THE PRODUCTION OF DIGITAL PUBLIC SPACES

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1 ABSTRACT

Digital media are noticeably changing the qualities of urban public spaces, which can no longer be considered a purely physical construct. Yet, the extent to which contemporary digital media can be used to promote other forms of spatial agency remains a critical issue. Whereas the impact of technology from a macro perspective offers a globalizing and homogenizing image, its role in the production of space at a local scale is less clear (Kirsch 1995).

The aim of this study is to argue for *digital public spaces* as a concrete programme to support the articulation of a third notion of public space that emerges at the interface of physical–digital hybrid spaces (Stikker 2013). The project for digital public spaces is posed as one that pursues enabling citizens' rights to participation and appropriation (Purcell 2002) of physical–digital hybrid spaces.

It is argued that while physical and digital spaces do not stand in opposition, their operational models do not fit seamlessly either. Therefore, the research is particularly concerned with how to design for the conditions that allow a dialogical relation between physical and digital features of space, and enable citizens to actively participate in the production of physical–digital hybrid spaces, and for which a dialectical mode of analysis is required.

Following a cumulative narrative, the study explores different characterizations of digital public spaces, which have been articulated through design-led action research projects conducted in collaboration with academia, creative industries, citizens and public authorities. The study accomplishes a novel application of the unitary theory of space proposed by the Marxist French philosopher and sociologist, Henri Lefebvre (1992), which is revisited to develop a novel framework to reveal the social production

of physical–digital hybrid spaces. The framework is developed through practice, and extensively applied throughout the thesis illustrating three distinctive dominating perspectives of physical–digital hybrid spaces: substitution, co-evolution and recombination (Graham 1998). The framework has proved to be a flexible and insightful method of analysis that: enables approaching the social production of physical and digital spaces individually and in relation to one another; to understand how different spatial configurations allow for participation and appropriation; and in turn, to re-contextualize the right to the city (Lefebvre 1996) in digital public spaces.

2 DECLARATION

I declare that this thesis is my own original work and has not been previously submitted for the award of a higher degree elsewhere. To the best of my knowledge it does not contain any materials previously published or written by another person except where due reference is made in the text.

Chapter One includes insights that were originally presented in, Salinas, L. (2014) Digital public space(s): redefining *publicness,* in Social Media and the transformation of public space, Amsterdam, 18th – 20th June 2014.

Chapter Four reflects on the workshops, Salinas, L. and Luján, M. A. (2013), Creative uses of pocket technology, TechWizz 2013, Accrington, 9th February 2013, and Salinas, L. (2015), #MapYourMarket, LU Arts, Loughborough, 19th September 2015.

Chapter Five contains excerpts originally used within the conference papers, Salinas, L, Weise, S. and Pollastri, S. (2014), Transforming the planning process – challenges for the service designer, in ServDes2014, Lancaster, 10th April 2014, and also the workshop, Salinas, L. and Porter, J. (2014) Co-designing the future of planning systems in Liverpool, Liverpool, 24th March 2014 and Salinas, L. (2014), Digital media to enhance the planning system: a case study in Liverpool, Creative Citizens, London: 18th – 19th September 2014.

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A doctoral thesis is often a solitary experience, but in my case I have been fortunate to share these past years with an incredibly encouraging team, friends and family.

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FOREWORD

I had never done the trip before and to compensate for my absolute lack of sense of direction, I took with me all the equipment I could find: a very doggy navigator that ran on p2p downloaded maps and and would get lost at the most critical moments; a smartphone with GPS and sometimes also Internet connection; an outdated national road map that I didn't really know how to use; and a print out from ViaMichelin with detailed turn-by-turn instructions of the 669 km that separate my mum's at Seville from the rented garret at Calle Trinitarios in Valencia, and which would take me 7 hours and 38 minutes, and cost 60,21€ in petrol. So detailed, I thought it must be true (Figure 1)

However, somewhere past Cordoba, between the land points five and six, the main road vanished and the car entered a maze-like network of dusty roads. About to run out of petrol, I pulled over and waited for someone to pass by, trying to understand the seam I had fallen through, seriously pondering the possibility that I had just discovered Castilla La Mancha's o Devil's Triangle. Luckily a local helped me make sense of it, looking amazed at all my maps in their different formats. The road I was meant to take only existed in my doggy navigator, my smartphone and the ViaMichelin printout, he told me. The road section I was looking for just hadn't been constructed yet.

Figure 1 *Lie*. Page 1 of 7. Source: author.

By that time, I was setting up Historia 1857557[1] (Salinas 2010, 2010b): an autoethnographic work that explored the recognition of my body through and as data in the management of diabetes type 1, in which the glucometer[2] acts as a threshold device. For the past year I had been trying to unravel the dissociative experience of feeling my body not in the flesh, but through data representation; and had fiercely argued that *the data is my body*. And yet I had spent the last four hours driving through a digital map. I should have known better: *ViaMichelin is not the map*[3]

[1] Medical record number 1857557 (translated by the author)

[2] A glucometer is an instrument for measuring the concentration of glucose in the blood, typically used in the control of diabetes before and after meals.

[3] See Les Liens Invisible's *'Google is Not The Map'* (2008) Available at http://google.isnotthemap.net/

"[To reveal the production of space] we should have to look at history itself in a new light. We should have to study not only the history of space, but also the history of representations along with that of their relationships –with each other, with practice, and with ideology. History would have to take in not only the genesis of these spaces but also, and especially, their interconnections, distortions, displacements, mutual interconnections, and their links with the spatial practice of the particular society."

Lefebvre 1991, p. 42

1 CHAPTER ONE: TOWARDS A DEFINITION OF DIGITAL PUBLIC SPACE

The term 'Digital Public Space' was coined and placed in the public domain by Tony Ageh, Controller of the Archive Development at the BBC (Ageh, 2012). Being simultaneously explored by the Joint Information Systems Committee (JISC), Arts Council England, British Library, Heritage Lottery Fund, and the Wellcome Library (Sero HE, 2014); FutureEverything in its 2013 edition (Hemment et al. 2013), and The Creative Exchange (2012-2016) among many others, the phrase Digital Public Space (DPS) has no single, well-understood meaning. Nevertheless, it is increasingly being used by a growing number of cultural bodies to refer to digitized cultural archives, describing "the online environment which will emerge as they make their digitised collections more available to each other and to the wider world" (Thompson et al. 2013, p.36).

The novelty of the digital public space project (DPS) resides in Tony Ageh's radical manifesto to preserve the democratic, open and participatory nature of the Internet and digital cultural archives. Ageh's aspirational statement defines digital public space as follows:

> *"The Digital Public Space must – by definition – be equally accessible by everyone, universally equivalent and unconditional. It must be dialogic, open and protective of the rights of all participants and contributors. It must be available at all times and in all locations, it must expect contributions from every member of our society and it must respect privacy. It must operate only in the best interests of the people that it serves; absent of overtly political or commercial interests. And it must endure" (Ageh 2015)*

Thus, this definition intrinsically links digital public space to the notion of archive, and its potential of developing new forms of culture, to "give everyone everywhere unrestricted access to an open resource of culture and knowledge" (Hemment & Thompson 2013, p.3). Creating the conditions for digital public space to exist must be a collaborative effort, in which archive controllers – libraries, museums, public archives, government services, etc.– must re-imagine their role as facilitators and providers of "the underlying platforms and technologies to enable others to manipulate, transport, remix and reform the archival content" (Cousins, 2013, p.12).

The Creative Exchange project has radically broaden the concept of Digital Public Space. Each of the 21 doctoral candidates, such as myself, have embraced a range of digital public spaces (Cooper, 2016). In particular, I approach the concept of digital public space as a concrete programme and propose an alternate, third notion of public space (Stikker 2013), which is highly dependent upon contemporary *prosumption* practices (Ritzer & Jurgenson, 2010), popular cultural archives (Beer & Burrows, 2013), remixological devices (Parikka & Caplan, 2013) and locative media (Lemos, 2010).

1.1 THE RIGHT TO THE CITY

Henri Lefebvre's idea of the right to the city, which argues for a radically participatory relationship between city and inhabitants, is a useful starting point for examining the politics of digital public space. Building upon the Lefebvrian concept of the right to the city, Tim Cowlishaw (2015) notes that the *right to the network* is at the core of the digital public space project, for the project ultimately aims to "ensure that the public does not just consume the artefacts of the Digital Public Space but that the Public can make Digital Public Spaces" (Le Dieu, 2013).

In The Right to the City, the French Marxist sociologist and philosopher Henri Lefebvre extends his spatial theory asserting that the production of space entails much more than planning the material space of the city, for the production of social space requires real and active participation of its inhabitants. Lefebvre's notion of the right to the city is well illustrated by the concept of 'the city as an *oeuvre'*, in contrast to the city as a *produit*. The city-*oeuvre* is the product of the rhythmic interference of myriad practices, of inhabitants' active role in society. It is unique and irreplaceable, both a creative product of, and the context for, everyday life "closer to a work of art than to a simple material product" (Lefebvre, 1996, p.101). On the other hand, the city-*produit* is the result of repeatable and serialized actions. The city, *oeuvre* or *produit*, is not predetermined, but negotiated by the quality of the relationship between inhabitants. Hence, Francesco Chiodelli (2012) argues the notion of the city as an *oeuvre* implies a particular notion of citizenship, extended to the city inhabitants. Mark Purcell (2002) posits that the right to the city is dependent upon Lefebvre's concept of citizenship, to which *autogestion* (self-management) is core, involving two principal rights for urban inhabitants. First, *the right of participation*, as having a central role in any decision that contributes to the production of urban space (social, political, and economic relations). Second, *the right of appropriation,* for inhabitants to make the space of the city their own. In a sense, Purcell argues, appropriation is an act of radical reorientation, shifting control away from capital and the state toward urban inhabitants; reorienting the city as engine of capital accumulations toward cooperative social relations.

Peter Marcuse (2009) points that Lefebvre's project to renew urban democracy is concerned with the right to a future city, as "(i)t can only be formulated as a transformed and renewed *right to urban life"* (Lefebvre, 1969, p.158). Whereas the

architect, planner or designer cannot create new social forms and relations; they can indeed create the conditions, *give birth to the possible* (Lefebvre, 1996). In this light, David Harvey describes the right to the city, as "far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city" (2008, p.23). The notion is both transformative and reflective, as the right to the city links ourselves to our environment, and by changing one, we change the other.

1.2 A LEFEBVRIAN APPROACH TO THE PRODUCTION OF DIGITAL PUBLIC SPACES

Spatializing Marx's theory, in *The Production of Space* (1991), Henri Lefebvre asserts that "*(social) space is a (social) product*" (1991, p.26), for each society – or mode of production – produces, reproduces and appropriates its own (social) space. Lefebvre states four implications or consequences:

(1) Physical natural space is disappearing, being replaced by the space of spectacle and *accumulation.* (2) Every society (mode of production) produces its own space. (3) If space is a product, our knowledge of it must be expected to reproduce and expound the process of production. (4) Because space is produced by social struggles it can be neither empty nor neutral. Although space is always a *present* space, it is in "itself the outcome of past actions" and "what permits fresh actions to occur" (1991, p.73).

The origin of social space is to be found in the history of people and individuals, not in a causal chain of "historical" events. Thus, social space cannot be neutral as it encloses people's experiences. And even though social space carries its own history, it is always present as it is lived and experienced. However, Lefebvre argues that the difficulty to see space as a social product is due to a double illusion: the illusion of transparency and the realistic illusion. The realistic illusion is one of natural

simplicity, which reduces space to its materiality and appeals to the opacity of space. On the other hand, the former posits space as intelligible, anything hidden or dissimulated, free of secret places. The two illusions appear to be contradictory (materialism and idealism), however, each nourishes the other. According to Lefebvre, the rejection of the realistic illusion often results in a falling into the illusion of transparency. Lefebvre transcends both, stressing that the social production of space involves both materiality and ideation, brought together by social practice. Against this double illusion, Lefebvre conceptualizes a tool for analysis consisting of a dialectical triad that simplifies the production of social space in three moments that relate with and underpin each other: perceived, conceived, and lived (Table 1).

(1) Space as a physical form has physical and material qualities. This is space as we perceive it, and which supports our material practices in space or *spatial practices*.

(2) Space as a mental construct is an instrumental approach to space, in which space is abstracted and conceived by scientists, planners, urbanists, engineers and so on. It is the space made of signs and significations that "allow such material practices to be talked about and understood" (Harvey, 1990, p.218). A space made up of logical, formal abstractions and *representations of space*.

(3) *Representational space* is the social space; the space of inhabitants' lived experience. This is the space of social activity, which operates at both physical and mental levels, for it overlays physical space making symbolic use of its objects. It is where meaning resides, where projects and projections, symbols and utopias flourish.

Table 1 Spatial concepts of Lefebvre's unitary theory of production of space, adapted from Elden, 2007.

Representations of space	**Spatial practice**	**Spaces of representation**
conceived	perceived	lived
mental	physical	social
idealism	materialism	materialism & idealism

In other words, if human beings are in space, and their social relations of production have spatial existence, it is through their lived experience that social space is produced. As Don Mitchell (2003, p.129) puts it, "(p)ublic space is thus socially *produced* through its use *as* public space".

For Lefebvre, capitalism and neo-capitalism have produced an *abstract space* that imposes itself as a reality despite the fact that is an abstraction. Abstract space is a means of production, an object of consumption and a political instrument. Abstract space is ruled by a principle of accumulation, commodification, homogenization and repetition. Moreover, abstraction is fetishized by the visual world, for Lefebvre, "[t]he predominance of visualization (more important than 'spectacularization', which is in any case subsumed by it) serves to conceal repetitiveness' and impose it as the norm" (1991, p.73). As a consequence, representational space is dominated and difference is neutralized. Citizens passively experience what is imposed upon them, "for lived experience is crushed, vanquished by what is conceived of" (1991, p.51).

Yet Lefebvre has noted that abstract space is fundamentally contradictory. Though it tends towards homogenization, it is not homogeneous, and "carries within itself the

seed of a new kind of space" (1991, p.52). By means of social struggle and the proposal of counter-spaces it can be contested, and "differential spaces" temporarily emerge, to be once again absorbed by the apparatus of power. The production of space is then a continuous struggle between abstract forces trying to produce a repetitive, homogeneous and exclusive abstract space; and subaltern counter-publics trying to create differential spaces.

Lefebvre's triadic analysis is employed throughout the thesis to critically reflect upon different characterizations of digital public spaces, seeking to explore and design for the conditions that contribute to articulate digital public spaces as an *oeuvre*.

1.3 A CUMULATIVE PROCESS

The previous section posited social space as produced by social struggles (Lefebvre, 1991). Consequently, the production of digital public spaces must also be approached as a cumulative process.

In "The end of geography or the explosion of place? Conceptualizing space, place and information technology" (1998), Stephen Graham analyzes the geography of informational technologies and proposes three distinctive, dominating perspectives towards the relationship between information technology, space, place and society. *Substitution* features cyberspace as an alternative and post-geographical territoriality that falls within technological utopianism and determinism. *Co-evolution* accounts for synergies between place-based and tele-mediated exchanges, in which material and electronic spaces are produced together, articulating real places and spaces. The concept of co-evolution "underlines the fact that materially constructed urban places and telecommunications networks stand in a state of *recursive interaction*, shaping *each other* in complex ways" (1998, p. 174). This recursive interaction also indicates

that a wide diversity of relations coexists. Finally, *recombination* stands for a relational view of the link between technology, time, space and social life, drawing on actor-network theory and cybernetic organisms in which cyberspace appears "as a fragmented, divided and contested multiplicity of heterogeneous infrastructures and actor-networks" (1998, p.176).

As Mark Poster suggests, "the insertion of a period may suggest not a passage from one state of being to another but a complexification, a folding in of one structure upon another, a multiplying or multiplexing of different principles in the same social space. Periods of epochs do not succeed but implicate one another, do not replace but supplement one another, are not consecutive but simultaneous" (Poster 1995b, p.21) In a similar fashion, the sociologist John Law accounts for *multiple realities* that cannot be mediated by an overarching logic. Rather than a "single container universe", Law accounts for a *fractiverse*, in a dialogical process of continuous creation in which realities are "contingent, local and practical engagements" (2011, p.5). The three moments illustrated by Stephen Graham would not supersede the precursor, but coexist and inform each other. Hence, several and simultaneous notions of public domain may as well be expected. Marleen Stikker (2013) suggests that three notions of public domain coexist: in physical space, in digital space (cyberspace), and at the intersection between physical and digital spaces.

1.4 A MULTIDIMENSIONAL APPROACH TO PUBLICNESS

The public condition of digital public spaces is at the core of this third notion of public domain, which is directly concerned with the diminishment of public character of public spaces. However, before tackling the complexity of hybrid spaces, Lefebvre's triad is employed to propose a multidimensional approach to publicness of physical

spaces. The aim of this exercise is twofold, for it not only carries out a literature review on the dimensions that constitute publicness but also tests the spatial triad as a tool of analysis.

The city is the landscape of everyday life. The public spaces that compose the city are the scenario of social interactions (Johnson & Glover 2013; Hollander & Németh 2010; Mitchell 2003b). However, the public character of urban spaces is quite controversial. Definitions of public space are neither universal nor enduring. Conversely, the notion of public space changes continuously, over time and culture, being revised and contested. Architects, geographers, planners, anthropologists, urbanists, sociologists, philosophers, designers, etc. have tackled the notion of public space from an array of perspectives. Also artists, activists, and community groups have explored the limitations and opportunities of the public space in contemporary cities, by means of activism and creative practice, seeking momentary ruptures, differential spaces and temporary appropriations (Hou, 2010; Howell, 1993; Iveson, 2007; Lefebvre, 1991; Mitchell, 2003b; Bey, 1991).

In tune with Lefebvre's premise that each society produces its own social space, Simon Susen argues that the "specificity of every social reality does not permit us to reduce the public/private dichotomy to a pattern of typological universality" (2011, p.39). Consequently, ideal conceptualizations of unique, unmediated and equalitarian public space, dominated by dichotomist approaches to publicness are rejected in favour of accounts that recognize that public spaces are heterogeneous and produced through continuous struggle (Lefebvre 1991; Mitchell 2003b; Howell 1993).

Stretching back to ancient Greece, where the roots of Western democracy are to be found, public space is almost always urban by definition, bound to the public sphere and typically conceptualized as opposed to, and threatened by, private ownership and

management (Smith & Low, 2006; Siebel & Wehrheim, 2006; Staeheli, 2009; Mensch, 2007; Goheen, 1998; Kohn, 2004; Mitchell, 1995, 2003a, 2003b; Németh, 2012; Schmidt et al., 2011).

Drawing on socio-political literature, the social dynamics of urban public space play a central role in the formation of publics (Amin 2006). Public space is also regarded as democratic, for it is meant to be universally accessible, inclusive, and publicly owned and managed (Kohn, 2004; Varna & Tiesdell, 2010; Holland et al., 2007; Loukaitou-Sideris & Ehrenfeucht, 2009). Nevertheless, this ideal conceptualization is rarely, if ever, fully realized. Aware of the complexity that it implies, the political scientist, Margaret Kohn, treats the term public space as a cluster concept, with "multiple and sometimes contradictory definitions" (2004, p.11). Since public space is heterogeneous, "the dimensions and extent of its publicness are highly differentiated from instance to instance" (Smith & Low, 2006, p.3), hence the publicness of a space must be assessed in relative terms, seeking for multiple public spaces, and an array of dimensions that account for publicness, and not a unique model of public space based on fixed characteristics (Howell, 1993; Fraser, 2009; Lefebvre, 1991; Mitchell, 2003b; Loukaitou-Sideris & Ehrenfeucht, 2009).

Iveson (2007) distinguishes two dominant and complementary approaches to the concept of public space; topographical and procedural. Public space is typically conceptualized from a topographical approach to refer to a particular kind of places in the city that are accessible, with a focus on physical configuration, and the dichotomy public/private regulates the visibility of actions. On the other hand, defined procedurally, public space is understood to be any space as it depends on its capacity to be a context for action. Although in a procedural sense public space may be influenced by the material structure of the space, it is not restricted to specific

physical configurations. In this vein, George Varna and Steve Tiesdell (2010) have structured categorizations of publicness upon deductive/internal and inductive/external approaches. Whereas inductive approaches seek to understand the material conditions of public space, deductive approaches investigate the socially constructed meaning of publicness and lived experience in social spaces.

Commenting upon Varna and Tiesdell's model of publicness, Jeremy Németh (2012) highlights the importance of any model of publicness to account for both material and conceptual realms.

The dichotomy material/conceptual is particularly ill-defined in the context of digital public space, as both realms may be easily and mistakenly associated with physical and digital spaces, hindering the endeavour to explore a third notion of public domain.

Building upon Lefebvre's unitary theory of space, a threefold model of publicness is proposed to relate different dimensions of publicness in a framework that goes beyond the dichotomy material/conceptual. The three dimensions are: (1) ownership and management, (2) rules of access, control and conditional behaviour, and (3) social practice.

1.4.1 PUBLIC SPACE PRIVATELY OWNED AND/OR MANAGED

It is a platitude to say that the public realm is commonly framed in opposition to the private. Whereas private spaces have traditionally been limited to the demarcated territories of households, (Mandanipour, 1999, p. 881), in contemporary cities, public space is the exception among the pervasiveness of private spaces (Lefebvre, 1991; Mitchell, 2003a; Smith & Low, 2006).

Neil Smith and Setha Low acknowledge that "many constituents of public space are privately owned, managed, and regulated elements of the public sphere" (2006, p. 5). The privatization of social spaces creates *pseudo-public spaces*, which are not really public in the sense of open access or state-ownership (Mitchell & Staeheli, 2006). Privately owned public spaces (POPS) are defined as "one type of publicly accessible space which itself encompasses a wide range of sites, including traditional retail establishments, malls and museums" (Németh & Schmidt, 2006, p.2464). The promotion of POPS may be a mechanism to supply public services while saving municipal resources (Schmidt et al., 2011), but may also be a form of privatization of public amenities (Loukaitou-Sideris 1993).

Margaret Kohn (2004) acknowledges the difficulty to categorize a space as public or private beyond the paradigm of publicness embodied by the ancient agora and the private home. In between, she states, there is a wide range of public–private hybrid spaces of social interaction. Precisely, the emergence of a wide range of hybrid models of ownership and management, which signify that public spaces are passing from public to private hands, is the focus of most academic literature referring to urban space.

Matthew Carmona (2010a; 2010b) synthetizes critiques of the contemporary public space situation into those who argue that public space is over-managed, and those who argue that it is under-managed, concluding that these two trends represent two sides of the same coin and lead to homogenization of public spaces. Although ownership and/or management of public spaces have a dramatic impact on its conception and physical configuration, Ken Worpole and Katharine Knox note that, "[t]o members of the public, it is not the ownership of places or their appearance that makes them 'public', but their shared use for a diverse range of activities by a range of

different people" (2007, p.4). In a similar vein, Peter Marcuse (2004) conceives six legal forms of ownership of public space considering function and use, i.e. from public ownership, public function and public use like the streets, to private use and private function like a house.

The right to the city debate is not just about private hands taking over ownership and/or management of urban spaces, "but the transformation of the urban public itself" (Madden 2010, p.202). Therefore, ownership and management are most relevant for their socio-cultural implications (Loukaitou-Sideris & Ehrenfeucht, 2009; Loukaitou-Sideris, 1993), reshaping the city and ultimately affecting the way space is used and people's everyday lives (Marcuse 2004).

Decisions derived from different models of ownership and management will affect the next dimension, composed of control, rules of access and conditional free behaviour, with a great impact upon the lived experience.

1.4.2 CONTROL, RULES OF ACCESS, AND CONDITIONAL FREE BEHAVIOUR

Whereas some commentators argue that public spaces cease to be truly public when they are privatized to some extent, causing restrictions on the everyday use of spaces (Siebel & Wehrheim, 2006), Jeremy Németh & Stephan Schmidt (2006) take the term public space in a broad sense to apply it to a wide variety of urban environments, publicly and privately owned, and foreground accessibility and social dimension of space as determinant factor of spaces' publicness. It must be noted that no public space that is always accessible to everyone has ever existed in a city (Mitchell, 1995). Kurt Iveson even argues that "some kinds of exclusion might be justified on the grounds that they facilitate the exploration of forms of co-presence and public sociability which are not possible in other public spaces" (2003, p.224). Yet, space

privatization not only involves the ability to regulate access to a space, but also control over the range of permissible uses (Kohn, 2004, p.7). Restrictions imposed upon urban public spaces that come with the presumption of openness may deserve special attention (Loukaitou-Sideris & Ehrenfeucht, 2009). In this regard, public space is typically differentiated from private in terms of rules of access, including the kind of control over entry to a space, and the recommended behaviour within specific areas (Smith & Low, 2006). Forms of exclusion and control over public spaces are varied and may be divided into "hard" control practices that actively ban certain things from happening, and "soft" control practices that focus on symbolic constraints through the lack of facilities to discourage certain functions (Loukaitou-Sideris 1993). The design of private-owned public spaces (POPS) during the 1960s in New York can be taken as an example of different forms of control to restrict access and behaviour. POPS employ sophisticated techniques to manipulate behaviour within, and exclude audience from, spaces; like spaces lacking fences but being highly controlled by surveillance systems (Schmidt et al., 2011). As hybrid models of ownership and management developed, the boundaries between private-owned spaces and traditional public spaces have become unclear. Even if access is taken for granted, it is worth noting that those who do not support the recommended behaviour are discouraged to stay, for private open spaces are typically designed for determinate experiences, limiting access and accepted behaviour, and actively encouraging consumer-oriented audiences. Increasingly organized around consumption, publicly accessible spaces around the city become *commodified* spaces, in which sociability and spectacle are means to the goal of *accumulation*, clamping down on the lived experience. Don Mitchell (2003, p.128) recognizes many ways of seeing public space in contemporary cities, yet accounts for two predominant approaches. One envisages an

unconstrained space of free interactions, user determination with the absence of coercion by powerful institutions. The other, a space open for recreation and entertainment, subject to usage by an *appropriate* public that uses the space by permission of its owners. Given the example of a café, which is privately owned but open to the public, David Harvey notes that not being exactly private, "it is a space within which a selective public is allowed for commercial and consumption purposes" (2006, p.20). Nevertheless, it must be noted that restrictions in access and permitted behaviour are not exclusive to hybrid ownership and management models (Németh, 2012; Siebel & Wehrheim, 2006). Even when public spaces are publicly managed and virtually accessible, myriad elements can present barriers to their use and exercise different forms of control. Signs that either inform or prohibit dominate public space as a form of control, curating user experience in public spaces (Holland et al., 2007). Signage informs and directs citizens to so-called places of interest; specifying what kind of behaviour is expected from them.

Anastasia Loukaitou-Sideris argues that as urban settings are designed and developed according to the need of an *average user*, the result is an homogeneous product, "insensitive to specific social contexts and needs" (2007, p.99). In this regard, Peter Marcuse (2004) sees little invitation to explore and re-discover urban environments, for the widespread presence of design elements responds to a subtle but pervasive control strategy.

Although it may be argued that some regulations aim to improve the quality of public spaces, over-managed and hyper-securitized spaces threat to homogenize the public realm (Planning and Housing Committee, 2011; Carmona 2010a, 2010b; Siebel & Wehrheim, 2006). Homogeneity of social context seems to be a common attribute of private open spaces that are designed to fulfil the needs of a target audience, either

based on consumption of the private services offered (Carmona 2010a, 2010b; Loukaitou-Sideris, 1993) or the desire to increase safety and security *in extremis* (Marcuse 2004, 2006; Siebel & Wehrheim, 2006; Németh & Schmidt, 2006; Hollander & Németh, 2010).

1.4.3 SOCIAL DIMENSION: SEEKING FOR DIFFERENCE

The most distinctive quality of public space is to facilitate interaction between strangers and acquaintances (Kohn, 2004), for what space has to boast is some degree of diversity and difference. The struggle between homogeneity and difference is at the core of the debate for public spaces. Some scholars point out that the emergence of privately produced, maintained and controlled spaces might lead to the end of public space (Varna & Tiesdell, 2010; Mitchell, 2003a; Mitchell & Staeheli, 2006; Sorkin 1992). However, assuming that public space can come to an end is to accept that public space simply exists, instead of being negotiated, appropriated and produced by struggle (Mitchell, 2003b).

In order to identify the public character of urban public spaces, different approaches and dimensions that constitute publicness have been analyzed, avoiding normative conceptions of publicness that have been rarely, if not ever, accomplished. This section has explored a flexible multidimensional approach to publicness, throughout which arguments about the diminishment of the public realm have emerged, being the trend towards privatization and the emergence of hybrid ownership and management models, impacting upon the configuration of urban settings, and causing a wave of homogenization and exclusion that threaten an end to social life. In summary, the main consequences of the emergence of quasi-private models of ownership and management of public spaces are: (1) right to access is being replaced

by privilege to access; (2) public spaces are becoming homogeneous under the influence of abstract power, and (3) public spaces ruled by the private sector respond to private interests, losing the original meaning and importance of public space.

These three claims set a landscape that may be taken into account when designing for digital public spaces, and to which the digital public space project must react.

The proposed framework mapped against Lefebvre's unitary theory of space theory illustrates how publicness, like space, is determined not only by material and conceptual realms, but also by experienced moments of space (Figure 2).

The resultant multidimensional model is rather similar to that proposed by Margaret Kohn (2004), who approaches public space as a cluster concept based in three core components: ownership, accessibility, and intersubjectivity, where the latter is determined by the kind of encounter that a space facilitates. In addition, Kohn places spectacle and dialogue as opposed encounters.

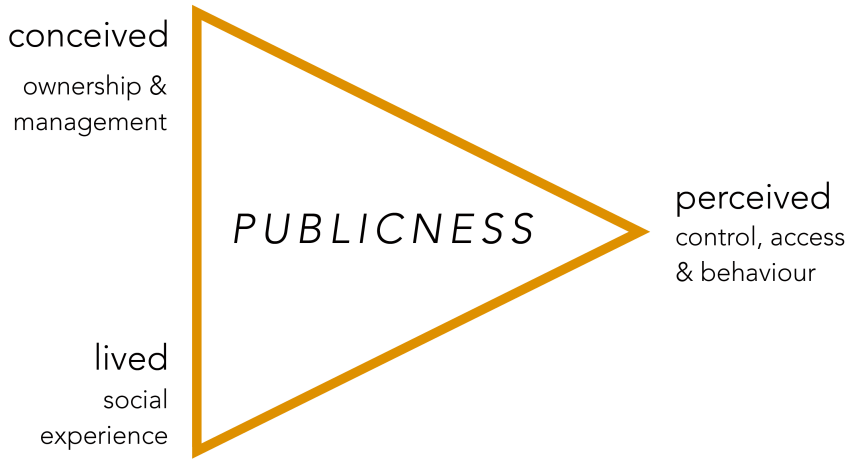

Figure 2 Multi-dimensional model of publicness mapped against Henry Lefebvre's unitary theory of space.

This multidimensional model of publicness illustrates that the public character of social spaces cannot be solely defined by the representations of space created by

architects, urban designers, planners, social-politics and such like; nor by the material elements of space. The social character of social spaces is also defined by means of lived experience. Therefore, in order to grasp the public character of urban public spaces, material, mental and symbolic dimensions must be considered equally. In addition, the exercise of employing Lefebvre's triad to develop a multidimensional approach to publicness suggests that material–ideal moments of space cannot be matched with physical–digital realms, and then simply be brought together by means of practice. Instead, the triadic approach exemplifies the complexity of the public character of urban spaces, and suggests that a framework for spatial analysis suited for physical–digital hybrid spaces is required (Salinas 2014a).

The next section reflects on the need to bring physical and digital together at the scale of experience to be able to re-contextualize the Lefebvrian notion of the right to the city in the context of digital public spaces.

1.5 THE RIGHT TO DIGITAL PUBLIC SPACES

Through a Lefebvrian interpretation, information and communication technologies are seen as a force in the production of space. In particular as a negative force, for technologies tend "to reinforce domination far more than they do appropriation, the quantitative far more than the qualitative" largely becoming an instrument of domination of abstract space (Lefebvre, 1991, p.392). However, as Scott Kirsch (1995) maintains, whereas the impact of technology from a macro perspective offers a globalizing and homogenizing image; at a local scale digital public spaces are always fragmented, and the role of technology in the production of everyday life is less clear. Kirsch asserts that "if we are interested in the changing experience of space in a world of rapid technological change, then we must also consider the processes through

which technology is spatialized at the scale of experience" (1995, p.533); and posits that a critical approach to the *technics of spatialization* – the production of space as an increasingly technical process – may illustrate the process of domination of conceived space over lived space. Yet, Andrew Merrifield (2006) argues Lefebvre's spatial triad has not been fully articulated, and its application poses a challenge in itself.

If we are to understand everyday life in digital public spaces we must go beyond technologically deterministic accounts, acknowledging that technologies are subject to *messy contingencies*, taking novel forms and functions as they are transformed through social use (Bijker & Law 1992). It is necessary to acknowledge the messiness of a new spatial typology, and enable a dialectical mode of analysis, which acknowledges that technology, as social space, is constructed through social relations, and society is shaped by socially produced technology. Therefore, the project of digital public space is not just concerned with overlaying the physical space with digital dynamic data (Manovich 2006, 2002), but with creating the conditions that allow a dialogical relation.

In order to make progress in understanding digital public spaces, concrete and abstract must be grasped together, as a *concrete abstractio*n (Stanek 2008). Lefebvre's triadic analysis offers a framework to approach social space that cannot be reduced to either material places or digital flows (Castells, 1991), for the spatial triad approaches space as a combination of material and mental moments that are being brought together by everyday practice (Elden, 2007).

I believe the role of the critical practitioner is to answer Lefebvre's call for an *urgent utopia* (1991), and point ahead to possible future scenarios. In doing so, a framework for spatial analysis suited for physical–digital hybrid spaces is required, which re-

contextualizes the Lefebvrian notion of the right to the city in the context of digital public spaces.

The concept of digital public spaces is approached as a test-bed to explore new forms of social public spaces that emerge at the interface of physical urban spaces and cultural digital archives, brought together by means of everyday practice; and in doing so explore how design, through art and research, can inform the production of digital public spaces.

1.6 A WALK THROUGH THE THESIS

Previous sections have introduced the concept of digital public space as a concrete programme to create a third notion of public domain. Henri Lefebvre's unitary theory of space has been presented as a conceptual framework upon which to build a framework for spatial analysis suited for physical–digital hybrid spaces, which, going beyond technologically deterministic accounts, seeks to re-contextualize the Lefebvrian notion of the right to the city in the context of digital public spaces.

Paraphrasing Lefebvre, in order to reveal the production of [digital public] space, "we should have to study not only the history of space, but also the history of representations along with that of their relationships" (1991, p, 42). Therefore, even though the present body of research is led by contemporary collaborative design-led projects, and therefore concerned with contemporary practices, the inquiry is complemented with a historicist approach to gain a deeper understanding of the forces that play in the production of digital public spaces.

The study approaches exploratory research questions of what, why and how of digital public spaces, being:

- What are digital public spaces?

- Why are digital public spaces a preferred option?
- How can the production of digital public spaces be supported?

Chapter Two introduces the research design, which combines action research, art and design research, and grounded theory approaches as a response to the competing demands of the research programme, The Creative Exchange, and the topic of study.

Chapter Three is the first findings chapter, which employs Lefebvre's spatial triad to explore the convergence of space, place and technology through the main spatial metaphors of the Internet's early days: cyberspace, electronic frontier and information superhighway. In this analysis, cyberspace's claim to constitute a post-geographical space, grounded on science fiction and nourished by technological utopian determinism, is confronted with other spatial metaphors, such as the informational superhighway, which does not claim to be a space in itself but encloses a strategy for the production of space. The chapter concludes by suggesting that claims of substitution and transcendence of geographical space made by cyberspace advocates would be a *liminoid* phenomenon that has enabled the production of other social spaces, and therefore constitute the forerunner of radical transformations in the public domain.

Chapter Four is the second findings chapter, which introduces Manuel Castells' network society and the rise of a new spatial order, which explicitly addresses the conflicts, which emerge from physical–digital hybridization of space that began with cyberspace. The space of flows constitutes the material organization of social practices, while relying on the material support of the space of places. Castells advocates for the creation of a new urban social contract between local authorities and citizens' communities, which is further explored through the case study of Open Planning. The research conducted within the Open Planning project suggests that the

integration of the planning system with everyday contemporary communication practices would lead to a desirable balance between efficiency and participation; and that locative media could aid in the social transformation of space as a means to connect places and flows.

Chapter Five is the third findings chapter, which explores the potential of digital public spaces as an enabler of intrinsically valuable spatial processes that allow for difference, multiplicity and heterotopia, from the position of activists and users. Focusing on place, the chapter introduces the concepts of weak place, temporary autonomous zone, and tactical media to then revisit the relation between place and digital content from net.art, web 2.0 to locative media. The chapter then draws on two commissioned workshops to explore different aspects of the production of digital public places at a practical level.

Chapter Six is the fourth findings chapter, which explores the perception of public and private information spaces through the creation of a novel experience, known as Chattr, wherein a physical public space was created within which people's conversations and actions were subject to some of the rules that would normally apply to interactions taking place in online social networks. The chapter considers people's experience of Chattr at two different venues, and uses games design as a lens through which to evaluate such hybrid experiences. This games lens frames Chattr as a system whose formal structure is governed by rules operating at three levels: constitutive, operational and implicit, and helps identify how differences in each venue altered the nature of the experience. It is suggested that game design theory allows for greater understanding of the complexity of our interactions in such spaces by revealing how the different digital and physical rules governing these spaces ultimately affects our behaviour.

Chapter Seven is a reflexive and conclusive chapter, which brings together the research into a general discussion. The chapter reflects on each chapter, and then considers the implications of design for digital public spaces. The chapter then moves to consider the limits of the thesis and the direction for future work.

2 CHAPTER TWO: RESEARCH DESIGN

This chapter introduces the research design specifically crafted to deal with the competing demands of the research programme. The chapter starts with a general overview of The Creative Exchange programme and the role of doctoral candidates, after which I give a brief review of Action Research, Design Research and Grounded Theory individually and in combination. Then the chapter describes the combined methodology and methods employed in the thesis. A description of the research flow illustrates how the research design has been put into practice, addressing the contributions and limitations of the research design. Finally, the chapter provides a summary of the case study selection.

2.1 THE CREATIVE EXCHANGE

The Creative Exchange (2012-2016) is one of the four Knowledge Exchange Hubs supported by the Arts & Humanities Research Council across the United Kingdom, led by Lancaster University in partnership with the Royal College of Art and Newcastle University. The Creative Exchange (CX) sets out to explore the concept of digital public space through projects undertaken through creative collaboration by arts and humanities academics, creative industry practitioners and doctoral candidates; generating knowledge exchange opportunities, stimulating innovation and contributing to the development of the creative economy in the UK, with a particular focus on the North of England.

Building upon the inspirations, challenges, current services and concerns of creative industries, six thematic clusters were identified prior to the start of the doctoral programme: ”Making the Digital Physical”, “Performance, Liveness and Participation” “Stories, Archives and Living Heritage”, “Public Service Innovation and Democracy”,

"Rethinking Working Life", and "Building Social Communities – Dynamic Structures for Growth". A number of events hosted across the three institutions during the period 2012–2016 have sought to gather academics, creative industry partners and doctoral candidates to jointly explore how the concept of digital public space can inform a pre-selected thematic cluster. During the events participants were invited to form multidisciplinary teams, to develop ideas that would turn into collaborative projects, in which innovative ideas and prototypes would be tested in real-life situations.

Each team needed to include at least one doctoral candidate, an academic researcher and a creative industry partner, last from three to six months, and could apply for up to £16K funding.[4] Funding applications were evaluated by a board composed of members of the three institutions, according to the Arts and Humanities Research Council's and CX's impact criteria.

In the context of The Creative Exchange, digital public space is defined as "where anyone, anywhere, anytime can access, explore and create with digital content", as a conceptual container for a number of disparate experiments that approach and explore the concept in very different fashions, and to which this thesis is a contribution. In addition to exploring the concept of digital public space, CX's projects aimed to practise and explore knowledge exchange between academia and creative industries, reconnecting action and research in cooperative short-term projects, and promoting growth in the creative sector. Therefore, projects and outcomes pursued a twofold aim that would satisfy academia and creative industry partners' expectations. On the one hand, prototypes and field trials were instrumental in learning about specific phenomena, and producing knowledge that could be

[4] The Creative Exchange has hosted a total of 42 projects, in which more than 100 public and private sector organizations, 42 academic researchers and 21 doctoral candidates have collaborated.

applied elsewhere, for prototypes calculated to explore, embody or test propositions are, in some circumstances, the best or only way (Archer 1995). On the other hand, experiments aimed at creating and testing innovative ideas, which might be taken forward and commercialized by business partners.

2.2 THE MULTIPLE ROLE OF DOCTORAL CANDIDATES

At Lancaster University, The Creative Exchange sits within ImaginationLancaster in the Lancaster Institute for Contemporary Arts (LICA). ImaginationLancaster is an open, exploratory design-led research centre that conducts applied and theoretical research, working with a variety of organizations to facilitate innovation on real-world issues. Therefore, the CX hub at Lancaster is embedded in a strong art and collaborative design tradition, which has strongly influenced this research.

Doctoral candidates assumed simultaneous roles in order to respond to the entanglement of action and research in the multidisciplinary teams. Without ceasing to be a doctoral candidate, The Creative Exchange projects often demanded doctoral candidates to perform as project manager, creative facilitator, researcher and practitioner. While carrying out multiple roles provides highly valuable training, it also poses numerous challenges.

First, as researchers, doctoral candidates are responsible for the quality and rigour of the inquiry process (Dick 2014). Researchers might struggle to provide sufficient literature to frame the initial problem and anticipate directions that the research might take (Herr and Anderson, 2005). Researchers must be ready to place action before inquiry, even though it may affect their confidence to make informed and appropriate choices (Arieli et al. 2009)

Second, as knowledge exchange facilitators, doctoral candidates have the responsibility for creating a neutral space for collaborative communication. In this sense, the doctoral candidate acts as a committed facilitator, aware of the obstacles that can get in the way of opening communicative spaces and that could undermine the action research project (Wicks & Reason 2009; Amabile et al. 2001). Although it is fair to assume that both industry and academia decide to join forces in collaborative projects, Iivari & Venable (2009) caution against the assumption that researchers and other stakeholders collaborate within a mutually acceptable ethical framework, as they could have widely opposing goals.

When a new collaborative team is formed, a communicative space to gain mutual understanding and consensus, thus establishing the ground of a democratic participation must be opened (Kemmis 2001). Being essential to action research, participation is a challenge in itself (Ospina et al. 2004; Arieli et al. 2009). Aiming to include everyone's aspirations and avoid deception, it is recommended to take time to establish an inquiry group, and share a clear collaboration agreement (Wicks & Reason 2009; Arieli et al. 2009; Grant et al. 2008; Coghlan 2011). Because a research plan can change, researchers must commit to overcoming self-deception and differences, and acting in the pursuit of higher aims (Kemmis 2008). When differences arise it is paramount to have reached a common understanding about the problem domain (Amabile et al. 2001), which will then be renegotiated as the initiative evolves. Although essential, participation is a challenge in itself (Ospina et al. 2004; Arieli et al. 2009).

Whereas multidisciplinarity is desired to deal with complex situations, the number of disciplines included must be limited in relation to budgetary resources and to keep the research focused, at the risk of losing some disciplinary perspectives. It must be

assumed that the optimal knowledge is that which is available, and that researchers are epistemologically awake in order to identify the limits of the research. In addition, the emergent process that characterizes The Creative Exchange's exploratory projects demands actors to work with uncertainty. The uncertainty and lack of structure of emergent inquiry may cause anxieties (Wicks & Reason 2009), and additional difficulty to pre-select what are or will be project-relevant skills and knowledge (Amabile et al. 2001), as the project is expected to change significantly in consecutive iterations (Elliott 2011). Actually, forming the project's team, it is not only the selection of disciplines that must be considered. Apart from specific, and only to some extent predictable, skills, attitude is even more important, such as: valuing uncertainty; openness to change; knowledge and abilities of different actors; and learning from experience (Borg et al. 2012; Amabile et al. 2001a; Brydon-Miller et al. 2003; K. Herr & Anderson 2005; Grant et al. 2008).

Third, as creative practitioners doctoral candidates can also contribute actively to the production of artefacts, without bias and preserving a critical attitude towards the process and outcome produced (Rodriguez Ramirez 2009). Doctoral candidates must be aware of different stakeholders' expectations, and acknowledge that action research projects are often subordinated either to the demands of action or the research community. From a researcher's standpoint, Dick (1993) notes that necessary parts of the research process are frequently neglected, such as deliberate and conscious reflection. On the other hand, Koskinen et al. (2011) argue that multidisciplinarity often leads to situations over which designers have little control, typically collaborating with sociologists, anthropologists, and computer scientists.

2.3 METHODOLOGIES

The small scale of the research projects allowed for experimentation with the production of digital public spaces, to work by *tinkering*, introducing small changes to improve the combination of physical and digital features, generating a contextualized understanding of how different characterizations of digital public spaces may operate.

Noting that a number of action-oriented inquiry approaches might provide an appropriate framework, the combination of Design Research and Action Research has been considered as the most appropriate research approach, aiming to create a research design that reflects The Creative Exchange practice, acknowledging as essential parts of the research process: (1) opening communicative spaces for creative exchange, (2) the construction of prototypes, and (3) the generation of actionable knowledge.

Design Research and Action Research are both quite heterogeneous families; in which a variety of approaches to action-oriented inquiry can be found. While different forms of Design Research (DR) and Action Research (AR) contain significant discrepancies, both future and action-oriented approaches can find useful models in each other. The following sections offer a review of AR and DR approaches employed in this thesis.

2.3.1 ACTION RESEARCH

The field of Action Research (AR) is highly varied. The roots of AR can be tracked back to socio-technical experiments conducted by Kurt Lewin in the 1940s (Borda, 1970; Bradbury & Reason, 2003; Dick, 2003; Mattsson & Kemmis, 2007; Reason & Bradbury, 2001). However, the origins of Action Research can also be found in:

contemporary critique of positivist science and scientism; Marxist theories; educational work; experiential learning; psychotherapy and social action (Reason & Bradbury 2001).

The variety of approaches to AR are suited to a wide range of purposes, epistemologies, ideological commitments, research traditions, and philosophical frameworks – such as pragmatic philosophy, critical thinking, social constructionist theory, systems theory and complex theory (Reason & Bradbury 2001). According to Herr & Anderson, the most common variants of action research are "action research; participatory action research (PAR); practitioner research; action science; collaborative action research; cooperative inquiry; educative research; appreciative inquiry; emancipatory praxis; community-based participatory research; teacher research; participatory rural appraisal; feminist action research; feminist, antiracist participatory action research; and advocacy activist, or militant research" (2005, p.2). Regardless of these variants, AR can be plainly defined as a participatory activity, where researchers work in equitable collaboration with practitioners, with the goal of solving practical issues that have a real world impact while contributing to knowledge, thus bringing together action and reflection, theory and practice (Reason & Bradbury 2001). Herr & Anderson (2005) clarify that research may be done *by* or *with* insiders to an organization or community, but never *to* or *on* them.

Bradbury & Reason (2003) propose five essential dimensions that define AR and act as a quality frame: (1) participatory; (2) guided by practitioners' concerns for practicality; (3) include many ways of knowing; (4) emergent process; (5) significant practical outcomes. However, it must be noted that hardly any inquiry addresses all dimensions equally and completely (Reason 2006).

Because AR is concerned with generating actionable knowledge, to actively produce a significant change upon a particular situation, initiatives are contextually embedded and emerge from a particular situation (Coghlan 2011; Swann 2002; Bradbury-Huang 2010; Bradbury & Reason 2003). The research design is characterized as being situated, reflexive, change-oriented and emergent. As the understanding of the issues deepens and practice grows, research questions, relationships, purposes, are expected to evolve significantly (Reason, 2006; Mattsson & Kemmis, 2007). Consequently, AR cannot be defined in terms of hard methods, but as an exploratory journey in which the process of inquiry is as important as specific outcomes. No normative approach can be found. Instead, a number of recommendations, as quality milestones, make action research flexible and full of choices.

2.3.1.1 THE ESSENCE OF ACTION RESEARCH

The essence of AR resides in a transformative orientation to knowledge production, challenging positivistic views of knowledge, posing knowledge as socially constructed, grounded in people's practice (Brydon-Miller et al. 2003; Reason 2006; Bradbury-Huang 2010). This key epistemological assumption, shared by participatory research approaches posits that, "knowledge is embedded in the lives and experiences of individuals and that knowledge is developed only through a cooperative process between researchers and experiencing individuals" (Borg et al. 2012, p.1).

The facilitation of a neutral space for collaborative communication (Borg et al. 2012) is essential to support collective action in issues of mutual concern, in tune with the inclusive and transformative spirit of AR. Kemmis (2008), building on Jürgen Habermas's Theory of Communicative Action puts the formation of communicative space at the heart of AR; as a space in which participants can gain mutual understanding and consensus with a shared commitment, aiming to reach an inter-

subjective agreement beyond individual participant's subjectivity, that is essential to the inclusive, collective and transformative nature of action research. Opening communicative spaces is primarily an issue for second- and third-person action research as they require communication between persons and within communities (Wicks & Reason 2009). Most importantly, opening communicative space is not an automatic process, it needs to be facilitated (Kemmis & McTaggart 2005; Kemmis 2008; Wicks & Reason 2009; Godin et al. 2007).

2.3.1.2 ACTION RESEARCH WITH SMES

Whereas traditional research models may occur in a different dimension from their application, and are therefore alien to practitioners (Wicks & Reason 2009), AR bears a strong resemblance to creative industry processes, and are thus quite close to the culture of SMEs (Dick 2003).

Maurer & Githens (2010) propose three broad categorizations of AR in organizational development. Conventional AR is an uncritical problem-solving approach aimed at fulfilling predetermined goals and improving organizational problems (Wicks & Reason 2009; McGrath & O'Toole 2012). In conventional AR action researchers are often known as consultants, for AR is a terminology mostly used in the scholarly-practitioner community (Bradbury-Huang 2010). Another broad category is critical AR, such as participatory action research (Kemmis 2006, 2008; Carr & Kemmis 2005). Although it has many variants, this approach is concerned with power inequalities and aims at producing a significant change in a particular situation; hence it can be difficult to undertake with some organizations, especially for-profit companies. Finally, the third broad category is dialogic AR, which Maurer and Githens (2010) suggest is positioned between conventional and critical AR (Figure 3). Dialogical AR emphasizes that in addition to being an emergent collaborative problem-solving and

action-oriented inquiry approach, dialogical AR's potential lies in the facilitation of cross-disciplinary collaboration and the creation of mutual understanding and learning, explicitly recognizing a practitioner's tacit knowledge (Mårtensson & Lee 2004; Coghlan 2011; Helgeson 2012).

Adopting a research approach that seems to be a natural process for practitioners (Dick, 2003) and helps researchers to follow the fast-paced rhythm of the industry sector is deemed to have a dramatic and positive impact on collaboration between academia and creative industries. Seeking to facilitate knowledge exchange between academia and industry, The Creative Exchange approach is firmly aligned with dialogical AR forms.

A literature review focusing on challenges in action research practice has been completed, being particularly relevant to the analysis of challenges in AR initiatives conducted in collaboration between academia and SMEs (Grant et al. 2008; Amabile et al. 2001; Ospina et al. 2004; Arieli et al. 2009; Elliott 2011; Marshall et al. 2010; Borg et al. 2012; Wicks & Reason 2009; Busza 2004). Challenges and recommended practices have been taken into account, paying special attention to action research's five essential characteristics: (1) participatory; (2) guided by practitioners' concerns for practicality; (3) include many ways of knowing; (4) emergent process; (5) significant practical outcomes (Bradbury & Reason 2003).

The following section introduces art and design research and grounded theory. Elements from both methodologies have been combined with action research to articulate the research design.

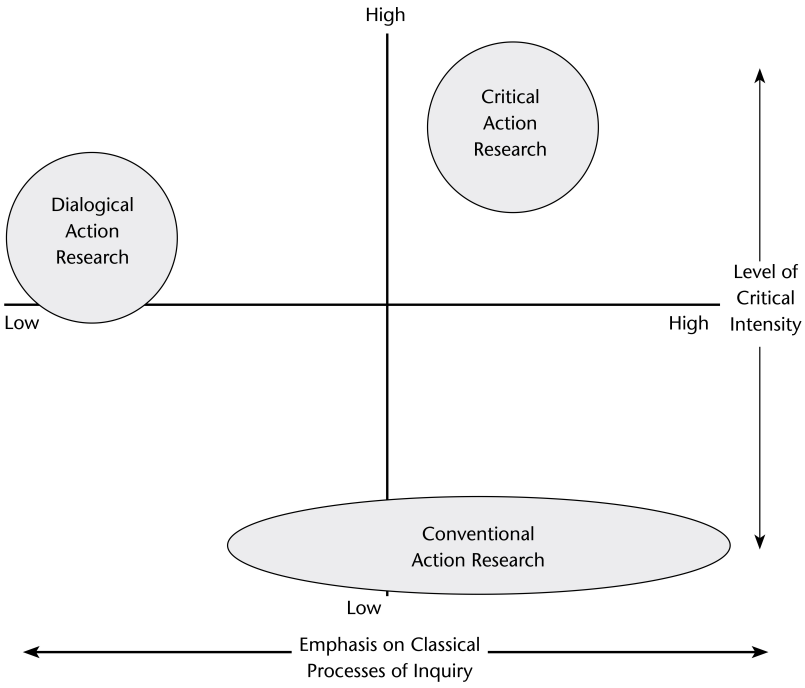

Figure 3 Approaches to action research (Maurer & Githens 2010, p.274)

2.4 Art and Design Research

Christopher Frayling (1993) proposes three categories of art and design research: research *for* art and design, research *into* art and design and research *through* art and design. Frayling reflects on what research implies in each category. With research *for* art – with a small 'r' – related to a personal quest, the concern is with the production of an artefact that embodies knowledge in "an *expressive* idiom, rather than a *cognitive* one" (1993, p.2). And research *through* art and design – with a capital 'R' –, is a professional practice that marries *doing* and *thinking*, "where the action is calculated to generate and validate new knowledge or understanding" (1993, p.4). Research *through* art and design (RtD) – used interchangeably with action research by the author – is defined as "a systematic investigation through practical action calculated to devise or test new information, ideas, forms or procedures, and to produce communicable knowledge" (Seago 1994, p. 1). Yee also defines it as "research where

art or design practice is the vehicle of the research, and a means to communicate the result" (2010, p.3), and goes on to explain that these approaches are not mutually exclusive but are, in fact, complementary.

Building upon Frayling's notion of RtD, Koskinen et al. (2011, p.5) propose the term *constructive research design* (CDR), defined as "design research in which construction — be it product, system, space, or media — takes centre place and becomes the key means in constructing knowledge". Three different approaches or methodological directions are identified: the lab, the field and the showroom. The three approaches are frequently utilized in The Creative Exchange, within different traditions, purposes and projects. I will consider field and showroom methodological approaches, as the lab is a decontextualized research approach with a clear focus on the construction process and product.

The field, or design in the wild, is a contextualized methodological approach, driven by the understanding of a social reality rather than data. It is based on the premise that the production of tangible outcomes provides better understanding of complex issues (Godin & Zahedi 2014; Zimmerman et al. 2007). In this context, prototypes are social objects, representations of products or technologies for social interaction, in which "first-hand experience of context is typically more important that fact finding or even careful theoretically informed interpretations" (Koskinen et al. 2011, p.70).

Relevant to field methodological approach is Participatory Design (PD). PD has roots in the 1970's Scandinavian Cooperative design tradition, as an amalgam of computer science, design, sociology, and labour union politics, where researchers engaged with workers and unions to explore alternatives to how technology might be designed for skilled workers (Koskinen et al. 2011, Iversen & Dindler 2014). Whereas PD comprises many perspectives, "a common denominator may be a concern for how the people

who will be using the designed technology come to play a critical role in its design" (Iversen & Dindler 2014, p.154). PD is also relevant to fields as varied as urban design, planning, geography, or industrial and information technology (Sanoff 2007). In Lefebvrian terms and worlds of practice, PD seeks to connect "abstract space (the realm where designers and experts work) and concrete space (the realm where people live)" (Lee, 2008, p.33).

The showroom methodological approach builds upon Critical Design (CD), which in turn is influenced by speculative design, design fiction, critical theory and avant-garde art, among other movements. Plainly, CD proposes "an approach that uses the design of conceptual electronic products as a way of provoking complex and meaningful reaction on the ubiquitous, dematerializing, and intelligent artificial environment we inhabit" (Dunne 2005, p.xv). CD establishes a dialogue with society through the design of disruptive artefacts. Its potential lies in provoking people to reflect on the way electronic products shape their experience of everyday life while suggesting that the everyday as we know it could be different. Despite its connection to everyday life, CD is purely conceptual. So, what is CD for? "Mainly to make us think" Dunne and Raby respond, but also for "provoking action". Critical designs are in fact, "hypothesis for action" (Dunne & Raby n.d.).

The following section seeks to provide synergies between AR and DR, with a focus on The Creative Exchange methodological requirements: (1) opening communicative spaces for creative exchange; (2) the construction of prototypes; and (3) the generation of actionable knowledge.

2.5 Action Research and Design Research

Bob Dick suggests that AR may act as a meta-methodology, while other research approaches may be instrumental, creating an eclectic research methodology supplemented with methods and processes from elsewhere (Dick 2008, p. 401).

For instance, Action Research and Design Research are two research approaches broadly used in information systems, management research, information systems developments, (see (Goldkuhl 2013). Although a deep analysis of AR and DR is beyond the scope of this work, literature shows that scholars have long identified similarities, shedding light on possible challenges in merging both approaches in the context of The Creative Exchange.

Cole et al. (2005) look at AR and DR approaches from information systems (IS) aligned with a pragmatism perspective, and identify similarities, which suggest that both approaches could benefit each other. They conducted a cross-application of research criteria between Action Research and Design Research, concluding that both approaches share important assumptions regarding ontology (complexity and emergence), epistemology (knowledge emerges from action) and axiology (value of relevance, practical utility and theoretical knowledge). Cole et at. note how the "the stress on relevance, problem solving, and intervening to learn are values inherent to both AR and DR" (2005, p.17). Especially significant is the recommendation to develop prototypes that embody knowledge and serve as a theoretical premise in AR cycles, which is clearly connected with constructive design research premises.

Sein et al. (2011) take forward the integration of AR and DR and propose Action Design Research (ADS) as an alternative research approach for IS that explicitly recognizes that prototypes emerge from the interaction with contextual factors

throughout the design process (design, use and on-going refinement in context). ADR is especially suitable when: (1) addressing a problem situation encountered in a specific organizational setting by intervening and evaluating; and (2) constructing and evaluating an IT artefact that addresses the class of problems typified by the encountered situation.

In management information systems (MIS), Järvinen (2007) argues that AR and Design Science may be considered as similar research approaches. Goldkuhl synthesizes Järvinen's argument in the following seven points: "1) striving for utility, 2) production of useful knowledge, 3) combination of building/acting and evaluation, 4) collaboration between researchers and practitioners, 5) aiming for development and improvement, 6) intervention in a local practice and 7) knowledge creation and testing during the process" (2013, p.5). Iivari & Venable (2009) respond to Järvinen, noting that although AR and DR are similar, they do not often share paradigmatic assumptions and research interests; and that some activities are mutually exclusive. For some research purposes – i.e. purely technical problems and innovations without any local practice intervention – AR and DS simply do not overlap. Finally, Iivari & Venable caution that although AR and DS are, in principle, compatible, assumptions in each research approach can present practical difficulties.

In the field of Design Research, Action Research and especially Participatory Action Research have been employed as meta-methodologies, in which design plays an active role (Lee 2008). For instance, Swann argues that "action research and the action of designing are so close that it would require only a few words to be substituted for the theoretical frameworks of action research to make it applicable to design" (2002, p.56). She summarizes AR as having three conditions to be met: (1) subject matter situated in a social practice that needs to be changed; (2) participatory activity where

researchers work in equitable collaboration; (3) iterative, systematic and documented study. Whereas the first premise clearly applies to design – for "A designed artefact is a researched proposition for changing reality" (Press 1995, p.7) – with regard to the other two, Swann notes that Design Research is progressively adopting emancipatory participation and systemic reflection as essential to the inquiry process.

Examples of such connection may be found in Howard & Somerville (2014), who build upon Participatory Action Research (PAR) and co-design to suggest that PAR may contribute to introduce co-design practices in organizational settings, highlighting the value of PAR to support RtD activities. Also Koskinen et al. (2011) note the connection between design in the field and AR, in which DR focuses on actionable knowledge through prototype development and facilitates the integration of action and research in multicultural teams. Moreover, Madden et al. (2014) account for the combination of aspects of PD and PAR, to evaluate the effect of cultural probes.

Therefore, if design is understood as a transformative practice; bridging the principles and practices of DR and AR may be useful in the pursue of transformative practices (Sangiorgi 2010).

The following section explores synergies between Action Research and Grounded Theory, and finally proposes a methodology that is a combination of Action Research, Research through Design and Grounded Theory for this research.

2.6 Action Research and Grounded Theory

In action research many authors talk about theory-practice integration. Notwithstanding, although an essential part of action research is to produce theory that can influence practice, there are relatively few descriptions in the action research literature about how a theory is developed (Dick 2003). For instance, in The Creative

Exchange multidisciplinary projects, not all actors will be equally thrilled by theory building, having other priorities and mindsets. As Archer brilliantly summarizes it, "You can come to a nil result in research. You cannot come to a nil result in design. You have to get a result" (Archer 2004).

Nevertheless, Dick (2008) poses that Action Research and Grounded Theory (GT) contain important similarities; hence both approaches could be combined to enhance each other. Although both approaches also contain some differences, if better understood these can serve action researchers and grounded theorists to improve their practice. In particular, action researchers have much to learn from grounded theorists about how to develop theory.

Grounded theory is a qualitative approach for developing theory from data systematically obtained from social research (Glaser & Strauss, 1967). Dick builds particularly upon Glaser's subsequent elaborations that canvass "grounded theory's flexibility, responsiveness to the research situation, treatment of literature as data, sampling techniques, and the distinction between substantive and formal theory" as essentially aligned with action research (2008, p. 399). Dick suggests that AR's characteristic iterative process could be employed as a research meta-methodology, in which the cycles of planning, action and critical reflection can be combined with grounded theory data analysis as a theory development within an action research study (Dick 2003; Dick 2008).

Two illustrative examples can be found in action research literature. First, Huxham's (2003) detailed description of theory building in AR as summarized by Dick (2008, p.403): (1) identify items in the data relevant to the study's purpose; (2) with colleagues, agree on the items to include, cluster the items, label the clusters; (3) create a conceptual framework from the clusters; (4) review data from other studies

and refine the framework; (5) seek comment widely, revising the framework and the arguments for it. Second, a form of constant comparison for theory building, adapted from Dick (2002). Both examples illustrate that if appropriate, AR cycles may be replaced by GT iterations to adapt to the requirement of practice-based research (Figure 4).

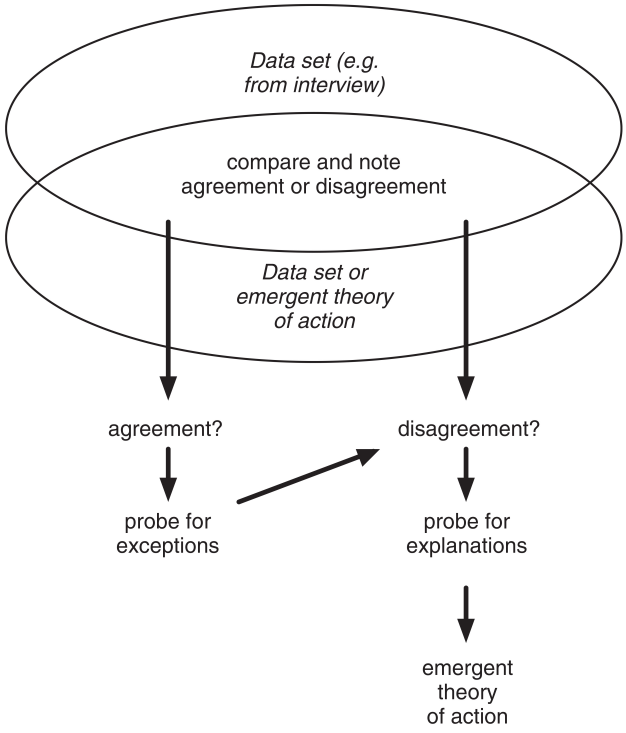

Figure 4 The "data engine," a form of constant comparison (Dick 2008, p.409)

Rodriguez Ramirez (2009) argues that a postmodernist constructionist approach towards GT –in particular Situational Analysis – acknowledges the importance of the context and the complexity of the situation, and may be used in combination with Research through Design and Action Research, in which artefacts designed to validate new knowledge of understanding are also considered a valuable source of data collection to complement other datasets.

2.7 METHODS

Data collection strategy is to be specifically designed for each project, according to the research questions, resources available, and the multi-disciplinarily nature of the research and the team. Different sources of information are consulted throughout the action research initiative to include many ways of knowing and according to the desired outcomes.

Methods and tools employed in participatory approaches to DR are instrumental in creating a communicative space to gain mutual understanding and consensus, establishing the ground of a democratic participation. In turn, knowledge exchange, facilitated through DR methods and tools, leads to theory building. For instance, rapid prototypes and artefacts, designed to inform research, act as 'knowledge exchange instruments' that stimulate discourse around a topic of mutual concern, encouraging a reflection step that otherwise may be difficult to engage with for non-academic partners.

2.8 EVALUATION

The social impact of praxis-related research is not easily assessed, especially regarding the impact on social life and the lived experience of people. In this context, identifying and evaluating how research contributes to changes of praxis becomes a major problem. Thus, praxis-related research in general (AR in particular) should not be evaluated against conventional criteria, but against criteria directly related to the settings in which praxis occurs (Mattsson & Kemmis, 2007). Consequently, a recoverability criterion must be followed, basing the inquiry process on a declared-in-advance intellectual framework, in which the qualities that are believed relevant to the work are declared, and the choices made during the process recorded with great

transparency for later evaluation (Checkland & Holwell, 1998). AR initiatives often evolve in unexpected directions; awareness and transparency of choices made and own perception biases are determinant in assessing quality. Herr & Anderson (2005, p. 54) propose validity criteria, based on the following indicators: outcome, process, democratic, catalytic and dialogic; which can be matched against action research goals (Table 2).

Table 2 Herr and Anderson's goals of action research and validity criteria

Goals of action research	Quality/Validity Criteria
1) The generation of new knowledge	Dialogic and process validity
2) The achievement of action-oriented outcomes	Outcome validity
3) The education of both researcher and participants	Catalytic validity
4) Results are relevant to the local setting	Democratic validity
5) A sound and appropriate research methodology	Process validity

Following Herr and Anderson's validity criteria, it may be useful turn to the Snyder evaluation process (Dick 2002) as an approach to critically reflect on the process that has led to achieve the project objectives. The Snyder evaluation process proposes reflection on five elements: (1) resources, the inputs consumed by activities; (2) activities, processes that create immediate effects; (3) effects, results of the activities carried out that have intended and unintended effects; (4) targets, the identified

outcomes that the project pursues; and (5) ideals, the vision to which activities are presumed to contribute in the long run. This approach may be suitable to evaluate experiential prototypes acknowledging the practice context.

In addition to this validity criteria, when design outputs are involved, it may be useful to take Zimmerman's suggestion of including relevance as a means of validation, questioning why community should consider one state to be preferred over the other (Zimmerman et al. 2007).

In The Creative Exchange, evaluation criteria ought to have been set for each project. However, doctoral candidates and creative industry partners in many cases performed their own evaluation in response to specific research questions or business demands.

2.9 Research flow

Prototypical forms of action research unfold and evolve in a spiral of iterations that integrate action and reflection. Iterations are typically composed of a circle of planning, action and fact-finding or reflection (Lewin 1946). The AR flow is typically regarded as cyclic or spiral process, in which planning precedes action, and review follows, checking the outcomes of the iteration against initial plans and intentions.

Swann (2002) notes that the Design Research process of problem–research–analysis–synthesis–evaluation can be easily matched against AR plan–act–observe–reflect cycles. As an example, Cole et al. (2005) envision an integrated research process for AR and DR, based on a pragmatic understanding of both approaches, consisting of (1) problem definition, (2) intervention, (3) evaluation, (4) reflection an learning; stressing the relevance of problem solving, and in which "building" prototypes is added to the AR process. It must be noted that action research is not a linear process, and these steps serve only as guidelines. In practice, action research may look messy

and unpredictable (Lewin 1946; Herr & Anderson 2005; Coghlan 2011), and the research flow must be adapted to the specificities of each project.

The Creative Exchange practice-based PhD model is future and action-oriented. Scholars have noted that researchers must be ready to place action before inquiry (Arieli et al. 2009), as action is often favoured over theory and researchers might struggle to provide sufficient literature to frame the initial problem and anticipate directions that the research might take (Herr and Anderson, 2005). Indeed, mini projects demand immediate action, and design methods and tools are used to activate practice-led research. Although there is not much initial scope for preliminary research, action is followed by periods of reflection in which theory is brought to contextualise and make sense of a phenomenon. In addition, in the context of this research, reflection also informs the generation of theory.

Although participatory action research approaches have been preferred, it has proven challenging to open communicative spaces (Kemmis 2001) for collaboration within the short duration of the mini-projects. The construction of prototypes and the generation of actionable knowledge have been essential to facilitate creative exchange which provided learning about specific phenomena, and produced knowledge that could be applied elsewhere. In the future, more time should be dedicated to open communicative spaces, to clear epistemological differences that may emerge through the collaboration, and to avoid assumptions that stakeholders collaborate within mutually acceptable ethical frameworks (Iivari & Venable, 2009).

The research flow that results from the combination of Action Research, Research through Design and Grounded Theory requires a continuous change of focus. Zooming in, each mini-project may be composed of iterative cycles which include

theory to make sense of a phenomenon. Zooming out, reflection from each mini-project contributed to the also iterative formulation of theory.

2.10 Collaborative design-led projects and case study selection

This section provides an overview of the collaborative design-led projects conducted during the doctoral journey at The Creative Exchange, and the rationale behind the selection of case studies included in this research.

A distinctive achievement of The Creative Exchange programme is "a new mixed-mode PhD model between theoretical enquiry and real world application", which "effectively combine[s] doctoral work with innovation practice" (Cooper, 2016, p.6). Therefore, for The Creative Exchange doctoral candidates, digital culture R&D collaborative projects constitute the essence of their practice-led doctoral research. During the three years of doctoral research at The Creative Exchange which took place between September 2012 to September 2015 I have been involved in five projects, and a number of supplementary engagement, dissemination and research activities.

The case study selection for the thesis may be one of the biggest challenges for the CX PhD. The numerous collaborations in which I have been involved are multifaceted and rich, and all have contributed to my doctoral journey in different intensities. It must be noted that as the doctoral journey progresses and the inquiry becomes more focused and less exploratory, articulating a project that matches stakeholders' aims and the quite specific requirements of the doctoral research becomes increasingly challenging. In addition, as noted by Koskinen et al. (2011), in multidisciplinary environments such as The Creative Exchange, doctoral candidates have relative control over the selection, articulation and development of a collaborative design-led project, as it is negotiated by partners: creative industry, public sector and academics.

The three distinctive dominating perspectives of physical-digital hybrid spaces provided by Stephen Graham (1998) provided a framework which has been employed to account for the insights gathered through my doctoral journey. It must be noted that case studies have not been specifically designed to fit the framework provided by Graham, quite on the contrary; the framework has provided a structure to provide a narrative. Consequently, I have limited the case study selection to the projects that have strongly contributed to the development of theory, and provide a rather illustrative account of various configurations of digital public spaces (Figure 5).

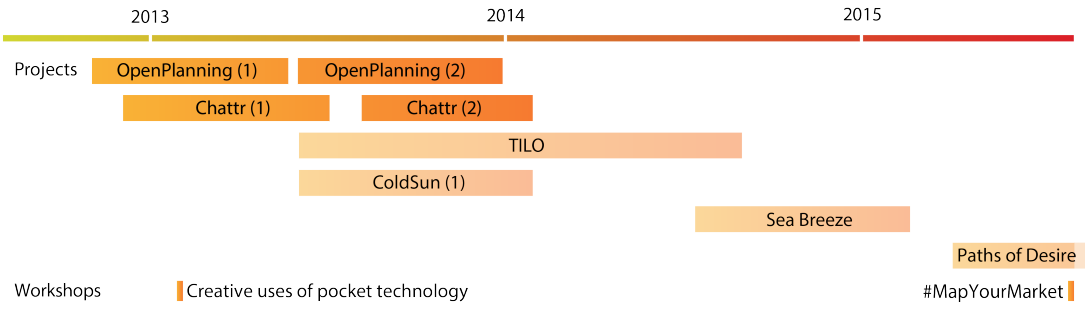

Figure 5 Timeline from September 2015 to September 2015

The section continues to provide a brief summary of the collaborative design-led projects conducted as part of the doctoral journey at The Creative Exchange.

2.10.1.1 OPEN PLANNING

The concept behind Open Planning was first proposed during the first Creative Exchange Lab led by Lancaster University around Public Service Innovation and Democracy on September 27th 2012, prior to the incorporation of doctoral candidates to The Creative Exchange. Short after their starting date in October 2012, doctoral candidates were asked to join one of the projects that emerged from the Creative Exchange Lab. I selected Open Planning, as an opportunity to explore the potential of digital public space to provide a new tool for civic engagement.

The first phase of Open Planning took place from April to June 2013. The project was conducted in partnership with representatives of Engage Liverpool, Lancaster University, Liverpool Vision and Red Ninja, with the collaboration of citizens and Liverpool City Council.

Open Planning followed an action research methodology, aiming to identify how open data and the concept of digital public space could contribute to enhance the planning system for its various stakeholders. Different methods of inquiry were chosen to facilitate meaningful engagements with different stakeholders. Diverse research activities took place simultaneously:

- Desk research was conducted into the legislative landscape focusing on public involvement and statutory publicity requirements; and of diverse creative urban participatory interventions and locative media, for their potential to facilitating meaningful participation in the planning process.
- Field work included: semi-structured interviews with a local planning authority to feedback into their interpretation of statutory publicity requirements; a focus group with 10 citizens, recruited through Engage Liverpool to gather insights on their experience with the planning process; and a visit to the local planning authority, shadowing the planning team throughout the processing of a planning application.
- Service design methods and tools such as customer journey maps and rapid prototypes were employed as knowledge exchange artefacts to gather stakeholders' insights.

The second stage of the project took place from January to October 2014. Liverpool City Council passed from being a collaborator to a partner, signing the projects' collaboration agreement. The second stage used action research methodology, to co-

design a proof of concept in collaboration with stakeholders that would aim to enhance civic engagement in the planning system.

- A co-design workshop with 12 citizens based on the research findings informed the development of an alpha prototype.
- The alpha prototype allowed demonstration of the concept behind Open Planning, as well as the current limitations for its full implementation.
- A reflective workshop with 12 participants, some of which had been involved throughout the project, served as an evaluation of the alpha prototype.

Being the first The Creative Exchange Project, the project process was particularly challenging at a methodological level, as no *typical* collaborative process had been established yet.

Only long after Open Planning had concluded, I recognized that the creative industry partner was employing a lean start-up approach (Reiss, 2011). Due to its similarities to Action Research and Design Research -being iterative, future and action-orientated-, lean methodology was not identified at the time. The coexistence of methodological approaches caused friction as the team operated at different rhythms. Therefore, the main learning from Open Planning is on the facilitation of knowledge exchange and the importance of team building, such as requirements to facilitate opening communicative spaces, the need to clarify epistemological and methodological assumptions, and the need to address inequalities among members in terms of agency and ownership of the project.

Constructive research design methods were paramount for the success of Open Planning. Prototypes became the key means of constructing knowledge as Koskinen et al (2011) note, but also in communicating knowledge, prototypes acted as

'knowledge exchange instruments' that offered a common language to stimulate dialogue with non-academic partners.

Further detail about Open Planning is provided in Chapter three.

2.10.1.2 CHATTR

The development of Chattr's service concept went through four iterations, underpinned by an effectual mindset (Sarasvathy, 2011). Service design methods like brainstorming, custormer journeys, service blueprint and risk assessment were employed in the development of the service concept (Design Council, 2011).

The first iteration was conceived during a The Creative Exchange workshop in January 2013. The second iteration gave rise to 'Chatter - In Sync in the Digital Public Space', which was ethically challenging and did not comply with university and research ethic restrictions. The third iteration of the project was redefined as 'an experiment on privacy and ethics' and was premiered at FutureEverything 2013. The fourth iteration was a variation of the touchpoints of the third, featured at TodaysArt 2013.

FutureEverything 2013 was held in Manchester on 21–22 March in 2013 and had 499 attendees. The summit programme ran from 9:00 to 19:00 hours across four different floors of Four Piccadilly Place, an office block in the centre of Manchester. A total of 28 conversations were transcribed and published online. An unknown number of audio recordinga remained untranscribed, and were deleted following ethical directions. In addition, Chattr's digital counterpart is constituted by the website chattr.cc, containing 102 transcribed conversations and the Twitter account @Chattrleaks containing more than 150 tweets. TodaysArt was held in The Hague on 27–28 September 2013 and had 5,574 visitors. Chattr was opened from 19:30 to 22:30 hours on Friday and from 12:00 to 22:30 hours on Saturday. A total of 80

conversations were transcribed and published online, with no remaining audio recordings to be transcribed. No significant interaction was recorded on Chattr's digital counterparts.

Research through art and design was employed to generate and gather insights through Chattr, which provided a better understanding of the complexity of physical-digital hybrid spaces. The data–collection strategy was designed to provide a holistic approach to the Chattr experience, assessing physical/digital counterparts: active/passive participants and non-participants insights alike. Ethno–methodological research methods were adapted to the festival conditions (Millen 2000; Maxwell et al. 2013) and acknowledged the limited time and bustling environment. Apart from observation and semi-structured interviews, digital ethnography (Murthy 2008) was applied through Chattr's archive. Chattr, being an experiment on ethics and privacy, was designed to record *private-public* interactions in physical and digital spaces, which was quite convenient in terms of data-analysis.
Further detail about Chattr is provided in Chapter five.

2.10.1.3 CREATIVE USES OF POCKET TECHNOLOGY

The workshop *Creative uses of pocket technologies* was commissioned by TechwizZ 2013 at Accrington Academy (UK), delivered on Saturday the 9th of February 2013. The workshop showcased alternative uses of everyday technology, aimed at students, parents and educators alike. The workshop was employed as an exploratory case study, to explore different aspects of the production of digital public places at a practical level, in particular of the potential of locative media to articulate informational territories (Lemos 2010), and the ephemeral character of weak places (Lehtovuori, 2005).

Participants were invited to explore the hidden affordances of everyday technologies in a playful way. Approximately 35 participants engaged in the workshop through the day. The workshop was run three times as a one-hour hands-on activity with an average of 12 participants per workshop.

The game designed for the occasion, *Charade Hunt*, was a mixture between the popular charades and treasure hunt, facilitated by locative media. The players were divided into two teams (team A and team B) with approximately 6 participants. The workshop dynamic was divided in two phases: create a *Charade Hunt*, and play a *Charade Hunt*.

During the first half of the workshop each team was provided with a toolkit: the game instructions, an iPad, access to a printer and Wi-Fi. The iPad was set up with the name of the team in the background, Internet browser, a Twitter account, a YouTube account, and a QR code generator and reader. With the support of a facilitator, each team had to pick a film, create hints with digital content linked to QR codes, and hide the QR codes around the academy. Each hint had to provide both an indication of the movie and of the location of the next hint within the academy. The Internet browser was used to search for existent audiovisual content. Twitter and YouTube were used by the participants to generate new multimedia content, and make it available online. URLs were embedded into QR codes with the QR code generator, printed and placed in different locations of the academy using blue tac.

Once each team had created the Charade Hunt for the other, facilitators changed groups and the *Charade Hunt* would commence. The goal of the game was to find all the hidden codes and to guess the movie of the other team. As facilitators had contributed to create the *Charade Hunt* they could guide the team, although it was not necessary.

Research through art and design was employed to gather insights of participants' interaction, which provided a better understanding of the complexity of physical-digital hybrid spaces, in particular of the fragility of the ephemeral character of weak places (Lehtovuori, 2005). The data–collection strategy included ethno–methodological research methods adapted to the workshop conditions (Millen 2000; Maxwell et al. 2013), such as participant observation and unstructured interview. Overall, the workshop dynamic was extremely satisfactory. As *Charade Hunt* required quite diverse skill sets from participants, all members of the team could contribute in meaningful ways resulting in a quite engaging dynamic. The simplicity of the methods and tools employed in *Charade Hunt* made it accessible, and still facilitated a powerful transformation of the academy into *digital public places.* The data-collection strategy proved to be insightful, and ethically appropriate for the workshops' participants.

Further detail about the workshop Creative uses of pocket technologies is provided in Chapter four.

2.10.1.4 #MAPYOURMARKET

The workshop #MapYourMarket was commissioned by LU Arts, to be part of the Market Town programme held at Loughborough from August 2015 to February 2016. Led by Radar, LU Arts and Charnwood Arts, in partnership with Love Loughborough and Charnwood Borough Council, and supported by Arts Council England, Market Town offered a programme of commissioned artworks, workshops and critical debates focused on setting out to re-imagine the future of Loughborough's streets.

The workshop #MapYourMarket took place on Saturday 19th September 2015, and proposed a creative engagement activity for participants to share their experience of

the local market. The workshop was run three times with different audiences. The two first sessions in the morning and early afternoon were exclusively dedicated to Charnwood Arts[5] community groups. A third session in the afternoon was open to the general public. The number of participants per session varied from five to fifteen, depending on how many people walked together and therefore shared a GPS recording device. In total, approximately forty participants engaged in the workshop. Each session lasted for approximately 75 minutes: a 45-minute walk followed by 30-minute drawing and group conversation.

Participants arrived in small groups at Market Town Corner. Each group was given a GPS recording device – an Android smartphone with the free app MyTracks running – to trace their stroll. Smartphones were locked to avoid being used as navigation tools. Carrying the GPS recording device, groups explored the market, hunting for hidden gems for about forty-five minutes. Upon their return, participants were asked to hand-draw their journey on a black map provided and designed for the occasion. Recorded GPS tracks also were downloaded and briefly discussed with participants upon their return.

The use of two methods, GPS tracks and hand-written maps, to account for their experience evidenced the different qualities. The methods were appropriate to raise questions about the hidden production that weak experience entails, which, despite being an essential constituent of digital public *places*, is not easily accounted for.

As participants were arriving at different times, the workshop naturally took a drop-in session approach rather than a more structured group dynamic. Although it did not affect the exploration stage, it did affect the later stage of the workshop. Little group

[5] Charnwood Arts is an independent community arts and media organization based in the Borough of Charnwood, dedicated to providing access to the arts for and with a diverse range of groups and individuals and actively seeking to connect different cultures and communities through creativity.

reflection was done on how different formats (GPS tack and hand-writing) accounted for the experience of their journey, and it became more conversational between myself and the participants. The dynamic would greatly benefit from the support of a team of facilitators rather than an individual facilitator.

2.11 Benefits of Action Research, Design Research and Grounded Theory

Reflecting on my experience at The Creative Exchange, I believe that the combination of Action Research, Design Research and Grounded Theory has brought the following benefits:

- An Action Research approach to Design Research attempts to balance academia's and industry's expectations, i.e. the urgency to create prototypes and artefacts that are (1) critically designed to stimulate discussion and inform research; and that (2) satisfy businesses' commercial expectations.
- The insights gained through the production of tangible outcomes provides better understanding of complex issues, representing alternatives ways of knowing, and creating a valuable source of data to be integrated into the research towards theory building.
- Experiential prototypes and field trials in real settings have the potential to initiate the social change that both Design Research and Action Research pursue.
- Prototypes, as embodied knowledge, encourage a reflection step that is typically difficult to achieve in multidisciplinary team working, acting as creative knowledge exchange artefacts.
- Methods and tools employed in Participatory Design are instrumental in achieving equal participation in Participatory Action Research, contributing to opening communicative spaces, and enabling different ways of knowing.

- Action Research systematic documentation contributes to Design Research through achieving the visibility, public accountability and evaluation that are expected in research activities funded by public bodies.
- A Grounded Theory approach may encourage the doctoral candidate to embrace the emergent and exploratory nature of The Creative Exchange projects.

3 CHAPTER THREE: THE PRODUCTION OF CYBERSPACE

In this chapter, Lefebvre's triad is employed to explore the convergence of space, place and technology through the main spatial metaphors from the early days of the Internet: *cyberspace*, *electronic frontier* and *information superhighway*.

The discussion about space, place and technology in contemporary urban environments must not only concern the digital technologies that support it, but the digital culture that involves it. Whereas technology does not determine historical evolution and social change, it gives societies the capabilities to use their technological potential to transform themselves (Castells 1996). Late 19th century milestones: like the wide adoption of the electric telegraph and Morse Code, which, in conjunction with railway transportation, marked the beginnings of the Information Society; or Hollerith's tabulating machine, which, responding to the needs of the Industrial Revolution is an exemplary product of disciplinary panoptic society described by Foucault, in which people are abstracted and represented into a system of signs, rationalized and normalized to make them manipulable as data, are clear announcements of the emergence of digital culture (Gere 2008). As Gere posits, digital culture emergence is tied to the advent of modern capitalism operations on abstraction, standardization and mechanization, and the exigencies to increase information processing and rationalization, which offered a context in which the computer could be developed.

Digital culture has been produced out of a complex interaction of techno-scientific discourses about information systems, counter-cultural utopianism, critical theory and philosophy, avant-garde, as well as technology; influenced by paradigms of abstraction, codification, self-regulation, virtualization and programming. The seed of this amalgamation is to be found in cybernetics as the direct predecessor of our

current digital culture. The term *cybernetics* was coined by Norbert Weiner in 1948 to describe a new science which, drawing upon Information Theory, encompasses and reduces the human mind, human body and automatic machines into a common denominator of control and communication (Featherstone & Burrows 1995). This cybernetic culture, the direct predecessor of digital culture, is ultimately responsible for the informational technology revolution, the creation of computer-mediated communications (CMC), Internet, and, in turn, cyberspace as an early paradigm of other (digital) social spaces.

3.1 BACK IN THE 1990S

The origin of the Internet is traced back to the development of the basic technological requirements of computed-mediated communication in the 1950's and 1960's Cold War America, with the contribution of military, academic and corporate contexts. ARPAnet, a military communication network designed to survive a nuclear strike through its distributed structure, and the implementation of a technology called *packet-switching* and the protocol TCP/IP, are the direct predecessors of what in the mid-1990s would spin off as the publicly accessible Internet in a post-war society, in which further cultural and technological changes produced a shift in the paradigm through which computers were perceived (Castells 1996; Galloway 2005; Gere 2008; Dodge & Kitchin 2001).

Back in the 1990s, a new world of information space was emerging – a network society (Castells 1996). A new world that is always the *other*, conceptualized under the domination of the old (Gunkel & Gunkel 1997). Terms like *cyberspace*, *electronic frontier* or *information superhighway* were prominent geographical metaphors, employed to make unfamiliar computer-mediated communication technology more

accessible (Puschmann & Burgess 2014). Whereas in principle, cyberspace, electronic frontier or information superhighway refer to the same phenomenon: the emergence of the Internet as a decentralized communication network in the 1990s, the use of different metaphoric frameworks is not trivial. Metaphors use terminology already developed, transferring qualities from the familiar concept to the unfamiliar experience to which this is compared. For instance, the Internet has been broadly canvassed as a *place, tool* and *way of being* (Markham 2003), in which different aspects of the technology become either foregrounded or deemphasized, enclosing control, surveillance, capitalist expansion, but also evasion and resistance (Adams 1997).

Further exploration of the convergence of space, place and technology through these metaphors reveals the coexistence of opposite yet complementary paradigms, and its influence upon contemporary spatial practices.

Cyberspace is the standard bearer of the Internet as a spatial metaphor, canvassing a *destination* rather than another means of *communication* (Kalay & Marx 2005). The cyberspace I discuss here is that of the 1990s, grounded in a mixture of science fiction and technological determinism, commonly imagined in opposition to the real world; presented as a better alternative to geographical space and often associated with a set of ideas about new and innovative forms of society supported by information and communication technologies (Robins 2000).

In this analysis, cyberspace's claim to constitute a post-geographical space, grounded on science fiction and nourished by technological utopian determinism is confronted with other spatial metaphors, such as informational superhighway, which does not claim to be a space in itself but encloses a strategy for the production of space.

3.2 GIBSONIAN CYBERSPACE

"Cyberspace is as 'real' as Paris or Los Angeles is imagined."

Gordon Fletcher (1997)

A fantastic premise often lies at the heart of science fiction novels. A piece of futuristic and extrapolated technology is the backbone of cyberpunk, the science fiction subgenre most associated with technology and particularly concerned with urban representations of cybernetic culture (Bukatman 1993; Roberts 2002). The creation of virtual spaces, typically dystopian visions of future urban decay, is central to the work of science fiction authors like Bruce Sterling, Moebius, Philip K. Dick or William Gibson.

The spatial myth of cyberspace became widespread with the novel *Neuromanacer* (Gibson 1984). For Gibson, the term seemed captivating and vague enough to serve the purposes of his dystopian space. As he explains:

> *"What I had was a sticky neologism and a very vague chain of associations between the bus-stop Apple IIc advertisement, the posture of the kids playing arcade games, and something I'd heard about from these hobbyist characters from Seattle called the Internet. It was more tedious and more technical than anything I'd ever heard anybody talk about. […] But I understood that, sometimes, you could send messages through it, like a telegraph. I also knew that it had begun as a project to explore how we might communicate during a really shit-hot nuclear war."* (Wallace-Wells 2011).

However, the Sprawl trilogy is not set in the aftermath of a nuclear war, but in a dystopian world in which the global economy is dominated by a small number of large technological corporations, and information is a key commodity (Dodge &

Kitchin 2001). Society is divided between information haves, those who can jack-in to the matrix of pure data, and have-nots. In the novel, the narrator of a children's TV show relates what has become the canonical definition of cyberspace:

> *"The matrix has its root in primitive arcade games,' said the voice-over, 'in early graphic programs and military experimentation with cranial jacks.' On the Sony, a two dimensional space was faded behind a forest of mathematically generated ferns, demonstrating the special possibilities of logarithmic spirals; cold military footage burned through, lab animals wired into test systems, helmets feeding into fire control circuits of tanks and war places. 'Cyberspace. A consensual hallucination, experienced by millions of legitimate operators, in every nation by children being taught mathematical concepts… A graphic representation of data abstracted from the bank of every computer in the human system. Unthinkable complexity. Lines of light ranges in the nonspace of the mind, clusters and constellations of data. Like city lights, receding…"*
> (Gibson, 1984, p.51).

Although originally dystopian, Gibsonian cyberspace has been appropriated as a technological utopia, its most shocking claim to constitute an alternative reality, *other* space that transcends the physicality of geographical space. According to the cyberpunk mythology, cyberspace has no geometry, no physicality, no matter, no Cartesian duality, yet it is conceived in spatial and mental metaphors. It is the space of the mind; it "has need of no place, nor is dependent on any material thing" (Descartes 1951, p. 98). In cyberspace the body is a prison of flesh, cyberspace cowboys transcend the body to connect to the matrix and exist in worlds of pure data, mental spaces made up of representations (Cuff 2003). Reductive representations of the

unthinkable complexity of the matrix constitute the data space to be assimilated by human perception.

Cyberspace as a mental space is posited as an alternative to the place-based dynamics of urban life, in which the world's most significant activities occur (Bukatman 1993). It does not matter whether the technology that would support the material aspects of the matrix exists or not, for cyberspace exists as a symbol (Bell 2001; Wallace-Wells 2011). Being a myth does not diminish the claims made by Gibson's cyberspace. On the contrary, Gibson's myth is a threshold device; "a translator between what is and what can be" (Eubanks 2002). It has influenced the exploration of *other* virtual spaces, and the design of fictions as a way of thinking how current conditions may be improved and what alternative worlds may be possible (Bleecker 2009; Kirby 2009). Gibson's cyberspace is a novel inspiration to actually create cyberspace, which would retain a good measure of *mytho-logic* (Benedikt 1991b). Gibsonian cyberspace is, in essence, what Samuel Delany alternatively refers as *paraspace*; "a science fictional space that exists parallel to the normal space", an alternate space that, although essentially mental, is materially manifested (Bukatman 1993, p.157).

However, the euphoria of the early 1990s shifted to steadier claims, and the term cyberspace grew beyond pure symbolism to became commonly used as a generic term to refer to a mixture of technologies – some available, some still imaginary – that simulate environments within which humans can interact (Featherstone & Burrows 1995; Benedikt 1991b). Cyberspace became synonymous with the Internet, heavily influenced by cyberpunk mythologies. Moving from science fiction, from a space of the mind to a space of computer-mediated communication, Michael Benedikt's definition of cyberspace reads as follows:

> *"Cyberspace is a globally networked, computer-sustained, computer-accessed, and computer-generated, multidimensional, artificial, or "virtual" reality. In this reality, to which every computer is a window, seen or heard objects are neither physical nor, necessary, representations of physical objects but are, rather, in form, character and action, made up of data, of pure information. This information derives in part from the operations of the natural, physical world, but for the most part it derives from the immense traffic of information that constitute human enterprise in science, art, business, and culture"* (Benedikt 1991, p. 122-123).

Benedikt's definition reunites three essential features of cyberspace. First, cyberspace is a representational space, a cybernetic abstraction made up of data and pure information. Second, cyberspace constitutes alternative realities, different mental spaces brought by a medium that may be accessed through computers as liminal objects. And third, cyberspace is a by-product of human activity; it is enacted and socially produced. Thus, cyberspace contains three moments of Lefebvre´s spatial triad: as a representation of space (material); a space of the mind (mental); and spatial practice (lived).

Gibson's description of the matrix in *Neuromancer* as a networked, visual, navigable data space; or the *Metaverse* created in Neal Stephenson's *Snow Crash* (Stephenson 1992) have been inspirational for the development of the Internet, the Web and especially virtual reality technologies (Dodge & Kitchin 2001).

3.3 VIRTUAL REALITY

"everything that was directly lived has moved away into a representation"

Guy Debord (1967)

Featherstone and Burrows propose yet another definition of cyberspace drawing upon cybernetics, communication theory, and control theory, which serves to introduce the concept of virtual reality:

> *"an information space in which data is configured in such a way as to give the operator the illusion of control, movement and access to information, in which he/she can be linked together with a large number of users via a puppet-like simulation which operates in a feedback loop to the operator"* (Featherstone & Burrows, 1995, p.2-3).

Virtual environments are computer-generated immersive environments that aim to create reality-*near* substitutes. Head-mounted displays and heavily wired gloves that enable the user to receive sensory experiences became symbolic of virtual reality. The interface is a liminal space that mediates between real space and multiple virtual domains (Giddings 2007), for one has to jack-in to access virtual environments. Normative approaches to absolute immersive virtual environments, taking as a reference, The *Lawnmower Man* (1992), in which digital terrains are explored in explicitly spatial terms, have not found its way into popular culture yet (Fox et al. 2009). Moving from normative approaches to absolute immersive virtual environments, Augmented Reality systems will also be considered.

AR systems overlay virtual information upon the physical space to augment it, creating a combination of real and virtual, in real time interaction and three dimensions (Milgram & Herman 1999). In short, VR is essentially about immersion

whereas AR is about augmentation, so both systems have typically been deemed as being opposed. However, as Lev Manovich argues, the only difference between immersion and augmentation may be simply a matter of scale (Manovich 2002). Paul Milgram argues that Virtual and Augmented Realities are indeed closely related, and proposes a *reality-virtuality continuum*. Real Environment and Virtual Environment are at opposite extremes, excluded from the continuum; in between 'real' and 'virtual' events juxtaposed in various forms, creating different modes of Mixed Reality environments. Towards the centre of the continuum it is unclear what is being enhanced, and to describe environments within the reality-virtuality continuum, the terms Augmented Reality and Augmented Virtuality are proposed (Milgram & Herman 1999; Milgram & Kishino 1994; Milgram et al. 1994) (Figure 6). With a postmodern lens, the distinction – or failure to distinguish – between 'real' and 'virtual' realities suggests that reality may be multiple or take multiple forms (Poster, 1995).

The passage through different stages of the *reality-virtuality continuum* is illustrated with Lewis' Carroll's classic children's tale, *Alice's Adventures in Wonderland* (Davis et al. 2003). Alice escapes from reality when the white rabbit, as a real world agent, walks her through a world that resembles Augmented Reality. As Alice becomes more familiar with the fantastic environment, the immersion increases. Nevertheless Alice does not understand the space, and feels an outsider. Alice struggles in an in-between state, until she finally embraces the new space and becomes totally immersed in a Virtual Reality.

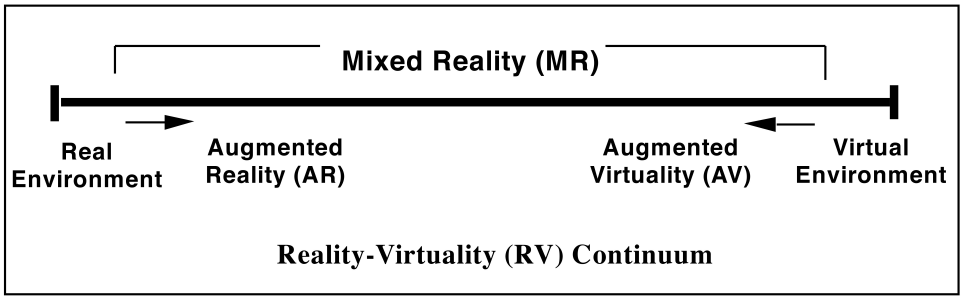

Figure 6 Simplified representation of a RV Continuum (Milgram et al. 1994, p.283)

Virtual environments can also be found in computer games, which as Espen Aarseth (2007) explains, explore spatial representations and negotiation as a central motif, being clear examples of spatial experimentation games like Pong (Atari, 1972), Super Mario Bros (Nintendo, 1985), Doom (id Software, 1993), FEZ (Politron Corporation, 2012), or Starseed Pilgrim (droquen, 2013). Aarseth suggests that virtual spaces are a type of spatial representation that Lefebvre did not anticipate; for virtual space of computer games hosts spatial practice, and are both representations of space (formal system of relations) and representational spaces (symbolic imagery). Drawing upon Anita Leirfall's spatial philosophy, Aarseth proposes to update Lefebvre's trialectic to the virtual environments of computer games, to posit "spatial representation in computer games as a reductive operation leading to a representation of space that is not in itself spatial, but symbolic and rule-based", and because the nature of the reductive operation is not revealed, "the difference between the spatial representation and real space is what makes gameplay-by-automatic-rules possible" (Aarseth 2007, p.45).

Another example of virtual environments is to be found in the *metaverse*, a term again originating in cyberpunk literature (Stephenson, 1992) and that refers to 3D computer-generated socially active virtual environments. Second Life (2003) and the

more recent Minecraft (2011) can be taken as examples of quotidian virtual environments that support the creation of real life scenarios, and often mimic physical spaces; while negating real space's physical laws (Kalay & Marx 2005; Milgram & Kishino 1994), creating striking contrasts between physical and digital spaces with computer game-like features.

Exploring the social and rule-based space of virtual environments, the artists Eva and Franco Mattes aka 01.org have conducted various *synthetic performances.* Influenced by the Situationists, they explored the creation of situations in Second Life. 01.org started working on re-enactments of historical performances in Second Life, including Marina Abramovic's and Ulay's *Imponderabilia* (1977), Joseph Beuys's *7000 Oaks* (1982-87), Gilbert & George's *The Singing Sculpture* (1968), Valie Export's *Tapp und Tastkino* (1968), Vito Acconci's *Seedbed* (1972), and Chris Burden's *Shoot* (1971) (Mattes & Mattes n.d.). The performances, re-enacted by artists and the audience's avatars in a virtual environment, and broadcasted in the gallery space. These performances were not mere duplications of the original, but an exploration of the medium at different levels. For instance, suggestive software errors made bodies merge into one another, and led 01.org to embrace the machine influence and software bugs in new pieces like *I know that it's all a state of mind* (2010) or *I can't find myself either* (2010). Eva and Franco Mattes note that, in spite of the domination of the representational character of synthetic bodies, the performances are acts of pure communication among disembodied users (Shindler 2010).

The domination of the representational character of synthetic bodies and environments is also dominant in Cory Arcangel's *Various Self Playing Bowling Games* (2011). The piece shows different versions of bowling videogames being automatically played by hacked game controllers. The piece is a testimony to the evolution of

increasingly realistic virtual environments, starting with a pixelated 1977 Atari 2600 interface to contemporary hyper-realistic representations. The physical activity of bowling is simulated in the virtual environment of the game. In the hacked video game consoles all players fail continuously, throwing gutter balls. The video game rules are disrupted, systematically negating the very objective of the game. The shameful experience of throwing a gutter ball is transformed by the privacy of the computer game and anonymity of an alien avatar (Whitney Museum of American Art 2011)

Although virtual environments host spatial practice and illustrate reminiscences of the claim of transcendence of the body and substitution of geographical space made by cyberspace; they are just one among an array of possible spatializations (Dodge & Kitchin 2001). Limiting representations of cyberspace to a Cartesian logic is limiting the understanding of cyberspace to old perceptions (Houliez & Gamble 2012), as *Tron* (Liesberg, 1982) may exemplify. Might this be the case in which metaphors obscure more than they illumine, for "[c]hoosing form over substance is rarely a good idea; and certainly not on the Internet, where the form itself is nothing but a metaphor" (Lemley 2003, p.542).

Beyond virtuous digital simulations of physical environments, cyberspace is most interesting for its lack of fixity and violation of the laws of Cartesian time and space (Adams 1997). The space created by cyberspace, within the medium, responds to an organization of the world of pure data and information, as a liquid architecture, dematerialized and dynamic, socially produced and abstract (Novak 1991). Topological mapping techniques can only attempt to represent the technological network that is, in most part, invisible in the built environment (Dodge & Kitchin 2001). The absence of Cartesian space in Internet text-based platforms shall serve to

uphold the argument of cyberspace as an alternative spatiality, challenging conventional representations of space, and foreground cyberspace's social practice.

3.4 VIRTUAL COMMUNITIES

"lived culture, made from people, machines and stories in everyday life"

David Bell (2001, p.2)

In the 1970s-80s, before the emergence of the World Wide Web, the Internet made possible synchronous and asynchronous social media; Multi-User Dungeons (MUDs) or Bulleting Board System (BBS), in which users can develop and sustain text-based online social spaces in which geographic propinquity is irrelevant.

Multi-User Dungeons, a text-based multi-player real-time virtual world, which provides a virtual space for social interaction (Turkle 1994), was first created in 1979 when two students of the University of Essex developed a network gaming system that allowed different users connected into the same network to occupy the same database at the same time (Davis 1998).

BBS are text-based multi-user platforms organized by themes, created by computer hobbyists who represent the true grassroots use of cyberspace (Rheingold 1994); the Internet as a network of networks, cyberspace with a rhizomatic architecture (Deleuze & Guattari 1977). The creation of online virtual communities provides the basis for problematizing cyberspace as the primary metaphor for the Internet as a place in which meaningful experiences occur (Markham 2003). These computer-mediated social spaces are exclusively text-based, yet users experience a shared alternative space, creating a double sense of place that includes here and the shared location of virtual space located within the medium (Nunes 2006b), prior to the development of 3D virtual environments.

Different types of virtual communities illustrate the myriad possibilities in which cyberspace supports the production of alternative spaces. Technologically sustained spaces of human interaction, in which places are not defined by physicality, but by meaningful communal activities, and where proximity is replaced by affinity (Soja 1989; Rheingold 1994; Crossan 2013). Virtual communities are not just a matter of digital connectivity. Rheingold defines them as "social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace" (Rheingold 1994, p.5), to be found, for instance, in the first-person experiential stories of John Perry Barlow, who approached the Whole Earth 'Lectronic Link (WELL)[6] looking for accessible virtual communities that were a better match than his geographical community at Pinedale, Wyoming.

Virtual communities are grounded on communicative practice, offering possibilities to re-imagine the notion of communities, and new ways to belong (Bell 2001). In a similar vein to Gibsonian cyberspace and virtual environments, it is not only space that is abstracted, these platforms operate in a negation of the body for a space of the mind (Houliez & Gamble 2012), and in order to be present "it is oneself that is consumed, as machines convert identity and ideas into information to be stored or transported [...] and reconstituted in one or many distant locations" (Adams 1997, p.164). Without entering into the discussion of post-modern identities in virtual communities, there is a distinction between the virtual self in MUDs and BBS that affects the articulation of social spaces, which I would like to mention briefly. Simply put, in MUDs users become one or many characters in a fictional world, allowing projections of the self in a resolutely post-modern context (Turkle 1994). Although

[6] The WELL online community was launched in 1985. http://www.well.com/ (Accessed 3rd February 2016)

this post-modern identity is also supported by BBS, in the early days a common practice was to reveal personal information like full names and e-mail addresses in *finger files* (Barlow 1990b). Although finger files were later questioned for security reasons, it shows how virtual communities around BBS were likely to establish and even encourage bounds to geographic social spaces and physical personas. For instance, Howard Rheingold, a fierce advocate of virtual communities, narrates how living in the San Francisco bay area – where many other WELLites lived – reinforced the sense of virtual community, while also being grounded in his everyday physical world (Rheingold 1994). Whereas cyberspace is bound to substitution and transcendence of urban space, affirmations like "my virtual communities also inhabit my life" or "my sense of family at the most fundamental level has been virtualized" (1994, p.10), account for a postmodern sense of community and social space, in which imagined, virtual and real cannot be distinguished anymore. However John P. Barlow had a completely different experience in the WELL from Wyoming. Barlow reports how he grew disenchanted with cyberspace, due to "the fundamental and profound difference between information and experience". For Barlow, the essence of real life (i.e. diversity and a sense of shared adversity) was missing in cyberspace (Barlow 1995b). It is not my intention to begin to evaluate the quality of social interactions in the WELL, but to point out that two leading advocates of virtual communities ended up referring to interactions and bonds related to physical social space, as if the *absolute* independence of cyberspace were not so desirable in the constitution of virtual communities.

3.5 BARLOVIAN CYBERSPACE AND THE ELECTRONIC FRONTIER

"You have no moral right to rule us nor do you possess

any methods of enforcement we have true reason to fear."

John Perry Barlow (1996a)

Featherstone and Burrows (1995) refer to Barlovian cyberspace, named after John Perry Barlow, cyberlibertarian and co-founder of the Electronic Frontier Foundation (EFF), to contrast the actual realization of cyberspace with the purely symbolic Gibsonian cyberspace.

Barlovian cyberspace is typically approached as a social space, like the above-mentioned WELL, in which the visions of cyberpunk meet the reality of networks (Bell 2001). It exemplifies the self-sovereign spaces that, retaining a great deal of cyberpunk mythologies, mushroomed in the early Internet days. I have chosen to approach Barlovian cyberspace, ultimately technophile, optimistic and emancipatory, building upon cyberspace mythology and echoing sci-fi novels, for its active contribution in propagating yet another mythic image of the cyberspace, the *frontier* (Davis 1998), and, in turn, the struggles over the control of a new territory.

The 1990s Internet was unregulated in fundamental ways (Rheingold 1994); "vast, unmapped, culturally and legally ambiguous" (Barlow 1990b). The electronic frontier, grounded on America's libertarian imagination, wilderness and freedom is very much like the Wild West, made up of personal computers connected to telephone lines "for less that the cost of a shotgun" (Rheingold 1994, p.133). However, it would not stay that way for long, *the frontier* had to be eventually civilized, the issue was by whom (Gans & Goffman 1990).

The significance of the electronic frontier resides in challenging existing hierarchies and monopolies, the "new media lords", and posing an activist solution, as "[t]he distributed nature of the telecommunication network, coupled with the availability of affordable computers, makes it possible to piggyback alternate networks on the mainstream infrastructure." (Rheingold 1994, p.14)

The electronic frontier paradigm relates to the culture of freedom, individual innovation and entrepreneurialism of the 1960's-70's California (Castells 1996). An approach that has been labelled as the Californian Ideology – a mixture of technological determinism and libertarian individualism (Barbrook & Cameron 1995), in pursuit of a Jeffersonian democracy for cyberspace. The Barlovian cyberspace is an on-going project to constitute an alternative spatiality made up of utterly independent virtual communities, grounded in the basis that the Internet upsets the unidirectional and centralized logic of traditional media, and that its post-geographical spatialization would radically reduce the power of the nation-state territoriality, therefore empowering the individual and enhancing personal freedom.

However, what to cyberlibertarians seemed to be "too widespread to be easily dominated by any single government", and therefore "borderless and unregulatable" (Barlow 1996b), proved not to be. Operation Sundevil in 1990 was a milestone that confronted cyberspace advocates' optimism with an emergent and unavoidable earthly reality. The nationwide operation would involve US Secret Service and the FBI seeking law enforcement in cyberspace. The operation triggered the creation of the Electronic Frontier Foundation, co-founded the same year by Mitch Kapor, designer of Lotus 1-2-3, and John Perry Barlow, aiming to ensure the application of the US constitution to digital media, for "America was entering the Information Age with

neither laws nor metaphors for the appropriate protection and conveyance of information itself" (Barlow 1990a).

In *A Declaration of Independence of Cyberspace*, mimicking Thomas Jefferson, Barlow (1996a) addresses *Governments of the Industrial World* to preach the individual liberties in cyberspace and limitation of governments' influence, claiming cyberspace as the true public space:

> *"We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth.*
>
> *We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. […]*
>
> *These increasingly hostile and colonial measures place us in the same position as those previous lovers of freedom and self-determination who had to reject the authorities of distant, uninformed powers. We must declare our virtual selves immune to your sovereignty, even as we continue to consent to your rule over our bodies. We will spread ourselves across the Planet so that no one can arrest our thoughts.*
>
> *We will create a civilization of the Mind in Cyberspace. May it be more humane and fair than the world your governments have made before"* Barlow (1996a, no pagination).

Dedicated to resist the commercialization and privatization of cyberspace (Davis 1998), Mitchell Kapor fears the reinforcement of a hierarchical broadcast model in which "[u]sers may have indirect, or limited control over when, what, why, and from whom they get information and to whom they send it […]; a new generation of

electronic narcotics [...] content determined by mega-corporations pushing mindless consumption of things we don't need and aren't good for us" (Kapor 1993, no pagination). Therefore, the *electronic frontier* project, based upon individual rights and self-determination to the extreme, is contested and directly confronted by another metaphor and governmental project, the information superhighway.

Overly critical of the Californian Ideology, Richard Barbrook and Andy Cameron see the references to an *electronic frontier* and Jeffersonian democracy as a retro-futurism rhetoric that poses cyberspace as a new territory awaiting colonization, exploiting the association of social progress, power and scientific innovations (Eubanks 2002). Barbrook and Cameron (1995) remind us that the tenets of economic liberalism and free market are contradicted by the actual history of hypermedia, greatly dependent upon three pillars: American federal government, hobbyists' contributions, and private enterprise.

Cyberspace as a place metaphor is so powerful, so well established in our minds, that a comparison between cyberspace and the agora, as a public space to which everyone has access and everyone's voice can be heard, is almost unavoidable. In this regard, the concept of *'the commons'* may be illustrative. Even although the rhetoric of the commons is associated with the *public* and lies in a powerful critique of privatization, 'the commons' is still a loose term. As an archaic concept, it has been related to nature, neither owned nor controlled, "sea, pastures, forests are (or can be) common space" (Hénaff & Strong 2001, p.4). Lawrence Lessig defines the commons more broadly, as a neutral zone:

> *"A "commons" is a resource to which everyone within a relevant community has equal access. It is a resource that is not, in an important sense, "controlled." Private or state-owned property is a controlled resource; only as the owner*

> *specifies may that property be used. But a commons is not subject to this sort of control. Neutral or equal restrictions may apply to it (an entrance fee to a park, for example) but not the restrictions of an owner. A commons, in this sense, leaves its resources "free""* (2001, p.58)

However, *relevant community* and *equal access* seem contradictory concepts, and utterly problematic if cyberspace is claimed to be global. 1990's cyberspace is mainly accessible to computer hobbyists and a certain technological elite, the "virtual class" (Barbrook & Cameron 1995). Such elite experience the empowering models of electronic democracy, in what Graham and Aurigi (1997) suggest is an approximation to Habermas's bourgeois public sphere. Cyberspace is a post-geographical region of the mind, only if you have access to it. To constitute a public space, cyberspace must be a collaborative enterprise, a "collective intervention will be needed to ensure that all citizens are included within the digital future", to avoid a *social apartheid* between the information haves and have-nots (Barbrook & Cameron 1995). In order to increase accessibility and expand the capabilities of cyberspace as a public space, it needs to become a near-universal medium (Graham & Aurigi 1997); which would be the project of the information superhighway.

3.6 INFORMATION SUPERHIGHWAY

"Have a pleasant and safe journey down the information superhighway!"

U. S. Department of Education (1997)

Highways have longed served as a metaphor of progress in America. In 1939, during a time of economic depression and war, when Americans were more receptive to futuristic visions to escape from an oppressive present, the New York World's Fair, entitled *The World of Tomorrow,* showcased possible futures of the American

landscape. Sponsored by the automobile company General Motors, Norman Bel Geddes presented the spectacular diorama *Futurama,* which portrayed the America of the 1960s based on a new urban schema of high-speed auto transportation. The implementation of the superhighways proposed by Geddes depended upon the cooperation of a centralized state and private industry (Ellis 2005). Futurama was not a simple urban planning proposal, but a blend of "information, advertising, and entertainment", effectively "worked to popularize state support for technology that benefited private corporate interests", and which support would imply the uncritical acceptation of the use of technology for corporate interests (Fotsch 2001, p.91). The rhetorical construction of the information superhighway seems to be a natural continuation of Bel Geddes's Futurama in the Information Age.

The *information superhighway* metaphor was popularized during the Clinton Administration by Vice President Al Gore as a means of promoting economic growth, with commercial and political involvement. The metaphor pictures a highway that carries information rather than goods, a new communication technology, "a pipeline to bring an expanded universe of information and entertainment into the home and the workplace" (Kapor 1993); a road that would not connect two points, it would connect all points, for "there would be not more there, only here" (MCI Communications Corp., 1994, no pagination).

In the same way Futurama was devoted to employing new technology to increase speed in the transportation of people and goods, in the Information Age the construction of the superhighway regarded information and communication technologies in relation to its capacity and speed to transmit information. It has been argued that such highways create, and are, non-places (Augé 1995); but although the information superhighway operates by leaving out the various kind of places to be

found in cyberspace, the announced pervasiveness of the network in which every home should be capable of being a producer or consumer would irremediably change the sense of place, as mass media already has (Meyrowitz 1985).

In the Parents' Guide to the Internet (U. S. Department of Education 1997), the Internet is explained to help parents, regardless of their level of technological know-how, make use of the on-line world as an educational tool, embracing citizenship of the Information Age. In the pamphlet, the Internet is defined as "a giant network of computers that connects people and information all over the world", and the project rests on the assertion that access to networks would be equitable, democratic, and dynamic; enabling the transition towards a new society.

The information superhighway facilitates a matrix of strategic power relations through the use of information and communication technology oriented around a principle of regulation by which, for instance, "the distinction and needs between homes and offices will disappear" (Barlow 1995a). In this vein, Dale A. Bradley refers to cyberspace as "the totality of CIT [communication and information technologies] and CMC [computer mediated communication] technologies, the data which is produced, contained, and flows therein, and the interactions of individuals and institutions effected via these technologies" (Bradley 1998, p.70). Here the term cyberspace is carefully chosen not to emphasize the production of *other* cybernetic space, as much as to retain the fundamentally important elements of space and control, for Bradley argues that cyberspace is not a space in which individuals and information are digitally (re)produced, but an active strategy for the production of social space, inserted in different apparatus. IBM (International Business Machines) provides a clear articulation of Bradley's view: "IBM's view of a 'network centric' future is driven by the desire of people and enterprises to connect to other people and

enterprises around the world and leverage information using powerful new technologies that transcend distance and time, lower boundaries between markets, cultures and individuals and actually deliver solutions that fulfils the promise of universal connectivity" (IBM, 1996 quoted in Gunkel & Gunkel 1997, p.128). Therefore, the metaphor of the information superhighway does not refer to the creation of an alternative cybernetic spatiality, as much as the implications of CIT and CMC to modify social and spatial processes in geographical space. In this sense, the constitution of a commons as a *neutral space* or *not controlled in an important sense*, is contested by the very logic of cybernetics as an instrument of information management and control.

3.7 THE PROBLEM OF CYBERSPACE(S)

"Liminal entities are neither here nor there; they are betwixt and between"

Victor Turner (1969, p.359)

Henri Lefebvre's theory of spatial production provides a conceptual frame to analyze the different spatial forms linked to the Internet's early days. Cyberspaces, in different characterizations, enable the production of new spaces, which are constructed essentially of symbols, codifications and abstract representations, in which spatial practice and lived experience are translated into data.

In the opening pages of *The Production of Space*, Lefebvre describes his project of a unitary theory of space as one that "embodies at best a technological Utopia, a sort of computer simulation of the future, or of the possible, within the framework of the real - the framework of the existing mode of production. […] The technological Utopia in question is a common feature not just of many science-fiction novels, but also of all kinds of projects concerned with space, be they those of architecture, urbanism or

social planning" (Lefebvre 1991, p.9). Drawing upon these lines, Scott Bukatman, who before emphasized the lived character of Gibsonian cyberspace, suggests that the literary dystopia fulfils the conditions of spatiality proposed by Lefebvre; whether real or hallucinated (Bukatman 1993).

This chapter has extended the argument of cyberspace as a socially produced space to the main spatial metaphors of the medium's early days. The different types of cyberspaces depicted here are the forerunners to radical transformations in the public domain. The myth of Gibsonian cyberspace articulated around an ideal of substitution has been carried on in later projects, in which the viability of cyberpunk science fiction claims have been explored. Each of them represents a moment in which space, culture and technology converge to propose the substitution of physical space by cyberspace. Although virtual reality offers possible materialization of cyberspace that is especially spectacular, typically subjugated to Euclidian geometry, in a literal interpretation of cyberspace as a substitute space; they may have misrepresented the production of alternative spatialities. More interesting, however, are explorations of a non-spatial sense of place unique to cyberspace. In this vein, virtual communities provide examples that, even if temporarily, have situated cyberspace as *other* social space with no physicality, "as a dynamic event brought about by heteromorphic material, conceptual, and experiential processes" (Nunes 2006a, p.47).

However, beyond the cyberpunk fascination of the early days of the Internet, the evolution of the medium suggested that cyberspace is doomed to its cybernetic underlying logic, hence it is a space of communications as much as a space of control. Diminished, the sovereignty of cyberspace with its claim of an alternative territoriality is reduced to the production of an abstract space, illustrated by the tensions between

the electronic frontier and information superhighway metaphors. The electronic frontier and the information superhighway represent two completely opposite approaches to the convergence of space, place and technology, without too dissimilar outcomes. On the one hand, Barlow's proposition aims at producing a differential space that challenges traditional power formations and the production of heterogeneous social spaces, but as Barbrook and Cameron (1995) suggest: an absolute space to be. On the other hand, the information superhighway project represents the emergence of a dominant abstract space, the "transformation of space itself into a commodity: produced, distributed, and consumed" (Stanek 2008, p.70).

In order to gain better understanding of the temporary potential of cyberspace to constitute an alternative public space, and the influence of its claims upon later movements, it may be illustrative to approach cyberspace as a *liminal-liminoid* phenomenon (Turner 1982). Drawing upon Arnold van Gennep's *Rites de Passage* (1909) for whom three phases of rites of passage can be distinguished: separation, transition, and incorporation; Victor Turner explores the transition phase as "a period and area of ambiguity [...] which has few [...] of the attributes of either the preceding or subsequent profane social statuses or cultural states" (Turner 1982, p.57). A liminal phenomenon implies the passage from a lower into a higher status, an interval in which "the past is momentarily negated, suspended, or abrogated, and the future has not yet begun" (Turner 1982, p.75). However, Turner argues that in modern complex societies with a clear distinction between work, play and leisure, *liminoid* phenomena take on special relevance as a phase conductive to ludic invention.

Liminoid r*esembles,* without being identical to, liminal. Liminal phenomena are obliged and ultimately eufunctional, a mirror than inverts the social structure without friction or transforming its structural form. Conversely, liminoid phenomena occur in

the margins, as an independent and critical source, always "plural, fragmentary, and experimental in character" (Turner 1982, p.85) often subversive, characterized by its *anti-structure*. In other words a dissolution of the normative social structure, *freedom from institutional obligations* and "*freedom to* enter, even to generate new symbolic worlds [...] of all kinds [...] *freedom to* transcend social structural limitations, freedom to *play*" (Turner 1982, p.68).

The anti-structure of liminal phenomena does not imply the eradication of structural norms, but its subversion, with the potential to transcend, to "generate and store a plurality of alternative models for living, from utopias to programs, which are capable of influencing the behaviour of those in mainstream social and political roles (whether authoritative or dependent, in control or rebelling against it) in the direction of radical change" (Turner 1982, p.65); in a manner similar to Henri Lefebvre's utopia, which exists within the existing mode of production, suggesting alternative structures.

I would like to conclude that the cyberspace described in these lines is in the process of becoming a permanent liminoid space. The exclusiveness of its access demanded a *rite of passage*, imposing a liminal condition of entrance – the *virtual class* – into the liminoid realm of cyberspace. A rite of initiation mystified by cyberpunk literature and advocates' discourses, by which users would transcend the interface to jack-in the matrix of data and disembody into the higher and pure state of the mind. A rite of passage by which users incorporate to the alternative structural form of the matrix, which should remain without a centre, rhizomatic, and independent. However, once normalized, liminoid becomes a commodity –"One *works* at the liminal, one *plays* with the liminoid" (Turner 1982, p.86) –, and in doing so, it would diminish its critical agency. Taking the information superhighway as the dominant form of cyberspace, all

other forms become an illustrative example of liminal space, as a temporary disruption that is eufunctional for the structural form.

Nevertheless, even within the vision of cyberspace as a space of control, it must be acknowledged that the heterogeneity of the media allows for differential articulations of cyberspace (Nunes 2006a). As Manuel Castells puts it, "[y]et this networking logic is indeed to structure the unstructured while preserving flexibility, since the unstructured is the driving force of innovation in human activity" (Castells 1996, p.71). If a city were to exist in cyberspace, it would be only as a function of the actions of its inhabitants (Fletcher 1997), and in turn it would not be one but many simultaneous spaces, in which temporary autonomous zones (Bey 1991) would emerge as the seed of differential spaces.

Finally, I would like emphasize that the initial claim of substitution and transcendence of geographical space originally made by cyberspace, would be not a fallacy, but a liminoid phenomenon that has enabled the production of *other* social spaces, for, after all, cyberspace's major contribution may be the temporary realization of realities and social alternatives independent of geographical space; questioning modern dichotomies and posing theoretical debates that support the tenets of post-modernity. The myth of substitution of geographical space and transcendence of the body based on a modern binary that requires us to be either *here* or *there*, makes way for a post-modern multiplicity sense of space, place, and the self; in which cyberspace and geographical space, both as produced social spaces, are to evolve jointly.

4 Chapter Four: Reconnecting flows and places

The previous chapter has accounted for a pre-www Internet characterized by claims of transcendence of physical space based on the production of a new, delocalized social *(cyber)* space, essentially dedicated to hosting social practice.

This chapter introduces Manuel Castells' network society and the rise of a new spatial order, which explicitly addresses the conflicts that emerge from the physical–digital hybridization of space that began with cyberspace. Castells approaches physical–digital hybrid spaces as constituted by the space of places and the space of flows, which stand in dialogical opposition, and the integration of which would require the creation of a *new urban social contract* between local authorities and citizen communities.

This chapter introduces the first design-led participatory action research project, Open Planning, which served to explore a characterization of digital public space based on the creation of a new urban social contract between local planning authorities and citizens. The project attempted to integrate the planning system with everyday contemporary communication practices, aiming to lead to a desirable balance between efficiency and participation, and suggesting that digital media can be articulated to aid in the social transformation of space as a means to connect places and flows.

4.1 THE SCHIZOPHRENIC LOGIC OF THE SPACE OF PLACES AND FLOWS

"Space is the expression of society. Since our societies are undergoing structural transformation, it is a reasonable hypothesis to suggest that new spatial forms and processes are currently emerging."

Manuel Castells (1996a, p.440-441)

Starting with the advent of the Web and hypertext as a new cultural form, the medium has increasingly become part of everyday live. The claim that in contemporary information culture real spaces would be replaced by virtual spaces has progressively vanished. Instead, it would be usual to acknowledge that online space is tethered to real space as an integrated part of everyday life (Arora 2012; Hands 2014).

In his influential book *The Rise of the Network Society*, Manuel Castells (1996) builds theory from a comprehensive empirical observation of social and spatial trends, and accounts for a new form of capitalism system of which spatial transformation is a fundamental dimension. Castells devotes a chapter to the *space of places* and *space of flows*, which stand in dialectical opposition, creating a *structural schizophrenia of spatial logics*. The space of places is the *material support* of social practices, composed of locations in which people's everyday experiences actually take place, "a locale whose form, function, and meaning are self-contained within the boundaries of physical contiguity" (1996a, p.453). Standing in dialectical opposition, the space of flows is the dominant spatial form in the network society. The space of flows is the *material organization* of social practices. Unlike places, flows operate without

territorial contiguity, allowing exchange and interaction between physically disjointed positions.

The spatial theory of the network society counters cyberspace's post-geographical territory, for Castells stresses that the space of flows is not a purely electronic space, "the space of flows is not placeless, although its structural logic is" (1996a, p.443), and he accounts for at least three the layers of material support upon which the space of flows relies, and which illustrates the relationship between place and flow, and the rise of a new spatial order. First, the technological infrastructure of myriad networks of interaction configuring different space of flows according to specific goals and tasks. Second, networks are made up of nodes and hubs, as the locales of the space of flows. What characterizes hubs and nodes is that they are hierarchically organized according not to the geographic material location, but to their functional logic in the network. Third, dominant technocratic-financial-managerial elite of social actors who conceive, decide, implement and enact the network. Allocated in disjointed locales, actors are flexibly hyper-connected through the shared environment of flows.

The structural domination of the space of flows, in which function and power are organized, has the capacity to alter the meaning and dynamic of places while urban experience is increasingly mediated and abstracted from power, provoking an increased disconnection between the space of places and flows. Hence, whereas *people do still live in places,* the space of flows is exercised by social actors in dominant social structures. A sharp segregation between the space of flows and space of places makes it difficult to find productive synergies between the two spatial forms, generating contradictions between placeless power and powerless places. The more power is oriented toward the space of flows, "the more people remain rooted at the level of the space of places" (Castells 1991, p.18). Consequently, Castells

suggests, people are increasingly place-oriented and linked to their communities, in part because citizens cannot control the macro-structure of abstract power that the space of flows represents, but they can at least attempt to regain control at a hyper-local level. He questions, "But how can a flow be fought? How can a flow relate to a neighbourhood meeting or to the formation of culture in a playground?" He goes on to say, in line with Lefebvre's right to the city, that "if by the meaning of life we understand our capacity to shape it, then this is slipping away simply because the local community cannot control a world-wide power flow" (Castells, 1991, p. 19). In this regard, the disjunction between local and global processes would increase the role of local governments to act as mediators between the global space of flows and people's local experience at the space of places. A *new urban social contract* between local authorities and citizen communities would be required in order to enable "the existence of interactive systems between communities and the people who are responsible to them" (Castells 1991, p.21).

Telépolis

Manifestations of the structural schizophrenia depicted by Castells may be found in the work of Javier Echeverría. In *Los Señores del Aire: Telépolis y el Tercer Entorno* (1999), Echeverría argues that the advent of information and communication technologies such as phone, radio, television, electronic money, telematics networks, multimedia and especially hypertext, have led to the constitution of a new social environment. To articulate his argument, Echeverría organizes social space in three environments: first environment (E1) as natural environment; second environment (E2) as urban environment, and a third environment (E3) called Telépolis. (Table 3). Telépolis constitutes a new form of social interaction, defined by twenty differential

properties, which may be present to a certain degree in all three environments, being clearly more accentuated and therefore characteristic of each environment. Nevertheless, E3 cannot be built disregarding E1 and E2, as it was an independent and self-subsistent social space. Although our primary activity occurs in E3 we inhabit E1 and E2.

Echeverría depicts Telépolis as an absolute environment of *artificially constructed electronic representations*. He goes on to argue that Telépolis is characterized as a neo-feudal tele-society, dominated by a few *lords of the air* (*señores del aire*), who strive to control communication networks and platforms, as those in former days fought to dominate territories. Echeverría's final thoughts are to promote the need to *humanize the third environment*. Wholly concerned with the democratization of E3, Echeverría calls to take action to increase *tele-dwellers'* influence in the development of E3, instead of remaining confined to E1 and E2. Echeverría invites us to think of E3 as a digital and electronic city that must be urbanized at the service of society. For him, to urbanize E3 is to humanize it, modifying its current power structure, so citizens can participate actively in the decision-making process that would reshape Telépolis. Somewhat interesting is Echeverría's emphasis on the relevance of the social configuration of information and communication technologies, the need to adapt E3 operations to human practice, as social dynamics using the space of flows have originated a new form of social interaction.

Table 3 E1, E2 and E3 Differential properties (Echeverría, 1999, p. 145) translated by the author.

E1 & E2	E3
proximal	distal
enclosed space	reticular space
presence	representation
materiality	information
natural	artificial
synchrony	multi-chrony
extension	compression
mobility	electronic flow
slow circulation	fast circulation
grounded on earth	grounded on air
stable	instable
local	global
penta-sensorial	bi-sensorial (audio-visual)
internal natural memory	external artificial memory
analogue	digital
semiotic diversity	semiotic integration
homogeneity	heterogeneity
national	transnational
self-sufficient	inter-dependent
production	consumption

4.2 GRASSROOTING THE SPACE OF FLOWS

Although highly illustrative of the new spatial order of the network society, a strict separation between the space of places and space of flows is highly problematic and utterly unsuited to gaining an understanding of the possibilities of social practice through contemporary digital technology. In addition, Castells' somewhat soft techno-deterministic account does not fully acknowledge the asymmetric social struggles involved in the articulation of socio-technical systems, such as everyday life

in the space of flows. Nevertheless, as Felix Stadler (2006) argues, Castell's theory of a network society develops a highly flexible framework that may be adapted to reflect new empirical findings. At the light of new social configurations of communication systems, Manuel Castells revisited his own theory pointing out that "while the space of flows has been produced by and around dominant activities and social groups, it can be penetrated by resistance, and diversified in its meaning" (Castells, 1999, p.297).

While the new system operates globally, it also operates at a local scale. The *grassrooting* challenges the abstraction of the space of flows, making it a plural and diversified space. Hence "the geography of the new history will not be made of the separation between places and flows, but out of the interface between places and flows and between cultures and social interests, both in the space of flows and in the space of places" (Castells, 1999, p.294). Stadler accurately notes that, apart from this necessary correction, Castells' theory of a network society is in force. Actually, Castells' actualization "strengthens the hypothesis that the space of flows is the space of power, including, today, counter-power" (Stadler, 2006, p.152). The ability to affect the production of space in a network society is predicated upon *building linkages* that allow people to find ways to enact the space of flows without leaving the space of places, or humanize the space of flows, as Echeverría would say. Stadler argues that such linkages are possible due to transformations in some aspects of the social, technical and spatial foundation of the space of flows; leading to two important consequences. First, that not only dominant social processes[7] are integrated in flow, but increasingly are a broad range of social activities that previously were mainly organized around places s. Second, the space of flows is used on behalf of locally

[7] The dominant activities organized around the space of flows are (1) financial flows, (2) management of major corporations in services and manufacturing, (3) ancillary networks of firms for major corporations, and (4) media, entertainment, professional sports, science and technology, institutionalized religion, military power, and global criminal economy (Castells, 2010, p.296).

rooted projects (Stadler, 2006, p.151). Thus, Castells accounts not only for local governments as a bridge between the space of places and the space of flows. He recognizes, without entering into great detail, new affordances and means of connectivity between places and flows. In this regard, solely relying on the leadership of appropriately qualified institutions would not suffice to ensure digital public spaces. As McQuire puts it, "[e]xplorations by contemporary artists and activists using new media in public space can yet play a critical role" (2008, p. 205).

Whereas Castells' initial thesis was predicated on people's inability – as physical beings – to live and act in a dimension other than physical space, he later accounts for *personal interaction* as a means of inhabiting the space of flows[8], therefore transforming it (Castells, 1999). In Lefebvrian terms – each society produces its own social space – in a network society social space is produced at the "interface between electronic communication and physical interaction, by the combination of networks and places" (Castells 2004, p.445).

This revision calls for a critical approach to the social configuration of the interfaces that connect places and flows. In this context, the concept *digital public space* emphasizes myriad possible characterizations at the interface of places and flows, at the integration of everyday lived practice and digital archives. At the core of the digital public space project is the need to rethink the role of local governments to adopt the conditions that allow a dialogic relation between electronic flows and people's experiences of place. As it has been noted, the configuration of interfaces to

[8] Castells refers to five dimensions of social meaning in the space of flows, with emphasis in electronic spaces, but in interaction with the space of places. First, personal interaction. Second is horizontal communication establishing systems that are alternative to the media. Third is the creation of networks of solidarity and cooperation. Fourth, social movements organized through electronic spaces. Fifth, previously stated as a connection between place and flows through local governments, linkages between people and institutions in an interactive process (Castells, 1999, p.298-299)

the space of flows does not solely rely upon nodes and aa managerial elite, but also upon everyday practices, for interfaces between flows and places operate at different scales, complexities, and relations.

In order to explore the *grassrooting of the space of flows,* characterizations of digital public space that allow using digital technologies for public action and meaningful citizen participation in tune with the Lefebvrian right to the city will be considered. Prior to exploring the *urbanization of the Web,* this chapter briefly revisits the social configuration of the Web, and the tension between hierarchies and networks. The chapter then explores the process of *urbanization of the Web* as a moment of transition from cyberspace ideals to the development of digital cities. which offer a rather literal example of the relocation of physical spaces in the Web. Of particular interest is the case of Amsterdam Digital City, as a grassroot initiative concerning the space of flows.

4.3 OF HIERARCHIES AND NETWORKS

Myriad iterations and experimentations with hypermedia systems are to be found (Puig 2012) but there is one that would change the world on multiple levels. About thirty years after Nelson's *Xanadu*[9] (1974); Tim Berners-Lee proposed a computerized global hypertext system to manage information that would allow random association between heterogeneous data (Berners-Lee 1989). The

[9] Inspired by Vannevar Bush's information system for business and scientific data processing (Bush 1945), Theodor H. Nelson projected a computerized system for personal information retrieval and data structure with a creative twist, for the system could be shaped in various forms according to user's changing need. The system is essentially a compound of lists of ordered entries in re-configurable connections, in which each unit, hypermedia, is "a file with certain storage provisions which, combined, permit the file's contents to be arranged any-which-way, and in any number of ways at once" (Nelson, 1965, p.97). The prefix "hyper" express a higher complexity that makes possible a variable and non-sequential structure of ideas. Nelson's ideas were encapsulated in Project Xanadu, a proposal for a complete and closed hypermedia system initiated in 1960 (Nelson 1974).

programme, called “WorldWideWeb”, resonated with cyberpunk: “The dream behind the Web is of a common information space in which we communicate by sharing information. Its universality is essential: the fact that a hypertext link can point to anything, be it personal, local or global, be it draft or highly polished” (Berners-Lee 1998, no pagination). Unlike Nelson’s self-contained data structure, Berners-Lee envisioned a distributed data structure that could contain the world.

In the late 1990s the Web would start to become a reality of everyday life; and hypermedia the cultural form of the cybernetic era (Carrillo 2004). The social configuration of the Web would be a complex process, characterized by the struggle between different social groups, interests and ideologies (Nolin 2010). The foundations of the Internet as a global distributed network were reinforced by Berners-Lee’s vision of the Web as a global, non-hierarchical open network formed by distributed heterogeneous nodes; a model that pursues the democratic and revolutionary promises of cyberspace, offering an alternative to the commodified privatized world of capital accumulation. Nevertheless, the democratic potential of the Internet, its increasing constitution as an open public sphere and rejection of commodity exchange that challenges the pre-existing status quo would be fiercely confronted by the high adaptation of the capitalist system to the medium; which would at first result in clumsy attempts to move established operational models seamlessly into digital space, approaching it as “an extension of or substitution for existing institutions” without questioning their own foundations (Poster, 2001, p. 172).

Compared to the heterogeneity of the Internet in previous decades, the emergence of the Web supposed an accelerated homogenization of the medium. Initiatives like the World Wide Web Consortium (W3C), founded by Berners-Lee in 1995 to promote the

implementation of standards in order to ensure the articulation of the Web as an accessible public space, have contributed to the rapid assimilation of hypermedia as a quotidian practice. The instauration of protocols as a dominant form to define a "proper behavior within a specific system of conventions" allowing "control to exist within a heterogeneous material milieu" (Galloway 2005, p.21-22) is, however, a double-edged sword. On the one hand it creates standards so the Web is readable and writable; ensuring the accessibility that a public space requires (Crossan 2013). On the other, it would effectively diminish the active role of users, who seemed condemned to repeat the same structure with minimal variations; favouring the implantation of hegemonies (Carrillo 2004).

At stake was the social definition of the medium; whether the Web would be configured to encourage new forms of cultural production and social experience, or the reinforcement of pre-existing modes of production. Although the potential benefits of a networked society are undeniable, the question is: what forces influence the development of electronic systems, and where are they heading? (Critical Art Ensemble 1995; Nolin 2010).

In that respect, the development of the Internet at that stage was chiefly the tale of an overwhelming culture of instrumentality in pursuit of networked platforms to reinforce existing forms of production. Hypermedia would become a vehicle of power and a key component of capitalism (Barbrook & Cameron 1995), for one of the biggest paradoxes of the Internet is to be developed within a capitalist society, under government subsidies and directed research (Foster & Mcchesney 2011). However, it should not be forgotten that, meanwhile in the margins, a wholehearted exploration of the rhizomatic structure (Deleuze & Guattari, 1977) of the Net by emergent, organic, and generative proposals would, but not without hesitation, embrace the

alternative model enabled by the Web and hypermedia, together with its transgressions and displacements. The social configuration of the Internet is not neat, but diverse, messy, highly exploratory, and even contradictory; for truly networked initiatives may spring up from a culture of instrumentality, whereas explorations of the displacements of the Net may fall into the reinforcement of antagonistic values.

The process of *urbanization of the Web* with the creation of digital cities is illustrative of two essential disruptions: how physical spaces are relocated in virtual spaces; and how localized power becomes diffuse (Baigorri 1998). Alexander Galloway approached the spatial schizophrenia as a crisis between two opposite diagrams: "centralized, hierarchical powers and distributed, horizontal networks" (Galloway, 2005, p.19). He elaborates on the hierarchy-network conflict, referring to John Arquilla and David Ronfeldt's *The Advent of Netwar* (2001, p.15-16), where the authors state that it is not necessary, desirable or even possible to replace all hierarchies with networks, but, instead, the challenge would be to blend these two forms to create effective hybrids; and in line with Castells' thesis note that:

- *Hierarchies have a difficult time fighting networks*
- *It takes networks to fight networks*
- *Whoever masters the network form first and best will gain major advantages*

4.4 DIGITAL CITY

Following upon spatial metaphors, the pre-www Internet cyberspace approached as a new territory to be colonized, was later to be urbanized: a virtual space in which digital public spaces were to be *built*. Initiatives to urbanize and develop 'public' urban cyberspace proliferated in the late 1990s.

In *City of Bits,* William J. Mitchell notes how "institutions are supported not only by buildings […] but also by telecommunication systems and computer software" (Mitchell, 1995, p.49). He introduces the notion *recombinant architecture* to refer to the architectural form of a new type of city in which "electronic linkage is substituting for physical accessibility" (ibid). Buildings of the *City of Bits* are similar to delocalized digital archives, such as bookstores/bitstores, theatres/entertainment infrastructure, schoolhouses/virtual campuses, hospitals/telemedicine or galleries/virtual museums.

Under the general term *digital cities* I refer to early experiments to constitute pre-www and Web-based electronic public spaces (Aurigi, 2007). Although many approaches with diverse objectives can be found (Ishida, 2000; Yasuoka, Ishida, & Aurigi, 2010), the following section follows the distinction between *ungrounded* and *grounded* virtual cities proposed by Graham & Aurigi (1997). The case of *ungrounded virtual cities* is typically that of websites "constructed to operate as electronic analogies of the real, material, urban areas that host them" (Graham & Aurigi 1997, p.24). Typically commissioned by city authorities, virtual cities provide a one-way broadcasting system for passive use, in which graphic representations of cities are used as a metaphor to group a range of public and private services, and at most constitute promotional spaces. For instance, web portals that conglomerate a wide array of services aimed at regional communities, such as those created by America Online (AOL). These platforms articulate a repository of city services in pursuit of commercial interests, adopting a vertical market structure that negates the very horizontal structure and potential of the Web and a networked society (Ishida, 2002, Nunes, 2006), which on the other hand may add "coherence and legibility to the otherwise chaotic interplay between the Internet and urban space, allowing electronic spaces to be articulated to feed back positively on to the development dynamics of

particular cities" (S. Graham, 1998, p. 173). Taking the example of Bristol: "The 'real' city of Bristol [had] six digital counterparts yet there remains no real digital public space for debates among the citizens, and no opportunities to allow citizens to communicate with the public administration" (Graham & Aurigi 1997, p.24). What Graham and Aurigi account for is a domination of over-hyped representations of perfect post-modern cities. In this sense, citizens are perceived as customers of a service: the city (van den Besselaar, 2005).

Much more interesting is the line of development of *grounded virtual cities.* The development of Internet-based virtual cities is devoted to offer solutions to real cities, and as experiments of 'electronic public space' aim to become a communication instrument between citizenry and local authorities (Graham & Aurigi 1997a). Grounded virtual cities draw on virtual communities, like the WELL, but instead of extolling the benefits of global connectivity, locality is foregrounded. In this sense, grounded virtual cities aim at articulating a virtual community that employs the metaphor of city based on its action limited to a territory, although simultaneously "enabling people to operate in various geographically distributed networks of interest" (van den Besselaar, 2005, p. 68). Moreover, the democratic and interactive structure of the network would allow creating tools for connectivity within cities, *by* the community *for* the community.

De Digitale Staad (Amsterdam Digital City)

De Digitale Staad (DDS) is a paradigmatic exemplar of grassrooting the space of flows (Castells, 1999), and of how a *grounded virtual city* evolved to become *ungrounded*, as the initiative set out to create a platform for social interaction among citizens at a time in which the Web was gaining popularity, and the Internet was changing from a public to a predominantly commercial domain.

De Digitale Staad[10] was built by the 80's generation, as a DIY movement, to explore the open and public character of the Net (Stikker, 2013). The idea behind DDS is described as follows: "The organizers wanted to introduce the Internet and its possibilities to a wider population, by providing free access to the Internet, by creating an electronic public domain for social and political debate, and by enabling free expression and social experimentation in cyberspace. […] The name 'Digital City' was chosen to emphasize the idea of a *digital public space* where people can meet and communicate" (van den Besselaar, 2005, p.70 emphasis added). The metaphor of the city was chosen, not as a mirror of a geographical city, but as a reference to the diversity of interaction envisaged for DDS (Stikker, 2013).

Van den Besselaar (2005) summarizes the history of DDS in four phases: (1) from an idea to a successful experiment; (2) the period of institutionalization; (3) stabilization, increased competition, and decline; and finally (4) privatization. In this process DDS evolves from an experimental project, to receiving governmental funding, to being structured as a self-supporting non-profit organization, and to being finally restructured into a commercial company, and changing the project's goals accordingly.

DDS was initiated as a ten-week experimental project for the public sphere in 1994, based on a pre-existing network of independent and active cultural centres that used electronic media as a means of reinforcing their links (Ishida, 2002; S. Graham & Aurigi, 1997a). The initiative may be considered a pioneer and exemplar exploration of the instrumentalization of digital networks for humanist purposes. Its excellent timing, shortly before local elections, contributed to secure funding and

[10] Web versions of DDS 1996-2003 are accessible through The Internet Archive (Accessed 28th December 2015) https://web.archive.org/web/*/http://www.dds.nl

created a not so common hybrid of bottom-up and top-down initiative. Due to its success, DDS was continued on a permanent basis for seven years.

DDS grew quickly in popularity, counting on thousands of citizens' contributions, and the quality of the service improved. Nevertheless, the digital city faced a number of challenges in its effort to sustain best practices. These dilemmas, common across digital cities initiatives, were related: to economic sustainability; balance between global and local; balance between top-down and bottom-up organization; competitive market and increased number of available alternatives to the services provided; difficulty in building a critical mass of users; and technological obsolescence (Aurigi, 2007; van den Besselaar, 2005; Beckers & van den Besselaar, 2014).

DDS started as a non-profit grass-root organization to encourage political discourse with governmental support. However, when it became financially independent it acquired a company-like character; users had little or no possibility to influence the policy of the organization, leading them to question the legitimacy of decisions taken in DDS (Beckers & van den Besselaar, 2014; van den Besselaar, 2005; Yasuoka et al., 2010). As Ishida notes, "[w]ithout profit services, digital cities become unattractive and fail to become a portal to the city. Without non-profit services, the city may become too homogeneous like AOL digital cities as a result of pursuing economic efficiency" (2000, p.12). For instance, DDS integrated different services, such as free and full Internet access, and different city-governance related topics, such as the possibility to e-mail with politicians. However, as Internet access became widespread, the attractiveness of DDS decreased. In that juncture, aiming to guarantee DDS' sustainability, the digital city implemented further innovations in order to increase traffic and thus sustain a business model based on

consultancy and advertising In consequence, DDS progressively moved from a virtual community based on a pre-www text interface, to a Web-based graphic interface, even attempting to implement 3D virtual reality. The city metaphor became literal with the graphic development of DDS, i.e. city/website, neighbourhood/sections, house/personal site (van den Besselaar, 2005).

The development of DDS sought to replicate Jürgen Habermas's (1989) eighteenth century coffee houses, developing the rules of 'ideal speech situation' in electronic networks to benefit local democracy. However, it must be noted that, "[c]entral to the notion of Habermas's public sphere is the notion of participation, as within the public sphere citizens participate in the formation of public opinion, which in turn can impact upon the realm of politics" (Beckers & van den Besselaar, 2014, p.111). Although in theory technologies for participation were to be a characteristic unique to digital cities (Ishida 2000), DDS proceeded to treat citizens as customers, creating commoditized consumer spaces closer to spectacular representations of space with virtualized interaction than to eighteenth century coffee houses.

Finally, I would like to draw attention to the role of media in the constitution of an 'electronic public space'. Aurigi argues that focusing on the implementation of ICT in cities may be misleading, for "technical progress alone is not necessarily going to make the implementation of ICT in cities more relevant to their successful planning and regeneration" (2007, p.7). This appears to be the case of DDS, which was never intended as a virtual representation of the city of Amsterdam, but dedicated "to contribute to the revitalization of local democracy and creation of third places" (van den Besselaar, 2005, p.86-87). It would appear that, as an experiment that employed the Internet's networked interactivity to constitute public sphere, "DDS was not born for the World Wide Web" (S. Graham & Aurigi, 1997c, p.40). As Mark Lemley argues,

"[c]hoosing form over substance is rarely a good idea; and certainly not on the Internet, where the form itself is nothing but a metaphor" (Lemley 2003, p.542).

As the process of *urbanization of the Web* has demonstrated, a *new social contract* between local authorities and citizens is possible, and it may employ digital media to articulate more accessible decision-making processes. As DDS has illustrated, design for digital service transformation, based upon a strong desire of humanizing the space of flows, may contribute to the revitalization of democracy.

4.5 Optimization through code

Urban planning has been long dominated by the idea of efficiency, as a "condition in which a specified task could be performed with low inputs of resources", almost neglecting the outcome and effect of planning decisions (Rittel & Webber 1973, p.158). In addition, decision-making in planning has been traditionally assigned to the technically skilled, relying upon the efficient expert to diagnose and solve a problem including just *the right* source of input. Therefore, urban planning could be defined as the "art and science of ordering the use of land and the character and siting of buildings and communication routes so as to secure the maximum practicable degree of economy, convenience and beauty" (Keeble 1952, p.9). Fortunately, this approach towards planning has substantially changed, evolving towards a more inclusive model, in which meaningful public participation in decision-making is deemed as a logical extension of the democratic process (Brabham 2009). Still, city making initiatives enacted by planning authorities are often accused of not researching the desired participation levels (Arnstein 1969), and the tension between efficiency and meaningful public involvement in planning processes is a real presence. The pervasive aim towards process efficiency can still be found in contemporary planning policy,

together with a concern about sustainability and the quality of planning outcomes, acknowledging the impact of the built environment upon people's lives (HM Government 2007; 2012). The planning system is indeed evolving towards a more inclusive model. Recent policy has been explicitly dedicated to encourage civic engagement and citizen empowerment, challenging the notion of the technically skilled as gatekeepers.

It is remarkable, and should not be overlooked, that despite the proven potential of digital networks to encourage public debate and reinforce local communities, the application of information systems in public services has typically been guided by the management ideal of efficiency and control. In the last two decades myriad approaches have emerged that explore particular aspects of the optimization of urban infrastructures and everyday life in cities through technologies provided by IT companies. In quite general terms, these approaches may be grouped under the *smart city* label – with IBM *smarter city* at the head – characterized by a systems rhetoric that prioritizes an efficiency approach. Technological determinism is dominant in the smart city discourse, offering a generic solution to urban development and management based on *optimization through code*. In order to perpetuate the ideal of perfection, the urban is abstracted from the material space to the virtual. Urban phenomena – that which can be measured or is deemed important enough to be measured – is transformed into data in a process of *digital redoubling* (Söderström et al. 2014). The social fabric of the city "becomes invisible, even a disturbance" (Häkli 1998, p.64 in Lehtovuori 2010, p.25).[11]

[11] See also Don Mitchell (2003), who accounts for two predominant ways of seeing public space in contemporary cities, corresponding with *representational space* (appropriated, lived space; space-in-use) and *representations of space* (planned, controlled, ordered space).

This scenario is very much in agreement with Manuel Castells' spatial schizophrenia of the spaces of flows and space of places. The space of flows, supported by material layers that include the technological infrastructure of the smart city, unevenly distributed, and hierarchically organized in nodes and hubs; conceived and enacted by an elite of social actors in dominant social structures with the capacity to alter the meaning and dynamic of places; while urban experience is increasingly mediated and abstracted from power. In this context, I believe it is the role of the critical practitioner to contribute to grassrooting the space of flows, for instance by designing new citizen participation methods in urban planning (Brabham 2009), attuned with the digital public space project.

4.6 CONNECTING THE SYSTEM WITH THE STREET LEVEL

Urban media are qualitatively changing the experience of the urban public space, which can no longer be considered as a purely physical construct. Acknowledging that the urban public sphere has always been mediated, Waal proposes to approach *the city as an interface*, in order to foreground space as relational (Waal, 2014). Rather than stick to an unproductive binary scenario in which flows lead to the dominance of an absolute space, with places being a source of differential spaces, Waal proposes to combine the *smart city* and *social city* ideals (Lange & Waal 2013; Waal 2014). These two categories group a variety of heterogeneous developments that create an informational landscape pointing at two opposite directions; tracking and predicting on the one hand; and reclaiming usage on the other. Whereas the functions of tracking and predicting embody fantasies of perfect urban control and transparency of urban rhythms aligned with the smart city discourse, the latter refers to artistic practices that have the potential to pluralize authorship and foster new engagements

with the urban environment, aligned with social city ideals (Crang & Graham, 2007). Opportunities to reconnect everyday communication practices and the space of flows are to be found in the combination of these two approaches.

Assia Kraan argues that the new hybrid space calls for new forms of public action, aimed at "influencing the relatively invisible digital structures and appropriate their technology where possible for alternative use" (2006, p.39). The interactional spaces created by media will not be disregarded, for they are essential in the articulation of new forms of public action that would seek to transform the relationship between government and the public. Nevertheless, as Aurigi has noted, the challenges are not limited to adapting new technological developments to the city – the re-combination of the physical and digital:

> *"They are also related to the ability of town planners, urban designers, project managers, and city officials to find their way through a series of tensions that deal with our interpretations of urban space, governance, and citizenship in the digitally enhanced, or augmented city"* (Aurigi, 2007, p.10).

Whereas the potential benefits of public participation are broadly accepted in participatory democratic societies (Brown & Chin 2013), its real ability to influence planning decisions is very much under scrutiny. Attempts to involve citizens in the day-to-day decision-making process of local planning authorities may be futile, requiring a deeper revision of the values that lie underneath the planning process. Tewdwr-Jones & Allmendinger asks, "[h]ow can you challenge a set of values within a system that has been created by those values without destroying the system or process itself?" (1998, p.1988).

With the intent of experimenting how active citizen participation in the space of flows may be enabled, the chapter continues by exploring some of the challenges of

designing for digital public spaces, seeking for a balance between top-down (the collaboration of local governments) and bottom-up (active citizen engagement) initiatives.

I would argue that the integration of the planning system with everyday contemporary communication practices could potentially lead to a more desirable balance between efficiency and participation. However, such a change does not only rely on the implementation of a system that favours more horizontal decision-making processes. In order to create the opportunity for citizens to directly influence decision-making processes, a *new urban social contract* is required. The following sections account for the case study, Open Planning, a digital service transformation project in which the development of new touchpoints in the urban planning system aimed at building the bridges between lifeworld and system (Habermas 1989).

4.7 Open planning: New citizen participation methods for the planning system

Open Planning was an action research project conducted in collaboration with Liverpool's local planning authorities and local community groups, aimed at proposing a new tool for engagement in the planning process that sought to balance top-down and bottom-up approaches. Open Planning set out to demonstrate that a strategic use of existing digital media and infrastructure would bring significant improvements to the current planning system. In contrast to the mainstream technology-centred approach in planning, Open Planning proposed a citizen-centred approach, connecting everyday communication practices with public services to facilitate civic participation in the configuration of the build environment, balancing efficiency and participation.

The concept behind Open Planning was first proposed during the first Creative Exchange Lab led by Lancaster University, hosted in Manchester's Digital World Centre on September 27th 2012. The workshop brought together thirty representatives of creative industries and academia to identify common interests and start shaping collaborative projects that explore how the concept of digital public space, where anyone, anywhere, anytime can access, explore and create with digital content, and possibly inform Public Service Innovation and Democracy.

Open Planning, supported by The Creative Exchange operated in two three-month long stages that extended over a period of eighteen months between April 2013 and October 2014. The interdisciplinary team included researchers from Lancaster and Liverpool Universities who provided expertise on architecture, urban planning, geographic informational systems (GIS), digital culture and knowledge exchange. A creative industry partner, Red Ninja Studios (Liverpool), supplied expertise on mobile technologies and open data. The local community group, Engage Liverpool, contributed by engaging with citizens throughout the project. The city's economic development company, Liverpool Vision, contributed to the analysis of the planning system from a variety of angles. Moreover, an independent local urban planner facilitated close collaboration with local planning authorities at Liverpool City Council, who provided key insights on the feasibility of the team proposals.

4.7.1 PROPOSAL: TOUCHPOINTS REDESIGN

Prompted by team members' expertise and knowledge of the current policy framework (Koeck & Walsh 2013), an early proposal for Open Planning (April 2013) posited to improve the planning system by integrating the data attached to planning applications in an augmented reality environment. The proposal intended to prompt

map-based discussions by combining augmented reality modelling and geographic location, improving navigation, participation, exploration and evaluation of planning outcomes (Rinner 2001). A preliminary research of augmented tools applied to planning, explored in projects like 'See What Is Not (Yet) There' (NAi 2010) among others (Gaborit & Howard 2004; Howard & Gaborit 2007; Bailey & Grossardt 2010; Bers & Chau 2006; Lewis et al. 2012) led to the withdrawal from this approach as its focus on a technological edge would require a top-down approach that would not necessarily address the current system limitations.

Instead, the first stage of the project (April to June 2013) utilized a highly exploratory character, focused on gaining a comprehensive understanding of the system and its actors; aiming to propose a problem definition and locate touchpoints to propose a systemic intervention. The exploratory research concerned three main areas. First, an analysis of the legislative landscape focusing on public involvement and statutory publicity requirements, complemented with the insight of stakeholders. Second, a review of diverse creative urban participatory interventions and locative media practices susceptible to encouraging and facilitating meaningful participation in the planning process. Finally, access and assessment of the GIS used by local planning authorities (LPA), paramount in understanding the feasibility of the proposal. The second stage of the project (January to October 2014) set out to co-design a proof of concept in collaboration with stakeholders that would aim to enhance civic engagement in the planning system. As a proof of concept, Open Planning proposed a tool for citizen empowerment that inserts into the twenty-one day period of public consultation process and reconnects public services and citizens' everyday lives and contemporary communication practices.

The research project followed an action research approach structured in iterative cycles of planning, action, and reflection. The research design has been redefined responding to the emergent demands of research and action, and the growing understanding of the planning system in Liverpool. Changes and decisions in the direction of the project were based on the team collective experience, motivated by evidence and documented to its later evaluation, according to action research quality principles (Reason & Bradbury 2001, 2003, 2008; Reason, 2006; Mattsson & Kemmis, 2007). A participatory approach has been preferred, "including excluded perspectives and engaging those who have a stake in the planning system" (Cahill 2007, p.325), in different degrees that oscillate from consultation to participation (Arnstein 1969). Through the project life span we used a combination of desk research, focus groups, semi-structured interviews, co-design workshops, cognitive walkthrough, rapid prototyping and prototype testing; involving active citizens through Engage Liverpool, to understand the issues at stake and advance the design of Open Planning. Different methods were chosen to engage different stakeholders. For instance, whereas semi-structured interviews were well suited for local planning authorities due their professional culture, more participatory activities were crucial in including the voice of local community groups.

4.8 System analysis

The following section provides a summary of the research insights from the state of the art of the planning system in Liverpool, which informed the proposal of a systemic intervention. The analysis begins with a review of the planning system in England, focusing on the statutory publicity and consultation requirements for planning applications. It continues with a benchmarking of creative and innovative

uses of digital media with potential to reconnect space of places and flows; and concludes with an assessment on the GIS data of the local planning authority.

4.8.1 CURRENT STATE OF THE PLANNING SYSTEM IN ENGLAND

In essence, the planning system is a public mechanism that manages the use and development of lands and buildings, shaping the built environment in which we live. The aim of the system is to guarantee that all spatial developments are done in a sustainable manner, improving and conserving public spaces, heritage and environment, and promoting economic growth (HM Government 2007). Planning permission is required to carry out certain building work projects, and applications are submitted either by citizens or professional developers, to be evaluated by local planning authorities against the guidelines established in Local Plans. For large proposals, early engagement is encouraged through a pre-application process, in which interested parties discuss proposed developments in a positive and proactive manner (Liverpool City Council 2013). Developers must consult local community groups that may be affected by the proposed development, consider any responses and disclose how comments have been taken into account (Newton & England 2012; Planning Aid England 2012).

In the last decade, the Department for Communities and Local Government (DCLG) has introduced a number of reforms to update the planning system in England, explicitly dedicated to encourage civic engagement and citizen empowerment, challenging the notion of the technically skilled as gatekeepers. Killian and Pretty define good planning as a "positive and proactive process that involves making plans for, and taking decisions about, the future development of a local area which are in the public interest" (2008, p.87). Consequently, improvements in the planning system

must follow a twofold objective. First, facilitate developments and speed up the process. Second, encourage civic engagement in local decision-making (Newton & England 2012).

Local planning authorities are required to prepare Local Plans which sets out how sustainable development will be delivered across the city (Liverpool City Council 2013). The National Planning Policy Framework (2012) states the importance of early and meaningful engagement and collaboration with neighbourhoods, local organizations and business in the creation of Local Plans, so it reflects a collective vision, for "[p]lanning must be a *creative exercise* in finding ways to enhance and improve the places in which we live our lives. This should be a *collective enterprise*" (DCLG 2012, ii, emphasis added).

Building upon the Planning White Paper (2007), the Killian Pretty Review (2008) sought to modernize the planning system, make it faster and more responsive. The report found consensus among a wide range of stakeholders with first-hand experience who agreed that the planning system should be customer-focused, fair, proportionate and transparent, allowing local people to have a meaningful say and delivering the right decisions with appropriate speed. As a response to the Killian and Pretty review, the Government introduced a new requirement to publish information on local authority websites, causing a dramatic increase in transparency and accessibility (DCLG 2009b; DCLG 2009a).

The Empowerment White Paper (2008), to which Killian and Pretty (2008) and the Government's response (2009) refer, upholds that given the right support and resources, citizens and communities are capable of taking difficult decisions. In general lines it calls for a shifting of power, influence and responsibility from existing centres of power directly to citizens, towards a more democratic society model, in

tune with the Localism Act 2011. The Empowerment White Paper seeks to motivate the organization of local events that encourage the creation of active communities, and ultimately ensure that active citizens have opportunities to engage in a meaningful way. Accordingly, access to relevant information is regarded as a prerequisite to community engagement. Accessible information may be defined as information that is easy to access and understand by a broad audience. According to this definition, local planning authorities are encouraged to embrace information and communication technologies to improve transparency, accessibility and establish an efficient two-way communication process; avoiding technical language and jargon that have the potential to exclude the ordinary citizen. However, relevant information remains to be defined. Finally, innovation in the use of digital technologies is highly recommended, endorsing the adoption of mixed media, and fostering the creation of community media as a way to promote powerful and alternative channels for discussion and debate.

Subsequently, the National Planning Policy Framework (2012) introduced the concept of neighbourhood planning (Units 2014); a local approach, which empowers people to shape their surroundings and participate actively in the decision-making process that affects the landscape of their everyday lives. Following the publication of the NPPF, the Taylor Report (2012) reviewed the remaining planning policy guidance to conclude that "(i)t is very clear that the system itself is no longer fit for purpose". Moreover, Lord Taylor strongly recommended the development of a web-based resource to bring the planning system up-to-date. The web-based resource is depicted as a live resource; accessible free of charge; targeted to professionals and the broader public alike, in an appropriate form, open source; and actively managed to keep it current, for which the report commends the adoption of crowd-sourced maintenance.

The report also commended the creation of a digital notification system to replace analogue notification forms. Although the Government's response (2013) welcomed the suggestion of a most effective use of technology, it favoured a more conservative approach towards management based on centralised maintenance and scheduled actualisations of content.

The reports mentioned above contain multiple references to the adoption of appropriate formats, and reuse of data that can be seen as a prelude to the publication of the Open Data White Paper in June 2012, which sought to unleash the potential of the data held by local authorities, and encouraged them to co-operate with civil society, business and academics to bring agile, creative and innovative measures into social services. With more and more data being held digitally by local planning authorities, (Government Response to the Killian Pretty Review 2009) the Government encouraged the adoption of e-planning systems, as a substantial opportunity to bring the system up to date (Taking forward the Government's response to the Killian Pretty Review 2009). In particular, the disclosure of the Open Data White Paper (HM Government 2012) made Liverpool's planning authority quite receptive to innovative approaches towards data usage.

In light of the current policy framework, with digital and open data-based improvements being encouraged from the Government and local authorities, the Open Planning team recognized an ideal context in which improvements in the planning system could be achieved by a more innovative use of existing digital resources held by local authorities.

The implementation of policy general guidelines is left to the discretion of local planning authorities, to be adapted to the specificities of the local context. Whereas DCLG encourage and support best practice, it must be noted that the planning system

differs considerably among planning authorities. The adoption of best practices ultimately relies on local planning authorities' resources, and know-how among other participants. Consequently, Open Planning set out to develop a prototype that offered bespoke solutions aligned with the main body of governmental recommendations - emphasizing the use of open data. Liverpool's planning authorities found in Open Planning a potential improvement towards efficiency, under the rationale that with a more effective public consultation period citizens would be better informed and comment on applications within the twenty-one day period rather than after it has finished, as often happens, for efficiency was equitable with participation.

The collaborative review of the public consultation process and statutory publicity requirements served to check current practices against policy recommendations, gain stakeholders' insight, and finally evaluate the possibilities of a systemic intervention to enhance the planning system in Liverpool. The review also suggests the need of a closer analysis of the public consultation process and statutory publicity requirements, in collaboration with local planning authorities and local community groups.

4.8.2 PUBLIC CONSULTATION PROCESS AND STATUTORY PUBLICITY REQUIREMENTS FOR PLANNING APPLICATIONS

In addition to the neighbourhood planning, the Localism Act (2011) introduced a new requirement for compulsory community engagement at the pre-application stage of major planning applications. Hereby, prospective developers must consult and engage communities in the formulation of development plans, bring public opinion sooner into the planning process, providing the opportunity to achieve early consensus and including citizens. One of the main objectives of this policy is to reduce the number

of objections to major planning applications after they have been submitted and lead to better quality developments.

Public participation in both pre-application and post-application processes is essential to guarantee that the planning process acts on behalf of and for the benefit of members of the public. However, the Open Planning project focused on public consultation in post-application processes, hence consulting on already submitted specific planning applications. This public consultation process is a twenty-one day period in which planning applications are publicly released for the public to comment on, during which local planning authorities are bound by law to publicize planning applications following the specifications of the publicity statutory requirements for planning applications (Barclay 2012). Statutory publicity requirements define how people learn about planning applications, and, depending on the kind of development, may include one or several formats, including: site notice, neighbour notification letter, newspaper advertisement, and local planning authority's website ("Consultation and Pre-Decision Matters" 2013).

The following review of the then current statutory publicity requirements included insightful contribution of Liverpool City Council Planning Department, Liverpool Engage and members of the local community group, Engage Liverpool. Non-statutory publicity methods were also considered as highly valued sources of information. The analysis aimed at identifying strengths and weaknesses in the planning system touchpoints.

1. ***Neighbour notification letters*** are sent to adjoining properties that might be affected by the planning application. Typically, local planning authorities inform between two and five neighbours for minor developments, and between 10 and 400 for major developments. This medium is regarded as the most cost-effective method

of consultation by LPAs and non-statutory consultees, as it has the advantage of being personal (DCLG 2004).

2. *Site notices* are text-based laminated pieces of paper fastened to lamp posts. As a statutory minimum, all planning applications are required to display at least one site notice located in close vicinity to the site in question (Barclay 2012). Mandatory site notices are erected by local planning authorities themselves to guarantee that they are displayed correctly (DCLG 2004). Site notices are deemed as the second most effective method of consultation, and a highly democratic method of broadcasting planning applications (DCLG 2004).

3. *Press notices and weekly lists.* As a mandatory requirement for certain kinds of applications, LPAs must release press notices in newspapers available in the area. For instance, Liverpool City Council releases weekly press notices and lists in the Liverpool Echo every Thursday and online in the Planning Portal. Press notices are typically released on a weekly basis, containing a list of the planning applications that have been recently submitted and those still open to public consultation (Liverpool City Council 2014). Weekly newspaper release is the most costly publicity method, and has been ranked as the least effective. Killian & Pretty, among other commentators, have recommended removing the requirement to advertise in local newspapers and invest in "a wider range and more diverse mix of publicity avenues" (2008, p.12). However the Government argued that it is a democratic method that should continue (Design Buildings 2013; DCLG 2009a; DCLG 2009c; Killian & Pretty 2008; Taylor 2012; DCLG 2013b). Later, DCLG has encouraged local public authorities and the newspaper industry to work together on pilots to explore innovation in statutory notices (DCLG 2014b).

4. *Planning Explorer*. Since 2009 all applications must be additionally published in the local planning authority's website providing an up-to-date archive of past and current planning applications (Consultation and Pre-Decision Matters 2013; Publicity for Planning Applications Summary of Responses 2009; Government Response to the Killian Pretty Review 2009). The benefits of the online method include low marginal costs and increased transparency and accessibility.

Recent improvements in the planning system have demonstrated a growing interest towards digitalizing the system and empowering local communities. However, recent improvements seem to focus solely on notifying citizens. According to the review of the planning process informed by citizens and local community groups, the current status of the public consultation process may be divided and summarized in three different stages, the last two being largely overlooked by recent improvements:

1. *Notification* of planning applications is predicated on a location-based criterion. Neighbour notification letters address nearby residents and site notices notify passers-by alike, although their visibility is limited to pedestrian areas. Moreover, press notices and weekly lists are arranged based on the application's street. In general terms, current notification methods require citizens to be locally and actively aware of or seeking planning applications, either at the level of the street to catch site notices or online to review the weekly list. Due to the location-based criterion, citizens often rely on non-statutory means of notification, such as word-of-mouth or social media, to learn about planning applications that matter to them, quite independently of their location. Participants felt that the notification system does not acknowledge the reality of their lives and city experience, which is by no means limited to their ward or the streets they pass through. It was also felt that the true decision-making process is held between developers and local planning authorities,

prior to the public consultation process in which citizens can participate although it was perceived as a token gesture (Arnstein 1969).

2. *Information*. Citizens pointed to difficulties understanding the technical, text-based format of announcements, which led to an inability to envisage the impact of planning applications. In order to access further information, citizens may access additional documents via the web-based Planning Explorer. Nevertheless, the Planning Explorer searching criteria requires rather specific and technical information citizens are unlikely to know.

A card-sorting exercise with citizens aimed at evaluating the relevance of the data available, and how this data could be improved. The exercise suggested that, whereas the information provided is relevant to the urban planning professional sector, it does not hold the same value to citizens, as it consists of highly technical documentation required to support the application. Contrary to policy recommendations of avoiding technical language and jargon, the information provided is better suited to professionals, and barely relevant to the broader public. Participants advocated citizen active participation in the production and management of additional content, including user-generated content and friendly citizen-centred categorization of planning applications as a complement to the technical character of the information provided by local planning authorities and developers.

In this vein, citizens expressed preference for non-official channels in order to envisage the potential impact of planning applications. Word-of-mouth and social media were preferred as an accessible and open space for information and friendly debate. Additionally, social media often lead to newspapers articles, which are highly valued as they are written in easily accessible language and include illustrative artist's impressions of proposed developments. The disadvantage of non-official channels is

that the information may reach the citizen past the twenty-one day public consultation period, and are isolated in that they do not link to the official channels through which citizens may engage in the decision-making process. Citizens acknowledged the work of local community groups as catalyst for public opinion, and welcomed the creation of accessible channels to chat about the city developments, spanning from social media to street events.

3. *Engagement*. Civic engagement is predicated on citizens been appropriately notified and informed. Given that a citizen has been notified and informed about a planning application, and desires to comment on it, she/he can do so through the web-based platform, although may struggle to find the specific planning application. Comments made by citizens are private and not shared with other citizens, and the local planning authority has no obligation to provide individual feedback. Moreover, comments are taken into account based on the criteria established by *material planning considerations*, which are broadly unknown by citizens (Liverpool City Council n.d.; Newton & England 2012; Planning Aid England 2012). Participants perceive that the design of the digital platform encourages the submission of complaints rather than constructive comments. Although the implementation of a web-based service provides a valuable improvement towards transparency, citizens pointed to the lack of local planning authorities' accountability as hindering engagement.

In summary, participants expressed distrust towards local planning authority efforts to make the planning system more inclusive, as the complexity of the planning system was perceived as calculated, a means of discouraging public participation and speeding up the process to the benefit of developers. It is highly significant that even though participants consider themselves active citizens, none of them had ever

formally engaged with the planning system, out of mistrust of the effect of civic participation and local planning authority's lack of accountability.

The review of the planning system in Liverpool is rather illustrative of Castells' network society. Castells suggested that at the face of the schizophrenic logic of the space of places and flows, citizens might attempt to regain control at a hyper-local level. Although the review has identified the trend towards devolution and localism, it also suggests that the abstraction of the space of flows, even at a hyper-local level, fails to connect with citizenry and everyday life. At this stage, the team recognized an opportunity for service transformation focused on the current failure to connect places and systems that leaves citizens excluded from decision-making processes. However, it would later be apparent that, in addition to better suited publicity methods, there was an urgent need for a *new social contract* between local planning authorities and citizen groups, which fell beyond the scope of action of the project.

4.8.3 CREATIVE AND INNOVATIVE USES OF DIGITAL MEDIA AND URBAN INTERVENTIONS APPLIED TO PLANNING

The city as *oeuvre* (Lefebvre, 1991) can be found in grassroots initiatives such as do-it-yourself urbanism (Iveson 2013) and tactical urbanism (Rebar, 2005), temporary and small-scale experiments to seed structural environmental change, taken that the reproduction of social relations of production is inherently spatial. Mediated forms of public action can also been found in locative media art (Kraan, 2006; Crang & Graham, 2007), for digital media enable citizens to become active and collaborative participants rather that passive consumers of information, opening a new range of possibilities for civic involvement. In this line of thought, locative media (Lemos 2010) could aid in the social transformation of space (San Cornelio 2013), as a means to

connect places and flows, hence facilitating the integration of the planning system with everyday contemporary communication practices, and leading to a desirable balance between efficiency and participation.

Previous sections have accounted for the recommendation to make use of digital technologies more attuned to contemporary practices in the planning process (Taylor 2012), although the Government has taken a more conservative approach in the application of new media (DCLG 2013b), hence the use of digital technologies in planning practices to support public participation is yet to be fully explored (Mandarano et al. 2011). In addition, it must be noted that top-down initiatives have not quite achieved the success of bottom-up initiatives, (Roque & Dasgupta 2011; Brandtzæg et al. 2012), for as DCLG acknowledges, "[s]ome of the best examples of how information can be used to empower citizens are generated by citizens, not government" (DCLG 2008b, p.52).

This section briefly explores the potential of creative strategies such as storytelling, digital social networks, festivals or community gatherings to assist planners to achieve economic, social, environmental and community goals; reaching a broader audience and enhance community engagement and participation (Chung et al. 2009; Hodgson & Beavers 2011, 2013; Madyaningrum & Sonn 2011; Heeswijk 2013). Easy to implement initiatives that facilitate civic engagement in public places have been grouped under the following:

1. *Participatory mapping*: used as tool for empowerment in which minority groups can contest visions of the world with their own counter maps, mapping out local knowledge, contributing to open dialogue to alter power relationships (Young & Gilmore 2013; Mandarano et al. 2011). There are multiple examples of mapping for a whole range of purposes (Chambers 2006). Particularly the convergence of

participatory physical-digital mapping opens a variety of creative applications predisposed to being integrated into the planning process (Tulloch 2007).

Physical annotation projects like 'I Wish This Was' (Chang 2010) represent a tool to add meaning to places that have been frequently used to organize community events to inform urban planning practice. 'I Wish This Was' provides a tool for residents to share their views about the neighbourhood's development needs. Participants find cards to fill out and stick on vacant stores, expressing what that place ideally would be. The activity provides insightful hyper-local first-hand information about desired developments in the neighbourhood, being a valuable source of information for local authorities, private investors and developers. Nevertheless, despite the advantages of physical geo-tagging in terms of simplicity, feasibility, accessibility and public engagement, the activity outcomes are costly to document, archive and share and to be integrated into the planning decision-making process on a regular basis.

Other initiatives have sought to integrate the high accessibility of the physical format with the visibility of the digital, annotating digital maps but also leaving a trace at the street level. Rastrojero (woki-toki 2010) is an early illustrative example of geospatial web bringing together a hyper-local network of critical thinkers who aggregate insights to physical places. The initiative relies on the facilitation of contributors to print out posters that contain a written story related to a specific location. These posters contain QR code that link with an extended version of the story, and connects with other pieces of shared history.

'Yellow Arrow' (Allen et al. 2004) is another geospatial web-based project. Combining stickers, mobile technology and an international community, this street art project creates a collaborative cartography that links urban public spaces with participants' thoughts, shared in digital format. Participants mark physical locations with a

uniquely-coded yellow arrow-shaped sticker, and via SMS link the code and therefore the location to a short text message. Concurrently, the website publicly archives locations and stories using Google Maps and Flickr.

Similar strategies have been adopted by local planning authorities, adding QR codes to site notices to link the planning application to its associated digital content (Sankey 2012). The initiative requires no additional investment, site notices remain accessible, and enhanced by digital content linked to the QR code. However, the information provided is virtually the same as that displayed on the site notice, and poses an accessibility issue.

2. *Map-based mashups* are a popular means to combine and visualize multiple data sources on a digital map. Mashup refers "to websites that weave data from different sources into a new service", relaying on application programming interfaces (APIs) (Liu & Palen 2010), and especially popular on maps (Butler 2006). Of special interest are applications based on open data provided by the Government, consisting of a number of "datasets available from all central government departments and a number of other public sector bodies and local authorities" (data.gov.uk 2015) To provide some examples, 'Find Property' helps find properties in London, and uses open data to filter areas by crime and green space criteria. 'Illustreets' puts deprivation, crime, education, transport, environment, and census data on an interactive, searchable map. Also 'KentGIS', using a multimedia approach provides live flood warnings integrating GIS, live information on flood warnings, weather conditions, and river levels in the United Kingdom with live social media feeds from Twitter, Flickr and Youtube.

Mashups have also been employed to increase visibility of planning applications by situating them on a digital map. 'Openly Local' is a unified database of local

governments' information, as an alternative to the typically difficult-to-navigate official websites. 'Planning Finder' (2013) is a portal that brings together commercial and domestic planning applications from planning authorities across the UK. 'Planning Finder' allows users to create a profile and receive email updates when planning applications within selected postcodes are submitted. The service also includes a map-based visualization, and direct links to applications hosted in different local planning authorities' websites. Finally, 'Planning Alerts UK' also allows users to subscribe to email alerts by location regardless of wards. It must be noted that these initiatives do not obtain GIS data directly from planning authorities, but by scraping official planning websites across the country. Hence, although the above-mentioned services improve notification, they are far from facilitating interaction between public authorities and individual citizens (Margetts & Dunleavy 2002; Reitz 2006).

3. *Crowdsourcing* "represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call" (Howe 2006). Crowdsourcing has been applied to the generation of local governmental services to facilitate decentralized decision-making (Lodge & Wegrich 2012). In particular, it has broadly been applied in planning projects, connecting bottom-up and top-down initiatives, serving as a "technology-driven alternative to the traditional public involvement process" (Brabham 2009, p.246), facilitating location-independent, asynchronous, and anonymous participation, and increasing governments' accountability (Bott & Young 2012).

Crowdsourcing initiatives applied to planning processes are in tune with open government proposals, but are still in the early stages of development (Sandoval-Almazan et al. 2012). 'Planning for Real' was an exercise arranged in West Yorkshire in

1998 to explore the potential of a web-based participatory planning GIS. An online 'Virtual Slaithwaite' was created to mirror a participatory miniature map; with a notably positive impact on public participation (Kingston 2002). Of special relevance is 'Urban Mediator', a web-based platform for sharing, obtaining and gathering location-based information developed in collaboration with the City of Helsinki (Saad-sulonen & Botero 2008). However, crowdsourcing initiatives applied to city processes often have backlash from local officers, for whom management has been largely a top-down process (Bradley 2015).

4.8.4 OBTAINING GIS DATA FROM PLANNING AUTHORITIES

Open Planning set out to design a tool for citizen empowerment in the planning system based on the potential of open data to be connected with everyday communication practices, for which access to data associated to planning applications was required. At the light of the Open Data White Paper (2012), we approached Liverpool's local planning authorities with the assumption that planning system's data would be open.

In a local government context, GIS support key services such as urban planning (Coote 2010). Following guidance provided by the INSPIRE directive (European Commision 2007) and national policy, each local authority is in charge of capturing and maintaining their spatial data to meet local requirements. Consequently, local authorities rely on various service providers and proprietary GIS, creating a disparity of formats throughout the national region.

In addition, the potential of geospatial data being released as open data does not guarantee its optimum reutilization. According to Tim Berners-Lee's 5-Star scheme to which the Open Data White Paper refers, five rules should be met: (1) make data

available on the web; (2) as structured data; (3) with non-proprietary format; (4) use Uniform Resource Locators (URLs) to make content linkable; and (5) link the data to other people's data to provide context (Berners-Lee 2009; HM Government 2012).

In the absence of official statistics, a benchmarking of several planning and building control websites has shown that although most local authorities make planning applications available on the web, few structure data in a non-proprietary format, for additional information is typically shared as Portable Document Format (PDF) preventing its re-utilization.

This situation has led to "suboptimal data sharing within government as well as lower data use and re-use by non-government entities" (Coote 2010). Since the publication of the Open Data White Paper (HM Government 2012) significant progress has been made to improve and release data held by different public bodies. For instance, the Release of Data Fund offered financial incentives to English councils to incentivize best practice supporting the use of data standards in open datasets such as planning applications (Open Data User Group UK 2014).

Through initiatives like data.gov.uk almost 20,000 datasets have been released (March 2015), making data available for the wider public to create new resources. In this vein, the programme Local Open Data Champions enabled collaboration between local authorities and communities to elaborate on solutions to local challenges and improve local service delivery using open data (Cabinet Office 2015). Amidst these initiatives, Greater Manchester Data Synchronization Programme (GMDSP) has deployed a number of code fellows to assist local authorities to identify, release and model datasets to be synchronized with each other.

While initiatives to release high quality open data in local authorities progress, geospatial data may prove difficult to access (Boswarva 2014). In the case of Open

Planning, GIS concerning planning is held by a third party company, which, despite Liverpool's planning authority mediation, remained inaccessible to the project team. As an alternative the data publicly available in the Planning Explorer was harvested, as other initiatives have done before (Salinas et al. 2014).

4.9 A SYSTEMIC INTERVENTION

The review of the state of the art of the planning system in Liverpool pointed at a number of weaknesses that may prevent citizens from being notified, informed, and actively participate in the decision-making process. Liverpool's planning authority provided a detailed account of desired improvements, statutory requirements and limitations. The local government expressed a strong desire to improve efficiency during the public consultation process, welcoming a more efficient use of already present resources. However, their very limited resources prompted adverse reaction to change in general, and to any intervention that required their input in particular.

Considering the many constraints, an *acupuncture approach* was preferred: focusing on small interventions, which in the logic of complexity science would lead to the desired final outcome for the system as a whole (Jégou 2010). Consequently, the proposed intervention on the planning system concentrated on the redesign of the touchpoints of the system as a way to innovate the interaction between citizens and local government, and generate a systemic improvement (Salinas et al. 2014). It must be clarified that Open Planning did not aim to replace the system, but acted as a catalyst to incorporate valuable sources of data and improve access to it, with a consequent positive impact on transparency, democracy, public participation; and therefore efficiency.

Two early rapid prototypes were proposed. First, a site notice redesign including visual content extracted from PDFs attached to applications (Figure 7). Second, a mobile app that complemented the web-based platform situating planning applications on a map, including proximity-based digital notifications, and augmented reality visualization of the proposed development.

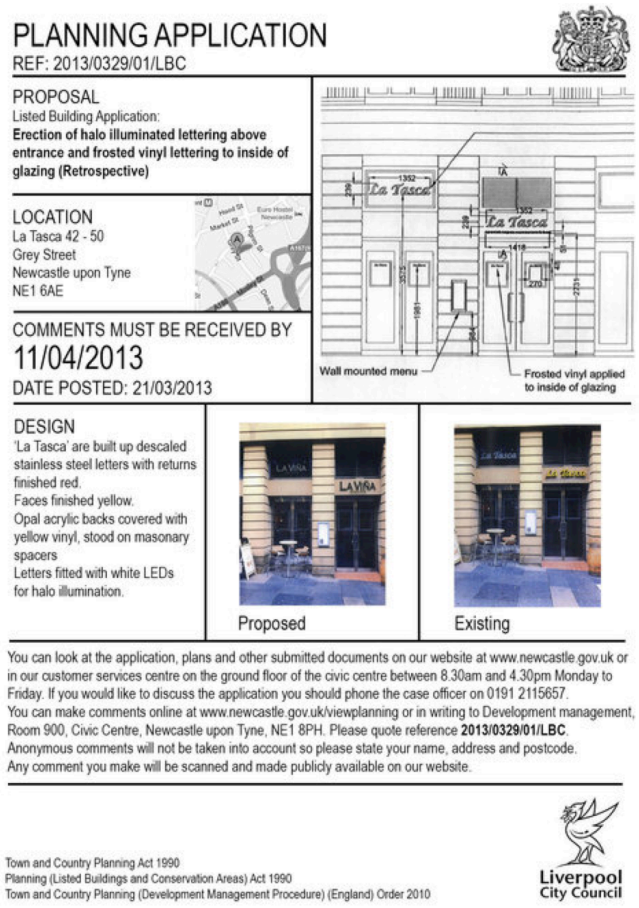

Figure 7 Site notice redesign (Porter 2013).

Our role as initiators of change in the planning system was not only to design a platform, but also to make it in a sustainable way. Taking into account the opportunities and limitations of the planning system in Liverpool, policy framework recommendations, stakeholders' standpoint, lessons learnt from creative and innovative uses of digital media and urban interventions and considering the dataset

available, a co-design activity with ten citizens was convened with the assistance of Engage Liverpool. The co-design activity focused on prototyping a mobile application, as a means of emphasizing the need to connect the planning system with everyday communication practices. Two paper prototypes for a mobile application that would insert into the current public consultation process were created (Figure 8). This exercise inspired the creation of a *minimum viable utopia*, and to the later development of a minimum viable product (MVP) and alpha prototype.

Figure 8 Codesign workshop with citizens (Salinas & Porter 2014).

4.9.1 CODESIGN OF A MINIMUM VIABLE UTOPIA

The Open Planning minimum viable utopia, developed with citizens and quite closely aligned with recommendations made by the White Paper on Engagement (2008) and in general agreement with the Taylor Report (2012), reads as follows:

An open source platform, free of charge, developed for web and mobile versions. The active contribution and management of local community groups and active citizens

would be essential to make up for the limitations of the dataset, such as avoiding technical language and jargon and including relevant information or citizen-centred search criteria. Planning applications would be displayed on a map, and collaboratively categorized following citizen-centred criteria agreed at the workshop, i.e. topics and areas of interests. These criteria would be used to set up a digital notification system to complement the current statutory publicity requirements. This feature would guarantee that citizens receive notifications of applications relevant to them without having to actively search for them. The information provided by local planning authorities would be complemented with citizen-generated mixed media and links to external sources, i.e. newspaper articles; contributing to provide useful information and supporting open dialogue among citizens around specific planning applications. In addition to open and friendly dialogue, the platform would support official comments on planning applications, providing guidance about material considerations. A simplified version of already approved planning applications would remain accessible, incorporating an evaluation system that would increase local planning authorities' accountability.

Led by the creative industry partner, the team evaluated the feasibility of the features proposed against resource constraints and Liverpool's planning authority institutional inertia, towards redefining the MVP. In general terms, user-generated content was dismissed. Consequently, features dependent on this attribute were not implemented. In addition, the lack of API in the planning management system prevented integration of the alpha prototype with available web-based services, such as leaving official comments (Salinas 2014b). The Open Planning App (OPA) alpha prototype acted as a proof of concept (Figure 9).

Notification was provided in the prototype through a map-based visualization of planning applications with distinction between business and household applications; and a digital alert service to inform users based on subscription to a circular area of interest. With regard to information, each planning application contained a brief description extracted from the official documentation. For engagement, the prototype offered the possibility of leaving a comment visible to other users, and of sharing via social networks to facilitate open dialogue and the integration of the planning system with everyday communication practices. The proof of concept was presented in October 2014 to twenty citizens, and received positive feedback (Figure 10). According to participants, OPA largely contributed to understanding what planning applications were proposed and where.

4.10 A RENEWED SOCIAL CONTRACT

This chapter has approached the production of digital public spaces as an exploration into the combinations of hierarchies and networks seeking to innovate democratic processes towards a closer realization of the right to the city. The chapter has introduced the Open Planning project, an exploratory action research project, which sought to articulate a new urban social contract, challenge the abstraction of the space of flows, and involve stakeholders in the design of more inclusive decision-making processes.

As the process of *urbanization of the Web* has illustrated, the development of digital services alone would not suffice (Aurigi 2007); instead, a *new urban social contract* (Castells, 1999) between social actors in dominant social structures (local authorities) and citizen groups would be required to underpin the service transformation that support more democratic decision-making processes. In this

regard, I would like to briefly reflect upon the mismatch between the minimum viable *utopia* and *prototype*, which is not due to a matter of technical feasibility, nor was it simply a rejection of user-generated content. In my view, the mismatch between the two proposals responds to a crisis between two opposite diagrams: "centralized, hierarchical powers and distributed, horizontal networks" (Galloway, 2005, p.19), for the *minimum viable utopia* proposed to integrate hierarchies and networks, blend these two forms to create effective hybrids, without achieving first a change in the system's underlying set of values (Tewdwr-Jones & Allmendinger 1998).

In Against the Smart City (2013), Adam Greenfield articulated his distrust towards existing institutions' capacity or willingness to employ networked information technology to support inclusive and socially productive uses of space. In a later article, Greenfield (2014) identifies three archetypal processes, Campo de Cebada (Madrid), Godsbanen (Aarhus) and Unto This Last (London) that would offer trajectories by which digital networks support inclusive and socially productive uses of space, and to which the author refer as examples of *minimum viable utopia.* In the Open Planning project, the prototype specification that resulted from the codesign workshop may be considered a *minimum viable utopia,* that challenged local planning authorities to adopt networked technology to enable citizens' active participation in the management of urban space. Nevertheless, the Open Planning alpha prototype was developed based on strictly technical criteria. The discrepancy between ideal and factual prototypes invites reflection upon the need for a deeper structural change that enables and actual social contract, and which requires the openness of local authorities as centres of power to incorporate truly participatory mechanisms.

Indeed, Open Planning was not without challenges, until finally we were faced with the impossibility to tweak the system without addressing the system's underlying set

of values. In addition, as part of the first batch of The Creative Exchange projects ever, Open Planning was exploring the *terra incognita* of knowledge exchange in digital culture R&D projects. In general lines, challenges started with the difficulty to reach an agreement on what Open Planning set off to achieve, or in other words, the definition of a wicked problem. However, despite epistemological and methodological differences among team members, a participatory approach to inquiry was possible through participatory design methods. A strong service design methodological approach would have been appropriated and led to a greater collaboration with citizens and local planning authorities, and given the opportunity to a more inclusive design process.

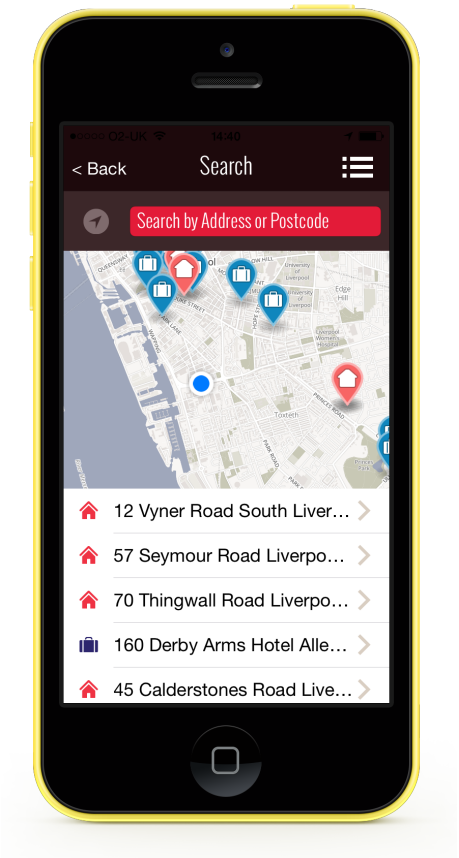

Figure 9 Open Planning app alpha prototype (Red Ninja, 2014).

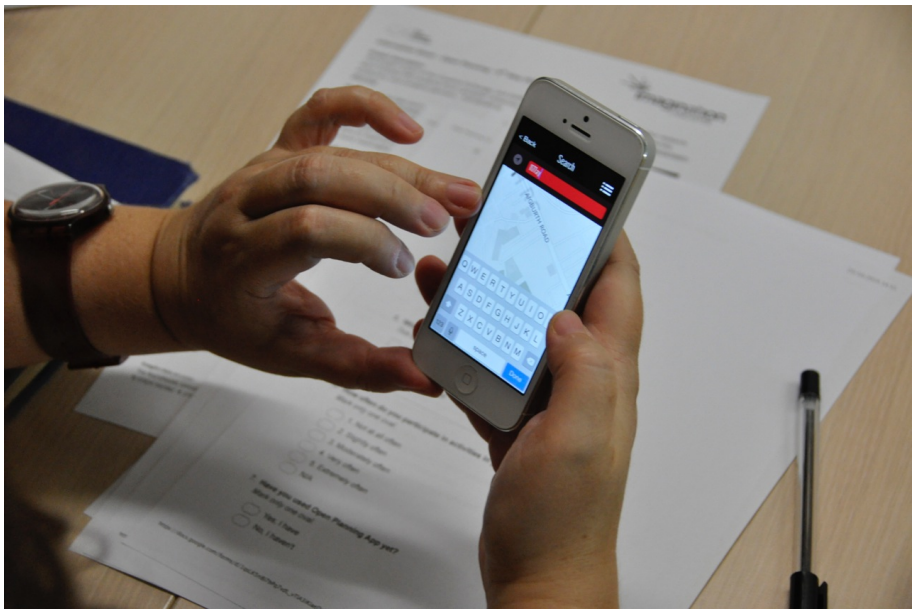

Figure 10 Open Planning App presentation (2014).

5 Chapter Five: A place in digital public space

The previous chapter argued that Manuel Castells' network society theory, though useful to contest an idealized cyberspace, preserves a binary approach no longer suited to account for contemporary digital public spaces, for the increased democratization of access to the space of flows provides an opportunity to think of places and flows as increasingly interconnected. This chapter continues the consideration of place-making, this time to explore digital public *places'* potential as enablers of intrinsically valuable spatial processes that allow for difference, multiplicity and heterotopia, from the position of activists and users (Lehtovuori & Ruoppila, 2015). The chapter introduces the concepts of weak place, temporary autonomous zone, and tactical media as essential to understanding the production of, and design for digital public spaces. The chapter then revisits the relation between place and digital content in net.art, web 2.0 and locative media, to highlight different approaches to practised digital public spaces. Finally, the chapter draws on two commissioned workshops to explore different approaches to the design of digital public places, and argues for the need for frameworks that include weak experience and hidden production as essential constitutive features of digital public spaces.

5.1 Weak places

"throwing meaning in unlikely sites"

Panu Lehtovuori (2010, p. 2)

Panu Lehtovuori (2000, 2010) argues that urban planning, exercised through maps and statistics focuses on 'design space', (mental and material moments of space) neglecting the rich situated value of urban spaces, and therefore based and reinforcing a view of the city that does not account for its experiential dimension.

Lehtovuori argues that the purpose of planning is "to control and regulate the city" (2000, p. 402), and that everything external to that discourse, "such as urban experiences and lived city", is a threat to it. For Lehtovuori, in planning to move from conceived to lived space, it must concentrate on experience rather than visual representation, and operate at places instead of spaces. Consequently, Lehtovuori propounds an experiential approach to urban planning that focuses on designing the context for experiences. This experiential approach seeks to re-think the conceptual foundations of the practice of planning to foreground lived moments of space, favouring temporality over fixity, and incorporating "as many ways of seeing an environment as meaningful – as many frames – as possible" (Lehtovuori 2000, p.408). Underpinning Lehtovuori's project is the notion of *weak place* which acknowledges the performativity of place and dismisses the conception of place as spatially fixed. In tune with Doreen Massey (1994), who posits that places can be imagined as articulated moments in networks of social relations and understandings; Lehtovuori invites us to "remove the still strong idea of places as spatially fixed, something that can be photographed, put on a map or sketched on a cognitive mapping questionnaire. Rather, place is fluid, open, extending from here to there and beyond" (Lehtovuori, 2005, p. 117).

Weak place is "open, ephemeral and tangential from several points of reference, but not owned by anyone, bounded and essential" (2010, p. 408); constituted of events, a moment of signification with a contingent connection to physical place, being open physically and temporally. Unclear, fluid, and personal, weak places are experientially bounded, a deliberate choice, always a creation, an *oeuvre*, being the seeds of the social production of space (Lehtovuori, 2005, 2010). Lehtovuori's weak place is a shared cultural spatial resource that belongs to several systems of meaning, a

commons, establishing a direct link between the right to the city and temporary uses, for temporary uses imply appropriation of urban space, a group-based *creation of value*, engaging in a conscious production of space (Lehtovuori & Ruoppila, 2015).

Lehtovuori approaches weak spaces mainly as events in physical space, tackling only briefly *technological* hybrids, such as *cyborg space* and the affordances of location-based media as events to redefine meaning of place, which will be addressed later (Lehtovuori, 2005, p. 167-169). Nevertheless, by questioning conceptions of place as physically contiguous fixed material locations, and foregrounding experience, the notion of weak place makes a strong theoretical contribution to flesh out digital public spaces, escaping dualisms.

I find the notion of weak place most interesting in the context of digital public space as a means to destabilize the dominance of conceived and perceived over lived experience, using digital events. For instance, whereas Marc Augé's non-places are one possible materialization of the space of flows, the concept of weak place, as "a tactic that insinuates itself into the other's place" (De Certeau & Rendall, 1984, p. xix), opens up a range of opportunities for the creation of meaningful experience at the convergence of places and flows, of heterotopical character (Foucault & Miskowiec 1986).

In order to contextualize weak place in digital public spaces, I draw upon temporary autonomous zones (TAZ) and tactical media (TM) as tactics that rely on digital affordances to facilitate "a reasonable life in the global world of non-places requires avoiding unconditional choices and significant, total relationships to achieve an empty, open, opportunistic, weak experience." (Lehtovuori 2000, p.407)

Acknowledging technology as a determinant factor of experience (McCarthy & Wright 2004), it is clear to me that the predominant sense of place in digital public space is

weak place, and TAZ and TM are instrumental to the appropriation of the space of flows to design for (weak) place. Lehtovuori's weak spaces may be found in new media art practice that has approached similar temporal configurations of place, grounded on an exploration of the affordances of new media.

Hakim Bey's (1991) work on the temporary autonomous zone (TAZ), ontological anarchy, and poetic terrorism is a source of inspiration and recurrent reference among cyberpunk culture, hacktivist, critics, and theorists of net.art. Chiefly, the essay theorizes about the production of temporary spaces that elude formal structures of social control and localized re-appropriations of space, in which digital affordances play a key role (Shields, 2005, p.165). In a more didactic fashion, tactical media (TM) practitioners, reunited by the foundational text '*The ABC of Tactical Media*' by Daniel García and Geert Lovink (1997), and well represented by Critical Art Ensemble (CAE), explore the creation of radical tactics to "counter the tendency of transforming the Internet according to commercial architecture" (Nolin, 2010, no pagination).

Bey and CAE explicitly distrust *the revolution* that would be followed by a restoration of the State. Therefore, they do not call for the replacement of all forms of organization, but its de-organization from within to disrupt the status quo. TAZ and TM seek to exercise the right to the city in weak spaces, explicitly addressing the affordances of artistic practice and digital media from a critical perspective.

5.2 TEMPORARY AUTONOMOUS ZONES

"Without the Web, the full realization of the TAZ-complex would be impossible.

But the Web is not the end in itself. It's a weapon."

Hakim Bey (1991, p. 132)

The poet and essayist Peter Lamborn Wilson is widely known for his anarchist manifesto on Temporary Autonomous Zones (TAZ), published under the pseudonym of Hakim Bey (1991). In the manifesto, published as part of a collection of essays written between the mid-1980s to the mid-1990s, Bey highlights the existence of indeterminate zones that fail to be incorporated into dominant narratives of capitalism, and seeks to avoid all mediation for an intensification of everyday life. As Simon Sellars (2010) notes, TAZ is largely influenced by Guy Debord's *The Society of Spectacle* and Deleuzoguattarian's rhizome theory.

In order to counter the dominance of the spectacle, and because the State is more concerned with *simulation* than *substance*, TAZ proposes a tactic of disappearance. TAZ has a specific temporality, the process of becoming, never to achieve permanence:

> *"an uprising which liberates an area (of land, of time, of imagination) and then dissolves itself to re-form elsewhere/elsewhen, before the State can crush it. […] As soon as the TAZ is named (represented, mediated) it must vanish, it will vanish, leaving behind it an empty husk, only to spring up again somewhere else, once again invisible because undefinable in terms of the Spectacle. The TAZ is thus a perfect tactic for an era in which the State is omnipresent and all-powerful and yet simultaneously riddled with cracks and vacancies" (Bey, 1991, p. 101).*

Despite Bey's quest for unmediated everyday life experience, he sought to unravel the potential countercultural value of the Web. In a historical review of '*Pirate Utopias*', Bey tackles the Web looking for opportunities.[12] In general terms, Bey's view on

[12] Sellars (2010) also notes that TAZ has also be placed on *festivals*, establishing a clear bond between Panu Lehtovouri's work on weak places.

technology is instrumental, for "Technology – freed from political control – could make possible an entire world of *autonomous zones"* (Bey, 1991, p.98). In particular, he establishes three different tendencies in the configuration of *information-space*, which blur into each other. The Net, "defined as the totality of all information and communication transfer", hieratic as controlled by various elites, nevertheless open to horizontal and dynamic operations. The Web, used to "refer to the alternate horizontal open structure of info-exchange, the non-hieratic network"; and finally "the term *counter-Net* to indicate clandestine illegal and rebellious use of the Web, including actual data-piracy and other forms of leeching off the Net itself" (Bey, 1991, p. 108).

There are three conditions under which "THE TAZ AS A CONSCIOUS radical tactic" will emerge, guidelines that will be further articulated by tactical media activists (Bey, 1991, p.132-133):

- Psychological liberation. For only knowing ourselves as free beings can make moments and spaces of freedom *actual*. Hence TM's didactic turn, to enhance the collaborative creativity and subversive energy that would seek to revitalize the channels (Sholette & Ray 2008).

- Expansion of the *counter-Net*. The information space of the Net is like a new sense that must be added, without replacing the others. Michel de Certeau argues that "because it does not have a place, a tactic depends on time" (de Certeau 1984, p.xix). Bey would suggest that the Web not only provides logistical support for the TAZ, but that to some extent it also compensates its temporary state, enhancing its duration

and locale, thus it would be fair to say that TAZ *exists* both in *real world* and *information-space* (Bay, 1991, p.109).[13]

- Disappearance. The nodular networked structure of the Net, with resilience features resembling those of guerrilla warfare, plays an essential role in the radical tactic of TAZ (Castells, 1996; Ray & Sholette, 2008). As a Trojan horse, both the mythological figure and computer virus, Bey proposes what he calls a *nomadic war machine*, which "conquers without being noticed and moves on before the map can be adjusted" (Bey 1991, p.102). As with Soja's third spaces, Focault's heterotopias, Deleuze's smooth space and Lefebvre's utopias, Bey's TAZ are spaces of *possibility* (Selman 2008).

As a final note I would like to underscore that as Bey wrote this collection of essays between the mid-1980s to the mid-1990s, it is not surprising that he approached the Web for its countercultural value, and even flirted with cyberpunk. Sellars (2010) suggests that cyberpunk was also nourished by Bey's anarchist manifesto, to finally be reified and become mistakenly associated with cyberculture (Lovink 2000). I would like to emphasize that at the core of the project of cyberspace was the production of an alternative space that would transcend the physical space. The cyberspace project never recognized central authorities nor the operation from within a bigger system –as TAZ claims–, for the cyberspace project was about the creation and preservation of an alternative space of the mind, autonomous yes, but not temporarily, and by any means restricted to a zone.

[13] It must be noted that the creation of a *counter-Net* in the society of spectacle though necessary is not risk free and has been largely problematized by net.art and tactical media literature (Forkert 2008) Anyhow the reification of TAZ by the media would only reinforce TAZ's assertion of the unstoppable absorption of the spectacle and State, which leads to the next point.

5.3 TACTICAL MEDIA

"a dream; let's all hope it doesn't end up a nightmare"

Geert Lovink (Sholette & Ray, 2008, p.554)

Born out of despair and disbelief about the failure of past ideologies, yet conserving a utopian desire of a better world, tactical media (TM) receives major influences from the Situationists, Hakim Bey's TAZ and Michael de Certeau.

TM are the *art of everyday resistance*, which do not seek to overthrown central power, but to offer resistance from inside the machinery of spectacle and provoke "temporary reversals in the flow of power" (García & Lovink 1997; Ray & Sholette, 2008). "TM has been a dominant theoretical framework for defining both politically engaged media art projects and aesthetically challenging modes of political mediation" (Dieter, 2011, p. 178), associated with net.art and names like Critical Art Ensemble (CAE), the Electronic Disturbance Theatre (EDT), Luther Blissett (multiple-user name used by Eva and Franco Mattes).

TM generate and function within temporary autonomous zones, taking advantages of the cracks. TM are unstable, nomadic and liminoid, for they "operate in the grey, in-between spaces as yet unregulated by institutional regimes"(Sholette 2005). Non-sustainable by definition, TM are "a sustained effort to de-familiarize forms of civil disobedience in order to re-invent new ways of responding critically to contemporary, social and political reality" (ibid). As Laura Baigorri explains, "The media's characteristics that favour the exercise of power are, paradoxically, the same that allow us to elude its control; because the power is incapable of covering such a vast territory, because within the web's chaotic space no universal control system is

possible" (Baigorri 1998, LS translation). Therefore, subversive practices use the same mechanisms and scenarios in which the very system is developed.

In Walter Benjamin's essay *The Author as Producer* (1934), the modern artist could and ought to become an agent of change of the current productive model. Nevertheless, Benjamin calls artists to be aware of the ease with which hegemonic media absorb, neutralize and annihilate any revolutionary messages that use their channels (Carrillo, 2004, p. 164). Seeking to encourage DIY practices that contribute to the empowerment of amateurs to counter homogenization, TM would often result in an approximation to institutions with the intention of exploiting their resources with other ends. Kristen Forkert calls for caution regarding the *institutionalization of critique*, which would create an illusion of 'progressiveness' while leaving things unchanged, meaning that TM would be operating against its initial intentions (Forkert, 2008)[14].

The following section briefly revisits three milestones that illustrate weak place, TAZ and TM influence in the practice of place-making in digital public spaces. First, net.art practice, which putting up resistance within the system as the system's consciousness, would seek to embrace, rather than tame, the radical interactivity of the Web[15]. Second, art in the web 2.0; and finally locative media and the practice of new geographies.

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[14] By *the institution* Forkert refers to the *central organization, "*not only the museum or the state but also the corporation, cultural policy initiative or city branding campaign" (Forkert 2008, p.590). As *central organizations* seek to transfer qualities associated with critical contemporary art to their own public image; shall the agenda of creative industries linked to policy-making and urban regeneration also be questioned.

[15] The short history of net.art perfectly illustrates the evolution of the Internet (Carrillo 2004). This activist practice contains a comprehensive and condensed exploration of the struggle over the configuration of the medium, offering a renovated resistance to the centralized and institutional forms of control that proliferated in the Web. Net.art major contribution may be the development of tactical media (García & Lovink 1997; García & Lovink 1993) in an effort to explore temporary autonomous zones (Bey 1991) and configure the Web as a lived space.

5.4 NEW MEDIA ART AND WEAK PLACES

New media art have largely relied on the concepts of temporary autonomous zone (TAZ) and tactical media (TM), drawing heavily upon Michel de Certeau (1984). New media art, quickly revisited from net.art to locative media, will serve to illustrate how weak places (Lehtovuori 2005, 2010) in digital public space may operate, and how they are indebted to cybernetic culture.

5.4.1 NET.ART

In *Cyberspaces of Everyday*, Mark Nunes (2006) approaches the Web as a global space comprised of a network of linkages, in which each link, each informational unit or webpage, attempts to establish a sense of place. For Nunes, hypermedia constitutes a relational space, enacted and actualized by browsing as a lived practice (2006, p.50). Hence, while the dominant form of the Web is produced by representations of space – hypermedia and the interface their material form – browsing is the lived practice that articulates an event-like relational space. Nunes argues that lived practice in hyperspace would depend upon the practice of interaction in an emergent and enactive network, operating at a global and individual level simultaneously. At a global level, Nunes describes the practice of interaction as "making links from text to text or site to site, the user literally maps, by way of lived practice, a cluster of material and conceptual connections" (2006, p.51). At an individual level – at the point of the interface – each webpage not only functions as a node to the next, but overall as an enacted environment, allowing personalization and control from a situated perspective (Nunes, 2006, p.76).

Hyperspace's event-like spatial order described by Nunes is the subject of exploration by net.art practices. Jodi's[16] hypermedia creations provide a valuable model to experiment the relational qualities of hypermedia, establishing a non-directional sense of place (Nunes 2006). Deconstructing hypermedia, simply by not following interaction design conventions or hiding the navigational structure, Jodi creates *hypermedia derives*, which manifest the Web's new spatial order, in the same way as Situationist cartographies sought to provoke a view of urban spaces from an unaccustomed angle (Massey, 2005). Jodi's *détournements* seek to emphasize the contingent order of hypermedia, which is reconfigured and reproduced with each user interaction. As a "method of interpretation and reinterpretation [hypermedia derive] creates a space for the free play of imagination and desire beyond simple surfing, movement, and transitivity" (Elias, 2011, p. 827).

In contrast, if websites were approached – very much in the fashion of Nelson's evolutionary files structures (Nelson 1974) – as a structure of hyperlinked informational units, websites would articulate a network made up of representations of space, not contingent, but rather structured as "pre-programmed, objectively existing associations" (Manovich, 2001, p.61). Therefore, presenting informational units as places to be simultaneously accessed by a number of disconnected users in the privacy of their homes may result in flattened surfaces incapable of hosting social practice. An archive that contains representations of space of various sorts, articulating digital cities without citizens, offering a virtualized interactivity, which replicates the operations of mass media (Prada n.d.). In this regard, the Web might be better understood as a transitional space, in which each informational unit is a non-

[16] Collective composed by Dirk Paesmans and Joen Heemskerk http://wwwwwwwww.jodi.org

place (Augé 1995), for Net users are obedient transit passengers with very limited interaction opportunities.

Nevertheless, the Web as *oeuvre* lacks fixity, and may be found in net.art practice (Brea 1999), especially in the radical view on interaction of the Italian hacktivists Eva and Franco Mattes, who operate under the pseudonym 0100101110101101.org (01.org) and the shared pseudonym Luther Blisset. For 01.org, the Web must be configured as a lived space; hence their work takes interactivity to the extreme capacities of the medium[17]. 01.org has cloned some of Jodi's hypermedia derives to reveal its internal structure to the audience, therefore organizing it. In doing so, 01.org established a true dialogical relationship with the space created by Jodi (Baumgartel 1999). According to Luther Blissett (1999, no pagination), potentially 01.org themselves, "0100101110101101.ORG is trying to show that art in the web can really become "interactive"; the public must use it interactively, we must use an artwork in an unpredictable way, one that the author didn't foresee, to rescue it from its normal routing (studio/gallery/museum or homepage/Hell.com/Moma) and re-use it in a different and novel way."

In order to make the Web a lived space, Puig (2012) suggests that cultural production in hypermedia must create systems as an *oeuvre ouverte*, in a nod to Umberto Eco and Roland Barthes; and in tune with the most radical tactics of net.art, which would have exercised a form of *poetic terrorism*, seeking the art of sabotage as a form of creation-through-destruction (Bey, 1991). The notion of weak experience is essential to understand the spatial component of net.art practice. However, these are just momentary glimpses of 'otherness' (Fletcher 1997), temporary autonomous zones in

[17] The radical interactive approach of 01.org is based on explorations of the *zero distance* between original and copy (Brea, 1999; Blissett, 1999). 01.org explains: "You don't have to destroy the original because there is no original. [...] This discussion about originality doesn't have any meaning any longer on the Net. When we clone Jodi, we don't destroy their work; we re-use it" (Baumgartel 1999).

which the displacements and transgressions of the medium are explored wholeheartedly, just to be readily assimilated into a broadly homogenized Web.

In 1999 the exhibition net_condition, curated by Peter Weibel and Timothy Druckrey at Zentrum für Kunst und Medientechnologie (ZKM) in Germany, signified the institutionalization of artistic practices in the Web. The institutionalization of net.art, the inclusion of websites-artworks into archives brings fixity to these new media art practices, eliminating the possibility of radical interaction. The gallery's black box resolves the conflict between physical and digital operational models, imposing the domination of one over the other. The museum, as the archive, preserves, and in doing so transforms net.art into an immutable status, controlling and reducing all possible interaction, therefore reducing the lived space of net.art to a mere representation. The institutional acknowledgment of net.art is not just its validation as a cultural product, but a limitation of the radical interactivity of the medium, for some a point of departure, for others the death of net.art (Zafra 2000). As Remedios Zafra (2000) suggests, net.art evolution seems to be the story of small initiatives that end up been absorbed, rescued and preserved by larger institutions.

5.4.2 SOCIAL WEB AND A SECOND MEDIA AGE

The period termed post hoc as Web 1.0 was just the beginning and not a complete realization of Berners-Lee's vision: "There was a second part of the dream, too, dependent on the Web being so generally used that it became a realistic mirror (or in fact the primary embodiment) of the ways in which we work and play and socialize" (Berners-Lee 1998). The Web 2.0, as a more complete realization of the potential of the medium, promised the advent of a second media age, a "shift to a decentralized network of communications [that] makes senders receivers, producers consumers,

rulers ruled, upsetting the logic of understanding of the first media age" (Poster, 1995, p.88). In a nutshell, second media age refers to five key transgressions, compared to mass media such as print and traditional broadcast models: "(1) enabling many-to-many communications; (2) enabling the simultaneous reception, alteration, and redistribution of cultural objects; (3) dislocating communicative action from the posts of the nation, from the territorialized spatial relations of modernity; (4) providing instantaneous global contract; and (5) inserting the modern/late modern subject into an information machine apparatus that is networked" (Poster, 2001, p. 16).

Although these features were inherent to the original web discourse (Allen, 2012), the distinction of a second version of the Web was established to capture the set of principles and practices, which tie together the design patterns and business models that overcame the 2001 dot-com bubble (O'Reilly 2005). The essence of Web 2.0 is an economic model based on promoting the voluntary production and indexation of user generated content. An *inclusive logic* that consists of adding the user to the information available (Martín Prada 2007). A process to which Castells refers as a *culture of real virtuality*, characterized by the need of being recoded into the new electronic system (Castells, 1996a). Jesús Carrillo sees in this moment the culmination of digital culture, in which cultural material is reduced to algorithm combinations readable by the computer, and the computer ceases to be a mere instrument to become the filter of culture (Carrillo, 2004, p.60).

Cyberspace and *meatspace* are no longer antagonistic, for we accept ourselves as a *flesh computer* (Critical Art Ensemble 1998). The archive produces a more mature version of the *data body*, as a collection of files connected to an individual which serves repressive and marketing apparatus, but even more importantly, that becomes the centre of the individual's social being (Critical Art Ensemble 1998), to the point at

which, as William Mitchell puts it, “disconnection would be amputation” (Mitchell 2003, p.62).

Users assumed the role of content producers, performing the self-imposed task of digitalizing their surroundings by tagging, classifying, indexing and sharing them in digital networks. Users internalized the computer logic, thus transforming experiences in multimedia content and participating in digital communities and all sorts of new social and cultural processes and structures online. The physical and virtual environments that cyberspace could not conceal come closer, in which there is just a commodification of the Barlovian cyberspace. Cyberspace and informational superhighway became obsolete, replaced by a ubiquitous *cloud* that operates as an enhancement to physical space.

While the tactical use of hypermedia in net.art would have sought to provoke tensions, and reinforce a set of conditions that define the medium as a second media age (Poster 1995b; Poster 2001), the articulation of the Web 2.0 as an economic model, and the vertical integration of mass media into the network rhythm would lead to the commodification of that very set of principles. The digital platforms and services that became part of our everyday lives do not necessarily aim to enhance the quality of our lived experience, but to develop successful business models (Thompson 2013). Geert Lovink notes how even the most radical concepts are often turned into commodities, giving Hakim Bey’s TAZ as an example (Sholette & Ray, 2008). The Web, even at the service of TM, would become an instrument to strengthen the absolute power of capitalism. A space of flows in which the speed and capacity to control flow is key, disregarding the nodes of the network and the opportunities to create social and public space (Bradley 1998). The Critical Art Ensemble (CAE) highlights the marginality of humanistic purposes in the Net, which largely becomes a “site for

repressive order, for the financial business of capital, and for excessive consumption" (Critical Art Ensemble, 1998, p.155).

For Lev Manovich, the Web 2.0 represents a dramatic reconfiguration between strategies and tactics, as it implies "the transformation of people's tactics into business strategies" (Manovich, 2009, p. 324). Again, it would be the role of art practices to reinforce the potential of the connected multitude, critically reflecting upon social interactions in Web 2.0. For instance, art 2.0 would be characterized for the subversion of the network-based communicative interactions; for artistic practices have the affordance of diminishing the effects of the colonization of communication by economic interests; raising awareness of oppositions and frictions in mediation mechanism and socialization control predisposed by the Web (Martín Prada, 2007; Salinas 2010, 2011).

Ultimately, the Web 2.0's spatial relevance lies in the synergistic relationship between place and people. Web 2.0 platforms offer a dialectical relation between material and subjective dimensions of space, for everyday life is represented and acted out through Web 2.0 platforms (Hardey, 2007). In addition, the irruption of mobile technologies as mundane interfaces has provoked three key displacements (de Souza e Silva 2006): the blurring of traditional boundaries between physical and digital spaces; a shift from static to mobile; and the reconfiguration of urban spaces, which ultimately become connected, mobile and social hybrid spaces.

5.4.3 LOCATIVE MEDIA AND NEW GEOGRAPHIES

Of special relevance for the configuration of connected, mobile and social hybrid spaces are locative media. The term, coined by Karlis Kalnins and explored at a cross–disciplinary workshop at K@2 in Karosta (Latvia) in the late summer of 2003, refers to

critical uses of location-based technologies (GPSs, mobile phones, laptops, Wi-Fi, Bluetooth, RFID, etc.) as opposed to corporate uses (Lemos 2008).

Locative art vindicates the synergy between the city space and the data streaming space through alternative uses of these mobile information technologies or locative media. On a practical level, locative art proposals generate new communication experiences and dynamics as well as relations with the environment – new forms of territorialization which provide new senses of place, and often act as catalysts for the reinforcement of local communities. Locative art proposals rethink concepts of space, territory, place, city, community and mobility according to the gradual and constant hybridization of space (Hemment 2006). These practices provide an anchor for critique of the space of flows (Townsend, 2008), being a key element in the social transformation of space, contributing to place-making strategies (San Cornelio 2013), not necessarily based on landmarks, but also on events (Sant 2006).

The Situationist celebration of revolutionary play is revived in creative explorations of location-based technologies. Graham Hooper (2012) advocates for a *neocartography into psychogeography*:

> *"Old maps are car centric and road focused, they want me to drive to places. New maps begin with human being walking, feet on the ground. […] Old maps shows us what is already there. New maps make the invisible visible, the lost found and the unimaginable possible. […] Old map have a predetermined routes and preferred pathways, new maps relish the contraflow, encourage diversions. […] Old maps tell you where you are, new maps invite you to go somewhere."*
>
> (Hooper, 2012, no pagination)

Reframing psychogeography with locative media, '.walk' (Social Fiction, 2004) develops the idea of 'generative psychogeography' as 'walking on algorithms', as a way

of enacting algorithms, in which code-generated patterns guide urban explorations. In a similar fashion, Serendipitor (Shepard, 2008) is a navigation mobile app, which provides step-by-step directions that deviate from the optimized and efficient route suggested by Google Maps. Revisiting another Situationist classic, GPSdiary.org (Knaub 2003) and Amsterdam RealTime (Polak, & Jeroen 2002) are automatically generated versions of the study by the urban sociologist Paul-Henry Chombart de Lauwe in 1952, which mapped out the movements of a young Parisian student over the course of a year. Should these *Situationist remades* serve as an example of how easily tactical media is institutionalized, and locative media turns into "psychogeography without the critique" (Rieser 2009), becoming itself a commodity, operating against its initial intentions?

Yet, I argue that locative media practices, as a combination of land art, media art avant-garde and human computer interaction (Tuters, 2011) are indeed an essential contribution to new cartographies, for locative media enable the creation of personal and collective cartographies that seek to bring the "cartographic attributes of the invisible" (Gibson, 2007, p. 19). Tactical uses of locative media to articulate new cartographies may be found in the multimedia explorations of Urban Drifts (Raffa 2009), the emotional maps of Christian Nold (2005), the Prayers of Dora García (2011), in which performers recite like prayers everything they see, hear, feel and think, and Megaphone, a collaborative multimedia map that, using mobile phones, invite groups of people often overlooked or misrepresented in mainstream media to express themselves (Abad, 2004).

The attributes of the invisible, made visible through locative media, are an exploration into Michel de Certeau 's hidden production (1984), seeking to recover

the lived space that has been lost in the process of representation (Kirsch 1995), and that is constitutive of weak experience.

5.5 PRACTISING DIGITAL PUBLIC PLACES: THE ATTRIBUTES OF THE INVISIBLE

Two workshops, *Creative uses of pocket technology* commissioned by TechwizZ 2013, and *#MapYourMarket* commissioned by LU Arts, have served to explore opportunities to design for digital public *places* and weak experience through locative media. The first workshop focused on the potential of locative media and the Web 2.0 to articulate informational territories (Lemos 2010), and the ephemeral character of weak places (Lehtovuori, 2005). The second workshop explored de Certeau 's rhetoric of walking (1984) as an act of production mediated by locative media. Both workshops invited participants to reflect upon the production of digital public places, and the need for a framework that acknowledges weak experience and hidden production as essential constituents of digital public spaces.

5.5.1 CREATIVE USES OF POCKET TECHNOLOGY

The Creative Exchange was commissioned to run a workshop for TechwizZ 2013 at Accrington Academy on February 9th 2013 for an audience of young people and educators. The brief for the workshop was to provide an insight into current and future developments in educational technology, and develop new skills in hands-on workshops. In order to encourage critical thinking on how everyday places are experienced in conjunction with digital content, we designed a one-hour hands-on workshop in which participants created with digital content, exploring the hidden affordances of everyday technologies to temporarily transform place in a playful way.

The workshop mixed elements of the well-known games *charades* and *treasure hunt*. Participants formed two groups of five to ten participants. During the first half-hour each group created the hints for the other group to play during the second half. After a brief introduction each team had twenty minutes to pick a film, create three QR codes that would link to digital content, either found online or specially created for the occasion. Each hint had a double function. The selected digital content was not only a hint to the film, but also had to lead to the next QR code location within the academy. Therefore, each QR code also led to a location across the academy where the next hint would be found.

Participants used everyday locative media[18] to link digital content to physical locations, and added digital annotations to infuse temporary meanings to the quotidian spaces of the academy. Each iteration showed the fragility and ephemerality of digital content during the short period of the charade. The following vignette and Figures 11 and 12 illustrate the workshop's dynamic:

The game started at an ordinary classroom, when the teams exchanged the first clue: Team A scanned the QR code using a free app in the tablet, which instantly pointed at an online picture of a broom. Where would you look for a broom in Accrington Academy? While I was still trying to get my head around it, one participant ran out shouting "the cleaning room". Of course, brooms are kept at the cleaning room. After visiting six different rooms on two different floors – lots of running involved – we finally found a QR code stuck on a cleaning room door. With the tablet ready to scan, the capture of the QR code led to a YouTube video shot by team B, in which a wizard paralyzed someone with a magical spell. Team A recognized where the video was shot,

[18] The equipment consisted of two tablets with Internet connection, browser, photo and video camera, already logged on to Twitter to facilitate sharing content online. A website link to create QR codes was provided. Two facilitators assisted to print QR codes.

and the running started again. A third QR code revealed the picture of a wooden stick, maybe a wand. Brooms, spells and wands. It must be Harry Potter, team A agreed, while running back to the classroom to meet up with team B.

Figure 11 Participant finds a QR code.

Figure 12 Clue in video format shot by participants.

The workshop's playful exploration of the affordances of quotidian digital platforms proposed to go beyond mainstream use and play with locative media potential to temporarily reorganize the relation between physical place and digital data in a sort of *détournement*, to temporary assemble digital public *places*.

The workshop's setting in the extraordinarily empty and silent corridors of the academy constituted an uncanny space that eased the temporary transformation of the space. Young participants were quite proficient in the Web 2.0 tools employed for the generation of hints; whereas the idea of linking digital media with physical locations was novel to them. Yet, participants quickly understood that QR codes were a means of *exporting* digital content into a physical location. The creation of hints as site-specific digital annotations was an excellent introduction to combining physical and digital elements into a narrative, and the possibilities of this hybridization. Finding a QR code was the most precious moment, for revealing the content of a code

would – if only temporarily – transform the uncanny and yet well-known spaces of the academy.

Building upon a creative exploration of the affordances of *pocket technology*, the workshop sought to engage participants in creating contingent relationships between hypermedia and place, to de-familiarize and temporarily re-invent the spaces of the academy, articulating temporary digital public places. The workshop created a seamful space, in which the process by which physical and digital were brought together was made obvious. The method of creating a hint that operated both as a physical and digital spatial constituents exemplified the simplicity and yet transformative power of tactics, and the fragility of temporary autonomous zones.

5.5.2 #MAPYOURMARKET

Over the course of one year, the Market Town initiative offered a programme of commissioned artworks, workshops and critical debates focused on setting out to re-imagine the future of Loughborough's streets. The project drew on The Portas Review (2011), for Loughborough is one of the cities in which the proposed recommendations are being tested. In the review, Mary Portas argues that "High streets must be ready to experiment, try new things, take risks and become destinations again. They need to be spaces and places that people want to be in. High streets of the future must be a hub of the community that local people are proud of and want to protect." (Portas, 2011, p.14)

Market Town was led by Radar, LU Arts and Charnwood Arts, in partnership with Love Loughborough and Charnwood Borough Council, and supported by Arts Council England. As part of the project a series of events was hosted at a unit in Carillon Court Shopping Centre, at the heart of Loughborough market. The space,

Market Town Corner, was used from August 2015 to February 2016 to host a series of commissioned events to involve the community in the future design and operation of their town. Artists, architects and designers who share an interest in regeneration and working in partnership with communities were invited to respond to the action research brief and engage with the local community in different ways.

The workshop #MapYourMarket was commissioned to take place on Saturday 19th September 2015, as part of this larger programme. #MapYourMarket drew upon The Creative Exchange's projects, Open Planning (2012-2013) and Pathways of Desire (2015), to propose a creative engagement workshop in which participants of all ages would explore the market, and share their experience. #MapYourMarket consisted of three identical sessions with different audiences. The two first sessions in the morning and early afternoon were exclusively dedicated to Charnwood Arts[19] community groups. A third session in the afternoon was open to the general public.

Participants met at Market Town Corner to form groups and enjoy a sunny market day, visiting well-loved favourite stalls and hunting for hidden gems for about forty-five minutes. Each group carried a GPS recording device – an Android smartphone with the free app MyTracks running – to trace their stroll. Smartphones were locked, for smartphones were not intended to be navigation but tracking tools. The exercise of recording a GPS track while walking sought to encourage reflection and introduce the idea of writing by walking (de Certeau, 1984). Recorded tracks were briefly discussed with participants upon their return, gathered and shared online after the workshop in different formats using http://www.gpsvisualizer.com/ (Figure 13). Upon their return, participants shared their experiences while hand-drawing their route on

[19] Charnwood Arts is an independent community arts and media organization based in the Borough of Charnwood, dedicated to providing access to the arts for and with a diverse range of groups and individuals and actively seeking to connect different cultures and communities through creativity.

a blank map. The blank map designed for the occasion had Market Town Corner at the centre, and included a perimeter that could be walked in forty-five minutes. Hand-drawn maps captured participants' individual journeys, while discussing the market's place in Loughborough life. While participants were initially interested to see the outcome of their GPS tracks, they quickly lost interest in the flat line that represented their journeys, even having difficulty relating their recent experience to it. Participants found it much more appealing and meaningful to have the opportunity to share their experience by drawing and writing on a blank map (Figure 14). The precise but otherwise flat account of GPS tracks, which tell us very little about participants' day in the market, stands out against the richness of hand-drawn maps.

Participants' accounts of their day in the market in these two different formats raise questions about the hidden production that weak experience entails, which, despite being an essential constituent of digital public *places*, is not easily accounted for.

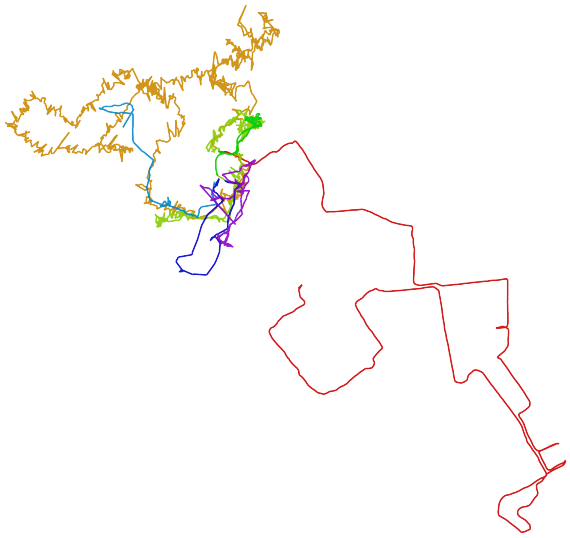

Figure 13 Visualization of Participants' GPS tracks.

Figure 14 Two participants drawing their journey and favourite places in Loughborough.

The workshop proposed the adoption of de Certeau 's rhetoric of walking (1984) as a framework to reflect on the double illusion of space (Lefebvre, 1992), and recover the lived space that has been lost in the process of representation (Kirsch 1995). The workshop exemplified de Certeau, Lefebvre and Kirsch theories in combination, and established a comparison between physical and digital constituents of hybrid spaces. Firstly, participants wrote the city by walking, and whereas it was made evident by the GPS track, it only became meaningful during the storytelling exercise of drawing their path through the market. Secondly, the digital method evidenced the double illusion of space, as participants were puzzled by its true simplicity, while frustrated by its opacity, and hand-written trajectories featured as an attempt to overcome that double illusion.

To recapitulate, this chapter has sought to re-contextualize weak experience in digital

public spaces as a framework for exploring the contingent connection of digital media to physical space that allows for difference, multiplicity and heterotopia. Drawing upon TAZ and TM as tactics to elude formal structures of control and facilitate re-appropriations of space, the chapter moved on to explore the collaborative creativity and subversive energy of new media art practice. A brief review of net.art, Web 2.0 and locative media served to illustrate three well-differentiated practices of place-making in digital culture. First, in a broadly homogenized Web, net.art explorations sought to embrace the radical interactivity of the Web and experiment with the relational qualities of hypermedia, enacted and actualized by browsing. Second, Web 2.0 as a reification of cultural materials into digital format, and the transformation of tactics into business strategies with the commodification of second media age principles. Finally, locative media was approached as being generative of new relations with the environement, with the potential to articulate new forms of territorialization. Fundamentally, this review has sought to account for creative practices that have reclaimed the right to digital public places through the production of differential spaces, in which digital events are used to design for weak experience, and destabilize the dominance of conceived and perceived moments of space. With a didactic emphasis, two workshops have engaged participants in creative and critical uses of everyday technology, raising awareness of the synergistic relationship between place and people that Web 2.0 and locative media enable, and exploring different aspects of the collaborative production of digital public places at a practical level. This exploration has reaffirmed the fragility of weak experience and the hidden productions it entails, and led to the conclusion that fashioning different modes of visibility (Thrift 2004) is crucial to articulate digital public *places* in which momentary glimpses of 'otherness' (Fletcher 1997) can emerge.

6 Chapter Six: Using games design as a framework to analyze experience in digital public spaces

The previous chapter considered the production of digital public places in new media art practice as a means to enable difference, multiplicity, and heterotopia; and argued for the need for frameworks that include weak experience and hidden production as essential constitutive features of digital public spaces.

This chapter, based on a co-authored paper[20], explores the perceptions of public and private information spaces through the creation of a novel experience, known as Chattr, wherein a physical public space was created within which people's conversations and actions were subject to some of the rules that would normally apply to interactions taking place in online social networks. The chapter considers people's experience of Chattr at two different venues, and uses games design as a lens through which to evaluate such hybrid experiences. This games lens frames Chattr as a system whose formal structure is governed by rules operating at three levels: constitutive, operational and implicit, and helps identify how differences in each venue altered the nature of the experience. It is suggested that game design theory fosters greater understanding of the complexity of our interactions in such spaces by revealing how the different digital and physical rules governing these spaces ultimately affect our behaviour.

[20] Salinas, L. Coulton, P. & Dunn, N., (2016) Using Game Design as a Frame for Evaluating Experiences in Hybrid Digital/Physical Spaces, Architecture and Culture,4(1), pp. 115 – 135.

6.1 A NEW SENSE OF PLACE

Contemporary urban public spaces are not limited to physical territories, but their information is extended through digital platforms, in a wide diversity of relations and synergies between place-based and tele-mediated exchanges that produce new types of spatial arrangements (Graham 1998). This convergence between physical and digital information generates new senses of place; as a result of the negotiation between physical dimensions and electronic flows (Lemos 2010).

The urban environment is reconfigured in a multiplicity of heterogeneous hybrid places. Academic literature particularly calls for flexible approaches to public and private that reflect the heterogeneity and multiplicity of space and time in contemporary urban spaces. Approaches based on static propositions are no longer applicable, and may be replaced by "new hybrids of private-in-public and public-in-private" (Sheller & Urry 2003, p.108). Urban experience is situated in both and neither, multiple publics and privates.

Contemporary urban spaces are increasingly dynamic configurations of people, technologies and places; always contingent, constructed and negotiated. Stephen Graham and Patsy Healey call for new conceptualizations of place, based on relational views and the notion of multiple simultaneous perspectives of socially constructed experiences (Graham & Healey 1999). As Joshua Meyrowitz suggests, individuals adapt in order to manage the tensions between public and private created by media, according to the specificities of the situation (Meyrowitz 1985).

In *No Sense of Place: The Impact of Electronic Media on Social Behavior*, published in 1985, Joshua Meyrowitz suggests that electronic media, independent of its content, reorganizes the social context in which people interact, thus leading to no sense of

place. Meyrowitz approaches physical settings as distinct (social) situations, seeking a single *definition of the situation*, which, challenged by the inclusion of electronic media flows, provokes a *context collapse*, for two disjoint locations have been brought together. Meyrowitz argues that when formerly separate situations merge, their distinct definitions merge into one *new definition*, creating new types of social situations in which the primacy of electronic media over physical settings provokes the separation of social situation from physical space, and a single definition of situation no longer applies. Meyrowitz's concept of context collapse acknowledges that situations are also shaped by what is outside them, such as "patterns of access to and restriction from the social information available in that environment" (1985, p.42). Meyrowitz concludes that new media "not only affect the way people behave, but they eventually affect the way people feel they *should* behave", therefore "breaking down distinctions between private and public information-systems" (1985, p.175). Alice Marwick and Dana Boyd (2010) have revisited Meyrowitz's theory, and introduced the concept of *imagined audiences* in order to investigate how Twitter users conceal context collapse produced by contemporary new media. However, due to the multiplicity and complexity of media, in order to adapt to the situation, individuals face the challenge of understanding the interplay of physical-digital features and the potential reconfigurations of space.

Regarding the pervasive application of information technologies, Dana Cuff calls upon designers, architects and urbanists to design to provide information, choice and control; raising awareness about the otherwise imperceptive systems of embedded networks that reconfigure space (Cuff 2003).

Urban games such as those devised by the Situationists in Paris sought to encourage people to step off their usual path and to look at these familiar spaces differently with

a view to appropriating them outside their official use. The practice of *détournement* is the distortion of pre-existing elements, reorganized to originate a new meaningful ensemble. Distortions introduced are directly related to the original context of the elements, and constitute a powerful critical and cultural tool (Debord & Wolman 1981). The construction of situations is a notion closely linked to play, Guy Debord argues, as happens in games, entire situations may be detourned simply changing a determinant condition of them (ibid).

In a similar manner to *détournement*, distortions of the elements that make up hybrid spaces have the potential to reconfigure situations, and enable critical reflection upon the interplay of people, technologies and places. In this research it is therefore argued that game design offers a critical frame that not only reveals the complexities of hybrid spaces but also provides a means of considering hybrid social spaces more generally. In particular, it facilitates an understanding of the interplay of formal elements, and the interconnection of physical and digital contexts, that affect experience.

6.2 GAME AS DESIGN FRAME

The notion of what constitutes a game has produced a number of definitions but arguably the most useful is that of philosopher Bernard Suits from his book *The Grasshopper: Games, Life and Utopia* (Suits 1978, p.34) in which he says:

> *"To play a game is to engage in activity directed towards bringing about a specific state of affairs, using only means permitted by rules, where the rules prohibit more efficient in favour of less efficient means, and where such rules are accepted just because they make possible such activity [...] playing a game is the voluntary attempt to overcome unnecessary obstacles"*

What this and many other definitions share is the emphasis on rules and either the implicit or explicit assumption that games take place in a space often described as the magic circle. The concept of the magic circle within games came into common use through games designers Katie Salen and Eric Zimmerman's adoption of the phrase in their book Rules of Play (2003), which they themselves adapted from Johan Huizinga's more general description in Homo Ludens (2008).

The following sections will expand on the role space and rules within games as these provide the foundation of the novel approach we proposed for framing and evaluating peoples experiences within the growing number of hybrid digital/physical spaces.

6.3 GAME SPACES

Games that utilize real-world physical spaces as their magic circle are often described as pervasive games although terms such as mixed reality, augmented reality, alternate reality, ubiquitous games, location-based games, big games, and urban Live Action Role Play (LARP), to name but a few, are equally applied. Steffen Walz (2010) reframed the settings for such games as Playces through his analytical framework of games as architectures. In this work Walz highlights Henri Lefebvre's concept of Rhythmanalysis (2004, p.25) – "Everywhere where there is an interaction between a place, a time and an expenditure of energy there is a rhythm"– which Borden suggests relates to the psychological concept of flow (Borden, 2001), further developed by Mihaly Csíkszentmihályi (1991). Flow is often cited as a desirable quality for games to maintain player engagement over a sustained period, as it constantly seeks to keep a player at the edge of their abilities and thus absorbed. By equating these two concepts Walz appears to suggest that if games that utilize physical space are to be engaging, the physical space must also be viewed in relation to how it aligns with the flow of the

game play. Whilst this seems useful for the games that utilize avoid and/or chase as their core game mechanic (Rashid et al. 2006), it seems less relevant to those where movement is not the primary driver of the game. Therefore I argue it is more appropriate in such cases to draw upon Lefebvre's triad spatial model that includes: social space (representational space), physical space (spatial practice), and mental space (representations of space) (Lefebvre, 1991). Physical space refers to the concrete space people encounter in their daily environment and mental space refers to our conceived constructions of space. Social space is the complex combination of perceived and conceived space.

Despite the difficulty of mapping Lefebvre's theory of space onto computer games, Espen Aarseth suggests that while computer games host spatial practice, they are also both representations of space (formal system of relations) and representational spaces (symbolic imagery). Aarseth extends his argument and posits "spatial representation in computer games as a reductive operation leading to a representation of space that is not in itself spatial, but symbolic and rule-based" (Aarseth 1998, pp. 44-45). This reduction of conceived and perceived moments into symbols and rules is essential in the constitution of the allegoric space of game play (magic circle), and can be taken forward to approach hybrid spaces, in which a digital counterpart (symbolic and rule-based) strongly affects our experience of the space.

Similar to Lefebvre's spatial triad, Salen and Zimmerman propose approaching game space as systems constructed by "[f]ormal, experiential and cultural qualities that always exist as an integrated phenomena" (Salen & Zimmerman 2003, p.53) and subsequently constitute a specific set of rules (form) within a given context (culture), from which meaning emerges (experience). This consideration suggests that game design has a great deal to offer when considering people's experience within a context

of physical spaces that are increasingly performed in relation to rules imposed by digital systems.

6.4 Games as Rule-Based Systems

Whilst we are familiar with the formal sets of written rules that might, for example, be supplied with a board game that provide players what they need to know in order to play the game; they do not completely cover the underlying mathematical logic or the expected player etiquette which also contribute to the experience of playing the game. To help designers consider more fully the nature of the experience they are creating Salen and Zimmerman (ibid., 126-139) proposed a three part rules model for understanding rules:

- *Constitutive rules* are the abstract, core mathematical rules of the game. Although they contain the essential game logic they do not explicitly indicate how players should enact these rules.
- *Operational rules* are the 'rules of play' that players follow when they are playing a game. Operational rules direct the player's behaviour, such as the amount of money allocated to each player at the start of Monopoly, and are usually the kind of rules printed out as instructions.
- *Implicit rules* are the "unwritten rules" of etiquette and behaviour that usually go unstated when a game is played. Similar implicit rules apply to many different games.

It is interplay between these different types of rules that helps create a formal identity that allows us to distinguish a particular game as unique from other games. This identity emerges from the specificity of the relationship between the constitutive and operational rules of the game. The meaning of the game emerges through a process of

playing and encompasses all three levels of the rules in the context of the games magic circle.

6.5 CHATTR DESIGN

The concept for Chattr was originally conceived during a The Creative Exchange workshop in January 2013 whose aim was to produce proposals for short experimental projects that could explore the notion of the digital public space by interdisciplinary teams, following a research through design methodology. The original concept, 'Chatter - In Sync in the Digital Public Space', was a proposal to explore different applications of Linguistic Style Matching (LSM) (Niederhoffer & Pennebaker 2002), by providing real-time visual feedback of the degree to which participants could vary their word choices in phone conversation between two randomly assigned participants.

Unfortunately, the concept was both technically difficult and ethically controversial. As The Creative Exchange is an academic research project all sub-projects are bound by university ethical research requirements of informed consent, which means that the data collection process had to be absolutely clear and transparent to all participants and designed to guarantee anonymous contribution and right to withdraw from the experiment. The differing expectations between research ethics and artistic experimentation led to tensions resulting in two very different implementations. The original proposal for transcribed conversations that feed back into live conversations to affect participants experience, and question ethical practices, was developed by Kyle McDonald and Brian House into 'Coversnitch' and presented in May 2014 as a system of eavesdropping lamps that live-tweet private conversations (Power 2014). The second implementation and the subject of this study

is 'Chattr – an experiment on privacy and ethics' and was designed such that it maintained the provocative nature of the original concept whilst conforming to ethical requirements through the creation of an experience in which people would have to negotiate unknown boundaries between physical–digital, public–private, live–archived, local–global. This was to be achieved by creating a café lounge in which users' interactions were subject to the application of a data use policy that mirrored those typically employed on social media platforms such as Facebook, Twitter or LinkedIn.[21]

The Chattr lounge was to be a clearly branded space under the tagline 'your privacy is very important to us' and deliberately portrayed as having distinct physical benefits over the surrounding area, for example free coffee, better chairs, a better view. By choosing to access the Chattr lounge participants would be required to accept the Chattr Data Use Policy (DUP)[22], which would require them to carry a recording device within the lounge, for all spoken conversations would be recorded, transcribed and archived in a publicly accessible database that would remain permanently in a public space online.

Following an extensive series of discussions with the university's ethics committee, the Chattr DUP primarily states that Chattr project is not responsible for the content of transcribed conversations, nor how transcribed conversations might be interpreted. Once transcripts have been published, they will become the public domain, and the project will retain no control over them, thus it might not be possible to erase published conversations permanently, nor to prevent them from been spread through other online social platforms.

[21] Social media's Data Use Policy are complex, long and frequently updated, full of euphemisms to disguise their commodification of user-generated data, operating as mass surveillance apparatuses, being the case of Facebook most controversial (Fuchs 2013).

[22] For Chattr's DUP, see http://chattr.cc/data-use-policy/ (Accessed January 31, 2014)

Therefore, Chattr represents a situated system that enhances the conflicts and tensions between physical and digital space, encouraging participants to reflect critically upon their privacy choices and to acknowledge the entanglements and seams between the physical and digital information spaces they inhabit.

The data–collection strategy was designed to provide a holistic approach to Chattr experience, assessing physical/digital counterparts: active/passive participants and non-participants insights alike. Ethno–methodological research methods were adapted to the festival conditions (Millen 2000; Maxwell et al. 2013) and acknowledged the limited time and bustling environment. Apart from observation and semi-structured interviews, digital ethnography (Murthy 2008) was applied through Chattr's archive of transcribed conversations and social media interactions.[23]

6.6 Reflections on Chattr using games as a lens

This section considers people's experience of Chattr as it was presented at the festivals FutureEverything (Manchester) and TodaysArt (The Hague) held during 2013. We will utilize the previously discussed approach of considering people's experience of Chattr using game design as a lens. In particular the experience that emerged from the interaction with a set of rules (constitutive, operational and implicit) that served to create the overall experiences. This rule-based categorization allows us to acknowledge the hybrid condition of the space in a structured manner, and gain an understanding of the impact that different elements had in the configuration of the situation.

[23] Chattr digital counterpart is constituted by the website chattr.cc, containing 102 transcribed conversations and the Twitter account @Chattrleaks containing more than 150 tweets.

In the following paragraphs we describe Chattr in FutureEverything (Chattr FE) and in TodaysArt (Chattr TA) according to our classification of their constitutive, operational and implicit rules.

6.6.1 CONSTITUTIVE RULES

The constitutive rules are independent of specific location and at both venues the Chattr lounge was strictly restricted to delegates who had accepted the terms and conditions defined in the DUP. The primary constitutive rules of the DUP were as follows:

- Participants must read and accept DUP before entering the Chattr lounge.
- Participants must carry a recording device and return it on their way out.
- Participants' interactions within the space are at their own discretion.
- Recorded conversations are transcribed.
- Unabridged transcriptions are published and available online.
- Participants are responsible for the content of their transcribed conversations.
- Participants can withdraw at anytime. Once a conversation is published online, complete deletion cannot be guaranteed.

Constitutive rules represent the essence of Chattr, but are abstract, and are not affected by either the location or the participants within the experience. However, these constitutive rules need to be contained and materialized as a set of operational rules for a particular venue to provide guidance about how to interact with the system. Despite Chattr efforts to convey the contents of the DUP, participants would often only take a superficial look before signing and join Chattr without having a clear sense of how Chattr would operate.

"I wonder who gets to sit in this section, yeah but not everyone has been asked, I wonder who, who and why."[24]

"would it be censored? uuh we have not looked at the terms and conditions"[25]

"it's getting personal. did you actually know what you signed for? you sold your soul to them."[26]

6.6.2 OPERATIONAL RULES

In spatial terms, operational rules refer to the representation of space, elements that constitute the formal structure of the space and have a direct impact on shaping participant interactivity and their choices in that space. Considering the case of Chattr, the constitutive rules may be embodied in different sets of operational rules in different venues, giving rise to different spaces, behavioural guidelines, and therefore experiences.

For instance, as a response to the constitutive rules, the design of Chattr sought to favour casual encounters and face-to-face unmediated conversation, where conversational partners had to be in synch to negotiate the surveillance system. Nevertheless, the specifics of Chattr materialization in each event, i.e. layout and interactive elements resulted in two different implementations of the constitutive rules, provoking two separate sets of operational rules that guided participants to enact Chattr in disparate ways.

Operational rules at Chattr FE

[24] Extract from transcription at Chattr FE
[25] Extract from transcription at Chattr TA
[26] Ibid.

FutureEverything is a weeklong festival that encompasses art, music and discussion about digital culture. Chattr was installed as part of the two day Ideas and Innovation Summit, which is the central event for the festival and was held on 21–22 March in 2013 and had 499 attendees. The summit programme ran from 9:00 to 19:00 hours across four different floors of Four Piccadilly Place, an office block in the centre of Manchester. During conference breaks, delegates were encouraged to network in the café located on the seventh floor of the building.

The café occupied a continuous surface of 700 square meters interrupted by a red velvet rope that run alongside the glass wall, appropriating one–third of the space as Chattr's lounge, with capacity to host about thirty participants. The Chattr lounge was deliberately made desirable by offering something that the rest of the venue lacked, such as panoramic views of the city centre, power sockets and smarter furniture orientated to facilitate easy interaction between delegates. Informative signs were placed so that participants were made conscious of the fact that they were exchanging their privacy for perks. (Figure 15)

Delegates who agreed to take part were provided a printed copy of the DUP, a clip-on microphone set and were asked to read out loud a reference code that would serve to identify the user anonymously, in case he/she wished to withdraw within the two–hour reconsideration window, and thus allow transcribers to recognize the voice that should be transcribed. Before leaving the lounge, participants returned their recording devices.

Behind the scenes the recording devices were transported regularly to a separate location, where a team of three professional transcribers processed the conversations and then deleted the audio files. After the two-hour reconsideration window, unabridged transcribed conversations were published online hourly using

PasteBin.com. Snapshots of the conversations were curated and broadcasted through the Twitter accounts @ChattrLeaks and @ChattrBot,[27] posting more than 120 tweets and receiving more than 100 interactions during the festival weekend. (Figure 16)

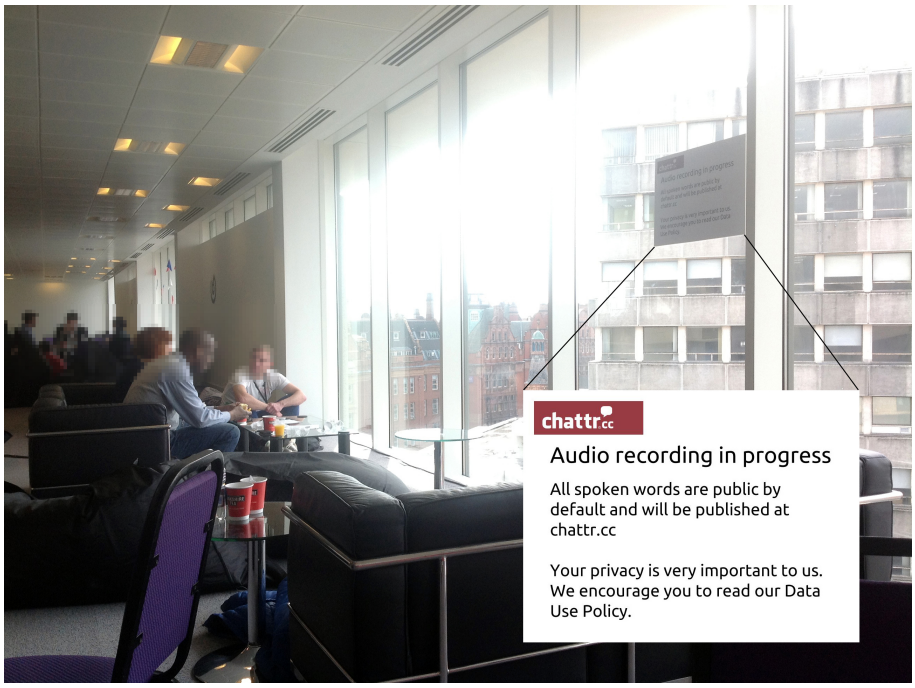

Figure 15 Chattr lounge at FutureEverything 2013

Figure 16 Tweet from @ChattrLeaks during FutureEverything 2013

[27] @ChattrLeaks available at https://twitter.com/chattrleaks and @ChattrBot available at https://twitter.com/chattrbot Accessed January 31 2014.

The transcribed conversations were not directly displayed in the café and access was only available to participants using Twitter on their own personal devices, or alternatively by word-of-mouth from others who had observed the Twitter stream. Although unabridged conversations and snapshots were publicized via Twitter, participants would typically join Chattr without having seen previous outcomes Their participation was based on speculations about the system, i.e. outcomes, scope, potential effect on real life.

> *"So what happens to it. Oh my god, you're kidding. [...] So it's being transcribed, then it will go online, with any formatting?"*[28]

> *"this is like kissing whilst being watched. Hmm maybe after a while you don't think about it anymore."*[29]

The archive of transcribed conversations created an imperfect information system. Some information was inevitably missed in the transcription process; outcomes could be neither controlled nor verified. The Chattr FE experience was mainly focused on deciphering constitutive rules, looking for flaws in operational rules that allow subversion, hence, encouraging acts of creative resistance, by taking advantage of weaknesses in the operational rules to avoid the surveillance system, i.e. speaking in foreign languages, muffling voices, impersonating or remaining silent, as reported by transcribers.

> *"How is your Dutch"*[30]

> *"[coughs] [whispering] [coughs] [laughing]"*[31]

---

28 Extract from transcription at Chattr FE
29 Ibid.
30 Ibid.
31 Ibid.

However, not all strategies were equally successful. Spoken conversations could be easily misinterpreted and take a direction that was not suitable for the purposes of recording, not to be shared with the rest of delegates.

> *"So anyway this is a conversation I can't really have with one of these things on [laughs]"*[32]

Operational rules at Chattr TA

TodaysArt was a two days art and music festival held in different locations across The Hague city centre in the Netherlands on 27–28 September 2013. In its ninth edition, "Unauthorized Permission", the festival was hosted in the former Ministry of the Interior, which once accommodated the National Crisis Centre, the Emergency Office and the Secret Service. The nineteen–storey tower opened to the public for the very first time during the art festival, receiving 5,574 visitors. Chattr was opened from 19:30 to 22:30 hours on Friday and from 12:00 to 22:30 hours on Saturday.

After passing through the building security doors, visitors would enter the foyer and find the Chattr lounge behind three trolleys holding twenty–three guinea pigs, which were modified garden figurines that hosted an audio–recording device that was activated as soon as it was picked up. (Figure 17) Upon accepting the DUP, displayed on a tablet, each group of participants was provided with a guinea pig and access to the café, a twenty square meter former smoking-room that offered free refreshments and could host approximately fifteen participants on three sofas and a number of chairs. Next to the café exit, two volunteers transcribers fluent in Dutch and English collected the guinea pigs and transcribed all spoken conversation captured by the recorders. (Figure 18)

[32] Ibid.

Transcribed conversations were published on the official website created for the occasion and broadcasted on Twitter. Two screens located in and outside the café displayed the transcription process live. The outcome of participants' interactions entered the scene automatically, and although the Chattr lounge had restricted access, from the outside attendees could have a general view of the lounge, i.e. screen displays, transcribers and participants with their guinea pig figurines. (Figure 19) A total of eighty conversations were published. The Twitter account @ChattrLeaks published more than fifty tweets, registering no interaction.

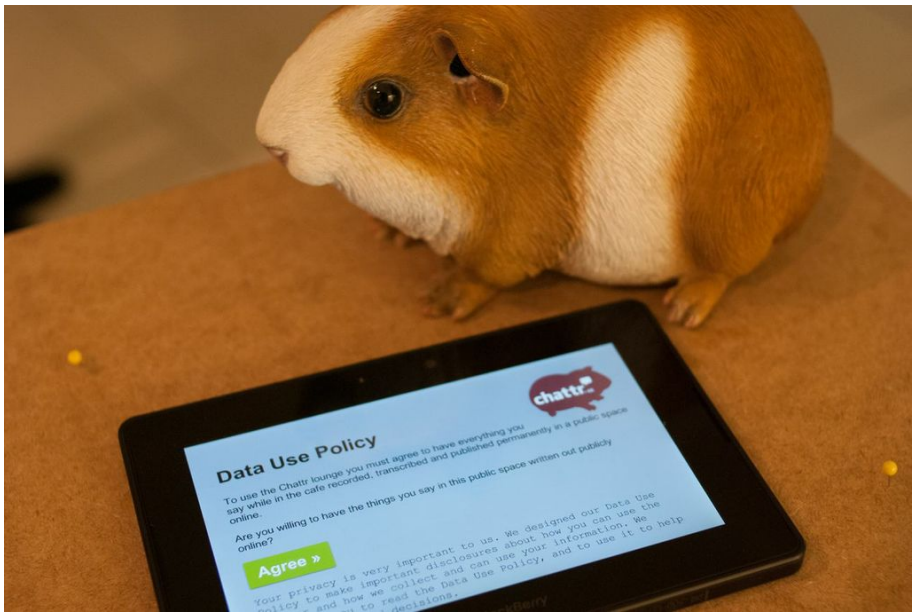

Figure 17 Data Use Policy (DUP) and recording device at TodaysArt 2013.

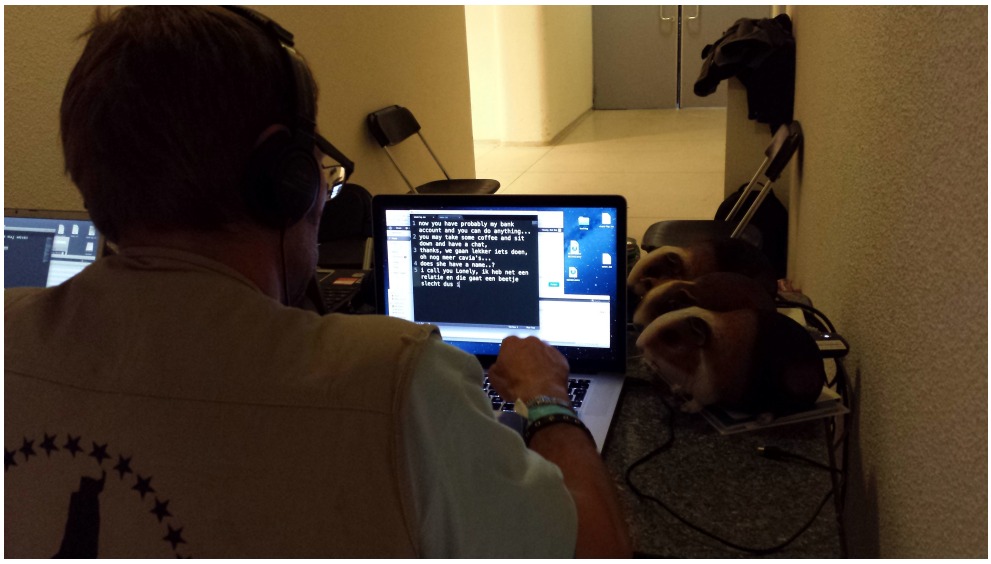

Figure 18 Transcriber at TodaysArt 2013.

Participants' interaction with the system seemed mainly aimed at generating content to be broadcast (feeding the screens), rather than the content being generated as an almost accidental by-product of participants' conversations. Participants would typically follow the transcription cycle, expecting to recognize their group conversation. Although Chattr's conversations were still being publicly archived online, the digital counterpart was neglected; instead, attention was directed to the physical counterpart, especially to the asynchronous transcription process in-situ on the screens. (Figure 20)

> *"I really want to see my private conversation on the screen"*[33]
>
> *"you want to steal the guinea pig? But if you steal it, they will never be able to write it down that's a shame"*[34]
>
> *"Don't do that. That's annoying. Is this really a machine? Yes, they are on the corner typing all we say. Really?"*[35]

[33] Extract from transcription at Chattr TA
[34] Ibid.

The implementation of constitutional rules diverged in each event, shaping two distinct sets of operational rules. In Chattr FE, the process by which audio recordings were transcribed and published online occurred behind scenes, and therefore remained a mystery for participants and broader audience, therefore the operational rules were unclear to participants. In contrast, the variation of Chattr's formal elements at Chattr TA gave participants easy access to constitutive rules as they were embodied within the venue, creating an illusion of transparency, in which the Chattr system was disclosed by the visibility of transcribers, who became part of the space, and the inclusion of screens broadcasting the transcription process live.

Figure 19 Interior of the Chattr lounge at TodaysArt 2013, seen from the outside.

[35] Ibid.

Figure 20 Participants returning to see their transcription on the screen.

6.6.3 IMPLICIT RULES

Implicit rules were drawn from the event's physical appearance and encompassed those normally considered for a café space with others from social digital networks thus entangling two different sets of rules that temporarily disrupted spatial practice.

Implicit rules at Chattr FE

The FutureEverything café, busier during conferences breaks, was mainly a professional and networking environment with a distended atmosphere. Privacy was most valued, and social network profiles carefully curated. The boundaries between the space of play and ordinary life were at risk of being dissolved, as participants' performance within Chattr might become part of a wider event. For instance, in semi-structured interviews with delegates who refused to participate, they typically found Chattr to be a space full of contradictions that could not be reconciled. Quite often participants argued that the lack of control by being indiscriminately broadcasted implied was not suited for a professional environment. Despite the liquid boundary between game space and real life, transcribed conversations spread through tweets were seldom feedback into the lounge, and just on rare occasions transcended as the subject of participants' conversations or were re–tweeted.

"I've been talking to the man from the cabinet office whilst being recorded and we started talking day jobs then we had to stop talking day jobs whilst being recorded."[36]

Moreover, unabridged online conversations were broadly ignored, for the website received insignificant traffic. Chattr's promise of a publicly available online database of conversations was more threatening than the database itself, conditioning participants interactions.

Implicit rules at Chattr TA

The grey former ministry building that hosted TodaysArt, and that once accommodated the National Crisis Centre, the Emergency Office, and the Secret Service, infused the space with a cold aura of solemn totalitarianism. Whereas the setting reinforced Chattr's surveillance, it was in direct contrast to the carnival-like atmosphere of the main festival. The general mood was festive, welcoming surprise and experimentation, and participants roamed from venue to venue featuring a certain degree of anonymity. Most importantly, Chattr TA disclosed operations created a false sense of locality, for all attention was drawn upon the process, i.e. recording, transcription and local broadcasting. Chattr was mistakenly perceived as a local event, as the digital archive was neglected in favour of in-situ screens. The immediate aspects of the experience eclipsed the existence of a media broadcasted event. As a live and local event, the archive of conversation lacked of interest, making Chattr a closed system with a limited chance of entering everyday life.

[36] Extract from transcription at Chattr FE

"we just put a bomb in the tube, in London. Skippy don't listen to him! there is no bomb. […] Thomas, what is your surname? where do you work, Thomas? Thomas, what is your telephone number?"[37]

6.6.4 PUBLICNESS OF DIGITAL PUBLIC SPACES

This chapter has argued that the convergence of physical and digital information flows generates new senses of place. The hybrid character of public spaces calls for an understanding of the interplay of physical-digital features that operate and how this interplay reconfigures the space and adds new complexities within the concepts of public and private. In order to evaluate the experience of such hybrid space we need techniques that can adequately incorporate the digital and physical simultaneously. Due to the rule-based nature of these spaces (Aarseth 1998), and in order to tackle with the complexity of understanding the interplay of physical–digital features, we have proposed a game design lens that allows one to consider not only physical elements of space but also the networks embedded in it and which would reconfigure the space (Cuff 2003). It is worth noting that we are not suggesting activities should be made more game like (gamified), but utilizing the fact that many of our social practices have game like qualities as Huzinga highlighted in Homo Ludens.

In order to illustrate this approach, it has been applied to the experience of Chattr at two different venues. As a *détournement*, Chattr has distorted pre-existing elements, from a café and social media platforms; into a new meaningful ensemble. Chattr's seamful design (Zhang & Coulton 2011) and the deliberate ambiguity in how information is presented made manifest tensions between physical/digital spaces. Participants had to negotiate physical and digital features of the space, which rather

[37] Extract from transcription at Chattr TA

opposed privacy settings, confronting users to synthesize behaviours (Meyrowitz 1985). However, Chattr's analysis has gone the acknowledgment of the hybridity of the space. (Figure 21) By analysing the (hybrid) Chattr experience as determined by constitutive, operational and implicit rules. (Table 4)

Looking at how participants negotiated their privacy choices in the entanglement of physical and digital, we learnt about the interplay of different elements that configured the situation. The comparison of Chattr's iterations has shown how design choices in operational rules affecting visibility, access to information and control of the digital counterpart are specifically relevant in the definition of public – private character of the hybrid space. (Figure 22) For instance, due to Chattr FE hidden infrastructure, the operations belonging to a (physical) café were favoured. Paradoxically, the implicit rules of the networking café encouraged participants to be quite aware of the digital archive being generated. The difficulty of controlling physical/digital features made participation potentially risky if transcribed conversations were to spread beyond a face-to-face conversation. Therefore, although the digital counterpart was not as obvious and embedded as in Chattr TA, it was influential when configuring participants' interactions. On the other hand, in Chattr TA the transcription process was more prominent and materialized the operational rules, drawing the attention of Chattr participants. As the event was mistakenly perceived as local, and therefore not a networked space, the implicit rules of a physical café dominated, and the public character of social platforms was transferred to the physical space to a much lesser extent than at Chattr FE. Although constitutive rules remained the same in both iterations, as spoken conversations were being transcribed and published online, participants experienced it in radically different ways, and adapted to the specificities of each situation.

Table 4 Summary of the rules in the Chattr lounge at FutureEverything 2013 and TodaysArt 2013.

	Chattr FE Chattr FE	**Chattr FE Chattr TA**
Constitutive rules	Hidden	Visible
Operational rules	Clip-on microphones (nuisance). Broadcast through social networks Only access to outcome via personal devices.	Hacked guinea pigs (playful). Broadcast through social networks and screens in situ.
Implicit rules	Networking. Open system. Among acquaintances or colleagues. Broad use of social networks.	Festive mood. Close system. Among friends or estrangers. Scarce use of social networks.

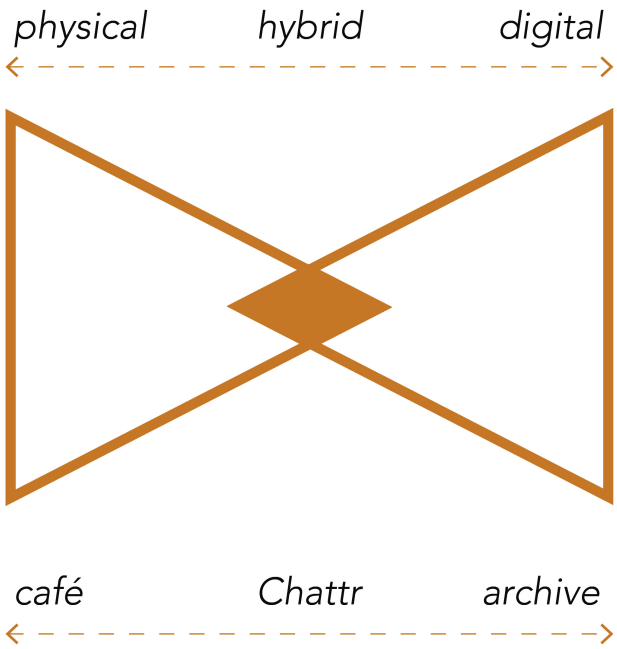

Figure 21 Hybrid physical/digital space

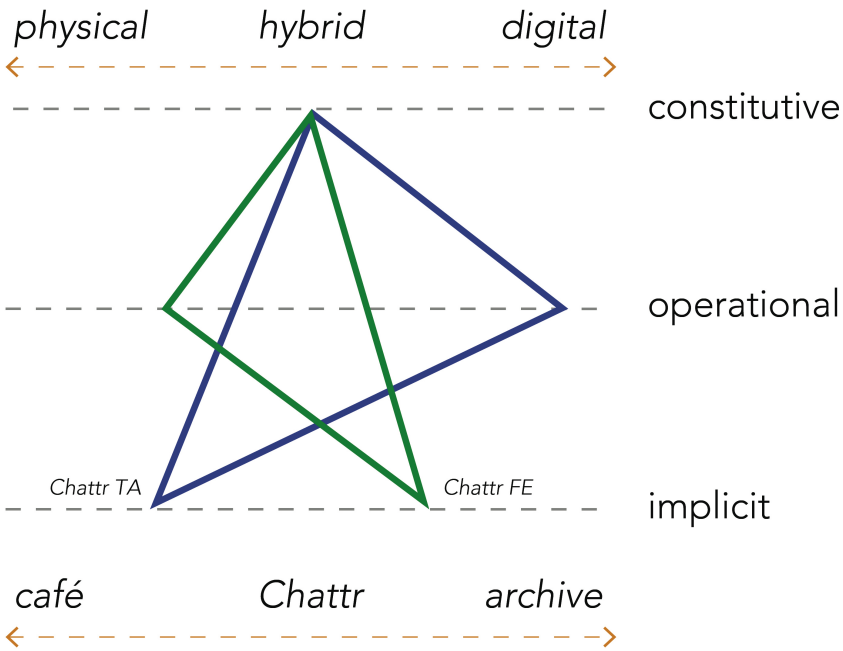

Figure 22 Dynamic hybrid physical/digital space using game design as a lens.

7 Chapter Seven: Design for the right to digital public spaces

The focus of this final chapter is to reflectively explore the digital public spaces that have emerged through the practice-led projects contained in the findings chapters, and in doing so, discuss the design for digital public spaces.

Whereas the phrase digital public space was first coined by Tony Ageh (2015) to elaborate on the central role of digital archives in the articulation of new forms of culture, I have specifically approached the project of digital public space as a concrete programme to produce a third notion of public space (Stikker 2013) that emerges at the interface of physical–digital public spaces. In particular, Henri Lefebvre's idea of the Right to the City (1996), which argues for a radically participatory relationship between city and inhabitants, has served to start examining the politics of digital public spaces. Following Lefebvre, it is suggested that the right to the city involves two principal rights for urban inhabitants, *the right of participation*, having a central role in any decision that contributes to the production of urban space; and *the right of appropriation*, for inhabitants to make the space of the city their own (Purcell 2002).

In order to examine how the concept of digital public space could contribute to new forms of social space, a framework is required to critically approach the production of digital public space. Henri Lefebvre's unitary theory of space provides a tool for analysis consisting of a dialectical triad, which captures the production of social space in three moments that relate with and underpin each other: perceived, conceived, and lived. It must be noted that Lefebvre's spatial triad has not been fully articulated (Merrifield 2006), and its application poses a challenge in itself. Hence, I have first employed Lefebvre's triad to explore spatial moments that affect the configuration of

the public character of urban spaces, and propose a multidimensional approach to publicness that would inform design for digital public spaces. The triad has made it possible to interrelate the dimensions that have emerged from the literature review on publicness in a multidimensional approach, which illustrates how publicness, as a quality of social spaces, is determined not only by material and conceptual realms, but also by experienced moments of space.

The application of this multidimensional framework to the review of arguments about the diminishment of public space has suggested that: (1) right to access is being replaced by privilege to access; (2) public spaces are becoming homogeneous under the influence of abstract power; and (3) public spaces ruled by the private sector respond to private interests, losing the original meaning and importance of public space. These three points provide a starting point from which to draft a brief for design for digital public spaces.

In addition, the analysis suggested that in physical-digital hybrids spaces material-ideal moments of space cannot be matched with physical-digital and then be brought together by means of practice. Instead, the triadic approach exemplifies the complexity of such physical-digital hybrid social urban spaces. Consequently, although Lefebvre's triad seems to be suited to such analysis, for it approaches social space as a combination of material and mental moments brought together by everyday practice (Elden, 2007), new frameworks for spatial analysis suited to physical-hybrid spaces that operates at the scale of experience bringing the concrete and abstract together are required.

Following a cumulative narrative that recognizes that public spaces are heterogeneous and produced through continuous struggle, it is argued that the

discussion about space, place and technology in contemporary urban environments must not only concern the digital technologies that support it, but the digital culture that involves it (Gere 2008). Hence, before entering to explore physical-digital hybrid spaces, Chapter Three has been dedicated to considering the convergence of space, place and technology through the main spatial metaphors of the early Internet. Whereas in principle cyberspace, electronic frontier or information superhighway respond to the same phenomena – the emergence of the Internet as a decentralized communication network – each metaphorical framework calls into specific ideologies, kinds of policy, social structures, and productions of space. Further exploration of these metaphors has revealed the coexistence of rather diverse yet complementary paradigms, and their influence upon contemporary spatial practices, which has enabled the production of other social spaces, and therefore constitutes the forerunner of radical transformations in the public domain that allow digital public spaces to exist.

Cyberspace, as a cybernetic abstraction made up of data and pure information enables the construction of alternative realities, and different mental spaces brought by a medium that may be accessed through computers as liminal objects. Nonetheless, cyberspace is a by-product of human activity, enacted and socially produced. Thus, in Lefebvrian terms, cyberspace contains three facets: as a representation of space (material), a space of the mind (mental), and spatial practice (lived). For this reason, I have extended the argument of cyberspace as a socially produced space to the main spatial metaphors of the medium´s early days. The myth of Gibsonian cyberspace articulated around an ideal of substitution has been carried on in later projects, in which the viability of cyberpunk science fiction claims have been explored. Each of them represents a moment in which space, culture, and

technology converge to propose the substitution of physical space by cyberspace. Barlovian cyberspace builds upon the cyberpunk post-geographical space and virtual communities, which are catalyzed in the *electronic frontier* project. While cyberpunk mythology favours cyberspace´s space of the mind over *meatspace*, the electronic frontier seeks the actual articulation of a self-sovereign online social space that, based upon individual rights and extreme self-determination, disowns centralized governments´ influence. This vision is contested by another metaphor and governmental project, the information superhighway, which deploys a matrix of strategic power relations through the use of information and communication technology that inserts into different apparatuses, comprising an active strategy for the production of social space. It has been argued that, while the electronic frontier and the informational superhighway represent two opposite approaches, they propose two not dissimilar scenarios. On the one hand, Barlow's proposition aims at producing a differential space that challenges traditional power formations and the production of heterogeneous social spaces, but, as Barbrook and Cameron (1995) suggest, an absolute space to be. On the other hand, the information superhighway project announces the emergence of a dominant abstract space through the "transformation of space itself into a commodity: produced, distributed, and consumed" (Stanek 2008, p.70). Consequently, seeking to inform the design for differential spaces, attention has been placed on Gibsonian cyberspace and the influence of its claims upon later spatial articulations.

I have argued that being a myth did not diminish the claims of this Gibsonian cyberspace. On the contrary, Gibson's myth is a threshold device that has largely influenced the exploration of *other* virtual spaces, and the design of fictions as a way of thinking how current conditions may be improved and what alternative worlds

may be possible (Bleecker 2009; Kirby 2009). Finally, I have argued that spatial metaphors of the Internet´s early days may be approached as a *liminal* space (Turner 1982), for their major contribution may, after all, be the realization of *other* multiple realities; questioning modern dichotomies and posing theoretical debates that support the tenets of post-modernity. The distinction – or failure to distinguish – between 'real' and 'virtual' realities suggests that reality may be multiple or take multiple forms (Poster, 1995), and cyberspace and geographical space, both as produced social spaces, are to evolve jointly.

Moving towards the convergence of physical–digital spaces, Chapter Four, introduced Manuel Castells' (1996) network society and the rise of a new spatial order, which explicitly addresses the conflicts that emerge from physical-digital hybridization of space that began with cyberspace. Castells approaches physical-digital hybrid spaces in terms of *space of places* and *space of flows*, which stand in dialectical opposition creating a *structural schizophrenia of spatial logics*. Whereas the space of places is the *material support* of social practices, composed of locations in which people's everyday experiences literally take place; the space of flows is the *material organization* of social practices. Unlike places, flows operate without territorial contiguity, allowing exchange and interaction between physically disjointed positions. And most importantly, the space of flows is exercised by social actors in dominant social structures, while *people do still live in places.* Castells argued for a *new social contract* that builds upon the role of local government as mediators between the global space of flows and people´s local experience at the space of places.

I have argued that a sharp segregation between the space of flows and space of places is highly problematic, generating contradictions between placeless power and powerless places, and utterly unsuited to identifying opportunities for social

innovation through novel configurations of contemporary digital technology. In this context, Stadler's (2006) revision of Castells' network society has provided a necessary update, accounting for a space of flows that does not only support dominant social processes, but also integrates a broad range of social activities that previously were mostly organized around places, for the space of flows is also used on behalf of locally rooted projects.

Continuing with spatial metaphors, the pre-www cyberspace approached as a new territory to be colonized, was later to be urbanized: a virtual space in which digital public spaces were to be *built*. Further research has focused on initiatives to urbanize the Web and develop 'public' urban cyberspace that proliferated in the late '90s. Under the general term *digital cities* I have referred to early experiments to constitute pre-www and Web-based electronic public spaces (Aurigi, 2007), and focused on the development of Web-based virtual cities, which, adopting the format of localized virtual communities, have become a communication instrument between citizens and local authorities (Graham & Aurigi 1997a).

The chapter then explored the adoption of digital media into urban processes, which, despite the proven potential of digital networks to encourage public debate and reinforce local communities, has typically been guided by management ideals of efficiency and control, reinforcing Manuel Castells' spatial schizophrenia of the spaces of flows and spaces of places. Alternatives are to be found in the combination of the *smart city* and *social city* ideals (Lange & Waal 2013; Waal 2014), whose focus on the interactional spaces created by media as essential in the articulation of new forms of public action would seek to transform the relationship between government and the public.

Consequently, I have argued that digital media, at the scale of the everyday, challenges the abstraction of the space of flows, providing new affordances and means of connectivity between places and flows that are based on people´s personal interaction in digital space as a means of inhabiting the space of flows, and therefore transforming it. The notion of digital public spaces as myriad possible characterizations at the interface of places and flows, at the integration of material and abstract spaces, and of everyday lived practice and digital archives, has been approached as a framework to develop a new social contract between local government and citizens.

The design-led action research project Open Planning has proposed that the integration of the planning system with everyday contemporary communication practices would potentially lead to a more desirable balance between efficiency and participation. However, such a proposal for service transformation does not only rely on the implementation of a system that favours more horizontal decision-making processes. In order to create the opportunity for citizens to directly influence decision-making processes, a *new urban social contract* is required. Open Planning has proposed a citizen-centred approach, connecting everyday communication practices with public services to facilitate civic participation in the configuration of the build environment, balancing efficiency and participation. The Open Planning project explored pathways to provoke a systemic improvement in the planning system (Salinas et al. 2014), based on the integration of everyday communication practices and decision-making processes, intending to contribute to the articulation of a scenario closer to the Lefebvrian right to the city. As a result of the service transformation proposal, a *minimum viable utopia* was proposed, and an alpha prototype following the specification of *minimum viable product* developed. The

discrepancy between ideal and factual prototypes invited a reflection upon the need for a deeper structural change, requiring the openness of local authorities as centres of power to incorporate truly participatory mechanisms. The project has been most informative in design for service innovation in local governments, and future research should seek to pursue best practices, emphasizing that an improvement in engagement and consultation practices must be accompanied by a change in the system's underlying set of values (Tewdwr-Jones & Allmendinger 1998).

Chapter Five further explored place-making, to investigate digital public *places'* potential as enablers of intrinsically valuable spatial processes that allow for difference, multiplicity and heterotopia, from the position of activist and citizens. The concepts of weak place (Lehtovuori, 2010), temporary autonomous zone (Bey 1991) and tactical media (García & Lovink, 1997) have served to revisit alternative tactics for the production of digital public spaces to be found in net.art, web 2.0 and locative media as place-making practices, for artistic and creative practices in digital public spaces may offer means of reclaiming the right to the city through the production of differential spaces. Moreover, these practices offer an alternative to the Open Planning approach, in which institutional support was required for a new social contract. Alternatively, these artistic and creative practices operate from the margins and embrace a tactical media approach, designing for temporary autonomous spaces and weak experiences.

The concept of weak place has proposed an experiential approach to urban planning that focuses on designing the context for experiences to occur, foregrounding temporality over fixity. Although Panu Lehtovuori approaches weak spaces mainly as events in physical space, tackling only briefly *technological* hybrids, the concept is most interesting in the context of digital public space, as a means to destabilize the

dominance of conceived and perceived over lived experience, using digital events. I have argued that place in digital public spaces is a weak place, achieved designing for *temporary autonomous zones as a conscious radical tactic*, using tactical media to generate function in temporary autonomous zones, taking advantages of the cracks, thinking of place as in the process of becoming, never to achieve permanence.

New media art has been employed to illustrate how weak places in digital public space may operate, and how they are indebted to cybernetic culture. Three milestones to understand place-making in digital public spaces have been explored. First, net.art practice, which, putting up resistance within the system, as the system's consciousness, would seek to embrace, rather than tame, the radical interactivity of the Web, for net.art celebrates browsing as a lived practice that ariculates an event-like relational space (Nunes, 2006). This is in contrast with the mainstream use of the Web as a network made up of representations of space, not contingent, but rather structured as "pre-programmed, objectively existing associations" (Manovich, 2001, p.61). I have argued that the notion of weak experience is essential to understanding the spatial component of net.art practice, which configures the Web as a lived space approaching cultural production in hypermedia as an *oeuvre obvert* (Puig 2012). Second, the Web 2.0 represents a dramatic reconfiguration since it represents a dramatic reconfiguration between strategies and tactics, as it implies "the transformation of people's tactics into business strategies" (Manovich, 2009, p. 324). It has been argued that the Web 2.0's spatial relevance lies in the synergistic relationship between place and people, which is further explored with locative media and informational territories (Lemos 2008). Finally, locative art vindicates the synergy between the city space and the data streaming space through alternative and appropriating uses of these mobile information technologies or locative media; and

through creative and collaborative process development, offering new forms of territorialization that provide new senses of place. Acknowledging technology as a determinant factor of experience, I have argued that the dominant sense of place in digital public space is weak, and temporary autonomous zones and tactical media are instrumental to the appropriation of the space of flows to design for (weak) place. In this regard, weak place is approached as "a tactic that insinuates itself into the other's place" (De Certeau & Rendall, 1984, p. xix), and opens up a range of opportunities for the creation of meaningful experience at the convergence of places and flows.

Two commissioned workshops served to explore different aspects of the production of digital public places at a practical level. *Creative uses of pocket technology* commissioned by TechwizZ 2013 and *#MapYourMarket* commissioned by LU Arts explored annotative and tracing practices contribution to design for digital public *places.* The first workshop focused on the potential of locative media to articulate informational territories (Lemos 2010), and the ephemeral character of weak places (Lehtovuori, 2005). The second workshop proposed the adoption of de Certeau 's rhetoric of walking (1984) as a framework to reflect on the double illusion of space (Lefebvre, 1992), and recover the lived space that has been lost in the process of representation (Kirsch 1995). With a pedagogic emphasis, both workshops encouraged creative and critical uses of everyday technology, aiming to expose tactics to influence the production of digital public spaces, offering momentary glimpses of 'otherness' (Fletcher 1997), and confirming that, as Nigel Thrift (2004) posits, fashioning different modes of visibility may be crucial in contemporary social systems. Chapters Four and Five offered complementary views on place-making in digital public spaces. Whereas the former has explored opportunities of digital service transformation for inclusive decision-making processes, dependent upon a new social

contract with local governments, the latter offered an exploration of the affordances of digital media to create temporary appropriations and weak experiences in digital public spaces, in which networks elude hierarchies.

Chapter Six returned to employ Lefebvre's triad in combination with game design theory to articulate a framework, which, operating at the scale of experience, served to unearth the complexity of our interactions in digital public spaces, and which has been applied to explore the perception of public and private information spaces through the creation of a novel experience known as Chattr. The convergence of physical spaces and digital information flows generates a *context collapse* that does not match a single definition of the situation (Meyrowitz, 1985). However, instead of advocating for a loss of sense of place, I have argued that physical-digital spaces generate new senses of (weak) place, which require a framework that can adequately incorporate digital and physical contexts simultaneously. This framework should serve not only to identify the interplay of physical-digital features, but also to gain an understanding of how this interplay reconfigures space and experience. In order to tackle the complexity of understanding the interplay of physical-digital features of space, and due to the rule-based nature of digital spaces (Aarseth 1998), the chapter proposed a game design lens that allows one to consider not only physical elements of space but also the networks embedded in it and that would reconfigure the space (Cuff 2003).

Similar to Lefebvre's spatial triad, Katie Salen and Eric Zimmerman propose approaching game space as systems constructed by "[f]ormal, experiential and cultural qualities that always exist as an integrated phenomena" (Salen & Zimmerman 2003), and subsequently constitute a specific set of rules (form) within a given context (culture), from which meaning emerges (experience). It is the interplay between these

different types of rules that helps create a formal identity that allows us to distinguish a particular game as unique from other games, as the interplay between conceived, perceived and lived moments articulate social spaces. Following the path opened with the proposal for a multidimensional approach toward *publicness*, I have sought a multidimensional approach, which takes both physical and digital moments of space into consideration, always contingent, constructed and negotiated.

The proposed game design theory-based analysis has framed physical-digital hybrid spaces as a system whose formal structure is governed by rules operating at three levels: constitutive, operational and implicit, and has helped to identify physical-digital features that altered the nature of the Chattr experience. This rule-based categorization has allowed for the acknowledgement of the hybrid condition of the space in a structured manner, and an understanding of the impact that different elements had in the configuration of the situation. The comparative analysis of two Chattr iterations served to apply the framework and exemplify the interplay of rules (or moments of space). In spatial terms, operational rules refer to the representation of space, elements that constitute the formal structure of the space and have a direct impact on shaping participant interactivity and their choices in that space. Considering the case of Chattr, the constitutive rules may be embodied in different sets of operational rules in different venues, giving rise to different spaces, behavioural guidelines, and therefore experiences. Finally, implicit rules were drawn from the event's physical appearance and encompassed those normally considered for a café space with others from social digital networks, thus merging two different sets of rules that temporarily disrupted spatial practice. The comparison of Chattr's iterations, and how participants negotiated their privacy choices in the entanglement of physical and digital has shown how design choices affecting visibility, access to

information and control of the digital counterpart are specifically relevant in the definition of the public-private character of the hybrid space.

Following a cumulative narrative, I have explored different characterizations of digital public spaces, articulated through design-led action research projects conducted in collaboration with academia, creative industries, citizens and public authorities.

The unitary theory of space (Lefebvre 1991) has been employed as a common framework to reflect upon the spatial explorations conducted within these design-led projects. In doing so, the thesis has provided a framework for spatial analysis suitable for physical-digital hybrid spaces, that re-contextualizes the Lefebvrian notion of the right to the city in the context of digital public spaces.

Understanding the production of digital public spaces is important not only for the critical practitioner – artists, designers and researchers – but also inhabitants who likewise must negotiate everyday life in physical-digital hybrid spaces, to together create the conditions to make digital public spaces our own.

7.1 Reflections on the study and suggestions for further research

This final section reflects on the study, its contributions, and identified trajectories for further research.

The present body of research has focused on the characterisations of digital public space that have been produced through The Creative Exchange digital culture R&D projects. Through the different case studies, the research has articulated digital public spaces as a third notion of public space that emerges at the interface of physical-digital hybrid spaces. The project for digital public spaces has been posed as one that pursues enabling citizens' rights to participation and appropriation of this physical-digital hybrid spaces. It has been argued that both physical and digital spaces are socially produced, and take diverse and multiple configurations simultaneously. Therefore, as hybrid spaces are socially produced from a dialogical relation between physical and digital spaces; they are also plural and diverse. In order to understand how physical-digital hybrid spaces operate, and how they can be designed for the right to participation and appropriation, I have revisited Lefebvre's spatial triad and proposed a framework that permits approaching the social production of physical and digital spaces individually, and as hybrids in relation to one another. The framework has been instrumental to the analysis of physical-digital hybrid spaces, to understand how different spatial configurations allow for participation and appropriation, and in turn, to re-contextualize the right to the city (Lefebvre 1996) in digital public spaces.

The originally of this study resides in the articulation of a framework to approach both physical and digital spaces as being socially produced, and its application to foreground the emancipatory potential of hybrid spatial configurations, rather than reducing digital spaces as an instrument to exercise cybernetic principles of control and surveillance. In this regard, the study contributes to interdisciplinary literature

on digital culture, digital humanities and human geography. In addition, the study speaks to practitioners in the design field, and invites them to critically reflect upon the effect of digital culture R&D to support the production of new spatial forms, and more explicitly invites them to design for the right to digital public spaces.

Overall, my main contributions are:

- novel applications of Lefebvre's spatial triad;
- a multidimensional framework to approach publicness in (physical) social spaces;
- arguments for the social production of digital spaces, and therefore for multiple, simultaneous and diverse configurations;
- arguments for digital public spaces as a third notion of public space that emerges at the interface of physical-digital hybrid spaces;
- a framework to analyze the production of physical-digital hybrid spaces; and inform collaborative design for the right to digital public spaces;
- collaborative productions of and reflections on different configurations of digital public spaces.

7.2 CHARACTERIZATIONS OF DIGITAL PUBLIC SPACES

As a practitioner and researcher, design-led participatory digital culture R&D projects are a main contribution to and of the study. The selection of case studies included in the study must not be taken as a comprehensive list, but as illustrative of the possible characterizations of digital public spaces, broadly grouped into substitution, co-evolution and recombination (Graham 1998); and to demonstrate that multiple, contradictory and yet simultaneous characterizations of physical-digital hybrid spaces

coexist, highlighting the messiness and richness inherent to the production of digital public spaces.

7.2 Multidimensional approach to publicness

The study has proposed a multidimensional approach to publicness that reunites literature review on public spaces, matched against Lefebvre's spatial triad. The purposed approach allows going beyond binary understanding of private-public spaces, bringing different dimensions into dialogue, and proposing a novel thematic application of Lefebvre's spatial triad.

Future research would seek to put this multidimensional approach into practice, as a critical exercise to assess publicness in physical social spaces. In addition, possible lines of research may find it appropriate to develop additional thematic variations. Another possible line of research may seek to develop the three purposed dimensions – ownership and management; rules of access, control, and conditional behaviour; and social practice – in the context of digital spaces. The combination of the two multidimensional approaches to publicness in physical and digital spaces, using Lefebvre´s spatial triad as a common backbone, would provide a deeper understanding of publicness in physical-digital hybrid spaces.

7.3 Digital spaces are socially produced

The review of different metaphors of the Internet's early days through the Lefebvrian lens has accounted for the social production of digital spaces. First, when socially produced, digital spaces do host spatial practice, even though representation may be predominant. Consequently, while a digital platform can be designed social space cannot, as it is produced through practice. However, the design of digital platforms

can indeed facilitate the social production of space. Second, the review has explicitly addressed the ideologies that different spatial metaphors carry on into hybrid spatial configurations. I have argued that multiple and adverse configurations of digital spaces coexist. As digital spaces are often and mistakenly pictured as a unique, neutral and absolute space, therefore reinforcing technological determinism and the abstraction of digital spaces, this argument is of special relevance. Finally, as the production of digital spaces has been successfully approached with a framework that has also been applied to physical spaces, it has afforded the relational analysis of physical and digital spaces in spite of their disparate operational models.

7.4 Framework to approach the production of physical–digital hybrid spaces

The foremost contribution of the thesis is the development and application of a framework to reveal the social production of physical-digital hybrid spaces. The purposed framework draws upon Lefebvre's spatial triad, and has been developed iteratively, informed by literature and its application on different hybrid spatial configurations developed throughout the thesis. The framework has been extensively applied throughout the thesis, and proven to be a flexible and insightful method of analysis. The framework presents a novel contribution. First, the approach to Lefebvre's spatial triad to reveal the social production of physical-digital hybrid social spaces is unprecedented. Second, while there is abundant literature on physical and digital spatial practices, fewer studies approach them in combination, foregrounding live experience over ideal and material aspects of space.

The framework provides opportunities for future research, for it may be employed to reflect on the social production of physical-digital hybrid spaces. There is also

potential to provide a more nuanced understanding of the features and practices that contribute to the articulation of each moment of space. In addition, the framework has been mostly employed reflectively, to understand hybrid spaces rather than to design for them. Future action research may employ the framework to approach the production of physical-digital hybrid spaces to inform design activity. First, the framework may be employed to frame digital culture R&D, and provide a more holistic understanding of digital services and platforms' role in the production of social spaces. Second, because the digital public space project requires a radically participatory approach, the framework may be employed as a knowledge exchange tool to facilitate dialogue throughout the participatory design for digital public spaces.

7.5 New modes of visibility in digital public spaces

Digital spaces are constructed essentially of symbols, codifications and abstract representations, in which spatial practice and lived experience are translated into data. Yet, the study has argued that design for the right to digital public spaces must concentrate on experience rather than visual representation. Consequently, the representation-based character of digital spaces presents a challenge to foreground lived experience. Future research plans may give further consideration to digital culture operations on abstraction, codification, self-regulation and visualization (Gere, 2002), developing tactical approaches to recover the lived space that is lost in the process of representation (Kirsch 1995), and that is the essence of weak experience. Further research may also explore the politics of visibility in physical-digital hybrid spaces, and explore how data generated through everyday practices can inform the digital public space project. In addition, research into new modes of

visibility may have extensive application to other social practices and digital culture developments that operate in physical-digital hybrid contexts, in which lived experience is reduced to abstract representation.

7.6 KNOWLEDGE EXCHANGE AND PATHWAYS THROUGH COLLABORATION

The exploration of new forms of knowledge exchange between academia and creative industries has been central to The Creative Exchange programme, and to the development of all design-led participatory action research projects included in the thesis. Short-term exploratory projects have pursued the twofold aim of satisfying academia and industry partners' expectations. This collaborative approach has facilitated the production of a variety of configurations of physical-digital hybrid spaces, to inform the design for the right to digital public spaces in real settings, facing real challenges. Further research will explore other pathways through collaboration to maximize the impact of the action research trajectories initiated during The Creative Exchange. The articulation of *new social contracts* may benefit from a long lasting relationship with public authorities and the citizens they serve, to facilitate not only strategic partnerships, but most importantly, to sustain tactical approaches, to provide novel modes of visibility, for citizens to lead the realization of the right to digital public spaces.

8 GLOSSARY

Design *for* digital public spaces refers to design activity which supports spatial practices that operate at the intersection of physical and digital spaces, and which leads to the configuration of digital public spaces. It must be noted that whilst conceptual and material aspects of space can be designed, lived experience cannot. Therefore, we can only *design for*, to favour the production of digital public spaces.

Digital public spaces are social spaces that emerge at the interface of physical-digital hybrid spaces. The concept of digital public space is better approached as a project that pursues enabling citizens' rights to participation and appropriation of different characterisations of physical-digital hybrid spaces.

Hybrid spaces are spatial configurations that emerge from the contingent relationship of physical–digital spatial elements. Located at the intersection of physical and digital spaces, hybrid spaces cannot be reduced to either physical or digital spatial elements. Digital public spaces are one possible configuration of physical-digital hybrid spaces.

Minimum viable product refers to the basic functionality included in a first prototype of a new product or service. The concept, popularized by the *Lean Start-Up* approach (Reiss, 2011) has been adopted by software entrepreneurs to favour agile development.

Minimum viable utopia is a play on words that makes reference to Minimum Viable Product. In his talk Another City Is Possible: Practices of the Minimum Viable Utopia at Lancaster University, Adam Greenfield (2014) employed the term to reflect on bottom up networked urban environments which offered an alternative of the so-called 'smart city'.

Production of digital public spaces paraphrases the title of Henri Lefebvre's seminal work in which the author argues that "*(social) space is a (social) produc*t" (1991, p.26). Therefore, as social spaces digital

public spaces are also social product, which drawing on Lefebvre's theories implies three premises: digital public spaces do not emerge from a causal chain of "historical" or "technological" events; digital public spaces cannot be neutral as they enclose people's experiences; and even though different configurations of physical-digital hybrid spaces carry their own history, they are always present as lived and experienced.

Public space is a geographical concept, however the term is highly contested and beyond normative approaches that typically define public space as "commons" (Lessig, 2001), it is argued that no public space has ever been truly public. Rejecting normative approaches, a multidimensional approach in which the public character of emerges at the interplay of three dimensions, namely: (1) ownership and management, (2) rules of access, control and conditional behaviour, and (3) social practice has been proposed (see *1.4. A multidimensional approach to publicness*).

Public sphere is a socio-political concept that refers to the formation of public opinion, central to democracy and linked to the field of political communication (Dahlgren 2008). The concept of public sphere is supported by public spaces of free exchange for communities of interests, which exercise some form of supervision upon government, such as the agora, but also the blogosphere.

Urban space refers to spaces that have a loose sense of *city-ness*, and are characteristic of *urban life*, in contrast to rural. Although the term urban may be increasingly blurred or meaningless, it is employed to contextualise research that is carried out in urban environments, rather than natural environments, and in which a somehow strong presence of digital networks is expected.

Weak place (Lehtovouri, 2010) is a shared cultural spatial resource that belongs to several systems of meaning, establishing a direct link between the right to the city and temporary uses. The concept foregrounds the soft phenomena of place, to the basis of an "experiential urbanism" that foregrounds the lived elements of urban space.

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