the uncertainty caused by the nature of global problems. The definition that seems therefore most complete and adequate for this thesis is one coined by Rob Kitchin. On one hand, he argues for "everyware" to be present in the fabric of the city "that is pervasive and ubiquitous computing and digitally instrumented devices built into the very fabric of urban environments" (Kitchin, 2014:2). On the other hand, he emphasises governance and economy enacted by smart people. The smart city phenomenon I would like to look at therefore answers to emergent problem-spaces, is omnipresent in every layer of the city, involves the participation of businesses, local authorities or governments, academia, and

urban communities and brings about its own ideologies, meanings and practices.

In the present year, 2015, when the Millennium Development Goals are to be met many governments race to develop and report the best models for action. Smart systems are in this context seen as critical sustainable systems whose development and maintenance will form the core enabler of effective governance. As we could see in the definition above, however, smart urbanisation means more than the deployment of software and code into the fabric of the city. As sustainable development goals translate into action on a national and regional level, we can see how the idea of the smart city expands to more and more areas of government and planning and results in investments in smart solutions. According to estimates, the global market for smart urban systems will reach up to \$400 billion per annum by 2020 (BIS Research paper No. 136). Currently, there are 102 overarching smart city projects worldwide and these projects come in all shapes and sizes. While there is an agreement that a one-size-fits-all business model is not applicable to different urban regions with unique social, historical, economic and geographic backgrounds, there is extensive research on how to develop best practices in the area of smart urbanism. These projects generally build on the adaptation of smart solutions on all regions of city life from traditional architecture to culture and art.

A holistic smart city solution from Japanese company called the “Smart City Project” offering a five-layer approach explained in simple terms through the image above. In their example companies help creating a smart city together by real-estate development, then creating real-estate infrastructure followed by the construction of a smart infrastructure “by adding information-communication and sensing functions to the basic infrastructure. The fourth layer – life services – concentrates on increasing the quality of life of citizens while

reducing carbon use and finally the top layer – lifestyles, culture and art – is intended to raise awareness and strengthen communities. This layer has gained critical importance in the past years. Educating, motivating individuals and enabling citizen action through public spaces and open events have become a core condition to the construction of a well-functioning smart-city. Global technological companies and governments have come to agree that citizen engagement will be a key element in the implementation and success of intelligent technologies. In fact, starting as a theoretical consideration it has today secured its place in all smart city strategies. In a paper co-produced in 2011 by The Climate Group, Arup, Accenture and Horizon, for example, a “truly smart city”, it is claimed, must “involve unprecedented levels of citizen engagement and behavioural change”(p27). It is no surprise, then, that in the present year citizen engagement is among the key elements of the smart city strategy of Dublin City Council as well.

Figure 3: Smart City Solutions



Figure 4: Smart City Solutions (Contd)



(The solutions above are mere examples.)

Citizen engagement and public value generation through social action is familiar to experts in urban planning and development, but ideas come from the ancient Greece as well, as from the smart city literature. From Socrates' idea of the *polis*, through Alfred Marshall's concept of idea-generation in urban economies to Richard Florida's creative class, we can observe various notions linking city and citizen to each other. The ideal city and its optimal management has been also studied by Luís Bettencourt (2013:1439) who created a scientific analysis based on data available from hundreds of cities resulting in four assumptions:

(1) the city develops so that citizens can explore it fully given the resources at their disposal;

- (2) incremental network growth requiring that infrastructure networks develop gradually to connect people as they join;
- (3) human effort is bounded; and,
- (4) socioeconomic outputs are proportional to local social interactions.

His study concludes that the optimal city is created with the most social interaction and with the least cost of connecting people. According to Bettencourt's theory, then, growing cities will show more productivity and become more powerful, analogous to open-ended social reactors. A city infused with technology therefore cannot only be seen as a mere background to contemporary urban activity. Researchers of smart cities, then, in search of the incentives for engagement have to regard smart cities as a socio-technical phenomenon (see Meijer & Bolivar, 2013).

For citizens it is almost impossible not to be a part of the grid. Data-informed processes influence urban transport, sense extreme weather events, measure air and sound-pollution and control public lighting. Through internet of things deployments citizens experience the city in completely new ways. Observing and reacting to real-time urban activity has become an everyday practice. But the smart city not only influences our relationship to the urban space, it brings about new social relations and new ways of acquiring information. Digitally visualised information on diverse urban phenomena also produce social relations; and increasingly available public data raises awareness of the status of the urban environment, which in turn influences social relations. Apart from this, forums, hackatons and workshops are organised on a regular basis to bring together different stakeholders together to tackle contemporary urban challenges. They look for solutions to urban problems. In this reading it is understandable how smart cities have come to mean more than just technological solutions.

They label a strategy that aims to create a safer, more effective urban environment for citizens, a more transparent, participatory government, and supports collaborative decision-making practices on every level of urban life. Questioning these incentives will not be in the focus of this thesis. My goal will be to explore the new relationship between city and citizen as well as looking at practices, ideas and meanings arising from the engagement with the smart city.

As Foucault noted, a problematisation emerges from uncertainty and a loss of familiarity. The uncertainty about the planet's urban future nourished the problematisation of urban life and smart city solutions. And,

To one single set of difficulties, several responses can be made. And most of the time different responses actually are proposed. But what must be understood is what makes them simultaneously possible; it is the point in which their simultaneity is rooted; it is the soil that can nourish them all in their diversity and sometimes in spite of their contradictions. (Foucault, 1997: 118)

The contestations and contradictions in smart cities today are a major concern in this thesis, but so too is uncertainty, and the rise of new forms of expertise. In short, before we consider solutions to cities, we need to understand the conceptualisation of cities.

Chapter 2: Space and the City

Time present and time past
Are both perhaps present in time future
And time future contained in time past.
If all time is eternally present
All time is unredeemable.
What might have been is an abstraction
Remaining a perpetual possibility
Only in a world of speculation.
What might have been and what has been
Point to one end, which is always present.
Footfalls echo in the memory
Down the passage which we did not take
Towards the door we never opened
Into the rose-garden. My words echo
Thus, in your mind.

But to what purpose
Disturbing the dust on a bowl of rose-leaves
I do not know.
 Other echoes
Inhabit the garden. Shall we follow?

-- Burnt Norton

Contemporary urban activity is regarded as mysteriously complex and yet it is recognised as the key to future (sustainable) prosperity. Today, as I have already shown, considerable attention is being given to ‘smart cities’ and the urban activities that smart technologies capture and even shape. Therefore, we must ask: how do smart cities actively shape social relations? In order to answer this question, we need to first explore how cities shape social relations. According to several venturesome scholars, especially Jane Jacobs and Edward Soja, much can be gained by turning back to learn the lessons available in ancient cities. This chapter begins by looking at theories of the city and of urban activity – the *synekism* of ancient cities. Thereafter, I take the lessons available in ancient cities as an entry route into the work of Henri Lefebvre, the most influential theorist of cities and their social relations. More broadly in this thesis, I would like to revisit the basic elements of Lefebvre’s theory of

the social production of space to help me examine the new set of ideas a smart urban environment brings to his triad-based approach to space.

The intellectual quest to understand what makes a city such a vibrant social and economic phenomenon came with attempts to revisit urban theory. To be able to study the generative power of cities many turned to Henri Lefebvre's spatial theory. Using this perspective means looking at city-formations and understanding events, social processes and power-dynamics as inherently spatial. This view of cities is described by Edward Soja as a geo-historical viewpoint, a new conceptualisation of the links between time, space and society. The spatial perspective also extends Michel Foucault's investigation of time and space: whereas once the former was regarded as dynamic and the latter as merely dead background to "social relations, social will and societal development" (Soja 2010: 362), today space is foregrounded. The so-called spatial turn brought renewed attention to questions of urban space and resulted in new understanding of space-time configurations (Schmid, 2008: 27). Space, in this new understanding, transforms "from emphasising flat cartographic notions of space as container or stage of human activity ... to an active force shaping human life" (Soja, 2003: 273). Lefebvre explicitly links this view to urban processes. He states: "The development of society is conceivable only in urban life, through the realisation of urban society" (Lefebvre quoted in Soja, 2003: 275). Thus, to study the complexities of social life in the smart city context I will first look at how the spatial perspective has been used and how it can enrich my viewpoint.

Looking back to earlier stages of city-development from a spatial perspective provides us with interesting lessons about the nature of cities. According to the conventionally accepted view among ancient historians and archaeologists, gradual economic developments lead to

the formation of the urban environment, or ‘the city’. Edward Soja, used extensive economic and archaeological works to rediscover the origin of cities “and their coordinative network of trust” (Soja, 2010: 362). He explores Charles Tilly’s urban history to study the first city-state, Uruk, and the plain of the Tigris and Euphrates rivers where intensive agricultural activity is said to have induced the process of city-formation. Jane Jacobs in *The Economy of Cities*, however, claims that the first city appeared 5,000 years before Uruk, and she also calls into question the conventional urban development theory. A wall-painting at Çatalhöyük, discovered in the 1960s, for instance, depicts a densely populated city-like formation, a proto-city. According to Jacobs, this contradicts the view according to which small towns have been preceded by isolated settlements and agricultural villages.

In this case, the accumulation of surplus and social division of labour would result in establishing physical and social infrastructure that allow for larger city-formations. Jacobs argues, however, that “cities came first”: starting from a spatial perspective, she claims that “urbanisation and agricultural development evolved together in a mutually causal and symbiotic relationship” (quoted in Soja, 2010: 364). This suggests that “urbanisation played a generative role in the agricultural revolution” (Soja, 2010: 364) and that the stimulus of urban agglomeration acts “as a source of accumulation, innovation, coercion, hierarchy and cultural creativity” (Soja, 2010: 363).

In the following sections I will further explore the interconnections of space, time and society to explain some of the main concepts that emerge within the smart city discourse. Innovation, discovery, creativity, real-time representations and digital dashboards have become the most common key phrases that revolve around the smart city epicentre. One of the most helpful terms that explain creativity and innovation with regards to urban processes is *synekism* or

synoecism. *Synekim* is a term used by, among others, Aristotle to denote “an active social and spatial process” (Soja, 2003:273). This process “carried with it the very essence of politics, a specifically urban politics involving the creation of a civil society, concepts of citizenship and democracy, family and identity, creativity and innovation, the foundations of city-based and city generated civilization” (Soja, 2003: 273). Applying it to today’s urban environment, Edward Soja describes *synekism* as a “constantly evolving source of stimulating social synergy” (ibid: 274). Much like Bettencourt’s city as social reactor metaphor, Soja also sees the city as an inherently dynamic, social process. Agglomeration economies perfectly exemplify this description of the “spatial specificity of urbanism” (Soja, 2003: 274). A term, borrowed from economic geography, points to a time and energy-efficient cluster or nodal system designed to stimulate creativity and innovation.

Exploring the urban through Jacobs’ work, we understand that a city is a large economically and socially vibrant formation that stems from and at the same time generates cooperation, one that is strongly interconnected with economic development. Economic development is induced by discovery and diffusion (Ikeda, 2012). Discovery is understood as a quasi conflict-free, simultaneous and continuous creative action by multiple agents. This creativity is enabled by the cluster-like living that intensifies citizen cooperation. In this setting, people become more likely to share different skills and information and look at their environment in a new, different way, in other words, to be creative. Creativity and innovative action in turn keeps the city-space in continuous movement and improvement. Ikeda argues that contacts with a new idea, person, activity – a culture clash – must take place in relative peace for the participants to mutually benefit from the exchange. To sustain this process discovery has to benefit those for whom that knowledge would be profitable (i.e. diffusion). “Preventing free-riding on discoveries is necessary to encourage profit-seeking agents to make those

discoveries” and producing an “optimal framework of property rights” (Ikeda, 2012: 5-6).

Designed serendipity, for instance, or the artificial amplification of discoveries, is seen as the key to boost economic development. But even prior to ‘design’ one sees in Henri Lefebvre’s work the crucial role of production, the city simply producing itself. Here is his famous description of Venice:

Consider the case of a city — a space which is fashioned, shaped and invested by social activities during a finite historical period. Is this city a work or a product? Take Venice, for instance. If we define works as unique, original and primordial, as occupying a space yet associated with a particular time, a time of maturity between rise and decline, then Venice can only be described as a work. It is a space just as highly expressive and significant, just as unique and unified as a painting or a sculpture. But what— and whom — does it express and signify? These questions can give rise to interminable discussion, for here content and meaning have no limits. (Lefebvre, 1991: 77)

How exactly is space, time and society linked within spatial theory? Henri Lefebvre describes spaces as emerging from social relations; he looks at space as inherently social, a social product. Later, he reverses the logic that spaces emerge from social relations. Instead, he proposes: ‘social relations ... have no real existence save in and through space. Their underpinning is spatial’ (Lefebvre, 1991: 404). He uses a triadic concept to explain the interconnections of space and society. In the first triad he unites spatial practices, representations of space and spaces of representation. Here, everyday activities, visual representations and meaning-making processes link space to social reality. By using the other triad, -- perceived-conceived-lived space -- originating from phenomenology, he provides an insight to the essence of the social production of space. The act of sensing, linked to thought processes and human experiences of the world, then, helps understanding space as inherently social. For anthropology, there is much to recommend an approach that takes seriously what Lefebvre terms *l’espace vécu*, ‘actually lived and socially created spatiality, concrete and

abstract at the same time, the habitus of social practices, ... a space rarely seen for it has been obscured by a bifocal vision that traditionally views space as either a mental construct or a physical form' (quoted in Soja, 2009: 119)

But, how does this line of thought takes us closer to smart cities and citizen engagement?

Lefebvre's theory provides us with excellent analytical tools to help us think about the social production of space in context. The smart environment is conceived, perceived and lived in unique ways. Primarily, it provides us with a real-time experience of the city through visually representing data about diverse urban phenomena.

Visualizing urban data has become a generally accepted method of city representation. It also facilitates city benchmarking initiatives, which form part of the city development strategy since the 1992 United Nations Conference on Environment and Development. The conference expressed the need for developing indicators globally "to provide solid bases for decision-making at all levels and to contribute to a self-regulating sustainability of integrated environment and development systems" (UNCED, 1992). Since then, the production and comparing of indicators have been an acknowledged way to measure national performance. The benefits of this data-led view of urban performance is that it facilitates learning by monitoring and comparing (Huggins, 2009; Longbottom, 2000 in Kitchin, 2014:10), promises transparency regarding the work of the city management and supports promotion for tourists or businesses (Kitchin, 2014:10). The volume and quality of data produced since the UNCED conference is unprecedented. In 2000 alone 800 000 petabytes (2 on the 50th bytes) was stored in the world and by 2010 this number had risen to 7 exabytes (2 on the 60th bytes) (Manyika et al, 2011:3, in Kitchin, 2014). Enabled by IoT deployments, urban areas have become the constellations of multiple interconnected networks offering

information on the activities, locations of people, performance of different products or the social media. The city armed with a plethora of these coded objects, buildings etc. participate in the assisted reproduction of the social urban space (Boellstorff et al, 2015: 61).

One of the main tools with the help of which indicator and benchmarking data becomes readable, visible and intelligible are the (real-time) dashboards known to be the most comprehensive management tools for individuals, corporations or governments. Dashboards just as the ones in our cars are designed to display information and help navigation.

Analytical dashboards in the urban context, however, not only present data, they also visualise interconnected data allowing for deeper exploration and interpretation, “improving the user’s span of control” (Kitchin, 2015: 11). Dynamic dashboards allowing continuous human input display “a system in flux” and in some instances make information publicly available. The importance of dashboards for the sake of this discussion lies in their ability to translate the inputted data for their audience. “Dashboards facilitate the illusion that it is possible to picture the totality of the urban domain” (Kitchin, 2015: 20), but in reality they are performative, they generate new visions and understandings of the city. Dashboards are powerful representations of cities and strengthen the idea that a city is knowable through visualised facts. Dashboards deemed essential in terms of city-related projects and they are thought of as neutral actors in the management of an urban region. However, as Kitchin and Lauriault contend, dashboards actively frame and produce cities, and are part of data-assemblages – “complex socio-technical systems infused with politics and context”; therefore they call for studies unpacking these data-assemblages and look into the knowledge/power-structures they maintain (see Kitchin, 2015: 25).

What ideas and beliefs are generated by these modes of representation? How do they

influence social relations? Up until this point I have tried to tease out the complex, global economic framework and the technological expansion that nourished the soil for smart cities. In the introductory chapter I explain how a smart city can be seen as a complex phenomenon. It potentially influences all processes of urban life while it translates those processes into data, fuelled by data. Later, with the help of Edward Soja and Henri Lefebvre, I argued that these urban processes are inherently social processes. These processes by nature are induced by innovation, creativity and ‘peaceful’ discovery. Linking numerical and visual representations – augmented reality – to Lefebvre’s triad we are presented with a new trio of readability, visibility and intelligibility. And in this context we must also examine the roles played by new experts who mediate smart cities.

This thesis aims to unpack ethnographic material gathered on a specific Dublin-based smart city project. As we think theoretically about Lefebvre’s perceived-conceived-lived space, we can see new ways of living urban space enabled by smart cities, new mediated perceptions, new visualizations, ideologies and subjective experiences. One can immediately imagine simple questions such as what subjective experiences do smart cities generate? Walter Prigge argues that the “subjective” lived and perceived spaces of action and the “objective,” scientifically and technologically conceived spatial structures are coordinated through ideologies of space. In such ideologies, a society does not generate ideas about the real conditions of existence of individuals but conceptions about the relation of individuals to their real conditions of existence”. Furthermore, “These urban-determined ideologies represent knowledge about the imaginary relations of the subject to their real living conditions.” (Prigge, 2008: 50)

As ideologies of urban space, such urban concepts are produced by specialists of space—architects, urban planners, geographers, urban sociologists—and represented in spatial constructs: in the disciplines and political technologies of city building,

modern space, its forms and possibilities of use become part of discursive formations. In this “disciplining” process, specific fields of knowledge are established by way of observation, maps, surveys, analysis, and representation. These determine the legitimate objects of knowledge and, at the same time, become practical factors in shaping space. The spatial disciplines define how space can be talked about and lend scientific coherence to the spontaneous ideologies of appropriated lived space (thereby ensuring the cohesion of spatial practice). Through their mechanisms of exclusion (who has the right to speak about space?), they formulate the dominant ways of representing and exercising power over space. (Prigge, 2008: 50)

Chapter 3: Specific, Measurable, Achievable, Realistic, Time-bound

“For me it’s a little bit about equality. At least it’s on the same page.” (Sophie, researcher/project-leader)

These tasks should not take more than five working days for a content manager and maybe a few days for a programmer at an agency – I said to myself, when Doria, a Bangladeshi girl on my left started to move uncomfortably on her chair interrupting my daydreaming about the project. I returned to the present. I was sitting at a coffee place surrounded by four other people including two volunteer interns, a volunteer programmer from the Hub, and the researcher who came up with the idea for the project. I realized she wants to add something after listening to us rambling about the different perspectives on the concept for almost a whole hour at that point, so I turned to her and the table went silent: - So what is going to be our task exactly? - she asked pointing at herself and her teammate who seemed very excited to be suddenly involved. They both officially agreed to commit to the project for two months, since an urban social entrepreneurial project in Europe was to enhance their CV, and their school curricula required that they gain working experience. There was only about forty-five addresses, phone numbers and to complete each item, a few lines of respective definitions to add to the webpage to reach the prototype stage. At first glance it seemed to be a week of work for one including a bit of online research and extremely slow typing. What were the two of them going to do for months about it?

APRIL

I loved the project since I first heard about it. I remember leaving after finishing a long workshop on open data and citizen engagement and I couldn’t believe my luck that I have met so many incredible people who are all passionate about contemporary urban issues.

Researchers, IT professionals, urban architects and representatives of the local authority dedicated their Friday to find out more about promoting transparency of open data and citizen engagement. In the last round of discussions I was sitting next to a Sophie, a researcher from Costa Rica who arrived to Ireland a bit more than a decade ago. She told me that she is currently working on building an online platform where different urban communities could find out about each other. I left the place with her, Andrea, a PhD Researcher from the United States who came to Ireland to complete her studies and Lotte, a social entrepreneur from Belgium, who just arrived to the island for the week to take care of a business project she ran somewhere on the seaside. We were all fascinated by Sophie's community platform idea. We exchanged business cards and e-mail addresses and agreed to meet up for a brainstorming session. We said goodbye in a warm, hopeful atmosphere feeling accomplished after our workshop experience. Andrea went home to her daughters, Sophie and Lotte said goodbye and went for a coffee to continue their conversation.

A week later, Sophie approached Andrea and me by e-mail to agree on a possible next meeting to "connect, share and network". It was the second time I saw the mock-up design for her online platform - a colourful dashboard containing five initial clusters for city communities to be rendered to, such as planning authority, communities of practice or social entrepreneurs. The e-mail shortly repeated her concerns that came up in conversation when we first met. She said, that there was no place yet for informal, unregistered groups, but they would be called *shadow networks* and would be placed on the dashboard as the project unfolds. Scrolling downwards, I understood from her signature that Sophie is a researcher in an EU funded project working within the city council. Under the dashboard image there was a small description stating that the aim of the dashboard to provide visibility for the emerging diversity of groups in Dublin. I agreed to meet and sent over an earlier similar project of mine from Vienna along with my thesis proposal. Ten short e-mails later the three of us had set a

date and a place to meet up a week later, not far from Andrea's office in the middle of Dublin. Before the meeting Sophie sent us three downloadable e-books around the topics of collaboration, social innovation, public governance and the "craft of stewardship", so we could familiarize ourselves with the ideas guiding her research.

Stewardship: the art of getting things done amidst a complex and dynamic context. Stewardship is a core ability for agents of change when many minds are involved in conceiving a course of action, and many hands in accomplishing it. (Boyer, et al 2013:7)

...We invoke stewardship in place of words like "implement" and "execute" out of recognition that the latter imply a cleanliness or linear progression which is rarely found when working on a shared proposition in a complex environment. Inside a factory plans can be executed, orders implemented, and outcomes delivered, but innovations that engage with the messy reality of the social sphere do not happen so neatly. What we describe also goes well beyond "facilitation," which suggests that others do the important work. Stewardship shapes the course of innovation; it is not a neutral role. Think of stewardship as a form of leadership. One that acknowledges things will change along the way for better or for worse, therefore demanding agility over adherence to a predetermined plan. Many individuals who work in alliances or collaborative endeavours act as stewards almost naturally. If you are used to continually calibrating the goals of a project with the constraints of your context, you are practicing stewardship. If you maintain a constant state of opportunism and a willingness to pivot when progress on the current path is diminishing, you're a natural steward. (Boyer, et al 2013:15)

I browsed through the documents quickly during my train ride that took me to Dublin. All three of them were aesthetically designed e-books and free to download. The books – two Finnish, one Danish - contained best practices and analysis regarding issues around multi-actor collaboration networks emerging in the city. Their main message centred around public-private collaboration and decision making in situations "when many minds are involved in making a plan, and many hands in enacting it" (Boyer, et al 2013:142). Forty-seven minutes later the train rolled in and I had to get off the free Wi-Fi, so I stopped reading. I crossed the road and tried to find my way to the Cafe Hrabal. I wandered around for a few minutes, but I managed to arrive first anyway. I reserved a bigger booth for us and tried the place for free

Wi-Fi – no luck. Sophie, then Andrea arrived a few minutes later. As it was Andrea’s idea to meet close to her office, she insisted on inviting all of us for coffee. Then Sophie started to speak. She told us all about how she came up with the idea of the dashboard, and that it is actually only one of a few other projects she (co-)created within the framework of the research program she is part of. We discussed the concept of co-creation for a while as it is Andrea’s research focus as well. Then Sophie added that there is a huge interest among Dubliners to start SMEs or simply to contribute to a better functioning city, but the key problem is that they face many barriers when they reach out for help. Her quest to find out about the challenges and about who is creating them resulted in research projects regarding housing, food cooperatives and in general, urban social entrepreneurship. She said she received help from the local authority but she also sensed a sort of caution from their side. They required a prototype of her dashboard in order to trust her with the data they have about the community groups registered in the region. Andrea agreed to help her with another project of hers while I offered content and project management expertise. I also suggested that we introduce her idea at the Hub a few days later, where technology minded people gather to find projects they could join and support. She lacked technological support above everything else, so she seemed extremely happy about the prospect of her project finally taking off when we said goodbye.

A few days passed in excitement. A help from the Hub would have meant that a concept that so far only existed on a nicely designed poster would have had the chance to become reality. I received a few e-mails full of documents, interviews and earlier presentations from her before the big day. I explored them and discovered that the project is part of a series of case studies that are directed at finding out more about urban resilience and sustainability. The multi-year, well-funded research had a little more than one year left at the point when we met Sophie. The goal of this extensive research was to bring together urban communities, researchers,

local authorities in order to work out strategies to build community resilience in cities. The projects were assigned to categories, such as the optimization of use of existing urban fabric, the reuse of vacant sites, local governance or civic engagement. The documents seemed very intriguing so I jumped right away to the website of the program. Their target audience included stakeholders from academia, business, local authority and urban communities. They saw the root of the problem in rapid urbanisation processes that bring about scarcity of resources and cast doubts among citizens about the possibility of sustainable living. The citizens want – as I read further - that planning processes would be transparent and more inclusive. Therefore the approach needs to be holistic helping the transition towards sustainability as well as playing to the needs of all stakeholders. These creative solutions then will be examined and compared among the participating cities and the results will form a set of best practices in other European cities.

Although the website singles out only one project dedicated to Dublin, in Sophie's document there were altogether four programs around the topics of vacant spaces, funding possibilities for communities and urban planning. The community dashboard would be in the centre in the pitch plan that Sophie would deliver at the Hub just a few days after our conversation at the coffee place. We met half an hour before and we sat down a bit in the restaurant area of a Spar to go through the presentation. It wasn't without any nervousness that we decided to go up to the large building of the Hub. Walking through the entrance door we saw about fifteen people waiting at a table. We saw everybody's name-tags lying there in neatly organized rows. I found my name right away, but since Sophie hadn't registered online, we had to print a name-tag for her. One of the Spanish volunteer employees there, Sebastian, lead her to the machines designed to print visitor cards and enter her name and affiliation to the system. Once the name-card was printed, he also gave her a yellow clip to fasten it to her jacket. Soon we seemed to be enough in number for another volunteer to accompany us up to the third

floor where the event was going to be held. We arrive to a large area with enormous glass walls and beautiful view to Dublin. In the middle there was a big open kitchen, and in the back there were about sixty chairs organized in rows in front of a mobile screen. Around the chairs there were comfortable sofas, on the left there were a few tables, it seemed, serving for lunch time or small group discussions during the day. I greeted some of the people I remembered from last time and Sophie also met acquaintances. We took our seats, slowly everybody did the same and the event started.

Aaron, one of the main representatives of the Hub stood up and greeted everyone. He shortly introduced the agenda of the evening: first short status-updates of their existing projects, then new pitches, then everybody would be invited to join a group or a project they found appealing and then the brainstorming session would start in smaller groups. At the end of the discussions the project leaders would recount what they have achieved with the help of their new peers. After that we could count on food and drinks arriving at the last part of the session in which they gave time and space for networking across groups as well. He started to read out the names of the projects and the project-leaders one after the other walked to a Hub-branded stand from where they could navigate the presentation and talk a bit about the progress of their project. Not every representative was present – there were altogether about seven projects on the board but we got news only about four. Then Aaron introduced the rules for newcomers. Anybody who came with a new idea had to follow a threefold structure: *What is the problem? What is the proposed solution? How can the Hub help to achieve it?* A few new ideas got introduced, then Sophie raised her hand. She opened her presentation from the USB she brought and started to talk.

The Pitch and the Project

The year she spent at the planning department allowed her a bit of an insight as to how the city council functions and to think about how to tackle the problem of legacy of knowledge within the department. The original problem they saw was that a considerable number of people retired from the planning department and the knowledge, experience and networks belonging to existing and previous projects also left with them. The collaboration dashboard was planned to help capture this knowledge and facilitate the transfer among different generation of planners within the department. But then it transformed into an idea that could work for the whole city. The main idea was that different collaborative projects would be made visible on the internet for other groups to see. The example she used was urban beekeeping. So a click on ‘Community Driven Actions’ then a click on ‘community gardens’ would lead the visitor on the site to the community group who are keeping bees in the city. The problem that it tackles - she said - is the lack information exchange about existing networks in the city. With the help of the dashboard communities and the planning authority would be able to see each other’s work and contribute to each other’s progress instead of continuously doing groundwork or reinventing the wheel.

I knew she put a lot of effort into thinking about the concept of communities. The main questions were how to categorize communities and also which community is eligible to make it to the dashboard. The first thought was to somehow measure whether the communities participate in a kind of innovative activity, in her words: creating a “step-change” in their environment. She and her advisor, namely, leaned towards Sornsen and Torfig’s definition of innovation: “Only step-changes that disrupt the existing practices and the common wisdom in a particular area are innovations” to help creating a criteria for innovative practices. It seemed

a rather complex idea to measure, so an overarching solution would have been to accept any group that might want to appear on the dashboard and then apply transparent weighting. With the help of 5-10 clear criteria it would have been possible to give points to the communities, rank them and find out whether they are eligible for the dashboard. The community development department allowed her to use the community forum and reach out to those communities that are registered in the system of the local authority. She sent an e-mail to 510 communities introducing the idea of the dashboard and asked whether groups would be interested in connecting their website to a portal like this. She received 44 positive replies, which in everybody's opinion was a very encouraging number to start with.

At the end of the presentation she asked the audience to help her figure out the next steps regarding the dashboard. She took a seat again and a tall man turned to her instantly. He was associated with a local authority but also very much invested in the Hub-related projects. He seemed to be one of the more dominant individuals there who had a lot to add to each and every project. He made the point that there had been similar initiatives at the city council and Sophie should make use of the existing project fragments. They discussed his comment a little while, but then Aaron took the stage again and asked everyone to reassemble according to projects in various parts of the room. We didn't see many people coming to us right away nevertheless we were also assigned a table. After Sophie finished her conversation with the first commenter, Daniel from another local authority approached Sophie to talk. He was very enthusiastic about the idea and warned Sophie not to tell much about the working process or give her project over to the city council. He said if the council takes it over it will surely disappear. He advised her to share her project only when an early version has already gone online. After him, Phil Williams turned to us and answered Sophie's queries about creating the dashboard on a Wordpress platform. We decided to sit down at the back of the room not

far from a bigger group discussing a project on creating and maintaining a food coop. Soon Niall joined us from yet another county council and told us about an internal tool they had been using that facilitates communication within departments. As he talked more and more people joined the table and soon the number grew to seven. Stephano, an Italian software developer recommended that we look at other community management sites for best practices and as Niall, he also agreed to give an opinion if we send on our first plan to him. Then Teresa, the representative of an open data site told us a bit about the difficulties of online forums and the importance of site management. She and Niall argued that the roles in terms of website maintenance have to be defined and assigned to people to ensure continuous functioning. After an intense wave of conversation, people started to slowly disperse at every table and the American project leader of the group next to us joins the table to talk to Sophie a bit. He was responsible for a large food cooperation project that he was developing with the help of the Hub. He told us he is looking forward to the hub's hackaton, because this way they could get to have technological solutions developed for free. He was also very impressed with the buzzing level of activity of the Hub and told us that years back participation was way lower. We got a few invitations to the events organized around his food coop and it seemed that all the groups finished their respective discussions. Aaron called the project leaders to tell the others what they could achieve this time. Then the food arrived and we made a couple of new acquaintances while eating. Right before the end we received the last bit of advice from a representative of a social entrepreneur organisation warning us once again against trusting the local authority. Our time was up, so we are told that the place is soon closing and we make our way towards the elevators. We left the room hopeful having received many great recommendations and encouragement. Passing through the digital gate again, then through the revolving door I walked about a street long with Raul, who asked me whether we got what we wanted out of this meeting. I had to think a bit, given that originally

we wanted to find someone who helps us develop the online platform, nevertheless I answered that we perhaps did.

I knew what he meant, and this was not the first time the questions of personnel and project management arose. The morning of the presentation I received a mail from Sophie with some documentation about the project asking me how I would like to contribute to the project. I offered content and project management help earlier on, but I was not sure anymore if that is any use to her, so I answered that I would like to help in any way it is needed. For the day of the presentation I prepared a preliminary content management strategy given my background in business and stuck to that for a short while after. After the group grew my role became mainly advisory.

MAY

After the presentation at the Hub we communicated largely by e-mail. Sophie had her other projects to run but I received her project documents that contained the timetable, demosites and tools for the overarching program and in exchange I sent her the notes and contact details I wrote down a day earlier at the Hub. According to the timeline it was the perfect moment to start working on the prototype. The first preliminary results had to be delivered in mid-august, and there was still more than a year ahead from the whole research program. A few days later I sent over an overview of the website and content strategy to Sophie and she responded that she needs to plan the next steps as well. The idea was to meet again on the following Monday in the company of Andrea and go through it. However, we all ended up attending an open data conference a few days earlier, where Sophie was asked to take photos of the event. We attended many interesting talks about the situation of open data in Ireland. The participants

were from multiple backgrounds: I have talked to a few more researchers, there were representatives of small businesses using open data, academics, local authorities involved in open data and smart technology related issues and interested individuals who had hands on experience with social issues in Ireland. The questions revolved around the current uses, the future possibilities and potential problems with open data. There were many, who raised the role of citizens and how they can influence data processes as well as there had been ideas around how to educate the public to better understand open data.

I sent Sophie another document with recommendations regarding the project before we met up next Monday. The place was the Coffee Hrabal again. We had to shift the meeting to 12 o'clock, but a few e-mails later it was settled. Sophie brought along a fellow researcher, Aileen. We sat around the table, Sophie paid for our coffees and I asked Aileen about her project. She was set out to deliver a project involving immigrants and help them settling in Ireland. Her plan was to start as a research project and then develop a business model to put together an agency. Leading us through her ideas, she brought up the example of Airb'n'b, where local knowledge, networking, innovative thinking comes together in one experience. I was curious how they came to identify the problem. She responded that "an English teacher came up with the idea, because he met a lot of students facing this problem". We then ventured into another interesting topic, the problematics of co-creation, its definition and the ways it differs from collaboration. Andrea told us about the difficulties she faced when her co-creation model was submitted to the city council. It was intended to help the local authorities through policy making processes, but she said she didn't achieve much by sharing her model there. We concluded that there has to be a „smarter" way to reach out to the city council. Then we talked a bit about how serendipity is key to open innovation and finally we arrived at the collaboration dashboard project. Based on the several e-mails we exchanged

with Sophie, I wrote a short definition of the function of the site that I shared with them. Nevertheless, as it turned out, Sophie worked through the criteria, and didn't find innovation as creating a step change a sufficient condition anymore. It appeared to be a difficult to measure, because it didn't make a difference among communities - as she said every community is disrupting the present practices and creates a step-change, therefore we can't leave out anyone. Sophie then brought up the idea of the BRITTLE system- a the kind of system that doesn't allow for hierarchical co-creation, such as for example the city council she works with is a BRITTLE system whose hierarchy is difficult to attack. We then agreed on a few practical points regarding the website – to link it to social media, to feature urban projects as examples - then talked about how communities get EU funding through their local government. After an hour and a half or so, on our way out from the coffee-place Sophie talked about the beauty of groups who come together because of their shared interest and their willingness to learn from each other. After this meeting, progress on the project seemed to speed up a little.

12th MAY

The next day we received the first e-mail from Phil Williams who presented us an actual online mock-up version of Sophie's idea. As he himself worked on a similar website, he designed one based on the requirements of the collaboration dashboard for us to see how the first version could look like. It was very different from the design Sophie had in mind, but he underlined that it is an initial step which can be further improved and states that this approach is reasonably scalable. Sophie seemed to like it but as she was very busy with other projects, she agreed to meet in two weeks time. In the meantime she met up with Jennifer Burke, a postdoctoral researcher and sent me the meeting notes – they also tried to tease out the concept of collaboration and discovery. The recommendations from Jennifer included ideas

about making clear what the function of the site is and how it would attract people to register; to align the idea with the smart city thinking; to reconsider the classification system, and to look at ideas from similar well-functioning sites. Later that day we exchanged a few e-mails on the basis of the conversations we had the day before, so I got in contact with Aideen as well. Later on I sent an update with the proceedings and I received the news that two interns will be able to join us for two months. Their job would be to build a database which meant uploading all the website addresses and writing a few sentences as introduction. I also received an invitation to an upcoming meeting with the interns and people from other projects.

14th MAY

I couldn't make it to the meeting, but I received meeting notes from Sophie around mid-day. Later that evening Sophie sent an email to give me a boost with a positive response she had got from the leader of a men's collective. He wrote that many community groups are below the radar and linking them together would help immensely. He urged Sophie to go ahead and let him know about the outcomes. Few hours later I also received a draft of a round of e-mails she was about to send to the communities who had responded positively to her call. The e-mail established the team working on the project including myself, Phil, and the two Bangladeshi interns and announced that we will develop an alpha prototype. The purpose of the e-mail was to receive input from the communities as to what they would need from such a website. I sent feedback on it, saying that we should make it concrete what kind of input we need from the communities. Later that day we received a forwarded message from Phil. Aaron mentioned our project on what it looked like the online project management dashboard of the Hub. They were asking us to send in a little information about the dashboard to feature it on their webpage among the other projects they were helping to create.

15th MAY

I offered to tailor together a short text for the Hub from the existing texts Sophie had sent me over by then and mentioned that there are communities that might only gather on Facebook that we hadn't considered. Sophie meanwhile sent out the second round of e-mails to the communities and a copy of it to her superior from the city council to keep her informed. The e-mail asked for a short sentence about the group or organization, a link to the communities' website, a photo that represents the group and possibly a contact name. It invited the communities to help developing the site as well.

16-17th MAY

We received an e-mail from Sophie in which she says she had had a lot of luck and listed a few people and their recommendations that in some ways could be helpful to the project. She also asked me and Phil about the ways to develop a databank. Phil recommended using Wordpress and that we move to the website stage as soon as we can. He offered to create the backend to walk Sophie through the website registration process and to think about the features. That would allow the interns to start uploading information. I also received some guidelines regarding the texts they need at the Hub's webpage.

18th MAY

I sent over the description to Sophie that I assembled from her earlier texts for the Hub's website. In one part of it we were supposed to enter the URL for the project's website. She shared her troubles about picking the right name. She decided on ditching discovery and returned to the idea of 'connect' as the site's purpose was more than just discovery. Some

URL-s were already taken which also influenced the process. She spent some time around the discovery-network-connecting words, but couldn't come to a conclusion just yet.

20th MAY

Teresa and I received a few articles by e-mail from Sophie on citizen engagement.

24th MAY

Sophie couldn't make it to the Hub on the second occasion when we were to update them about our progress. I prepared the presentation but I wasn't not clear on a few details and asked Sophie for help. She asked me to include the original image in the presentation; the number of people who have shown positive interest; the fact that it aligns with the plans of the local government where the EU is directing funding; the criteria for entry; aims for the prototype and aims for later phases. Three hours before the meeting I got an e-mail from Sophie forwarding Phil's apology for the meeting to be cancelled. According to the official there wasn't a big enough room available in the Hub this time. The meeting is postponed for a month.

25th MAY

I received the planner's workbook draft from Sophie in which she talks about her experience about being a guest in the city council that preceded the creation of the digital dashboard. In the workbook, she details her insights about the different conceptualisations employees in the city council and communities might have about their tasks and rights. Apart from this, she raises questions about decision-making practices between stakeholders.

2nd JUNE

Phil developed the website further. The second version showed more possibilities regarding how the community groups and their information would be displayed. I could send positive feedback right away but Sophie on the computers of the city council could only see two flashing photographs so she had to ask for another format. Phil sent a few jpegs back and thanks to this, he already started thinking about possible bugs that may arise in some browsers. I brought up, that it might be great to meet at this point to decide on a few things together. A few e-mails later we agreed to meet on Thursday afternoon. Sophie asked if the interns could be there. Phil and I answered that it's a great idea.

4th JUNE

I arrived slightly earlier. Before I crossed the street I saw Sophie and Phil coming out of the coffee place, it seemed the place was just about to close. Before the light turns red two young people around their early twenties arrive to the crossroad. Sophie signalled from the other side that she knows all of us. They had to be the interns then. We crossed the road and Sophie and Phil told us, they wanted to meet up a bit before us to talk about the page. Now, that we all arrived early however, we had to look for another place to sit down because the coffee places seemed to be all closed. We tried another one with no luck, I suggested going to the place next to the hotel close to where we met, but Sophie knew a place not far, so we decided to try that. It was a very nice place in what it looked like a glass house for plants. The Cloud Picker was full of reused furniture most of them painted white, the kitchen and the restaurant part is one unit barely separated. It had an oddly trendy atmosphere. We ordered coffees with Phil, and Sophie insisted that the interns drink something as well. Having gone through the

introductions while walking from one closing coffee place to another, one of the interns, Doria shared her results about finding a way to buy hosting to a website, as we sat down. Phil, an expert in the area, tried to explain his views about hosting and showed us a few examples. He also said it is advisable for us to decide on a name – so we ended up trying to research on our phones online. The Cloud Picker didn't have WiFi, so we used Doria's smartphone. Phil also recommended using the .website domain instead of .com, .org or .ie, because it is neutral and since it is relatively new, and most website names will be possible to pick. Sophie started buying hosting and domain-name on Doria's smartphone. She also told us that she was promised generous funding from the research program to develop the website. She was curious what could be done from the amount she was offered and Phil and I assured her that it is more than enough to get the site going as well as get paid assistance. Phil at this point told us, that nobody who is working through Hub is allowed to receive payment. He said they are in the middle of the process in which they work out the ground principles for Hub-related projects, but money is one of the core questions. He said that after the prototype phase of the projects they would probably have an open call for people to apply. Since the interns were really silent for the last hour I asked them about their experiences in Ireland and their plans. We talked about language learning for a little bit. The URL finally got picked out, but the question of criteria for admitting groups on the basis of their activity came up again. Could businesses be part of the dashboard if they fit the criteria? I said that since we only had 44 groups signed up, we might just let all of them in. The conversation went on slowly. I bought a cake and got such a big piece that I could offer a share for everyone. We then arrived at speaking about the content and I spoke about some of my ideas. We then had trouble buying the hosting so Sophie decided to do it from a normal computer at home. Realizing how many communities we were talking about in the initial phase, that Phil was available for programming and the hosting and the URL would be bought within a few hours, I computed

the number of working hours in my head. It seemed like forty-five addresses inputted to a backend would not require much. Just as if she heard my thinking Doria next to me asks what their task will be then. After a bit of hesitation Sophie spoke, then I add that it would be great to have descriptions and pictures of the groups as well as their data inputted to the system Phil had been creating. We then agreed in a few things and we slowly left the Cloud Picker.

I didn't see anyone after that again, but I received many e-mails about how things rolled on until they finally succeeded creating the prototype and submitting it to the city council.

Sophie had difficulties buying the hosting so Phil helped out by writing a step-by-step guide.

As the next meeting was coming up soon and the project still wasn't featured on the Hub's webpage, I quickly designed some images as placeholder and send the text created for this purpose over once again to Phil and Sophie. A few days passed when Sophie looked through it and made some alterations. She also asked for the size and format of the images she should provide for the Hub's page. We received Phil's answer about the images directed at me but I appreciate that Sophie had decided to create something she imagined so I clarified the question of the design assignments. Phil meanwhile had updated the dashboard to make it „more convincing looking”, but neither he nor I could finally make it to the Hub meeting. Sophie then stepped up to save the day and presented the project there alone.

The names of participants and locations used in this chapter have been changed to protect their identity.

Chapter 4: Engaging the Smart City

When conducting this ethnographic research project, at first I was curious about the applicability of Rob Kitchin's definition to the collaboration I observed. From the outset the team that evolved around the project owed its existence to an open data workshop on citizen-engagement. Here, like-minded people met, who had specific knowledge about open data and willingness to share their knowledge. Then, tracing through the project up to the prototype phase I could identify various kinds of knowledge exchanges based on enabling space, affiliation of participants and type of information being exchanged. The palette is wide: we have participated in multiple discussions with stakeholders from local authorities who served with information regarding programs, possibilities and shared their experiences. We also met professors and fellow researchers who helped thinking through the concept and frame the idea by sharing their specific knowledge. We participated in an open data conference (lecture series and discussions) with the involvement of businesses, representatives of government and academia as well as socially active and interested citizens. Another important point of knowledge exchange was the Hub, where we received many specific advices regarding the execution of the project and its life-cycle. Finally, the project-leader reached out personally to communities who to a certain degree engaged in the formulation of the project. All of these exchanges had an influence either on the conceptual framing or the actual creation of the project. Prospectively, if the local authority implements the prototype, it will mean that the city adopts a project arising from the knowledge exchanges of a multitude of interested citizens.

A general positive attitude to sharing information characterised all these meetings. The hope that each other's projects would progress and that would help improve the quality of urban

life set the atmosphere each and every time when people first met. Effectiveness and social cohesion were topics that often came up in conversation. The participants usually started with a small informal pitch about their own work or social project, then shared experiences, asked questions, talked about the bigger conceptual frame and the values it brought about. The meetings were settled beforehand through ICTs. We exchanged phone-numbers, set meeting points via e-mail, but also sent documents, maps, schedules to each other, created images, and the platform itself was built collaboratively online as well. The digital space, our use and understanding of it played a very important part in shaping our collaboration in the project. Although we all lived in or around the same city, most of the conversations occurred online. Additionally, an e-mail exchange would very often lead faster to actual steps in terms of the project, than meeting personally. A meeting memo online would rationalize and summarize personal conversations. Our actions, our perception of time, our limitations in activity were, on the other hand, largely determined by the quality of the internet, the browser type and our technical expertise of everyday ICTs. Complementary to the digital space we also met a few times in person in various venues that were not designated for work. These spaces I termed enabling spaces. Apart from conference rooms and the assigned space in the Hub we spent generally an hour and a half in various coffee places next to building complexes, such as universities or larger companies.

The many other projects I encountered through the networks from which the collaboration dashboard emerged could, almost without exception, fit under the umbrella of collecting and classifying activities. Numerical data about various aspects in the city was mapped or visualized and disseminated through project websites. The source of information were often the citizens themselves, who, for example, reported a problem with GPS coordinates and representatives of local authorities who could open up data-sets that belonged to the city.

Businesses, local authorities and academia could each individually or in collaboration own these platforms and be responsible for the quality of the data and the maintenance of the site. Quality and maintenance has become main issues in cases when the future of the project was not ensured by either of these three key stakeholders. Additionally, visualized information on the web about traffic, bins, vacant spaces, community gardens seemed to be taken uncritically regardless of the data provider and as such may inform daily decision-making. There are many benefits of a more and more participatory urban life. Urban space as a social space however, is also becoming inherently digital. Providing data, counting and visualizing something on the web shapes the city just as much as creating an urban garden. It influences the way we know and use the city. This has already been noted by Kitchin, et al. (2015), but my ethnographic study also provided information about the background of such mapping and visualizing endeavours.

There is an overflow of urban projects just like the one described in the chapter before. Social entrepreneurship and collaboration are encouraged from the part of the local authorities as well as supported by private stakeholders. The goal is, as the city leaders put it, to generate a flow of knowledge and to support networking in the city. Enhancing this dynamic has been declared so important, that it seems almost as if the end-products of the projects were secondary outcomes of these gatherings. Many times the participants themselves admit that they have their own primary reasons for participation and one of these is often money. Learning, extending one's professional network, gaining work experience, or getting professional advice do not come for free in the traditional financial structure. Through hackatons and voluntary gatherings people are able to improve themselves and their environment in new ways. How does this benefit-structure change the nature of production? What happens to the projects if no one is financing them? Do the creators feel responsible to

accompany a project until the end? Since money is not directly part of the system there are different processes that a project can end up following. Reaching a certain stage, a program can either be adopted by city councils, funded by private stakeholders but it also may just remain a fragment. In any case, the pivot-culture, fast-failing as inherent part of any such endeavour validates these project fragments as well, providing citizens with an endless flow of new ideas and activities. And it seems to be enough. The underlying benefits of the intense information-exchange create a unique anticipatory atmosphere in which many hope for a quality change of life in their environment. This is further fuelled by the omnipresent techno-optimistic promises of a flawless tomorrow in which challenges are overcome with the help of technology.

Citybuilding

Hopeful anticipation of the proximate future, knowledge sharing and social entrepreneurship has become the main characteristic of today's urban life. Whether these techno-hopes will be realized in present tense, depends on the large-scale adoption of and dependence on the contemporary information and communication technologies. Businesses and city-leaders work tirelessly to find out the next steps and forecast the future. But can we say that the phenomena of collaborative, entrepreneurial and smart cities are actually unique in history and that its future is completely unpredictable? Rapid technological changes, many, that come with the smart city, mystify so many part of our lives that we are inclined to think that these changes are unprecedented. Standing back, one might even say that elements within this process change have also been available throughout history. Broadly, for example, one might note the active and everyday experiments by smart city experts and quasi-experts, their occasional successes and frequent failures, and ask: are they in their activities imagining a city community into being, producing it and making it concrete in their projects? A statement

comes to mind, following Massimo D’Azeglio:

We have made Italy. Now we must make Italians.

Today, now that we have smart cities are we making smart citizens?

Benedict Anderson’s work on nation building sheds light on past processes that help re-introduce us to our own digital colonizers and their imagined territories. According to Benedict Anderson, “Francis Bacon believed that print had changed the ‘appearance and state of the world’” (Anderson, 1991: 37). Will that again be true 400 years later for the ubiquitous presence of the information communication technologies? In many ways we can draw parallels from Benedict Anderson’s rendition of how technology of communications, capitalism and the special situation of language had in the past brought about new imagined national communities. With the appearance and the spread of the printing press in the 15th century the diverse number of vernaculars and idiolects were assembled into printed systems of signs. It became possible for information to be disseminated for a mass readership and enabled communication and exchange in a larger scale than it was possible before. The print ‘platform’ provided a more enabling but still selective environment. Print capitalism managed to slow language-change down and most importantly they created so-called languages-of-power, dominant languages (i.e. High German, the King’s English, Central Thai) that gave certain communities a different status. These linguistic communities united by Gutenberg would then transform into the bases of the modern nation (Anderson, 1991: 46). Are we recreating this process in today’s coded world when all our environment just as ourselves become digitally readable?

But what of the colonial world and the struggle for independence, Anderson later asked? Contexts in which print-capital seemed less significant. What of the ‘grammar’ of nationalism – the everyday interactions with ‘institutions of power’? How is power generated in the smart

city where participatory governance and collaboration as well open access to information is celebrated? Benedict Anderson names three institutions of power that shaped the dominion of the colonial state, “the nature of the human beings it ruled, the geography of its domain, and the legitimacy of its ancestry” (Anderson, 1991: 164).

The Social Space as Digital Colony

“I think the first thing if you ever want to do something is to be visible. So other people know you exist. I think it is as basic as that.” (Sophie, researcher/project-leader)

Counting and classifying their subjects into identity groups, census-makers created a way to measure, analyze and govern people in the colonized territories. Census also meant assessing the success of colonization processes. This new demographic topography helped creating social and institutional roots for the state as well as means for regulation and subordination. Visualization of sovereign territories on maps that did not necessarily correspond to geographical realities also influenced politics. Anderson, drawing in the invention of the chronometer in 1761, describes a process in which a geometrical grid of the planet was designed that needed to be filled (Anderson, 1991: 173).

In terms of the most communication theories and common sense, a map is a scientific abstraction of reality. A map merely represents something which already exists objectively ‘there’. In the history I have described, this relationship was reversed. A map anticipated spatial reality, not vice versa. IN other words, a map was a model for rather than a model of what it purported to represent... It had become a real instrument to concretize projections on the earth surface. A map was now necessary for the new administrative mechanisms and for the troops to back up their claims.... The discourse of mapping was the paradigm which both administrative and military operations worked within and served. (Thongchai quoted in Anderson, 1991: 173-174)

These maps then became chronological memoirs of demographic change creating a narrative of imagined communities. Counting and visualization was completed by a third institution of

legitimization: museums. The effort to attach themselves to the past as well as conquer the future gave importance to archaeological monuments. These artefacts and their systematic collection along with the census and the map created a constantly modifiable model of the state which also served as a frame of evidence for decision-making. The colonial process of demarcating, quantifying, imagining and knowing populations was often personified in adventurous amateurs, the people who mapped as volunteers, who collected histories and curiosities. It would be easy to make simple comparisons to today's quasi experts and digital colonizers. My goal is to specifically address the contemporary, but I take from Anderson a focus on knowledge production – experts and quasi experts – the power of imagining, and a focus on space. This resonates with the approach taken to nations and nationality by Henri Lefebvre.

Some people—most, in fact—define it [the nation] as a sort of substance which has sprung up from nature.... The Nation is thus endowed with a consistent reality. ... There are other theorists, however, who maintain that the nation and nationalism are merely ideological constructs. ... The nation is on this view scarcely more than a fiction. ... Both of these approaches ... leave space out of the picture. (1991: 111-112)

The way we allow maps and other visualized data to be information-providers is largely dependent on our concept of them as representational devices. Thinking about the ontological power of maps has been gaining importance since online mapping, counting and visualizing of certain functions in a geographical area, groups of people, types of activities created a large global trend. Many of the smart city projects in this sense are based on visual and numerical representations of an urban phenomenon on the web. The nature of these online platforms makes it possible that the representations are constantly updateable, modifiable as well as allow us rethink the mode of representation.

For us, if the use, meanings and the territorial referents of maps are conceived as fluid and ontogenetic in nature (always in the process of becoming), then it follows that

maps are as well. Along with others, such as Del Casino and Hanna (2006), we have thus argued that maps possess no ontological security. Consequently, we have sought to rethink cartography through a processual, rather than representational, inscriptive or proscriptive, lens. Here, maps are conceived as being always of-the-moment, brought into being through practices (embodied, social, technical, political); that they are always in the process of mapping. As such, maps are never fully formed and their work is never complete. Maps are transitory and fleeting, being relational and context-dependent; their history and development contingent and non-progressive (Kitchin et al 2012: 2).

Thinking about the social space as being in the process of digital colonization through projects such as the digital innovation dashboard I observed will take us closer to understanding the rationale of people to participate in such endeavours.

Emerging Experts, the Colonizers

I would like to turn my focus now to the people who engage in these practices. In the smart city context we often refer to these people by their functions, such as coders, programmers, researchers. To go beyond typologies of such participants or functional analysis of those people, I will consistently speak of them as experts and draw from Rabinow to anthropologically explore their ideologies, biases and understand the world in their terms. Paul Rabinow in his work with Gaymon Bennett analyses an interdisciplinary collaboration to bring together the strengths of synthetic biology, anthropology and ethics. They explored the relationship between the type of problems and the expertise they bring about in emergent problem-spaces. The collaboration they examined set out to invent new strategies to tackle real world problems and overcome present insufficiencies. The research centre incorporating this endeavour – just as the urban resilience program my project was part of – represented “an innovative assemblage of multiple scientific sub-disciplines, diverse forms of funding, complex institutional collaborations, an orientation to the near future, intensive work with governmental and non-governmental agencies, focused legal innovation and imaginative use

of media.” (Rabinow & Bennett, 2007: 2) Rabinow and Bennett’s interdisciplinary work, synthesizing Anthropology, Ethics and Synthetic Biology offered a roadmap to examine the relationship between problematization and expertise in collaborations help improving the collaboration.

First, they considered practices emerging from the expert co-operations. Expert knowledge, as they highlight, is often considered an absolute that is able to perfectly match problems. Additionally, expert knowledge reaches its potential only, when the goals and tasks are formulated appropriately and the problems are stabilized. Such bracketing, however, is not possible in emergent problem-spaces or innovative processes. What is Rabinow and Bennett’s answer to the questions of emergence? They consider the traditional role of whose task is to coordinate and classify experts. Managers not only organize tasks and identify expertise, but also assign roles to them according to subjective or external traits, such as authority or availability. But how are such decisions made in emergent, uncertain situations? Rabinow and Bennett say that managers may be able to cope with the new setting. Uncertainty is handled in many ways in expert collaborations, for instance by risk calculations and other measurements drawing from past experiences. They conclude that appropriate expertise does not necessarily exist in emerging problem-spaces and the necessary skills are often found elsewhere, for example among members of the public.

Second, they examined the exchange between experts and society. In this setting various public stakeholders and experts come together to participate in a conversation and discuss goals. Social values are represented by the members of the public who help assessing the impact of expert practices. Rabinow and Bennett designs two strategies to achieve the maximum effect of such collaborations. One of them emphasizes real-time assessment of

values of the public as well as the researchers, parallel with mapping the anticipated societal outcomes of the research. Then, using information gained from participatory fora, its impact on the work of the researchers has to be assessed. The other program is called anticipatory governance and it tries to calculate strengths and weaknesses and factor them into a possible socio-technical future. Rabinow and Bennett call these participating members of the public emerging experts. The status of the emerging expert is peculiar and uncertain. Their activity and legitimacy is limited and determined by various underlying factors. As the role of emerging experts is not defined by a common framework or traditional institutions, questions of trust may undermine the process. Why do these experts engage in such activities despite the limitations they encounter? The desired output of such collaborations, according to Rabinow and Bennett, is only partly centred upon the success of the projects. The overall aim, they observe, is to ensure mutual flourishing of the participants in the emergent problem-spaces, individually, vocationally, professionally. Does this idea help us to understand the status of collaborative smart projects and the nature of collaborations? Does this help us to see the incentives for participation in smart urban projects?

New Citizenship

“.. they don't want to do anything that fails. So that's fine. Fine for now. But eventually someone has to decide what we are going to do with all this.” (Sophie, researcher/project-leader)

With the help of the anthropological theories presented throughout this thesis we can see several related issues emerging. These issues arise from the absence of traditional institutions and the need for emerging experts in uncertain problem-spaces. Bracketing processes, assigning roles, and formulating goals in such a voluntary collaboration is a challenging task, especially when a novel, democratic way to find a solution is ideologically supported (i.e.: stewardship). Instead of powerful actors, multiple frameworks: hackatons, workshops,

research programs, hubs exist that legitimise and direct emerging expertise where it is needed. On another note, the perceived and indirect benefits of such meetings are many, but financial compensation is rarely linked to them. In the absence of a common validation framework, alternative factors help building or weakening trust. How long can be these collaborations then maintained? As Ikeda argues, the process of discovery, the continuous creative action by multiple agents – discussed in Chapter 2 – can only be maintained if the clash of ideas, goods and people happen in a quasi conflict-free environment and where the possibility of abuse is very low. In the emergent problem spaces, however, power-structures also mutate, emerge and dissolve. It seems vital, that the underlying hierarchy and the external factors that validate participation would be mutually recognized by the participants to maintain trust for the time while the problem-space emerges and dissolves (pivots) into something else.

What about all the urban projects then? These projects are celebrated for helping to improve social cohesion and make life more effective in the city by using ICTs. But only some of the numerous project fragments will actually be adopted by citizens for use. The frameworks that assign emerging expertise to problems, help perceiving the projects as valid, relevant modes of practice. For a certain period of time these projects can be featured on a website, and their prospective impact can be numerically and visually represented. This however doesn't ensure the longevity or the effectiveness of these projects. It seems as if the projects themselves might not even matter or are merely providing the conditions for citizen engagement.

“...here it is a lot better than what you know. So you just go like I'm happy it's good enough. So you are used to having worse. You don't really feel you have the right to ask for more.”

(Sophie, researcher/project-leader)

Why do people continue to participate in these projects, then? Why do they enjoy having to continuously reassemble into new power structures? Why do they participate in endless processes of production just to pivot and start all over? Why do they keep counting, classifying and digitally visualizing their urban environment again and again? Originally wondering about the incentives for participating in smart city processes, I asked many people about why do they volunteer in such projects and they often responded by sharing their views on how the world should be? Lefebvre speaks of this as expressing the need for new societal ethics, cultivated by living together and sharing space, and as the possibility for people to be able to “master their own existence” (Lefebvre, 1991: 260-261). He identifies this need as a pillar of a new kind of citizenship: urban citizenship.

The new citizenship can be defined for each individual and for each social group as a possibility, (as a right) to recognize and master (individually and collectively) its own conditions of existence (material and intellectual), and this simultaneously as a political actor, as a producer, as a citizen-user-consumer, in its place of residence, its city and its region, its professional and non-work related activities as well as in its nation and the world. (Lefebvre 1991: 261)

This has never been a more relevant idea than in the beginning of an intensive and lengthy urbanization process completed with a global migration process. Urban citizenship manifests itself through full participation in society, “the right to information, to express ideas, to culture, to identity in difference (and equality), to self-management” (Lefebvre 1991: 261). The ways to express this need are present in the type of activities, the mapping projects, the underlying power structures and the endless production processes. EU funding in excess, support from the city and businesses call citizens to colonize their imagined territories in exchange for urban citizenship, to which new urban experts answer. Smart solutions act as invisible assistants to an infinite reproduction cycle in which city and citizen mutually

produce each other and come to belong to each other through technology.

Conclusion

Smart cities have conquered the world and now we can watch what they do with it. The smart city phenomena on a global scale came about as an answer to a growing uncertainty caused by environmental crises, increasing urbanisation, questions of sustainable development, the exponentially growing pace of technological change and the need for new tech markets.

These problems have spurred the alignment of economic and environmental incentives on a national and international scale. In this situation, smart cities represented a bundle of effective, measurable technological solutions that made future urban sustainability seem proximate and achievable. However, as business products and city-services, ubiquitous smart solutions have also brought about new ideologies, practices, tools, institutions, social groups and thus redefined the relationship between city and citizen. We have come to witness the birth of a knowledge economy from the technology-enabled interactions of smart, creative, innovative people. Leaders of smart city initiatives have just recently started to understand the potential in these interactions and began to encourage citizen participation on many levels. Citizen participation may take many forms: collaborating with different stakeholders, participating in local governance, finding innovative solutions to urban challenges. These activities often culminate in social entrepreneurial projects with a focus on counting, classifying, mapping, and digitally visualising urban phenomena. The increasing interest in such collaborative urban projects inspired this thesis to have a twofold goal. I sought to understand the incentives for participation in smart city processes through examining the new dynamic relationship between smart city and smart citizen.

In Chapter 1, I started by exploring the context that allowed for the creation of smart cities globally. Then, I clarified my understanding of a smart city as a knowledge economy, as “one whose economy and governance is being driven by innovation, creativity and entrepreneurship, enacted by smart people” (Kitchin, 2014) with ICT essentially framing their interactions. Finally, in the introductory chapter, I tried to introduce the concept of smart city as complex phenomena with emergent properties as well as a socio-technical phenomena. In Chapter 2 I argued with the help of Soja and Lefebvre that these processes forming in and through the smart urban space are inherently social processes. Then, by linking various digital representations such as dashboards to Lefebvre’s triad I tried to explore how the perceived-conceived-lived experience of smart urban space changes the readability-visibility and intelligibility of the city. In this chapter I also argued that these representations are never free of the ideologies and biases of their creators. They display fragments of imagined cityscapes that actively shape contemporary urban activity. In this context, with the help of ethnographic observations I tried to examine the roles played by new experts who mediate smart cities. My third chapter, then, is an illustration of a participant observation exercise focusing on the values, visions and lived experiences emerging from contemporary urban activity. I closely examined the creation of a community project prototype within an EU-funded urban resilience framework. The project, a digital innovation dashboard, aimed to display and connect hundreds communities within a city region.

In the closing chapter, I made my final investigations led by the main motives emerging from the ethnographic text. First, I focused on the form of the creative activity, then, I explored the nature of the collaboration. Benedict Anderson’s work on nation building allowed me to reformulate the concept of urban dashboards as digital colonies of imagined territories. Thinking about the social space as being in the process of digital colonization through

projects such as the digital innovation dashboard I observed helped to gain insight to the rationale of people to participate in such endeavours. Finally, I reached to Rabinow and Bennett's work on expert collaborations. Their theory tease out the nature of the emergent problem-space, a complex, temporary process, in which new experts are needed. In this zone of uncertainty problems are not fixed, traditional institutions and power-structures have less or no influence, therefore trust and legitimacy are only granted periodically by external or underlying frameworks. The problems, and as a consequence the projects built on them are emergent, and direct solutions not necessarily exist. By enabling and facilitating peaceful and continuous discovery – the exchange of knowledge through connecting people and ideas – on an unprecedented scale, smart cities seem to be able to bring about an urban environment in which citizens produce the conditions of their own participation.

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