

# **Technology-enabled planning participation: Designing & deploying digital technology to encourage citizen participation in urban planning**



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# i. Abstract

Citizens increasingly want to formally engage with the governmental and policy processes that manage how places change. Whilst enhancing the role of citizens in urban planning has been a longstanding objective for academics and communities, translating these aspirations into practice has proved to be more challenging. Although a range of conceptual ideas and practical techniques have been developed in planning to provide opportunities to enhance citizen involvement, these ideas and methods have faced several challenges. These include the strict legalistic and policy parameters that determine what sort of comments that are permissible, the governmental initiators of public engagement, and the need to understand and utilise the often complex language of planning. And yet citizens and communities are increasingly resorting to social media and digital communication to express their views about urban change.

This research assesses the degree to which new digital technology can be designed and deployed to enhance citizen engagement within urban planning and identify whether it offers one potential method to address and overcome some of the challenges being experienced in citizen engagement. Through designing, deploying and evaluating speculative digital technologies, the research aims to understand the potential role of technology in facilitating enhanced citizen participation in planning. Working with citizens, community organisations and planners, the research explores the factors at play when innovative and bespoke engagement methods are used to amplify citizens' voices in urban change. An action research approach was taken, which uses a continual cycle of designing and planning, deploying different types of technologies and reflections to inform design. Three technologies were piloted in different settings and contexts: a social media example addressing a complex planning issues; a smart watch application to support in-place engagement; and an interactive digital device that encourages people to communicate their feelings and aspirations through visual and oral means. Across the three examples, over 1400 citizens participated in the research.

Findings demonstrate how the three digital initiatives encouraged people to be expressive when communicating complicated feelings towards urban change, and the influence different methods have on what people communicate. They illustrate how different participation methods can support differing levels of engagement, and how digital technologies might better align with how citizens would like to participate.

The research critiques the suitability of current participation methods, and the extent to which they can support a genuine discussion about where people live and what they care about. It concludes by questioning whether current planning engagement methods can adequately equip non-experts with the tools to participate. The overall conclusion is that by employing digital technologies, a much more productive and fruitful conversation can be designed to facilitate citizen participation in planning compared to traditional methods.

## ii. Acknowledgements

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### iii. Declarations

Two of the projects reported on within this research have been published. Their role within this research is described below.

#### **CHANGEEXPLORER**

As part of the same programme, part of the technological development of the ChangeExplorer was undertaken during the Digital Civics MRes phase of the programme. For this thesis ChangeExplorer was reconceptualised and trialled over two years for this research and for publication. I would like to thank Mark Tewdwr-Jones and Rob Comber for support in bringing the work to publication, and for permission to use the material generated. The work is reported on within Chapter 6.

Alexander Wilson, Mark Tewdwr-Jones & Rob Comber (2019) Urban planning, public participation and digital technology: App development as a method of generating citizen involvement in local planning processes, *Environment and Planning B: Urban Analytics and City Science*, 46(2): 286-302 (First Published June 5, 2017).

#### **JIGSAUDIO**

Research was published on a technology developed during the course of the PhD, called JigsAudio. I would like to thank Mark Tewdwr-Jones for the help in bringing this research to publication, as well as his permission to use the material within my thesis. JigsAudio is reported on in Chapter 7.

Alexander Wilson & Mark Tewdwr-Jones (2019) Let's Draw and Talk about Urban Change: Deploying Digital Technology to Encourage Citizen Participation and Elicit Place Meaning, *Environment and Planning B: Urban Analytics and City Science*: o(o).

Further work was carried out with colleagues at Open Lab. Assistance was given with carrying out the workshops, and working with the co-authors to develop technologies that support the engagement within the research. None of the writing from this publication is

within this thesis, however, an independently written discussion of ‘Let’s Talk Parks’ is within Chapter 7.

Clara Crivellaro, Rob Anderson, Daniel Lambton-Howard, Tom Nappey, Patrick Olivier, Vasilis Vlachokyriakos, Alexander Wilson & Pete Wright (2019)  
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# iv. Contents

<b>iv. Contents</b> .....	<b>vii</b>
<b>v. List of Figures</b> .....	<b>xi</b>
<b>vi. List of Tables</b> .....	<b>xiii</b>
<b>1. Introduction</b> .....	<b>3</b>
1.1 Citizen Participation & Technology in Urban Planning.....	3
1.2 Context.....	7
1.3 Engaging People in Planning .....	12
1.4 The Structure of the Thesis.....	14
<b>2. The Changing Role of Citizen Participation in Planning</b> .....	<b>21</b>
2.1 Introduction.....	21
2.2 A Brief History of Town Planning.....	23
2.3 Difficulties for Citizens Engaging with planning .....	45
2.4 Citizen Experiences of Place.....	52
2.5 Chapter Summary .....	60
<b>3. Human Computer Interaction, Town Planning &amp; Participation</b> .....	<b>65</b>
3.1 Introduction .....	65
3.2 Between Town Planning & HCI .....	66
3.3 Opportunities of Technology-Enabled Participation.....	69
3.4 The Aims of Digital Technology.....	72
3.5 Platforms and Civic Data .....	79
3.6 Alternative Forms of Participation Technology.....	83
3.7 Gaps in Research.....	91
3.8 Summary .....	95
<b>4. Methodology and Technology Pilots</b> .....	<b>99</b>
4.1 Introduction .....	99
4.2 Why Design?.....	100
4.3 What To Design?.....	107

4.4 Designing for Material Participation.....	109
4.5 Research through Pilots.....	112
4.6 Action Research and Technology Pilots .....	117
4.7 Pilots .....	124
4.8 Research Partners .....	128
4.9 Data Collection .....	132
4.10 Limitations of Methods .....	137
4.11 Ethical Considerations .....	138
4.12 Chapter Summary .....	141
<b>5. Twitter: Understanding Existing Platforms for Participation .....</b>	<b>145</b>
5.1 Introduction .....	145
5.2 Context .....	146
5.3 Exploring the Use of Twitter.....	149
5.4 Space & Time-Based Comments .....	157
5.5 Metro Service as a Transport Offer .....	161
5.6 Discussions of Journeys.....	164
5.7 Twitter for Participation .....	169
5.8 Conclusion.....	177
<b>6. ChangeExplorer: In-Situ Participation &amp; The Physicality of Place .....</b>	<b>181</b>
6.1 Introduction .....	181
6.2 Background.....	182
6.3 Designing ChangeExplorer .....	187
6.4 ChangeExplorer .....	190
6.5 Findings .....	196
6.6 Conclusion.....	202
6.7 Chapter Summary .....	206
<b>7. JigsAudio: Exploring Creative, Expressive &amp; Tangible Participation .....</b>	<b>209</b>
7.1 Introduction.....	209

7.2 Context.....	210
7.3 Research questions.....	213
7.4 Designing JigsAudio.....	214
7.5 Deploying JigsAudio .....	222
7.6 Data Collection Methods and Analysis .....	232
7.7 Findings.....	232
7.8 Reflections .....	239
7.9 Conclusion .....	244
7.10 Chapter Summary .....	244
<b>8. Reflections on Creating a Space for Dialogue.....</b>	<b>247</b>
8.1 Introduction .....	247
8.2 Exploring Planning Technologies.....	247
8.3 Designing Alternative Methods .....	262
8.4 Conclusion.....	271
<b>9. Conclusion.....</b>	<b>277</b>
9.1 Opportunities to Align Methods with Opportunities.....	279
9.2 Affordances to Support Enhanced Engagement .....	285
9.3 Research Questions .....	290
9.4 Reflection on Digital Civics Research.....	292
9.5 Limitations.....	294
9.6 Significance of Contribution .....	295
9.7 Future Work .....	298
9.8 Final Remarks .....	299
9.9 Recommendations for Local Planning Authorities .....	300
<b>10. References.....</b>	<b>304</b>
<b>11. Appendix .....</b>	<b>336</b>
11.1 Methods for Literature & Technology Review.....	336
11.2 Summary of Data Collection and Analysis Methods .....	340

11.3 Summary of Participants.....	340
11.4 Stages of Plan Making and Opportunities for Participation.....	359
11.5 Summary of Systematic Literature Review.....	361
11.6 Invited Talks and Presentations .....	373

# v. List of Figures

Figure 1: Structure of the Thesis.....	16
Figure 2: Stills from 'The Proud City' .....	29
Figure 3: Methods of Awareness Raising for Opportunities of Citizen Consultation.....	47
Figure 4: Image Illustrating Current Awareness Raising Methods.....	49
Figure 5: Space and Place .....	54
Figure 6: Organisations Governing Place .....	57
Figure 7: Literature on Participation over Time and Subject.....	68
Figure 8: Epistemology, Methodology and Methods.....	119
Figure 9: Stages of Action Research .....	122
Figure 10: Twitter Discussion Between Gateshead Council and Resident .....	153
Figure 11: Map of Tweets Discussing the Metro with Metro Map Overlaid.....	157
Figure 12: Location-based App FixMySreet .....	185
Figure 13: ChangeExplorer.....	191
Figure 14: Details of ChangeExplorer's client server architecture and screen shots of the watch's interface; screen shots of the notification being received, the app on home screen, and the process of leaving feedback and confirmation .....	194
Figure 15: Location of Comments made through ChangeExplorer.....	197
Figure 16: Top: JigsAudio Device. Left: Let's Talk Parks Deployment. Right: Aliens Love Underpants Deployment.....	215
Figure 17: Laser Cut Acrylic for JigsAudio's Case .....	217
Figure 18: JigsAudio Components (Left to right: Perspex, Raspberry Pi, RFID Reader, USB Microphone and RFID Tags/Stickers).....	218
Figure 19: Versions of JigsAudio.....	218
Figure 20: Interface of JigsAudio Device.....	220
Figure 21: JigsAudio 'Home Page' and 'Listening to Jigsaw' .....	221
Figure 22: Big Draw Deployment and a Transcribed Jigsaw Piece .....	225
Figure 23: Metro Futures Jigsaw and Transcribed Voice .....	226
Figure 24: North Tyneside 2026 Jigsaw and Transcribed Voice .....	227
Figure 25: Planets and Transcribed Voice from Aliens Love Underpants Deployment...	228
Figure 26: JigsAudio in BALTIC Centre Contemporary Art .....	230
Figure 27: Travelling Library .....	231

Figure 28: JigsAudio being used in Colombia (left) and Italy (right) .....	232
Figure 29: Varying Levels of Digital Technology across Pilots .....	256
Figure 30: What will your future look like? .....	265
Figure 31: Different JigsAudio Activities.....	269
Figure 32: Quick Methods becoming Gateway to more Involved Methods.....	289

## vi. List of Tables

Table 1: Chapters and their Purpose .....	15
Table 2: Channing Priorities of Planning.....	24
Table 3: Traditional vs Digital Alternative .....	85
Table 4: Difficulties with the Planning System and the Use of Technology.....	95
Table 5: Summary of Research Project .....	116
Table 6: Summary of Partnerships and Projects.....	131
Table 7: Summary of Data Collection and Analysis .....	136
Table 8: Summary of codes in each category within the corpus .....	155
Table 9: Category choices made by users through the app .....	196
Table 10: Summary of Audio and Jigsaw Pieces Collected with JigsAudio (time expressed as either mm:ss or hh:mm:ss) .....	234
Table 11: Groupings of Type of Audio and Imagery Used.....	235
Table 12: Summary of Pilots .....	249
Table 13: Traditional Technologies and their Digital Alternative .....	272
Table 14: Opportunities and Constraints of Planner’s Understandings of Technologies .....	280
Table 15: Stages of Participation and Types of Participation.....	283
Table 16: Number of Literature and Technologies within each Category.....	338





# 1

# Introduction

## Introduction

# 1. Introduction

## 1.1 CITIZEN PARTICIPATION & TECHNOLOGY IN URBAN PLANNING

The benefits of involving citizens in changes to the environment are widely recognised, leading to both legislation (Town and County Planning Act 1990) and research that seeks to understand how the knowledge and perspectives held by citizens can be better acknowledged when taking decisions (Healey, 1997; Lane, 2006; Brownill and Inch, 2019). The citizen perspective being considered in planning has its roots in democratic governance, such as the Bill of Rights (House of Commons, 1688) which set out a series of individual entitlements that have provided the backdrop for citizen engagement in matters that affect their lives. Earlier objectives of citizen participation in planning were determined through the national ballot box, but the “requirement for high degrees of control did not allow this approach to planning to cope with decentralised political systems” (Lane, 2006, p. 288).

Post-war planning took an increasingly top-down, centralised view of planning that did not accommodate many of the expectations of democratic involvement people had (Reade, 1987), as discussed in Chapter 2. As planning became professionalised and less open to citizen input (Hall, 1992), critics stressed the importance for the democratic governance of space, where planning should “openly invite political and social values to be examined and debated” (Davidoff, 1965, p. 331). There was criticism of planning failing to accommodate competing demands for a system that was too slow and too bureaucratic, whilst at the same time developing too quickly with the wrong objectives (Tewdwr-Jones, 2008).

These difficulties led to a planning system where opportunities for participation are a requirement, but which has routinely struggled to engage people in both what changes are taking place, and providing the means for these voices to be expressed and considered (Damer and Hague, 1971; Healey, 1997; Lane, 2006). The wider issues of participation in planning concern democracy, public scrutiny, and rights of citizens enshrined in the rule of law (Campbell and Marshall, 2010). It is within this context that this research explores whether technology provides enhanced opportunities for people engaging in planning.

### **1.1.1. The Rise of Technology**

Digital technologies have had a profound impact on people's lives, but have also reconfigured both people's relationship and expectations of governance and power (Evans-Cowley and Conroy, 2010; Auger, 2013; Le Dantec et al., 2015). New methods of communication have "provided a substantial new platform for the democratization of interests and ideas by dramatically expanding the opportunity for expression" (Auger, 2013, p. 369) which are recognised in legislation linking good governance and transparency with the provision of information online (Bertot et al., 2010). Cost savings, transparency and efficiency have led to 'digital' being the preferred method of interaction between citizens and government (both local and national), named 'digital by default' (Helsper, 2011).

The widespread use of the internet began in 1995<sup>1</sup> (Coffman and Odlyzko, 2002). Earlier uses of the internet were used as a broadcast medium (Web 1.0) – people could visit websites and view content – "with the vast majority of users simply acting as consumers of content" (Cormode and Krishnamurthy, 2008, p. 1). Since then there has been a sharp rise in the adoption and sophistication of internet-connected technologies and communication, shifting the internet from content consumer to content creators (Web 2.0) (Cormode and Krishnamurthy, 2008; Bugs et al., 2010). These technologies facilitated the creation of communities online and "anyone with access to the internet has the ability to inexpensively publish or broadcast information" (Bertot et al., 2010, p. 266).

2005 was the first year the majority of households in Great Britain (55%), had an internet connection; nowadays 93% are online (Office for National Statistics, 2019). There was a similar growth in the use of e-government and participation technologies, albeit later (Conroy and Evans-Cowley, 2008). Earlier views of the use of these technologies promised "new communication tools that allow for the involvement of a variety of stakeholders online" (Evans-Cowley and Hollander, 2010, p. 2010). However, recent critique has emphasised the problem of unequal access to both technology, understanding and bandwidth (Norris, 2001).

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<sup>1</sup> The beginning of the use of the Internet (the infrastructure) is very difficult to define, with it first being used in government, research and industry and later being used more widely with the release of a web browser (Netscape) in 1996, which led to an 'explosive growth' in the Internet's use (Coffman and Odlyzko, 2002).

In the mid-2000s, local authorities and government agencies began to provide online portals during the take-up of ‘e-government’ by uploading documents to websites, and later providing the means for people to give their thoughts – usually through emails or web forms (Cabinet Office, 2004). Rather than provide new ways of participating through engaging with the innovative potential of technologies, the same information was moved online – where online technologies mirror previously available offline methods (Conroy and Evans-Cowley, 2008). As will be discussed (Chapter 3), this is likely to be due to a rush to meet targets to provide all government services online by 2005 (Themistocleous, 2005). The majority of technologies initially provided information to citizens, but developments in internet technology now allow for some element of interactivity (Evans-Cowley and Hollander, 2010). This research tries to understand how technologies can be designed to facilitate new ways of participating that both align to how people want to participate and utilise the opportunities afforded by contemporary technologies.

### **1.1.2. Rethinking Technology-Enabled Participation**

The physical environment around us has a huge influence on how people live their lives, contributing to factors such as individual and public health outcomes (Todd et al., 2015), educational attainment (Lymperopoulou and Finney, 2017), safety (Shaw et al., 2005) and access to vital services (Wrigley et al., 2016). A recognised response to some of these issues is to give people a louder voice during decision-making (Brownill and Carpenter, 2007). Whilst enhancing the citizen voice has been a longstanding aspiration, there are many barriers to this (discussed in Chapter 2): being aware of the opportunities for participation; the language that is used in planning; putting forward views that are considered ‘relevant to planning’; and the need to participate early in the policy development process (Baker et al., 2007).

In trying to tackle some of these barriers, almost 60 years ago, Jane Jacobs (1961) presented a view that the construction of cities occurred through diverse and self-organising communities, one that jarred with the techno-rational systems world of professional and governmental bodies. This distinction was also made by Massey (2005), who argued that citizens see cities through a lens of multi-faceted lived experiences, while planners work through a lens of development proposals, zoning ordinances and land use allocations. This disjuncture is recognised in planning (Graham and Healey, 2007), however there is

little work that explores whether applying this understanding to the design of digital technologies can encourage participation (Chapter 2).

This thesis argues that many of the problematic ways of understanding space and participation have been applied to current digital technologies, leading to the design of digital technologies that distance themselves from the lived reality of place, relying on a dry ‘hallowed out’ conversation about space (Jacobs, 1961; Landry, 2007). This research, therefore, engages with the experiences people have in cities, and seeks to understand whether aligning the design of digital technologies might provide a catalyst for more meaningful participation.

### **1.1.3. Research Aims**

This research aims to understand whether technological methods can support enhanced participation with place-based issues, providing a suite of participation tools that better align to how people both want to participate and experience places. It questions whether current methods are suitable for people to express themselves, and uses these findings to examine how cities can better understand and address these by engaging with place-experiences and aspirations (Sandercock, 2003a; Massey, 2005).

It considers topics beyond the formal processes of town planning and includes consideration of the meaning of place (Graham and Healey, 2007). It describes a series of studies around what ‘makes’ a place, and the wider processes that govern these, and whether technologies provide an opportunity of engaging more people in planning. To achieve this, the research includes the design, deployment and evaluation of pilot technologies that provide alternative means of participating. It meets these aims by addressing the following questions:

- 1** Can alternative planning participation technologies encourage and support the sharing of fresh perspectives from a wider group of people?
- 2** Can alternative planning participation technologies be designed to allow people to better share their experiences of place?

### 3 Can technologies be designed to better align with how people want to participate with current planning processes?

To explore how people can be engaged in shaping where they live, the research pilots technologies to understand the factors at play when designing and using innovative planning technologies to encourage people to share their place experiences. Working with citizens, technologies are developed and deployed that explore different ways of communicating these experiences, with their outcomes investigated through interviews and observations. The research deploys technologies with citizens and uses interviews and observations to inform the findings. The aim of these pilots is not to draw comparisons between them, rather, to understand the role of different types of technology and participation.

#### **1.2 CONTEXT**

The research takes place within the context of voter disillusionment, low voter turnout, Brexit, austerity and institutional governance turmoil (Curtice, 2016; Rogers, 2018) that have contributed to a breakdown in the post-war political consensus (Reade, 1987) that helped establish the duties of local and central government, as well as citizens. The consequences of these issues are manifested at a local level, with, for example, an increase in reported hate crime, local hospitals ‘in crisis’ and a rise in homelessness.

These consequences are also seen in planning, with low response rates to opportunities for engagement and a feeling of disempowerment (Baker et al., 2007). An important factor in overcoming some of the issues identified is for people to feel they have a stake and say in the decision-making processes that govern their life. One of these opportunities is engaging people in the discussion of the future of their local area (Sloam, 2007).

Planning is a discipline (or practice) (Vigar, 2012) that manages the built environment through the management and determining of competing land-uses (Cullingworth and Nadin, 2002). In England, it does this through two distinct roles: creating policy and making decisions based upon this policy. Within both stages there are opportunities for citizen participation.

It is, however, recognised, that citizen participation in these decisions is low (Holman and Rydin, 2013); with it being widely accepted that citizens should have more of a say in how their built environment changes (Baker et al., 2007). Whilst statistics are not regularly collected, Sue Manns (2017), Vice President of the Royal Town Planning Institute (RTPI), reflected on the need for planning to be more representative of those who will be affected by its decisions:

*“Currently, the majority of those who engage in planning are over 55 years. Response rates to a typical pre-planning consultation are around 3% of those directly made aware of it. In Local Plan consultations, this figure can fall to less than 1% of the population of a district. Yet planning decisions are based upon this sample” (Manns, 2017, p. 0)*

The agenda of seeking ways to engage those usually not involved in the planning processes has been developed over the past fifty years (The Skeffington Committee, 1969; Forester, 1982; Healey, 1997). At this point it is important to draw a distinction between engagement and consultation. Arnstein describes consultation as a process of powerholders listening to citizens, but where these voices are not necessarily “heeded by the powerful” (Arnstein, 1969, p. 217) – a one-off process that asks for citizen approval to make changes. Participation, on the other hand, is the “redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future” (Arnstein, 1969, p. 216) in a process of ongoing involvement.

Although Arnstein’s definition was deliberately provocative, the focus within this research falls on engaging citizens who are currently not involved in the processes that determine the future of their area. Local planning authorities are required by law to consult with the public before decisions are made, on for example, planning applications or policies (TCPA, 1990). These are routinely criticised for being reactive rather than proactive (Parker, 2016; The Farrell Review, 2013) failing to engage people in a genuine discussion. This section briefly introduces some of the key literature and ideas this research rests upon.



### **1.2.1. Importance of Public Participation in Planning**

There are several well-argued reasons for planning participation. These stances can be simply expressed in two ways: firstly, those that believe access to planning is a *democratic right* – that all citizens should have a say in how their neighbourhoods change, and secondly, those that believe that citizens are *best placed* to have the expertise to inform decisions with a detailed understanding of the issues at hand and potential solutions (Warren, 1992; Rydin and Pennington, 2010; Elkin and Soltan, 2010).

Wu et al. (2010) state participation “is very important for the success of an urban planning project” (p. 291), and Bugs et al. (2010) state, the “key players in urban planning are the inhabitants” (p. 172), as they “know the reality and the problems around them better than anyone else” (p. 172). Evans-Cowley & Hollander (2010) state that “participation helps to build social capital in a community, which in turn strengthens the community” (p. 399), leading to less hostility when plans are implemented, and improved policies.

Participation allows for “a better maintained physical environment, greater public spirit, more user satisfaction and significant financial changes” (Sanoff, 2000, p. 8). Pretty (1995) echoes this sentiment, stating it has “been associated with increased mobilization of stakeholder ownership of projects and policies; greater efficiency; understanding and social cohesion; more cost-effective services; greater transparency and accountability; increased empowering of the poor and disadvantaged; and strengthening capacity of people to learn and act” (p. 1251).

As is demonstrated above, there are good reasons, both democratic and pragmatic, that people should be involved in shaping where they live (Rydin and Pennington, 2010). People experience the problems of the places that they live in, and are best placed to provide the solutions which will help to solve these, with Rydin and Pennington (2010) stating: “The generation of such locally specific information, unavailable to professional agencies, may help avoid the inappropriate developments often associated with centralised planning schemes (p. 155). However, engaging with the current planning system is “complex, remote, hard to understand, difficult to engage with, slow and unpredictable and, generally, ‘not customer friendly’” (Baker et al., 2007, p. 80), as well as being difficult to understand, resulting in low engagement with the formal planning system (Billger et al., 2016). Reflecting on both the difficulties of engaging with planning,

such as understanding the consequences of abstract proposals, Hall and Tewdwr-Jones (2010) state:

*“Ordinary people are given the choice of voting every four or five years for a national government, and perhaps every three or four years for a national government; in either case, they must vote on a confusing bundle of different policies, in which planning issues have often been well down the list. Many of these issues [...] may be so general and abstract in character that it is difficult for the ordinary citizen to appreciate their impact until critical – and perhaps irrevocable – the decisions have been taken” (p. 263)*

Sheppard et al. (2015) put forward a definition of public participation: “The active involvement of individuals, groups and organisations in making decisions” (p. 445). Here, they reiterate the importance of the involvement of those that “have something at ‘stake’ (stakeholders), and also those indirectly affected [...and that...] ‘active’ involvement is particularly pertinent [...as...] all parties have a role to play and are not passive bystanders for whom decisions are made without recourse to their views” (Sheppard et al., 2015, p. 445). Taking this forward, this research concentrates on the involvement of individuals, and whether technology has a potential role in engaging them in being actively involved in shaping their local environment. Effective participation, therefore, includes methods that not only allow people to understand changes that are taking place, but also to voice their opinions on these.

At this point it is important to state that this research is carried out to explore how technology can support more people becoming involved in planning, as well as to overcome some of the barriers to participation (discussed in Chapter 2), such as engagement with and quality of participation. Rather than replacing current methods of consultation, the research aims to provide evidence to complement them.

### **1.2.2. Early Participation**

Town planning aims to make decisions for the public good (Vigar, 2012). Planners make decisions around competing land uses for a finite resource through the careful balancing of new developments and the protection of existing land and buildings. The role of the

planning system is to manage these competing priorities. These are taken through two stages; plan making and development management.

The first creates a plan which sets out how an area will change in the future. The second makes decisions upon these plans on developments that are proposed, through planning permission. These decisions are typically made by local authorities, although as will be discussed later, these decision-making powers are increasingly moving towards either neighbourhoods or central government. The planning system in England provides opportunities for participation when decisions are made (for example, when a development is proposed), however the scope of these comments are limited and are given less weight than planning policy. These planning applications are then decided upon according to the planning policy during development management processes “unless there are material considerations that indicate otherwise” (TCPA, 1990, section 70(2)).

Involvement from citizens at earlier stages of planning can have more impact on how places develop, rather than at a later stage, when there is usually only room for minor alterations to individual schemes that have been negotiated between local planning authorities (LPAs) and developers (Baker et al., 2007). For example, engagement with the development of a local plan will influence all future developments, leading to policies that are applied to the decision-making process of future applications (Cullingworth et al., 2015).

Although there is consultation with the public throughout these processes, early participation within the planning system relies on citizens being aware of which issues they can get involved in, when, how, and where (Baker et al., 2007). These challenges are compounded by the need for non-experts to engage with broad policy proposals, rather than concrete proposals, the need to understand the language and consequences of policy, as well as the strict limitations and scope of planning itself (Brabham, 2009).

As will be discussed in the next section, the research explores whether technology can provide the means for some of these barriers to be reduced and used to facilitate both earlier and more meaningful engagement with planning.

### **1.3 ENGAGING PEOPLE IN PLANNING**

Planning is central to people's lives (Healey, 1997). Decisions made by planners have far-reaching implications on how citizens lead their lives (Hall and Tewdwr-Jones, 2010). What is often missing, however, is citizen understanding as to why these changes are happening, and how citizens can get involved in the decisions being taken on their behalf.

Whilst the decisions made by planners have an impact on how people live, they are often seen to be taken behind closed doors and without the involvement of the people the decisions will affect (Corburn, 2003). Policy development will have wide reaching long-term implications on how people live their lives – these policies determine whether an area will get new houses, whether schools are required or whether a park is closed. Planning policy decisions will have long-lasting effects on how cities change. Development management decisions have immediate impacts, with the views put forward overrepresented by males, aged sixty and over, and those who are owner-occupiers and in professional occupations (Brookfield, 2016).

Understanding how to enhance the citizen voice in urban and regional change has been a longstanding concern of both the planning profession and the academic discipline (Arnstein, 1969; Forester, 1982). When pursuing or undergoing urban change, citizens are important as they experience everyday life in neighbourhoods and live with the consequential impact of changes, giving them a unique perspective to observe, comment upon and offer suggestions for the future (Baker et al., 2007). Although citizen participation in planning is recognised as important, there are difficulties with enacting opportunities (Baker et al., 2007). These difficulties include trading off the costs and time required to participate and the difficulty of citizens accessing the often-complex language of planning (Baker et al., 2007).

In attempting to address some of the difficulties, the Town and Country Planning Association, recognising the need to engage people in planning, recently restated the need to engage new perspectives in planning, and that technologies provide opportunities for this. This has come about, in part, by a reduction in the traditional methods that are provided as a result of austerity, and the increased role of digital technology in participation:

*“New technology could transform the way that people engage with the built environment, by giving them better access to information and providing new tools to help create and express community visions [and] harness the benefits of new technology in reaching out to the public, by transforming the way that information is presented, providing accessible and engaging visualisations of new proposals, and new platforms for dialogue” (Town And Country Planning Association, 2018, p. 96)*

The benefits of digital technologies have been widely stated by the TCPA and RTPI to develop arguments for the need for more availability and increased understanding how technology can better facilitate planning participation (Town And Country Planning Association, 2018) to “foster participation in planning, unpack the decision-making process, and communicate the impacts of development” (RTPI, 2010). Previous work spanning human computer interaction (HCI) and planning has explored technology to understand whether it can better engage people in planning processes. A number of different types of technologies have been explored, for example, using data (Le Dantec et al., 2015), images (Al-Kodmany, 1999), mapping and PPGIS (Dennis, 2006), mobile apps (Nuojuua, 2009; Desouza and Bhagwatwar, 2012; Ertiö, 2015), collaborative displays (Hopkins et al., 2004) and interactive web technologies and social media (Web 2.0) (Hanzl, 2007). Whilst research has long understood the potential benefit of these technologies, planning has been slow to react to both developments in technology and how to facilitate participation (Gordon et al., 2011).

Whilst technologies such as these are useful for engaging and informing people, and providing enhanced participation through providing data and context (Taylor et al., 2015), there is often a reliance on abstracted notions of space, such as maps and data on the expert’s terms (Graham and Healey, 2007), rather than providing opportunities for thematic, open-ended discussions of place (Healey, 1996). Although technologies have tried to address issues of participation in planning, progress has been slow (Gordon et al., 2011). Chapter 3 (Town Planning & Human Computer Interaction) explores these technological methods for engaging people in local planning processes in more detail.

### **1.3.1. Motivations for Research**

Whilst there are several planning technologies, as documented earlier, that have demonstrated the ability of aiding people in engaging with changes to their built

environment, these technologies are often developed on the terms of the planner, rather than citizens. These technologies do not engage with what people feel important, such as their experiences and feelings towards place (Massey, 2005), rather, they engage with an abstracted and reduced understanding of space that reduces the likelihood of people engaging with planning (Graham and Healey, 2007).

Further compounding these difficulties in getting people involved is that many participation technologies mirror traditional methods rather than providing different ways of getting involved; they do not provide alternative means of participating, simply demonstrating that it can be done online. Participation using technologies still requires people to understand complex proposals, processes and planning policies, rather than the technology providing an alternative way to participate.

The design and evaluation of technologies that reconfigure participation in ways that better align to how people both experience places is underrepresented in planning research, with very few design-led user-studies of how people engage using technology (Colding et al., 2018) (these studies are usually explored within computing science fields, such as HCI). The failure of planning research to undertake user-studies of technologies has meant that technological engagement methods have fallen behind what most people expect (Ertiö, 2015) – creating more barriers for people who might want to participate. Historically town planners were frontrunners of the use of technology (Wilson, 1974; Batty, 1979), however, its usage nowadays lags behind (Ertiö, 2015).

## **1.4 THE STRUCTURE OF THE THESIS**

This research is formed from a sequence of piloted technologies. The chapters are devised to provide a background to the different contexts and literature the research engages with. The research draws on literature from planning, human geography (Chapter 2) and HCI (Chapter 3). Chapter 4 sets out the approach to the research, followed by three findings chapters (Chapters 5, 6 and 7). The last two chapters discuss the research (Chapters 8) and present conclusions (Chapter 9). A summary of the chapters, and their purpose, can be seen in Table 1.

2	The Changing Role of Citizen Participation in Planning	<b>Literature</b>
3	Human Computer Interaction, Town Planning & Participation	
4	Methodology and Technology Pilots	<b>Methods</b>
5	Twitter: Understanding Existing Platforms for Participation	<b>Findings</b>
6	ChangeExplorer: In-Situ Participation & The Physicality of Place	
7	JigsAudio: Exploring Creative, Expressive & Tangible Participation	
8	Reflections on Creating a Space for Dialogue	<b>Discussion &amp;</b>
9	Conclusion	<b>Conclusion</b>

Table 1: Chapters and their Purpose

Figure 1 illustrates the structure of the thesis. A literature review, split over two chapters, provides context upon which the research builds. Chapter 4 outlines the overall approach, methods and methodology and how the research project is carried out. Within each of the findings chapters is a context-specific literature review that provides additional background to that specific pilot.

Building upon the introduction, Chapter 2 (The Changing Role of Citizen Participation in Planning) details some of the difficulties planning has with engaging people in placemaking. It provides a brief introduction to the planning system, as well as recent and historic changes to the system, demonstrating how planning has moved from an scientific activity by a few people to an activity that is increasingly political with the aim of enhanced citizen participation (Healey, 1996). The chapter discusses the methods that are used in planning to engage people in shaping where they live, and the contrast between how places are lived in and how they are experienced (Lefebvre, 1991). It draws on Lefebvre (1991), Healey (1996), Massey (2005) and Sandercock (2003a) to develop an argument that planning needs to engage with place-experiences.



Figure 1: Structure of the Thesis

Source: Author

Chapter 3 (Human Computer Interaction, Town Planning & Participation) introduces HCI and how it has identified and tried to address some of the difficulties with participation through the development of technological tools. It makes an argument for exploring new methods, medias and means of civic participation. The chapter reports on a systematic literature review that identified a lack of diversity in both the methods that are used in practice as well as those researched.

Chapter 4 (Methodology and Technology Pilots) sets out how the pilots were conducted. It makes a case for the importance of understanding the role of designed in technology and civic participation. It does this by engaging with Marres' (2015) notion of material participation, which is used to understand how material interventions can influence how people interact and undertake the activity of participation. Marres (2015) is then used to influence the research into three technology pilots that materialise participation in different ways. The chapter applies this approach to the research's design, discussing how it was carried out and the underlying assumptions of the study. The chapter describes how action research is used through a series of technology pilots. The chapter ends with a discussion of the ethical considerations of undertaking research with human participants.



The first findings chapter, Chapter 5 (Twitter: Understanding Existing Platforms for Participation) aims to understand the current state of technology-mediated planning online. The study looks at the use of Twitter to understand whether there are substantive and potentially useful discussions taking place on the platform, and if these might be used as a way for engaging fresh perspectives in formal planning processes. It describes how groups of citizens use Twitter to engage with place-based issues, and how the platform is used to campaign through a variety of medias to apply pressure on decision makers. It discusses the difficulty of identifying planning and place-related discussions on the platform, and the need to develop spaces with the aim of discussing place-issues, rather than using an existing platform.

The second findings chapter, Chapter 6 (ChangeExplorer: In-Situ Participation & the Physicality of Place), explores how location-based technologies can facilitate in-situ participation that engages with the built environment. It investigates how notifications can provide the impetus for quick participation, allowing people to participate whilst being in the area they are discussing. To explore this, an app named 'ChangeExplorer' is developed and assessed for its suitability in planning with citizens and planners. The chapter explains how methods that promote speed and efficiency in participation often leads people to discuss issues that are immediate, rather than longer-term issues that are useful to planners.

The third findings chapter, Chapter 7 (JigsAudio: Exploring Creative, Expressive & Tangible Participation) documents the design, deployment and analysis of a technology called JigsAudio. Building on the previous chapter, it explores how a physical tangible computing device can encourage and inspire the sharing of views that can feed into long-term planning. The device encourages people to express themselves through drawing and talking. The chapter discusses how the technology provides a novel and tangible method of participating, and how this can facilitate expressive discussions. The chapter ends with a discussion of how abstracted comments (comments that use abstract ideas to discuss place) might be used within a narrower planning system.

Chapter 8 (Reflections on Creating a Space for Dialogue), discusses how the piloted methods changed the way that people engaged with planning and place. It discusses how spaces for discussions on place-matters can be designed to help shape responses and guide

responses from people, and how the design decisions made when designing technologies for participation have a huge influence in the responses that take place on them.

Chapter 9 (Conclusion) reflects on how digital participation methods might work together to provide a suite of participation methods that allow people to engage in differing levels. The chapter explores how participation methods (both digital and non-digital) can complement each other and allow people to participate on their own terms. It ends with a discussion of the overall research questions, a reflection on digital civics research, and future research opportunities.

# 2

## **The Changing Role of Citizen Participation in Planning**

Introduction

The Changing Role of  
Citizen Participation in  
Planning

Human Computer  
Interaction, Town  
Planning & Participation

# 2. The Changing Role of Citizen Participation in Planning

## 2.1 INTRODUCTION

This chapter will discuss how town planning in England and Wales has, through decades of change, developed into a practice that seeks participation from the people who are affected by decisions made by planners (Healey, 1996; Brownill and Inch, 2019). The current system emphasises the importance of citizen participation throughout (Localism Act 2011), however, the difficulties of translating these aspirations into opportunities for people engaging in planning has been much more difficult to achieve (Healey, 1997; Tewdwr-Jones and Allmendinger, 1998; Baker et al., 2007; Sager, 2013).

Earlier philosophies, around the late nineteenth century saw planning as an art, and later a science, with no need to involve people – planners were the experts with a unique set of knowledge that ruled with “gross-simplification and heavy-handedness” (Faludi, 1973, pp. 33-34) that neither accommodated nor allowed for citizen participation. As the practice of town planning matured, planning was unable to reconcile both the complexity and increased politicization of planning (Lane, 2006). The 1950s marked a move towards recognising the complexity of this approach, with increased political pressure from citizens to have a say in the value judgements planners made ‘in the public interest’ (Campbell and Marshall, 2016b). Around this time movements towards getting people involved in shaping where they live is important, in part, due to the knowledge they have about where they live (Healey, 1997; Hall and Tewdwr-Jones, 2010). In 1968 legislation was introduced that required local government to give citizens a voice on proposed planning policy (Shapely, 2010).

It is widely accepted that citizens should have a say in how their neighbourhoods change (Conroy and Evans-Cowley, 2008; Hanzl, 2007; Evans-Cowley and Hollander, 2010; Le Dantec et al., 2015), that citizens have an important role in understanding and sharing their vast knowledge and experience about where they live (Chandler, 2001; Corburn, 2003), and should therefore have a say in the future of their neighbourhoods (Baker et al., 2007; Rydin and Pennington, 2010). However, engaging with the planning system is not straightforward.

Town planning relies on this local knowledge for plans that are backed up by the people that have experience of their environment (Brabham, 2009), who are best placed to provide solutions and who will be most affected by any changes (Chandler, 2001; Baker et al., 2007). Difficulties include trust towards the system and difficulties understanding the ‘language of planning’. When citizens do participate their views are rarely representative of the wider public’s interests (Healey, 1996).

Although there are benefits to participating in matters of town planning, both for citizens and decision-makers, the number of people participating remains low (Krek, 2005). For example, a recent report found that 75% of people feel they have little or no influence on local decision making (Hansard Society, 2019). People that put forward their views are required to do so within a rigid system – requiring them to engage with legalistic language, policy documents and matters of relevance to planning (Bedford et al., 2002). These opportunities for participating do not suit most people (Conroy and Evans-Cowley, 2008) with only a minority engaging with the planning system (Healey, 1996). Although statistics on who engages with planning are difficult to find, it is widely recognised that “involvement is likely to be limited to the articulate and educated” (Campbell and Marshall, 2010, p. 325) – a problem identified in 1969 (Arnstein, 1969; The Skeffington Committee, 1969).

This chapter will chart this history – leading to a discussion of how planning and citizens often struggle to align their priorities from opportunities for participation. First, it discusses how planning has transformed from a scientific endeavour to an increasingly political activity – with differencing levels of importance put on citizen knowledge and participation. Second, it discusses some of the difficulties with getting people involved, as well as some of the shortcomings in the planning system. Third, the end of the chapter engages with literature from human geography to provide context to the research on how the citizen perspective is in stark contrast to how they are governed (Sandercock, 2003a; Graham and Healey, 2007; Massey and Warburton, 2013).

## 2.2 A BRIEF HISTORY OF TOWN PLANNING

The history of planning is a story of changing priorities and influences, with it constantly undergoing reform in its role, ideological stance and political preferences (Clifford and Tewdwr-Jones, 2014). Whilst it is a story of planning changing and trying to address contemporary issues, it is also a story of planning having to deal with and adapt to issues external to planning (for example, the increased use of private motor cars) (Hillier, 2016; Campbell and Marshall, 2016b). This chapter will briefly describe the ebbs and flows of planning through discussing three periods within planning's history. To do this, it will discuss: the contemporary issues of the time, and how planning adapted to accommodate these issues; how changing the planning system benefitted certain groups; and how solutions to contemporary issues were attempted to be resolved. It is important to note that the history charted is one that documents the 'official' planning system's view of changes, rather than one from citizens or those struggling to engage with the planning system. Their perspectives on these matters would be entirely different (Jacobs, 1961).

During the 1900s there was a focus on improving the living conditions of citizens, particularly at the time factory workers living in cities, through the development of tools to manage cities or to take people out of cities, as well as a less formalised planning system (for example, Ebenezer Howard's garden city movement, which worked outside of any established planning system) (Howard, 1902) attempting to deal with the issues associated with rapid urbanisation such as urban slums (Cullingworth and Nadin, 2002). Later philosophies saw planning as a technical exercise, combining the expertise of planning with a belief in technology and the sciences of city planning (Hall and Tewdwr-Jones, 2010). This era of planning was later (in the 1970s) dismissed for not considering the complexity of cities, and the political nature of place-governance – attempting to address these issues with master plans that were criticised by the RTPI: “it was too slow, too weak, too remote from decisions which were important in people's lives, it was poorly related to other areas of government activity, and it was too often an arena of party political contention” (Hill, 1980, p. 152). These difficulties required planning to take on another form – one that engaged residents and politicians. The underlying planning system, however, remained largely unchanged, with there being a reliance on land use plans and technocratic exercises. As this section will demonstrate, the role of the citizen, and their perspectives on planning, has constantly changed since planning's recognition in legislation (Cherry et al., 1994).

Since planning became an increasingly formalised and organised activity, it has had to deal with and consider trade-offs to decisions and competing priorities (Hill, 1980). Building an urban motorway in front of people’s houses will improve a motorist’s life, but this improvement is unlikely to be felt by the person whose house the motorway is built in front of (Campbell and Marshall, 2016b). There are many trade-offs that have to be judged whilst taking planning decisions. During a drive to build new houses, it will be important to consider whether the development of open countryside and urban sprawl is a worthwhile cost (Williams-Ellis, 1928). When proposing the extension of an airport that might benefit the regional economy, is it worthwhile if this has a global environmental cost (Freestone, 2009)? Table 2 illustrates these changing priorities and what became the dominant issue of these decades.

	<b>Early 20th Century</b>	<b>Post-war Planning</b>	<b>2000s Planning</b>
<b>Housing</b>	Improving living conditions Metro-land beginning to emerge (Jackson, 2018)	Managing urban sprawl and out of town housing developments. Building high rise council housing.	Housing delivery (Tait and Inch, 2015)
<b>Transport</b>	Commuter railways and the beginning of busses (Jackson, 2018)	Development of national and urban motorway network	High reliance on cars (and associated pollution). Lack of air capacity in London (Graham and Guyer, 1999). Overcrowding on trains.
<b>Citizen Participation</b>	No citizen participation – expert planners understanding problems and developing solutions	Space begins to open for participation. Later introduction of formal participation.	Increasingly market driven. Localism opens-up more opportunities, but are still constrained (Tait and Inch, 2015)

Table 2: Channing Priorities of Planning

Source: Adapted from Tewdwr-Jones (2012) unless cited otherwise

In charting the history of town planning it is also important to recognise its reaction to factors outside of planning. Technology has been one of these influences, both historic and more recently (Le Dantec, 2012; Foth et al., 2015). For example, when trains were gaining popularity in allowing people to live further outside of cities and commute to work, planning had to react to issues of urban sprawl (Williams-Ellis, 1928). Similarly, the ubiquity of smart phones and social networking has led to citizens increasingly taking up issues with local authorities that they feel strongly about whether planners are looking for participation or not (Brabham, 2009; Evans-Cowley, 2010; Williamson and Parolin, 2012).



The story of planning has largely been about it about responding to the socio-economic and environment challenges that have been played out through land use decisions and developments. Planning has, since its inception, aimed to improve places in the ‘public interest’, however, as this section will demonstrate, the form of this public good has been up for debate and change, with many publics and conflicting goals (Cullingworth et al., 2014). Rather than being strictly refined, the public interest forms more an overriding philosophy, which at different points in history, placed more emphasis on the interests of “government, the development industry, landowners, and ‘the public’” (Cullingworth and Nadin, 2002, p. 41). The following section will discuss the shifting priorities (and their associated issues) of planning, and how planning has engaged with them. The review begins by discussing planning in the early 20th century when it became increasingly formalised, post-war planning during the height of urban rebuilding programme, ending with contemporary reflection on recent planning reform and the current planning system.

### **2.2.1. Planning Between 1900 and 1945**

Early 20th Century planning tried to reconcile issues of poor public health and housing, overcrowding and poverty. These problems were becoming a public scandal (Hall, 2014a). The availability of jobs came with the consequences of cities being ‘horrible places to live and work’ (Hall, 2014a). One response to these issues was to improve inner-city living conditions through a series of measures such as slum clearance (Mah, 2012). Another was moving out of the crowded cities and the ‘garden city’ (Howard, 1902) – with all the advantages of living in a city without any of their shortcomings. Howard stated garden cities will “show how in ‘Town-country’ equal, nay better, opportunities of social intercourse may be enjoyed in any crowded city, while yet the beauties of nature may encompass and enfold each dweller therein” (Howard, 1902, p. 18). The Garden City movement formed an early precursor to a more formal planning system. Howard proposed several people should move their factories and workforce to the countryside and allow people to build their own houses. Rather than it being a state-led activity, Howard tried to encourage cooperatives to buy land and develop it themselves (Howard, 1902). Whilst being recognised as attractive places to live (Beevers, 1988), these places were criticised for ‘destroying the country’ and having “neither the crowded interest of the town nor the quiet charm of the county” (Edwards, 1914, p. 317). Howard’s ideas were

influential and led to the state taking an increased interest in how wider societal issues can be address through planning.

In 1909 the Housing and Town Planning Act (with more of a focus on housing quality than development planning) – emphasised “the sanitary and aesthetic improvement working class dwellings – and the prevention of future slums in new peripheral suburban developments” (Booth and Huxley, 2012, p. 268). This Act was the beginning of the planning system that can be recognised today and was the first legislative use of ‘town planning’ in English-speaking countries (Booth and Huxley, 2012). Early planning took an authoritarian top-down approach to designing and specifying how cities function, where expertise and rationality could improve living conditions. Cities were designed through a process of applying principles of how cities should be used, and using ‘levers’ such the “density and massing of buildings, street alignments, perspective and the ordering of public space” (Ward et al., 2011, p. 233) to design more functional, healthier and liveable cities.

Blueprint Planning was prevalent during the early 1900s and saw the city as a machine manipulated by expert operators (Lane, 2006). It saw the planner as the expert of the city<sup>2</sup> and held the role of the planner as someone who could singly solve the city’s problems, and citizens as subjects of the city, rather than needing to have an active role in shaping it. There was a belief that the ability of the master planner would lead to a reduction in social problems. The blueprint was a single vision for a city, which was unlikely to accommodate any changing forces or have any public involvement in its creation (Hall and Tewdwr-Jones, 2010). At the time experts knew how best to predict issues, understand solutions to these difficulties and develop a plan to address them with no need to engage people (Lane, 2006).

Early planning had to deal with a series of dilemmas. As noted earlier, cities were rapidly growing as they became increasingly industrialised and extended into open countryside. The dilemmas of the time was: should people be returned ‘back to nature’ to the countryside where living conditions might be better (Howard, 1902; March, 2004), or

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<sup>2</sup> Planning as a profession did not commence until 1914 with the forming of the RTPI (MacDonald *et al.*, 2014), with the first RTPI accredited planning degree established in 1945 (Davoudi and Pendlebury, 2010).

should the growth of cities be constrained (Williams-Ellis, 1928)? The focus of this time was to move people out of these cities through ‘slum clearance’, moving people into suburban areas (Power, 2010). This principle began to raise questions from concerned groups about whether planners were making the ‘right’ decisions (Hall, 2014a). Groups such as the ‘Campaign to Protect Rural England’ and the ‘Ramblers’ Association’ aimed to “combat urban sprawl, ribbon development and the unplanned destruction of the landscapes and villages” (Purkis, 2015, p. 3). Since then the planning system, its principles and practices of planning have been continually questioned (Hall, 1974). This heralded the continual outside challenge to the orthodoxy of planning – broadly demonstrating the continual questioning of planning’s ‘objective’ stance of what effective planning is. With planning becoming a state-led activity, questions about its priorities would be increasingly raised.

Criticisms of this era concerned the detail of the planning system, such as its approach to urban sprawl. There was a strong case for the principle of the planning system given the inner-city conditions that were being faced, however, there was disagreement about planning’s solution to the dilemma (Howard, 1902; March, 2004). Abercrombie, the influential architect of the later London Plan, argued for a ring surrounding London within which development could not take place – rather than allowing cities to grow, developments should be spatially concentrated (Couch et al., 2008). These disagreements in how places should be developed led to many of the debates that, even today, are continually being pursued, with Tewdwr-Jones stating: “Although no one realised it at the time, from this moment forward, planning would become a compromised system, caught politically between several different dualisms – urban and rural, individual and collective, economic and social, developer and community” (2012, p. 11). Early planning introduced a formalised system through which the future of places was sought and rationalised. Although there were few opportunities for participation, beginning the activity of planning opened up a space for critique and questioning. This questioning of planning both demonstrated a citizen interest in shaping planning decisions, and that they are not value-free.

### **2.2.2. Post-War Planning**

Following the Second World War, there were calls for “Britain to rebuild itself” (Cherry et al., 1994, p. 278). The post-war period marks an ambitious time for planning, when planners put forward a new spatial vision that aimed to facilitate the construction of new

homes (including the development of fourteen new towns). The widespread need for reconstruction and improved living conditions led to the passing of the 1947 Planning Act, which laid the foundation for the planning system used today (Cherry et al., 1994). The planners' office, following the war, was expected to be quiet: "The architects of the post-war planning system foresaw a modest economic growth, little population increase [...], little migration [...], a balance in economic activity among the regions, and a generally manageable administrative task in maintaining controls" (Cherry et al., 1994, p. 278).

The Act introduced a series of measures that gave wide-ranging powers to planners to shape cities, such as the nationalisation of land development rights and the requirement for local authorities to create their own comprehensive development plans (Innes, 2007). The long-term comprehensive plan was a top-down instrument used to govern how a city (or the country) should operate, with the understanding that planners could work to understand a city's problems and develop solutions to them: "a comprehensive plan is a long-range physical plan for a city; it covers the city geographically; it addresses each function that makes the city work as a physical entity and that affects its physical form" (Innes and Booher, 2007, p. 461). This approach to planning, just as in the decades before, required dealing with conflicting priorities and dilemmas. The planner's aim was to settle these disputes and conflicts through expertise and 'objective' facts in the public interest (Shapely, 2010). However, as planning was progressively critiqued during the post-war period, it became increasingly untenable to rely on the notion of objectivity when taking decisions.

Abercrombie was renowned for a style of planning that applied expertise, objectivity and facts, and for the early use of a technological tool, video, to communicate changes to mass audiences in the absence of formal consultation practices and requirements. These videos formed a new technological medium in the mid-century, and whilst not used to promote participation, did work to inform people of the process of planning itself, rather, as a way to demonstrate the objectivity and science behind the planning process (Gold and Ward, 1994).

The quote below is an extract from 'The Proud City', a video aimed at explaining the Greater London Plan. It discusses London as a machine (the roads are its arteries), and a garden (where people are flowers which need shelter from wet and cold). It saw priorities

that could be predicted, and their solutions planned for, and was the dominant view of planners of this era (Healey, 1997; 1998). It recognised the city as something that could be endlessly optimised and improved.



*“Thousands of maps were made, hundreds of charts drawn, discarded, revised, and done again; until at last we were ready for the complete plan” (Abercrombie and Forshaw, 1946)*

Figure 2: Stills from 'The Proud City'

Source: Planum

Hall & Tewdwr-Jones described these planners as “the omniscient rulers, who create new settlement forms [...] without interference or question” (2010, p. 53). During this era planners took on the role of understanding a city through collecting information on how the city is used. Their ‘rational’ plans would then be enacted and justified without any requirement to engage with formal political or citizen perspectives. Rather than seeing the city and the people as being connected, they see the citizens as subjects of the city, and using the city in ways in which they decide. This method of planning was later viewed as a “gross-simplification and [carried out with] heavy-handedness” (Lane, 2006, p. 288). It was synonymous with plans that were inflexible, and that had little concerns for the politics of the city and how their plans were going to be achieved.

*“First, the planner made a survey, in which s/he collected all the relevant information about the development of his or her city or region. Then s/he analysed these data, seeking to project them as far as possible into the future to discover how the area was changing and developing. And third, s/he planned: that is, s/he made plans which took into account the facts and interpretations revealed in the survey and analysis, and which sought to harness and control the trends according to principles of sound planning.” (Hall and Tewdwr-Jones, 2010, p. 6)*

A later ethos, rational planning, was a movement in the 1960s and 1970s that viewed reason, rules of logic and science as a stronger motivation for planning than intuition,

opinion or religious belief. This era was characterised by “a belief in a total, centralised, top-down, expertly based – but also benign – planning system” (Hall, 2014b, p. 1). This approach to planning was criticised as it gave huge amounts of unregulated power to a few (Weiss, 1983). Planning, however, could not account for the continued disagreement between the rationalist planning and the increasingly politicised decisions of the early 60s that served to continuously question the decisions of planners – such as the drive to modernism that prioritised motor vehicles over pedestrians. These rational and scientific approaches could not accommodate citizen perspectives (Taylor, 1998). Whilst planning was carried out to maximise ‘happiness’ (Bentham, 2018) the formulaic approach to planning led to questions of ‘happiness for who?’ (Taylor, 1998).

Rational models of planning do not resolve these questions, when value-judgements of who and what to prioritise needed to be made. With this recognition, a turn towards the need to engage citizens in these decisions, with a stake in their local environment, became increasingly necessary. Long (1962) stated “no longer can the planner take refuge in the neutrality of the objectivity of the personally uninvolved scientist” (p. 195).

It is worth briefly reflecting on early use of technology, which rather than being used to engage people in planning, were used to support a scientific and objective approach to planning. The use of technology aligned with a systems approach to planning that applied logic to the understanding of individuals interconnected through systems which emphasised the relationship between the use of space, connections between these and human activities (McLoughlin, 1969). Rather than a plan being static, a systems approach understood the city as a machine, which could be understood and operated by planners to achieve goals where “the planner will exist in a state of continuous interaction with the system” (Hall and Tewdwr-Jones, 2010, p. 251).

Throughout the post-war period of planning, an increased role was given to technology for more sophisticated modelling, visualising and evaluation of the performance and functioning of cities. The use of technology facilitated planning’s top-down and scientific approach to space that used science, modelling and statistics to develop the most efficient approaches, teamed with a wider belief that technology can help overcome problems (Batty, 1979). Through using technology, the hope was that planning would be able to

explore and accommodate more evidence, in-turn leading to plans that were considered more sophisticated, considered and evidence-based.

*“Initially, in the 1960s, computer models dominated these developments, with spatial databases in the form of GIS (geographic information systems) taking pride of place only in the 1990s while the use of graphics and the web for dissemination and participation has only become significant very recently”* (Batty, 2016, p. 326)

This use of technology began in the mid-1950s America which attempted to model the “relationships between social and economic activities [...] and the spaces (or structures) available to house them” (Hall and Tewdwr-Jones, 2010, p. 254). As the understanding of the opportunities these technologies presented, they were used in an increasing number of contexts, with Batty stating: “the demands set were so ambitious that in hindsight it is not surprising that none were met [...] the modelling effort was frequency out of all proportion to the resources involved” (Batty, 1979, p. 871). The models could not accommodate the complexity of real cities, both due a lack of theory on how cities operate and technical limitations (such as the amount and resolution of data). What was distinct during this during the post-war period was faith from modellers in technology and the model’s objectivity (Batty, 2016), leading to models that neither reflected reality nor gave planners useful policy directions (Lee, 2007).

Batty argues that the development of urban modelling was poorly motivated – by thinking of policy problems and trying to model them, planners could not adequately account for the complex interrelationship of phenomena. Batty (2016) goes onto argue that a more effective uses of modelling have been driven by technological abilities – create models that can be accomplished technically, and develop policy based upon what they are able to support. Like many approaches of this era, the overly simplistic understanding of how cities function, the recognition of the lack of control planners actually had, and the increased politicisation of the decisions these models suggested led to the reduction in the role of modelling and a systems approach to planning (Hall and Tewdwr-Jones, 2010).

The post-war consensus around the need for comprehensive planning was increasingly questioned by the subjects of the planners (the citizen): “Conflict arose over planners’ powers over specific proposals for new roads and large-scale developments, with demands

for greater public participation not just for individuals and landowners directly affected, but for a wide variety of community and other interests” (Hill, 1980, p. 151). The increasingly antagonistic approach to planning led to the state recognising the merits of involving citizens (Shapely, 2010). These views, usually of citizens, were in opposition to the views of planners who felt citizens should feel fortunate their area was receiving attention (Ortolano, 2011). The relentless backlash resulted in, amongst others, the residents of Stevenage deflating the tyres of a minister, and renaming the train station to Silkingrad in 1946 after it was designated as the first New Town (Black, 1951).

These debates about planning were not confined to the UK – in New York Jane Jacobs (1961), was influential in similar schemes such as slum clearance. From outside of the planning system (a journalist) she contested that planning’s (and, within New York, Robert Moses’) focus on ‘renewing’ cities with restrictive single-use zoning was destroying otherwise liveable places, and that mixed-use pedestrian-based streets were preferable. She criticised Howard’s over-planning of the Garden Cities in the UK, stating: “His aim was the creation of self-sufficient small towns, really very nice towns if you were docile and had no plans of your own and did not mind spending your life among others with no plans of their own” (Jacobs, 1961, p. 17).

She called for places that retained their heritage, that are liveable and playable, with a diversity of people and differences to be celebrated. The book, ‘The Death and Life of Great American Cities’ (Jacobs, 1961), suggests that planning over-simplifies the experience and complexity of places, and that it governs with too heavy a hand. Planning, she argues, should facilitate a multiplicity of cultures that make cities more liveable. To support this diversity she stated that places should be designed with four principles: i) multiple uses to reduce reliance on private automobiles and keep places in use for as many hours during the day as possible; ii) short streets and blocks to encourage pedestrian exploration; iii) a mixture of building ages for different renting arrangement and a mixture of tenants; and iv) high street densities (both residential and non-residential).

This critique of planning’s failure to engage with making places liveable, provided by Jacobs (1961) and others (Betjeman & Mirzoeff, 1973; Mumford, 1976) engaged with a widespread dissatisfaction with both the spirit of planning and its problems. These views, particularly from those outside of planning, gained wide support – something planners



struggled with. The decisions of planning rather than being viewed as objective, were seen as political. The belief in planning having an understanding of public interest and the issues that people were facing began to falter: “planners’ claim to know the public interest puts them at odds with politicians, who also claim to know it” (Altshuler, 2007, p. 462). The RTPI declared that planning was contending with being “too remote from decisions which were important in people's lives [...] and it was too often an arena of party political contention” (Hill, 1980, p. 152).

In the late 60s planning began to take less of an authoritarian approach. Whilst retaining the same planning system, it was accepted that it was important for local plans to address local concerns, with the role of top-down plans being increasingly questioned (Tewdwr-Jones, 2008). The idea that happiness could be captured in a formula and applied to places was becoming discredited and recognised as not accounting for the complexity and conflict in determining the future of places (Hall, 1992). Later in the decade, under a Conservative government, power increasingly flowed towards developers. The new towns programme was abandoned, and rather than comprehensive planning, planning aimed to become more nimble and responsive (Hall, 1974).

Partly in response to these difficulties, Skeffington’s report on public participation in the planning system (Skeffington, 1969), published in 1969, is widely viewed as a turning point in participation in planning, where a planning system was imagined that systematically engaged with people. Skeffington’s aim was to shift planning from something that is viewed as an activity that is done to people to something that should take place with wider public involvement (Damer and Hague, 1971) – beginning a debate on “encourag[ing] a systematic approach to resident participation in planning” (The Skeffington Committee, 1969 p.v). The committee “consider[ed] and report[ed] the best methods, including publicity, of securing the participation of the public at the formative stage in the making of development plans for the area” (The Skeffington Committee, 1969, p. 1). The recommendations included extending planning education, establishing community forums, improved engagement mechanisms and community officers. Skeffington’s recommendations, however, were criticised for being too vague, and led to little change in how planners actually engage people (Damer & Hague, 1971). Many of the issues and recommendations identified by the committee are still being faced within planning today – such as a call for participation to be ‘continuous’ rather than piecemeal and enhancing

the role of community development officers and planning education to encourage participation (Baker et al. 2007).

Arnstein's (1969) frequently referenced Ladder of Participation was an early conceptualisation of participation – seeing it not as binary but with varying degrees of citizen power. She places participation between two extremes – with complete citizen power at the top, and none at the bottom (Taylor, 1998). This included the discussion of tactics used by planners to 'prove' they valued citizen opinion, but which in reality, was simply manipulating them through their lack of understanding of the planning system (Arnstein, 1969). This, and the wider mounting political and citizen pressure, alongside better academic understanding (The Skeffington Committee, 1969), led to a shift in planning – where citizens were given a role within planning, and “town planning was no longer regarded as a purely technological or scientific exercise [...but...] rested on value judgements about desirable futures” (Taylor, 1998, p. 90).

Following these calls for participation and widespread critique of planning's priorities, planning provided opportunities for participation in proposals. Rather than being involved in the principles of planning, people were usually engaged at the detail-level, to ensure the planners had considered all relevant factors (Arnstein, 1969). Whilst there were opportunities for participation during the 1990s, business and developers had the greatest power which could rarely be usurped by public opinion (Shapely, 2010; Brownill and Inch, 2019). Work at the time called for planning that was increasingly collaborative, working with a range of stakeholders to reach decisions (collaborative planning), however, these principles rarely materialised in practice (Phelps and Tewdwr-Jones, 2000). On this, Bedford et al. (2002) stated: “As long as the structures and practices associated with the development control process continue to constitute and reproduce power relations that privilege property owners and powerful economic interests, public participation, no matter how wide, is unlikely to enhance confidence in public institutions or empower citizens” (Bedford, 2002, p. 239). Planning was criticised for delivering not what was needed, but instead, what the market would see as profitable and develop – with a “widening gap between land use development and needs” (Cullingworth and Nadin, 2002, p. 33).

Whilst citizens had increased opportunities for participation within the planning system, the actual power that could be exerted was minimal. The opportunities that citizens had were on the terms of the planner, with planners deciding what they needed input on, how it should be given and when. There came an understanding that that planning was unable to find solutions to all problems, and that decisions would inadvertently prioritise certain groups over others. With this understanding, politics took a growing role in how places change. Comprehensive planning was considered out of date; instead, incremental and flexible plans were favoured (Lane, 2006).

These changes left a planning system that on the surface was the same (the structures to govern place were the same), however, the drivers and priorities of these plans had changed dramatically. The following section goes on to discuss some of the dilemmas that faced planning during the 2000s, and how localism led to changes that further prioritised development and business.

### **2.2.3. Frontloading Participation through Local Development Frameworks**

Introduced in 2004 by the Labour government, the Planning and Compulsory Purchase Act (MHCLG, 2004), amongst other changes, established a regional level of strategic planning (the regional spatial strategy) that sat between national and local policies. Regional planning aimed to direct the development of strategic infrastructure and “set out a broad development strategy for the region for a 15 to 20 year period” (Baker et al., 2010, p. 578). The Act also introduced local development frameworks (LDF), a portfolio of documents that outlined an authority’s planning policies and guidance. Within the LDF was the core strategy, that took a long-term view (of at least 10 years) on how to achieve a vision through “broad policies [...and...] a framework to measure progress towards it” (Cullingworth et al., 2015, p.119).

The Act required opportunities for citizens to participate at both levels of policy development, setting out in more detail how and when citizens must be involved. It set out five key principles: “Involvement that is appropriate to the level of planning”; “Front loading”; “Adoption of appropriate methods for engaging stakeholders”; “Continuing involvement”; and “Transparency and accessibility” (Baker et al., 2010, p. 579). The ways in which citizen would be involved, through the principles, should be outlined in a LPA’s ‘statement of community involvement’, discussed below.

Whilst the requirements for front-loaded engagement in these processes was well-intentioned, the actual approaches, and who should be involved, received less attention, with them receiving criticism as they were “broad and generic, used complicated terminology [...] vague when describing approaches [...] where [...] hard-to-reach groups are not mentioned [...] and [...] no indication of how and when they will be engaged (Baker et al., 2010, p. 581). For example, whilst engaging people during the preparation of regional strategies there was little guidance on how to raise awareness of the relevance of these plans to their lives (Baker et al., 2010). It was found that whilst efforts were made to engage fresh perspectives in planning, many of the barriers to people becoming involved still existed:

*“The research conducted would suggest that many local authorities have tried to identify and connect with hard-to-reach groups, but fear that the new system is no less complex than its predecessor, particularly in relation to the acronym-laden language by which it is communicated”*  
(Shaw & Lord, 2009, p.427)

Key to these proposals was the introduction of the LDF, within which the ‘Community Strategy’ aimed to front-load participation, where “extensive early consultation will enable a consensus to emerge amongst all the various stakeholders as well as ensuring active participation in developing ideas and sharing knowledge [...] and [...] the creation of a dialogue between planning publics and decision-makers rather than a series of discrete episodes of consultation” (Brownill & Carpenter, 2007, p. 622). Whilst it is generally seen to be favourable to involve citizens early in plan making to inspire a sense of community ownership over the policies (Baker et al., 2007), it was sometimes seen to be overly complex and bureaucratic and slowed down policy development (Townsend & Tully, 2004) going against the original aims of the reform (for a speedier, more responsive, planning system) (Brownill, 2009).

Although it was also viewed as laudable to encourage early dialogue between citizens and planners, leading to fewer objections to policy proposals at later stages, and “fulfil[ing] the objective of making the statutory phases easier and quicker” there was “evidence suggest[ing] that this could be at the expense of community influence” (Brownill & Carpenter, 2007b, p.422). For example, this happened when community representatives

thought their involvement meant “that their views had already been taken into account through extensive earlier consultation” (Brownill, 2009, p.371) and therefore “paid less attention to the statutory elements” (Brownill, 2009, p.371). Townsend and Tully (2004), showed examples of early involvement and commitments being reneged on once policies were discussed within later formal processes, where “participatory decision-making comes up against the limitations of power and hierarchical structures” (Brownill, 2009, p.371).

The reformed system was (arguably) more complicated (Townsend & Tully, 2004) which required people to understand, not just different levels of governance, but also what they could be engaged on, what the implications of involvement at different levels of policy meant to places they cared about. Many of these difficulties, such as people needing to understand when to become involved, are still present in the planning system today, as the next section will discuss.

#### **2.2.4. Localism and Planning**

The Planning and Compulsory Purchase Act was introduced in 2004. The act introduced legislation to speed up the planning system by improving coordination between local authorities through regional planning and an increased focus on sustainable development (Cullingworth et al., 2014), with planning aiming to “take account of environmental issues as planning considerations in policy development and decision making, but alongside economic, social and other considerations” (Tewdwr-Jones, 2012, p. 19). At the same time local development frameworks were introduced, which had to conform with the newly introduced regional spatial strategy “to give more flexibility, and enable innovation and the creation of more locally relevant solutions” (Cullingworth et al., 2015, p. 115). Emphasis was placed on “enhancing stakeholder involvement in the plan-making process” (Baker et al., 2010, p. 574) and “integrat[ing] communities more fully into consultation and decision-making” (Carpenter and Brownill, 2008, p. 244).

Although the language of planning at this time was more open to understanding how people experience places, what makes places important to people and distinctive, in practice planning still relied on a rationale-model of space and site allocations (Cherry et al., 1994). Planners came around to the idea of understanding the importance of emotion and experience (Jacobs, 1961; Sandercock, 2003a; Massey, 2005), but were bound-up with a system that did not allow these ideas to be translated into actionable policies – “urban

planners may recognise the city of emotion, of desires, of interconnections and of flows, but may not feel they can translate this awareness into a conceptualised and legitimate form without dismantling the very confines of conceptualised space they rely on to work within” (Tewdwr-Jones, 2011, p. 25).

Later legislation was introduced in 2011 (Localism Act 2011) to give more weight to citizen groups through, for example, writing a neighbourhood plan. An overriding aim of the Act was a reduction in the state and a dislike of ‘big government’. These changes aimed to take “power, responsibility and decision-making from the state and give it to individuals, neighbourhoods, or ‘the lowest possible tier of government’” (Evans, 2011, p. 164). An aim was to a “shift in power away from central government and towards local people” (Ministry of Housing, Communities and Local Government, 2011, p. 1), and empowering communities to decide their own futures. Part of this philosophy was to remove “cumbersome state regulation while simultaneously engendering a sense of community spirit” (Holman and Rydin, 2013, p. 72).

The Localism Act 2011 (Localism Act 2011) aimed to bring planning to a neighbourhood scale, increase community participation in planning, and carve a path for “much broader public participation approaches” (Tewdwr-Jones, 2012, p. 199). A further aim of Localism was, according to Vince Cable, to reform a “slow and prescriptive planning regime” (Department for Business, Innovation & Skills, 2011, n.p.) and “to simplify the planning system and make it less bureaucratic” (Ministry of Housing, Communities and Local Government, 2011, p. 1). This, as has been widely discussed, played into a narrative of planning being the ‘enemy of enterprise’ where the free market is restricted by ‘pen-pushers’ and civil servants in local authorities (Lord et al., 2017). It is important to note that these plans must be in conformity to local authority’s plans (which in turn must conform to the National Planning Policy Framework (MHCLG, 2012b)), sitting a tier below them rather than replacing them (Shaw and Tewdwr-Jones, 2016). Rather than achieving their aim of reducing bureaucracy these changes could be seen to further complicate planning.

Neighbourhood Plans cannot block potential development, but they can have an influence on where development should be focussed within a neighbourhood. A referendum is then held within these areas to establish whether the plan will be enacted.

The impacts of this shift for community governance, planning systems and professionals are still being identified (see, for example, Clarke and Cochrane, 2013; Holman and Rydin, 2013; Clifford and Tewdwr-Jones, 2014).

Alongside giving citizens increased power in decision making (although whether citizens actually gained powers is disputed), there was a lessening in the role of the local authority (Lord et al., 2017) alongside a 40 per cent reduction in their funding from central government (Local Government Association, 2014). This reduction has implications for the services local authorities can provide.

Although these legislative changes intended to give citizens increased power in shaping their neighbourhoods, it necessitates an associated need to increase their understanding of, and engagement with, the planning system (Baker et al., 2007). The extent to which this has been achieved, however, it yet to be seen, where “no comprehensive research has yet been undertaken on the breadth of involvement in Neighbourhood Planning at a community level” (Lord et al., 2017, p. 35). This tier of planning has also been demonstrated to have slow take up where “initial concerns about weaker uptake from disadvantaged areas appear somewhat justified” (Parker and Salter, 2017, p. 483).

Further legislative changes were introduced in 2016: the Housing and Planning Act (UK Government and Parliament, 2016), which amongst others, introduced Starter Homes<sup>3</sup>, and planning permission in principle<sup>4</sup>. A dominant theme throughout these recent planning reforms and legislative changes has been the liberalisation of planning policy to encourage the building of new houses – with Neighbourhood Planning being critiqued simply as a way to “secure their compliance with a pro-growth agenda and increase the number of sites allocated for housing” (Bradley and Sparling, 2016, p. 106). These changes were criticised by Hugh Ellis (policy director at the Town and Country Planning Association) who stated; “it is extremely dangerous; [...] giving permission in principle would fundamentally undermine our ability to build resilient, mixed communities in the long term” (Wainwright, 2016, p. 1). Furthermore, Shelter, a charity that campaigns to end homelessness and poor housing, stated that under the Act, “starter homes for families

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<sup>3</sup> Starter homes are sold at up to 80 per cent of their market value – no more than £450,000 in London and £250,000 in the rest of England.

<sup>4</sup> Planning permission in principle allows for housing-led developments without needing to go through the full planning permission process

earning average wages will be unaffordable in over half (58 per cent) of local authorities across the country in 2020, and that families on the National Living Wage will only be able to afford a starter home in two per cent of local authorities” (Emmett and Van Lohuizen, 2015, p. 3). Recent changes include the removal of a regional planning (the ‘Regional Spatial Strategy’) due to the Conservatives’ view that that tier of planning was more bureaucratic than a driver for job creation (Shaw and Tewdwr-Jones, 2016), and the introduction Neighbourhood Plans (Cullingworth et al., 2015).

These changes have been further criticised for prioritising speed, reducing risk for housing developers and increased development, and the need for new housing, in any form, above all other needs (such as the ability to turn office space into housing within planning permission (Clifford et al., 2018)). What risks being left behind is a system with any meaningful community participation or local authority oversight (RTPI, 2011).

This recent reform has had implications for both what citizens are engaging with (neighbourhood issues), and how citizens engage with the planning system (increasingly though neighbourhood planning). Citizens will frequently engage with neighbourhood planning processes and issues, with the role of the local authority being the supporter and adjudicator rather than the sole authority responsible for planning (Holman and Rydin, 2013; Shaw and Tewdwr-Jones, 2016). To have a say in how places changes, citizens will need to be organised and involved as planning permission in principle is adopted.

All of these changes, both historic and contemporary, have resulted in the state of the current planning system. Whilst there has been a shift in the ideologies of planning, with a few changes in how planning is carried out (Shaw and Tewdwr-Jones, 2016), the planning system has remained relatively unchanged.

### **2.2.5. Recent Reform**

Following the introduction of Localism and the shifting of priorities from recent planning reform, the planning system increased the role of the market, business and delivery. Localism aimed to free people and businesses from the burdensome bureaucracy of the state and allow for communities to be responsive in meeting needs in their own areas, such as for housing, and collaboratively shape their own areas (MHCLG, 2018). The reality, however, was that communities frequently refused development in the area.



Neighbourhood planning became at odds with ‘one-nation Conservatism’ (Tait and Inch, 2015). Planning literature widely engages with and recognises ‘NIMBYism’ (Bradley and Sparling, 2016; Campbell and Marshall, 2016a; Brownill and Inch, 2019) – the consequences of this, however, are in opposition to the Conservative’s drive for development and a business-oriented planning system that reduces barriers to development (Tait and Inch, 2015).

Localism and neighbourhood planning shifted – it was no longer possible for communities to reduce the housing provision stipulated by local authorities – “highlighting the uneasy juxtaposition of market-based and more communitarian understandings of place and citizenship” (Tait and Inch, 2015, p. 185). Powers were returned to the planners alongside encouraging people to think of “responsible form of citizenship in contrast to the ‘NIMBY’” (Tait and Inch, 2015, p. 185) through muscular localism (Sell, 2013). Further changes in the NPPF aimed to encourage development through deregulation and growth being a priority.

As a consequence of austerity, particularly reducing the local authority’s role, the planning system has changed how and what issues it engages with (Shaw and Tewdwr-Jones, 2016). The structure of the system has remained largely the same since it was established in 1947, however, there have been wide ranging changes in its purposes and its priorities.

In this context, the role of citizens in planning has been in constant flux. The key change turns planning from an activity that is practised by a few people and inflicted on people, to an activity that pre-empts its outcomes on citizens, something that should be witnessed and engaged with by citizens of a city though opportunities for citizen involvement and scrutiny throughout plan and decision making processes. The top-down model of planners being the ruler has given way to a planning process with an increased role for people and politics. Planners still have ‘expertise’ (Vigar, 2012) and apply their knowledge, however, both politicians and citizens have reduced their power, with them “losing their privileged position in determining decisions and their claims to expert knowledge become one [albeit still powerful] voice among many” (Brownill and Inch, 2019, p. 14) and

“planners hav[ing] one set of knowledge resources among many in ‘the distributed intelligence of urban life’” (Vigar, 2012, p. 367).

Planning is an attempt to force a rational system into a very complicated ever-changing world, but the processes that shape cities (plan making, deciding on plans) have remained (Brownill and Inch, 2019). This, as some have argued, has left us with a planning system that few people understand and engage with (Ellis and Henderson, 2016). Both what planning governs, and how it is governed, is a slow, legalistic process which is difficult to contribute to unless trained specifically in how the process works (Baker et al., 2007). Planning, therefore, is in stark contrast to how these places are experienced (Sandercock, 2003a). This stark contrast is what often leads to a difficulty engaging citizens.

As the planning system has become increasingly technical, through ongoing reform on both what and how it deals with issues, it engages with the issues of detail (the specifics of a plan, rather than whether there should be one at all) (Cullingworth and Nadin, 2002). Returning to the earlier discussed dichotomy between detail and principle, the technical processes in place provide little space for citizens to question whether there is a role for planning in the first place. As argued by Massey (2005), Jacobs (1961) and Sandercock (2003a), the question of what should form the priority of one’s plans is a matter of principle – the principles which shape the overarching changes to where one lives. The methods that are currently used do not allow citizens to question these principles (this is usually done through steering committees within local authorities (Bedford et al., 2009). For example, whilst consulting on planning policy, comments must relate to individual policies rather than the wider direction of the plan or whether there should be an intervention at all.

Alongside these changes, people are becoming increasingly vocal in planning disputes through digital technologies (Foth et al., 2015) – discussed further in the following chapter. The increased use of digital technologies, both on the terms of the council and otherwise (Soneryd and Lindh, 2018), has led to people increasingly engaging with matters of principle directly. With digital technology, the scales between direct and representative democracy are tipping towards people engaging with more matters of principle – citizens are no longer prepared to be constrained to a set of issues that are deemed relevant to planning *by planning*. These challenges to the principle of planning are not new – this

section has demonstrated constant opposition – for example, challenging where housing should be in the 1910s (Edwards, 1914), new towns in the 1940s (Brownill and Inch, 2019), and urban motorways in the 1980s (Tewdwr-Jones, 2012). Throughout the decades there has been continuous challenging of a planning system that has never been designed to take it into account. Digital technology allows for people to comment on whatever they choose to (Brabham, 2009), however, whilst attempts have been made to use digital technology to engage with the planning system, and for people to voice their grievances with it, the planning system has failed to engage with these discussions in a systematic way (Williamson and Parolin, 2012).

This section has outlined the ebbs and flows of planning, and its constant challenges since the 1900s. The way that planning has addressed these difficulties has changed, with many unresolved (Rudolf and Grădinaru, 2017). Planning still engages with people on detail and has no formal mechanisms of dealing with questions of principle (Tewdwr-Jones, 2011).

### **2.2.6. The Planning Process**

The planning system is based on a technocratic and administrative processes, that, it has been argued, has not kept pace with the growing role of planning in managing the built environment (Massey, 2005). In order to frame aspects of this research, this chapter will briefly outline the current planning process, and how decisions that shape the local environment are taken. The practice of planning is usually undertaken as two parallel activities – creating planning policy and deciding planning applications against development plans (development management) (Cullingworth and Nadin, 2002).

Planning policy provides a long-term (at least fifteen years) vision for an area (MHCLG, 2012a). The highest rung of planning policy in England, to which all local plans must conform and local authorities work towards, is the NPPF which sets out central government's aspiration for planning (Cullingworth et al., 2015). It emphasises sustainable development in the foreword; stating “a presumption in favour of sustainable development that is the basis for every plan, and every decision” (MHCLG, 2012b, p. 4). However, the weight that is given to this priority has been questioned by the Town and County Planning Association (2018) (who see it as a platform for cheaply built private-sector housing and a loosening of the need to build affordable homes), and others (Carter

and Clements, 2015; Tait and Inch, 2015) who believe that growth, business and development now supersede environmental protection.

Local planning authorities (LPAs) create a Local Plan, which outlines the overall vision for that area. These documents cover a number of topics and are supported by an evidence gathering stage. Importantly, these documents are prepared with the participation of local communities that takes place at key stages. The first step is evidence gathering, followed by an issues and options document, and consultation on a draft strategy. Local plans often take several years to write (for example, Newcastle's took seven years (Newcastle City Council, 2017)). The opportunities for citizen participation during this stage must be within rigid parameters. Questions on the validity can be raised during the early stages of policy formation. Later, potential issues and options can be discussed (within the strict remit of what is relevant to planning). Final stages can only question a plan's conformity with national planning policy, and this is largely a technical exercise, rather than an opportunity to put forward new ideas (Cullingworth et al., 2015).

Neighbourhood Plans sit below local plans and must adhere to their site allocations and policies. Communities develop neighbourhood plans for their area, usually assisted by planning consultants (Manuel et al., 2017). This plan is then subjected to a referendum – if more than half of the voting residents support the plan it is adopted and forms the planning policy for the area.

Alongside these processes, development management is implementing the local plan by making decisions on individual planning applications. There are also opportunities for public comment whilst the planning application is being considered – typically twenty-one days (MHCLG, 2014a). It should be noted, however, that communities have limited power to influence at this stage, with little room for negotiation or deviation from the development plan. As mentioned earlier, they cannot be used to refuse development but must shape already existing allocations for their neighbourhood.

Although neighbourhood planning has provided opportunities for enhanced citizen power in determining the outcome of development proposals, allowing communities to develop their own development plans and engage people on their terms (such as through digital technologies), there are overriding restrictions on both the issues and scope of these plans.

Localism, effectively, leads to a plan that predetermines the outcomes of local and community planning, that must be pro-development and pro-growth (Holman and Rydin, 2013), which aimed to encourage citizens to be more accepting of a housing growth agenda through having a stake and influence in its form (Bradley and Sparling, 2016). Neighbourhood plans must acknowledge proposals – whilst they can shape developments, they must accept the principle of development (Clarke and Cochrane, 2013). Neighbourhood planning, rather than allowing neighbourhood groups to implement their own visions, must adhere to overriding stance they may disagree with, and can serve to limit the stances taken by local government and others.

Within neighbourhood planning and formal local planning practices, early and enhanced participation within the planning system relies on citizens being aware of which issues they can get involved in, when, how, and where. Involvement at earlier stages of planning can have an impact on how places develop, rather than at a later stage, when there is usually only room for minor alterations to individual schemes that have been negotiated between local planning authorities (LPAs) and developers. Taking this understanding of the form of the planning system, as well as its history, the literature review will now document some of the issues that citizens have engaging with planning.

### **2.3 DIFFICULTIES FOR CITIZENS ENGAGING WITH PLANNING**

The way places are experienced and the way they are governed are very different. Planning is a bureaucratic, legal process of governing land use (Cullingworth and Nadin, 2002), however, the result and context for planning requires it to engage with immaterial notions of how people feel and experience places (Lefebvre, 1991; Sandercock, 2003a; Massey, 2005). To further complicate both the practice of planning, and getting people involved, planning is a political activity with competing agendas on the future of cities (Tewdwr-Jones and Allmendinger, 1998; Clifford and Tewdwr-Jones, 2014). This section will first discuss how these difficulties are manifested by shortcomings in the methods available (Baker et al., 2007), with it later discussing a more fundamental distinction between planning processes and how people experience places (Massey, 2005). A later chapter discusses how technologies both in practice and research have been used to encourage participation with planning, and the extent to which they have addressed issues with current participation methods.

The difficulties and barriers that the planning system have with engaging with the general public are numerous. These include both the methods that are used to engage people, and the underlying processes that struggle to engage with citizen perspectives if they are given (Baker et al., 2007).

### **2.3.1. Methods of Raising Awareness of Opportunities for Participation**

This section will discuss the methods that are currently used to engage people in planning in four ways: the difficulty of understanding the language of planning; the difficulty and need for early participation; the difference in what is considered relevant in planning discussions; and the underrepresentation of some groups of people in planning discussions.

Being aware of both what is changing, and the opportunities to comment on them is one of the first stages of getting people involved in shaping where they live. In England, LPAs are legally obliged to notify ‘affected individuals’ of new planning policies when proposing development plans and processing planning applications (MHCLG, 2014a). It is up to the judgement of the professional planner which members of the public should be notified, based on a test of reasonableness. But as research has shown, the LPA’s notification of proposed planning changes are often couched in technical and legalistic language which can be difficult for non-planners to understand, and responding to these formal notices requires significant effort (Baker et al., 2007).

These methods, termed ‘traditional’ within this research, have been in place since the 1990s and are usually non-digital (MHCLG, 1990). A later chapter will discuss more innovative methods of citizen participation. However, it is important to note that the majority of technologies currently in use mirror these traditional participation methods, rather than using the innovative potential that digital technologies offer (also discussed in a later chapter).

The digital technologies in use rarely go beyond the provision of information (one way transfer of information from planner to citizen) (Conroy and Evans-Cowley, 2008). Most of the web-based applications for supporting electronic participation (e-participation) “do not provide citizens with the opportunity to participate in decision making” (Nuojua, 2009, p. 4). For example, local authority websites will usually host scanned copies of letters

posters or signs posted on lamp posts, rather than have content in a native digital format (i.e. using the abilities of digital technologies to make information more easily understood and accessible). Finding planning applications is usually a time-intensive task. Once a citizen has found the planning application, it is written in technical language and often difficult to interpret without specialist knowledge.

The requirement to make people aware of opportunities and changes vary depending on the size of the application. A smaller householder planning application will only require a letter to their neighbours, whereas consultation on planning policy requires steps such as advertising in the local newspaper (Newcastle City Council, 2018). The four most commonly mandated awareness methods use include site notices, letters, newspaper advertisements and details published on the LA website (Newcastle City Council, 2018), shown in Figure 3.

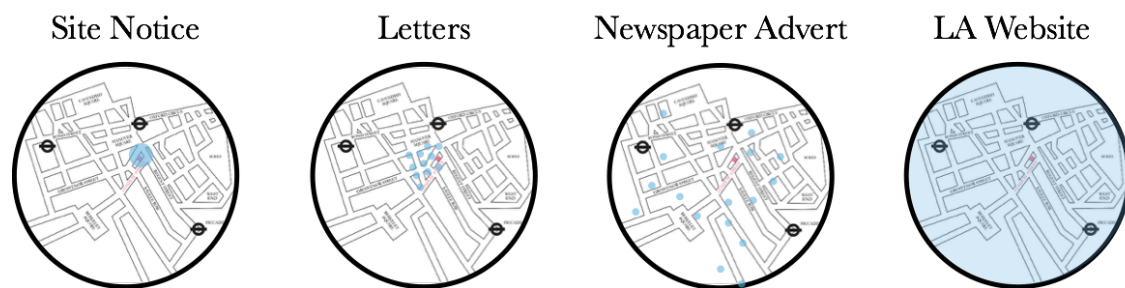


Figure 3: Methods of Awareness Raising for Opportunities of Citizen Consultation

Source: Author

The blue dots in Figure 3 represent where the citizen is made aware of the opportunity for involvement. The reach of a site notice is a few meters (one has to walk past it, see it, read and understand it) but posting information on local authority websites can be viewed nationally (but requires someone to check the website and be able to find the application). Although planners try to engage with wider groups of people, there are still many people that are not made aware of the proposed changes (Healey, 1997). Other activities usually take place around larger applications and planning policy proposals to make people aware of changes, such as town hall meetings and drop-ins, but these require someone to be aware of the activity beforehand. There is now a requirement for developers to engage with citizens before submitting large planning applications (Localism Act 2011), however,

there is a lot of flexibility with both the methods that are used and the weight given to responses.

People not being aware of proposals and opportunities for participation is only part of the problem – once someone is aware of the proposal the language that is both needed to understand the proposals as to engage with planning are often difficult for a non-planner to understand (Baker et al., 2007).

### **2.3.2. The Language of Planning**

After being made aware of proposals, there is a requirement for citizens to understand what is being consulted on. These previously mentioned opportunities for involvement usually contain technical language which is difficult for non-planners to understand (Salter et al., 2009), and require significant effort to reply to, typically requiring a citizen to write a detailed letter or email with their views (Baker et al., 2007). Language such as ‘Change of Use from A1 to A3’ (Allmendinger and Tewdwr-Jones, 2016) can make it difficult to understand the long-term and cumulative consequences of changes, however, lead to lasting changes on a place.

Figure 4 illustrates how a need for a specific language to describe opportunities and language to the built environment leads to long legalistic documents<sup>5</sup>. It is unlikely someone is going to both understand and take the time to read such a long and complex document (Baker et al., 2007). When viewed online the document posted on the lamp post was simply digitised. The information posted on websites is usually the same as that posted on the notices. Usually information on websites is a series of attachments that are difficult to find in the first place, and difficult to navigate thereafter. A search for a planning application can take a long time (or result in one giving up).

Movements towards technology-mediated participation have tried to address the difficulties with current methods planning participation, but progress has been slow (Gordon et al., 2011). The deficits identified in earlier work have called for ‘lunchtime participation’ (Conroy and Evans-Cowley, 2008) – allowing people to informally

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<sup>5</sup> Informal conversations were undertaken with local authorities and DCLG in 2015 about why this language is used. Neither of them could point to legislation or policy that required this language to be used, instead, guidance provides an example notice on how planning notices could be written. It seems this example has been used widely, without it being required in legislation.



participate and without having to understand complicated planning prose and instead allowing them to participate informally whilst ‘on the go’ (discussed in a later chapter). These calls, however, have not been addressed through the development of technologies to facilitate this more familiar language. Gordon et al. (2011) suggest this may relate to an earlier discussion of power within the literature – where planners see a need to use jargon to legitimise their profession through communicating the complexity of what is being discussed: “professionals are slow to build upon traditional methods because they ultimately doubt the untrained public’s ability to comprehend the complexities of planning and design – regardless of the participatory method used” (Gordon et al., 2011, p. 509).

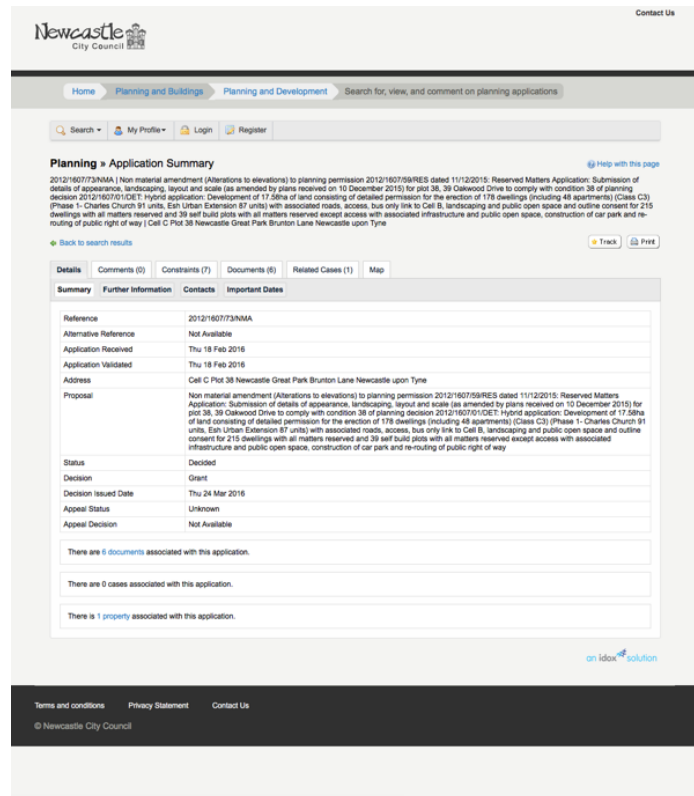
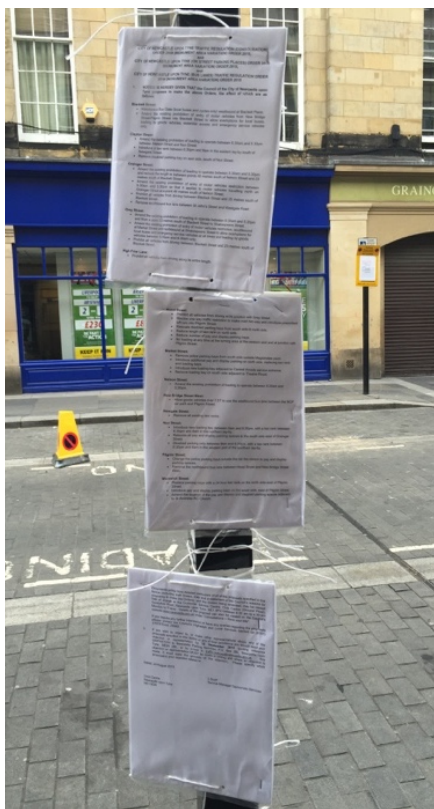


Figure 4: Image Illustrating Current Awareness Raising Methods

Source: Author

These difficulties can be particularly acute when early participation in development plans is sought. Seeking early participation presents a series of specific challenges which are discussed in the next section.

### **2.3.3. Early Participation**

Within both neighbourhood planning and formal local planning practices, enhanced participation relies on people being engaged early in the plan-making process. During the progression of the development of a plan options are reduced and closed off, and comments are increasingly likely to not be considered (Cullingworth and Nadin, 2002). Early participation relies on citizens being aware of which issues they can get involved in, when, how, and where they can voice their opinions. Involvement at earlier stages of planning can have an impact on how places develop, rather than at a later stage, when there is usually only room for minor alterations to individual schemes that have been negotiated between local planning authorities (LPAs) and developers (Baker et al., 2007).

Encouraging early participation is challenging as there are no concrete plans or proposals to engage with and critique. Instead people are required to comment on more general issues on what the planning policy should focus on, whilst also making comments within the strict realm of ‘material considerations’ (MacGregor and Ross, 2010) – what is considered relevant by planning and what can be taken into account when making decisions. With the reduced focus of being able to comment on a planning proposal, many comments that are made are deemed non-material and therefore not considered whilst developing planning policy.

Participation at later stages frequently leads to people feeling as though their voices are not listened to leading to further difficulties engaging them in the future (Baker et al., 2007). It is often the case that people will become involved with planning during the development management stage, when plans for the site are fixed. Once a development is allocated in planning policy its likely to be granted permission “unless material considerations indicate otherwise” (MHCLG, 2014b, p. 1). Without the influence that comes from early participation it can often appear that the planning system is rigged against local people, who are constantly campaigning against development management applications for development they do not agree with. Participation at an earlier stage has the opportunity to inform planning policy, which has much more weight in governing the future of a place. This also a factor in people not trusting the planning system, and a belief that their participation in the discussions has no impact (Baker et al., 2007).

### **2.3.4. Relevance to Planning**

The fifth and final barrier is related to comments and representations people can put forward when discussing place. This will form the bulk of the next section; it is important to recognise here that a planner's way of understanding space creates issues with citizen exclusion and mistrust on the topics they find important (that the issues citizens find important about place do not necessarily align to the material considerations of planning). When commenting on a planning application, comments must also adhere to a strict set of considerations that are material to the planning application, or the policy being commented on, called 'material considerations'. Anything that is not deemed 'planning' will not be considered when making a decision (Practical Law, 2015). For example, the loss of someone's view is not material, whereas adherence to planning policy is (Planning Portal, 2019). What is relevant to planning and planners is often not the priority of people that live in and experience places – suggesting a misalignment between what people care about and what planning deals with.

The purpose of discussing this here is to highlight a difficulty that when people do choose to participate: their comments are frequently not able to be considered, leading to further barriers and a feeling of mistrust towards planners and planning. The following chapter will discuss in detail how planning fails to engage with what people feel is important when they choose to become involved with planning.

### **2.3.5. Representation**

Those participating directly in the planning are rarely representative of the wider public's interests (Healey, 1996). Baker, for example, states that one of the biggest barrier to widening participation is "apathy amongst residents and community groups that results in them not taking part because they believe their input will have no influence" (Baker et al., 2007, p. 89). This, however, has been attributed to the shortcomings of awareness and inadequate methods through which people can participate, as discussed earlier.

Laurian (2007) discusses many of the issues at play when trying to achieve 'representative' participation in matters of local politics and planning. Amongst these issues are people in sociodemographic groups with lower income, ethnic minorities and females are typically less involved than high-income and upper-middle-class males who often have a louder voice in local politics (Laurian, 2007). Laurian discuss how home ownership is a

motivation for people participating as the potential benefit of participating outweighs the costs. Trust in governance is also a factor in whether people participate, with participation higher when people think their actions matter and their concerns will be listened to (Laurian, 2007). This often leads to areas of cities where concerns are not listened to and other areas where views are overrepresented.

Planning combines elements of both participatory and representative democracy – processes try to engage a wide range of citizens decision making but these are taken by elected representatives who determine the ‘public interest’ in decisions (Ellis, 2000). Having a representative in planning discussions allows committee members to develop an understanding of both the proposal and planning system and consider those that have not participated. Whilst those not participating may still have influence, their specific needs were unlikely to encapsulate all of their views whilst campaigning. Pressure, for example, is exerted on representatives when citizens feel their views are not being considered which is contributing to a breakdown in the broader trust in representative processes (Ellis, 2000) contributing to the difficulty of reconciling a community’s views within a representative structure (Campbell and Marshall, 2010). Participatory democracy provides the means for people to communicate their views whilst decisions are being made, however, there are several barriers to communicating these views. These are discussed in the next section.

## **2.4 CITIZEN EXPERIENCES OF PLACE**

As outlined in the previous section, there are many reasons for the difficulties in engaging citizens in formal planning processes. There have been persistent calls following planning engaging with citizens for more engagement with how people actually experience places, rather than the legalistic system that is currently used to govern space (Jacobs, 1961; Sandercock, 2003a; Massey, 2005; Graham and Healey, 2007) as a way to encourage more participation with the planning system.

The opportunity of planning aligning conversations more closely to how people want to discuss place provides an opportunity in engaging people, however, also presents its own difficulties. The section below provides a brief introduction to how people experience place and some perspectives on place-experience that can be used to shape the design of planning technologies. It ends by discussing the implications for planning participation

methods if place-experiences are accepted as a potential means to engage more with more diverse opinions into planning.

The way people experience places is different to the ways that they are governed (Lefebvre, 1991). Places mean much more to people than just the space they occupy, where places are “meaningful to people, [and] multidimensional in the range of meanings and significances they carry” (Holloway and Hubbard, 2001, p. 3). Studying the lived experiences of places and place-attachment is a discipline within human geography, which is concerned with the study of people, and puts “an emphasis on people in places and spaces” (Sidaway et al., 2016, p. 4), and their interaction with the built environment.

Whilst this research engages with the discipline of human geography, it does not aim to be its main contribution of this thesis. It is important to acknowledge that people’s experience places sit within a wider field of human geography (with its own set of literature). This research uses place-experience and attachment literature to inform both the subject and approach of the research, and to demonstrate the contrast between planning and experience. It discusses the difficulties and opportunities of aligning the two, and how these can aid the design of methods to capture place-based experiences.

The previous section discussed how the planning system leads to difficulties with people engaging with place-making activities. This section turns the focus on citizens, understanding the implications of space being governed and place being experienced differently. One of the aims of this research is to explore how digital technologies can be used to get people involved in shaping where they live through getting people to share their place-visions and experiences.

The difference between how people experience places, and the methods that are used to govern places are well documented and discussed (Lefebvre, 1991; Holloway and Hubbard, 2001; Massey, 2005). Human geography distinguishes space from place – with the former being the three-dimensional area within which buildings and roads occupy, and the latter a social construction where the feelings, experiences and meanings are attached (Stedman, 2003). Put simply, “spaces become ‘places’ as they become imbued with meaning through lived experience” (Stedman, 2003, p. 672).



**Space**

Abstracted, with it being broadly considered a surface or a container that can be mapped with  $x$  and  $y$  coordinates. It can be represented, measured and mapped (Horton and Kraftl, 2013)



**Place**

“Places mean something to people; people must find them meaningful to make them places [...with particular...] emotions, meanings texts, images and performances” (Horton and Kraftl, 2013, pp. 265-266)

Figure 5: Space and Place

Source: Author

The way that planning governs space is through a framework of planning policy and legislation, and processes; where decisions are made based upon an evidence-base and decisions shared through land-use allocations. These methods and processes used for governing land and are in stark contrast to the way places are experienced. Places are experienced, not as a series of discrete allocations, but as “open, multiple and relational, unfinished and always becoming” (Massey, 2005, p. 59).

These two contrasting views of space and place, as illustrated in Figure 5, lead to distinctions in how places are governed and theorised, and therefore, the ability of people getting involved in shaping them (Graham and Healey, 2007). Discussing space raises questions on land use, acreage, and propensity to flood, whereas place focusses on symbolic meanings such as feeling, attachment, and statements such as “I feel that I can really be myself there” (Stedman, 2003, p. 676), and “I really miss it when I’m away too long” (Stedman, 2003, p. 676).

Citizen participation in planning is complicated by these different views, where “many planners in practice continue to maintain the reductionist assumption that cities and places can be considered unproblematically as single, integrated, unitary, material *objects*, to be addressed by planning instruments” (Graham and Healey, 2007, p. 624) and “that

space and time act as little more than objective, external containers within which human life is played” (Graham and Healey, 2007, p. 626).

This discussion, in part, can be used to explore and unpick some of the barriers to people becoming involved, and how planning might engage with more experiential accounts of people to encourage participation on what is important to people rather than to planning (Graham and Healey, 2007). To do this, it will engage with how people understand places and how this can lead to a genuinely more engaging and inclusive discussion about places that serves to address many of the earlier identified shortcomings.

Lefebvre (1991) makes a distinction between how the people that live in a city see places versus those that govern its development. He argues that people understand place through socially produced from experiences, values and meanings. He uses a Marxist perspective to critique how space reflects wider society, and that therefore, space is controlled by capital-holders and the powerful. His perspective is often used to critique how the more abstracted views of space (**R**epresentations of Space) often take precedence over the lived realities of spaces (**R**epresentational Space). Through discussing this, he theorises different ways of viewing space: **R**epresentations of Space; **R**epresentational Space; and **S**patial Practices.

Planners, on the other hand, make decisions guided by “technocratic, positivist concepts and practices alongside more discursive ways of organising” (Vigar, 2012, p. 366) and “both tacit and codified knowledge; the latter gained through academic study and the former through ‘learning by doing’” (Vigar, 2012, p. 365). Vigar discusses the difficulties planners face in making judgements based upon their own feelings, morality and instincts, stating that “even where judgement space may exist, cultures have developed which prevent use being made of it beyond looking for a standard answer” (Vigar, 2012, p. 370). Sandercock (2003) has also acknowledged this issue, noting that:

*“Twentieth century planning has failed to see cities as living places of work and as homes, of interactions and of communication, because during the twentieth century planning turned its back on questions of values, of meaning, and of the art, rather than science of city building” (Sandercock, 2003, p. 221).*

There have been ongoing calls from Sandercock (2003), Massey (2005) and others to further recognise, understand and appreciate the importance of people's lived experience of place and how this can be valued within discussions of planning and urban change, and argue for less of an emphasis on the scientific and technocratic reality of space. Tewdwr-Jones states that "planners and those used to the bounded views of space will have to make a mental jump to another focus of space altogether" (Tewdwr-Jones, 2011, p. 24), since "planners are caught between order and chaos, the natural desire for ordered spatial patterns, layouts and behaviour against a space of movement, flows and interconnectedness" (Tewdwr-Jones, 2011, p. 25).

Landry considers how the language used to discuss place is different to place-experiences: *"No wonder civic engagement is in decline and places are so ugly. Our language, unless we look to artists, is hollowed out, eviscerated and dry. It is as if the city were just a physical container and the people an afterthought. Urban decisions are shaped by the technical and discussion is too by the technical jargon of the professions, especially those in planning and the built environment"* (Landry, 2007, n.p.)

According to these authors, the planning system exists in two realms: planners and decision-makers, and those that have to live within them. Aiding communication between citizens and planners is one way that new means of participation can be explored and utilised (Al-Kodmany, 2001; Bugs et al., 2010).

The knowledge and experience that people have about their local areas is vital for effective planning processes. Healey (1998) draws a distinction between the knowledge planners have, as 'formalised and theorised' when compared to people's 'practical knowledge' that is "built up through their day-to-day experience of a place" (1998, p. 1539). She sees it vital to engage with these perspectives, stating: "one of the main reasons for widening involvement [...] is that public officials and professionals lack sufficient knowledge about the qualities of places, about problems, potential solutions, and about how to make policies work effectively" (p. 1539). Corburn (2016) sees four reasons for engaging with the local knowledge that people have about where they live; "*epistemology*, adding to the knowledge base of environmental policy; *procedural democracy*, including new and previously silenced voices; *effectiveness*, providing low-cost policy solutions; and *distributive justice*, highlighting inequitable distributions of environmental burdens" (Corburn, 2016, p. 420).



### 2.4.1. Place and Planning

Planning engages with strictly defined parameters on what is considered relevant – all other forms of knowledge cannot be considered (Practical Law, 2015). When seeking input into both development management and planning policy little room is left for experiential accounts. It is on the planner’s terms whether something should be considered (Practical Law, 2015). Material considerations are important in planning as they are the only opportunity to deviate from previously established planning policy (a community’s only opportunity to influence a proposal in planning policy they disagreed with).

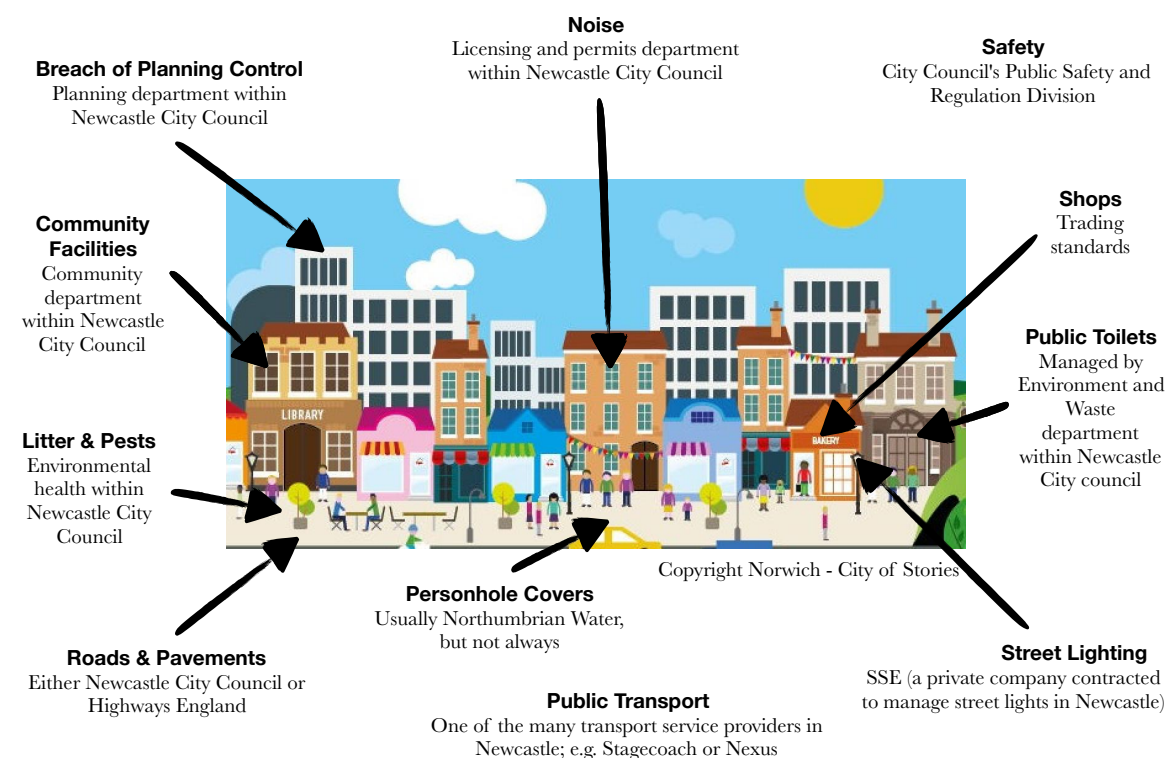


Figure 6: Organisations Governing Place

Source: Image: Norwich, City of Stores. Text: Author

To be relevant, a comment on a proposal must discuss the proposal in question and should have sufficient weight that they might alter the outcome of a decision (Practical Law, 2015). Not focussing on smaller, cumulative changes to the built environment reduces the role of these experiences; with the more significant considerations likely to take precedence. There have been calls for planning to acknowledge the smaller, mundane nuances of places within human geography (Massey, 2005), stating that “we need to recognise the fine grain of daily urban life” (Daniels et al., 2016, p. 190). Figure 6 illustrates

how it is difficult for citizens to understand where their concerns should be directed, and how to engage with it.

The structures that govern cities are siloed into different departments and organisations. Further governance models have been called for that are “place-focused [...] to identify which relations really make a difference to the quality of a place” (Healey, 2016, p. 115) and for “making connections among networks that coexist in a locality, to enable conflicts to be resolved, and to provide an arena within which people come together across different networks to work out what, if anything, needs to be managed about place qualities” (Healey, 2016, p. 116).

There are currently no means through which place-based discussions can take place. The shortage of opportunities for discussions about place is significant. People experience places holistically rather than in siloed experiences that can neatly inform various institutions. This often leads to difficulties in understanding who is responsible for certain aspects of the built environment, or not feeling listened to when commenting on things they feel are important and affect their lives (Graham and Healey, 2007).

There are frequent calls for people to participate in planning. However, a lot of people’s experience is that once they give their thoughts there are not the means to deal with or enact on many of the comments they provide. All methods in use rely on evidence, and not on how people “understand and value the qualities of their local environment” (Healey, 1996, p. 218).

Taking these ideas forward there are a number of potential means through which the citizen perspective can be encouraged and amplified.

#### **2.4.2. Place-Based Discussions**

Place does and should mean something more than planning alone, for how else should place debate occur between those who are affected by planning decisions? Discussions around the notions of place (rather than the process of planning) would be desirable for citizen-facing engagement with planning (Jacobs, 1961).

As discussed above, there is a difficulty in people knowing who, and what, is responsible for different parts of the built environment. A common experience of people choosing to engage with planning is that their concerns are not valid, and not related to planning. This research, therefore, will take a place-based approach to research that explores whether a change from ‘planning’ to ‘place’ can reduce some of the barriers to participation. Doing this allows for people discuss where they live, and what is important to them, rather than requiring them to understand the organisational structure of their local authority and other institutions that have a bearing on how places are governed.

There is also a role for less formal discussions around place that do not have an instrumental purpose of procedurally serving the planning system (Conroy and Evans-Cowley, 2008). Citizens want to discuss the future of their places but, at present, and governmentally, there are few opportunities creating the means or space for those broader place-based discussions. Allowing people to engage in conversation about what is important to them may service to amplify their views.

### **2.4.3. Engaging with Experiences of Place**

Whilst there are novel approaches to community engagement, many current methods rely on evidence-based ‘material’ representations, and not on how people “understand and value the qualities of their local environment” (Healey, 1996, p. 218). The role of material considerations in development management came under scrutiny from Tewdwr-Jones (1995), where the role of politics and discretion was explored alongside the technical considerations of following development plans. Tewdwr-Jones notes that although “local planning is inherently a political process” (Tewdwr-Jones, 1995, p. 165), “planning graduates are unprepared for the political and behavioural shockwaves that are inherent in the decision-making process” (p. 164). Although “the profession has prized itself for its discretionary and flexible approach” (p. 168), this has been threatened by increased scrutiny of central government of approval proposals, and developer’s increasing willingness to appeal these decisions (Tait and Inch, 2015).

All these factors serve to produce a planning system that is rigid, and, as it currently stands, is unable to easily adapt without legislative changes. Tewdwr-Jones (1995) demonstrates the likely difficulty in loosening what is considered relevant to planning – there will be a fine line between considering experiential factors that might be difficult to

quantify and planners deciding what is important to them. Graham and Healey (2007) argue that this Euclidean depiction of planning, as a process that is object-centred of procedures and measurable outcomes is what the practice of planning sees as desirable in the production of space.

Understanding and utilising these experiential accounts will be difficult for planning to consider in the current planning system. Earlier models of planning had a much broader role in shaping places, however, as the practice of planning has developed, its role in shaping places has been reduced. As demonstrated in Figure 6, the organisations that have a bearing on people's experiences are vast. For planning to be able to understand and act on people's accounts, it will be required to engage with a growing number of factors (Massey, 2005).

#### **2.4.4. Flexible Methods**

Citizens want to participate with the planning system using a variety of methods (Brabham, 2009; Seltzer and Mahmoudi, 2012; Ertiö, 2015). As discussed later digital technologies provides opportunities that can more effectively meet how people want to participate. Technology presents opportunities for those methods to sit within a suite of tools that allow for different types and ways of inputting in the planning (and place-governing) system.

## **2.5 CHAPTER SUMMARY**

This chapter has discussed some of the difficulties with citizen participation in the planning process and provides the context this work builds on. Through discussing the history of the planning system, it demonstrates how planning is based upon a scientific view understanding of space, and that although there have been many changes to the planning stem (most recently the focus on localism), the underlying system remains similar. It touched on how the configuration of the current planning system has led to difficulties with people getting involved, such as engagement methods and planning's limited scope.

It explored how planning governs space and how this is often misaligned to how people experience and discuss place. Planning uses a narrower understanding of place, focussing

more on the physical aspects of space, while people experience place through a social construct of experiences and feelings. The representative and participatory system for determining planning outcomes can lead to conflict, with citizens feeling poorly represented in decisions (Vestbro, 2012). It is argued that this is partly caused by the different views of space and place when citizens participate in discussing place-based issues, and that these narrower notions of planning lead to places over which planners have little say in.

This research will focus on how technologies can be used to express place experiences, how planning might be able to engage with them, and whether the methods serve to enhance participation. The following chapter discusses work in HCI that has explored these new methods for citizen participation, and how through using novel forms of participation, it has encouraged people sharing fresh perspectives.



# 3

## **Human Computer Interaction, Town Planning & Participation**

Introduction

The Changing Role of  
Citizen Participation in  
Planning

Human Computer  
Interaction, Town  
Planning & Participation



# 3. Human Computer Interaction, Town Planning & Participation

## 3.1 INTRODUCTION

Since the increased availability of technology there has been an interest in trying to understand its role in civil society (Bødker, 2006). As will be described in this chapter, one such area gaining attention in research is understanding how civic technologies might address difficulties with citizen participation in decision-making (Le Dantec, 2012; Balestrini et al., 2015; Olivier and Wright, 2015). The majority of this literature review chapter will be dedicated towards understanding how the fields of technology-enabled planning participation and civic engagement within HCI have led to understanding technology's role in governance and decision making. As the field of HCI matures, topics it engages with have changed and these better align with the study of participatory town planning technologies (Taylor, 2011).

This chapter will argue that many of the technologies used for participation mirror the non-digital participation methods that preceded them. The aim of this chapter is to explore how technology has been understood in creating new methods of participation that go beyond currently available methods, discussing the opportunities they provide in enhancing citizen participation in planning. To achieve this, the chapter discusses a systematic review of literature and digital technologies in town planning that facilitate participation in novel ways, as well as a more directed literature review of the themes raised by the research questions.

The review's aim is to focus on technologies (both those developed by researchers and those used in practice) that facilitate methods of participation that go beyond mirroring offline methods and engage with the opportunities offered by their design. It will identify and examine new interaction methods of citizen participation that do more than making planning documents available or allow people to submit comments electronically. Instead, technologies that help to align people's experiences with participation will be reviewed, as well as those that attempt to reconfigure the activity of participation.

It is worth noting that two previous reviews have been undertaken on information technologies (Hanzl, 2007) and apps (Ertiö, 2015) for planning participation. These reviews, however, focussed on technologies that are used in practice, and which rarely go beyond the provision of information and providing people with a more engaged position in planning (Ertiö, 2015). This review is more exploratory by engaging with literature in both HCI and planning and seeks to understand the role of more experimental technologies that are not commonly used in practice.

The review will aggregate and interpret the technologies and literature to gain an understanding of the state of planning technologies, as well as identify gaps in literature and other implications for this research (Xiao and Watson, 2017). To do this it will identify several themes that are emerging from these technologies, and where planning other methods of technology-enabled planning participation could be investigated.

This chapter aims to:

- Identify literature that reports on the use of technology in planning that go beyond current methods of participation.
- Identify gaps and underexplored areas in the literature particularly around innovative and novel technologies.
- Inform the design of potential technologies that can address some of the barriers to engaging people in planning.

It will discuss civic technologies in three ways. First, it will outline some of the opportunities technology provides in reducing barriers to citizen participation. Second, using a framework developed by Bugs et al. (2010), it discusses how technologies have been applied to try and address some of the issues discussed within the previous chapter. Third, the chapter outlines the different formats of technologies that have been used, and describes some of the benefits of alternative technologies in facilitating participation.

### **3.2 BETWEEN TOWN PLANNING & HCI**

HCI is increasingly focussing on how technology exists within society, rather than focussing on the computer and the 'user' (Taylor, 2011). To do this it is engaging social sciences (sociology, anthropology, etc.) blurring the boundaries between the two

disciplines (Bardzell and Bardzell, 2011). Early HCI focussed on investigating how one person uses a computer whilst carrying out a task – referred to as ‘first wave’ HCI (Bødker, 2006; Harrison et al., 2007). First wave HCI used cognitive modelling approaches and human factors adopted from psychology, focussing on improving the efficiency of work. The ‘second wave’ sought to understand the role of human actors (Bannon, 1992) – groups of people working within the context of groups of applications. It looked to understand how tasks were completed in the context of their surroundings (rather than the earlier notion of the human and computer being isolated from their environment). Rogers (2004) referred this era as a ‘turn to the social’, with HCI bringing in new fields, and new frameworks of analysis traditionally associated with the social sciences. This change led HCI away from how users interacted with a single computer or system, seeking to understand how technology exists within a wider context (Harrison et al., 2007).

The ‘third wave’ moves the focus from the workplace to the home and everyday lives, seeking to understand how technology shapes values and experiences where it is used within an increasing number of applications (Bødker, 2006). With this move, development took insights from an increasing number of disciplines and increasingly looked (Taylor, 2011) to new disciplines, “beginning to investigate unfamiliar communities, far flung places, and practices not ordinarily considered when thinking about information communication technology” (Taylor, 2011, p. 1) and being “effectively a boundless domain” (Rogers, 2004). With this growing remit comes the increasing application of theory to computing, looking not just at people using technology, but its wider social implications, and the opportunities technologies have in shaping and changing these relationships.

Figure 7 shows a Scopus literature search (keywords discussed later in the chapter) that demonstrates both the growth of understanding of the role of technology-enabled participation, and how studies span several fields. Most of this research is in the social sciences and computing science (computer science and engineering). The growth of literature on the topic can also be seen. With increased understanding of the transformational role of digital technologies in wider society, research has increasingly engaged with understanding its potential in promoting citizen participation (Foth et al., 2015).

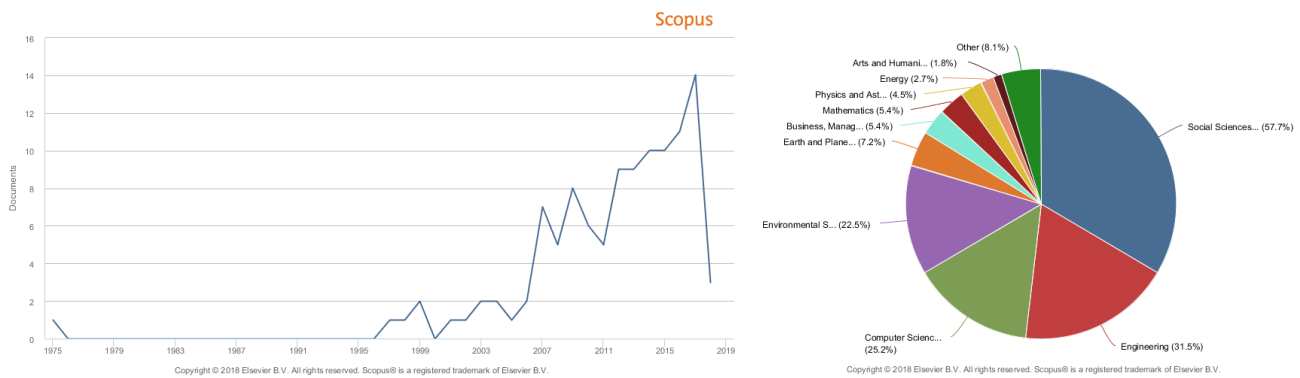


Figure 7: Literature on Participation over Time and Subject

Source: Scopus

Whilst the topics broadly explore citizen participation and technology in planning, the stances in the study of technology differ. Planning journals generally report on the formal processes of planning, discussing technologies such as planning support systems and city analytics tools, and their interface with formal planning and decision-making processes. HCI design-led studies more commonly engage with implications for the design of digital technologies for citizens (rather than decision makers).

Rather than discuss the methodology of the systematic literature and technology review within this chapter, a full discussion of it is described within the Appendix. In order to capture work within the both fields, it was decided that a systematic approach to identifying literature would supplement this literature review. The review engages with literature from both social sciences and HCI. The framework below is used to categorise planning participation methods that are used to facilitate citizen engagement with the planning system.

Most of the technologies identified were websites or apps. Although there are many advantages to these technologies, such as being relatively easy to access and available anywhere with an internet connection (Evans-Cowley and Hollander, 2010), there are disadvantages to relying on these technologies. Many current internet and apps mirror online participation methods, so do little to open up discussions on planning, as well as excluding those who are not confident using technology.

Awareness raising was usually making people aware of proposals through mobile devices or urban screen. The low-friction participation technologies had a lot in common with the

technologies that were used for awareness raising; predominately mobile apps that were used for the easy dissemination of information or allowed people to report issues quickly. These usually took the form of a map-based interface through which information could be entered or extracted. Other low-friction methods used urban screens, that allowed people to interact with the technologies in novel ways – usually through voting in novel ways.

Expressive technologies allowed people to communicate their thoughts but required more input from the participant. This might be a platform that allowed people to share their thoughts on a map or virtual environment. Visualisations created by data or by citizens also fell into this category. Transparency technologies were common and were usually digital interfaces that allowed people to understand changes that were taking place, or the data upon which decisions were made.

The review discusses the technologies thematically; discussing how the technologies were used, and their contributions to our understanding of planning technology. It first discusses the opportunities for reducing some of the barriers to participation through digital technologies, later discussing how these align with their aims.

### **3.3 OPPORTUNITIES OF TECHNOLOGY-ENABLED PARTICIPATION**

The main focus of participatory planning technologies is to reduce barriers to people engaging with planning. With the growing role of the internet on people's daily lives (ONS, 2018), these technologies provide the means for people to participate anywhere, rather than having to visit planning offices to put their comments forward.

These technologies can reduce the time or cost required to participate in planning matters (Conroy and Evans-Cowley, 2008), and “potentially improves relationships between citizens and government, and it relaxes time and geographic constraints faced by citizens who want to participate” (Evans-Cowley and Conroy, 2010, p. 81), and allows people to participate in places which might be more convenient for them. Technologies offer opportunities in engaging people more widely than traditional methods due to their familiarity with technology and the new methods of participation that digital technologies afford (Nuojua et al., 2010). Digital technologies can be a useful way to get fresh

perspectives from people not usually involved in the planning processes (Al-Kodmany, 1999).

The barriers that come under focus involve time (Riggs and Gordon, 2015) (allowing comments to be made more quickly) or to overcome distance (Bilandzic and Foth, 2012) (allowing comments to be made anywhere). This section will discuss the commonly cited opportunities that technologies could fulfil for planning participation, citing some of the issues and barriers identified in the previous chapter. The issues identified are based upon Baker et al.'s (2007) assessment on changes that could be made to the planning system to be more inclusive of citizen perspectives.

### **3.3.1. Easier to Understand**

Non-digital methods of participation, such as reading planning documents at a local authority, are generally made available in one format and have to be understood by both professionals (such as statutory consultees) and non-professionals (such as citizens) (Cullingworth and Nadin, 2002). Work by Baker et al. (2010a) demonstrated that understanding these proposals presents significant difficulties for people wanting to participate, finding that “the complexity and technical language of the new system is a considerable barrier to the engagement of nonexperts and as a result excludes certain stakeholders from engaging in the process” (p. 588). These documents are typically full of technical and legalistic language, and present difficulties in understanding for those not trained or already engaged in planning (Baker et al., 2007).

Digital technologies offer opportunities to reduce some of the obstacles by making proposals more easily understood by accommodating different types of non-technical information (Corburn, 2003). For example, digital technologies can augment planning processes and assist non-planning professionals in identifying and understanding changes that are taking place, as well as providing opportunities to engage in these discussions (Allen et al., 2011; Bilandzic and Foth, 2012). They can do this by providing different versions of planning documents, providing explanations of complex language or helping people familiarise themselves with proposal maps (Bugs et al., 2010). Visualisation and multimedia technologies have also been used to enhance people's understanding of proposals, and the impact they will have on them (Hanzl, 2007).

### **3.3.2. Access**

Whilst many people have access to internet technologies, many still do not. Most digital technologies engage people through the internet. Whilst the majority of households have access to the internet, those that do not are usually from the most marginalised populations (Norris, 2001). A prerequisite to participation should not be having access to the internet.

Although there have been advances in the usability of digital technology, it is important to be mindful that access to and usability of digital technologies are not equal (Brabham, 2009). In developing technologies, it is important to design them for those that do not have knowledge of computer interfaces (Golsteijn et al., 2015), or access to computers and the Internet. Brabham (2009) states that “issues of access to technology are important ones, for any democratic model is problematic if it is predicated on access to something that not everyone has access to” (p. 255).

Digital methods of participation which do not rely on an internet connection are understudied (as this chapter will later demonstrate), as well as those which require an understanding of digital devices, such as computers and smart phones (Norris, 2001).

Digital technologies can provide new methods of participation, but there must be a recognition that they might not be available to everyone. Methods which do not rely on an internet connection should also be recognised as having a valuable contribution to increasing access to participation in planning (Ertiö, 2015).

### **3.3.3. Skills & Knowledge**

There is a balance between offering new methods, whilst not leaving others behind. It should be a commitment of those designing digital technologies to make them as accessible as possible. Citizen knowledge is not equal in accessing internet technologies, but there are also less discussed barriers associated with local authorities and planners using digital technologies during their practice (Evans-Cowley and Conroy, 2010). Many implementations of digital planning technology are not easily understood by someone without knowledge of the planning system (Kingston et al., 2000). Whilst technology has (sometimes) been useful at increasing the availability of information about planning proposals, it does not always make the information more easily understood (Bilandzic and

Foth, 2012). Many technologies in common use fail to present proposals information in ways that are more easily understood than non-digital methods.

The general uptake of digital technologies in planning facilitates one-way communication (Evans-Cowley and Conroy, 2010) which does not enhance participation in ways that go beyond methods that were formally available online. Instead, the documents that are placed online are just as inaccessible as they always were, with Williamson and Parolin (2012) stating: “the implementation level of more interactive tools that act in feedback, responsive dialogue, and mutual discourse communication modes is significantly lower” (p. 59). This needs to be balanced with the increased workload of planners responding to comments from citizens, and their legal requirements to respond to comments.

#### **3.3.4. Apathy**

There will always be those who are not interested in participating in planning, no matter the format the participation takes, “characterized by lacking interest or concern and accepting that the situation will not improve” (Laurian, 2007, p. 54). Therefore, it would be unrealistic to expect everyone to participate even if the means were provided (Baker et al., 2007). It is important to recognise that no matter how low the barriers, and how easy the technologies are to use, some will choose not to take part (Baker et al., 2007). Movements towards technology-mediated participation have tried to address the difficulties with current methods planning participation, but progress has been slow (Gordon et al., 2011).

### **3.4 THE AIMS OF DIGITAL TECHNOLOGY**

Using a framework developed by Bugs et al. (2010), this section will discuss the application of digital technologies identified. The use of a digital technology is one which aims to address an issue with planning. Discussing the application of these technologies leads into a discussion in the next chapter about how they are addressed. Dombrowski et al. (2016) discuss the importance of understanding technologies beyond their designs, but also how they configure their use through this application to different problems: “Design is inherently about change – not just in the creation of new material artefacts, but in the ways that new technological objects afford new practices, social habits, and ways of living and interacting.



As identified by previous reviews, there are a range of opportunities and as well as difficulties when designing, deploying and researching planning technologies (Hanzl, 2007; Ertiö, 2015). As part of the review it will discuss the aim of the technology, based upon Bugs et al.'s (2010) principles of digital public participation tools: information distribution; solutions through participation; transparency and consensus building. Technologies may have multiple aims.

Although this section has presented a number of potential solutions that technologies 'solve', it's important to note that any technologies developed or tested necessarily sit within ongoing difficulties for giving people a greater say in changes to their local environment (Blythe et al., 2016). The technologies developed within this research, and more widely, do not intend to 'solve' problems, rather they are designed and deployed to understand reaction to them, and whether, in the future, they can play a role in enhancing participation.

### **3.4.1. Information Distribution**

The first step to engaging people is to make them aware of any opportunities for participation (Bilandzic and Foth, 2012). Ideally this takes place early in developing planning policy for an area, however, this usually takes place at the development management stage (Bedford et al., 2009). Publicising opportunities for participation largely use non-digital methods, such as letters to those adjacent to developments, site notices outside development and advertisements in local newspapers for larger developments (MHCLG, 2014). Interested citizens can follow 'weekly lists' online, which outline all of the planning applications validated in the previous week. However, these still have the difficulties associated with non-expert understanding (Graham and Healey, 2007). Of the non-digital methods, letters and word of mouth are the most effective method of making citizens aware of information distribution (Foster and Newman, 1998).

Work has demonstrated that once people are offered an opportunity to participate, and given the opportunity to share their perspective in open and accessible language they are often "enthusiastic about participating and capable of engaging in a wide range of planning activities" (Frank, 2016, p. 369). Opportunities should exist for citizens to share

their views without needing to understand the formal processes or language of local planning (Baker et al., 2007).

Whilst digital technologies have made accessing information about proposals easier, Weston and Weston (2013) state the language that is used in planning reinforces the power relationship planners have over citizens. They state this serves to distance the public from engaging with planning, even if they are made aware of opportunities for involvement (Weston and Weston, 2013).

There have been calls for technologies to support low-friction methods of participation that do not require expertise in the planning system, and allow people to give their comments quickly without needing to engage with the legalistic processes of planning (Conroy and Evans-Cowley, 2008). Low-friction methods of engaging people in civic-matters were shown to be useful “for the purpose of supporting sustainable and deeply democratic processes [...and...] opens avenues to increase the reach of existing social movements” (Vlachokyriakos et al., 2014, p. 803). Whilst encouraging people to participate quickly, it might also change the quality of people’s participation – allowing people to participate anywhere will make it easier to participate but may also impact the quality of this participation.

More intensive methods of engaging people once they are aware of opportunities have also been explored. For example, the potential of three-dimensional (3D) visualisation technologies have been explored to understand their value in making people aware of the potential consequences of a development (Batty, 2001; Salter et al., 2009; Wu, He and Gong, 2010; Dambruch and Krämer, 2014). Dambruch and Krämer state that visualisation technologies “enables urban planners to communicate complex matters in urban planning in a modern way and furthermore improves accessibility to planning data for a broad audience (2014, p. 123). These methods are effective at reducing some of the difficulties understanding two-dimensional maps. These methods are rarely used in practice due to the costs of making 3D models (Al-Kodmany, 1999), as well as a need for fast data connections and storage on devices (Batty, 2001).

As described in the introduction, there is a dearth of literature exploring how the design of technologies changes the way participation is undertaken. This is therefore one of factors

that will be explored within this research. HCI often understands the trade-offs in designing digital tools and technologies; however, these methods receive little reflection within planning.

### **3.4.2. Solutions through Participation**

Bugs et al. (2010) see solutions through participation as those that facilitate citizens getting involved in planning, taking approaches such as those that allow people to easily participate without some of the time constraints of more formal and involved methods, and others that are more involved who see opportunities through deliberation.

Methodologies such as co-creation and living labs (Desouza and Bhagwatwar, 2014) have been used to encourage participation using alternative participation methods, which see people, the public and private sectors working together to identify problems and develop solutions. Opportunities for and the use of digital participation as bridging devices are not new and have been explored previously, for example, using data (Le Dantec et al., 2015), images (Al-Kodmany, 1999), mapping and PPGIS (Dennis, 2006), mobile apps (Desouza and Bhagwatwar, 2012), collaborative displays (Hopkins et al., 2004) and interactive web technologies and social media (Hanzl, 2007). Methods, such as Sketch Planning, have also been used to mediate the use of technology, by allowing people to sketch land allocation scenarios rather than needing to use a computer (Goodspeed, 2015b; Goodspeed and Hackel, 2017).

Whilst technologies such as these are useful for engaging and informing people, and providing enhanced participation through providing data and context, there is often a reliance on abstracted notions of space, such as maps and data on the expert's terms, rather than providing opportunities for thematic, open-ended discussions of place (Healey, 1996). This, as will be argued, encourages a narrow discussion of place that overemphasises short-term problems over the discussion of long-term futures.

There have also been attempts at using creative methods to involve and enhance the citizen's role in planning, and to help overcome some of the barriers associated with 'formal' consultation methods. For example, Al-Kodmany (1999) used imagining tools to encourage participation in neighbourhood design workshops, which "helped to unveil critical issues, constraints and opportunities" (p. 44) that were effective at communicating

the community's wishes and creating a common language; they also witnessed difficulties when people tried to make their own images. Sketch Planning (Goodspeed, 2015b; Goodspeed and Hackel, 2017) demonstrated how the use of paper maps (when compared to on-screen maps) can reduce barriers to technology's use and enhance dialogue and learning. These approaches have demonstrated that taking an approach to planning participation that embraces imagery, dialogue and creativity can aid visionary thinking about the future of places, rather than encouraging problem reporting (Al-Kodmany, 1999; Frank, 2016). Shaping and utilising visions for places is important since they inform the early stages of planning ideas to aid debate on the long-term future of areas. There is a wealth of literature surrounding the perspectives of planners towards technology, but there is a dearth of studies that explore and document the use of planning technologies for citizens.

Creative activities and methods, however, rely on an important stage of 'translation' that is less discussed within the literature – how people's creative commentaries are then interpreted and considered through the formal planning system. This translation forms an important stage of any engagement method that encourages open dialogue on people's terms rather than the planners'. A gap in this literature will be explored within this research, seeking to understand how more experiential accounts can be translated into the formal planning system.

### **3.4.3. Consensus Building**

Technologies that are used to "support two-way flow of information" (Bugs et al., 2010, p. 175) – allowing citizens to communicate comments to planners and each other – have been a common feature of civic research over the past 20 years. There have been studies into technology-enhanced citizen and government collaboration and communication, and how technologies can support citizens and decision-makers working together to reach consensus (Al-Kodmany, 1999; Le Dantec et al., 2015). Sarkissian et al (2010) call for "open spaces where we can have the types of conversations that will bring people (especially those who tend to remain uninvited in traditional processes) close enough to engage together with an issue" (p. 4). They discuss the advantages of engaging people in creative activities, and how it might be an antidote to dichotomies between emotional/technical, and technical/social styles of planning, and how, through working together on issues, consensus can be built.

Non-digital methods of communicating through imagery have been common practice (Wang, 1999), with guidance stating the benefits of images to encourage dialogue and visioning in planning (Frank, 2016). Methodologies, such as PhotoVoice that encourage people to document their realities through photography, recognise the potential of imagery in promoting discussions about issues, and building understanding and relationships between diverse groups of people (Wang, 1999). In the context of planning, Locality (a network of UK community-led organisations) advocates a participation method “that works particularly well with school children to ask them to draw and/or describe how they would like the area to be in the future” (Locality, no date, p. 16). Using drawing as a method for communicating ideas and visions for the future is also a well established method in civic engagement activities for promoting discussion using the shared language of imagery – particularly for engaging young and hard-to-reach people (Wang, 1999; Dennis, 2006).

Whilst planning has long-recognised the value in creative methods for consensus building, these have become less commonplace since the increased role of digital planning technologies (Hanzl, 2007). The discussion of place-based issues usually happens through websites that facilitate “consultations, voting, [and] debate (Hanzl, 2007, p. 298). These technologies facilitate “the creation of online communities, dialogue on citizens’ issues [...that...] is not a sum of effects of work of single participants but provides new values, which appears as an effect of collective work” (Hanzl, 2007, p. 298) that allow people to discuss issues of importance to them and encourage citizens to come to a consensus on topics. Although it is unlikely that consensus will always be reached (Healey, 1997), these technologies more broadly support citizens putting their views forward and these being considered when reaching a decision.

Civic technology research over the past 20 years has worked on aiding citizen and government collaboration and communication, and understanding how technologies can support citizens and decision-makers working together to reach consensus (Al-Kodmany, 1999; Le Dantec et al., 2015). Sarkissian et al. (2010) call for “open spaces where we can have the types of conversations that will bring people (especially those who tend to remain uninvited in traditional processes) close enough to engage together with an issue” (p. 4). Non-digital methods of communicating through imagery have been common practice

(Wang et al., 2004), with guidance stating the benefits of images to encourage dialogue and visioning in planning (Frank, 2016).

There have been attempts to bridge the experiential world of urban communities and the institutionalised world of urban planning. This is occurring through both creative and technological methods. Creativity in particular offers opportunities for encouraging citizens to express their views and visions of their local area (Sarkissian et al., 2010). However, issues surrounding the use of and accessing of digital technology have been identified, as well as the challenge of translating more creative participation methods into those that are recognised and legitimated within state planning processes (Maiden et al., 2004). Whilst creativity is a well explored research area, there is a lack of literature on digitally creative engagement methods. Rather, most technology draws on a more rational positivist approach to space (King and Brown, 2007; Bugs et al., 2010; Ertiö, 2015) that prioritise speed and efficiency over creativity, dialogue and expressivity.

The aim of these technologies is to find new methods that engage people in shaping where they live through creating methods that are more accessible. This accessibility has been understood and designed for in different ways – authors have both explored how deliberation, creativity and imagery can reduce barriers to understanding and communication – with the same aim, others have understood how methods can facilitate quicker participation through apps and methods that allow people to participate from any location.

#### **3.4.4. Transparency**

In Bugs et al.'s principles of planning technology, they see technologies for transparency as those that “store, organize and display the evolution” (Bugs et al., 2010, p. 175) of contributions to the planning process. The principle of transparency links to all of the other themes; that planning decisions should be taken in the open with opportunities of public participation (and being listened to and acted upon) (Brabham, 2009). These technologies share engagements with the planning system and demonstrate how comments and opinions have been considered.

### **3.5 PLATFORMS AND CIVIC DATA**

This section will discuss technologies that are used to bring people together, either for discussion, activism and understanding, or for the discussion and use of data for decision-making. It will highlight some of the trends identified through the review.

#### **3.5.1. Platforms for Discussion, Civic Activism and Understanding**

The literature review identified several platforms designed for civic discussion on place-based issues. The aim of these platforms is to create a space where people could discuss place-based issues with each other, rather than necessarily having a direct route into engaging with formal planning processes. Within the literature there are examples of this type of platform. These technologies “tend to centre on the relative accessibility of the Internet (not being confined to a specific geographic location), the relative low cost of entry, the potential for enhanced interactivity, and the possible increased connectivity between users groups” (Adams and Twitchen, 2011, p. 3).

For example, PlaceCheck<sup>6</sup> allows for people to comment on aspects of the built environment. PlaceCheck asks what people like and dislike, and how they would make changes – which then feed into formal planning processes. PlaceCheck’s aim is to feed into local processes to assist in discussion, such as neighbourhood planning consultations, to understand local citizens’ views which then informs the agenda of what they target within formal neighbourhood planning processes. Other technologies, such as ArcGIS<sup>7</sup> Online allows organisations to create their own maps, however it is likely to be restrictively expensive for smaller organisations or community groups (£46/user/month) and therefore requires larger organisations or local authorities to ‘host’ the conversation (fitting into a model more akin with to top-down models of participation, rather than for civic activism and understanding). MakePlace (a research project (Peacock et al., 2018)) and CommonPlace<sup>8</sup> (a commercial service) fall into this model – requiring someone with technological resources or funding to create a map for discussion, rather than being a platform for community groups.

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<sup>6</sup> <https://placecheck.info/>

<sup>7</sup> [store.esriuk.com/products/#business](https://store.esriuk.com/products/#business)

<sup>8</sup> [www.commonplace.is/](http://www.commonplace.is/)

Rinner & Bird (2009) developed and deployed a technology that allows people to attach notes to a location and contribute to a discussion area. They found that only one person chose to attach their comments to a location, instead favouring discussion of the area generally. These findings have interesting implications for place-based discussion platforms, such as those discussed above, which favour commenting directly on places ('placing pins on maps'). It demonstrates that whilst planners and decision makers may prefer to have comments tied to a single location, people generally have a more porous understanding of place (Massey, 2005).

One such technology (and accompanying research) that helps to go beyond map-based discussions is Manuel et al.'s (2017) use of video to capture people's stories about their neighbourhood. Instead of focusing on location, the videos were organised thematically. Using video, which was then brought together in a repository alongside other people was demonstrated to be effective at capturing multiple narratives and having a more encompassing discussion than just discussing a single location would allow for.

### **3.5.2. Data**

The most popular planning technologies within this theme are platforms that use datasets for civic engagement, typically exposing datasets to citizens in easily understood ways. Houghton et al.'s (2014) research found that planners believe that as the role of computing has increased, there is a need to "consider ways of interacting with the community to enable participation, as well as the levels of involvement and influence" (p. 31).

The review found two common uses of data for participation. The first collected data to both share and aid people's understanding of an area. For the second, the act of collecting data (and in some cases discussing it) was used as the method of participating. Drummond & French (2008) have called for an increased role of mapping (GIS) technologies to understand places, calling for both increased use by planners to get people involved in shaping their areas and for "the next generation of urban modelling" (p. 161) and to engage people.

In exploring how data could be shared to aid people in their environment, Desouza & Bhagwatwar (2014) undertook a study of citizens' uses of apps to improve their experiences of whilst in the city. It found most of these apps were based on efficiency – such as making



people aware of public transport schedules. Other technologies such as these, that provide data to citizens, include the Urban Observatory<sup>9</sup>, which collects data on the urban environment and makes them available to the public. It encourages people to explore the data about their city and to build technologies using the data. For technologies that are geared for citizen participation, Quinn & Ramasubramanian (2007) reiterate that these apps should be used early in plan-making processes, and that their use should be proactive rather than reactive.

The second use of data which frequently arose was citizen collected data, either as a result of input (such as reviews) or automatically captured (such as the route someone has taken). AppMovement<sup>10</sup> allows people to create location-based review apps for topics that are of interest to them. A popular app generated through AppMovement, called FeedFinder, is used to rate and review breastfeeding facilities. The data from this app was then used as supporting evidence in activism for better facilities (Balaam et al., 2015). Somewhat blurring the boundaries between citizen input and automatically generated data is a platform called SenseMyStreet<sup>11</sup>, that allow people to discuss local issues, and then commission sensors to collect data to support in documenting their issues.

With the increased power of data in planning, there are calls for citizens and planners to engage with the politics of data, and engaging people in issues through an ecology of tools and participation formats (Saad-Sulonen, Botero and Kuutti, 2012) and the role citizens play in both data collection and understanding (Kontokosta, 2017). With this shift, planning will need to identify how citizen input through these ecologies of technologies can be seen as valuable and integrated into planning (Desouza and Bhagwatwar, 2012).

Although there was a lot of work utilising data, there was less on the role of data in decision making, and the extent to which it influences decisions. As data driven decision-making becomes more common place (Batty, 2018b), there will have to be increased scrutiny of the democratic processes that oversee these. Work such as Puussaari et al.'s (2018) provides data to citizens for democratic engagement. However, it raises questions

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<sup>9</sup> <http://urbanobservatory.ac.uk/>

<sup>10</sup> <https://app-movement.com/>

<sup>11</sup> <https://sensemystreet.uk/>

about whose data is better, whose should be trusted and what should drive decision making.

### **3.5.3. Location-Based Participation**

Many mobile technologies within this review use the phone's user's location to provide additional context to the interaction with the device. These apps typically augment the built environment with information, or augment user's comments with their location. There were several technologies identified that used location as the primary driver for the app. For example, CycleAtlanta (a phone app) was used to document cyclists' routes through Atlanta (Le Dantec et al., 2015), which was then used to inform decision-making for infrastructure improvements, and provide a channel of dialogue between the citizens and the planners. SpokesPeople (Maskell et al., 2018) places a similar emphasis on location, but instead captures people's reports of near misses and more subjective experiences.

A technology (EmotionalMaps) documented by Pánek (2018) allows for people to communicate their responses to more emotive questions, such as "Where do you feel unsafe?" (2018, p. 3) and "Which areas should be improved regarding public transport?" (2018, p. 3). Whilst enabling people to engage with more experiential accounts of their local area, it still required them to place their feelings on a traditional map, as well as requiring them to state their answers in writing. It is not clear from the study how many people chose not to leave text comments, instead choosing to use the other means of responding (a pin or a polygon). It is also not clear from the study how the comments were considered during the larger plan-making activities.

As the role of locative media grows in both mobile computing and participation, so too will the weight given to input through these means (Bilandzic and Foth, 2012). The difficulty is how these are used within formal decision making, and the weight the representations carry. More novel approaches combine data collected with qualitative feedback sessions which serve to strengthen the link between citizen and decisions, however, this is rare (Le Dantec et al., 2015).

Whilst these technologies have demonstrated an opportunity at involving new people in the planning process, they also prevent others from becoming involved. Digital

technologies introduce further issues of access (Norris, 2001), with the views of those participating are overrepresented over those who do not. The digital access to these technology-enabled methods is also critical when local authorities are ‘digital by default’, with in-person participation becoming increasingly difficult (Helsper, 2011; Vines et al., 2012). Furthermore, digital technologies have been criticised for simply making it easier for those already participating, rather than engaging new people: “Among the perceived benefits of web technologies are a wealth of barriers to success which, to some degree, mimic those experienced by practitioners using traditional methods of engagement. Ultimately, it is suggested that only those who are already intrinsically motivated to be politically active are likely to engage” (Twitchen and Adams, 2012, p. xi).

### **3.6 ALTERNATIVE FORMS OF PARTICIPATION TECHNOLOGY**

The format of a technology can be an app or website (something that can be downloaded over the internet) or a hardware device (something that requires a physical object). The form that the technology takes will influence both its availability (cost, requirements) and accessibility (who is comfortable, able or wants to use it). As was argued in the next chapter, the form a technology takes is both significant and understudied in participation (Marres, 2015) – with each form having their own trade-offs. Apps or websites, for example, are more easily accessed than specialist hardware devices, but require people to own smart phones with available storage and an internet connection (Ishii and Ullmer, 1997; Koleva et al., 2003).

Most of the technologies in the review used screen-based interfaces such as mobile phones and desktop computers with alternative interfaces being less common. There are many advantages to developing technologies that can run on devices that people already have, but it is important to recognise the form and function of these technologies leads to a particular type of engagement (Marres, 2015) that takes the design of the way people participate with the method away from the designer. The following section focusses on alternative means of participation that go beyond using existing hardware devices, and instead, create an alternative interface and means of participating.

### **3.6.1. Online Mirroring Offline**

The aim of this research is to explore technologies that go beyond the current provision of technologies that mirror offline participation methods.

In 2000 the Blair government set targets for all government agencies to be online by 2008 (Performance and Innovation Unit, 2000) – at the time 13% of households had internet access (Office for National Statistics, 2019) – stating: “We can use new digital channels to deliver better quality services to the citizen – available 24 hours each day, faster, more convenient and more personalised” (Performance and Innovation Unit, 2000, p. 3). The report identified no local governments that were providing transactional services online – 42% of local authorities had websites that provided information online (Performance and Innovation Unit, 2000).

Since this requirement, and pressure for local government to embrace the opportunities of ‘digital’, a lot of previously non-digital services were moved online (Evans-Cowley and Conroy, 2010). Rather than reimagining how planning might better use technology to engage people, a number of online methods mirror previously available offline ‘traditional’ methods – largely to facilitate planner to citizen communication (Evans-Cowley and Conroy, 2010; Ertiö, 2015). Following this move, from offline to online, several previously available modes of engagement, such as town hall meetings and consultation events became less favoured, and online engagement methods were prioritised (Williamson and Parolin, 2012).

In this move, it seems that a lot of tasks were transferred online, rather than reimagining how participation might take place. At the time this was likely due to technical and expertise limitations on interactive internet systems (Dix, 2016). What remains is that most of the digital systems used by local planning authorities mirror traditional methods rather than leveraging the opportunities technology offers (Conroy and Evans-Cowley, 2008) and rarely go beyond one-way provision of information (Evans-Cowley and Conroy, 2010). They have failed to engage with some of the opportunities that many contemporary technologies would facilitate (Hanzl, 2007). Most of the web-based applications for supporting electronic participation (e-participation) “do not provide citizens with the opportunity to participate in decision making, but only offer information” (Nuojuua, 2009,

p. 4). For example, local authority websites usually host scanned copies of letters posters or signs posted on lampposts, rather than having content in a native digital format.

<b>Traditional Technology</b>	<b>Digital Alternative</b>
Send letters to affected individuals	Send emails to affected individuals
Unstaffed exhibitions to share information on proposals	Upload proposals to council’s website to view information.
Publicise proposals in local newspaper and local authority’s magazine	Publicise proposals social media
Notices posted on lamp posts	Notices placed on website
Making comments on physical map	Making comments on an electronic map

Table 3: Traditional vs Digital Alternative

Source: Author, adapted from (Newcastle City Council, 2018)

Table 3 demonstrates that the methods used for participating online are implementations of methods that are available offline. Many of these methods favour the one-way communication of information, rather than allowing citizens to voice their opinions to planners (Conroy and Evans-Cowley, 2008). It shows how whilst methods have either been moved or duplicated online, the majority of those do nothing to improve citizen understanding of the material online. Work was undertaken with MHCLG to explore how some of these technologies might be changed to improve citizen understanding of proposals (MHCLG, 2015), however, any changes suggested during this pilot are yet to be legislated for.

Hanzl’s (2007) review of planning technologies – conducted over ten years ago (the most recent technology within the review being from 2004) – reviews a number of prototypes and experiments for public participation in four categories, “participatory planning GIS, 3D models, communication platforms and computer games” (p. 289). Since the review there has been technological developments such as the interactivity of websites, the increased role of mobile computing and smart phone apps.

Although the review is of participatory technologies, it focusses on sharing information about proposals, rather than citizen responses to them. The review documents a

perspective of technologies that were more of a broadcast medium than interactive. Following the review, beginning around 2007, there was a focus on technologies that were interactive and eased communication between people; such as social networking, blogs, and video sharing.

Since the review there have been developments in mobile technology, such as smart phones and mobile data, which have opened up opportunities for people to use the internet and computing in different ways than those facilitated in 2007 (Fechner et al., 2016).

A review by Ertio (2015) created a typology of mobile applications for citizen participation, concentrating on apps that are in current use. They use three categories to discuss the apps; the type of data (the functionalities of the app), where the information flows (where the information goes and how it is used) and empowerment (the power those using the app have). They find that most apps focus on citizen-collected data, collecting data and providing it to decision-makers without it being clear of the impact of the participation. They state that problem-reporting apps, such as *FixMyStreet*, can show mobile participation as an effective way of participating due to the immediacy of changes when compared with planning.

Neither of the reviews report on the wider implications of these technological devices, such as planners' opinions of the methods, and how comments are considered through the 'traditional' planning system.

With the difficulties involved in current participation methods, Baker (2007) calls for the use of innovative methods and techniques for community involvement in the planning process. Rather than just collecting data, an important element of contemporary studies in HCI is understanding how citizens can engage with the decisions, rather than just providing it to decision makers (a move from transactive to relational governance) (Jenkins et al., 2016; Johnson et al., 2017; Puusaar et al., 2018). Hanzl (2007) and Baker (2007) call for embracing technology to aid earlier involvement in the planning. This literature review will explore the research and use of technologies in town planning and identify key emergent themes in the literature. It will also make recommendations on gaps in the literature, and potential future directions worthy of exploration.

Research generally supports the use of technology for citizen engagement in civic matters and demonstrates how new methods of technology-enabled participation can create the means for a louder citizen voice (Desouza and Bhagwatwar, 2014; Houghton et al., 2014; Foth et al., 2015). Whilst there are benefits, there is a lack of understanding of the broader implications of these technologies in practice, such as the genuine power these technologies provide citizens with, and the recognition these digital methods are given over longstanding traditional methods (Hespanhol et al., 2018). Part of this is due to the lack of technologies being used in real-world situations, rather than in shorter-term engagement projects led by researchers (Hanzl, 2007).

### **3.6.2. App or Website**

Apps (an application that is downloaded, usually onto a smart phone) which people can interact with) and websites (a website that is accessed through a computer or phone's web browser) can be widely accessed to enable participation with planning. With recent developments in interactive technologies, the difference between mobile apps and websites is narrowed, with the abilities of apps now found on websites.

The role of apps (Desouza and Bhagwatwar, 2012; Ertiö, 2015) and websites (Bugs et al., 2010; Williamson and Parolin, 2012; Bilandzic and Foth, 2012) in participation is well understood through several reviews. Given this, the review will focus on identifying technologies that go beyond replicating current methods of participation and seek to understand the role of more experimental technologies.

The increased power of computing, both mobile and desktop, has led to an increase in the take-up of 3D visualisations (Foth et al., 2009). This power in computing has allowed for new opportunities in producing interactive content, such as photo-realistic images and web technologies used for engaging people in place changes (Foth et al., 2009). Current methods are frequently criticised for not engaging people and allowing them to understand the changes that are taking place (Khan et al., 2014; Howard and Gaborit, 2007). Howard & Gaborit (2007) found that there is a preference from people to use technologies, such as 3D visitations, to engage with the planning system.

Research has shown visuals to be an effective method at getting people to understand and discuss town planning, sharing narratives, stories, and experiences of place (Foth et al., 2009). The literature search, however, found difficulties associated with the mass deployment of visualisation technologies, such as the need for standardisation of web technologies (Dambruch and Krämer, 2014), internet access (Repetti et al., 2006) and back office processes (Khan et al., 2014) and reduced file sizes (Wu, He and Gong, 2010). Alshuwaikhat & Nkwenti (2016) call for increased attention into exploring the factors at play when deploying planning technologies, as well as the difficulty with generalising the requirements for these technologies.

### **3.6.3. Tangible Technologies**

These technologies require hardware that is usually dedicated to the activity that is being undertaken. Usually they have hardware that can be interacted with tangibly, rather than using a screen. These technologies usually require specific hardware and are therefore not as easily deployed as apps. However, they can be more accessible to those not used to using screen-based computers. Tangible technologies can elicit different responses than the use of computers and apps (Golsteijn et al., 2015; Koeman et al., 2015).

Tangible computing is often cited as a way to make technology more accessible by “coupling between physical objects and digital information” (Ullmer and Ishii, 2000, p. 1). Ullmer and Ishii (Ullmer and Ishii, 2000) state that tangible interfaces must have four characteristics:

- (i) physical representations (digital information coupled to physical objects);
- (ii) physical control (tangible objects as the primary means of control);
- (iii) the coupling of physical and digital representation (the interaction with the physical is tied to the digital interaction); and
- (iv) the state of the physical artefacts ‘embody the digital state of the system’.

There is a rich body of research behind tangible interfaces within HCI and they are used increasingly in civic contexts. For example, Golsteijn et al. (2015) argue for a move away from digital screens for more inclusive technologies due to ‘display and interaction blindness’ (p. 202) where issues with screen resolution and touch sensitivity are removed (Hopkins et al., 2004).



Although there have been advances in the usability of digital technology, designers should be mindful that access to and usability of digital technologies are not equal (Brabham, 2009). In developing technologies, it is important to include those that do not have knowledge of computer interfaces (Golsteijn et al., 2015), or access to computers and the Internet (Norris, 2001). Brabham states that “issues of access to technology are important ones, for any democratic model is problematic if it is predicated on access to something that not everyone has access to” (Brabham, 2009, p. 255).

Golsteijn et al. (2015) explore the role of tangible computing and playful interactions through VoxBox; a modular system built to allow novel interaction methods to gather opinions at events. Their findings demonstrate how the visual appearance of the system led to increased engagement. Further exploring the role of non-digital public displays, Koeman et al. (2014) displayed locally collected data with chalk, tape and baubles on a street in Cambridge, thereby reducing barriers to understanding and stimulating engagement. They document how technology generated a ‘honey pot effect’; where seeing a group of people engaging with a technology encourages others to do so. Other tangible technologies, such as Postervote, allow communities to collect data on matters important to them. To use Postervote, people create a poster with embedded electronics that allows others to vote with.

Johnson et al. (2017) explored the use of a table top game that was digitally captured to support the structured discussion of place. This captured data was then organized and viewed within an interface to allow decision-makers to extract parts of the discussion they found useful. Steinberger et al. (2014) developed a technology called ‘Vote With Your Feet’, which is an interactive installation that displays questions and allows people to walk through ‘gateways’ to answer them.

These novel participation methods can facilitate going beyond one person commenting through a technology and engage with technologies that, for example, can better facilitate meetings between citizens (Johnson et al., 2017), posters with electronics embedded can stimulate engagement with questions (Vlachokyriakos et al., 2014), having solution-based charettes based upon data collected by the community (Le Dantec et al., 2015), or novel ways of engaging and discussing with data in their built environment (Koeman et al., 2014). These novel methods, it seems, have failed to engage both planning research and

planning practice. More attention should be directed towards how far technologies that are used to promote participation achieve this. Rather than seeing the technologies that are promoted for participation as neutral, it is important to unpack the politics of the technology, the decisions that were taken whilst designing it, and the influence they have on how people engage with them (Marres, 2015).

#### **3.6.4. Creative Technologies**

Previous work has demonstrated that taking an approach to planning participation that embraces imagery, dialogue and creativity can aid visionary thinking about the future of places, rather than encouraging problem reporting (Al-Kodmany, 1999; Innes and Booher, 2007; Frank, 2016). Shaping and utilising place visions are important since they inform the early stages of planning ideas to aid debate on the long-term future of areas. Creative technological methods, however, did not appear in the review, nor did any studies that used technology and creative methods to facilitate participation in planning.

#### **3.6.5. Beyond Traditional Methods**

The bulk of planning participation methods to date have been non-digital, often termed “traditional” (Evans-Cowley and Hollander, 2010), despite widespread recognition over the last ten years of the opportunities for more citizens to become engaged in the planning system by embracing technology (for meaningful participation) (Le Dantec et al., 2015).

Addressing the first point requires planning technologists to reassess how people really experience and communicate their thoughts on place (Sandercock, 2003b; Graham and Healey, 2007; Massey and Warburton, 2013), and technology’s role in communicating these. The bulk of participation methods take a normative view of participation requiring citizens to express their thoughts in reductionist ways. Methods that allow people to express themselves in ways that more closely align to how they are experienced are less common.

Technology provides new opportunities for engaging people which many traditional methods would not be able to accomplish. Some of these opportunities will require consideration of how place-based consultation takes place. If the constraints of the current planning process were removed (of fitting within the current formal plan making processes) there are new opportunities and methods that can be used to engage citizens.

Part of this shift might include a shift from transactional models of governance to a more relational model; where “political thinking and action can be co-produced and co-owned through dialogue across differences in experience, values, and knowledge” (Olivier and Wright, 2015).

Adopting this relational model could involve using technologies to support ongoing discussions about places, where communication is constantly taking place between planners and citizens; rather than just at determined points when policies are being developed (Healey, 1997). Technology platforms can provide the means for place-based discussions and comments to be interrogated by decision-makers, rather than only requested during policy production (Jenkins et al., 2016). Methods that supported an ongoing conversation, rather than the current piecemeal opportunities for discussion were called for 50 years ago by the Skeffington Committee (1969).

A key aim of this research is to understand whether there is a benefit to providing technologies that create alternative methods of participation, rather than those that directly align to offline methods. It will discuss how citizen data can be incorporated into the data-driven management of cities.

### **3.7 GAPS IN RESEARCH**

This section discusses future research that should be undertaken to understand how planning technologies might be used to go beyond traditional methods of participation. It draws together the findings and gaps in the literature and makes recommendations about how planning technologies might be used to move beyond traditional participation methods are simply mirrored by technology. These inform the areas to be explored later in this research.

#### **3.7.1. Supporting Civic Action**

First, technology-mediated participation methods should go beyond people providing comments to local authorities and instead seek to understand how technologies can be used to facilitate civic action. Technologies, such as *SpokesPeople* (Maskell et al., 2018), *Cycle Atlanta* (Le Dantec et al., 2015) and *Data-in-Place* Projects (Taylor et al., 2015) recognise the need for more than just data to support citizen activism, and instead, see the need for

communities to deliberate and negotiate action (Foth et al., 2015; Jenkins et al., 2016). Acknowledging that collecting data is unlikely to lead to change, there are growing numbers of civic discussion platforms that embrace Dewey's (1927) notion of Publics to create issue-based discussion platforms that help facilitate civic action and issue identification (Parker and Murray, 2011; DiSalvo et al., 2014; Jenkins et al., 2016).

Whilst these new methods can 'empower' communities to have a louder voice, these technologies are not a panacea and are used within existing power struggles. Citizens do not get a bigger stake in decision making because they have used a technology. When designing technologies it is important to consider the extent to which these technologies empower people, or whether they simply replicate existing power struggles (Blythe et al., 2016).

### **3.7.2. Data for Civic Action**

Second, technologies should explore new forms of technologies that allow for citizens to easily create their own datasets to support civic activities. As an example, the review demonstrates that most surveying technologies are designed for local authorities collecting data. Platforms such as *CommonPlace* and *ArcGIS Online* are expensive and require expertise to set up and maintain. There are few technologies that facilitate community groups creating their own surveys. These place-based surveying technologies could allow for citizens to ask their own questions, rather than relying on decision makers.

*AppMovement* allows people to create their own location-based review apps for smart phones (Garbett et al., 2016). The apps are focussed around a single topic; for example, apps have been created to review breastfeeding facilities, dementia friendly places and places to eat for people with nut allergies<sup>12</sup>. These types of platforms allow people to create their own datasets to understand places, and in some cases, use it for activism.

Data that can support marginalised groups is receiving increased attention with the growth of civic technologies. For example, it is common for community groups to purchase or commission sensors to quantify poor air quality (Bales et al., 2012), or to co-opt existing datasets for activism and advocacy (Schrock, 2016).

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<sup>12</sup> [app-movement.com/apps](http://app-movement.com/apps)

### **3.7.3. Creativity and Expressivity**

Third, technologies should encourage creative and expressive means of communicating. Apps such as *FixMyStreet* are suitable for quickly reporting issues with the built environment (those that neither require creativity nor expression of complicated thoughts). Technologies such as these fail to capture the experiential affordances of somewhere, where people can communicate overall feelings about places, rather than those tied to a specific location. Creativity encourages the use of imagination, novel ideas and solutions (Frank, 2016).

Expressive technologies facilitate more involved participation than low-friction methods allow but require an extra time commitment from citizens to engage with them (Al-Kodmany, 1999). The aim of these technologies is to allow for people to provide more of their place-experiences and feelings than ‘traditional’ technologies might allow. For example, Frank (2016) explores the use of artistic methods to engage youth. Whilst the methods discussed in the research require sustained input from youths, they raised new issues and developed their capacity for future engagement.

Creative means of participating in discussions is underrepresented by current technologies. Frank describes the opportunities of creativity in engaging new groups of people, such as youth in planning, who prefer it as a way of “eliciting thoughts and generating enthusiasm” (Frank, 2016, p. 367). Creative methods provide new ways of engaging people. These creative methods have been demonstrated to aid people in communicating place meaning and visions, more so than other technologies that favour problem reporting.

As identified in this literature review, there were no technologies allowed people to creatively engage with planning. Given the widely acknowledge benefit of engaging people through creative activities, whilst no longer being used in practice, there are opportunities to understand how creative and digital technologies might be used to form new methods of participation.

### **3.7.4. Aligning Place-Experiences and Planning Technologies**

Taking into account all of the literature in these chapters, there is a strong case to explore how planning technologies might more closely align to how people experience places, and whether the opportunities provided by technologies provide the means for enhancing the citizen perspective in planning. As has been demonstrated, most current planning technologies fail to engage people in sharing their experiences, and instead, rely on them sharing ‘material’ comments that serve to reduce what can be commented on. An important element of this research should therefore seek to understand how engaging with a Massian perspective on place changes the activity of participating (Massey, 2005; Graham and Healey, 2007)

Taking these ideas forward, the research will engage with four of the shortcomings of current technologies:

- A failure of engaging with wider notions of place attachment and emotion (Sandercock, 2003a; 2003b)
- A failure to engage with non-boundaried views of place, with a reliance on Euclidean, scientific and ‘one dimensional’ views of space (Graham and Healey, 2007)
- A failure of facilitating expressive means of communicating place visions (Frank, 2016), and methods that are citizen (rather than planner) focused.
- A reliance on apps and screen-based technologies, rather than engaging with an understanding the role of more creativity technologies (Bugs et al., 2010; Desouza and Bhagwatwar, 2012).

Table 4 outlines how some of these difficulties with citizens participating with planning have been overcome by the opportunities presented by digital technologies. It illustrates how some of the problems with engaging with digital technologies have been replicated, whilst others have been reduced.

Reviewing the literature from the earlier chapter, as well as this one, it summarises how current planning technologies engage with notions of place. Through this, it identifies several research areas that could be explored in using technologies to align with more closely how people experience places.

<b>Difficulties for citizens participating with the planning system</b>	<b>How technology does, or does not, overcome these issues.</b>
Non-boundaries view of space (Massey, 2005)	Require comments to be tied to a single location
Lived and complicated feelings towards place (Massey, 2005)	Having to use text to communicate
Time barriers when participating with planning (Baker et al., 2007)	Mobile participation
<i>People:</i> Representational Place; <i>Planners:</i> Representations of Place (Lefebvre, 1991)	Technologies mirror offline participation methods
Material Considerations (Rydin, 2007)	Requires comments to be ‘material’ to be considered
The ‘language of planning’ and complex processes (Tewdwr-Jones, 1995; Clifford and Tewdwr-Jones, 2014)	Apps that can simplify problem reporting, but do not make understanding proposals simpler
Town hall meetings (Baker et al., 2007)	Require people to have the confidence and time to speak in front of others

Table 4: Difficulties with the Planning System and the Use of Technology

Source: Author

### 3.8 SUMMARY

This chapter began by outlining HCI’s shifting stance, from a discipline that engaging with improving individual technologies to one that seeks to understand the role of technology in wider society – engaging with a wider range of disciplines. In this shift the boundaries between planning and HCI research have blurred – with both actively engaged in understand how technology might facilitate enhanced citizen engagement in planning. It ends by discussing how technologies that take the form of apps or websites, and that other types of technologies are underrepresented both within literature and in use.

It discusses both the opportunities and barriers that exist for the increased use of technology, discussing the different aims and forms of digital technologies. An important

conclusion is that the majority of technologies tend to mirror offline methods that previously used to be non-digital. It develops an argument for piloting technologies that try to engage with the innovative potential of technologies, describing how engaging with notions of place expressed through creativity can offer new avenues in engaging people in placemaking, ending with a call for engagement with 'place' in planning technologies.

The following chapter outlined how this will be accomplished. By taking an approach that engages with the design of technological artefacts, it applies the understanding of this chapter to understand how previous work in town planning, HCI and human geography might be used to inform and inspire the design of digital technologies that are designed to better align to people's experiences of places, and how through engaging with the discussion of experiences of place, technologies can enhanced communication about place. It focusses on the design of technologies that materialise abstracted concepts which helps to direct attention to matters of concern, that can be tested through real-world pilots.



# 4

## **Methodology and Technology Pilots**

Introduction

The Changing Role of  
Citizen Participation in  
Planning

Human Computer  
Interaction, Town  
Planning & Participation

Methodology and Technology Pilots

# 4. Methodology and Technology Pilots

## 4.1 INTRODUCTION

The literature review has demonstrated some of the difficulties that exist in participating in planning matters. It discussed methods that encourage people to participate through open discussions about experiences and feelings about place and how these can be used to foster a more inclusive dialogue about the future of places people care about. It ended with a discussion on how HCI has engaged with planning, and the new opportunities technologies provide in reframing participation through digital civics.

This chapter begins by discussing the importance of design in understanding new methods of participation, and the role these designs have in shaping how people participate with the planning system. Specifically, it discusses how the research will engage with Marres' (2015) notion of Material Participation to deconstruct the attributes of technologies, and how through engaging with how a technology engages with materiality, new ways of understanding how digital technologies can be developed. The focus throughout is understanding how technology can provide new modes of participation that more closely align to how people experience places. It will end with a series of design prompts that will guide the development of technologies that engage with materiality and the reconfiguring of participation.

As demonstrated in the literature review (particularly in Chapter 3: Human Computer Interaction and Digital Civics) a lot of participation currently takes place using digital devices and services. These means of participating are having an increasing bearing on how people express themselves, and experience life. With the growing role of digital technologies, it is important to take a device-centred understanding to technology and to understand the role these technologies have in facilitating people's participation in public matters (Marres, 2015). These digital technologies have a material dimension when being interacted with. Exploring how these technologies (which Marres (2015) refers to as objects) sit at the interface of people and the material environment, is particularly

important. There have been calls within social science to “better account for material agencies in our understanding social practice” (Knox, 2015, p. 947).

Previous work, such as Marres’ (2015) both questions and responds to “how mundane objects could be said to have a politics, wrenching things from the condition of context and ascribing them a liveliness and agency that allowed them to become actors in accounts of social life [...] to ask not just what are the politics of objects, but rather what are the objects and materials of contemporary politics?” (Knox, 2015, p. 947). Taking a device-centred perspective (looking at the technology through which participation takes place) allows social scientists to “rethink where political action might be located” (Knox, 2015, p. 948) as well as “raise questions about the limits of material engagement to truly enact a politics of public responsibility” (Knox, 2015, p. 949).

With the importance of understanding both design of civic technologies, and their design, this chapter will discuss how this research will engage with the design of technologies for civic participation, and how it will ask questions about the devices’ role in planning participation. It will explore whether rethinking the design of technologies for participation can give citizens more of a say in a place’s future.

## **4.2 WHY DESIGN?**

Before unpicking and exploring the design of objects of participation, it is important to explore why the design, and the practice of designing, is important. Research through Design (RtD) is an approach for “conducting scholarly research that employs the methods, practices, and processes of design practice with the intention of generating new knowledge” (Zimmerman and Forlizzi, 2014a, p. 167), or, put differently “making of things – artefacts, systems, services, or other forms – as a means to construct new knowledge” (Odom et al., 2018). RtD is a well-recognised method in HCI, where designs are deployed and reflected upon through a process of making and critiquing (Zimmerman and Forlizzi, 2014a). A particular focus of RtD is reflecting on the design process and how the design of objects can lead to new understanding of their role in solving problems (Gaver, 2012).

Chief amongst these is understanding “a different way of doing politics with objects, settings and technologies” (Gaver, 2012, p. xxi), and calls for investigating “how things,

technologies and settings are deployed in actual practice to enable material participation” (Gaver, 2012, p. xi) that “enact a distinctive form of public engagement” (Gaver, 2012, p. xii). Marres (2015) sees these objects as playing an active role in the configuration of engagement and participation.

Marres, however, discusses a lack of attention to the role these important decisions have in the design of digital technologies and the active role they have in shaping participation. She makes the argument that it is important to understand the politics of designed objects. Chief amongst these is recognising how these objects shape participation, with a need to focus on what the technology enables and how participation might be more considered and thoughtful through creative designs for ‘objects’ of participation. The following section will explore why studying these objects is a worthwhile pursuit, and how examining the often understudied role of design can enhance understandings of participation.

#### **4.2.1. Studying Design**

This section discusses both the importance of design in facilitating participation and people’s understanding of it, and also how taking a device-centred perspective can enhance the understanding of these devices and what they enable and encourage. All objects, regardless of who they are designed by, influence how people interact with them (Jasanoff, 2006), and have a bearing on how they are used. This “digital technology and media, platforms, device and all manner of applications are configured with the explicit aim of facilitating participation in ways that put the engaging capacities of objects in the forefront” (Marres, 2015 p. ix). These technologies provide a distinct way of interacting with politics and policy, and “take on their own form that can be distinguished from other forms” (Marres, 2015, p. 114).

Given this essential role in shaping interactions, it is important to understand and surface the normative values that are embedded in these designs, how people react to them and how they might inform future designs of participation. Marres states: “a device-centred perspective on participation brings into relief the normative variability of enactments of engagements with the aid of everyday technologies – suggesting that such variability is critical to a technology-enabled politics of participation” (Marres, 2015, p. 81). This, Marres states, directs our attention to how participation interacts with everyday life.

What receives less attention, however, is how the use of these technologies leads to different types of comment or thinking; normative values that are embedded into our participation methods. For example, a common complaint by planning officers is that comments are non-material. The blame for this often falls on the citizen, for it is their role to make sure their comments meet the needs of the planner's. What is not questioned is how the design on technologies is used to encourage that response. Within HCI this is often discussed as a technology's affordances – how a system demonstrates to the user what is possible. What develops from understanding a system's affordances is a need to understand how a system guides a user to leave a particular type of comment that can be more easily used within planning (Norman, 1990).

Affordances, for example, are used to demonstrate when a door is 'push' or 'pull', or a button to indicate something should be pushed (Norman, 1990). Poor affordances make it difficult to understand (for example, having a door handle on the push side of a door). Given the importance of design in understanding not just *if* people participate, but *how*, it is vital to recognise the importance of design in both encouraging participation and amplifying their voice.

To do this RtD understands through “the reflective practice of reframing the underlying situation” (Zimmerman and Forlizzi, 2014b, p. 178) and “understanding the world that should be brought into being” (Zimmerman and Forlizzi, 2014b, p. 178) through ‘research artefacts’. This reflection relies on exploring, understanding and surfacing the design decisions that are made and how they influence the use of technologies.

Studying the design of these technologies requires reflecting on both the activity of participation and the influences that the devices have. To do this, this research engages with the influence materiality has on participation. There are several ways to understand what ‘materiality’ is. At the very least “political participation always takes place in a material location” (Marres, 2015, p. 1).

But the ‘material’ element of participation, as Marres argues, has a much greater and nuanced role in participation. “When material participation acquires the status of a distinctive public form, materiality becomes an explicit feature of participation, one that is

generally recognised as part of the practices under study” (2015, p. 62). Marres (2015) discusses how the performance of participation is intrinsically linked to the artefact or method: “it is impossible to distinguish between the methods of participation [...] and the techniques, objects and settings deployed in their enactment” (2015, p. 61). She argued that devices for participation shape the responses that people engage with through them, stating: “technologies that materialise participation, by contrast, grant permission to a particular type of logic” (Marres, 2015, p. 69). It is an important consideration, and often an underreported aspect of participation, that there is a relationship between technologies, enacting participation and the material environment, and how technologies are used to enact a particular type of participation.

One of the foci of this work is to understand the often-neglected role that technologies have in shaping participation. Recognising the importance of how digital technology influences participation, importance questions are raised about the relationship between how people participate and the methods that are used to communicate them. A common feature of participation is efficiency, with many technologies that are currently used prioritising speed and efficiency over other attributes (Ertiö, 2015). However, applying Marres’ (2015) understanding of how technologies are used has an impact on the activity, rather than simply making it more convenient.

Given the opportunities afforded by designing technologies and deploying them with communities, the research will endeavour to understand, through the design, piloting and evaluation of digital technologies, the role of participation technologies in enabling enhanced participation. Given the lack of design-based studies in the social sciences and planning literature, this approach should provide novel findings on how participation might be better facilitated through technologies designed to address the earlier discussed opportunities and difficulties with current participation methods.

At this point it is worth reflecting on other approaches to the research that were ruled out. It was decided that quantitative methods would not be appropriate to understand the factors at play with novel participation methods. It is often understood that qualitative methods “can provide depth in a research inquiry by allowing researchers to gain deep insights from rich narratives” (Venkatesh et al., 2013) but that quantitative methods can engage more widely. Qualitative methods are commonly called for to help understand

people's experiences of technologies (McCarthy and Wright, 2007). Given the aim of this research is to understand how technology can support an individual's approach to participating, the research ruled out a quantitative approach that, whilst it would have been effective at understanding the perspectives of a wider group, would not have provided the necessary depth.

Following the choice of a qualitative approach it was also decided that designing and piloting technologies would be preferable over just interviewing participants. As the previous section has discussed, there are advantages to observing, rather than speculating, how one might use technologies (Gaver et al., 2013; 2016; Chatting et al., 2017). Discussed later, an inductive approach accommodated this approach. It was decided that a combination of qualitative methods alongside piloting technologies would be the most appropriate approach for the research, whilst quantitative and deductive approaches were ruled out.

#### **4.2.2. Material Participation**

The design of a technology, how it is intended to be used and who it is designed for is discussed as a device's 'politics'. Through material participation, Marres explores how designed objects enact politics. Through a series of case studies, she describes how a device's politics can raise awareness of issues, and how the design of these objects embed a way of understanding and interpreting these.

In *Material Participation*, Marres (2015) questions the role of 'things' and 'instruments' in participation; bringing an "understanding to bear on the study of participation, detailing the role of artefacts and settings in its enactment and organisation" (2015, p. 63) "that requires us to go into the world and examine how participation is done in practice" (2015, p. 29). To do this, it is important to both theorise its impact, but also understand it through engagement with technologies in the real world.

The approach of this research uses Marres' book *Material Participation* (Marres, 2015) as an overall framing device to lead the inquiry into the understudied role of technologies for participation in planning. The book calls for a better understanding of the implications of technologies, and to "better account for material agencies in our understanding social practice" (Knox, 2015, p. 947). She argues that the social sciences have "long seen it as



their principal task to demonstrate that technology does not meet the standard of democracy” (Marres, 2015, p. 158) rather than to engage with it in the interests of citizens and democratic innovation rather than meeting a theoretical ideal.

An inductive thematic reading of Marres’ work was conducted to apply material participation to the design of digital technology for planning which generated codes to be grouped into these (Braun and Clarke, 2006). These themes are used to discuss the overall approach of the research in the following section.

Material participation is used to direct enquiries into how objects “play an active and visible role in the enactment of participation” (Marres, 2015, p. 133). One such element is how abstracted ‘things’, that are difficult to conceptualise and understand because they are abstracted (i.e. not having a physical manifestation), can be made material. She explores what “style of problematisation” (Marres, 2015, p. 42) is most appropriate to make people aware and participate in issues with abstracted phenomena. As an example, Marres discusses the difficulty with taking action on an abstracted change or issue (such as the odourless release of CO<sub>2</sub> during energy use) into something that is more easily understood: “to demonstrate the material, social and technical transformations involved in taking the environment into account” (Marres, 2015, p. 81). Understanding the potential impact of abstract changes (that are described in planning policy) on one’s environment is similarly difficult to understand until its effects are experienced.

Engaging with material participation allows the research to understand often underrepresented accounts of how technology changes participation. As Marres (2015) calls for, there is a need for the social sciences to engage with the role of technology in participation. This focus directs the enquiry into how different forms of materialising place discussions can help to surface often hidden or difficult to understand proposals.

#### **4.2.3. The State of Participation**

Marres (2015) cites difficulties with participation practices, making an argument for the importance of taking citizen’s perspectives, and critiquing Dewey’s notion of publics, stating: “the public is not just another, larger, stakeholder community whose concerns must be considered. It is marked by a distinctive problem of relevance: the public consists

of actors who are intimately affected by issues, yet are not participants in the networks, platforms and vocabularies of issue articulation” (2015, p. 58).

The importance of getting the citizen perspective is, in Marres’ (2015) view, due to them being the ones that are affected and being outside of the networks of those that articulate issues and make decisions – similar reasons for the need to engage people in planning (Rydin and Pennington, 2010). She calls for opening-up the assumptions that have been previously made about both participation as an exercise and through technology, seeking to have wider recognition of the opportunities that technologies present in democratic participation.

Continuing the critique of participation, she provides a discussion of relevance, where citizens struggle to understand the relevance of issues on them, and government institutions “call[ing] into question the relevance of public contributions to ongoing processes of knowledge-, decision- and policy-making” (Marres, 2015, p. 143).

One framing of the difficulties turns to the skills publics possess in understanding the impacts on their lives and articulating their thoughts, and therefore, the perceived legitimacy they have in being involved. This, however, exists where “communities of the affected are [...] between the circumstances of their material involvement in issues and their absence or lack of skills, resources, vocabularies and connections, which effective action on these issues requires” (Marres, 2015, p. 41). This power imbalance puts the onus on citizens “to justify why their presence and contribution would be legitimate or useful to consider in institutional settings of knowledge production and political decision-making.” (Marres, 2015, p. 142). This question of legitimacy is also reflected in planning when the lived experience of citizens is often in opposition to the ‘expertise’ and codified knowledge (Vigar, 2012) .

To help alleviate these difficulties, Marres (2015) calls for participation that supports everyday material practice, using materialisation “that figures as a ‘solution’ to the problem of public engagement with the environment” (Marres, 2015, p. 82). Marres sees materiality as a way of to surface the impacts of abstracted outcomes. Materiality, therefore, is the task of understanding effective ways to aid the comprehension of issues, that whilst difficult to recognise and see initially, have a bearing on people’s lives. The key

element of this, and the focus of this study, is how technologies can be designed to best draw attentions to these issues.

It is important to reflect on how these participation methods can make people aware of unacknowledged issues. Taking this forward in planning, it questions how materiality might both allow people to communicate their abstracted experiences of place, as well as understanding how the initially immaterial proposals to land are best communicated to non-experts (Rydin, 2007). To do this, the technologies will direct attention to changes that might otherwise be difficult to contextualise within the built environment. The aim of the technologies is to provide information in material ways that can aid in translating abstract proposals into those that are material which can be more easily placed and understood in place.

### **4.3 WHAT TO DESIGN?**

Using the idea of material participation, this section outlines how the research will engage with the design of participation technologies in planning. The focus of this research is not to produce solutions, but instead to explore the factors at play, examine where difficulties lie, and identify some potentially fruitful directions with alternative planning technologies. It will also discuss how the social sciences engage with technological design studies.

#### **4.3.1. Widening Participation**

Marres (2015) makes a distinction between two high-level designs that participation technologies can facilitate: those that make participation ‘easier’ with no changes to people’s behaviour, and participation that produces material effects in everyday settings that encourages engagement.

Maress (2015) outlines two contrasts in raising awareness: there are those “who are so involved that the relevance of the affairs not in question for them” (Marres, 2015, p. 53), and those “for whom the affair is so utterly irrelevant that not even the worst escalation of the crisis could arouse their interest in it” (Marres, 2015, p. 53). To generate interest and participation in environmental issues, she outlines two approaches. The first is to make participation ‘doable’ by reducing the commitment required for those “who lack time, space and shared knowledge that potential engagement requires” (Marres, 2015, p. 69) that separates “domains of engagement with public affairs, one for professionals and one for

lay people, one for insiders and one for outsiders” (Marres, 2015, p. 70). The second, active engagement, requires engagement and input from people, but more concerted effort.

Marres devotes a significant amount of the book to understand how to provide material engagements during everyday activities that makes spaces that are not normally associated with participation, and how they can be opened up to new voices, stating: “participatory space [...] is about broadening the range of voices or viewpoints” (Marres, 2015, p. 154). It discusses how these spaces can be used for meaningful opportunities for participation, with an emphasis on fresh perspectives, similar to work in planning (Gordon et al., 2011), and understanding how people can be better represented in decision making.

#### **4.3.2. Awareness Raising, Representation and Facilitating Participation**

In order to encourage participation, people must be made aware of issues that may interest them and of opportunities to participate. Discussed in two ways (relevance and opportunities), the first way is “to direct our critical attention to the devices that are deployed to organise public relevance relations [...] the question of what instruments can be used to establish relevance relations among issues and publics emerges as crucial” (Marres, 2015, p. 57). The second involves the opportunities technology provides in reducing the effort required to participate (Marres, 2015), such as turning everyday technologies into means of participation where “material objects, technologies and settings enter into the enactment of public participation [...] and assume that the role of things in facilitating participation” (Marres, 2015, p. 67).

Key to these two is facilitating engagement to “make possible the enactment of participation in settings that are not customarily allocated this function [...] and provide an instrument for enacting engagement in non-traditional sites: The home, the workplace, the great outdoors” (Marres, 2015, p. 85). Taking participation out of the town hall, and to where the ‘people’ are is another key signifier of getting fresh perspectives on planning issues (Baker et al., 2007) – rather than assuming people will come to planners, planning should engage on people’s terms (Wates, 2014).

These two drivers for participation are distinct, with the former (participation made easy) receiving most of the focus within the planning and HCI literature; technology that makes

participation easier, quick and more efficient (Ertiö, 2015). Technological methods that require active engagement planning proposals, however, receive less attention within the literature.

Engaging these groups demands two different approaches for their participation – there are methods for which quick participation methods can encourage new people in participation, and those that are already so involved that new technologies simply provide the means through which to participate through alternative means. The aim of the technologies is twofold: to design technologies that makes it easier to see the impact proposals will have and to provide enhanced means for discussing place. Some groups will already understand the consequential impacts of proposals, and therefore, are less likely to require encouragement to participate. Drawing on the discussion from Marres' work, the research will now explore what designing for materiality in a planning context might look like. In doing so the research will set out a series of areas to explore.

#### **4.4 DESIGNING FOR MATERIAL PARTICIPATION**

This section will discuss the themes of Material Participation (Marres, 2015) on the design of participation technologies. First it discusses aiding the creation of spaces that are not normally associated with participation, with the second establishing a framework for materiality in planning through a series of technical attributes.

##### **4.4.1. Creating Space**

A belief of 'materialising' participation is creating a space, whether physical or created by a technology, that foregrounds issues and creates a space for people to engage with them – either through subtle behaviour change or more active forms. This space is somewhere that hosts participation and where a device will enact on the device itself (how the device is interpreted) and through it (people using the device to participate).

A key factor is where the participation takes place, whether it be in a single, fixed location or something that can happen anywhere. Applying this idea to that of democratic participation have been studied in HCI but less so in planning. For example, technologies such as PosterVote (Vlachokyriakos et al., 2014) or VoxBox (Golsteijn et al., 2015) enact participation differently than Cycle Atlanta (Le Dantec et al., 2015) or the DataCatcher

(Gaver et al., 2016) due to the association between the technology and its location. Using technologies for participation that are mobile presents some advantages, such as not needing to travel (Le Dantec et al., 2015). These differences raise questions about the factors at play are technologies are designed to be carried around (such as an app on someone's phone) when compared to a device that is fixed.

This research will explore this in two ways: the bearing that in-situ participation (participation that takes place within the place that is being commented on, through portable devices, such as smart phones) has on how participation is undertaken, and ex-situ (participation methods that are situated and the comments that are being discussed do not refer to where the discussion is taking place).

To effectively promote dialogue around place through materialising participation, the research will explore the materiality of methods that are currently used, as well as spaces that are produced by speculative technologies. In doing this, it explores two types of participation discussed by Marres (2005): 'active' and 'easy' participation.

#### **4.4.2. Translation**

One issue that is frequently raised in planning literature is the difficulty of citizen-planner communication (Arnstein, 1969; Lefebvre, 1991). As described earlier, there is often a difficulty with materialising the abstracted reality of planning proposals and how attention can be directed towards potential changes.

One approach to this is visualising these developments through augmented reality (Allen et al., 2011; Billinghamurst et al., 2015) to demonstrate the visual impact of proposals, turning abstracted technical drawings into photo-realistic images that are more easily understood by people. Whilst the benefits of augmented images in planning proposals have been well documented and explored (Allen et al., 2011; Billinghamurst et al., 2015), little research has explored the factors at play when engaging people during their everyday experiences of place. Translating abstracted spatial planning policy into people's built environment is key to this – making people aware of what and where proposals are for changes that will alter how they experiences places they care about – but which is required to go beyond the visual impact of proposals.

Whilst the majority of these planning technology studies focus on translating planning proposals into something more easily understood by citizens and the effectiveness of these technologies showing changes, there is a lesser focus on how these technologies influence the type of participation they afford. Using Massey's (2005) notion of space, this research focusses on how technologies can promote discussion on what is relevant to planning, and if this benefits citizen-planner communication.

Understanding this opens up a space where technological participation tools can serve as a middle ground between citizens and planners for enhanced communication, both to make people aware of policy proposals, and improve communication on how these proposals are discussed. To further explore this, the research is shaped by two themes: technologies to translate the consequential impacts of land-use allocations to citizens (planner to citizen communication); and technologies that aid citizen-planner communication.

#### **4.4.3. Form and Physicality**

The third theme arising from Marres (2015) is on the form and materiality of technologies and the bearing this has on how they are interacted with and interpreted. Marres discusses how the material-nature of technologies can have different influences on people's understanding of both the participation 'object' and the issue. She calls for device-focussed studies that question how the form and physicality of technologies lead to different responses.

The form of technologies will influence these discussions. Within HCI, there is a growing understanding of how novel forms of technologies can generate discussion on the technology itself and how the interaction with the technology surfaces unexpected ways of understanding (Gaver et al., 2013; 2016; Chatting et al., 2017). Gaver et al.'s (2016) reflection of novel technologies notes that a device's function could have been achieved through an app running on a smart phone, but "dedicated devices may serve better to maintain persistent experiences and spur social encounters" (Gaver et al., 2016, p. 1603).

Acknowledging the importance in the form and function of technological devices, there is a dearth of literature within planning that attempts to understand the role of devices in shaping participation, and how participation is shaped during the different opportunities for participation.

Novel technologies and interaction methods are underrepresented in both the practice and research of planning (Hanzl, 2007; Ertiö, 2015). Given the significant role of interpreting technology, it is important to understand how alternative forms of technologies shape participation (Healey, 1996; Baker et al., 2007) and the technology's use (Al-Kodmany, 1999; Fung, 2006; Goodspeed and Hackel, 2017).

The research will explore how the form and function of the technology changes how participation takes place through or on it. To do this, it will examine: the type of discussion that takes place online on existing technologies; how an app for planning participation, running on someone's existing smart phone, facilitates comments on the built environment; and how bespoke hardware alters participation.

#### **4.4.4. Summary**

This section has explored the themes arising from Marres' Material Participation related to planning participation. The section then related these themes to previous research projects and technologies identified in the literature review, and attributes that future technologies could possess. Marres' (2015) Material Participation has served to open up and rationalise areas in this inquiry to understand the influence of technologies on participation.

The next section sets out a series of technology pilots that explore the attributes discussed in this section. It will do this through outlining the topics that three technology pilots explore.

### **4.5 RESEARCH THROUGH PILOTS**

This research is conducted through a series of technology pilots. Their purpose is to explore opportunities for aligning a planning system that generally fails to engage with the opportunities afforded by technological innovation. Through the pilots, the research will explore technology's role in the planning system and how it aligns with the technology-filled experiences and interactions people have come to expect "regarding convenience, accessibility, and timeliness" (Chadwick, 2016, p. 445).



A cornerstone of the Digital Civics agenda is co-creating technologies with citizens to shape the future of technologies that are designed to facilitate participation (Olivier and Wright, 2015). This does, however, mean that the research is not a series of sequential neatly containerised case studies (such as those outlined by Yin (2013)) but pilots that engage with citizens, that adapt and are shaped by the engagement that takes place within them. The purpose of these technology pilots is not to provide technologies that can be compared, but a series of deployments where the outcomes are uncertain and open-ended rather than deterministic. At its heart, the direction of the research is led by the people that are engaged with it, rather than by a pre-stipulated research direction planned in advance of the engagement.

While open ended, it is guided by a series of principles and methodologies that are discussed in the following chapter. The purpose of this section is to describe the technologies that will be piloted during the research and the elements of participation they seek to explore.

The remainder of this section provides a summary of how three pilots will engage with the themes raised by Marres (2015). The pilots will address questions raised earlier on the space that is created for participation, how to aid citizen-planner communication, and how participation is changed through a technology's form and function.

The research approach explores three intersecting research pilots: the first explores how, without intervention on the design of the technology, participation currently takes place online. It chooses Twitter as a place where public discussions take place (Wright et al., 2015), and seeks to understand whether these can be used to sustain enhanced place dialogue. The following two pilots are more interventionalist in their approach, developing technologies with the aim of changing how discussions are had. The first, explores the role of quick, in-situ participation methods that make people aware of changes whilst walking around the material environment, and encourages them to participate through lightweight methods. The second calls for more involved participation, but which allows for people to communicate their long-term aspirations to place in more expressive and creative ways than current technologies allow for.

The aim of the forthcoming pilots is not to be immediately comparable, but as the next section will demonstrate, that go through cycles of evaluation and reflection that built upon the previous.

#### **4.5.1. The State of Current Planning Discussions: Exploring the Current use of Twitter**

This phase of the research aims to understand the current state of technology-mediated discussion that takes place on topics that relate to place and formal planning processes. The aim is to understand how current debates on planning matters take place online, and how well current technology supports these.

Twitter is a popular platform for people wanting to discuss issues online, with 15 million users (23% of the population of the UK, with 65% under the age of 34 (Warren Knight, 2016)) typically considered a hard to reach group (Peacock et al., 2018). Twitter is different to many social networks in that it is predominately used to share views publicly, rather than other social networking platforms that are geared towards sharing media with friends.

This pilot will try to understand how people engage in planning matters when using existing technology and explore the extent to which it already supports the discussion of place-related topics. Through understanding the platform, and how useful the tool is to practicing planners, the pilot will identify a series of design considerations that will inform the forthcoming research pilots.

#### **4.5.2. Quick & In-Situ Planning Participation: ChangeExplorer**

This pilot explores how technologies can support people participating in planning matters without needing to travel somewhere and to set aside time to participate. The piloted technology will explore how quickly people can participate in the planning process, and the effect that getting people to participate quickly has on the type of commentary that people give.

The technology will make people aware of changes that are proposed whilst they are in the built environment and provide the opportunity for them to give quick comments about their views on planning proposals, as well as encouraging them to share their wider

place-based experiences and aspirations. The interactions with the device will be place-dependant; the more one walks around an area the different the interaction with the technology will be. The technology, in effect, will provide the means of augmenting the built environment with updates on planning proposals in the area.

The technology will take the form of an app that runs on existing hardware, and explores the extent to which the form, function and affordances of the technology changes the way people engage with proposals when they are located in the place affected.

#### **4.5.3. *Drawing & Talking for Expressive Communication: JigsAudio***

This project will explore how situated engagement methods can encourage people to be more expressive in their communication on their experiences, feelings and aspirations towards the built environment. It aims to explore whether drawing and talking, using a technological device, can provide the means for people to better express their complex place-based feelings. Traditional methods for participation benefit those who are used to formal writing, as opposed to those that express themselves in more traditional ways.

It explores how fixed-location devices can encourage people to share their long-term aspirations towards place, and whether, by engaging with a tangible technology, it can reduce some of the barriers to both traditional forms of computing, and people expressing themselves through them.

#### **4.5.4. *Summary***

Using Marres' Material Participation as a prompt for designing new modes of participation that embrace the physicality and form of technologies, this section describes how form and materiality can be applied to explore new modes of participation in planning. Through a thematic reading of the text, it raises a series of themes that provide prompts to take forward the research.

	<b>Twitter</b>	<b>ChangeExplorer</b>	<b>JigsAudio</b>
<b>Summary</b>	Understanding the state of current online participation in planning	Quick, in-situ participation	Creativity and expressivity through drawing and talking
<b>Physicality &amp; Form</b>	No change	Physicality of built environment	Physicality of device and drawing materials
<b>In-Situ vs. Ex-Situ</b>	Little or no engagement with materiality and the built physical environment	Using location and in-situ participation to support people discussing changes	Ex-situ, although should be used somewhere that relates to the place being discussed.
<b>Active vs. Easy Participation</b>	Easy participation	Active participation, however, minimal effort	Active participation requiring significant time and travel
<b>Awareness of Abstracted Planning Policies</b>	Currently little sharing of planning policies, however, this may change.	Aims to make people aware of abstracted land allocations and planning policies.	Technology for aiding citizen-planner communication
<b>Alternative Technologies</b>	No new technology	App, however, hopes to provide new means of interacting	Alternative means of interacting with computing
<b>Prompts for Participation</b>	Promoted by follower's tweet or everyday experiences	Using built environment as prompt	Prompted by questions or other's comments

Table 5: Summary of Research Project

Source: Author

The previous section outlines the projects and develops them into design attributes to test through technology pilots. Through three piloted technology (summarised in Table 5), it will explore how technologies can facilitate new modes of participation. The following section will discuss the approach to the research, and how through using piloted technologies, the research will explore the research questions.

## 4.6 ACTION RESEARCH AND TECHNOLOGY PILOTS

This section will outline how the research will explore the potential role of digital participation methods in enhancing citizen participation in planning. It will describe how the research will design, deploy and evaluate novel methods of engaging people in planning, and the extent to which this changes participation.

The research does this through a series of technology pilots. Piloting prototypes and technologies is a well-recognised methodology within HCI, however, is less common within the social sciences (Marres, 2015). The advantage of design-based studies alongside traditional social science methods is that meaningful conversations can be had, both with citizens and planners, about the role of when they have engaged with the consequential impact of the actual technology (Odom et al., 2016a). Having a tangible prototype to discuss can help to unravel issues and thoughts that theorising alone would struggle to surface. DiSalvo et al. (2014), states “that artefacts, systems, and events function to expose and re-imagine constraints and parameters surrounding issues and problematic situations” (p. 2405) and support the “activities of re-imagination, designers and participants are engaging in prototyping new social, economic, and political arrangements” (p. 2405).

DiSalvo et al. (2014) describes how these prototypes are used to express matters of concern, and how through the designing, deploying and evaluating technologies, more constructive conversations around issues can be had about the role the technology might have in aiding participation.

Prototyping and piloting technologies is an effective method for:

*Understanding Difficulties:* Through understanding how people use current methods through discussions and the barriers to current methods and technologies rather than speculating about how these technologies would be used.

*Exploring and Imagining:* Through engaging with potential future technologies through pilots in real-world contexts and identifying difficulties, explore and imagine potential directions for future research through deploying technologies provide potential directions for the future participation technology and research.

*Discussing 'Real' Technologies:* Marres (2015) outlines the importance of having material artefacts to facilitate and discuss people's participation. By giving participants tangible technologies to use, and reflect upon, participants can describe how they actually used a technology, rather than only imagining.

*New Potential of Technologies:* Explore these new arrangements and technologies through discussing the technologies with communities and decision-makers.

This section will therefore outline how the technologies will be deployed with groups of people that have an interest in exploring potential future methods of participation that choose not to participate with current methods available. By giving participants potential technologies, the research engages with their experiences and reactions to them. In order to do this, the research briefly reflects on how knowledge is created.

#### **4.6.1. Epistemology**

An epistemology is one's understanding of how knowledge is created. There are different views as to how knowledge is created which in turn has implications for how research is conducted. O'Reilly & Parker (2012) note that "different assumptions about knowledge thus inform the epistemological starting point of research [...and...] will guide the trajectory of the whole research process" (p. 195). It is, therefore, important to be transparent about one's understanding of how knowledge is created, and therefore, how research should be undertaken.

One's epistemology has an even greater bearing on research when the findings are interpreted by the researcher, recognising and reflecting on the influence that their perspectives have on the research, and an important attribute of a reflexive researcher (2012). Whilst all research includes interpretation, there is a consensus that in social science and qualitative research these issues are particularly important (Walsham, 2017) due to the role the researcher has in shaping its findings.

Bardzell and Bardzell (2011) discuss how (shown in Figure 8), one's understanding of knowledge informs research methodology (how the research will be configured), which in turn determines the methods and approaches someone will take. It illustrates how one's

epistemology configures the research approach (methodology) and how they conduct their research (methods). These will be discussed in the following sections.

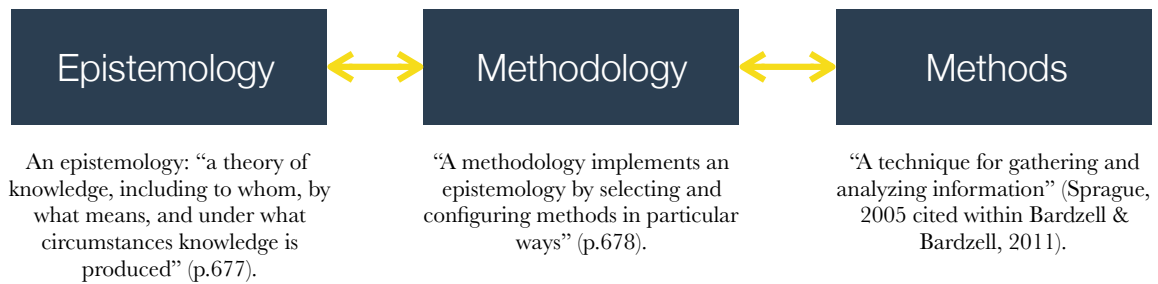


Figure 8: Epistemology, Methodology and Methods

Source: Author

This research will explore how technologies are used to express place meanings. It is therefore important to be reflexive and transparent about how the research is shaped by the researcher through their beliefs, understandings in how knowledge is created and therefore, how research is constructed and undertaken (O’Reilly and Parker, 2012).

The research takes a constructionist view of the nature of reality – that knowledge is constructed by people who are neither removed from the research nor able to be fully objective (O’Reilly and Parker, 2012). The world, therefore, is understood and constructed through people’s experiences and understandings of it, rather than a single truth. Knowledge is not gained through facts, but that previous knowledge, experience and contexts that have an active role in the production of knowledge (Flick, 2015). The importance of people’s experience and interpretation is reflected in both the topic of this research and how it is carried out.

The world is socially constructed, that is, that understanding comes from our experiences of it, and that we rationalise these understandings to make sense of the world. This view is also reflected in the methods and analysis used within this research; acknowledging there are many narratives or findings within the research. This research, therefore, represents *a* reality, rather than *the* reality. The purpose of this research is therefore to achieve *an* understanding of the research, rather than *the* findings. There is not one truth nor understanding of reality, but there are as many views as there are people. This is discussed

by Fischer (2003), who emphasises that the understanding of reality is undertaken within one's understanding of the world, creating a version of reality.

Fischer (2003) argues that people make sense of new things through a process of integrating new knowledge with knowledge that they already have. New knowledge, therefore, is dependent on the experiences and knowledges that have come before it. This research, therefore, becomes an interpretation of the meaning of results which “at best be relevant only to the particular socio-historical understandings of reality from which they are abstracted” (Fischer, 2003, p. 129). Fischer's (2003) argument is not that there is no point in scientific endeavour, but that researchers need to be reflexive of their position within the research; not as someone that witnesses behaviours and documents it, but as someone who has an active role in creating and interpreting it.

Through the acknowledgement of a constructivist philosophy, it is not possible to remove the role of the researcher in research, and is therefore important to be transparent about beliefs and assumptions (Burck, 2005). Berger (2013) states: “Given that the researcher is intimately involved in both the process and product of the research enterprise, it is necessary [...that...] an author identifies and explicates their involvement and its potential or actual effect upon the findings” (Horsburgh, 2003 cited in Berger, 2013, p. 221). This, however, does not remove the need for researchers to be self-reflective and be mindful of not casting their own views upon the research and strive to continuously assess their own opinions and experiences against those that are taking part in the research (Berger, 2013).

#### **4.6.2. Research Approach**

Reflecting a constructivist epistemology, this section will discuss how this shaped the approach to the research. This research takes an inductive approach; meaning that the starting point of the research will be the collection of data, and interpreting its meaning, rather than applying a pre-existing theory or hypothesis (Flick, 2015). In this approach data is collected and patterns are looked for. An inductive approach refers to “approaches that primarily use detailed readings of raw data to derive concepts, themes, or a model through interpretations made from the raw data” (Thomas, 2016, p. 238). Through combining a constructivist and inductive approach a research approach that looks to understand people's experiences through their social reality emerges.



There are arguments that inductive approaches are a liberal approach to research as they allow the findings to ‘emerge’ without being constrained by a pre-existing framework that is being applied to it (Thomas, 2016). Rather than seeing the findings as ‘emerging’ (they exist in there, it is just a case of finding them), it is a process of them being developed (i.e. someone else might have developed different findings when their knowledge is applied to the situation) (Braun and Clarke, 2006). Although the constraints of a pre-existing framework are removed, it is important to acknowledge the researcher’s way of understanding their data, and rather than allowing the data to speak for itself, there is an important role for the researcher in creating the findings. Rather than resolving to remove any biases, a constructivist approach acknowledges these and seeks to reduce them.

#### **4.6.3. Action Research**

Action research is a participatory approach that brings together practitioners and researchers together whom, in a cycle of action, research and reflection, probe problems and apply these lessons to future interventions (shown in Figure 9). Action research helps to guide a “study of how technology is applied in the real world and the practical consequences of technology-enabled action” (Kock, 2013 n.p.), bringing together action and reflection with theory and practice which is then focussed on solving real-world problems and matters of concern to people (Brydon-Miller et al., 2016). It is an approach that embraces change, and “challenges the claims of a positivistic view of knowledge which holds that in order to be credible, research must remain objective and value-free [...] embrac[ing] the notion of knowledge as socially constructed and, recognizing that all research is embedded within a system of values” (Brydon-Miller et al., 2016, p. 11).

There are three strands of this action research that makes it an appropriate approach for this research: a focus on problem solving with people; a focus on changing things (rather than just witnessing); and its embracing of iterative design and experimentation cycles (Hayes, 2011).

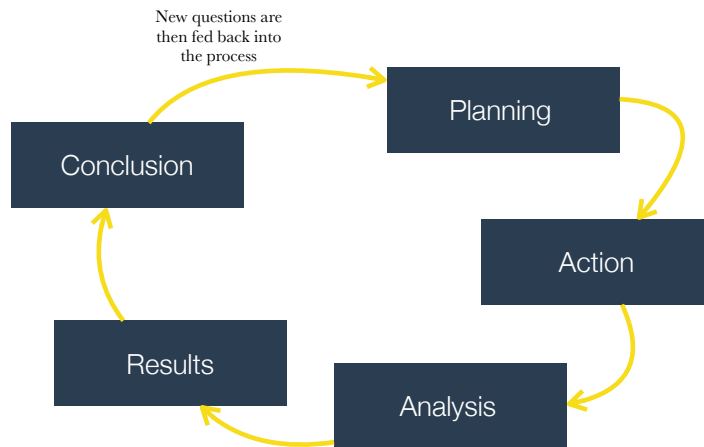


Figure 9: Stages of Action Research

Source: Author

Given the focus of this research is to explore understand the role of technology in participation and using an action research approach, there are some differences in the approach than those usually associated with social science research projects. First, the research topics will pilot technologies within ongoing cases for engagement. The aims of these pilots are to amplify the voices of participants through the methods that are being evaluated – rather than only engaging people in research, they, by choice, also become engaged in the opportunity to participate in both the topic of the research and shaping the technology.

To do this, organisations will be engaged with on the basis that any resulting participation will be fed into their decision-making processes where possible, and that they should engage with the research in good faith. To accomplish this, local authorities were partnered with that have made a commitment to listening and considering the representations and comments put forward. Second, there will be a constant process of feedback and learning between the participants of the studies. Third, the research will be embedded by working closely with a group to understand both their current difficulties with participation, and how different methods could be imagined to more closely align with how they would like to participate.

The overall aim of this research is to explore the role of how new types of engagement can be designed that enhance how citizens experience places, and want to discuss them, and develop an understanding how multiple technologies encourage citizen engagement with

the formal processes of urban planning. Rather than focussing on a single technology and how its design can be changed to encourage meaningful engagement, the aim is to develop and expand a broader understanding of how digital technologies shape, or do not shape, engagement with and through technologies. In order to achieve that, this research takes an approach that opens-up and explores new opportunities for digitally-enabled engagement methods in planning (a town planning project using action research to explore and unpick the different design opportunities for digital technologies, and their consequences, rather than the improvement of a technology with multiple cycles of iteration, that whilst giving a good understanding of that technology, does not provide an understand its broader consequences). This requires the research to be more exploratory in nature, rather than making a specific contribution to how the design of a single technology would be improved.

Furthermore, in designing, deploying and evaluating multiple technologies, the research is able to understand the ways the technologies were used, and the influence they had on the engagement that took place through them. An important distinction between this research, and strictly following the iterative cycles of action research, is that it was used within to develop understandings of how to use digital technologies for planning engagement, and the implications for when/what digital technologies to use, rather than the design of these participation technologies (this is required to come at a later stage, once the broader understandings of the digital technologies in planning are understood). The approach is intended to be exploratory, focusing on the emergent qualities of the technologies and how communities can engage with these, rather than having outcomes on how discrete technologies would be improved.

By using this approach, the research is able to evaluate technologies ‘in the wild’, in contrast to more structured approaches that would require closer observations in more controlled settings. Applying action research in this way does not require the technologies to be designed in advance, but allows the research to be responsive. A more structured experimental approach (to both the design and evaluation of the technologies) provides deeper understandings on the use of the individual technologies but not the space to explore the real-world settings that the technologies are likely to be used within in the future. By engaging with materiality, the research contributes to understanding how alternative technologies can be used in planning-specific public engagement activities,

rather than a more design-focussed enquiry on how the devices' materiality shapes the people's engagement with the technology.

## **4.7 PILOTS**

Pilots will be used to evaluate the citizen response to the technologies. A technology pilot is deploying as technology in a real-world context and exploring how it was used and people's responses to it (Yin, 2013). It is important that the technologies were deployed in a real-world setting whilst discussing matters important to people. Pilots somewhat differ from a case study methodology as prototype technologies will be used and engagement with the pilot will inform the design of future studies. This section will outline why pilots were chosen for evaluating digital technologies and rationalise deploying prototype technologies in real-world scenarios with citizens.

### **4.7.1. Digital Civics & Technologies for Change**

Deploying technologies to support real-world community engagement, activism and consultation activities is an important element of this research. This research fits within the 'digital civics' research agenda which seeks to understand how, through citizens and researchers working together, new methods and systems of participation and service provision can give citizens enhanced power in service provision.

*“Our vision for digital civics is that by working with councils and citizens on locally embedded and responsive demonstrator projects, we can create a participatory imaginary in which both citizens and local government can explore the value of an alternative model of service provision” (Olivier and Wright, 2015, p. 62).*

Digital civics is a multi-disciplinary research approach that combines HCI with several other fields. At the core of digital civics is working with citizens to enhance their role in decision making and exploring how services (such as planning) might be carried out differently. The aim of this research is not to devise a new planning system, nor can it necessarily change how planners carry out participation, instead it foregrounds and demonstrates some of the opportunities that come with engaging with technological opportunities for participation.

Digital civics uses demonstrator projects to understand the real-world implications of civic technologies – sometimes referred to as ‘research in the wild’. “Research in the wild is generally considered as an umbrella term to refer to how, what, and where research is conducted in naturalistic settings” (Rogers and Marshall, 2017, p. 1); with researchers “leaving the safety and security of their controlled, lab-based environments and moving their research out into ‘the wild’” (Chamberlain et al., 2012, p. 795).

#### **4.7.2. Deploying Technologies**

Deploying technologies in real-world context is a common research method within HCI (Chamberlain et al., 2012; Rogers and Marshall, 2017), however, is less common within the social sciences. Pilots are used to evaluate citizen experiences in-situ, and how people “react, change and intergrade [technologies] into their everyday lives” (Rogers and Marshall, 2017 p.x). An action research approach prioritises understanding technologies in the context that they might be used in and to look at some of the real-world implications of using these in real-world situations. Rogers and Marshall (2017) argue that deploying technologies in the wild is a more reliable method for evaluating technologies than lab-based studies. They report on a study by Kjeldskov et al. (2004); using it to argue that the technologies have to fit within a more realistic set of competing demands outside of the researcher’s expectations for how they will be used. They also explore the downsides of evaluating technologies in the wild – that whilst the settings are more realistic, some detail is lost on how people interacted with the technologies due to them not being witnessed in a lab-based environment.

This research will be undertaken through a series of freestanding pilots, where each technological deployment builds upon the previous. Overall lessons from previous studies are fed into the next one, however, the topics of the studies remain distinct and separate. Although these studies are exploring different themes, it is expected there will be understandings that can be taken forward through the research. Taking this approach results in studies that work together to answer a larger research question.

Yin (2013) state several considerations when doing discrete studies, with each project informing the next study. As Yin (2013) discusses, as well as proponents of action research (Avison et al., 1999; Kock, 2013; Brydon-Miller, Greenwood and Maguire, 2016), it is important that lessons are learnt from previous studies. Not emending the research design

to accommodate the findings of previous studies risks “distorting or ignoring the discovery, just to accommodate the original design [...] and that you have been selective in reporting your data, to suit your preconceived ideas” (Yin, 2013, p. 61). The following section will describe how case studies will be used.

### **4.7.3. Bespoke Technologies**

Deploying a technology involves the design and development of a technology, and then giving it to a participant for an extended period of time. Following this, the participants are interviewed to get their thoughts on the technology.

Bespoke technologies are designed to tackle or explore a problem in a specific context. Rather than aiming for a generalisable technology that can be used in many different contexts, bespoke technologies focus on exploring a niche, specific problem (Odom et al., 2016a). As described in the literature review, there is already a good provision of adaptable digital technologies in planning, that whilst they can be used in several general contexts, do not meet the needs of addressing specific problems that are being witnessed in planning (Ertiö, 2015). The bespoke nature of these technologies goes against a common trait in the design of technologies where scalability and mass-market appeal are significant drivers for developing technology (Blythe et al., 2016).

It is hoped that by deploying in real-world place-based issues, the reaction to the technologies will be on the actual technology rather than fictional cases. One of the overriding themes of the research is translation and aligning; understanding whether experiences, feelings and opinions can be translated into real-world action.

The research aims to mix planning up – take it out of the town hall, encourage exploration and put planning in different formats in ways that more closely align to how people want to participate. It does this through the exploration of different formats; how people’s experiences of the built environment can be more closely aligned to how they participate, and how these experiences align with the current planning system.

In order to get these genuine responses (than might be achieved from simply interviewing them), and to understand whether these technologies might be effective in the real-world, technologies were deployed with people within real planning matters. To get insightful

thoughts, Odom et al. (2016a), Chatting et al. (2017) and Gaver et al. (2013; 2016) argue that technologies should have a fit and finish that assists people in thinking they are dealing with a product, rather than a prototype.

Developing bespoke technologies, rather than using ‘off the shelf’ technologies is a well-documented method. Whilst there are advantages to bespoke technologies, such as them being effective in communicating exactly what the researcher wants, they often require significant resources to develop and maintain that will take longer to develop than using ‘off the shelf’ technologies. The purpose of developing these technologies is not to create a ‘solution’, but through speculative and bespoke design, explore some of the forms alternative planning technologies might take.

Chatting et al. discuss the advantages of “highly finished bespoke research products” (2017, p. 435), and how this aids the product’s independence – making bespoke products feel like commercial products, but that would never be made were it not for a research project. A product’s independence means that it is more likely to be the technology being judged honestly and can be used without the researcher being present. There is however a counterargument – that technologies that feel too ‘finished’ do not lend themselves to critique due to them feeling a final product rather than something to critique (Chatting et al., 2017).

Odom et al. (2016a) report on some of the qualities that research products have; *being inquiry driven* (“aims to drive a research inquiry through the making and experience of a design artefact” (Odom et al. 2016b, p. 2551)); has a *finish* that “the nature of the engagement that people have with it is predicated on what it is as opposed to what it might become” (Odom et al., 2016b, p. 2551); its *fit* with the participant’s everyday life (being neither too strange nor familiar); and its *independence* that allows it to be freely used without intervention from the researcher and deployed for an extended period of time.

Designing and creating research products is a high bar, with significant resources required to develop a research product as something that is of the same fit and finish as a commercial product. This research will strive to develop technologies that meet the qualities outlined by Odom et al. (2016a) by focussing on fewer technologies. Chatting et

al. (2017), acknowledge the “constraints of limited budgets, time, equipment, skills and labour” (p. 436) that may make meeting these requirements challenging.

Gaver et al. (2013; 2016) is an advocate of mass-deployed technologies with a large number of people with a high-quality aesthetic that are researcher-independent, stating “it is doubtful that we would have discovered the modest successes [...], had it not been for our approach of running a relatively large-scale field trial based on the batch production of prototypes” (2013, p. 3458). Gaver et al. (2016) acknowledges the concerted effort that mass-deploying research products require (for example, this mass-deployment has a team of ten authors and thirty-two people in the acknowledgements). They acknowledge the costs of such deployments (both in time and money) but argue that the batch deployment of prototypes “allow both more nuanced and more varied forms of interaction to become evident, lead us to believe the approach a valuable one” (Gaver et al., 2013, p. 3458).

Whilst this research is unlikely to be able to deploy technologies on the same scale as Gaver et al. (2013; 2016), the technologies were deployed with as many people as practical. Doing this provides a variety of perspectives on the technologies and a more realistic scenario for how the resulting data might be dealt with.

One commonly overlooked aspect of deploying technologies is the effort, cost and work that goes into designing, making and deploying these technologies (Jarvis et al., 2012; Gaver et al., 2013). Whilst this research is not being conducted to reflect on how to deploy technologies with citizens in civic contexts, some insights will be in the conclusion of the thesis.

## **4.8 RESEARCH PARTNERS**

This section outlines the research partners that will be partnered with throughout the research. In order to achieve the aims discussed below, research partners were engaged with in different organisations for different purposes. When working with partners it is important that they were keen to engage with the issues people find important. Although the partners agreed that the activities throughout the project would be used, it will be difficult to understand the exact impact the comments have. The research partners will be



chosen to avoid ‘window dressing’ (Parker and Murray, 2011), where the comments that were submitted would have no influence on decision making.

An agreement with North Tyneside Council was made early on within the research. They are interested in the common research topics and want to be involved in understand how new methods could be used as well as the results of the research. Later partnerships, such as those with Seven Stories, are engaged with later in the research projects. The research partners are discussed below and will be discussed in more detail within the individual pilot chapters.

#### **4.8.1. North Tyneside Council**

North Tyneside is a metropolitan borough in North East England to the east of Newcastle upon Tyne. Its largest town is Whitley Bay, which is the focus of this research. The majority of the work within this focus is directed towards a recent regeneration scheme along the seafront which seek to enhance the public realm. The area had previously been popular with tourists, but over the past few decades has seen a decline in visitor numbers leading to the seafront area falling into disrepair. In 2015, North Tyneside Council approved plans for a £36 million regeneration scheme, aiming to improve the public realm along the seafront, and, at the core of it, a site known as Spanish City.

Early within the research officials from North Tyneside Council suggested using the technologies that were to be developed during the project as a mutually beneficial way for exploring proposals for the seafront area and providing a real-world case study and using the responses as part of their outreach. They are very keen to understand how they can engage ‘hard to reach’ communities, particularly younger people, and how innovative digital technologies can get them involved. They were also willing to take joint responsibility in advertising for participants, as well as handle some of the administration of the research (such as organising interviews and collecting devices). Reflecting this, much of the involvement with the council was with their ‘Participation, Advocacy and Engagement’ department and officers. There was also involvement with the planning department.

#### **4.8.2. Northumberland County Council**

Northumberland is a largely rural county north of Newcastle upon Tyne.

Northumberland is facing issues associated with its sparse population. Planners from the local authority were involved with the research, providing input on how the methods could be used within real-world planning exercises, as well as assisting with some of the difficulties they are having. They agreed to be involved in analysing the results of the projects, providing a critical perspective on how some of the technologies might be used in practice. Due to the Planning department concentrating on the publication of their delayed Local Plan<sup>13</sup> there were not many opportunities for public participation.

#### **4.8.3. Newcastle City Council**

Newcastle upon Tyne is the largest city in North East England, which grew around the coal trade during the 14<sup>th</sup> century and was later one of the world's largest shipbuilders. It also saw a lot of changes during the 1970s, most notably, a motorway constructed through the city centre. Newcastle attracts a lot of tourists for its nightlife.

Newcastle City Council's involvement during the research was to provide advice on some of the issues they were facing with the practice of planning, such as limited resources (Shaw and Tewdwr-Jones, 2016) and to discuss how they might use the responses during their planning engagement activities.

#### **4.8.4. Gateshead Council**

Gateshead Council is a borough south of the River Tyne. Gateshead Council were engaged with throughout the research, with a team keen to understand how digital technologies could be used to engage their harder to reach residents. During the research there was ongoing engagement and several visits from senior staff to the university.

#### **4.8.5. Seven Stories**

Seven Stories is the national centre for children's books based in Newcastle upon Tyne. The centre hosts regular events, as well as creative writing, illustration and crafting activities. There are also regular exhibitions. Seven Stories were interested in developing a

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<sup>13</sup> <https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Plan/Local-Plan-Intervention-Letter-from-SoS-2017-11.16.pdf>

civic-minded activity for them to host that would engage people in shaping where they lived, but that also built upon the exhibitions in the building.

#### **4.8.6. BALTIC Centre for Contemporary Art**

BALTIC is a modern art gallery on the riverside of Gateshead, alongside the Millennium Bridge and Sage, that opened in 2002. The former flour mill is a prominent art gallery in the north east and hosted the Turner Prize in 2011. The gallery was interested on developing an activity that was to be exhibited during the Great Exhibition of the North.

#### **4.8.7. Metro and Nexus**

The Metro is the second-largest light railway system in the UK, serving Newcastle upon Tyne, Gateshead, North and South Tyneside and Sunderland, with around 38 -million rides per year. The Metro is operated by Nexus (a local transport authority) who were interested in developing methods to engage citizens in designing their new fleet of metro cars (discussed later in more detail).

Table 6 summarises the involvement of the research partners with the technologies. JigsAudio was the most widely piloted technology. There were collaborators, both within the university and those outside of it, who were interested in using the technologies and methods developed during this research, but who were not ‘official’ research partners.

	Twitter	ChangeExplorer	JigsAudio
North Tyneside Council	•	•	•
Northumberland County Council	•	•	
Newcastle City Council	•	•	•
Gateshead Council	•	•	
Seven Stories			•
Baltic			•
Metro and Nexus			•
Internal and External Collaborators			•

Table 6: Summary of Partnerships and Projects

## **4.9 DATA COLLECTION**

To judge participants' reaction to the technologies, the bulk of the methods used within this research are semi-structured interviews and informal observations. The focus of the data collection is to understand how the technologies were used, and the reactions to the them, rather than what people were discussing through the technologies. For example, for a technology deployment used in North Tyneside, the research will not study the issues of the area but how the technology shaped their participation. The comments were reviewed for other reasons insofar as they demonstrated interactions with the technology itself. The results of the technology deployments were analysed, but these were sent to the research partners, rather than going into this research. The following sections will outline how semi-structured interviews will be used alongside observations, and how thematic analysis will be undertaken on the resulting data. A table outlining the data collection and analysis methods used across the pilots is in the Appendix.

### **4.9.1. Recruiting Participants**

Participants were recruited through a joint effort between myself and the research partners to recruit people who choose not to participate in formal planning processes. Opportunities for participation were given to the research partners for them to circulate, and to understand whether they were interested in participating (opportunity sampling). The primary disadvantage of this sampling method is its difficulty in producing a representative sample, however, as discussed earlier, striving for non-biased, representative and generalisable research is not an aim. Whilst the research will try to engage with as many perspectives as possible, due to limited resources, it will not be able to engage with all perspectives.

### **4.9.2. Semi-Structured Interviews**

Semi-structured interviews are “the verbal interchange where one person, the interviewer, attempts to elicit information from another by asking questions” (Longhurst, 2016, p. 143). Semi-structured interviews follow predetermined questions, however, are more conversational than structured interviews and allow the interviewer or interviewee to explore issues that are of importance to them.

Although one of the most common qualitative methods (Kitchin and Tate, 2000), there are questions around the method's validity - usually of the bias that is introduced by the

researcher (Diefenbach, 2008). Whilst this is a common criticism of qualitative research methods, they also exist in quantitative methods, however, “are less addressed and more hidden” (Diefenbach, 2008, p. 876).

Semi-structured interviews are used to explore people’s feelings, uses and experiences of the technology. Interviews were used to allow people to express their views on the technology and discuss anything that they feel is important (structured interviews and surveys do not give this flexibility). The schedule is used to guide the conversation, rather than something that will be rigidly adhered to. The questions will be open-ended and encourage participants to be critical of the technologies and realistic about their whether they would use it in the future.

The interviews took place somewhere that is convenient to the interviewee – usually close to their place of work, home or to a commitment they had nearby. Rather than meet, for example, at the council office, the interviews will be conducted somewhere ‘neutral’, such as a quiet meeting space or café (Longhurst, 2016). A few of the interviews, particularly those with the senior practicing planners, were conducted over the phone due to their time constraints.

#### **4.9.3. Technology Observations**

Bannon argues that as the role of technology changes from one person and one computer to computers in society, so must our methods of understanding it, with “a shift from a psychological to a sociological perspective on human work and activity, emphasizing field observation methods rather than lab studies” (Bannon, 2011, p. 52). With this in mind, the methods stem from conducting research ‘in the wild’, rather than in the controlled environment of a lab. This is sometimes a messy process; it is difficult to ask people to complete surveys and questionnaires when they are busy (Baker et al., 2007). Undertaking field studies helps account for “complex, realistic settings” (Goodspeed, 2015a, p. 450) within which the technologies might ultimately be used, and “provide a particularly important complement to experiments and surveys” (Goodspeed, 2015a, p. 450) where “real-world participants are much more diverse than students (the typical experimental subjects)” (Goodspeed, 2015a, p. 450) .

Systematic observations of field studies alongside other methods will be undertaken. Ethnography and observations are commonly used in anthropology when the underlying research question is of “understanding actions, roles and behaviour” (Walshe et al., 2011, p. 1048) that helps to unpick these roles – “an interview allows someone to say what they do; an observation allows you to see directly what someone does” (Walshe et al., 2011, p. 1048).

For these reasons participant observations were used, which is “a way to collect data in naturalistic settings by ethnographers who observe and/or take part in the common and uncommon activities of the people being studied” (DeWalt and DeWalt, 2011, p. 2). As discussed by Spradley (2016), it involves eight stages that include descriptive observations to get an overview, narrowing the research and focussing the observations, and analysing and reporting the results. Informal discussions with the participants will be conducted where there is an opportunity. Field notes of the observations and informal discussions will guide and inform later interviews.

#### **4.9.4. Recording and Transcribing**

The interviews were audio recorded. Before the recording began participants will be asked to confirm they were happy with being recorded. Audio recording the interviews allows the researcher to concentrate on the conversation, rather than note taking. As recommended by Longhurst (2016), notes were taken on the tone of the conversation, as well as any moments of the interview that stood out. The audio recording were transcribed shortly after the interviews, and information that could identify the interviewee will be removed. Following transcription they were imported to NVivo (a qualitative analysis software package for text and multimedia-based data) and analysed using thematic analysis.

Both the audio and text data from the interviews are kept confidential. Recent changes in research council funding has meant that interview data is available to be requested, therefore, only anonymised (removed any data that mentioned the interviewee, other people, or places that would make them personally identifiable) were added to the repository. The data protection protocol of this research is discussed towards the end of this chapter.

#### **4.9.5. Thematic Analysis**

Thematic analysis is a method for analysing qualitative data “for identifying, analysing, organizing, describing, and reporting themes found within a data set” (Nowell et al., 2017, p. 2). Whilst there is no single method for undertaking thematic analysis (Nowell et al., 2017), there are widely accepted guidelines on how it should be undertaken (for example, Braun & Clark’s (2006) or Nowell’s (2017).

The advantages of thematic analysis include ability to highlight differences and similarities between research participants and its ability to summarise significant features in research data (Braun and Clarke, 2006; Nowell et al., 2017). Thematic analysis a flexible approach which can accommodate a number of theoretical perspectives and epistemological stances. The freedom of thematic analysis, however, can lead to it being applied inconsistently, however, this can be reduced by “applying and making explicit an epistemological position that can coherently underpin the study’s empirical claims”(Nowell et al., 2017, p. 2).

The thematic analysis process, outlined in Braun and Clark’s (2006) has six phases, which is a widely recognised process for undertaking thematic analysis. The six steps broadly involve the researcher making themselves familiar with the data through several readings and coding features within the corpus. Once these the researcher feels they have coded the corpus they are grouped together in themes, seeking to understand how the codes might related to each other. These themes are then reviewed to ensure they accurately reflect the corpus, and if so, a summary for each theme is written. The findings are then brought together by writing the final analysis of the themes, which must be convincing of its validity, tell a narrative as well be evidenced. Within this research, the themes are semantic-based, with inductive thematic analysis used to generate themes from the data. It should be noted here that the methods employed for the Twitter case study were different to the other studies. Rather than discuss the Twitter project alongside the others, the specific methods employed for the Twitter study will be discussed within that chapter.

The thematic analysis was undertaken using NVivo which works as a tool for organising qualitative data. NVivo allowed the tagging of data, in this case text, for organising and later analysis. The software supports thematic analysis through allowing reports to be

generated on the data. A list of the codes generated through these processes, and themes they contributed to, is in the appendix.

Undertaking inductive thematic analysis across all the case studies allowed the discussions from all of the case studies to be analysed separately. This allows the issues and results of each technology to be driven by the study, rather than driving an overall finding for the entire research.

#### **4.9.6. Bringing the Findings Together**

The findings from each of the case studies will be brought together at the end of the thesis. Rather than describing the findings of the pilots individually, it will describe the themes raised with digital technologies across all the case studies. The aim of this research is not to produce a series of case studies that can be easily compared, the case study’s findings will also be thematically analysed to understand where the commonalities and differences between the studies exist, which will be understood to answer the overall research questions.

#### **4.9.7. Summary of Methods**

This section provides a summary of the methods used across the research. As discussed earlier, the methods used are common across the study. Table 7 shows the methods used across the research, with semi structured interviews and inductive thematic analysis being used throughout all of the studies except Twitter

	<b>Twitter Project</b>	<b>ChangeExplorer</b>	<b>JigsAudio</b>
<b>Data Collection Method</b>	Automated scraping of Twitter data	Semi structured interviews	Semi structured interviews and observations of technology
<b>Data Analysis Method</b>	Inductive thematic analysis	Inductive thematic analysis	Inductive thematic analysis

Table 7: Summary of Data Collection and Analysis



## **4.10 LIMITATIONS OF METHODS**

Whilst the methods proposed for this research are commonly used within the social sciences (Clifford et al., 2016) this section will briefly reflect on some of the weaknesses of relying on the qualitative methods chosen.

### **4.10.1. Self-Reporting on Experiences**

Whilst qualitative methods are useful for discussing a variety of complex opinions, experiences and feelings towards topics, they do rely on people reporting on what they have done, rather than what they actually did” (Clifford et al., 2016). Given this, the methods rely on what people report rather than their actual experience. Whilst the observations of some of the technologies will assist the research in understanding how people used the technology, a reliance on interviews will mean that the majority of the reports on the technologies will be on participants reporting on their experience.

In addition, the questions and analysis methods and viewpoints of the researcher will have a bearing on what is reported on (Diefenbach, 2008). Whilst efforts will be made to ensure that what is reported on is the views of the participants, as discussed in the previous sections, it will be difficult to ensure this.

### **4.10.2. Depth not Breadth**

Undertaking semi structured interviews is a time-intensive method (Clifford et al., 2016) and limits the number of people that can be engaged with by a single researcher during the research project. What the method makes up for, however, is being able to understand in depth people’s feelings towards a topic (Clifford et al., 2016). The number of people that need to be engaged with to achieve ‘saturation’ is somewhat of a misnomer (O’Reilly and Parker, 2012; Marshall et al., 2015) – instead this research will get as many perspectives as possible on the piloted technologies.

### **4.10.3. Selection Biases**

The methods used rely on people being willing to participate in the research, and interested enough to take part in a study exploring future participation methods (Barriball and While, 1994). All studies, except the Twitter study, rely on people dedicating time to be a part of research projects. Relying on people choosing to participate in the research is

likely to influence the type of person that is involved; those that are already engaged with having a voice in local matters are more likely to be interested in enhancing their voice.

Given this, the research aimed to engage with people that do not usually participate in planning, but whom have an interest in participating, and are either not currently involved and would like to become more involved.

#### **4.11 ETHICAL CONSIDERATIONS**

As the domains of social science and HCI research engage with social and civic contexts (Taylor, 2011), so too must the researcher's attention towards ethics (Bruckman, 2014). The ethical considerations of research need to be considered beyond an institution's formal rules and processes and needs to be embedded in one's study design. Bruckman (2014) reports on three risks of HCI research: where there is potential harm to research participants; disturbing environments within which the study takes place; and consequences for the institution if ethical violations occur.

As this research involves human subjects there are important considerations and precautions that must be taken. These include "privacy, confidentiality, consent, [understanding and reducing] harm and risks, trust and authority" (Munteanu et al., 2015, p. 105). To minimise these, policy statements have been established, such as the Association of Social Anthropologists of the UK and the Commonwealth's Ethical Guidelines for Good Research Practice (Association of Social Anthropologists, 2011). In order to ensure these guidelines are followed, the commitments to participants are they are discussed below.

##### **4.11.1. Responsibilities Towards Research Participants**

The primary responsibility is towards participants, whose rights should come first (Association of Social Anthropologists, 2011). The research they are being asked to undertake should not put them at risk, including their "physical, social and psychological well-being [...] and to respect their rights, interests, sensitivities and privacy" (Association of Social Anthropologists, 2011, p. 2). Several steps were taken to achieve this.

The researcher must minimise any potential harms participating in the research may cause; to both the individual and to the group that is being reported on, even when data is anonymised. This is likely to be particularly sensitive when dealing with vulnerable people, or with religious or ethnic minorities. If there is potential harm to these groups, it will be necessary to either not conduct the study, or not publish data. It is also important that researchers consider what participants might not be willing to share, and the harm that might be caused from enquiring about difficult subjects.

One step to minimise these risks is to achieve informed consent. Informed consent relies on the participants being given enough information to make a judgement as to whether they want to participate in the research. This information should include: the purpose of the study; the consequences of taking part; the possible benefits and harms; how the data is going to be stored and who will have access; and the confidentiality of published data (Association of Social Anthropologists, 2011). They must have the legal ability to give consent and should not be coerced or required to participate in any piece of research. All this information has to be balanced with the amount of information that is given to participants; too much information is likely to mean they will not read it (Munteanu et al., 2015).

A further step to minimise the risk to participants is to ensure that their right to privacy and confidentiality. These threats should be predicted, and appropriate measures should be taken. This includes the use of pseudonyms, removal of personally identifiable information, and where this might not be possible, make it clear to participants that this is the case. In line with enhancements in data protection introduced with the General Data Protection Regulation<sup>14</sup>, several precautions will have to be taken.

The considerations outlined above must be considered throughout the research rather than just at the beginning. Once the ethical considerations have been considered, it is important they are continually assessed, and changes are made to the research procedures to consider any potential risks.

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<sup>14</sup> <https://eugdpr.org/>

To ensure that the responsibilities towards the participants were fulfilled, a number of steps were undertaken. These measures were continually reviewed to ensure the obligations outlined above were met. These are outlined below:

#### **4.11.2. Information Sheets and Consent Forms**

Information sheets will be given to anyone who has expressed interest in taking part in the study. The information sheets will include: details on the research project; what participation would involve; state that participation is entirely voluntary and can be withdrawn from at any time; how data will be collected, stored and used; and contact details (both the main researcher and supervisor).

Once someone has read the information sheet, had any questions answered, and want to participate with the study, they will sign a consent forms that outlines their willingness to take part in the study. The consent forms will be used to confirm: that participants have understood the information sheets; have been given an opportunity to ask questions; agree to take part in the study; aware of procedures for research data; that participation is voluntary and can be withdrawn from at any time; agrees to have an audio-recorded interviews; and whether they want to receive copies of the published results. These are done through a series of statements that the participants can choose to agree to. The forms are then signed by both the participant and the researcher.

Examples of both the information sheet and the consent forms are in the Appendix. The forms were amended depending on the type of activity the participant was interested in taking part.

#### **4.11.3. Data Protection and Storage**

Information collected during the research was stored to minimise any risk of participant data being shared beyond the research team. To do this a number of steps were taken. The collection of personally identifiable information was reduced by not collecting it in the first place.

All primary collected digital data (quantitative and qualitative) will be stored at secure servers at Newcastle University, with only the primary researcher and project collaborators having access. The university maintains systems and policies for the secure

backup and storage of electronic files. Any electronic or hard copies of data held in offices will be securely stored in locked cupboards and offices to which only research team members will have access. All the data servers used are fire-walled against external access and run anti-virus and anti-malware software.

Interview data was anonymised during transcribed and real names kept in a separate document. During the research a requirement to share research data was introduced. Later consent and information forms addressed this; stating the possibility that anonymised research data might be shared for research purposes.

#### **4.11.4. Formal Ethical Processes**

All of the ethical procedures for the university were followed for the individual projects. JigsAudio presented different ethical considerations due to the range of projects it was being used within. To do this, the formal ethical procedure will be followed for each individual project the technology was used within rather than one large ethics application which would not be able to sufficiently detail the ethical considerations of both the project it is used within and the ethical considerations<sup>15</sup>.

## **4.12 CHAPTER SUMMARY**

This chapter introduced the research's approach by outlining how it will design, deploy and evaluate civic technologies through three technology pilots. It began by building a case for designing technologies, by discussing other's approaches to designing technologies in research, and the overriding design approach to the technologies. It outlined how the technologies will be deployed with research partners, citizen participants to understand their use of the technology, and with planners to understand their interpretation of the technology.

It discussed how, by combing approaches in the social sciences and HCI, the technologies will be evaluated through interviews and observations. The data analysis methods were discussed, as well the ethical considerations and implication of undertaking research with people.

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<sup>15</sup> For example, the ethical procedure for JigsAudio's use within the Metro Futures project was handled within the Metro Futures ethical procedures for that project, rather than including Metro Future's deployment within JigsAudio's ethical procedure.

The following three chapters describe the piloted technologies in turn, later returning to a discussion of the factors at play across all of the technologies. Rather than compare the technologies, the discussion chapters will explore how the different technologies changed participation and its implications in different ways.

# 5

## **Twitter: Understanding Existing Platforms for Participation**

Introduction

The Changing Role of  
Citizen Participation in  
Planning

Human Computer  
Interaction, Town  
Planning & Participation

Methodology and Technology Pilots

Twitter

Change  
Explorer

JigsAudio



# 5. Twitter: Understanding Existing Platforms for Participation

## 5.1 INTRODUCTION

This chapter explores the potential of networked digital technologies in offering new opportunities to tackle some of the earlier barriers to participating (Evans-Cowley and Hollander, 2010). There has been a recent focus on how social networking technologies can reconfigure the relationships between citizens and their governments (Le Dantec et al., 2015), leading to a fundamental change in how public participation takes place (Batty et al., 2012). It does this by engaging with three topics: the use of interactive internet technologies, the extent to which there is a dialogue about planning, and whether Twitter is a suitable platform for lightweight participation. Rather than requiring engagement with traditional methods of town planning, there are opportunities for place-shaping without formal participation methods through social media (Evans-Cowley and Conroy, 2010; Wright, 2012). This research focusses on the type of place-related discussions taking place online that might be used to both understand place experiences, judge their relevance for planning, and determine whether it provides the necessary attributes to facilitate participation (Bugs et al., 2010).

Before designing new participation methods, it is beneficial to understand how existing technologies for discussion, such as social media, are used (Bugs et al., 2010). If useful discussions already take place on Twitter, it could be a candidate for use in current decision-making processes obviating the need for a specific planning participation technology, as well as helping to understand how people discuss place outside of formal processes. The chapter begins with a supplemental literature review to provide context on the use of social media and politics. It then seeks to understand the type of discussion that is already taking place on social media through the analysis of a corpus of tweets and a virtual drop-in. Lastly, it discusses Twitter's implications for participation and whether Twitter might be useful in engaging fresh perspectives in planning.

## **5.2 CONTEXT**

This section documents how location-based political talk (that is, talk whilst in a location or talk about a location) around the built environment takes place online, and its implications for participation. To achieve this, it examines location-based technology and models of informal participation to recognise views and experiences of places that do not feature within the formal planning system (Evans-Cowley and Conroy, 2010).

### **5.2.1. Social Media, Planning & Politics**

As described earlier (Chapter 4), the Internet, which was previously a broadcast or publishing medium, is now increasingly interactive and participatory – with static webpages giving way to those that are more dynamic and interactive characterised by interactive websites and emphasising user-generated content through social media (Kingston et al., 2000; Haklay et al., 2008). This has led to a shift in how people used the Internet – rather than people only reading other people’s content, people can now create their own (Wright et al., 2015). In planning, this has meant many more people being vocal about changes, challenging both the decisions that are made and the conventional methods of communication between citizens and decision makers (Fredericks and Foth, 2013).

Following the growth of social networking<sup>16</sup>, its role in contemporary discussions and debates for different topics has been explored (Seltzer and Mahmoudi, 2012; Wright, 2012; Gautam and Yadav, 2014; Brooker et al., 2015). There are calls from researchers for practitioners to engage with it, stating; “if planners do not take up the technology to engage their citizenry, the citizenry are looking to take it up to engage the planners” (Williamson and Parolin, 2012, pp. 60-61) – reiterating the need for planners to find ways to engage with citizens on their terms, rather than to only recognise formal discussion. Although social media is widely discussed as allowing for a ‘new type of politics’, where power-holders are held to account in a new style of democracy, the reality of social media’s transformation of local politics and decision-making is less stark (Skogerbo, 2014), with little evidence of its influence on planning (Williamson and Parolin, 2012). There is

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<sup>16</sup> 69% of woman and 60% of men who have the internet use it for social networking (ONS, 2018)

little examination on how discussions take place on Twitter, and whether it can be used to facilitate and encourage participation.

Research has engaged with informal discussions between citizens on Facebook to organise and campaign for change in places (Crivellaro et al., 2014). Informal discussions on social media have been characterised as being a ‘third place’: “a public space beyond the home or workplace where people can meet and interact informally”, (Wright, 2012, p. 8) where the boundaries between politics and conversations are blurred (Wright, 2012). These discussions can “strengthen community ties through social interaction [and] foster commitment to local politics via informed public discourse” (Soukup, 2016, p. 423) and promote more open discussion. Dahlgren et al. (2006) emphasise the vital role of these discussions, arguing that “clinging too rigidly to formal deliberation risks losing sight of everyday talk and its potential relevance for democracy” (p. 278). Graham (2015) suggests that online space can “transcend the limitations of time, space and access” (p. 248), which is “essential for (a more deliberative) democracy” (p. 3).

Wright (2012) contends there is a lack of attention to informal online political spaces and that these discussions “must be grounded in the everyday life” (p. 16) and value “broader forms of communication including emotions, humour, rhetoric and private (not just public) issues when conceptualising political talk” (p. 16). Although Twitter has been explored for socio-political talk, there is little work on its relevance to changes to the built environment (Evans-Cowley and Conroy, 2010; Batty et al., 2012), and how influence is had through these technologies which serve to disrupt the processes through which place-based discussions are had (Fredericks and Foth, 2013).

Planning (in its formal capacity) has had limited engagement with social media – where it is simply used to share information by planners, characterised as a “monologue communication rather than responsive dialogue” (Evans-Cowley and Conroy, 2010, p. 89) echoing earlier uses of the internet. There is a preference for sharing decisions, rather than generating discussion and seeking input. In the United States, 3% of local planning authorities establish a mutual dialogue through Twitter, although many state they aim to do this in the future (Evans-Cowley and Conroy, 2010). There are no similar studies in the UK. If planners do genuinely plan to engage with social media (as outlined in Evans-Cowley and Conroy (2010)), this work becomes important to understand the types of

conversations that are taking place, the extent to which they can inform the process of planning, and how Twitter might be practically used in the future.

There is little evidence in the UK of planning authorities taking up discussions through Twitter – although many use Twitter to voice concern, these are not taken into account (Graham, 2015). The opportunities for planners to explore new engagement methods is also hampered during austerity (Shaw and Tewdwr-Jones, 2016) where there is an overriding aim to reduce operating costs (Andres, 2012). Whilst there is a wealth of discussion taking place on Twitter, there is a less recognition of the discussion of local issues (Skogerbo and Krumsvik, 2014) that have been explored for their relevance to planning.

### **5.2.2. Location-Based Discussions**

The ‘geospatial web’ is the merging of geographic information with content, which is a growing research area alongside the growth of big data and new data analysis methods (Haklay et al., 2008). The data generated through geospatial tools has led to a range of uses and contexts in research projects from the real-time observation of earthquakes (Sakaki et al., 2010), floods (Saravanou et al., 2015), hurricanes (Smith et al., 2016), and influenza epidemics (Culotta, 2010), and for its value in predicting election results (Tumasjan et al., 2010). Other work has taken a thematic approach (non-spatial) to understanding the use of Twitter, such as observing how citizens discuss political issues (Crivellaro et al., 2014; Brooker et al., 2015; Wright et al., 2015), such as Bertot et al. (2010), who discuss its opportunities for increasing the role of citizens in decision-making processes.

Crivellaro et al. (2014) observed how a Facebook group facilitated a local group aiming to re-open an outdoor pool. The researchers witnessed the role of stories and memories of the pool during its heyday in prompting discussion and debate, which then led to formal political action. They considered the role of everyday talk in understanding how the group blurred boundaries between the social and the political, finding new opportunities to conceive political discussion in everyday life. Difficulties arose, however, when attempts were made to translate the discussions in actions that would be understood by decision-makers.

Brooker et al. (2015) observed Twitter conversations around a British television programme ‘Benefit Street’. Through qualitative analysis of tweets identified by a hashtag they examined how the discussion of the show led to political talk. They discuss how topics raised on the programme led to talk around the politics of public spending, as well as the show’s portrayal of its subjects and its perceived objectiveness. A difference was demonstrated between kneejerk reactions posted during the show and the more nuanced conversation outside the broadcast time. This supports Wright’s (2012) argument that rather than judging an entire platform, there needs to be a deeper understanding of the role of Twitter in facilitating socio-political discussion. Rather than simply understanding how Twitter facilitates discussion, it demonstrates the importance in understanding type of discussion and how it is shaped by factors outside the platform.

More recently, Twitter has been criticised for facilitating an echo-chamber of discussions, where through algorithms, engagement with the platform is encouraged by showing personally agreeable content which entrenches views and can polarise opinion (Colleoni et al., 2014). This type of discussion has been criticised for leading to a level of debate where people “focus on their preferred narratives [and] users tend to assimilate only confirming claims and to ignore apparent refutations” (Quattrociocchi et al., 2016, p. 1). Furthermore, the growth in social media has also led to increasing spending on these platforms for advertising and political campaigning (Cadwalladr, 2017).

### **5.3 EXPLORING THE USE OF TWITTER**

Twitter is an online social networking and microblogging platform (Kwak et al., 2010) that can be accessed through its website (twitter.com) or dedicated mobile applications. Users can follow people or be followed, with this relationship not having to be reciprocal (people do not have to follow each other<sup>17</sup>). When a user posts a message (a ‘tweet’) their followers see the tweets on their timeline. During the time of the study the length of tweets was limited to 140 characters, with the limit in 2017 raised to 280 characters (Kastrenakes, 2018).

There are a few common practices and functions of Twitter users. The first is replying to a user, where an ‘@’ is used before a user’s name to address the tweet towards someone.

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<sup>17</sup> This differs from other social networking sites where people become ‘friends’ with each other – two people must become ‘friends’ and their relationship is reciprocal.

Hashtags ('#') can be used to define the topic of the tweet or add context to a tweet. Retweeting ('RT' at the beginning of a tweet, or the later introduced 'retweet' button) a tweet means that a user has chosen to share someone's tweet to their followers. The author of a tweet can view analytics of their tweet, such the number of impressions and engagements with the tweet. Users can also add their location to tweets, which was used within this study to identify where the user was tweeting from. Twitter is seen as a public discussion, where tweets are public by default, rather than a more intimate social network where comments are between friends (Colleoni et al., 2014).

Previous work has assessed online discussions through the analysis of tweets identified by a hashtag (Brooker et al., 2015). Rather than doing this (noting work by Palen et al. (2009) on the difficulty of knowing 'where to look'), all the geotagged tweets were collected within the city. Contemporary understandings on what constitutes a third space rely on talk that is non-political in focus, but from which political talk emerges (Wright, 2012) and "can materialise even in unexpected contexts of daily conversation" (Wright et al., 2015, p. 11). By collecting all the location-based public tweets, it could later be decided whether it was planning-related. It was important to capture any relevant discussions, rather than only those someone had linked directly to planning.

The shortcomings of using Twitter include the relatively low proportion and unrepresentativeness of users of the general population (Sinnenberg et al., 2017) – there are 15 million users in the UK, 23% of the overall population, but 65% are under 34 years old (Warren Knight, 2016). There is a low percentage of geotagged tweets, around 0.77% in some studies (Hecht et al., 2011). Over the two and a half years of data collection, 6.3 million tweets were collected. Twitter usernames were removed for analysis, and modifications are acknowledged with square brackets. The user cannot be identified by searching for the tweet<sup>18</sup>. All tweets were shared publicly.

Exploring the use of Twitter in planning involved two approaches to the research: working with planners to try and engage people in planning through Twitter, and understanding whether the discussions taking place might be used within planning.

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<sup>18</sup> Due to changes in Twitter's API that limits searching historical tweets

The first documents an engagement with Gateshead Council, which was undertaken to understand whether Twitter could be used to increase participation with their draft Development and Allocations Plan. The aim of the drop-in was to understand how Twitter was used when the conversation was provoked, being an active part of it, rather than witnessing it. During the ‘Twitter Drop-In’, followers were asked open questions in plain English and were given opportunities to respond with further questions on the allocations plan. The drop-in took place over two hours in the evening with three policy planners and a representative from the council’s public relations department.

The second analyses the types of discussions taking place on Twitter, seeking to understand the relevance of these. To do this, the tweets discussing Tyne and Wear’s Metro system were analysed as a place where people regularly use Twitter to discuss place. Here Twitter’s streaming API<sup>19</sup> was used to collect geotagged tweets using a bounding box<sup>20</sup>. Tweets were collected between December 2014 and August 2016. The bounding box was drawn to include the north east conurbation.

### **5.3.1. Twitter Drop-In**

To explore planners’ responses to Twitter, a drop-in session was undertaken with planners to gauge their responses to using it as a consultation tool. Officers at Gateshead were interested in engaging new people and saw a potential for using Twitter as a tool to facilitate this dialogue. Over seven months, an engagement activity was discussed and planned around consultation for their land allocations plan (which takes broader allocations in their local plan and identifies specific sites (Ministry of Housing, 2019)). This ended in the decision to stage a virtual drop-in on Twitter.

The drop-in was advertised within the local authority’s monthly magazine, which is distributed to households in the borough, on public display screens in local authority properties and on their website, Twitter and Facebook profiles. During the drop-in there were sixteen local authority tweets and nine replies. There were 10,999 impressions of the tweets, 337 engagements (people opening the tweet for more information) and 58 link

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<sup>19</sup> An API (Application Programming Interface) allows two pieces of software to interact with one another. In this case, the script for scraping Tweets interacted with Twitter to request tweets and their locations within a bounding box.

<sup>20</sup> A bounding box is a series of points that forms a shape. The area within this shape then becomes the area within which data which is requested.

clicks to the council's proposed land allocations. Replies were prompted by open questions, such as “#Gateshead is committed to building 11,000 new homes – but what type of home should we build? And for who? Tell us now...”.

The questions were about the provision of new housing, transport improvements and the proposed allocation for specific sites. Whilst the number of replies was low, the number of people engaging with the tweets and viewing the council's website was much higher. It appeared that whilst there was interest in the discussion that was taking place, there were fewer people that were actively engaged, and many were just looking at the discussion that was taking place.

A conversation between Gateshead Council and a local resident can be seen in Figure 10. It demonstrates how Twitter allowed someone to ask for a detailed plan, and to seek clarification on the process, but as can be seen from the discussion below, it involved more clarifications than it did substantive comments on the proposals. It illustrates some of the difficulties in having technical discussions with people as well as the difficulty in communicating complex policy directions. There were a lot of clarifications and questions throughout the activity similar to these, and whilst it demonstrated an interest in planning, it did not provide comments that could be easily integrated alongside other comments collected through more traditional means. The conversation also highlights the difficulty of being able to answer all the questions asked during these real-time methods.

**Gateshead Council** “#Gateshead is committed to building 11,000 new homes – but what type of home should we build? And for who? Tell us now...”

**Resident** “Hi how many new houses are going to be built in Crawcrook there are two new developments already under way - are there anymore planned and how is the village infrastructure going to be able to support the new housing developments in terms of schools, transport, road congestion”

**Gateshead Council** “Good question! We'll be right back with an answer very soon...”



- Gateshead Council** “There are plans for around 356 new homes in Crawcrook, including 53 affordable. Over £800k on transport and infra improvements plus £700k school improvements. Also over £230k in natural environment improvements, all developer funded.”
- Resident** “Can we have details of these transport improvements? And a guarantee they will happen before the houses are complete? Ryton/Blaydon roundabout is a nightmare now made worse because of previous improvements”
- Gateshead Council** “Thanks for your question. Improvements will happen progressively throughout the development and should be complete by the time these homes are finished. This includes Blaydon roundabout and other junctions on A695.”
- Resident** “So there are no details or timescales as yet? Do we know when there will be? Thanks”
- Gateshead Council** “If you DM us with your contact details we will find out more and let you know - we'll need to look this up. Thanks for your question.”

Figure 10: Twitter Discussion Between Gateshead Council and Resident

The drop-in was viewed as a success by planners, who reported that an earlier conventional drop-in had two visitors despite spending the entire day at a local library. The planners saw this as a much more effective way of reaching more people, stating that the resources and planning for the Twitter drop-in were significantly less than conventional methods. However, there was difficulty answering all of the questions. For example, some questions were not directly related to the proposals, such as an update on the development of a housing site. The person responsible for these developments had left for the evening so an update could not be provided immediately as was planned during the drop-in.

Despite the relatively low number of people engaged, planning and undertaking the drop-in led to interesting and informative discussions that would have otherwise been difficult. The exercise highlighted some of the tensions in adopting a place-based focus. Following the drop-in, the research engaged with the wider discussions on Twitter.

### **5.3.2. Understanding Place Discussions on Twitter**

This case study aims to identify whether place-based comments can be identified to inform decisions making. To do this, the research reflects on a corpus of tweets that were manually coded for their relevance to planning. This data was then used to train a machine learning algorithm with the hope it would be able to find planning-related tweets and present them to planners to give them an understanding of the planning-related discussions taking place.

First, the tweets within the corpus were selected randomly and assessed for relevance to place or town planning-based discussions using a tool developed within Newcastle University which presented the researcher with a tweet and allowed them to categorise it. One of four categories were chosen; whether the tweet discussed a planning issue, discussed a location or place, discussed neither, or appeared to be an automated or spam tweet. The categories, example tweets and their frequency are shown Table 8. 11,293 tweets were analysed, with only a small proportion being matters of town planning (the Tweets from the drop in were not included due to them being requested rather than taken from an existing conversation). The distinction as to whether a tweet discussed a planning issue was judged on whether it discussed a ‘material consideration’. The researcher had experience working within a local authority as a town planner previously and was therefore able to ascertain the type of comments that would be fed into planning decisions.

The tweets that identified either place (C<sub>2</sub>) or planning issues (C<sub>1</sub>) were then coded inductively using NVivo. These were then thematically analysed through an inductive thematic analysis of the corpus, as detailed by Braun and Clarke (2006).

Using the coded tweets, attempts were made to automatically categorise the entire corpus using a naive Bayes classifier within the Natural Language Toolkit. There was difficulty in getting the classifier to reliably identify these. Whilst the classifier was reporting with high accuracy, planning-related tweets were not reliably identified. Attempts were made to refine the classifier, but it was determined the variety of topics meant the features of a planning-related tweet could not be reliably identified. It was found to be accurate at finding tweets relating to topics such as weather or traffic but struggled with the variety of

language and words used to describe place and planning issues. These difficulties will be reflected on within the discussion.

As demonstrated in Table 8, most of the tweets were neither place nor planning related (C3, 89.3%). These were typically non-place related tweets which had been geotagged, rather than those discussing the place they were geotagged in. Most of the tweets were focused around the city centre of Newcastle, the surrounding suburban centres and the transport routes; discussing transport issues, the nightlife of the city and the local football team.

<b>Category (Example Tweet)</b>	<b>n</b>	<b>%</b>
<b>C1 Discussed a Planning Issue</b>		
(“living next to a river isn’t always great... when it decides to flood!!!!”)	382	3.4
<b>C2 Discussed a Place</b>		
(“so in the last few weeks theres been 2 stabbing near to where i live..well i feel safe”)	540	4.8
<b>C3 Discussed Neither Place nor Planning Issue</b>		
(“the coffee machine ate my money that is not fairtrade!!!”)	10,088	89.3
<b>C4 Automated or Spam</b>		
(“wind 9 mph n. barometer 1002.4 hpa, rising...”)	283	2.5
<b>Total</b>	<b>11,293</b>	<b>100</b>

Table 8: Summary of codes in each category within the corpus

Whilst it was challenging to automatically identify planning-related tweets, it remained useful to understand the type of discussions taking place about place-related topics. As discussed in the next section, the tweets were analysed for their content. The corpus was interrogated to understand whether Twitter could be used to gain an understanding of people’s thoughts on the Tyne and Wear Metro, and how people used Twitter to share their experiences and feelings. The aim was to understand whether there was an ongoing discussion about the Metro, and whether these discussions could provide a better understanding of how places and experiences of the Metro might take place. When discussing people’s everyday life and experiences transport is regularly raised (Law, 2016).

Whilst not explicitly within the domain of planning, the Metro provides a host of place-based discussions and comments.

The Metro, which opened in 1980, is a light railway system that connects and serves Newcastle upon Tyne, Sunderland, North and South Tyneside and Gateshead (Nexus, 2019a). In 2016/17, 37.7 million trips were made on the Metro (Nexus, 2017). The Metro has two lines, one line runs between Newcastle Airport and beyond Sunderland (via Newcastle, Gateshead and Sunderland), and the second between St. James' Park (Newcastle City Centre Football Stadium) and South Shields (via North Shields, Whitley Bay and Tynemouth).

### **5.3.3. Analysing the Dataset for Metro Tweets**

Tweets were randomly reviewed within the corpus. The relevance of these to the Metro was reviewed and common traits of the Metro-related Tweets were identified. To find the tweets that related to the Metro a combination of common keywords and location-based searches were made on the dataset. Within the corpus 9281 tweets were related to the Metro system. A small proportion of these tweets were found to not discuss the Metro (the transport system) but discuss the Metro Centre, Metro Radio Arena, Metro Radio or the Metro Newspaper.

3913 different people tweeted about the Metro (with each person within the corpus posting an average of 2.4 tweets). Over a quarter of the tweets were written by thirteen people. Figure 11 shows the spatial distribution of the tweets with a concentration around the stations and routes the Metro takes. Whilst there is a concentration around the Metro Centre (in the south west of the map) the other points outside of the Metro map were found to be discussing their routes involving the Metro, or discussing the Metro, and are not necessarily errors. For example, people discussed Metro's funding, delays or difficulties whilst not on the Metro.

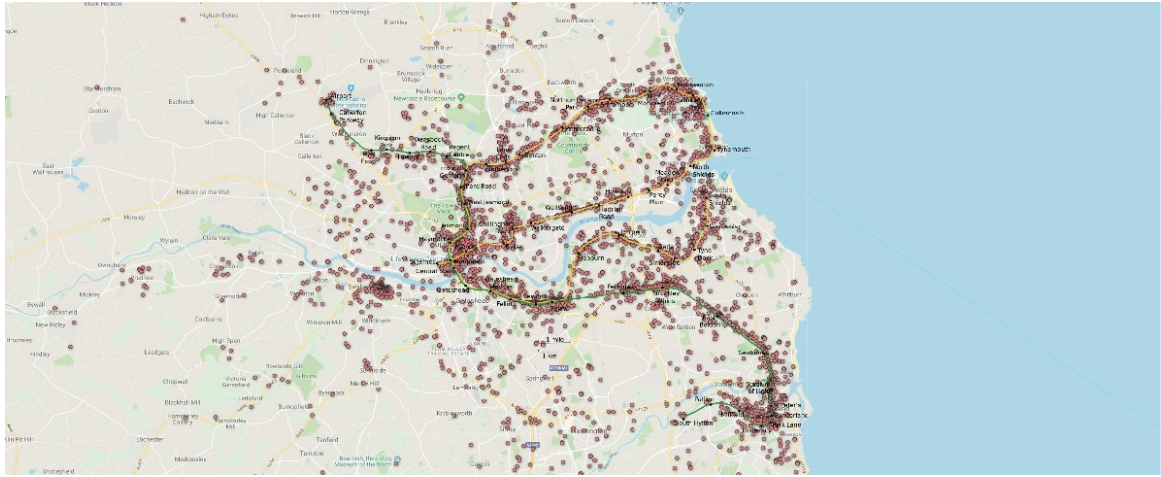


Figure 11: Map of Tweets Discussing the Metro with Metro Map Overlaid

Source: Author & Open Street Map

The Metro-related tweets were imported into NVivo and thematically analysed using the stages of inductive thematic analysis outlined in Braun and Clarke (2006). The themes are now discussed in turn. The first explores the role of Twitter in discussing disruptions to people’s routine in place and time. The second discusses the transport offer of the Metro and people’s expectations of the Metro. The third reflects on how people use Twitter to comment on their journeys on the Metro.

## **5.4 SPACE & TIME-BASED COMMENTS**

These tweets formed a theme as they discussed the Metro in both time and place-based terms, that linked people’s use of the Metro with the temporal and spatial interactions of their everyday life.

### **5.4.1. Time-based Changes**

As might be expected with a transport-related case study, a significant number of the tweets were related to delays and people reporting on their schedule with reference to the Metro. 95 discussed the overall service that Metro offers (a discussion that goes beyond just discussing delays but the overall service), 91 tweets discussed delays on the metro and 16 discussed the metro’s reliability. When there were delays to the Metro, the frequency at which these happened was foregrounded, with specific delays discussed within the context of wider ‘everyday’ delays. Within the corpus a mixture of tweets about the Metro was found. Some of these thoughts were sent to Metro, with others being directly sent to

someone to act upon. Adding '@' to the end of a tweet is commonly used to make someone aware of one's view, rather than ask a question. 'Metro apologises' is what is announced when trains are delayed.

"first day back at uni and it's already my first metro delay of the year. yay 15 mins wait"

"delays to service, metro apologise pretty sure this is everyday"

"your service is absolutely disgraceful! been told to leave 6.40 Cullercoats train as developed a fault, once again!!! @my\_metro"

The feeling that these delays were commonplace led to a lot of people showing frustration through their tweets. This frustration was often directed towards the Metro's official Twitter account (*my\_metro*), frequently with swear words and complaints. The tweets did not usually express an interest in finding out the cause of the delay. Instead, it appears that people preferred to show their dissatisfaction with the service using strong language (for example, there were 642 swear words about the Metro within the corpus). A common use of Twitter was to share thoughts, experiences and feelings of dissatisfaction without necessarily expecting a resolution nor a reply to their tweets. Twitter, therefore, became more of a one-way mouthpiece than a tool for dialogue.

The tweets often discussed the perceived frequency of delays. When reporting on delays, these were often stated to be 'everyday' or 'constant'. They regularly made sweeping statements about the 'everyday' occurrence of delays, rather than singling out or identifying specific occurrences.

"sick of your shitty @my\_metro service! been on two metros which have terminated & now having to wait ten minutes for next one. diabolical!"

"@my\_metro why is your system so fucking shit constant delays, try n avoid metro now go to use it today guess what more delays"

“brand new metro technical fault 0725 gosforth @my\_metro you are shit. who built these? north korea? again late fucking late @metro\_manners”

Although there was a lot of annoyance with delays, demonstrated by people’s frustration in the tweets, the discussion of the delays did sometimes prompt discussions of the wider factors for the delay, such as the Metro’s value for money, and of Metro’s funding from central government (comparing the per passenger spend in North East England to London’s). Tweets like this fed into a wider discussion about the Metro system, discussed later in the findings.

When people discussed delays, it was often not in isolation to the rest of their journey. Instead, people frequently reported on how the delay impacted their wider schedule. These incidents, which partly occurred on the Metro, usually were reported on within a wider experience. People would often discuss how their plans after the Metro had been disrupted, such as their commute to work, university or the airport. These tweets often stated what they were doing at their destination, and how the Metro had impacted these plans.

“@my\_metro: major delays to trains from regent centre - south shields and south hylton due to a track fault.thanks , late for work.”

“@my\_metro very unhelpful when you wait until a metro is due to announce it will be late, could have found an alternative. late for work!”

“r canny me metros broke down and i have a uni interview at 9 :) :) great :)”

“I have fifteen minutes to get through security and find my gate, and I’m still on the fecking metro”

Delays to the Metro were a common topic within the corpus, but the ways they were discussed varied. Whilst some users were obviously frustrated as the delays to the Metro and authored strongly worded tweets, others stated their overall journey and how the delays impacted their overall activities beyond their destination and use of the Metro. Other, more nuanced and technical, discussions took place about the Metro, and the

potential causes for the delay, as well as a wider discussion about the Metro, which are discussed later as part of a wider conversation. In summary, most of the discussions were not aiming to be productive or gain an understanding of the factors, but to complain about the service.

#### **5.4.2. Space-based Comments**

Similarly to the time-based comments, space-based comments were made when changes in space affected people's expected use of the Metro, or people documented their own use of space. These comments generally reflected on short-term changes in the Metro car, or at stations. As found earlier, some of these were reported towards the official Metro account to report problems or demonstrate frustration, whilst others were more reflective on one's own behaviour in space, or other people's use. Those directed towards Metro generally reported problems with their facilities or comments about how the space is used, often reporting on a specific issue that someone was experiencing.

“@my\_metro notification board on pt 2 still not working.”

“on @my\_metro - thinking this particular carriage should undergo something of a deep clean #eaurinal”

“it's way too hot on this @my\_metro. all windows are open. why do you struggle to keep the carriage at a normal temperature? #wastingenergy”

“dear metro, get your countdown to next metro thingies sorted. It's telling me everything except 4 how long my metro will be! #quiteannoying”

“window literally hanging off and flapping in the wind.. stay classy @my\_metro! 4.60 and i got rained on, on board..”

Whilst there was a significant number of place-based problem reporting, there was also discussion of how people behaved in space, and how they expected others to, and how these behaviours changed one's use or perception of place. These tweets were more self-referential and discussed things that were noticed during one's journey. A number of the reports were more experiential, reporting an issue such as cleanliness and feelings of



safety. Several reports were largely beyond the service that Metro provide and discussed the use of the Metro by other people.

“so i guess, yeah, if you wanna shoot smack in the bogs at gateshead metro thats a-ok with nexus.”

“little lad about 5 on the metro platform just ran by me singing yolo yolo tolo what the fuck”

“sitting on a seat next to a lift in the metro station and portly women comes out and looks furious because the seats taken. #youneedtostand”

“me and ashton got shouted at/followed by a bunch of french paedophiles on the metro i literally thought we were going to die”

These tweets usually discussed an unexpected or surprising thing happening during their journey. As with the other tweets, strong language was used to express surprise or dissatisfaction with the situation they were in, and their feelings towards their experience.

As can be seen, there were many different ways the space of the Metro was discussed. Reports on the state of the facilities was a common topic, sometimes directed towards Metro and at other times not. Less frequent was discussion of how other factors have led people to discuss the spaces of the Metro – often because of another Metro user’s behaviour in the space.

Given these time and space-based changes to people’s use and experiences of the Metro, the next section will discuss how these go some way to shaping an overall view of the service, and how these shape people’s view of Metro as a transport offer.

## **5.5 METRO SERVICE AS A TRANSPORT OFFER**

This section discusses Tweets that included a wider, more reflective discussion of the Metro’s transport offer – how the Metro fits into people’s lives, and their requirements to get from one point to another. They discuss ongoing issues with the Metro (beyond the

episodic disruptions earlier), and the wider discussions that took place around the Metro (such as funding, rolling stock, how Metro helps address pollution and air quality issues).

### **5.5.1. Funding**

Part of the discussion that took place around Metro's role in transport provision in the region included the perception of a lack of funding Metro received from central government. These comments fed into a discussion about how this has led the system to be unreliable, and how increased funding would help enhance the Metro's reliability<sup>21</sup>. Some of these tweets discussed the Metro's need to address their own funding shortcomings through improving their ticket enforcement.

“if the newcastle metro need more money maybe they should check people buy tickets rather than raise prices. Nobheads”

Others called on more funding from central government, where there was a belief that funding for public transport was higher in the south east and London. The discussion of delays often led to a wider discussion about the state of the Metro system, and the funding it received. In the more engaged and reflective, long-term debates about Metro outside of the strongly worded complaints, there was a general reasoning and a more conciliatory approach that the delays to the Metro were due to its underfunding, rather than being the fault of the funding-constrained operators.

Discussion of funding led to comparisons of other large infrastructure projects that, as they believe, are focussed on South East England such as High Speed 2, Cross Rail, and a political belief central government does not fund transport improvements in the region.

“ooh, lets fund crossrail and a needless program in hs2 but @my\_metro? nah! the north-easterners dont need working transport links!”

“tories admit metro needs replacing. shows just how bad the system is.”

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<sup>21</sup> <https://www.chroniclelive.co.uk/news/north-east-news/metro-extra-900000-funding-prevent-15317345>

“the metro is painfully slow compared to the tube or any other shuttle system  
tbh”

“@[user] @my\_metro @paypaluk this aint london. this is tyne & wear. cant  
expect progress this far north”

Whilst these discussions were more reflective, it is challenging to understand how they might be used to make changes to the Metro. Whilst it might apply pressure on Metro to improve their transport provision, the extent to which they would alter spending commitments seems limited. Likewise, when understanding the applicability of similar comments in planning, it is unlikely that planning would, alone, be able to deal with the wider questions of planning’s funding and wider role.

### **5.5.2. Thoughts on Metro**

There was also dislike of the transport provision of the Metro. Some people compared their use of Metro to others transport methods, such as private transport, with others comparing it to other public transport provisions.

“so my mam has a car, brother has a car and dad has a van and i am still  
getting a dirty metro to work at 6 oclock in the morning. Thanks”

“swear to god i better pass my driving test soon, cant cope with metros any  
longer”

“tyne and wear metro is just an ugly london underground wannabe”

“dont quite understand how the 30 year old tyne & wear metro can possibly be  
more antiquated than the 150 year old tube...”

The discussions demonstrate how people discussed Metro in different ways – with some people pleased with the provision, and others expecting the provision to be more similar to that provided in London. As part of this discussion people also discussed Metro’s value for money (the cost of the fare) when compared to what it provided, and some of their shortcomings with Metro (its speed, reliability and frequency). The cost of tickets

(particularly when there was a fare increased) was frequently given as an opportunity to compare the transport offer Metro provided.

“the metro display alternates between telling me my train is late & that train fares have increased. happy new year eh??? #lateforworkagain”

“@my\_metro does it cost more for your service to get worse? just i notice you continually increase prices for an ever deteriorating service”

“@my\_metro maybe use the extra money from your ticket increases to fix these issues permanently. another day, another delay. unacceptable.”

This section has described how people used Twitter to discuss the Metro as their means of travel. There were a range of opinions voiced, with some pleased at the transport offer, whilst others expressed that it was poor value for money. Outside of large delays, the discussion often discussed Metro’s wider role in providing transport, with a range of opinions expressed about its funding. These discussions demonstrated how topics, provoked by small changes, can encourage some to have broader discussions about the wider factors at play within specific situations.

## **5.6 DISCUSSIONS OF JOURNEYS**

During people’s daily experiences of using the Metro, they tweeted and reflected on both their experiences of the journey and other people’s role within it. This, for example, led to people discussing other passengers, their experiences of the journey, as well as changes they have noticed during the journey.

### **5.6.1. Expected Use of Metro**

A common theme within the corpus was people discussing the behaviour of other passengers and comparing it to their own expectations of how the Metro should be used. That’s not to say that these expectations are incorrect, but more that when people’s expected use of the Metro and other’s actual usage were misaligned it was a common topic. People discussing other people’s behaviour usually took the form of people using the Metro ‘wrongly’, or doing something that someone did not feel appropriate.

There were frequent discussions of how younger people were using the Metro, often discussing the conversations that they were having, or how they smelt, or their behaviour. As with the discussion of delays, strong language was frequently used to discuss young people's behaviour.

“literally suffocating on the metro all the school kids getting on at longbenton absolutely stink and their standing all over my new ugg’s”

“potty-mouthed teens on #metro hoping to catch the attention of we other passengers to prove theyre tuffs enough - its as xmassy as carols!”

“scrawny little chav slags in berghaus and leggings. repeatedly igniting your lighter on the metro defo makes you look 18 and nails. honest.”

“lads who dont get up & offer seats on the metro to the older generation are bellends.. #bellends #bellends @bellends”

“dear spotty, greasy fourteen year olds eating face next to me on the metro: i) get a bush ii) wear a condom you both look riddled.”

Other behaviours that were deemed unacceptable by passengers was playing music or singing during their trips on the Metro.

“some lad drinking san miguel on his own and a lass blasting avici from her ipad. get me off this metro”

“who the fuck still blasts music on the metro”

“theres an old guy doing the most diabolical rendition of yesterday at the metro station, newcastle is weird”

Others reflected on how their own behaviour might be contrary to how other people expected them to behave on the Metro, such as putting feet on chairs or taking up seats with bags.

“This old woman on the metro just told me to put my feet down. just looked at her and laughed hahahahaha”

“taking up the seats on the metro with all my bags and getting looks from people standing. #sorrynotsorry #uhoh”

As can be seen, there are several things that people commented on when discussing how people expected other people to behave on the Metro. Some of the behaviours could have been considered anti-social, and the antisocial act became the tweet itself. Alongside the expected behaviour on the Metro, there was a set of expectations when discussing issues on social media. People often broke the expectations of behaviours on social media to make a point about others.

### **5.6.2. Discussions of Experiences**

In addition to the earlier discussion of delays within people’s overall journeys, people discussed their experiences of the Metro in encompassing ways that describe their feelings and experiences. These included reflecting on them and their friends, feelings, or things that they witnessed and wanted to share.

A frequent theme was people discussing their overall journey somewhere, stating what the purpose of their journey was. These comments had little relevance to the Metro as a transport service (how it might be improved or difficulties they have had) and instead reflected on an encompassing experience of which the Metro played a smaller role. These tweets usually documented what someone was doing at their destination, or what they had been doing before getting on the Metro.

“you wouldnt think a just spent 15 mins doin me hair all curly..... its bastard poker straight n av only gotten to the metro.”

“on the way to the newcastle game howay the lads #newcastle  
#metro#geordie#alanpardew”

“some fucking idiot just tried to drive into me and my mum! pretty sure he was  
drunk! missed my metro cos of you wanker! #beeeeeeeep”

“if youre on the sunderland to newcastle metro tomorrow at 12.00 youll have the  
hilarious opportunity to see me dressed in a suit”

“enroute back to newcastle on the metro from a sunday-in-seaham armed with  
pies and freshly polished shoes #brockleywhinscauliflowerloses”

A common trait of these tweets was them being self-referential and sharing their experiences. Whilst the examples above put the Metro within the context of a wider journey, there were also discussions of experiences that took place on the Metro (but which were not a result of delays). There were other examples of people discussing their experiences that were more relevant to the management of Metros.

“on the day i have to hand something vital in, my alarm doesnt go off, i miss the  
metro and now the one im waiting for is delayed. yey!”

“a small child kicked off with his mam today because he didnt want to sit next to  
me on the metro because i look funny...”

“why do the metros have so much hot air blowing from under the seats?! jesus  
christ man am melting”

“must be tired, got on the wrong metro...ended up nearly in sunderland. have  
fell asleep before & missed my stop, but this is a first!”

These tweets illustrate how experiences are bound up with one another, and how, rather than speaking about individual spaces and experiences, they are usually all-encompassing, interdependent and bound-up together. Sometimes these reflections on experiences were

shared along longer timeframes, such as days and weeks, which is illustrated when people compared their current experiences of the Metro with earlier ones.

“no ones at my metro station now either. starting to question zombie apocalypse.”

“this metro normally only has about three people on it. where have they all come from?”

“there was a spare seat on the 08:04 metro today when i hopped on. rare sight at rush hour.”

“why is the metro so busy?? its sunday morning! never normally this busy.  
#angry #dontlikepeople”

These tweets regularly made contrasts between two different experiences of the person; for example, the difference between it being busy and quiet. Tweets like these demonstrate how people have built experiences and knowledge of places, and how these influence people’s current experiences.

### **5.6.3. Summary of Metro**

The corpus contained several ways that people expressed their experiences and thoughts towards the Metro. Within the corpus, and the later analysis, there was a substantial number of tweets discussing and demonstrating annoyance with delays to the Metro – sometimes through vitriol and hateful language. More detailed analysis of the corpus, however, reveals a more nuanced discussion of people’s experiences of the Metro, through both other passengers and places within the Metro.

The corpus contains socio-political discussions about Metro’s role in providing transport in the area, and the politics around its funding. It also reveals discussions on people’s experiences during journeys, and how places and people impacted their experiences. People using and tweeting about the Metro rarely discussed it in isolation – instead discussing it within the wider context of journeys or previous experiences.



## **5.7 TWITTER FOR PARTICIPATION**

The findings demonstrate that Twitter users shared geolocated information on events and experiences that are pertinent to place. As discussed, participation must involve informed decisions taken through developing “technologies that ensure informed participation and create shared knowledge for democratic city governance” (Batty et al., 2012, p. 70). This, however, contrasts with current provisions of digital participation technologies which have been widely criticised for reducing the citizen’s role and opportunities for participation (Batty et al., 2012).

Previous work on citizen participation found benefits of in-place discussions of issues, but that these usually supported the quick reporting of problems rather than longer-term comments about the future of places (MySociety, 2015a). Early involvement is also essential to citizens having a say in how their neighbourhoods change (Hartley and Wood, 2005). The study demonstrates that people get involved in discussions around place – although this is rarely in a formal capacity. The next section reflects on how the findings might contribute to Twitter’s use in providing opportunities for participation.

### **5.7.1. Awareness Raising**

During the analysis of the wider corpus of the tweets (not quoted within the earlier findings) it became clear that people were not always aware of the conventional means of participating in planning. In some cases Twitter was the first time that people has been made aware of the proposals –demonstrating the opportunity for Twitter in raising awareness and the failure of the awareness raising methods (confirming Baker et al.’s (2007) assertions). For planning and citizen participation this is worrying; it presents an issue of both awareness raising and comprehension of planning media. If citizens of a city are not aware of changes that are proposed, there are little opportunities for community participation in decisions. The affordances of Twitter, with short messages, lends itself well to the dissemination of brief information. However, as demonstrated, is not effective at sustaining more meaningful dialogue.

Mass social medias, such as Twitter, can provide alternative ways of making citizens aware of changes, with previous work demonstrating that many use Twitter as a source of information (Kwak et al., 2010). Currently, planning officers decide which approach is

used; if someone walks past a sign, or lives near a proposal, they may be informed of the opportunity to comment (MHCLG, 2014a).

If planning engages with the opportunities technology allows, novel methods could raise people's awareness of the changes that would affect them (Baker et al., 2007). The data in Twitter could be used to inform planners of places that citizens have expressed concern about, going beyond the immediate neighbours of a proposal, and notify those who would be affected or should comment on any change. In effect, it could be used to understand the areas that people care about and discuss and allow them to target already limited resources appropriately (Shaw and Tewdwr-Jones, 2016).

The success of these short and easily digested communications was shown during the drop-in with Gateshead Borough Council. Baker et al. (2007) discuss jargon-filled and inaccessible planning documents as a barrier to planning participation. It was found that the discussions on Twitter were less jargon-filled and did not require people to read long planning policy documents, which may have served to engage new people. There is recognition of these new awareness-raising methods being needed, with the government for example stating "statutory notices need to change but we must do more than just bury them at the bottom of websites" (MHCLG, 2015, p. 1).

### **5.7.2. In-Place Discussion**

The findings showed that people frequently used Twitter to discuss their experiences whilst in-place and whilst experiencing them, rather than needing to interact with complicated web-based GIS platforms, download additional apps or use the council's planning portal (Al-Kodmany, 2001; Goodspeed and Hackel, 2017). Having a comment's location removed the need for people to use reference numbers, and being able to use colloquial terms (Baker et al., 2007). Opportunities also allow for comments to be assigned to locations for proposals that are not being considered at that time, creating a resource for planners to draw upon when they start producing strategy.

Dourish (2001) discusses the role of mobile computing, stating that we "have increasingly come to understand that interaction is intimately connected with the settings in which it occurs" (p. 19), that is, that there is a connection between people's interaction with a device and the physical space they occupy. Whilst this is an opportunity for engaging

people in discussing their real-world environment, with their location providing stimuli for comment, this speed also changes the way people communicate. This response is also teamed with a platform's affordance (Bilandzic and Foth, 2012).

Twitter is a platform that promotes and prioritises the sharing of timely updates through a constantly scrolling screen of updates usually ordered chronologically. Ovadia (2009) discusses the speed of Twitter's use stating it is designed for "users posting quick and often responsive messages about what is going on at any given moment, is more appropriate for capturing hyper-current information" (p. 202). The primary attribute of Twitter therefore becomes its focus on speed and timely updates (Dong et al., 2010), rather than thought-out and considered discussions. These affordances seemed to affect the comments people left within the study, leading them to share current experiences and perspectives quickly. For example, typos were common within the tweets which might suggest people writing and posting them quickly without reviewing them (although this cannot be proved). The speed of these comments led to the majority of short-term commentaries about issues that are being experienced at that time, rather than a more reflective and long-term discussion. Discussing the quality of people's tweets, Ovadia (2009) stated it is "difficult to say how many quality ideas cross the Twitter transom" (p. 205). These short-term perspectives are difficult to address through formal planning processes which often span thirty years. The comments raised on Twitter might, therefore, be more beneficial for problem reporting than short-term announcements.

Understanding how the built environment and mobile technology shape and prompt participation with planning will be increasingly important as planning technologies are developed to both provide new opportunities for participation and reducing barriers to current methods. This element of the research – how the technology that people are using shaped comments and the quality of participation – will be discussed later within this research.

### **5.7.3. Earlier Participation**

Whilst most tweets were short-term problem reporting, there were examples of Twitter being used to discuss longer-term topics around funding, priorities, visions and experiences. There is an opportunity to use these conversations, and these topics, when writing long-term policy. Embracing these conversations could help planning move

towards having a broader and ongoing conversation between planners and citizens, rather than current closed and sporadic opportunities. Baker et al. (2007) explain how early and open discussions “increase the legitimacy of those decisions among participants and more widely” (p. 80) and “a sense of ownership of local policy decisions” (p. 81). These, however, rely on tweets being identified and integrated during opportunities for engagement.

Taking advantage of the opportunities outlined above relies on a critical aspect that is often overlooked when discussing the use of social media for participation. Whilst the conversation that is taking place might, in theory, be valuable in informing the development of planning proposals, it remains difficult to identify these discussions (Palen et al., 2009). During the analysis of the entire corpus, it was demonstrated that only 3.4% discussed planning-related issues. People ‘checking-in’ their Tweets (tying their tweet to a location) is not an indication that the tweet discusses a location). The wide-ranging discussion of Twitter leading to a ‘new kind of politics’ may be the case for wider politics (Evans-Cowley, 2010; Du and Gregory, 2016), however, to date it has had little impact on local planning processes beyond pressure groups and community organisations (Skogerbo and Krumsvik, 2014).

The first step in engaging with the discussions that are taking place through social media is identifying the tweets that are pertinent to planning or place. To try and automate the identification of these tweets, machine learning algorithms were used to try and identify these: training an algorithm in what makes a useful tweet (in this case, the already tagged tweets) and creating a classifier<sup>22</sup>. The classifier is then applied to the entire dataset, which should determine the likelihood that an individual tweet would be relevant to planning. Supervised machine learning is where “both inputs and their desired outputs (labels) are known and the system learns to map inputs to outputs” (L’Heureux et al., 2017, p. 7777). There are, however, practical difficulties with using supervised machine learning for identifying planning-related tweets, some of which were experienced within this research, and other which are likely to be important in the future. These issues are twofold: the difficulty identifying them in the first place and the need to constantly retrain machine learning classifiers.

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<sup>22</sup> A classifier, in this case, is an algorithm that is applied to input data and can be used to determine which category an input should have.

First, the number of topics, experiences and phenomena when discussing place makes it difficult to train language recognition algorithms (Palen et al., 2009) (in contrast to tweets using a prominent hashtag or set of keywords (Brooker et al., 2015)). The number of topics identified within the corpus makes it very difficult for algorithms to ‘learn’ what constitutes a planning-relevant tweet. L’Heureux et al. (2017) state “as the number of features increases, the performance and accuracy of machine learning algorithms degrades” (p. 7780); this becomes problematic when the number of topics discussing place (or even a strict definition of planning) increases.

Machine learning relies on generalisation, which means that it is likely to find tweets that are most popular or prominent (L’Heureux et al., 2017), rather than identifying heterogeneous tweets such as the number of topics related to place. If Twitter was to be used more within planning, it will be increasingly important to understand how these are identified, and how the techniques used account for minority views and those not commonly expressed (and therefore not captured within the classifier) rather than just replicating and surfacing popular opinion. This difficulty of identifying planning-related tweets is directly linked to the type of discussions that are being sought – tweets that stick to a narrower definition of planning are more likely to be homogeneous in their topics, and therefore more likely to be identified. Tweets that are more experiential accounts (Massey, 2005) are less likely to be identified due to the variance and range of topics being discussed, meaning that if a wider discussion of place is what is trying to be identified, this methods would likely be unsuitable.

Second, automatically identifying these tweets becomes more difficult over time. Following the classifier’s training, it would need to be retrained to identify new place-related tweets as well as the necessary manual training stage (which will likely compound existing biases). The retraining of the classifier would require new training data, which would require significant resources. L’Heureux et al. (2017) state; “a model typically learns from the training set and then performs the learned task [...and...] does not automatically learn from newly arriving data, but instead carries out the already learned task [...]. Without retraining, they may become outdated and cease to reflect the current state of the system” (p. 7782). This would lead to the training on a particular set of topics, which might appear to be finding relevant tweets, but is missing other topics.

Although it is challenging to identify the tweets automatically, this difficulty eased when opportunities were provided for comment by the local authority. If Twitter was used regularly, and reinforced long-term, this approach may serve to engage new voices in planning. In contrast to the automated method, all the tweets identified were relevant, but these were only tweets that the council solicited during a limited amount of time. The aim of a city-wide conversation where relevant tweets are found on Twitter is difficult to achieve in practice.

To scrape existing conversations there will have to be an automated system for identifying and sorting these. However, when opportunities are presented specifically for involvement in planning there is interest and engagement. A recognised way of distinguishing these place-based discussions or topics through technologies could aid this, but future work should seek to understand how these big data sets can be more easily understood by the public and decision-makers, as well as the accuracy of identifying these conversations.

#### **5.7.4. Evidence versus Experiences**

As attention turns towards engaging fresh perspectives in planning, researchers and practitioners must find methods and tools that provide and enhance opportunities for citizens to have a say in their city's future. Reflection is needed on how new data can achieve this objective, focussing on the feelings and experiences of people living within them, rather than the opportunities to use technology and for automation (Greenfield, 2013; Blythe et al., 2016). As discussed earlier in this chapter, the automation of these processes poses significant challenges when connected to the experiential accounts of citizens in place-specific discussions, making it difficult for these tools to be automated (Palen et al., 2009).

Consideration is needed on what constitutes evidence in these decision-making processes, discussing the importance of experience in cities and the difficulties of turning experiential accounts into actionable policies. Throughout the case studies the language used may present difficulties to use within formal decision-making processes – with common use of strong language, slang and local abbreviations for places – which may be challenging to integrate into formal processes. Later research within this thesis will explore how experiential accounts might be used during formal planning processes.

Healey (1996) asks, “how is it possible to [...] open up the public realm to ‘inclusionary argumentation?’” (p. 221), “to enable the diversity of ‘languages’ among community members to find expression?” (p. 223) and “how can the jumble of issues, arguments, claims for attention, and ideas about what to do which arise in discussion be sorted out?” (p. 223) to identify and integrate these unique set of knowledges. Whilst planning technologies present slick opportunities for new modes of participation (Blythe et al., 2016), with “new sources of urban data, the articulation of urban problems, plans and policies” (Batty et al., 2012, p. 473), as well as “to develop technologies that ensure widespread participation [...] which the citizenry is able to participate and to blend their personal knowledge with that of experts” (Batty et al., 2012, p. 485).

The comments that reported experience were frequently bound up with previous experiences (Massey, 2005). People reported on delays whilst referencing other delays, people discussed a poor service and stations they felt needed improving. The way their experiences were discussed reflected their earlier experiences. Trying to understand single statements in isolation to others – in discreet episodes of commentary – would reduce the insights that people provided. The way the Metro was discussed in tweets demonstrated that people do not concentrate on one issue, but place it within a series of experiences. The way that people experience places contrasts with how decision-makers would want these comments evidenced (as discrete events that can be understood and acted upon).

This raises wider questions of what might happen in reality, how planners respond to people’s knowledge and experiences of place, and how these are evidenced and made actionable. If planning technology is going to encourage sharing personal knowledge for planning, there needs to be an associated understanding of the role of these experiences in formal planning processes. How can the sentiments around inclusionary discussions manifest in reality? There is a need to translate these experiences, open conversations and comments into actionable proposals. There are several requirements needed to achieve this.

First, there is the vital step between the identification of experiential accounts and action being taken on them. Two potential methods could involve in-person charrettes, where design activities are undertaken for developing solutions to people’s problems (Le Dantec et al., 2015) or through sense-making activities that take place remotely using technology

and encouraging a translation from what action to take on varied experiences (Lukensmeyer and Brigham, 2002).

Second, the planning system needs to recognise comments relating to experience and go beyond material considerations, understanding how experiential consequences become valid considerations (Sandercock, 2003a; Massey, 2005; Graham and Healey, 2007). These experiences, such as those discussed within the corpus, have a material impact on how people experience places, but interpreting and acting on these is difficult, and requires going beyond simply identifying these comments.

Potential directions could raise awareness through Twitter, and signpost those who have shown an interest in planning matters to lightweight participation techniques, for which there are already established systems in place to consider these comments or using hashtags for proposals. Sense making activities could also be shared through the medium to encourage people to participate in the process. Creating a means for planners to engage with and take meaning from these conversations would aid participation, however, this would require increased resources and a substantial rethink of what constitutes evidence in the plan-making process.

The findings also prompt the question as to whether comments made about people's experiences would actually provide any insights into improvements that could be made. Complaints about the reliability of the Metro are unlikely to be enacted – the Metro have stated their strategic priority is making the Metro more reliable, and therefore making further calls is unlikely to be helpful (Nexus, 2019b). Identifying and acknowledging the experiential tweets that might be more useful during decision making will present a challenge when most of the tweets are complaints about delays which they are already aware of.

The research found the most effective method may be to have a conversation with people without the need for the automated identification of tweets. Whilst the possibility of finding general discussions that are taking place on Twitter was difficult to achieve (the research's aim), simply giving people the opportunity for comment in a lightweight did go some way to encouraging people to participate (Bugs et al., 2010; Bilandzic and Foth,



2012). This is contrary for the frequent calls for 'high tech' solutions when the most effective could just be inclusionary and open language.

## **5.8 CONCLUSION**

The analysis of a corpus of over eleven thousand tweets and drop-in offered interesting insights into how twitter is used in place discussions, and how it might be used in the future. It explored the use of machine leaning algorithms to identify these, including the potential difficulties of using machine learning due to the number of topics discussed, the need to constantly maintain a classifier and the problematic nature of relying too heavily on technology for mediating these discussions. There is a need to understand how comments on experience of places can be bolstered within the planning system.

In working with Gateshead Council, the research showed how Twitter could be used to generate some discussion about planning, but that these discussions were more often questions of clarification rather than representations the planners could report on (useful for citizens but less so for planners). Whilst the tweets generated comments with relevance to planning, there was a difficulty in identifying everyday conversation about place.

When understanding the ongoing discussion of place, the research identified a variety of topics. It illustrated the way that people, unprovoked, will discuss their feelings and experiences in ways embedded within their lived experiences and with reference to other experiences (Massey, 2005), rather than a dc compartmentalised discussion that could more easily feed into planning; some of the topics are more likely to be useful to urban planning than others.

An overriding difficulty with these tweets, and with the more open discussion, is the critical translation of people's experience into action that should be taken upon them. A lot of accounts within the corpus would be challenging to be used within the formal planning process. It is therefore suggested that Twitter should primarily be positioned as an effective awareness raising tools, which can lead on to other technologies with the affordances to facilitate dialogue, rather than being a tool for participation on its own. Given this, the following chapters will explore the design of these tools that are designed to facilitate engagement with planning.



# 6

## **ChangeExplorer: In-Situ Participation & The Physicality of Place**

Introduction

The Changing Role of  
Citizen Participation in  
Planning

Human Computer  
Interaction, Town  
Planning & Participation

Methodology and Technology Pilots

Twitter

Change  
Explorer

JigsAudio

# 6. ChangeExplorer: In-Situ Participation & The Physicality of Place

## 6.1 INTRODUCTION

The aim of this chapter is to understand the role of the physical environment in both provoking and facilitating participation on matters of place. As discussed in the methods chapter, embracing the exploration of material participation can help frame the activity of participation differently, and encourage the exploration of new methods and devices (Marres, 2015). Each of the following chapters explores a different type of participation that materialises participation in different ways. The focus of this chapter is to recognise the bearing that the built environment (participating in place-matters whilst being in the built environment) can have on participation, and whether it can serve to enhance people's interest and understanding in changes that are being proposed.

The previous chapter explored the role of Twitter in planning, and demonstrated a tension between people participating with digital platforms that they are already using and planners having to use new technologies to engage citizens on their own terms. A critical objective was to identify whether digital technology could encourage more involvement in planning on the terms of citizens as digital users in sharing their experiences, feelings and aspirations. The aim of this chapter is to explore a novel technology that sits between the two (citizens and planners), and in effect, serves as a translation mechanism between citizens communicating their thoughts on plans, that are usually hidden<sup>23</sup>, and planners interpreting them.

To do this, the chapter develops a case for participation methods can be undertaken whilst experiencing the built environment, by providing responses to changes.

Understanding how to communicate the often-complicated feelings people have towards their environment will be the focus of this research in general. In this chapter, it

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<sup>23</sup> 'Hidden' is not that citizens do not have the ability to find out about opportunities for participation in formal planning matters, more that they are often difficult to find and understand within the context of the built environment.

documents the attempts of a location-based technology, a new digital application (an ‘app’) called ‘ChangeExplorer’, in both reducing barriers to participating with experiences and feelings, and how allowing participation ‘in-situ’ might provide new opportunities for enhancing the citizen perspective.

The research was undertaken using three methods: the development of a smart watch app with opportunities for citizen participation in the local planning process; its deployment in an empirical study investigating its value in planning participation; and the design implications for in-situ interactions on pervasive devices and technology-mediated planning participation. Nineteen citizens and three professional planners were asked to pilot the app and to provide feedback on their experiences. The chapter ends with a critique of the role of technologies that allow quick, in-situ participation, and how technologies such as ChangeExplorer can embrace the material environment to raise awareness of changes.

According to Marres (2015), the benefit of making people aware of these whilst exploring the built environment, is that it will encourage engagement in a process that is usually hidden and, through raising awareness to the changes that are taking place whilst in front of them, a better understanding of abstracted proposals can be had. The research will explore how participation is changed when constraints are put on the time people have, when they must participate in place. It aims to understand whether participation methods that are deliberately constrained (in terms of the information that is provided and the time people have) can achieve useful comments that enhance the citizen perspective during the consideration of planning policy and master planning proposals, and how much time is needed for people to provide comments that are useful to plan-making.

## **6.2 BACKGROUND**

This section builds upon the literature review chapters to provide additional context on technologies that facilitate quick and in-situ participation and lightweight methods of participation. In order to conduct this review Bugs et al.’s (2010) four categories are used (the same used in the earlier literature review) for technology-mediated participatory urban planning practices; information distribution, transparency, solutions through participation, and consensus building.

Through discussion of these case studies, this chapter will go on to consider the degree to which previous or existing technologies have allowed for the increased role of the citizen in planning. Methods that allow quick interactions with the planning system provide an enhanced means for people to become involved in matters of place. It will understand the role of making people aware of changes whilst in the build environment has on the type of comments that are left. The literature review will supplement the main literature review with a short background of locative technologies and technologies that support quick interactions.

### **6.2.1. Information Distribution and Transparency**

The first and third principles that Bugs et al. (2010) propose examine how information is distributed. In the following case studies, the role of citizen-created information in either supporting in-place voting (Vlachokyriakos et al., 2014) or through pervasive technologies augmented the physical world with geo-spatial data (Bilandzic & Foth, 2012).

The PosterVote project (Vlachokyriakos et al., 2014) demonstrated the potential for engaging citizens in quick, lightweight, and situated interactions using data as a tool for activism and allowing communities to collect and share their own information, rather than relying on data received from their local council. The low-cost electronics and traditional paper poster allowed people to vote in polls, and later discuss the data on an online forum. The purpose of the electronic poster was not to gather evidence of support (votes) but rather to build discussion around their choices. The role of false and repeated votes was discussed by the authors, but they emphasise the poster's aim to generate discussion and debate, rather than replace established e-voting systems. The work demonstrates how situated simple questioning with limited responses can be used to generate discussion on topics. The issue, however, is how these rich discussions that take place are captured – all votes have the same weight, and the thoughts behind people's choices cannot be understood from the data the technology provides.

Whilst the vocabulary of quick, in-situ interactions is limited, there are fewer constraints on information that is provided to citizens through these kinds of technology, such as visual representations of proposals. The use of pervasive technologies was investigated to enhance the role of the citizen in planning by Bilandzic and Foth (2012). They see an

opportunity in locative media (media bound to a location) to allow a layer on top of the physical world, “augment[ing] people’s experiences in real places through relevant geo-tagged information” (Bilandzic & Foth, 2012, p. 66). They note the importance of not distracting the user from their immediate physical environment, but “evolve[ing] from people’s natural practices, tasks and activities and, in particular, from the meaning that they attach to those” (Bilandzic & Foth, 2012, p. 68). Other work (Bilandzic & Foth, 2012; Hamilton, 2009) argues for context awareness and locative media to be used to supplement, not remove, a user from their environment. They highlight the advantages of information that is in-situ, related to the place the user is in, giving places an identity away from the “non-space of the Internet” (Hamilton, 2009, p. 394).

The work demonstrates the ability of situated technologies to promote civic participation through interactions that are attached to a location. There are, however, challenges, such as the provision of accurate and timely information, and the results of technologies affecting real-world changes (Al-Kodmany, 2001; Hu et al., 2015). Technologies that promote discussion and debate show the potential for technology in giving additional opportunities for civic participation, but these technologies do not fall outside the existing public/planner dynamics of enhancing the role of the citizen (Sager, 2013; Tewdwr-Jones & Allmendinger, 1998).

### **6.2.2. Solutions through Participation**

Bugs et al. (2010) note that technologies which facilitate participation through mapping tools could aid planners in understanding the challenges that citizens are having in their built environment. FixMyStreet (Figure 12) is a smart phone and web-based problem reporting technology used by citizens to make local authorities aware of issues such as highway potholes and graffiti (MySociety, 2015). Research on the platform has identified issues around expectation setting as well as some of the tensions of recognition of user-generated content when compared to the council’s own data (King & Brown, 2007). However, despite these limitations, 16,000 reports to 430 councils were made through FixMyStreet (MySociety, 2015), with the platform demonstrating the effectiveness of allowing people quickly report problems using digital technology.

Le Dantec et al. (2015) explored the use of mobile technology through using crowdsourced data collected from a smartphone app (named Cycle Atlanta), to generate discussion at a



charrette (a public meeting held with the aim to solve a problem). The aim of the app was to reduce technocratic paths, allowing citizens to report problems without having to educate themselves on the organisational structure of their local council.



Figure 12: Location-based App FixMyStreet

Source: MySociety (2015)

In the project, two datasets were presented at a charrette with both cyclists' routes and their opinions. The project raised concerns about how these alternative methods of participation can be interpreted and integrated into traditional policy development and decision-making practices. It demonstrated the power of 'objective' data in leading a 'subjective' discussion, by using data to guide discussion around lived problems and identify potential solutions. The platform proved useful in promoting discussion around solutions, rather than using them instrumentally as a tool to gather data and intelligence.

Although these systems can aid civic participation, they may also exacerbate existing digital and representation divides during decision-making processes. Those not engaged with planning are those also likely to be excluded digitally (Foth et al., 2015). The experience suggests that technologists and planners need to ensure that future methods of participation allow for representative participation through a suite of methods; digital technologies in themselves should not be viewed as a single solution. Instead, methods for participation should be seen as a suite of tools that provide opportunities for people with different requirements to help them engage. Whilst this chapter explores how technologies

that facilitate quick participation can be configured, the following describes how technologies can be more expressive.

### **6.2.3. Consensus Building**

The final principle Bugs et al. (2010) argue for is using participatory technology to build consensus, and to facilitate two-way discussions between planners and citizens.

One such digital system was developed by Nuojuua (2009). The system utilises a map-based web application for participation: users comment on places online, with the option to attach photographs to their comments. Although the system generated a lot of interest, the comments left in the locations were too general to be used during the creation of planning policy (Nuojuua, 2009). Whilst these are wider issues within public participation, it suggests an appetite for the public to discuss issues openly, rather than channelling towards a particular planning document or site. A similar approach had been developed by Rinner et al. (2008) that linked a discussion forum to a map display to facilitate communication.

Furthering the role of consensus building and open online deliberation, Crivellaro et al. (2014) discussed how citizens gather online, in this case *Facebook*, around a local social movement. It documented the process of forming a like-minded community but identified a struggle in translating these emotions to decision-makers. Further work encouraged participants to engage with issues and the future of their public spaces through locative archival material, revealing issues and eliciting debate (Crivellaro et al., 2014).

These findings demonstrate how technologies can facilitate discussion that is planning-related but identify a difficulty in turning this discussion into actionable policies which easily fit into traditional modes of participation. Whilst these provide an opportunity for technologies which aid citizens in easier participation, there is an important role in technologies providing actionable intelligence, as found in the previous chapter. These two factors, open discussions of place and closed-down, planner-led discussions on issues are often at odds with one another; one is on the terms of the planners and easier to interpret, and the other on the terms of citizens discussing what they find important.

#### **6.2.4. Participation through Technology**

This review of recent related digital systems, as well as the previous chapter's findings on Twitter, has identified a tension between allowing people to use platforms they are already registered on, and using technologies preferred by the planning professionals. Previous work has tackled this with mixed success. There is a translation issue here: integrating newer participatory mechanisms into an existing planning system which tends to favour tried, tested and legislated methods. Technological applications, if they are going to be successful, must therefore walk a fine line between being fluid and engaging, and fitting within decision-making mechanisms that are often more static.

Moving towards these opportunities should allow people different means to communicate their comments. Many planning technologies in use mirror traditional models of participation, by making text comments or placing pins on a map. One trend with location-based mobile apps is a failure to engage with critical geography's understanding of porous places (Massey, 2005). Place-based apps focus on specific pinpointed places, rather than people's perceptions of areas or neighbourhood. Having to make a comment on a single point on a map limits people's ability to speak about visions for areas, instead they have to focus on one area. They make it very difficult to build a narrative around what people are saying, instead, focussing on problem reporting (things with a definite place and which are easily resolved).

It could be argued that communication methods have become more restrictive – previously comments were handwritten or in person that could include drawings and diagrams. Nowadays, however, most comments are text; reducing some of the barriers to leaving comments, but also reducing the ability people have of expressing themselves. New methods that can go beyond these should be designed, and instead use the innovative potentials that technology allows. These methods could help a movement towards people communicating their aspirations and experiences in ways that are both more natural and more expressive.

### **6.3 DESIGNING CHANGEEXPLORER**

In order to attempt to overcome some of the issues identified with previous technologies, the design of ChangeExplorer was carefully considered in an attempt to explore whether

some of the issues relating to participation could be overcome. In line with other technologies, this technology experiments with the notion of materiality in participation (Marres, 2015), exploring whether it could both encourage and enhance fresh perspectives in planning. The section then goes on to discuss the technological requirements of designing for this need.

### **6.3.1. Designing for Materiality**

The foremost enquiry within this chapter is to understand how the material environment can be embraced to provide new opportunities for enhanced participation. As discussed, Marres (2015) states the importance of technologies in making people aware of opportunities for participation and putting their voices forwards. She notes the opportunities that come with embracing and exploring the physicality of participation.

When participating with matters of place, the built environment is an important feature in discussions, but often goes unacknowledged in the development of methods for civic participation. Many participation methods, even those that are more technical, encourage participation away from the places that are being discussed, whether it be someone leaving a comment on their computer from home or someone travelling to a town hall meeting. Given this, understanding how participation methods can utilise the built environment as a prompt for participation is underrepresented both in research (Conroy & Evans-Cowley, 2006) and in practice (Newcastle City Council, 2018).

Through addressing calls from Marres (2015), this research seeks to understand how the built environment can encourage participation and how being in the built environment whilst talking about it might lead to insights that would be otherwise difficult to communicate or report on.

### **6.3.2. Technological Requirements**

The previous section has discussed the varying degrees of success of enhancing community voices in governance by using technologies to allow easier participation in the planning process. In this case, the technology aims to make people aware of abstracted and often unnoticed development plans and proposals, and to make them more visible and contextualised (Marres, 2015). The intention of ChangeExplorer was to understand how technologies designed for citizen users, rather than planners, might engage people in

communicating comments in a user-friendly way that is actionable by decision-makers. The aim of this technology, therefore, is to allow people to express their views in ways that suit them, rather than requiring them to travel elsewhere to participate.

Several authors have discussed the design requirements of technology to support workable and practicable implementations that are worth considering as facilitation mechanisms. Previous studies (Baker et al., 2007; Conroy & Evans-Cowley, 2006) suggest that traditional methods of planning fail to make citizens aware of opportunities for involvement. Haklay (2010) has also discussed the requirement to understand the abilities of non-expert users. Developments in technology allow for its use outside the typical setting of a computer: in the wild, in-situ interactions, where citizens would not have to deal with the complexities associated with geographic information systems (GIS) by allowing them to be physically located in the place they are commenting. There are additional opportunities which allow the user to remain and reflect upon their current environment, and quickly convey these (Hamilton, 2009).

As is the case with all the elements within this research, this work is built on discussions around the notion of place, rather than planning (Massey, 2005; Sandercock, 2003; Graham & Healey, 2007). There is an opportunity to create a platform that allows for ongoing engagement, rather than a process that favours selective consultation opportunities. This, it is hoped, can lead to a shift where participation is based around an ongoing discussion around where people live, rather than conversations solely when planning policy is undergoing consultation. On this basis, the overriding aim should be to achieve an open, up-stream discussion where the public shape the ideas for discussion at an early stage. The purpose of this research, therefore, was to create a platform which recognised the experiences of people that live within a city, as emphasised by, for example, Healey (1997) and Sandercock (2003); this does not suggest that the solution is technology alone, but that an alternative method could be built for people to discuss their feelings and aspirations towards place.

In exploring how new technological methods of participation might work in practice, ChangeExplorer aims to provide new means of engaging with proposals that go beyond the current provision of statutory notices in planning. Currently, these notices are one-way communication from planners to citizens on proposals (MHCLG, 2014). For the

platform to be useful for planning participation, local authorities must also identify and legitimise a real-world use for the platform. The critical question then centres around what sort of digital technology could be designed to pilot a new system suitable for citizen engagement in local planning which would also be useful to professional planners.

## **6.4 CHANGEEXPLORER**

There has been a recent growth in wearables, with 102.2 million sold worldwide in 2016 alone (IDC Research Inc, 2016). Their advantages include portability, context awareness, easier readability, and fewer missed notifications than smart phones (Rawassizadeh et al., 2015). They do, however, have challenges, such as their small screen, lack of input devices and short battery life (Raghunath & Narayanaswami, 2002; Rawassizadeh et al., 2015).

To meet the design pilot requirements to enact this research, a new app was created entitled ChangeExplorer, which ran on the Apple Watch, and also had a counterpart iPhone App for selected interactions. The app, when downloaded onto the device, would notify citizens of the potential of development change when they entered an area, and simultaneously allow them to give quick responses to the prompt-question, ‘What would you like to change here?’ (see Figure 13). Citizens were prompted to reflect on who they would like to improve the area for, and what improvements they would like to see.

Initially, they answered two multiple-choice questions, focusing on who the changes might benefit (e.g. older adults, everyone) and what form the changes might take (e.g. improved footpaths, greenery).

Following these choices, participants could expand on their comments by either dictating into their watch or typing onto their phone. All the comments were geo-tagged with the device’s location. ChangeExplorer was made up of three complementary interfaces: the watch app, the phone app, and a web platform to manage the locations and received comments. Through the development of ChangeExplorer, the pilot explored the extent to which wearables and quick, bounded interactions could be used to engage citizens in planning decisions.

ChangeExplorer was designed to be used in two ways: first, by receiving a notification informing the user when they have entered an area within which a change was proposed,

and secondly by opening the app when located in an area someone chose to comment on. The App is shown in Figure 13 (a more detailed progression through the app is in Figure 14). Users were made aware of notifications through sound and/or haptic feedback (similar to a vibration) from the watch. When their wrist was raised, dialogue informed the user that they had entered an area where the local planning authority (LPA) would like to engage citizens, with the option to either respond to or dismiss the notification, or not receive future notifications. The notification contained an easily identifiable ChangeExplorer icon (Figure 14), allowing users to quickly understand that the app was seeking their comments.



Figure 13: ChangeExplorer

The design for ChangeExplorer was informed by wider literature that identifies difficulties with planning participation (including the tendency of current planning technologies mirroring offline methods). The technology took the notion of materiality in participation and applied it to the built environment. A further aim was to pilot a technology that allowed potentially complex changes to the built environment to be explained to participants quickly when in the area of the proposed change.

ChangeExplorer met the technological requirements in four ways. First, the notifications and interactions were simple and glanceable (Raghunath & Narayanaswami, 2002; Rawassizadeh et al., 2015), allowing the selection of categories for speedier responses, with the option to add further comments if the user wished to. Secondly, there was no need for

the user to understand the structure of their local council (Le Dantec et al., 2015), or learn the use of a GIS system (Haklay & Tobón, 2010). Instead, users just responded to opportunities for participation when they came up wherever they wanted to. Thirdly, to avoid a problem with comments being too general (Nuojuua, 2009) ChangeExplorer used categories to guide the user to planning related comments; this also allowed easier sorting of comments after they were made. Fourthly, it allowed the user to reflect and comment on their built environment whilst they were physically within it, rather than having to wait until they had access to a traditional desktop computer (Vlachokyriakos et al., 2014).

The Apple Watch was chosen due to its ability to provide notifications to the user quickly, and its simple user-interface. The aim of using a watch was to design a technology that allowed for these quick interactions to seek views that could feed into earlier stages of policy development. To do this, the questions were targeted towards aspirational visions for the area, rather than comments on individual elements of any proposed scheme.

The app responded to the user's location in the built environment and used the city as a canvas upon which participants could give their comments. Comments left about the built environment, either from receiving a notification or from the app being opened, were left about where the user was, needing them to engage with the built environment as they left the comment. For the purpose of this study it was not possible to leave a comment about somewhere else; if one wanted to leave a comment on somewhere, they had to be there. It was considered important that whilst trying to understand the role of materiality, participants discussed the material environment around them. Future versions, if ever used in practice, would have this feature enabled.

During the initial pilot, it was found that designing an app that allowed citizens to communicate potentially complex ideas quickly raised a tension between allowing people to give more detailed, unstructured responses, and the categorisation of responses, allowing for speedier responses. The app was designed to be used on the move, so lessons learned from previous studies on user-interfaces on smart watches was applied, such as not having more than three touch points at a time, and allowing for easily glanceable notifications and interactions (Hutterer et al., 2005; Raghunath and Narayanaswami, 2002; Schirra and Bentley, 2015).



To address this, a phone app sat alongside the watch version. This had two functions: first, to allow more detailed comments to be submitted, and secondly to find places that were identified as changing. The phone app complemented the functionality of the watch app, rather than duplicate its functions. The Apple Watch remained the App's primary interface, but the phone's larger screen was suited for continuing comments with additional text.

#### **6.4.1. Technical Implementation of ChangeExplorer**

In order to technically implement ChangeExplorer, three systems were created, shown in Figure 14. First, a server was configured that was hosted at Newcastle University (the only interface planners needed to use) to configure the areas which would receive notifications through ChangeExplorer. Planners could add the location, the radius of the notification (how close a user needed to be to the proposal) and what was being proposed. This website also allowed planners to view and analyse comments that were generated through the app. The server would host a list of all the locations that proposals were taking place in.

The ChangeExplorer app, running on the phone, would regularly check the ChangeExplorer server for any changes, and update its database if changes were made. Apple Watch apps required, at the time, for them to have a counterpart phone app. The phone app did most of the computing of a user's location and their proximity to proposals. The benefit of this architecture allowed the watch's relatively small battery not to be overburdened, and therefore, ensured the watch's battery life was not used drained unduly quickly. When the phone indicated it was next to a proposal it would send a notification through the smart watch.

The smart watch would provide a notification and allow users to see the proposal. The user's comments are sent back to the phone and uploaded to the ChangeExplorer servers to be viewed by planners.

#### **6.4.2. Testing and Evaluation**

The pilot evaluation used a case study to assess the effectiveness of the app in North Tyneside. As described in the methods chapter, the technology was deployed to assess options for the seafront regeneration scheme. Whilst using the technology participants

could respond to proposals that were part of the masterplan, as well as leaving their own comments on places they felt to be important. Officials from the Council suggested using the pilot project as both a method of collecting views of citizens within the area and to evaluate the ChangeExplorer app. The proposals on the seafront were added to the app, alongside other proposals in the surrounding areas, such as those in the area participants worked, lived and visited (such as Newcastle city centre).



Figure 14: Details of ChangeExplorer’s client server architecture and screen shots of the watch’s interface; screen shots of the notification being received, the app on home screen, and the process of leaving feedback and confirmation

The pilot took place over four months in 2015 and included 19 participants (9 male, 10 female) aged between 14 and 50 years old, with a mean of 25 years, most of whom lived in North Tyneside.

Participants were given Apple Watches to wear during the pilot period and the average length of time for the deployments was 10 days (187 days of usage in total). Aliases have

been used and personally identifiable information removed to maintain participants' anonymity. Participants were recruited through North Tyneside Council's youth participation and engagement team. They were not compensated for taking part in the study and all watches were returned at the end of the pilot.

None of the participants were previous owners of an Apple Watch. After the app was installed on their iPhones, it was paired with the Apple Watch. They were given a quick demonstration, showing general usage of the watch and how to leave comments, and told what to expect while taking part in the evaluation. They were asked to wear the watch during their day-to-day activities, and to leave comments should they want to. Participants were informed of their right to withdraw from the study at any time and the policies for protecting their data and identity.

Alongside the nineteen citizen participants, three professional planners were recruited for the evaluation to assess the suitability of the citizen comments for practising planners. These planners were responsible for developing policies in the three local authority areas people participated in – North Tyneside Council, Newcastle City Council and Northumberland County Council. These planners were recruited to review all the data collected through the pilot app, and to discuss how they might use comments through such an app during their existing policy development processes.

#### **6.4.3. Data Methods and Collection**

In order to assess the technology, the research used two data sources to understand how the app was used: interviews and the comments made through the app. The interviews explored how citizen participants understood and interacted with the watch, and whether they felt they could represent their views through the technology. The planners were also interviewed, who, after viewing and exploring the comments made by the participants, discussed how the app could be used during their practice. Each interview lasted approximately thirty minutes and took place in a café within North Tyneside Council's offices. They were recorded and transcribed verbatim.

The interviews and comments were analysed separately using thematic analysis outlined in Braun and Clarke (2006), described in the methods chapter. The themes were semantic based, with inductive thematic analysis used to generate themes from the data. The app

data was separately thematically analysed for the research purposes, rather than for sharing the app’s comments with the planners.

## 6.5 FINDINGS

The following section discusses the responses to the technology from both citizens and planners.

### 6.5.1. Citizen Responses

This section discusses the findings of the deployments, both from the app and from the interviews, with both citizens and planners. During the app’s use by 19 citizens, 124 comments were made, averaging almost 7 comments per participant. In addition to selecting categories, 29 of the comments included text, which averaged 12 words per comment.

For who...		By Doing...	
Everyone	56%	Greenery	25%
Children	11%	Something Else	20%
Families	10%	Cleaning	11%
People with Physical Impairments	8%	Picnic Facilities	8%
Teenagers	8%	Playground	5%
		Sports	5%
		Lighting	4%
		Seating	4%
		Toilets & Café	4%
		Improved	3%
		Footpaths	3%
		Retail	2%
		Culture	2%

Table 9: Category choices made by users through the app

During the study, 17 geographical points were identified by North Tyneside Council where changes were being considered. 42 (34%) of the comments were made because of a notification on the user’s watch and made at a point identified by the council. 82 (66%) comments were made without a notification, but rather by the user opening the app on their own accord.

Table 9 shows the categories of the improvements selected by respondents. It shows most used the ‘Everyone’ category – suggesting a view that the public realm should be easily

accessible to all. Among the others, there was a relatively even spread of category choice, demonstrating the variety of public realm improvements participants wanted to communicate, and a feeling that their comments were not shaped by the pre-selected options available. The text comments usually either expanded the selected category choice, such as the specific type of improvement, or provided a brief statement discussing another matter if the respondent had chosen ‘other’. The spatial distribution of the comments can be seen in Figure 15. The map demonstrates that most of the comments were left on Whitley Bay’s seafront, Newcastle City Centre or within the North Tyneside area. Planners were able to click on the map to see what the comments were, or view participant’s category selection overlaid on an area.

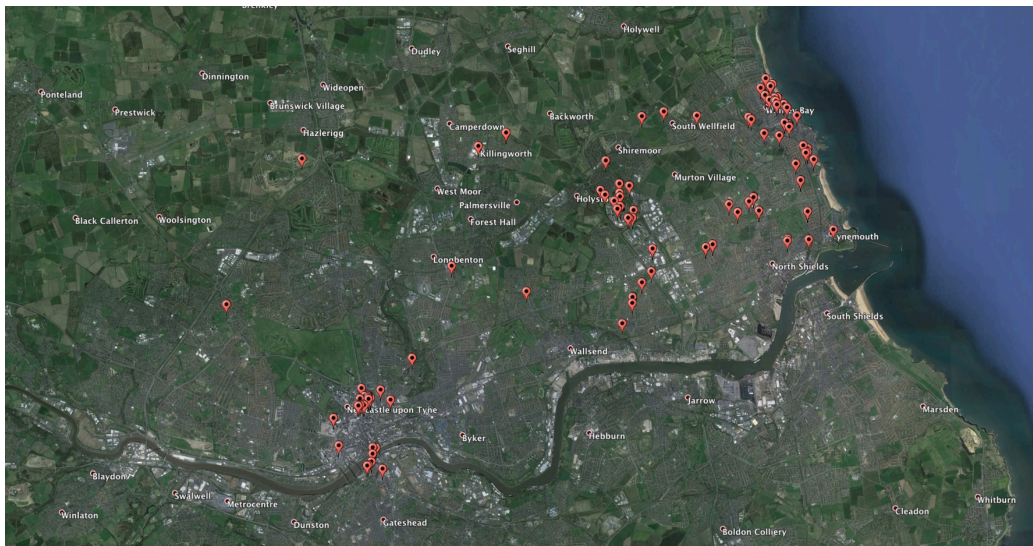


Figure 15: Location of Comments made through ChangeExplorer

Many participants spoke favourably of being able to view notifications and leave comments quickly before leaving an area and stated that it allowed them to understand when they entered an area where the council were seeking comments and make their comments in-place. Participants spoke of the advantages of being able to see the notification quickly and decide if they wanted to leave a comment in that moment; interviewees stated; “[the watch] brought it to your attention, whereas your phone buzzing in your pocket you think ‘oh, I’ll sort that out later’” (Daniel), illustrating the advantages of the watch in making them aware through glanceable notifications that encouraged and allowed for quick responses. They discussed, when they are ‘out and about’, the ability to be notified of when they had entered an area – “I spend a lot of time

out and about with the kids doing things, and I would give my views quite a lot on places, if I think it's untidy or dirty" (Jessica).

There was positive discussion around being able to leave thoughts about an area quickly, thereby giving it an advantage over other forms of planning participation. These findings corroborate other work (Raghunath & Narayanaswami, 2002; Rawassizadeh et al., 2015), and offer an insight into how planning participation can leverage quick interactions and notifications to prompt people to think about their neighbourhoods. The intention of the platform was to allow for open-ended dialogues around place, rather than one with strict parameters; aiming to get away from a planner's pre-conceived ideas of what the conversation should be about. The categories aided the sorting of these comments into different discussions that were taking place.

When giving comments, most participants stated that the categories for choosing the improvement were suitable to the changes they wanted to communicate, further demonstrated by only 20% of comments being 'something else' (Table 9). Some did, however, feel that choosing categories for their comments served to limit what they thought they could communicate: "For me personally, it was quite limiting, because I would just put 'everyone' all of the time, instead of that long list of people, and I think the choices about what you would change, like 'greenery', 'litter' – was limited. I'd prefer to just write a comment" (Jessica), or Fred stating: "there were things that I wanted to say, weren't in the categories, so I had to go to 'somewhere else'".

When expanding on their comments, typing into the phone proved the most popular method, with Fred stating: "it's just more easy to type... you could just say whatever you wanted which was quite good". This suggests that although the comments were suitable, many felt they needed to expand on their comments and provide more than just selecting a category, and appreciated the freedom allowed by typing in their responses without having to address their opinions formally in a letter or email – the traditional means to communicate comments. This indicates the importance of participation that takes place in-situ with lower barriers than traditional methods, and how the removal of the need to engage with formal methods can serve to increase people's willingness to participate.

One tension that emerged from the findings was balancing of speed and responsiveness with a desire to leave expansive comments. Participants expressed a desire to give more information on their thoughts, by expanding on their category selection. For example, some saw photography as a way of effectively communicating their ideas; “if you were able to take a picture of what it looks like now, and then do a quick sketch of what you think it should look like, I think that’d be really good” (Peter). This suggests a desire for fuller-participation but still within the app, and instead of receiving a notification and responding to it in-situ, they suggested expanding on their comment after returning home. Participants stated that they would be willing to discuss their views in more detail by attending meetings or writing letters to decision-makers. Some respondents expressed an interest in having more discussion about places: “You give feedback, and it’s not a discussion... we can’t just get rid of things, but we can have a discussion about it, saying actually ‘What could we do here?’” (Harry). This creates a tension in either having a bounded, limited app for quick interactions and low-friction participation, or increasing the burden on users to submit a comment, with a need to create an app that can no longer be used easily in-situ, but one that would encourage more involved discussion.

The pilot found that participants also wanted more information on the areas than the app provided, stating that they would like to receive information on the exact changes that were proposed and when it would be likely to happen. Jack commented: “it was restrictive in terms of the length and the detail that [it goes] into... and that kind of nuance you completely lose because of the restrictions of the device”; Sophie indicated she would like “a little bit more information”. This lack of information often manifested itself in participants focusing their comments towards problem reporting (reporting issues that are easily resolved), rather than shaping a future vision for the area.

When prompted about this during interviews, participants stated that the notifications encouraged them to immediately reflect on the areas, and that it was usually a maintenance issue that was immediately obvious. In this case, the physical environment may have served as a distraction to leaving some comments – rather than leaving thought out comments about places, the immediacy of the technology led to people reporting on what they first saw, rather than reflecting on the wider area.

However, without a notification being received, participants gave visions of what they would like to see, often drawing comparisons to other areas, for example, ‘we should have a park like *x* does’. Many participants saw the app as a way of evidence gathering around issues, and requests for being able to submit photographs to document these problems. For example, Jessica stated: “I would definitely take photographs if I had seen something that was bad – or needed change”, and Fred: “instead of typing ‘someone graffitied on a wall’, you could take a picture”. Photography for aiding participation was shown to be effective by Al-Kodmany (1999), where photo-realistic images were used to communicate and critique changes, but this demonstrated issues with the time and expert resources required to make these.

The quick interactions may have led to people feeling they could not sufficiently express their vision for the area and, instead, opted for improvements that were easier to communicate, with a simple ‘that’s fixed’ solution. Similar observations were made by Vlachokyriakos et al. (2014), where the voting device was not able to capture the richer discussions that took place around the vote. The quick interactions may have encouraged an equally quick reflection, with participants submitting the first thing that was obvious. Yet participants also valued the notifications for motivating them to think critically about the area they were in at that moment, and imagining the future of an area. They saw value in being prompted to think about the area:

*“It pushes you a bit. I think it’s useful to try and force opinion out of someone – just say I’m walking through a new area, hardly been there before, and you think, if I was to come back here, I’d like that” (Peter).*

Several noted themselves reflecting on their environment more frequently, regardless of if they submitted a comment: “it kind of made you think about the local area more” (Fred), and “when it pops up, you probably have more of a think about... the area that you’re stood in, so, yeah I was quite aware of noticing things” (Jessica). Vicky discussed this whilst being driven through North Tyneside and receiving a notification prompting for her views:

*“It was weird – you do start getting more interested and more aware of what’s around you. Because when I was driving through North Tyneside I went past the Spanish City and obviously I*



*got a notification, and I was like 'look, there's something happening' and I was looking but normally I just drive past and not even look".*

Participants stated that although a lot of the comments received through the app were problem reports, the app seemed to influence how participants experienced the areas. The interviews suggested that they saw their environment increasingly critically, noticing both problems they had not seen before and opportunities for improvements. Whilst ChangeExplorer could encourage the participants to reflect on their environment, it was not always able to capture these. It was thought that through quick and in-situ interactions, comments would be easier to communicate, but there is a balance to be struck between quick feedback, and time-consuming but often more detailed reflections; echoing the findings of Vlachokyriakos et al. (2014).

### **6.5.2. The Planners' Perspective**

Interviews with the planners of North Tyneside Council and two neighbouring areas (Newcastle City Council and Northumberland County Council) provided interesting insights into how the app could be used within a local planning context. The planners considered that the citizens' comments would be useful for those trying to understand the difficulties and changes a community would make to their neighbourhood at early stages of policy formation and understanding how people use space. This would be particularly true during the evidence gathering stage (gathered to support planning policy during its writing) and when trying to understand how space is used:

*"As planners, we probably have trouble picking up the value feelings that people attach to particular places, or buildings, or parks... We have all the empirical stuff, whether the site floods, we can pick up a lot of that off data, but it's how people feel about particular places" (Sheila).*

It was suggested the comments would be useful for regeneration, with the aim of improving an area as compared to city-wide planning policy formulation, and the value of the technology allowing earlier engagement with the plan-making process. They stated that the comments would be used to get a grasp of problems being faced by an area and, in time, they would be looked at with the intention of integrating the evidence into planning policy, but raised a few potential issues with the use of technology and town planning. They discussed issues around verifying whether the comments were from

citizens of their area, so they could have “a foot at the table”, but that they “don’t necessarily see that as being a difficult exercise”. They also stated the platform might not lead to immediate change that citizens might expect, echoing King and Brown’s (2007) findings with the users of FixMyStreet, where the expectations of a speedy resolution of a problem was not met, stating:

*“we also need to be careful of the exceptions – we want to get information out quickly; people will naturally assume that our way of dealing with it is as rapid [...], the whole business with technology, it’s great, but you know, people will basically demand a response there and then, and unfortunately [...], it’s not that easy [...]. It’s probably about an education role about how the process works and not unduly raising those exception levels”.*

The planners valued the longer, text comments more than the category selection. They did, however, suggest that more targeted questions and categories for selection around specific information they were trying to elicit would help make the short replies more valuable. They also suggested the platform could be used to signpost citizens to more traditional methods of participation, where they could ask for more detail on comments that citizens had previously made, stating: “this could almost sign post them [...], so they can start to see immediately, or get home, and then be able to look into the detail”.

## **6.6 CONCLUSION**

The deployments and subsequent interviews offer interesting insights into planning participation through smart watches and, more widely, implications for in-situ technology surrounding citizen engagement using pervasive devices. The findings are useful to inform planning participation methods and mobile planning participation.

The app led to participants thinking critically about the areas they inhabit and pass through. The notifications were an effective tool in encouraging participants to think about what they would like to change and for them to feel empowered in raising relevant issues. It allowed participants to know where and what they were making suggestions on, and when to give their comments, in the context of understanding their current location. The notifications and quick in-situ interactions allowed the app to address some of the issues with current planning participation methods. Allowing for lunchtime participation,

which does not require a significant amount of time to undertake, is a significant move towards reducing barriers for participating (Baker et al., 2007; Conroy & Evans-Cowley, 2006). Reducing barriers to participation is one step in gathering the opinions of those that currently do not engage with the planning process, widely acknowledged to be important (Baker et al., 2007).

The app was effective at simplifying methods of participation, but sometimes this oversimplification led to people only reporting issues, rather than presenting a vision of the future. Problem reporting is potentially easier to resolve, but does not reach the goal of giving citizens an enhanced role in shaping the future of their area. The pilot study contributes to understanding the implications of mobile and wearable technologies to encourage greater reflection and participation in planning. It also demonstrates how these quick-interactions might be configured to make them useful to professional planners and decision-makers, and how in-situ comments can lead to a better understanding of what is being commented on, and a simplified method for sharing these comments.

There has been a tendency for planning participation methods to ‘throw citizens in at the deep-end’ (Baker et al., 2007). Citizens are often required to understand legalistic language, read long documents, or travel to meetings to have their voices heard (Conroy & Evans-Cowley, 2006; Baker et al., 2007); they are asked to comment on policy documents that are usually phrased differently to how they experience their everyday life. The app, being location-based, helped overcome some of these issues. ChangeExplorer addressed some of the barriers discussed elsewhere (Gordon et al., 2011; Conroy & Evans-Cowley, 2006; Baker et al., 2007), by lowering barriers to participation. Once citizens had thought, reflected, and recognised what (they perceived as) needing improvement, they stated a desire to take their comments further and engage more thoroughly in discussions.

Vlachokyriakos et al (2014) and Koeman et al (2014) both demonstrated the power in engaging populations in lightweight interactions as a gateway to fuller participation methods. Participants enjoyed the quick interactions the app allowed, but also wanted more context on what they were commenting on and to provide more information on their visions. The pilot research built upon this understanding and applied it to planning participation.

Understanding the role of information and data provision and participation is still being explored in a movement towards our increasingly data and technology filled cities (Townsend, 2013). What this research shows is that there is a balancing act between providing enough information to allow informed judgements, and information that is easily understood, which ChangeExplorer probes. What this information was shown to do, however, was to engender an interest in finding out more, and sparking an interest in this kind of information.

There is a complicated space between selecting categories and communicating a vision. The research identified that while participants wanted both, they would be willing to engage with more in-depth planning participation methods if they felt strongly about something, after realising there were opportunities to have their voices heard. This suggests the need to develop a range of participation tools as a potential solution to both the lack of depth to quick-interactions and towards more engaged current planning participation methods.

The role of ChangeExplorer was also discussed by the practising planners, who stated that small pieces of information can be useful during evidence gathering. ChangeExplorer demonstrated a value in these smaller pieces of data, that can aid planners in understanding how space is used and how citizens experience place.

Technology-mediated planning participation could embrace a gradient of planning participation. With this gradient, lightweight methods of planning participation are both an opportunity to provide information useful to planners and aid planning participation, and as a stepping-stone into more engaged methods. Digital technologies can facilitate and encourage this escalation of involvement when it suits the citizen. Through developing and deploying ChangeExplorer, the pilot has contributed to research on both wearable-mediated citizen participation and mobile participation fields.

### **6.6.1. Material Participation**

Using the built environment to materialise the often abstracted and difficult to interpret planning policies and proposals has an interesting effect on participation. In this section, the research briefly reflects on the citizen response to trying to materialise planning in the built environment.

ChangeExplorer demonstrated that locative technologies can be used to enhance engagement with the built environment, often encouraging people to reflect and critique the places they are occupying, and to encourage them to put their viewpoints forward. This increased engagement, whilst being quick and efficient, did lead to some shortcomings that were not expected. It was hoped that using the material environment around people would lead to more visionary thinking that other methods do not allow. However, it seems this often led people to commenting on what was in directly in front of them rather than the proposals at a level that could directly contribute to their consideration. The material environment, in these cases, may have acted as a distraction when trying to get future-looking comments that could feed into long-term planning policy, where it served to encourage people to reflect on quick changes rather than long-term changes that planning policy can take into consideration.

Generating interest and timely involvement in the material environment that did not distract them from their day-to-day activities proved challenging. In the short amount of time one has whilst travelling between places, it is difficult to get equally quick opinions on the long-term changes people want. The amount of time participants had to spend in that location, in addition to the constraints of the watch, limited the amount of information that could be communicated – both about the changes that were taking place, and, the participant's thoughts.

Trying to get people to participate in responses to changes to their local environment, using abstracted policies and proposals as prompts, meant that many of the responses were category selections rather than comments. Whilst citizen participants preferred this type of response, planners preferred comments. A larger number of category selections may provide more information for planners in the future but in this small-scale deployment, it was difficult to assess the benefit of these quick responses. Future methods and technologies need to, therefore, find a balance between speed, efficiency, location (in-situ or not, engagement with actual environment, etc.) and the type of comments sought.

Whilst there were several shortcomings of the technology, ChangeExplorer was effective at generating interest in planning through raising awareness of abstracted planning policies and proposals which often bear little resemblance to the actual lived experiences

of places. One of the benefits of locative technologies, such as ChangeExplorer, is generating an interest in further involvement in changes that effect people's experiences of where they live. Rather than requiring participants to comprehend planning policies, the technology encouraged some people to seek opportunities for participation. These methods, particularly informal methods, should draw on the benefits that linking proposals to the material environment have, but understand the potential risk when speed and efficiency are over-emphasised.

## **6.7 CHAPTER SUMMARY**

The chapter has reported on the design, deployment and evaluation of a technology that allowed and encouraged participation whilst being in the built environment. Whilst the app was effective at simplifying methods of participation, this simplification came at a cost, sometimes leading people reporting issues, rather than presenting a vision of the future that could feed into long-term planning policy development.

The technology's analysis raised the question of how technologies such as ChangeExplorer might feed into a gradient of participation methods that serve to provide the means for people to participate that are more closely aligned to how people would like to participate. This gradient provides the opportunity for lightweight methods of planning participation is both an opportunity to provide information useful to planners and aid planning participation, and as a stepping-stone into more engaged methods.

The following chapter will further examine the bearing that material objects can have on participation. In the next pilot, the research will explore the role of physical devices in prompting participation, and explore how, through these devices, participation can be facilitating through a single-purpose device. It will discuss a technology, JigsAudio, that encourages expressive and creative engagement with matters of place.

# 7

## **JigsAudio: Exploring Creative, Expressive & Tangible Participation**

Introduction

The Changing Role of  
Citizen Participation in  
Planning

Human Computer  
Interaction, Town  
Planning & Participation

Methodology and Technology Pilots

Twitter

Change  
Explorer

JigsAudio



# 7. JigsAudio: Exploring Creative, Expressive & Tangible Participation

## 7.1 INTRODUCTION

This chapter explores how alternative digital methods which encourage participation can engage people in discussions around their neighbourhoods' future. This chapter sets out to critique planning engagement methods that fall short of genuinely engaging people on their terms; and favour methods developed by planners which do not reflect the way many people view and conceptualise place. Building on the previous case studies, the chapter applies the lessons from previous case studies to the design of a physical device aimed to encourage participation in early policy development. Previous work has shown the potential of creativity in providing a method for people to share their emotions, reflections, and visions of their neighbourhood with an emphasis on expressiveness and artistry (Al-Kodmany, 1999; Frank, 2016).

This chapter explores whether a digitally enabled method could inspire the sharing of place-meaning and encourage deeper involvement in place-making. Previous methods (both within this thesis and more widely) have explored participation methods that can be used when in the city, and focus on making participation faster and reducing time barriers to participation (Baker et al., 2007; Evans-Cowley and Hollander, 2010). In contrast to these, this chapter explores whether digital technology which encourages 'slow computing' (see, for example, Odom et al. (2012) or Cheng et al. (2011)) can support expressiveness and creativity in people sharing their aspirations, experiences and place-meaning, and how physical computing (rather than software or apps) can encourage participation that more closely aligns to how people want to express themselves.

Specifically, this chapter investigates how drawing and talking might engage people in discussing their feelings towards places that may be too difficult or complex to communicate through traditional planning engagement methods alone, and to overcome some of the difficulties with previous case studies. To explore the role of creativity and expressiveness in discussions around where people live, a pilot was used to study the design, development and use of a digital device that encouraged people to express their

feelings and visions on where they live. Through developing the technology, the chapter aims to identify the degree to which digital and non-digital techniques can complement each other to both reduce barriers to engagement and give people an enhanced say in how their environment changes.

This chapter documents a digital technology that automatically identified a drawing and allowed participants to record an audio message that was associated with the drawing. The technology was deployed in several different settings with various topics concerning feelings towards place, and visions of the future, to evaluate its use. The platform was seen as an effective means of getting people to talk about pertinent issues which were of interest to other's research. Therefore, the device was used by other people within their research, which this research will briefly report.

The chapter develops an argument for the use of creative methods on citizens terms when discussing place. It deliberates on the scope of this technique within urban planning processes and discusses whether interactive digital technologies can provide new opportunities for people to have an earlier and enhanced say in planning. It ends by discussing the potential of using informal consultation methods, and whether they can open up new modes of dialogue and that allow for richer responses than current participatory methods facilitate.

## **7.2 CONTEXT**

This research takes place within a context of creating a space for creating dialogue and the sharing of experiences between citizens and planners. Massey, for example, draws a distinction between how citizens and planners see space. For example, it is argued by Massey (2005) and Lefebvre (1991) that citizens see cities through a lens of multi-faceted lived experiences, whereas planners see places through development proposals and land use allocations (Massey, 2005). Lefebvre (1991) argues that our ways of living in the world are made through our interactions and understandings of the lived experience of space, and sees space as evolving and organic, rather than through the physical and scientific understandings of space that planners identify with and govern through.

### **7.2.1. Communicating Place**

It is widely recognised that the way people experience places is a lot more varied and multi-faceted than planning is able to take into account or deems relevant (Graham and Healey, 2007), with these differences widely conceptualised (Lefebvre, 1991). There is, however, less of an understanding of how these experiences might be captured and communicated through digital technologies. The question explored in this chapter is the role of digital technologies in communicating these place attachments and experiences, and the extent to which these can aid a discussion about place.

To do this, the pilot engages with people's creativity, as well as other expressive methods, that can assist people in communicating these. Creative expression is in stark contrast to Euclidean, scientific views of space – “maintain[ing] the reductionist assumption that cities and places can be considered unproblematically as single, integrated, unitary, material objects, to be addressed by planning instruments” (Graham and Healey, 2007, p. 624). Previous work has demonstrated that through using creative methods in planning participation that embrace imagery, dialogue can aid visionary thinking about the future of places, rather than encouraging problem reporting (Al-Kodmany, 1999; Innes and Booher, 2007; Frank, 2016).

Creative methods have been used previously to involve and enhance the citizen's role in planning. For example, Al-Kodmany (1999) used imagining tools to encourage participation in neighbourhood design workshops. During these workshops, digital artists generated photo-realistic images which “helped to unveil critical issues, constraints and opportunities [and] provided a storyboard of the community's conversation” (Al-Kodmany, 1999, p. 44). There was difficulty with citizens using the technology to generate these images, but once they were generated, they were effective at communicating the community's wishes and creating a common language amongst them (Al-Kodmany, 1999). It demonstrates that whilst imagery was useful in encouraging people to think creatively about their built environment, technology can also create barriers to people being able to express themselves.

In contrast, using non-digital methods of communicating through imagery has been common practice; with guidance on the creation of planning policy recognising the benefits of images encouraging dialogue and visioning in planning (Frank, 2016). For

example, Locality (a network of UK community-led organisations) states a participation method “that works particularly well with school children is to ask them to draw and/or describe how they would like the area to be in the future” (Locality, no date, p. 32). This method recognises the common language of imagery and dialogue (Al-Kodmany, 1999), and the opportunities it provides for engaging new people. Using drawing as a method for communicating ideas and visions for the future is also a well-established method in civic engagement activities, particularly for young people (Dennis, 2006).

Frank’s (2016) review of planning literature provides insights into how more creative planning methods can be used to engage young people. Among the discussion of approaches there are calls for methods that “give youth responsibility and voice [and] encourage youthful styles of working” (Frank, 2016, p. 366), and the importance of artistic expression in getting youths to express themselves. Frank (2016) calls for techniques that are “social, dynamic, interactive, expressive, constructive, and challenging” (Frank, 2016, p. 368). Dennis’ (2006) study documents how young people’s perceptions of their built environment were attempted to be mapped, but found that the comments made were about areas rather than single points, which did not lend themselves to being mapped. Rather than discussing specific places, they were organised thematically about the entire neighbourhood. These two ways of viewing space, as full of feelings and experiences which are place-related which are interconnected, ambiguous and without borders, echo Massey (2005) and Sandercock’s (2003a) understanding of place.

This section demonstrates how creativity has been used to engage people in placemaking through sharing subjective thoughts about the future of where they live. What is less common is sharing these through digital technologies. People wanting to express themselves through technology must usually use complicated graphic or 3D design packages, which presents a barrier to a lot of people. The aim of the next section is to describe how tangible technologies have been used to reduce barriers to using conventional technologies and encourage self-expression.

### **7.2.2. Tangible Technologies**

Tangible technologies, as discussed in the earlier literature review, is a field of HCI that explores the use of alternative interfaces to digital technology. Earlier applications of tangible technologies provided alternative interfaces to technology without using

conventional computers – allowing people to engage with technology without taking them out of the ‘real world’ (Shaer, 2009). These technologies provided novel interfaces to tasks that typically required the use of a mouse and keyboard. Since HCI’s move towards more civic applications of digital technologies, tangible technologies have been explored for citizen engagement and providing alternative means of participation (Taylor et al., 2012; Vlachokyriakos et al., 2014; Steinberger et al., 2014; Koeman et al., 2014; Taylor et al., 2015; Gallacher et al., 2015; Golsteijn et al., 2015).

*“Tangible Interfaces have an instant appeal to a broad range of users. They draw upon the human urge to be active and creative with one’s hands, and can provide a means to interact with computational applications in ways that leverage users’ knowledge and skills of interaction with the everyday, non-digital, world” (Shaer, 2009, p. 4)*

Whilst previous studies have found that technology creates barriers in its understanding, tangible communing aims to make digital technology more accessible (Cerezo et al., 2014) by “manipulating everyday physical objects” (Koleva et al., 2003, p. 46), and giving a “physical form to digital information” (Cerezo et al., 2014, p. 2). Golsteijn et al. (2015) argue for a move away from digital screens due to “display and interaction blindness” (Golsteijn et al., 2015, p. 202) and towards tangible interaction methods. They find that the visual appearance of technologies can attract people to participate, allow them to understand an activity, and create a honey-pot effect, where seeing a group of people engaging with a technology encourages others to do so (O’Hara et al., 2008; Golsteijn et al., 2015).

Given this research explores the use of alternative interfaces for participation that engage with physicality, engaging with tangible technologies provides a useful candidate for exploring the use of technologies that promote reflection, dialogue and shared understandings. The next section will discuss how the research and pilot was designed to explore the potential of tangible technologies in sharing place making and experiences.

### **7.3 RESEARCH QUESTIONS**

Taking insights from previous research, the work in this pilot sought to develop a creative, visual and technological method that could be used to enhance citizen involvement in communicating their emotions towards places. Through this pilot, it seeks to answer

questions surrounding whether technology which harnesses creativity and expressiveness might be helpful in planning:

- Can bespoke technology be utilised to reduce barriers to discussing urban change whilst not creating further barriers through the deployment of bespoke technology?
- Is there a role for technology in expressive, creative and interactive techniques to engage young people in debate about urban futures and sharing experiences? and
- Does this digital creativity encourage a movement away from problem reporting in technology and towards visioning imagined creative futures?

As discussed within the aims of this research, it aims to explore how alternative planning participation can engage people in sharing their perspectives towards place, and getting perspectives from those that usually choose not to participate. Through doing this, it aims to explore whether these technologies can better align participation methods to how people both experience places and want to participate. The next section discusses how these were factored into the design of the piloted technology.

## **7.4 DESIGNING JIGSAUDIO**

To explore the research questions, a technology was designed and deployed. Requirements for the design of the technology are discussed below.

First, it was important for the technology to allow people to be expressive in how they communicate their feelings towards place (Frank, 2016). Taking Massey's (2005) work as a design inspiration, it sought to allow people to express these feelings in ways that are more expressive than traditional participation methods. As discussed above, there is a dearth of literature in how people experience places and how they communicate through technological means. The aim, therefore, is to develop a technology that can better align the two.

Second, it was desirable for the technology to be easily understood by the participant and not require a researcher to be present; allowing people to use the technology unsupervised and give them the time they needed to develop, reflect on and communicate their

thoughts (Leong and Brynskov, 2009). Public meetings, for example, usually require people to have fully formed comments, and then have the confidence to speak in front of others. The device should allow people to participate in their own terms, rather than have it be dictated to them through facilitators.



Figure 16: Top: JigsAudio Device. Left: Let's Talk Parks Deployment. Right: Aliens Love Underpants Deployment

Source: Author

Third, the technology should give a feeling of being part of a larger activity. The desire was to create a 'honeypot effect' (O'Hara et al., 2008; Golsteijn et al., 2015), that encouraged passers-by to engage with the activity. It was hoped that by being part of a collective exercise it would encourage critical perspectives that might be difficult to convey face-to-face and encourage people who might not usually participate in place change discussions.

Taking these into account, a device was designed and constructed named 'JigsAudio'. The device is a technology that encourages people to express themselves through drawing and talking. Participants are required to draw on a large jigsaw piece, and then place it on the JigsAudio device to make a simultaneous audio recording of the depiction, which is attached to the drawing. The two components – drawn jigsaw piece and audio representation – are then brought together and displayed on a bespoke website.

The rest of this section describes the design of JigsAudio, and how the method was used. Figure 16 shows the device in three settings where it was used to explore a range of place-related topics (discussed in the next section).

#### **7.4.1. JigsAudio Hardware**

The JigsAudio device reads the RFID tag (radio-frequency identification; similar to those used in contactless bank cards) on the jigsaw piece. The participant then records an audio clip that is associated with their jigsaw piece and the piece is then placed within the jigsaw. JigsAudio contains a Raspberry Pi (a bank card-sized computer), an RFID scanner and a microphone. Seven JigsAudio devices were fabricated: six with built-in batteries and one mains powered. The jigsaw pieces were made of wood or mountboard with an RFID tag embedded within it. Writing media and craft material were made available during deployments. To use JigsAudio, as the participant places the jigsaw piece on the device the record button illuminates. After being pressed, a light flashes to indicate it is recording. Pressing it a second time ends the recording. The device was designed for relative ease of use and only had one button. Following the deployment, the jigsaw piece is digitised and displayed alongside its audio on the website. The jigsaws were displayed online in the same arrangement as they were laid-out physically, with a play button for each jigsaw piece (Figure 21).

The JigsAudio device is a bespoke piece of hardware made of several components; both off the shelf adapted hardware, and custom-made casing. Significant attention was given to the aesthetics of the device as well as its cost. The case was laser cut 3mm acrylic (or 2mm cardboard depending on the deployment). The acrylic was connected using innovative tongue and finger joints which accepted M3 screws. Internal components were



held in place by retaining trays. The design for the pieces which were laser cut are in Figure 17.

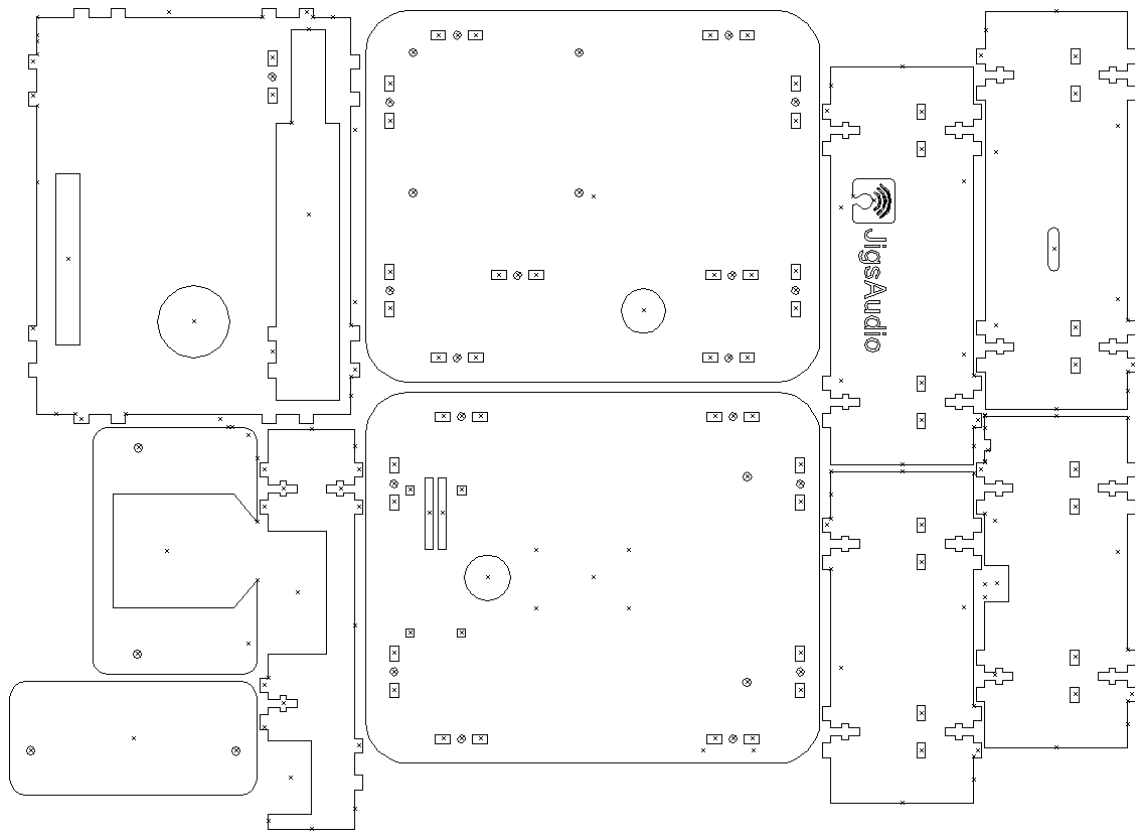


Figure 17: Laser Cut Acrylic for JigsAudio's Case

Source: Author

It was felt to be important that the device had a finish and polish to it that would make it appear to be an off-the-shelf consumer technology. In order to achieve the desired fit and finish of the device, it had to both look and feel finished, but also unimposing and inviting. For example, the device had to feel solid (i.e. didn't warp at all when squeezed or picked up, and could be shaken and not rattle), and had to look like it was mass produced (i.e. no signs of being handmade, no visible soldering or handmade connectors).

Through several iterations of the device, one design was arrived at. Following on from the initial design, the later device included an internal battery (which powered the device for around 8 hours) and was redesigned internally to accommodate a cheaper RFID reader. Figure 18 illustrates the core components of the JigsAudio device.



Figure 18: JigsAudio Components (Left to right: Perspex, Raspberry Pi, RFID Reader, USB Microphone and RFID Tags/Stickers)

Source: Author

As the device was held together with screws (rather than glue) the device could be easily modified for each deployment. For example, the device's top plate was changed depending on the activity the device was being used for (the place where the jigsaw piece is placed when a message is added).

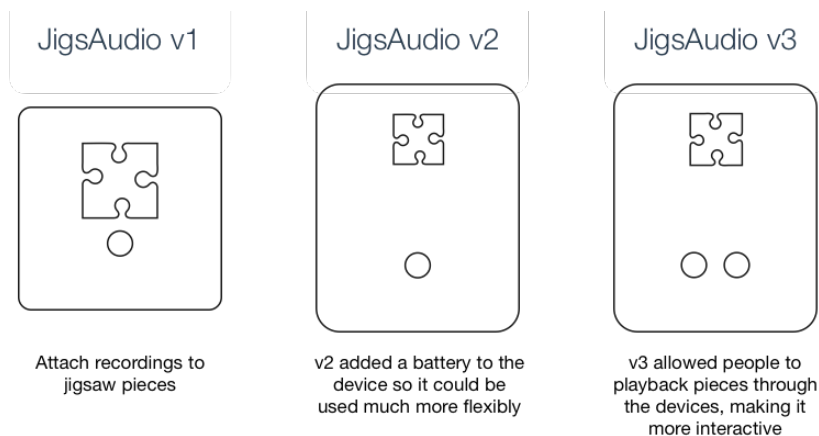


Figure 19: Versions of JigsAudio

Source: Author

Throughout the course of the research three different version of JigsAudio were designed and fabricated (Figure 19). The first version was connected to an external power supply and was designed to be used in a fixed place. After several uses, it become apparent that people wanted to pick up the device, either to look at it or to speak more closely into it. It was also increasingly being deployed in places where there was no mains power. For the second version, a built-in battery was added to the design. Once the device was charged, its battery would last for the day. The third version introduced a 'play' button, which

allowed participants to listen to other people's jigsaw pieces by scanning a piece and pressing the 'play' button which illuminated if there was a recording on the device.

Designing JigsAudio was a constant process of asking "How could this method and device be simplified? What could be removed and still allow it to function? How could people use this independently?". Answering these questions manifested themselves in several ways. Buttons that provided functions that could be automated could be removed, and were used to display the status of the device rather than needing a screen (for example, a flashing red light, well recognised as representing 'recording', instead of using a screen). The device design was able to suggest how to interact with it (for example, instead of having text instructions on where to place the jigsaw piece iconography of the piece represented where it should be placed. Previous work, such as by Dow et al. (2016) demonstrated how a single-use device led to increased engagement when the simplicity of its interface was a key design decision.

First, by utilising a technique that allowed people to draw, write and discuss their thoughts visually, the aim was to allow participants to communicate more complicated thoughts than just writing prose would allow.

Second, by keeping the technology easy to use, Steinberger reports "it seems to contribute to users skipping over the part where they contemplate whether they should interact at all" (Steinberger et al., 2014, p. 49) and encourages participation. With this ease of use it was hoped that participants would not require supervision and would be able to use the technology in their own time. Third, by displaying the resulting jigsaw it was hoped that more people would become engaged with the activity through seeing a novel approach to engagement.

JigsAudio met the earlier discussed framework for tangible technologies in the literature review through four characteristics (Ullmer and Ishii, 2000, p. 4): (i) the design of the device uses jigsaw pieces to interface with digital information; (ii) the jigsaw pieces as artefacts are used to interact with the device; (iii) the jigsaw pieces are 'perceptually coupled' to the digital data on the device and (iv) the digital state of the jigsaw pieces can be determined from its physical state (if it is on the device it is ready to record onto, if it is drawn on someone has already made a recording, etc.)

### 7.4.2. JigsAudio Software

The device contained a Raspberry Pi which ran a python script on start-up. The script waits for a jigsaw piece to be scanned, which enables a recording to be made. This recording is then associated with the physical object that was scanned. The audio could be played back by scanning the piece again and pressing the play button.

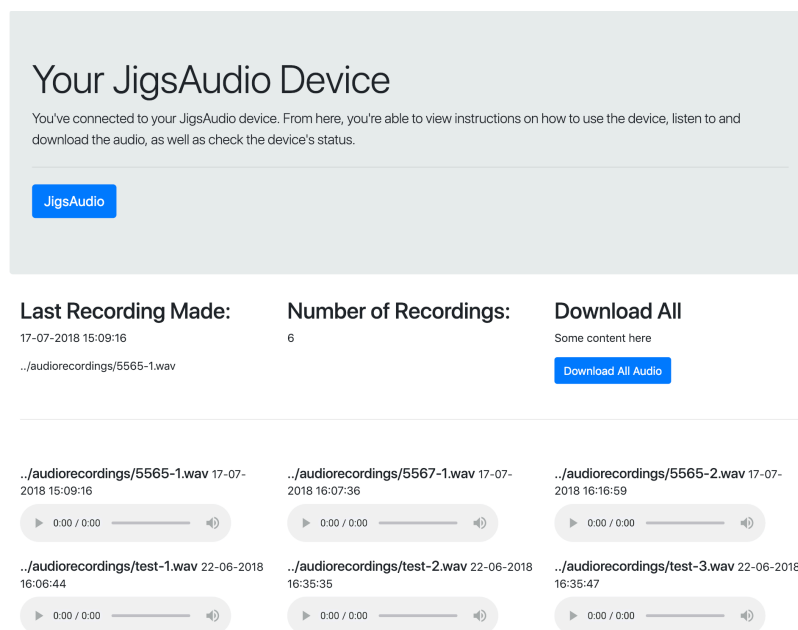


Figure 20: Interface of JigsAudio Device  
Source: Author

A python script was also written to allow the quick generation of webpages which displayed the results of JigsAudio's usage that allowed commissioners to listen to the recordings on the device, delete recordings, download the data from the device, and view instructions on how to use the device (Figure 20). To view this webpage, users connected to a password protected Wi-Fi network that the device created.

### 7.4.3. JigsAudio Website

The website allowed people to view the results data that was stored on the JigsAudio device. The website was arranged by event or project, depending on the wishes of the type of project. The jigsaws were displayed in the same arrangement as they were

physically viewed. In the Metro Futures deployment (Figure 21) the jigsaw was viewed as a long train which could horizontally scrolled along. The play button was shown on top of the jigsaw piece, and allowed the audio associated with the piece to be played.

The website used HTML<sub>5</sub> (the latest standard that defines how website appear online) and the audio was played with JavaScript (a standard programming language which sits alongside HTML to creative interactive websites). This means that there was no extra software or plugins required to view the website, and they could be viewed on mobile devices. The website was created using a Python script and a website template, which automatically assembled the images and audio into a webpage. The website also included a link to instructions on how to make a JigsAudio device.

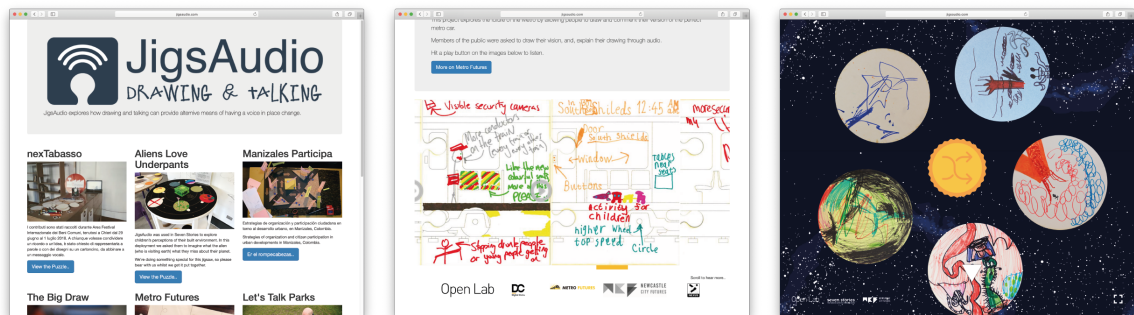


Figure 21: JigsAudio ‘Home Page’ and ‘Listening to Jigsaw’

Source: Author

A decision was taken to make the design and code for JigsAudio open source, with a restrictionless website that included instructions for people to make their own JigsAudio device and generate their own webpages<sup>24</sup>. JigsAudio aimed to overcome some of the design pitfalls identified earlier through several modes.

#### 7.4.4. Designing for Materiality

To overcome some of the issues with both previous research, and addressing broader points within academic literature, the research tried to overcome some of the pitfalls of other planning technologies in three ways:

<sup>24</sup> All of the source code for the JigsAudio device, its website, and the case designs can be downloaded here: <https://openlab.ncl.ac.uk/gitlab/alexander.wilson/JigsAudio>

#### **7.4.4.1. Expression**

It was hoped that by allowing people to express themselves in polyphonic ways, people could be more expressive in how they communicate their long-term aspirations.

Understanding how Twitter was used demonstrated that it did not provide the means to express the complicated and multifaceted feelings towards the environment. The aim is for people to communicate in ways that are more natural to them, such as through drawings and illustration, rather than rely on the common requirement to use prose when communicating. The hope is that more expressive methods of communication facilitate the sharing of more complicated place experiences that can be more easily understood and related to.

#### **7.4.4.2. Creativity**

Creativity has been explored as a method to encourage people to think beyond short-term issues with their built environment and, instead, to reflect on long-term futures (Brabham, 2009), as well as providing the means for more expressive communication (Wang, 1999; Frank, 2016). Previous work has demonstrated that creative activities can encourage creative solutions to difficulties, as well as help to overcome some of the barriers to problem reporting (Al-Kodmany, 1999; 2001; Frank, 2016).

#### **7.4.4.3. Novel & Interesting**

As demonstrated by previous research, novel methods of engagement encourage people to get involved in participating. Technologies that appear like a more interesting activity than traditional methods, such as filling in a survey or writing a letter, may engage both more people to get involved in shaping where they live, and, to provide a different type of commentary that reflects more on the future of places and less on reporting problems that are easily solved (Golsteijn et al., 2015).

### **7.5 DEPLOYING JIGSAUDIO**

To examine the extent to which JigsAudio met its objectives and encouraged visioning in the built environment, the devices were deployed with people at specific occasions (see below) between October 2016 and October 2018 (although some devices are living on independently beyond the research). The deployments occurred in partnership with

selected hosts in order to test the devices and assess their take-up and use with several different cohorts of citizens (discussed in more detail within the methods chapter).

JigsAudio was aimed to be deployed ‘in the wild’ in places not usually associated with planning participation. These informal settings of JigsAudio’s use, however, presented difficulties with methods that would adequately document people’s response to and experiences of the device. Interviews with people using the device would be difficult due to time constraints, as well as the aim of the research trying to reduce barriers to people’s participation (requiring someone to undertake an interview after using the device would have been a barrier to people engaging with the device in the first place). It was therefore decided that a combination of systematic observations, informal discussions with participants, and semi-structured interviews would be used.

Bannon argues that as the role of technology changes from one person and one computer to computers in society, so must our methods of understanding it, with “a shift from a psychological to a sociological perspective on human work and activity, emphasizing field observation methods rather than lab studies” (Bannon, 2011, p. 52). With this in mind, the methods stem from conducting research ‘in the wild’, rather than in the controlled environment of a lab. This is sometimes a messy process; it is difficult to ask people to complete surveys and questionnaires when they are busy (Baker et al., 2007).

Systematic observations were chosen alongside other methods. Ethnography and observations are commonly used in anthropology when the underlying research question is of “understanding actions, roles and behaviour” (Walshe et al., 2011, p. 1048) that helps to unpick these roles – “an interview allows someone to say what they do; an observation allows you to see directly what someone does” (Walshe et al., 2011, p. 1048).

Participant observations, which are “a way to collect data in naturalistic settings by ethnographers who observe and/or take part in the common and uncommon activities of the people being studied” (DeWalt and DeWalt, 2011, p. 2). As discussed by Spradley (2016), it involves eight stages that include descriptive observations to get an overview, narrowing the research and focussing the observations, and analysing and reporting the results. Informal discussions were had with the participants where there was an

opportunity. Field notes of the observations and informal discussions were kept, which guided and informed the later interviews.

### **7.5.1. Deployments**

The deployments were chosen around the notion of place, rather than the processes that govern these (e.g. people experience public transport and have comments to make on it as part of their experience of places, but they are not governed by planning). Furthermore, the results were not always received by planners, but by those responsible for managing the topic that was being discussed. There were additional deployments of JigsAudio led by researchers on topics which were not relevant to the research conducted as part of this thesis, but these are mentioned below to illustrate a wider point about producing technology which is easily modified to suit different uses.

The deployments are summarised below. The place-related topics were led as part of this research, with other deployments led by colleagues within their individual research projects. Within the latter deployments, feedback was taken on how the device could be improved, improving the design through several iterations of the device.

### **7.5.2. Big Draw City Futures**

JigsAudio was first deployed during The Big Draw, an international drawing festival for children held annually, at a local event devoted to thinking about the future city at Seven Stories, the National Centre for Children's Books in Newcastle, UK. The theme of the event was, "What will Newcastle look like in 2065?". It was a collaboration between Seven Stories and Newcastle University, with a series of play activities, installations and workshops intended to engage children in thinking about what cities might look like in the future. JigsAudio was commissioned by the organisers of the festival as one of the installations and was available to be used freely by participants on each of the days (see Figure 22).





*“This is my barge piece. I would like it to be the colours of my jigsaw piece. You sit on it, and it’s originally a five-hour trip across the Tyne. I hope everyone likes it. There’s only space for eight people. It has a toilet; a boy and a girl, and a disabled, and you can go on the top and have a look at the view.”*

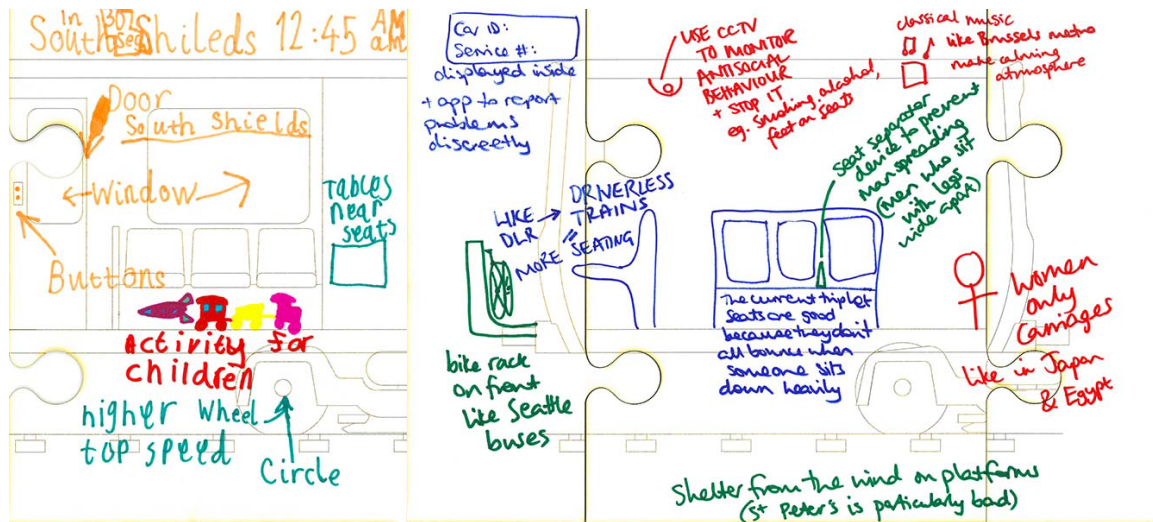
Figure 22: Big Draw Deployment and a Transcribed Jigsaw Piece

Source: Author

### 7.5.3. Metro Futures

JigsAudio was also deployed in an initiative organised by Nexus, the North East England Passenger Transport Authority, and Newcastle University, called Metro Futures. This larger project was intended to engage members of the public through digital means to explore the design of the next generation of Tyne and Wear metro cars.

JigsAudio was deployed at metro-themed pop-up events held at major transport hubs, shopping centres and the region’s airport. The deployment was designed to gather people’s experiences and feelings towards the current metro car design, as well as design ideas relating to internal carriage design, seat layout and accessibility issues. The jigsaw pieces were designed to look like parts of a metro carriage that could be joined together to form a single train (see Figure 23). There were two designs: one with just the outline of a metro car (shown on the left), and a second with the design of the current carriage fleet (shown right). The data gathered during these events was later passed on to Nexus.



"I want a higher top speed for the trains, and tables near the seats..."

"Here's a vision for Metro that the drivers won't like. Let's have driverless trains like the DLR so that we can have more seating and really appreciate the view from the front..."

Figure 23: Metro Futures Jigsaw and Transcribed Voice

Source: Author

#### 7.5.4. North Tyneside Youth Council

JigsAudio was deployed with the youth and children council of North Tyneside in a meeting with the local authority to assist with their development of engagement strategies. Part of the resulting jigsaw can be seen in Figure 24. The aim of the deployment was to understand the feelings, experiences and ideas of young people in the area, and to reflect on their visions for the future of Tyneside. The commissioner of JigsAudio was one of the local authority officers responsible for supporting and organising the youth councils.



*"I would like to see in N.T. better beach facilities, [...] and more bio-diverse areas"*

*"Everyone should have a chance to interact with people that they live closely to"*

*"In 2026 I would like there to be more money given to North Tyneside"*

Figure 24: North Tyneside 2026 Jigsaw and Transcribed Voice

Source: Author

### 7.5.5. Let's Talk Parks

Let's Talk Parks was a wider engagement project initiated by Newcastle City Council and partnered by Newcastle University, intended to gather citizens' views on the use and management of green spaces in the city. JigsAudio was used as part of a turn-taking board game that facilitated the discussion of issues surrounding the future of parks (see Figure 24).

Ten workshops were held across the city; each workshop explored the possible creation of a charitable trust to manage the parks and covered a number of topics including what they value in parks, future financing, activities in the park, volunteering and decision making. Rather than drawing, people wrote their ideas down and used JigsAudio to record, elaborate and explain them. The cards with pre-written scenarios were scanned and discussed. The comments generated through the game were then placed online to provoke discussion.

### 7.5.6. Aliens Love Underpants Book Exhibition

This deployment of JigsAudio coincided with an exhibition at Seven Stories about a children's book called *Aliens Love Underpants*. This deployment centred around younger children drawing and talking about the planet their alien lived on, exploring what the

alien missed and liked about their own planet, and what they look forward to going home to see Figure 25. The project’s aim was to get them to think about the places they value and what they might like.



*“My planet is called Giffoup. It has got centipedes with one-thousand legs that burrow into purple craters. It’s got a blue platinum mine, and rivers flowing with red water, as red as rage. And not only do centipedes with one-thousand legs and three eyes come out of the craters, but white aliens with three eyes and three tentacles do as well. And there’s a million space pods on Giffoup, so watch out.”*

*“The Hallows; population zero. The planet ravaged by war for over one-hundred years. The ocean blackened by oil and others. The population of this planet are now scattered to the stars, amongst planets such as earth and others.”*



*“It’s a planet that has a more mechanical side on the left, and it is very mechanical, and most of the merchant ships go into that region. The watery side, where most of the wildlife goes, is where it’s plagued with the bad gasses from the mechanical side. The aliens of the planet are called ‘Mountacorians’, and are very very hostile to more things; and they like to be alone.”*

*“My planet, is the planet Zogalog, and on that planet, there are aliens with ten eyes, and fish with fingers – which is my favourite type of sandwich – and jam volcanos.”*



Figure 25: Planets and Transcribed Voice from Aliens Love Underpants Deployment

During the deployment, the children were encouraged to reflect on what was important to them in their ‘world’ and think about what their alien might find important in their

environment. It was hoped that by framing it around the aliens, children would enjoy the activity and provide some creative interpretations of what they value, combining play and participation.

### **7.5.7. BALTIC: Exhibition of the North**

JigsAudio was used in BALTIC Centre for Contemporary Art in Gateshead between June and October 2018 as part of the Exhibition of the North. The exhibition aimed to share innovations in the North and get visitors to reflect on what they might like in the future. Although the focus of the exhibition was not planning issues, many of the commentaries that were provided focussed on the ‘northness’ of the area, and people’s relationship, attachments and feelings towards the North.





Figure 26: JigsAudio in BALTIC Centre Contemporary Art

The aim of the deployment was to get visitors to share their thoughts on the future of Newcastle and Gateshead by answering “What will your future look like? Think about buildings, transport, technology, the environment, fashion, sport, culture, and the arts”. The activity took the form of an interactive exhibition in the Quay, an activity area within the BALTIC that attracts families and includes other interactive pieces.

Staff at the BALTIC were responsible for making sure jigsaw pieces on the wall were available. The pieces were about the size of a beer mat (10 x 10cm). Visitors were encouraged to take a square from the wall, draw and talk about their response to the question, and return their piece to the wall (Figure 26). This was the first of the deployments that allowed people to pick up other people’s drawings and listen to them through the device.

### **7.5.8. BALTIC Travelling Library**

The final deployment of JigsAudio formed a condensed version of the previous BALTIC deployment. The device was designed to be moved around between community centres and schools in the area. The JigsAudio activity formed one of several activities that aimed to allow people to create their own artwork, zines (short, self-published work) or read from a collection of books. The aim of the device was to facilitate communicate between two areas of the North East, where there is a duplicate travelling library in another location. Every few weeks the pieces were swapped, to allow people to hear other’s responses to the same question.

The panels at the top of the activity could be quickly changed to change the focus of the activity. The device is still being used and data has yet to be extracted from the device, therefore, there is no data presented from this deployment.



Figure 27: Travelling Library

This deployment marked the end of the ‘research’ element of the deployment, with it instead being used as an engagement device by people interested in using it. A later section discusses this.

### **7.5.9. Other Deployments of JigsAudio**

There were other deployments of JigsAudio that went beyond the topic within this PhD (where the device was used for a topic that was not place-related). In these cases, the JigsAudio device was used by a colleague for their research. Whilst it was within the remit of this research to understand how the device was used, and how it contributed to other research, it was not part of this research to include the data collected.

In one of these examples JigsAudio was taken to Colombia (Figure 28) to explore how digital media is used between planners and citizens. In this example, a fictional scenario

was developed where citizens would have to identify which issues should be prioritised. It was also used by Open Lab colleagues to discuss the difficulties of accessing fresh and local food in Meadow Well, and by Bernardos to discuss issues of domestic abuse, and sex worker rights.



Figure 28: JigsAudio being used in Colombia (left) and Italy (right)

JigsAudio Turin, Italy, was part of an international festival for ‘the commons’ (Figure 28). The activity formed part of the festival that was looking to restore an old clothing factory. The device was used to collect people’s memories and future visions of the factory, that would then feed into the design process for the future use of the building.

## 7.6 DATA COLLECTION METHODS AND ANALYSIS

Due to the difficulty in interviewing the users of the JigsAudio (the informal nature of the participation method makes it difficult to conduct formal interviews with people) the commissioners of the data (the person who collected the JigsAudio data) was interviewed (full list in the Appendix). The interviews with the commissions typically lasted around half an hour and usually look place within the host organisation’s building. These people had experience of previous forms of participation exercises, and were asked about their views on JigsAudio, and how it changed their usual engagement processes. The interviews were transcribed and subjected to thematic analysis, as outlined in Braun & Clarke (2006).

## 7.7 FINDINGS

This section discusses the findings from analysing the use of JigsAudio. Table 10 shows a summary of JigsAudio’s use throughout the deployments and the number of events or activities that occurred at each deployment. Across the five projects over eleven months,



there were 31 deployments of JigsAudio; 1,015 jigsaw pieces were drawn, and 2,013 recordings made, totalling over ten hours of audio. The details of the deployment are discussed within the next section, but it is noteworthy that the Let's Talk Parks deployment generated both the most audio clips and the longest average comment. As discussed later, this may have been as a result of how it was deployed. The remainder of the clips' averages were between 24 and 39 seconds.

The discrepancy between the number of audio clips and images was due to two reasons. First, some did not make a recording, and decided that they would prefer to just submit an image, and second some decided to make more than one recordings per image if they wanted to say something further.

The following section presents the findings from the study and evaluates the deployment in relation to three issues: expressiveness and creativity; appearance; and creating an artefact. These are supported by observations of the technology in use and from discussions with the commissioners (referred to by the letter C).

### **7.7.1. Expressiveness and Creativity**

It was found that drawing and talking was effective in getting people to communicate complicated and elaborate visions that might not be easily communicated through a single medium, with C<sub>1</sub> stating “Some people love it, some people really do get into it. Even if they're not very good at drawing, they get it, it appeals to them in some way” and C<sub>4</sub> stated “some of those who aren't as creative were just writing their issues over the jigsaw piece which was great, others were more interested in making their jigsaw piece look really nice”. There was an opportunity for creativity and expressiveness in people drawing and discussing their feelings, and by combining drawing and audio a rich story behind each image was formed. A deeper connection could be made to the message, with C<sub>2</sub> noting, “it's visual and it's audible, and it transcends all of them”.

	<b>The Big Draw</b>	<b>North Tyneside Youth Council</b>	<b>Metro Futures</b>	<b>Let's Talk Parks</b>	<b>Aliens Love Underpants</b>	<b>Baltic: Idea of North</b>	<b>Baltic: Travelling Library</b>	<b>TOTAL</b>
<b>Dates</b>	Sept. 2016	Nov. 2016	Oct. - Nov. 2016	Mar. - Apr. 2017	July - Aug. 2017	June - October 2018	Nov 2018 - Ongoing	
<b>No. of Events/Activities</b>	1	2	8	10	2x1week (10 days)	103 days	-	<i>134 days</i>
<b>Number of Jigsaw Pieces</b>	31	30	45	-	101	880	-	<i>1,015</i>
<b>Number of Audio Clips</b>	9	46	82	300	83	1493	-	<i>2,013</i>
<b>Average Length of Audio</b>	00:29	00:24	00:29	00:47	00:39	00:00:23	-	<i>00:28</i>
<b>Total Length of Audio</b>	4:21	18:25	15:56	21:05	54:21	09:37:02	-	<i>10:43:10</i>

Table 10: Summary of Audio and Jigsaw Pieces Collected with JigsAudio (time expressed as either mm:ss or hh:mm:ss)

The imagery and audio of the jigsaw pieces were analysed for their content. The images were grouped as either being abstract; i.e. images that did not attempt to physically represent what they were communicating; or real, where participants drew what they were discussing, using the drawing as an aid to understand their perspective. The audio was also grouped: if it described a problem or issue that was easily identified, or provided a potential solution, it was tagged as pragmatic; if the comments were less specific, or a high-level issue, they were grouped as idealistic.

It was noted that some participants spent significant time creating their visions, with C3 stating “it’s a lot more considered, people take a lot more time” when comparing it to traditional methods. When analysed, the comments often fell into two categories. The first were abstract pieces that conveyed a vision for the future that was based upon their imagined future, which was more ambitious and adventurous. The second category was jigsaw pieces that were reality-based, attempting to create a correctly scaled representation of views that more accurately reflected a near-future change or current problem they wanted to overcome.


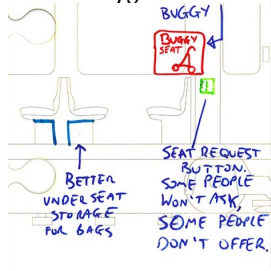

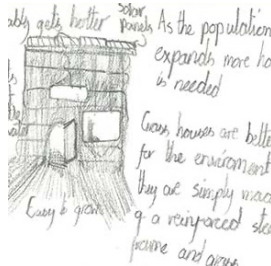
		Image	
		Abstract/non-representational	Real/actual
Audio	Pragmatic	<p>11%</p> 	<p>73%</p> 
	Idealistic	<p>13%</p> 	<p>2%</p> 

Table 11: Groupings of Type of Audio and Imagery Used

Table 11 illustrates the types of content within the drawings and audio: a large proportion of the audio described feelings about a pragmatic description of a solution, rather than comments that stated abstract feelings about place. It shows that around three-quarters of the drawings and audio depicted a pragmatic idea with a ‘real world’ drawing, communicating something that was apparent from the drawing. The second most popular group, abstract images and idealistic audio, were jigsaw pieces that described something that was difficult to understand from the drawing alone. Abstract drawings were used frequently to represent visions or ideas that did not have an object that could be drawn to represent it. Whilst the image alone did not specify what the participant was discussing, usually the audio did. Discussing this, C4 stated: “even if you miss the message on the jigsaw piece, you've still got the [audio] message”.

### **7.7.2. Appearance of Low-Tech**

It was found that the initial low-tech appearance of the activity encouraged engagement with JigsAudio. Upon first viewing, participants would see other participants’ drawings, draw their own image, and use JigsAudio later in the process. This was understood by commissioners, who stated; “It was quite good as it immediately engages people... pen, paper, not immediately confronting someone with a microphone or a video camera or a phone” (C1) and “I don't think that the recording on the device was daunting; I don't know why [but], nobody was really nervous or put off by it” (C4), “there's literally one button on there – you can't really go wrong – even I managed to do it [deploy and use the device]... which was amazing, because I'm not very technical in any way” (C4).

By introducing people to something that appears to be low-tech, barriers to using technology were reduced. Technology was introduced after participants had completed their drawing, rather than them being immediately confronted with it. This allowed participants to take a jigsaw piece, and in their own time, think about the comments they would like to make and, when ready, make a recording. This meant that the facilitator did not have to allocate their attention to one person at a time and, instead, could allow multiple people to create their drawings simultaneously. Furthermore, the relative ease of using JigsAudio allowed participants to use the device without needing direction.

Using analogue components and materials allowed people to express themselves without needing to interact with complex computer aided design technologies, and instead use a

method that was immediately understood whilst also being novel. It was initially feared that adults may not participate in the exercise due to a perception of it being too ‘childish’; however, this was not found to be the case. Instead, adults tended to add technical drawings to the jigsaw pieces; in one deployment the adults preferred the jigsaw piece with the internal schematics of a metro car, with their drawings integrated with the existing metro car design.

Throughout the deployments, participants were interested in how the JigsAudio device worked and wanted to take part in the activity. C2 stated; “that’s the novelty factor; they think ‘ohhh, that’s interesting, I’ll do that’, rather than giving them a form and them taking it away: the same old ways of doing things”, and C4 who stated:

*“giving them an iPad isn’t interesting to them, but giving them a large jigsaw piece, with an image that’s something to do with North Tyneside is unique... sometimes it is quite good just to go back to using a pen, and actually drawing your own things”.*

Furthermore, whilst C5 was discussing the advantage of analogue over digital stated “there is a tactile thing about this that you wouldn’t get it if you were doing this on an iPad... just the simple thing of putting the planet in the constellation something as simple as that they really enjoyed that bit of it, which you wouldn’t get with an App”.

A commissioner (C6) reported participants picking JigsAudio up due to interest in the device, saying “you have to watch that yellow box quite a lot because... it was quite an interesting thing for the kids; they were picking it up” (C6). Although RFID devices are now commonplace in the UK (they are frequently used with contactless payments and door access systems), it generated interest in the technology and how this was built into a low-tech jigsaw piece. Younger participants were interested in how the technology worked due to their use of a Raspberry Pi in school, and a belief that it could not be used for something ‘serious’. The physical presence of the device (as hardware) and the resulting jigsaw piece led to intrigue and engagement with the device and the wider activity.

### **7.7.3. Creating an Artefact**

As shown in the figures, the use of JigsAudio created a collection of images (for example, the youth council created a jigsaw five metres long, and the Metro Futures deployment

nine metres). The physicality of the technology generated interest in the activity, and encouraged participation, with C<sub>4</sub> stating it “makes it real!”. These images formed a makeshift exhibition that further encouraged people to view, comment on and create their own pieces. C<sub>4</sub> thought this to be particularly important, stating;

*“I think that the Jigsaw piece becoming part of a whole thing, I think that's really really important. If they had just done the voice element, that whole bit would be missed”.*

The artefact also caused an unexpected reaction: participants started scanning other people’s jigsaw pieces and commenting on them. Some people also stated they were ‘taking inspiration’ from the other pieces, whilst others reported on trying not to duplicate visions or ideas that others had provided.

As the device was deployed on a larger scale, the placement and affordances of the device became increasingly considered by commissioners. Some reported putting the device on a higher table to stop younger people recording audio clips without supervision. Others reflected more on the visual layout of the wall, and how the visual appearance of the artefact reflected its function.

Requests were made for people to be able to scan someone else’s jigsaw piece to listen to the audio associated with it or add a comment of their own. This demonstrated the understanding that people gained from interacting with physical objects, and the immediacy of being able to comprehend the activity and previous engagements demonstrated through people quickly commenting on others’ drawings after joining the activity. Being made aware of previous participation encouraged them to complete their own, and reduced anxiety in undertaking the activity. It is common practice for situated engagement activities to take place on a screen; however, displaying the results of these engagements in an analogue format demonstrated previous engagement with the activity, and encouraged others to participate.

Through the use of JigsAudio, an artefact that represented a group’s feelings towards a topic grew. Individuals contributed to interlocking views of place that increased as people contributed to them. The group then used the website as a manifestation of the group’s sentiments, usually viewing it as a later group activity and wanting to share it.

## **7.8 REFLECTIONS**

JigsAudio was designed as a tool and technique to engage people in thinking about the future of where they live. Through its deployment in various projects exploring people's experiences and place visions, it was demonstrated how participation techniques that use technology might encourage visioning in planning. The aim of the investigation was to assess whether a new method of planning participation could overcome some of the barriers associated with more traditional methods. The purpose of creating a device was to explore whether it could assist in moving beyond problem reporting and towards creating an early enhanced say in the planning process (Baker et al., 2007).

JigsAudio was envisaged as a technology that allows people to communicate their thoughts beyond those traditional methods, allowing them to be creative in their approach. Through the deployment of JigsAudio in different contexts, the research assessed how people responded to the device, how it allowed participants to be expressive and creative, and the artefacts that resulted. This section reflects on the device and discusses how it sits within the wider research questions within the thesis. These reflections discuss the implications of the study for both planning and citizens' involvement in urban change through two inter-related issues: combining digital and non-digital technology; and constraint versus open opportunities.

### ***7.8.1. Combining Digital and Non-Digital Technology***

Through the combination of digital and non-digital, JigsAudio aided understanding of how the two might be used to encourage and enhance participation in urban change and planning. It created a way for people to use familiar methods in putting their thoughts across, and it led to the creation of a physical artefact that enticed further people to participate. The 'honeypot effect' allows people to observe and understand the activity before deciding if they would like to participate. It's argued this effect can help overcome self-consciousness and embarrassment with taking part in an activity, and "allows groups to congregate spontaneously without specific coordination efforts [by the facilitator]" (O'Hara et al., 2008, p. 68).

Through its simplicity and adaptability, the technology was easily customised for use in many scenarios. The work highlights how JigsAudio created a space for people to be expressive and creative in the way they discussed their visions for the built environment. Prior studies have identified opportunities for technology-mediated-planning participation (Baker et al., 2007), however, these usually mirror online traditional methods and are often limited to the one-way provision of information (Evans-Cowley, 2010). To seek ways of overcoming this, the research explored ways in which JigsAudio could use technology to understand citizen to planner communication.

JigsAudio was non-digital at first, which allowed users to express their views in a familiar way and were later introduced to the technology. Through this, the research highlights how a non-digital method alongside digital technology can facilitate engagement with people who would not normally choose to use digital technology. It further highlighted how it encouraged creative thinking by allowing the time and means for people to reflect and think about their responses. By combining digital and non-digital, both modes complemented each other to enable more thorough articulation of visions. Moving away from screens enabled the elicitation of views that may have been difficult to communicate through digital means (Al-Kodmany, 1999).

Embracing the non-digital also allowed for a physical ‘thing’ to be created, something that screen-based technology does not provide. Manuel et al. (2017) discuss the creation of a ‘thing’ through digital engagement in neighbourhood planning that “portrays a multitude of different values, principles and opinions” (Manuel et al., 2017, p. 1696). Through the creation of a ‘thing’, they argue, it makes visible the comments people have on their local environment. Similarly, through the creation of something tangible, handmade, and visually interesting, people were drawn into participating with the activity (Golsteijn et al., 2015). Unexpectedly, it also led to people wanting to listen to others responses, aiding citizen-citizen communication within a group, and, which Healey states, creates “chains of connection between what bothers people [...] and what can be done about it” (Healey, 1996, p. 225).

Whilst previous work has used tangible and novel interaction methods as a way of generating interest in an activity, through the use JigsAudio an artefact which shared the views of previous participants was created. This artefact was effective at generating



interest in the activity and led to discussion around others' place perceptions and preferences. Work within HCI has understood the benefits of the physicality of computing, and the benefits it brings to engage people (Golsteijn et al., 2015). Moving towards the use of physical objects was paramount for the effective use of JigsAudio, and led to increased engagement when compared to the on-screen technology used alongside it.

JigsAudio gave opportunities to be agile and adaptable to suit the type of activity being undertaken. With many technologies, there are significant efforts to reconfigure the technologies for different uses. The design of JigsAudio was flexible, allowing audio to be attached to any physical objects, and for the context of its use to be changed easily. This led to JigsAudio being used in many different contexts, which is particularly valuable during a period when funding constraints for local authorities makes it difficult to both develop new technologies and support existing ones (Conroy and Evans-Cowley, 2008).

### **7.8.2. Constraint versus Open**

A question that needs resolving, both as a consequence of this research and more widely within planning participation, concerns guiding discussions, and the tension between constraining options versus a quest for openness (both in the topic that is discussed, and how it is discussed). Given the difficulty of attempting to identify all possible place viewpoints in advance, there is an argument that all conversations around planning should be narrowly focussed on only what is relevant or 'material' in planning terms. But taking account of Massey's (2005) assertion concerning relational space it becomes questionable to attempt to narrow down choices in advance. If the case is made to create new opportunities for conversations around the future of places and where and how people live, a planning view of options is the wrong focus. Place does and should mean something more than planning alone, for how else should place debate occur between those who are affected by planning decisions? Within this project, we chose to take Massey's (2005) notion of relational space and investigate the extent to which place-matters can be used to engage people, rather than choosing to undertake a strict 'planning' consultation.

There is also a role for less formal discussions around place that do not have an instrumental purpose of procedurally serving the planning system. Citizens want to

discuss the future of their places but, at present, and governmentally, there are few opportunities creating the means or space for those broader place-based discussions. Through the deployments of JigsAudio, informal discussions around place allowed people to cover topics whether development-oriented or not. The less formal nature of JigsAudio may have given people the confidence to communicate broader place views that were not centred around physical sites or parcels of land.

The work also contributes to understandings of how creativity and expressiveness are used to engage people. Findings demonstrate how participants communicated their thoughts, whether through an abstracted vision or a pragmatic statement about what should be changed. This gave insights into how a different type of activity can be steered towards different types of response depending on the materials provided. For example, in the Metro Futures deployment, giving participants the plan of the internal layout of the metro car led to more pragmatic and realistic responses when compared to the featureless metro cars, and a commissioner (C6) reporting on how moving the device to a higher table changed the age of children engaging with it. That does not mean to say that there is more inherent value in one type of comment over another, but the mechanisms hidden behind participation methods determine how and which thoughts are communicated. Different types of comments will be desirable; open comments are more likely to be useful during master planning exercises, whereas if consulting on a specific issue there might be less freedom in what can be undertaken. In the former case, the abstract pieces became a generic canvas for people to communicate their views through. The more structured pieces, however, led to people commenting on issues that could be improved on, and led to suggestions that tended to fit in to an existing framework. Taking meaning from the abstracted comments requires more work to find forward directions.

JigsAudio was intended to provide a method to capture people's visions of urban change. It was designed to embrace non-digital materials and creativity, and to encourage a movement away from some of the more traditional forms of consultation associated with urban planning processes. The deployment and evaluation of JigsAudio gained insights into combining drawing and talking as core, accessible, features of a participatory platform. It demonstrated how creative digital tools can enhance citizen's sharing and expressing their visions for their local area, but also the importance of the attention that's

given to the type of comment that will be received when various modes of participation are promoted.

There remains a difficulty in how abstracted visions elicited through JigsAudio can be used within the existing framework of planning (e.g. abstracted submissions require significant effort to translate into actionable changes). Although participants were able share their views, the challenge of translating abstracted views into actionable insights remains. As Frank (2016) documents, there's a risk that a perceived lack of response or action from undertaking participation may lead to frustration. There are two potential future directions: the first could involve JigsAudio data undergoing a 'sense making' step, which helps groups self-reflect and develop pragmatic actions stemming from their views. Another direction could involve a representative of the group interpreting abstracted visions; someone with a connection to the group who is likely able to translate abstract comments into those that planners could integrate into formal processes. This person could also 'formalise' (feed them into existing formal processes) them, with the aim of reducing the misinterpretation of the comments by the decision-makers and allow the comments to more easily fit into existing planning frameworks. The second requires buy-in from planners, by enhancing the role that feelings and creativity have in place-making. Manzo and Perkins (2016) state that this is required to "better understand those emotional connections to place, how they are fostered, and how they might lead to action and effective participatory planning processes... It is difficult, time-consuming work, but it is essential to effective participatory planning" (p. 348).

The findings address the physical appearance and tangible nature of the device and jigsaw, how it encouraged creativity and visioning, and how through its use, it created an artefact that was both the result of engagement and that led to future engagement. Within this chapter I discussed how the design of the jigsaw pieces led to different responses from different groups, and how the design and nature of the participation can influence the type of discussion emerging around place. Through this, it adds to an already established argument on the eliciting and recognition of experiences of the built environment. I have demonstrated the opportunities presented when novel interaction methods are used alongside those which are well-established.

## **7.9 CONCLUSION**

This chapter is particularly pertinent as the move towards smart city sensing technology risks further reducing the role the type of accounts shared within the pilot have. Providing response forms, whether digital or analogue, does not give people a sufficient medium through which they can express themselves fully. Technologies that embrace the multiple dimensions of feelings and aspirations of places could provide opportunities for more considered and richer representations. There is also an argument for augmenting current processes, with technology-mediated planning charrettes (design-led workshops) (Le Dantec et al., 2015), where topic or problem-based (rather than institution/department-based) discussions can be had, using JigsAudio to give non-attending citizens an opportunity to make a contribution.

The pilot contributes to understandings of how the digital and non-digital can be used alongside each other and how, by combining the two, new possibilities at reducing barriers and enhanced engagement can be achieved. Through this, the pilot has demonstrated that methods of participation that embrace creativity, potentially enables the sharing of complex feelings and ideas towards urban places that current non-creative methods struggle to inspire or capture.

## **7.10 CHAPTER SUMMARY**

This chapter reports on the design and deployment of a bespoke technology used to encourage expressivity and creativity in people sharing their aims and aspirations towards the built environment. It shows the potential of simple technologies in engaging people who would not normally participate, and how the result of participation can be used to encourage further participation, creating a space for the discussion of people's experiences. It shows, however, that there still remains a difficulty in translating these place-visions into comments that planners can consider, and that there is an important role in aligning comments into a format that decision-makers readily engage with.

# 8

## **Evaluating & Designing Alternative Participation Technologies**

Introduction

The Changing Role of  
Citizen Participation in  
Planning

Human Computer  
Interaction, Town  
Planning & Participation

Methodology and Technology Pilots

Twitter

Change  
Explorer

JigsAudio

Reflections on Creating a Space for Dialogue

# 8. Reflections on Creating a Space for Dialogue

## 8.1 INTRODUCTION

This chapter reflects on the space that was created for using alternative methods for participating in planning matters across all of the pilots' technologies. Specifically, this section explores the research's implications for future technology-mediated planning participation methods and activities. By engaging with literature presented earlier in the thesis, it discusses its contribution to understandings of planning technologies for creating somewhere that conversations about place can be had, and how in creating these spaces, it changes both how people participate and what people comment on. It is interested in understanding how the technologies facilitated the discussion of place-based experiences and feelings.

It will discuss this in two sections. The first discusses the findings of the research alongside previous literature understanding how the different formats of the technologies influenced people's interaction with them. It will discuss whether the envisioned use of technologies aligned with how it was actually used. The second engages with the overall design of the piloted technologies, and discusses the trade-offs with the technologies when particular design decisions are taken. It goes on to discuss how planning technologies shape responses, and how they can encourage the sharing of place meaning.

## 8.2 EXPLORING PLANNING TECHNOLOGIES

One of the aims of this research was to explore how different planning technologies changed how people participated, and what they participated on. The aim was to understand how these bespoke technologies could best facilitate the discussion of place-related issues that could feed into long-term planning activities (Sandercock, 2003b; Graham and Healey, 2007). The research began by understanding how current participation methods are not working for the majority of people (Baker et al., 2007) and not engaging fresh perspectives in planning (Healey, 1997). It discusses the constraints of requiring people to attend meetings and to write formal prose to participate, and how

these methods serve to close down discussion rather than facilitate and promote input (Parker and Murray, 2011).

The use of technology in planning can create both barriers and opportunities for people (Riggs and Gordon, 2015). Most people use the internet daily or almost daily (86 per cent) (Office for National Statistics, 2019). However as this research has demonstrated, the majority of planning technologies fail to use the innovative potential of this. Given this, the goal was to design and explore technologies with the people that were being asked to use it (citizen groups), with the aim of creating methods that both used technologies in more effective, novel and engaging ways and that better aligned to both how people experience place and how they want to discuss it.

A study conducted on the use of Twitter demonstrated that it is not a space for a productive discussion about the built environment and that whilst people do discuss place-based issues, particularly changes they were dissatisfied with, this conversation was more reactive to changes and therefore difficult to feed into formal planning policy processes before changes took place. This issue was confounded by two factors: a difficulty in identifying relevant tweets in the first place, and how to account for and act on the comments that were made.

Provoking responses from people was shown to be more effective at generating the type of commentary that could feed into planning processes; however, the type of comments made would still be difficult to integrate into policy development exercises, and requires people to already be interested in participating. The analysis led to an understanding that in order to have a productive discussion about place, a dedicated space, for discussing place, should be provided.

The pilots demonstrate that the technologies elicited comments on different topics and that the different types of planning technologies better aligned to the different requirements of what was being engaged on. It showed that the format of the technology has a bearing on the type of comments and engagement participants has with both the technology and the built environment. First, distinctions are made on the type of technology that was designed, and the bearing they had on how people participated through them. For example, tools that promoted speed and in-situ participation



encouraged problem reporting and the discussion of short-term changes. The second reflects on how tools can be designed to engage with place-experiences, and how participation methods can more closely align with how people want to participate. For example, allowing people to participate in non-traditional ways provides the means for them to be more expressive when communicating their vision.

The affordances of digital technology are the “relationship between the properties of an object and [...] how the object could possibly be used” (Norman, 1990, p. 11).

Technologies can be designed to encourage participation that is in-situ (whilst in the place someone is commenting on), reflective, or expressive. Whilst there is undoubtedly a benefit to these methods, such encouraging those with little time to participate (Evans-Cowley and Hollander, 2010), this research has demonstrated that changing the methods through which people participate can serve to change the way people participate and report their feelings towards place. Rather than these technologies having a neutral role in participation, they take an active role and shape the responses that they facilitate.

Table 12 provides a summary of the piloted technologies with a series of design features for each, identified within the literature review. The chapter now discusses how these different types of participation encouraged engagement with planning in three ways: in-situ vs. ex-situ (not being in the place they are in); digital vs. non-digital engagement methods; and fast vs. slow participation.

	<b>Twitter</b>	<b>ChangeExplorer</b>	<b>JigsAudio</b>
<b>In-Situ vs. Ex-Situ Participation</b>	Either; although geotagging more common on mobile devices (Hecht et al., 2011)	In-situ	Situated
<b>Fast vs. Slow Participation</b>	Majority of comments short-term reports, with some longer term ‘protest’-type comments.	Problem reporting, usually made quickly. Few demonstrated long-term engagement.	Drawing took time depending on detail. Audio relatively quick, although required time to travel and engage with activity.
<b>Digital vs. Non-Digital</b>	Largely digital, although some engaged with the physical environment.	Commenting on the physical environment through digital device.	Non-digital drawings augmented with tangible digital device.

Table 12: Summary of Pilots

Source: Author

Through using the categories identified, this section will discuss how the commentary was shaped by the technology.

### **8.2.1. In-Situ vs. Ex-Situ Participation**

One design decision that was taken with the technologies was where they were intended to be used. The pilots were designed to accommodate different places of use – with some using existing hardware (such as ChangeExplorer that used an Apple Watch) or Twitter, or a bespoke hardware device that is used in a fixed location (JigsAudio). With ChangeExplorer, the technology was intentionally designed to be used whilst experiencing and ‘exploring’ a city when there was expected to be little time for stopping and writing long comments, allowing people to repond to proposals whilst being in the built environment. In contrast to this, JigsAudio was used in a fixed location. To use the technology, someone has to travel to where it was, rather than simply download an app that could be used anywhere. The following discussion explores the importance of location in participation, and whether engaging with the material environment can lead to more interest and engagement with planning (Marres, 2015).

Whilst HCI has engaged with understanding the influence user interfaces have on someone’s behaviour (Agre, 1997; McCarthy and Wright, 2007; Kaptelinin and Nardi, 2012) these concepts are yet to be understood and applied to participation methods, and how they influence the type of participation it both allows and encourages. There is a dearth of research on how engagement methods alter participation. There is a common understanding that getting more people to participate is beneficial (Baker et al., 2007); however, there is little research on the quality of the engagement and technology’s role in shaping participation. Whilst the development of mobile apps and websites for in-situ participation has become increasingly commonplace (Ertiö, 2015), this research has demonstrated that this does not necessarily enhance participation.

Where the piloted technologies were used had a bearing on how the technology was engaged with it. Mobile technologies have allowed for people to participate whilst in the built environment, and not requiring them to travel has created opportunities that could allow for enhanced participation. Being in the built environment when commenting on place has been increasingly explored as smart phones have gained popularity and become

more advanced (faster data networks, longer battery life, etc.) (Ichikawa et al., 2005; King and Brown, 2007; Balaam et al., 2015), but this has implications for the type of participation that it facilitated. Technologies in common use, such as FixMyStreet, have demonstrated the success of combining speed and efficiency with simple tasks. This, however, was demonstrated to not be as effective when in-situ participation in planning matters was sought. Whilst effective at problem reporting (the aim of FixMyStreet) the aim of ChangeExplorer was to influence long-term planning policy. The research highlighted a tension when participation is sought that is in the place that is being discussed when people are going about their day activities (discussed as ‘lunchtime participation’ (Conroy and Evans-Cowley, 2008; Baker et al., 2007)). The research further demonstrated that technologies that can be used in the built environment can reduce some barriers to participation (Bilandzic and Foth, 2012), such as the need to travel, but can also create their own barriers.

ChangeExplorer made people aware of changes that were taking place when they encountered them, and allowed them to leave comments that were tied to a location. The tying of location and use of the technology led to some interesting observations on its use. The piloted technologies were all designed around Massey’s notion of space; that “space can never be closed, there will always be loose ends, always relations with the beyond, always potential elements of chance” (Massey, 2005, p. 95). It was expected that the built environment would act as a prompt to aid people in discussing planning matters, allowing them to discuss things that they had wanted to communicate but did not have the means to do so easily. Instead, what happened in the immediacy of the notification, as well as the comments being about a single point, may have led people to report things that were immediately in front of them (e.g. reporting graffiti or litter – similar to reports made through FixMyStreet (King and Brown, 2007)) – reporting issues that they notice when being prompted, rather than a strongly held belief.

Whilst quick participation methods require less time and commitment, they do not encourage reflection. The development of technology that allows for participation ‘on the go’ dominates planning technologies (Conroy and Evans-Cowley, 2008), but it is worth reflecting on the barriers that are created when this type of participation is prioritised. One such barrier of these methods is that they encourage immediate and emotive responses to calls for comments, rather than more considered, thought out comments that

are more reflective. By reflecting on the time that these methods take, gaps in the provision of engagement methods can be found.

The technologies engaged with the built environment to differing degrees. ChangeExplorer encouraged people to participate in the place being discussed, which has been previously demonstrated to encourage discussion (Vlachokyriakos et al., 2014; Koeman et al., 2014; Taylor et al., 2015). Whilst these discussions are prompted when people are together, the nature of ChangeExplorer and mobile technologies meant that the discussions took place in isolation. Whilst engagement with the built environment was demonstrated (Marres, 2015), it did not elicit the more useful longer term aspirations people had for their area.

In contrast to ChangeExplorer, the commentaries that were shared through JigsAudio did not relate to a single location; instead, comments discussed themes across entire cities (usually the area that was stated in the question) and typically reported on issues of equality, access, funding, discussing broad areas, such as the city of Newcastle or the borough of North Tyneside. These comments regularly discussed wider place-based topics than issues that planning can address. They were beneficial in that they were more future-looking, but are likely to be more difficult to address than those of ChangeExplorer.

The location, use and layout of JigsAudio provided opportunities for creating an exhibition that was a culmination of everyone's views on a given topic. This allowed people to understand and explore previous viewpoints, as well as contribute their own ideas. This may have broadened people's understanding of what could be discussed during place-related engagement, and encouraged people to comment on matters of personal importance. Technologies such as this allow for a different type of participation. Whereas the majority of technologies are person to planner (Ertiö, 2015), JigsAudio facilitated a more collaborative and shared experience, where participants would be sharing their views with their peers and decision makers (similar to how Dewey (1927) describes creating publics around issues).

Through the affordances of JigsAudio it was clear that comments were part of an engagement exercise, but also that their peers could understand their perspectives. The

physical space (in many cases, taking up a significant amount of space) allowed people to explore other's comments (something that would be difficult within the constraints of smart phones). The ability of being able to see other responses allowed people to build a collective understanding of what others were saying, and constructively discuss other ideas.

The difference between these methods, and their resulting responses raises questions about the role of being 'in-place' when making comments on the built environment, and how the act of participation changes with the location of the participation. Developments in mobile technology have led to a focus, both in research and practice (Vlachokyriakos et al., 2014; Ertiö, 2015; Riggs and Gordon, 2015), that favours high-tech and in-place participation, where barriers are reduced to participation by removing the requirement for someone to travel (Baker et al., 2007), including the need to use a 'traditional' computer which can be seen as restrictive (Evans-Cowley and Hollander, 2010). This, however, is not a panacea, and this research suggests that faster and more technical solutions do not solve the issue of enhanced participation – whilst there might be *more* participation it is not necessarily of *better quality* or carries any more weight with decision makers. As found through the use of ChangeExplorer, planners valued longer, more discursive comments, which might serve to question the legitimacy of their choice of quick participation methods that provide comments that are difficult to acknowledge.

These findings suggest that where long-term visioning is the aim (such as engagement on the development of planning policy), in-situ participation may not be the best means to accomplish this. The research points towards more thought being needed on how different types of technologies are used to gather input. The findings demonstrate that technologies similar to ChangeExplorer and FitMyStreet (King and Brown, 2007) are best placed to gain comments on immediate problems that require little critical appraisal of areas and do not require the sharing of long-term visions that can feed into multi-decade planning policies. As demonstrated by Newcastle City Council's plans for engagement (Newcastle City Council, 2018), there is no differentiation on the type of commentary technologies would enable, so rather than technologies being designed to support different types of comments, they usually use the same technologies for all participation exercises. The research has demonstrated that more thought is needed to understand how different means of participation can be better reflected in the methods that are adopted by local

authorities. Whilst the research has brought to light how quick and in-situ interactions promote problem reporting, ex-situ methods (such as computers being used outside the place they are commenting on) also have problems through mirroring ‘traditional’ methods of participation.

Digital methods promoted by local authorities primarily require the use of desktop computers (Conroy and Evans-Cowley, 2008; Evans-Cowley and Hollander, 2010; Newcastle City Council, 2018). Technologies that facilitate participation away from the town hall are frequently offered by local authorities (Conroy and Evans-Cowley, 2008; Evans-Cowley and Conroy, 2010) but tend to mirror offline traditional processes. For example in Newcastle, there are no digital participation methods used during events and exhibitions during engagement events (Newcastle City Council, 2018). The methods in common use focus on reducing some of the barriers to traditional participation methods, rather than harnessing the potential of digital technologies to provide new methods for participation.

Whilst lowering barriers to participation is a worthwhile ambition, it is also important to design technological methods for those that choose to be more involved, or who do not favour participating in-situ. When new methods are devised, that may have higher barriers to entry, new opportunities of engagement can be provided, such as those that more adequately allow people to express their experiences of place (Graham and Healey, 2007). These technological methods have both advantages and disadvantages, but it is important to recognise and reflect on these when designing digital engagement strategies.

The literature review identified a focus on methods that used apps or websites. The research, critiquing this focus, demonstrates that whilst this is effective in allowing people to participate, it does lead to barriers in how people participate and what people participate on. The methods were demonstrated to be effective in not requiring people to travel, but requiring text comments reduces how people are able to express themselves, and may serve to introduce new barriers. Methods that embraced creativity and expression, but which require travel, were demonstrated to be effective at gaining longer-term visions. Having a dedicated space for participation that promoted reflection and exploring other people’s viewpoints enhanced the quality and range of topics of participation.

This research has found, and argues for, more thought and critical reflection on the type of technologies that are used for participation and the influences this has on both *how* and *what* participation takes place. Whilst the preference within planning technologies is to drive efficiencies when participating (and, indeed, analysing the results of this participation) this speed sometimes leads to a reduction in the quality of dialogue that takes place. As the availability of digital technologies become more popular, digitally supported participation methods moved from planning officers and events to where the user chose. The research demonstrates how moving participation, whilst removing some barriers, may have introduced others.

### **8.2.2. Digital vs. Non-Digital**

The role of in-situ and ex-situ participation was an important factor in the design of technologies. The varying levels of digital technology led the research to explore how digital and non-digital elements could be combined to create new methods. By discussing the digital element of the technology, the research was able to discuss the degree to which high tech solutions might remove barriers to participation, and their effectiveness (Marres, 2015). In the pilots the physicality, form and function of the technology led to different responses, with the built environment having different roles within each of the piloted technologies. As Marres discusses, the material qualities of devices alters people's understanding of them. This section will discuss how a combination of digital and non-digital media supported and influenced the way people used and interacted with the technologies.

The level of 'digital' in the technologies refers to how they were interpreted by a participant, and their perception of the device (rather than how sophisticated the technology was). For example, technologies that identified a user's location had to be more sophisticated than those that did not track a user's location, with JigsAudio's technology being more hidden. The differentiation stems from different phases in computing, with earlier technologies being fixed in place and later being mobile devices that could be used anywhere (Dix, 2009). The sophistication and type of engagement with digital technology led to different interpretations of what the technology was doing and how it worked. Figure 29 shows the interpreted sophistication of the technology being used. Engagement with the methods did not seem to be determined by the sophistication

of the technology; rather it seemed to follow the novelty of the technology and interest there was with it.

One of the aims of undertaking the ChangeExplorer pilot was to explore whether technology could provide the means to quickly interact with planning and provide the city with updates and opportunities for participation. The ‘digital’ nature of ChangeExplorer was at the forefront; it was an app that was downloaded, ran on your watch, and used data connections to communicate. The watch used ubiquitous technologies, such as location tracking, and no analogue technologies. The methods used for communicating, either talking into the watch or typing, resulted in comments that mirrored the device’s abilities; the device was only able to provide short descriptions about what was taking place in that place and therefore participants left short responses to the provocations. The resulting comments were short and discussed the area. As a result, the technology had a bearing on how participation was undertaken, and the type of comments that were given.

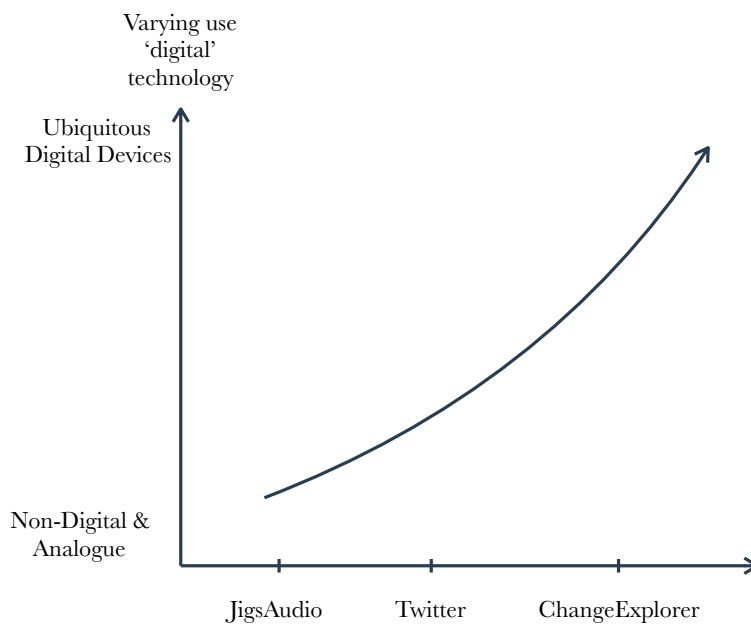


Figure 29: Varying Levels of Digital Technology across Pilots<sup>25</sup>

Source: Author

<sup>25</sup> Although the technologies developed by Twitter are a lot more sophisticated than those used by ChangeExplorer, when used within the research project, the appearance of the technology appeared more advanced, as well as the Apple Watch recently being released.



This was in contrast to JigsAudio, where the activity was non-digital to begin with. The initial interaction with the technologies was through looking at previous engagements with it, or through someone creating their own drawing, which allowed people to undertake the activity in their own time, rather than the technology determining it. The means that were given to people to express themselves – a piece of cardboard and pencils – led most to communicating through drawing images, rather than through writing, and the digital element formed a smaller part of the method when compared to ChangeExplorer.

The two examples illustrate how the methods that were provided shaped the responses given through the device. One key difference between JigsAudio and the other technologies was the custom-built hardware. The design of the JigsAudio device was specific to its use, and therefore, took a different form to other technologies both within this research and those that are commercially available.

The device led to novel interactions rather than the more usual screen-based interaction that people use with their computers and smart phones. Taking design prompts from the previous projects, such as work in tangible technologies, to provide novel experiences to interacting with computing (Golsteijn et al., 2015) the research combined digital and non-digital elements to develop new engagement technologies. Results from JigsAudio were similar findings in a study on physical photographic prints, which were demonstrated to aid memory and self-expression when compared to their on-screen equivalent (Van House et al., 2004).

Across all the projects, bespoke technologies provided novel opportunities for engaging with technology. As reported in the findings, the pilots provided new modes of interacting with computing or planning. It found that novelty played a significant role in people choosing to interact with the device, with the merging of digital and non-digital providing new opportunities for interacting with computing. Combining digital and non-digital (the city, jigsaw pieces, camera) provided interaction methods that blended the two and provided new ways and medias for engaging with technology.

Through the combination of digital and non-digital, JigsAudio aided understanding of how the two might be used to encourage and enhance participation in planning. It created a way for people to use familiar methods in putting their thoughts across whilst

not being required to use something that they would consider a computer (Ullmer and Ishii, 2000), leading to the creation of a physical artefact that enticed more people to participate.

### **8.2.3. Fast vs. Slow Participation**

Another factor that influences people's use of the technologies was the time that was required to engage with them. Alongside the requirement to travel, discussed earlier, time is frequently cited as a barrier to people participating (Baker et al., 2007). The logical assumption, therefore, has been that to enhance the citizen's role in planning, methods need to be quicker to use, and not require significant time commitments on behalf of the citizen (Baker et al., 2007; Ertiö, 2015). This research aimed to question the role of quick participation methods; allowing people to leave comments quickly in the built environment. ChangeExplorer took less than a minute to select general responses, and to leave a short voice memo, whereas JigsAudio's audio clips averaged around thirty-seconds plus the time needed to understand, reflect on the question and draw. The research, however, demonstrated that quicker methods do not necessarily lead to enhanced participation. The role of speed in leaving comments will be discussed within this section, and how the over-promotion of speed over other factors can reduce people's likelihood of leaving a comment that will lead to long-term influence.

Methods that encourage reflection have been demonstrated to support visioning and reflexivity when discussing place (Wang et al., 2004; Frank, 2016). This, however, is not seen in the development of planning technologies that prioritise speed and reducing friction to leaving comments. The time dedicated by someone to an activity had a bearing on how the activity was undertaken. As demonstrated within the literature review, most systems and research projects explore how internet-connected technologies can be used to make commenting quicker. Given this research, the direction of planning technologies is interesting – that reducing the time required to participate seems to reduce the quality of the dialogue taking place.

This became more apparent when discussing photographs with participants, where the time between taking a photograph and discussing it seemed to aid people's reflection. JigsAudio is in stark contrast to the time that was given for interactions with ChangeExplorer: this seemed to have a profound effect on the comments given by

participants, with more visionary, long-term statements being given through methods allowing time for assessment, reflection and dialogue being part of the activity.

JigsAudio led to more creative, expressive and reflective comments than ChangeExplorer, but this led to difficulty when analysing the results. The comments made through ChangeExplorer were more pragmatic and easier to analyse but often commented on attributes on the built environment that were outside the remit of long-term planning activities.

JigsAudio generated a range of responses, and the pilot demonstrated one of the factors was the material that was given to participants. As discussed when describing the pilots, more pragmatic comments were generated through giving line drawings of what they are commenting on. ChangeExplorer, using the built environment as a prompt, increased the realism of these comments. The pilots have illustrated that the more realistic the material that is given to them, the more straightforward the comments are in response. It is important to understand this when designing participation methods (discussed in the next section). Recognising the bearing that methods have on people's involvement, it becomes important to give increased attention to the design of alternative methods that align with both what people are commenting on and how people might want to respond to them.

JigsAudio was designed and developed to explore whether slowing down participation and encouraging thought and reflection might improve citizens' comments. The technology was deliberately designed to allow people to express these feelings in ways that are more communicative than traditional consultation methods and to capture place meaning. JigsAudio was not designed to be used quickly and required a higher level of commitment than ChangeExplorer. Choosing drawing and talking required people to spend time on their depiction – if they decided to engage with the activity it was going to take a few minutes – where they needed to engage with other people's drawings (and listen to them if they chose), reflect on the question, draw their thoughts and make an audio recording (these averaged 33 seconds but were often longer). The technology's design encouraged listening to other perspectives and made participants aware of being part of a wider activity.

The technologies' affordances led to different interpretations and uses of the technology. Whilst quick participation methods require less time and commitment to engage with, they do not encourage reflection. The development of technology that allows for participation 'on the go' dominates planning technologies (Conroy and Evans-Cowley, 2008), but it is worth reflecting on the barriers that are created when this type of participation is prioritised. One barrier of these methods is that they encourage immediate and emotive responses to calls for comments, rather than more considered, thought out comments that are more reflective and slower. By reflecting on the time that these methods take, gaps in the provision of engagement methods can be identified.

Johnson et al. (2017) developed a table-top 'game' that captured conversations around a map. They found that by providing time for conversation, a better understanding of people's views was achieved, with technology useful for structuring and facilitating the discussions. They also identified a difficulty with having actionable agendas from the more detailed and longer-term discussions. Another method developed by Manuel et al. (2017) encouraged people to make short videos of their local areas to discuss local issues, and to edit these into a longer video that represented a group's thoughts on a particular topic. They found the methods useful in uncovering perspectives that has before not been acknowledged, and for people to share their experiences and practices (Manuel et al., 2017). The focus therefore becomes understanding how a suite of tools can be used to address the different barriers to participation (Baker et al., 2007), rather than just the space and time barriers that are commonly cited.

The research demonstrated that no single method is better, but that they serve different purposes. There are topics or contexts where one method is preferable, and it is important to recognise that there are trade-offs with all the methods piloted within the research. There is no silver bullet to difficulties with participation; simply removing some barriers causes others appear. The findings of this research demonstrate that participation is never 'solved': it is a case of being nimble and responsive to both what is required and people's reaction to them.

Rather than seeking this silver bullet, planning should engage with a number of methods that best suit the type of involvement that would suit the question that is being asked. This will require creative and critical thinking about the type of technology that is being used,

with a recognition that people's time is not the only barrier for participation. The research has demonstrated that people are happy to spend their time engaging with planning (although the reasons people seek to participate is beyond the remit of this research) – and that striving for faster methods might not be the most effective means to widen participation.

#### **8.2.4. Aligning Technological Methods to Planning**

The difficulties of planning participation, and the influence people have, is not easily overcome by the development of technological solutions alone (Blythe et al., 2016).

In developing planning technologies for engagement, there seems to be a lack of consideration of the affordances of the technological methods being provided, and that technologies that encourage participation at different speed might encourage more meaningful participation. This could, in part, be due to the pressure to devise new methods for people to engage online with planning.

In the late 1990s targets were set for all government agencies to be engaged with electronic methods by 2008 (Office for National Statistics, 2019) – at the time internet 13% of households had internet access. Since this requirement, a lot of previously non-digital services were moved online (Ertiö, 2015). Rather than reimagining how planning might better use technology to engage people, several online methods mirror previously available offline 'traditional' methods – largely to facilitate planner to citizen communication (Evans-Cowley and Conroy, 2010; Ertiö, 2015).

During the take-up of online technologies for participation there was removal of several previously available offline methods such as meetings with planners and town hall meetings which used to be commonplace, with a lot of the discursive aspects of participation lost. Brabham, for example, stated “face-to-face meetings have their limits in maximizing the creative input of citizens. This process needs to go online” (Brabham, 2009, p. 252) This move online, however, did not seem to recognise the opportunities there are when people discuss a single topic in a place – something which whilst requiring reform (Gordon et al., 2011) online technologies, this research has demonstrated, still struggle to replicate. As will be described in the following section, digital participation

methods facilitating a transactional method of participation have led to participation that loses a lot of the benefits of face to face and more deliberative methods.

Whilst the longer comments were more useful to planners, some of them were more challenging to interpret. In using JigsAudio, it was challenging to understand the relevance to planning of images and audio recordings that were entirely abstract and how the comments put forward could be acknowledged and actioned. Methods to generate understanding of the content by referring back to the groups was explored, however results could not be shared with decision makers due to time constraints. In one example, the JigsAudio responses were used to set the agenda for a series of meetings, where the jigsaw pieces were used to collect perspectives on what should be discussed over the next year's meetings.

There is a detailed understanding of the type of activities that can promote responses, with methods detailed in practice-focussed literature such as Wates' (2014) *Community Planning Handbook* or Bishop's (2015) 'The Craft of Collaborative Planning'. The use of digital technologies in participation needs such critical thought and nuance. Rather than seeing 'digital' as a method in itself, there needs to be an understanding of a suite of methods and how these methods can be used to meet citizens' needs.

### **8.3 DESIGNING ALTERNATIVE METHODS**

This research has explored whether alternative methods can create the means and space for discussing place. To do this, it analysed a current platform for participation and explored new methods that could help overcome some of the difficulties with its use. The themes, discussed above, bring together the ideas that were developed during the research. This section develops these further, and notes the research's implications when designing digital planning participation methods in three ways.

First, it discusses the opportunities that digital planning tools provide for the discussion of experiences of where people live. Second, it calls for methods to support new methods of expression that align to how people want to communicate or discuss issues. Third, it appeals for methods that provide the opportunity to augment comments with information that aids understanding and communication. The separate tools fed into a discussion in

the following chapter, which considers implications for providing an understanding of digital tools as a suite of participation methods for varying levels of participation.

### **8.3.1. Designing to Share Place Experiences and Feelings**

The pilots demonstrated differing levels of success in encouraging people to share their experiences of space. This section discusses how some of the traits identified in specific piloted technologies can support and encourage people to share their place-based experiences and feelings.

ChangeExplorer failed to engage people to share their experiences, instead leading them to report problems. It was theorised that as ChangeExplorer relied on quick interactions with little time for reflection: it did not give people time to develop long-term visions and aspirations. In contrast, JigsAudio was effective at capturing people's experiences tied to specific locations, but this sometimes came with an associated difficulty in interpreting the comments. This increased reflection was likely due to the time given to reflecting on the question before a response was required. As argued earlier, the sole focus of planning technologies should not be to produce technologies that require less commitment, but to explore methods that can amplify people's experiences and feelings.

Using an open understanding of planning, for example, considering place experience (Massey, 2005), facilitated richer discussions than those that usually take place when having a strict 'planning' conversation, allowing people to discuss what they felt to be important. This allowed for the commentaries to be more conversational and expressive.

Early in the research it was identified that having discussions about place was more productive than the narrower discussions on planning and the consequential narrowing down of conversations. The methods that engaged people to talk about 'where they lived' rather than their feedback on a local plan as others have called for (Sandercock, 2003a; Massey, 2005) led to richer discussions. Given this, a decision was made for the research to explore methods that encouraged the discussion of place through digital technologies.

The technologies were intentionally designed to go beyond writing and other formal methods. Several medias were explored to examine how these experiences might be shared and discussed. For example, previous work has demonstrated the benefit of

creative methods provoking the sharing of long-term experiences (Frank, 2016). This brings to question relevance: what is relevant to planning (Practical Law, 2015) is not necessarily the same as those wanting to participate.

Landry points out, when reflecting on how cities are discussed in planning, the need for a change in how urban change is discussed, stating: “Our language [...] is hollowed out, eviscerated and dry. It is as if the city were just a physical container and the people an afterthought. Urban decisions are shaped by the technical [...] jargon of the professions, especially those in planning and the built environment” (Landry, 2007, p. 3). These motivations provided insights into how technologies can be designed to encourage the sharing of place-based experiences. How this was designed for is reflected on below.

### **8.3.2. Designing for Place (not Space)**

An overriding design principle demonstrated throughout the pilots was how place and location were designed for in the technologies. By understanding the use of the technologies both within this research and more widely, it becomes apparent that those that are designed to focus on a single point in space (somewhere with a coordinate) favoured problem-based reporting, with those discussing areas in a more fluid (and therefore less specific comments about a single place) encouraged more creative discussions (Tewdwr-Jones, Sookhoo and Freestone, 2019). This often meant discussing issues thematically, rather than spatially. Rather than discussion the location of an issue, many people’s comments aligned with Massey’s understandings of unbordered experiences.

A dichotomy arose between designing technologies for sharing experiences that are tied to an exact location and sharing general visions about places. This research found that requiring someone to discuss exactly where they were seemed to reduce and narrow what people discussed. Previous research on reporting issues in places, such as FixMyStreet (King and Brown, 2007), or reporting issues with cycling infrastructure (Le Dantec et al., 2015) and near misses (Maskell et al., 2018), allow people to more easily identify an exact focus for their concerns. More aspirational comments and discussions about place, however, often do not have this single place focus and instead discuss areas more widely.



This way of discussing place is aligned with Massey's (2005) understandings of how place is experienced, where feelings are fluid and without boundaries. By designing with a recognition of these ways of how spaces are experienced, it follows that methods should align with these. Many methods for planning rely on positivist and abstracted notions of space (Graham and Healey, 2007), which have been demonstrated to be problematic when trying to widen participation (Baker et al., 2007). Removing some of these boundaries was shown to be effective at getting people to discuss future-looking, thematic futures about issues that concern them.

### **8.3.3. Open and Future-looking Questions and Topics**

Following on from designing for how people experience places (rather than a space) it became apparent that the questions that were asked, and the topics explored, had a bearing on how places were discussed. Open questions, often related to the future, were the most effective at getting people to share both their experiences, and how they might design places differently to reach these futures.



Figure 30: What will your future look like?

Source: Author

Figure 30 shows one of questions that asks participants to think about what their future might look like. This question generated responses that were future looking, addressing contemporary issues, but also discussing speculative solutions to these issues and aspirations. It was found that open questions were more effective at generating discussion than asking someone about a single location, and that discussing places, rather than planning, was a successful strategy. The technology's role was to give people that adequate means to communicate these elaborate and complicated feelings (Sandercock, 2003a; Massey, 2005).

As discussed in the literature review, the current questions used in planning to discuss places are often narrow and fail to engage with people's lived experiences and issues, and to generate interest in answering the question. Having general conversations about places, and later understanding their implications for planning was shown to be more effective at generating citizen insight. This however, also requires further work from the decision maker. Using the more general comments on urban futures fits into wider conversations about the appropriateness of using a strictly held definition of material considerations (Sandercock, 2003a; Massey, 2005).

#### **8.3.4. Person-Directed Commentaries**

Allowing people to use technology to discuss issues that are important to them at their own time and pace seemed to be particularly valuable across all the technologies. ChangeExplorer required people to leave comments once receiving a problem. In contrast JigsAudio allowed people to self-direct when they left a comment. This self-direction allowed people to be presented with an opportunity to comment and then, in their own time, determine what they would like to communicate. Giving people the time to think was an important factor in getting useful commentaries about issues that mattered to people.

When designing technologies, it is important they provide time for reflection. Methods such as town hall meetings do not provide time for these reflections, and instead, require participants to immediately reply to questions or to share their concerns. Technologies, such as those in common use by planning authorities, do allow for self-directed reflection, but often fail to provide opportunities for the sharing of experiences in engaging ways.

It seems that one of the largest barriers to participation is not having the means to adequately discuss place, and what people would consider relevant and important about where they live (Landry, 2007). A wider recognition of what planning is requires changes in how planning is undertaken nationwide – having a provision for the discussion of issues that are important to people, rather than a transactional relationship between planners and citizens (Healey, 1997; Baker et al., 2007)

The research found that engaging people in discussing where they lived was useful. Whilst this ambition has already been discussed (Sandercock, 2003a; Massey, 2005), the research unearthed how engagement strategies can use digital technologies to facilitate people sharing their experiences. ‘Traditional’ methods rely on people explaining themselves textually. However, by using different medias people could better share their place experiences expressively. Through applying experiences of place to the design of technology, the research has implications for how future technologies might better engage with place-experience and provide alternative means through which people can communicate these.

### **8.3.5. Designing to Augment Comments**

The pilots, through their different technologies, facilitated different methods of communication or expression through different media. It was hoped that by allowing people to communicate in different medias, different ways of discussing and describing place could be assessed. The focus was on informal methods that aided communication more closely aligned to how people would choose to discuss topics and issues.

Each technology, through their different physical attributes, explored speculative and bespoke medias to communicate. Exploring how technologies that augmented comments from participants was one way that the research sought to understand whether technologies could provide new methods for participation. All the methods examined augmented comments with additional information. Augmenting comments was one way that people could give more meaning to their comments, with the hope this would both reduce the burden of citizen participants and those receiving them.

Other technologies that facilitate augmenting data with additional meaning through discussion have been demonstrated to be effective. The Postervote project found that

discussion around people's choice of votes to be valuable (Vlachokyriakos et al., 2014), Koeman et al. (2014) found that non-digital urban displayed stimulated discussion about local data, Le Dantec et al. (2015) used collected data to develop design strategies. In this research, the technologies, to differing degrees, were designed to allow additional data to be added to comments, allowing participants to add additional information in different ways.

When people used ChangeExplorer, they discussed how they were able to discuss places knowing their location was tied to their comment, allowing them to leave shorter comments. From the person receiving the comment when JigsAudio was used, they discussed how being able to hear someone's voice allowed them to understand the perspective of the participant and gain a deeper understanding than they would have gained from the image alone. When abstracted drawings were made, they often did not make sense without the added audio that served to clarify what the participant was trying to communicate. It was understood by the users of JigsAudio that without the audio, the abstracted comments are difficult or impossible to interpret. When the voice behind the depiction was listened to, it was reported to often provide an account that was more powerful and communicative than writing would have been.

Using multiple methods of communication has been shown to be an effective method for gaining a shared understanding of people's comments. The PhotoVoice method, for example, demonstrated that people could better articulate and share their experiences when using images as prompts (Wang et al., 2004). What becomes essential with methods that rely on abstracted commentaries is how these comments are translated into comments to be dealt with through real-world priorities and priorities.

The piloted methods contributed to understandings of how digital technologies can support the articulation of ideas through augmenting comments (either automatically captured or submitted by the participant). The value of augmenting combining with medias that help communicate more complex ideas was shown – either to speed-up or simplify participation methods. The research makes an argument for methods that combine methods for more meaningful digital participation methods that assist people in sharing more detailed responses on topics, and that different types of augmentation is useful for different types of comment.

Providing people with the means to express themselves is vital to reducing some of the barriers to current methods. Textual communication, for example, presents challenges for some to adequately express themselves.

Alongside the need to create the space for discussing place, the technologies supported more expressive communication by allowing people to augment their comments with additional information. The expressivity of the comments was found to be a vital component in allowing this. Since face-to-face discussions of place have been severely reduced (Newcastle City Council, 2018), there are fewer ways through which people can express themselves. This research demonstrated how digital technologies can be configured to create a space for enhanced dialogue.

### **8.3.6. Supporting Alternative Methods**

Alternative methods for participation can be effective at generating interest in participating in planning; the research found that novel methods were a driver in people deciding whether they wanted to use the technology. The need for developing novel technologies, however, presents a problem, with the need to constantly adapt, modify and update methods to keep them novel.



Figure 31: Different JigsAudio Activities

Source: Author

Throughout the research the JigsAudio device and activity was modified and adapted. Although there were some modifications made to the device, the majority of the changes to the activities were changing the physical media that participants drew on and the context within which it was placed. Without the need for any changes to the technology,

very different activities took place. Figure 31 shows the different forms that JigsAudio took across the various case studies.

Having JigsAudio easily adapted for multiple projects provided opportunities for novel uses of the device without a redesign of the underlying technology. The pilots demonstrated how piloted technologies that are adaptable with minimal time and effort (and are likely to be cheaper and easier to maintain in the long run). Compared to the other technologies, the ease with which JigsAudio could be adapted and imagined in different contexts meant that the device was used across a greater number of projects than the other technologies, whilst retaining its novel appearance and use.

Tangible technologies, due to them not being in common usage, are often considered to be ‘novel’ interaction methods (Golsteijn et al., 2015). Although once thought to be the ‘future’ of computing (Endsley, 2016), they are still not commonly used. Technology projects such as VoxBox (Golsteijn et al., 2015), PosterVote (Vlachokyriakos et al., 2014), Vote with your Feet (Steinberger et al., 2014) and urban voting buttons (Koeman et al., 2015) demonstrated how novel interaction methods can garner attention and usage through being novel. The difficulty with many of these technologies (except PosterVote (Vlachokyriakos et al., 2014)) is that they require significant effort to reconfigure for different uses. JigsAudio contributes to our understandings of how, through the imagination of research partners in deploying technologies, these technologies can be adapted for different situations and context without the need to change the underlying technology.

The implication of enhancing engagement with planning through them being novel is that every engagement will require a costly and time-consuming development. Within the constrained resources of local government, it is likely there will be a trade-off between creating bespoke, unique experiences and those that are cheaper to mass deploy and can be used more widely.

Promoting alternative methods allowed people to express themselves in ways that more closely aligned to how they experience places. The technologies discussed within this research demonstrate the ability of novel technologies to engage different voices in place-discussions. The emphasis should be on technologies designed for engagement be

adaptable for different contexts and topics, but which support discussing place experiences and feelings and augmenting comments with additional information. Creating technologies that can be mass-deployed for several different contexts and topics should be avoided.

## **8.4 CONCLUSION**

This chapter has taken the findings from the research and discussed them using three themes. The first discussed that where the technology is used changes how one uses the technology, and how this shapes the commentaries that people put forward. The second examined how the amount of time people had to interact with the technology changed how people interacted with it, and that usually, technology that encouraged quick interactions usually led to comments that reported problems. Third, the chapter discussed how using technologies that combine digital and non-digital elements can lead to novel opportunities to engage with technologies.

The chapter then uses these discussion points to reflect on the design requirements within the research, understanding how the technologies were used and the implications for future planning technologies. It makes an argument for alternative methods for citizen participation to; design for promoting discussion of place and capturing feelings and experiences of the built environment to promote open discussions (rather than closing them down with ‘material considerations’); augment comments with different medias to both aid citizens making comments and the receivers of this data to understand them; and to support alternative methods that are easily adapted to different topics.

### ***8.4.1. Implications for Engaging People in Planning***

Table 13 returns to the earlier described mirroring of digital and non-digital methods in current use. Whilst there are several digital methods through which citizens can participate, these methods do not lessen barriers to participation such as understanding the language of planning, writing comments that engage with what planning considers relevant and needing to write formal letters or emails that describe concerns. The point is not to say that these methods are ineffective, but that there are opportunities to use alternative technologies that can go beyond their previously offline counterparts.

<b>Traditional Technology</b>	<b>Digital Alternative</b>
Send letters to affected individuals	Send emails to affected individuals
Unstaffed exhibitions to share information on proposals	Upload proposals to council's website to view information.
Publicise proposals in local newspaper and local authority's magazine	Publicise proposals social media
Notices posted on lamp posts	Notices placed on website
Making comments on physical map	Making comments on an electronic map

Table 13: Traditional Technologies and their Digital Alternative

Source: Author

By understanding how the design of digital technologies influences participation, the research has implications for technology-mediated planning engagement. During the take-up of online technologies for participation previously available offline methods (meetings with planners and town hall meetings were used to be commonplace) were removed, with a lot of the discursive aspects of participation lost (Lane, 2006). As will be described in the following section, digital participation methods facilitating a transactional participation have led to participation that loses a lot of the benefits of face to face and more deliberative methods.

This research has demonstrated that by engaging with literature in town planning, HCI and the findings of this research, new understandings of the role of design in planning technologies can help to shape how participation through these devices can take place. By surfacing the importance and influence that the design of digital technologies has on the people who use them, methods can have the affordances that are most likely to promote sharing information with the best potential in shaping places.

It discussed how engaging people in-situ has been a longstanding aim of participatory apps (Ertio, 2015), but discovered how these aspirations might be at odds with technologies that best promote discussion. By doing this, it also argues against a need for high tech solutions when developing planning technologies – rather, that novel participation methods can engage people in placemaking activities that reduce barriers to using traditional computers.



One way in which these technological solutions have shaped participation is in their aim to allow people to participate faster (Ertiö, 2015). As described earlier, participation methods that allow for fast participation might achieve the overall aim of encouraging more people to participate, but this speed of participation reduces the reflection people put into their comments, and can lead to encouraging problem reporting over longer term changes that would have more of an impact during policy development. There is a balance to be struck between fast engagements that allow in-place participation and those that encourage deeper reflection. Since the removal of a lot of methods that encouraged in-person discussions, there is an urgent need for methods that support deeper engagement than the current provision of apps and websites.

The following section will explore how these tools could be used together, and how through understanding the type of response that different technologies encourage, they might work together to provide a suite of participation methods. The aim will be to discuss a suite of methods that provide differing levels of engagement appropriate to the opportunities that are available for participation.

The notion that a technology's design influences how it is used is not a novel concept in HCI. What is, however, is understanding how these different forms and formats can serve to change the type of participation. Previous literature has largely supported the idea that reducing barriers to participation will allow people to comment on proposals, only faster. This research contends that the design of technology, such as where it is designed to be used, has a significant bearing on the type of comments it promotes.

The use of planning technologies needs to move beyond simply seeing digital methods as reducing barriers, and instead, as something that provided new and enhanced opportunities. These methods, forming a suite of participation methods can be used to provide the most suitable methods for people. The following chapter discusses how planning can engage with a range of technologies to enact opportunities of participation.



# 9

## Conclusion

Introduction

The Changing Role of  
Citizen Participation in  
Planning

Human Computer  
Interaction, Town  
Planning & Participation

Methodology and Technology Pilots

Twitter

Change  
Explorer

JigsAudio

Reflections on Creating a Space for Dialogue

Conclusion

## 9. Conclusion

This chapter returns to the salient points raised by the research, reflecting on the research questions, drawing the work to a conclusion and reflecting on the research process. It ends by discussing the research's contribution, limitations, and suggestions for future work.

The literature chapters built a case for the opportunities of technology's role in enhancing participation in planning (Evans-Cowley and Conroy, 2010) through discussing three interrelated points. First, it described both the need and the opportunities that are provided when people are engaging in place-change, both for democratic and better policy development, but that current methods fail to engage with these perspectives (Healey, 1998; Brownill and Inch, 2019). It introduced the differences between how people experience place, and how this contrasts with the way people are required to participate (Sandercock, 2003a; Massey, 2005; Graham and Healey, 2007).

Second, it discusses how technology-enabled participation methods attempt to engage people more meaningfully, but that they often replicate many of the difficulties seen with non-digital methods that came before, usually taking the form of apps and websites (Chapter 3) (Hanzl, 2007). It describes how an understanding of affordances in HCI can encourage the development of alternative forms of technology (Norman, 1990), outlining how these might be used to encourage a more meaningful discussion through technology.

Third, in Chapter 4 it describes how, by combining these two points, technologies that attempt to engage with people's experiences and aspirations were piloted, to determine whether these might open up opportunities for a more engaging discussion of planning issues. It argues for the need to engage with the design of technologies, inspired by the notion of materiality (Marres, 2015), to engage people with alternative forms of technology (Ertiö, 2015). It sets out an approach, through using action research, whereby the research designs, deploys and evaluates pilot technologies (Dourish, 2001).

The research included three pilot studies. The first reports on the use of Twitter (Chapter 5) and explores how people participate online, and whether engaging with these discussions could provide planners with an understanding of public concerns. It found

there were planning-related discussions taking place on the platform, but that identifying and using these in practice presents difficulties. It makes a case for technologies that facilitate place and planning-related discussions.

The second (Chapter 6) uses a smart watch app to explore how using the built environment and notifications can prompt people to participate on places they are in. It demonstrates how a focus on speed limits discussion and encourages problem reporting rather than long term visions. It demonstrates the effectiveness of planning technologies in raising awareness of changes, and that these can serve to encourage more participation.

The final research chapter (Chapter 7) piloted JigsAudio, a hardware device that encouraged people to express their place-based comments through drawing and talking. It found that engaging with expressive discussions allows people to communicate complicated place-meanings, but that this was sometimes at the expense of actionable comments that could have more easily translated into formal planning processes. The tangible device was useful in reducing people's apprehension of using technologies and encouraging others to engage with the activity.

Reflecting on the research, Chapter 8 outlines how technologies might shape the type of representations people put forward. It outlines how a 'space' was created, and how planning technologies can be designed to encourage the most appropriate responses to opportunities for input. It discusses how promoting quick participation methods that, whilst effective at making people aware of changes and opportunities for participation, lead to problem reporting. It outlines how underexplored methods that prioritise expressiveness and reflection and situated engagement can lead to more thoughtful commentaries about people's place-experiences, feelings and aspirations. It suggests that engaging with physicality and future-looking questions can improve the responses people provide, but that this needs to be combined with planning engaging with wider place-meanings.

The conclusion discusses the implications of this research and how, along other digital and non-digital methods, one might provide a suite of methods that allow people to participate using methods that align with both the opportunities for participation and level of interest on an issue.

## **9.1 OPPORTUNITIES TO ALIGN METHODS WITH OPPORTUNITIES**

The previous section discussed how new digital methods of participation can be designed to better support the type of participation that people favour. By exploring how different methods can encourage different responses from citizens, the research reflects on whether the technologies piloted can be applied to the current planning system. It goes on to outline what to consider when designing planning technologies that promote more expressive, reflective and engaging participation.

### **9.1.1. Reflections on Current Methods**

By engaging with literature on planning participation (Baker et al., 2007), and its misalignment to how people experience place (Massey, 2005; Graham and Healey, 2007), the thesis builds a case for alternative formats of digital participation methods. During the period of this research, a number of methods that had previously been used were removed (Lowndes and Gardner, 2016)<sup>26</sup>. These have been replaced by digital methods that, whilst some have argued are more effective at engaging citizens (Conroy and Evans-Cowley, 2008), have also been criticised for not providing sufficient means for people to respond to opportunities for comment (Ertiö, 2015).

This chapter reflects on how planning technologies might both be reassessed and used in practice – rather than seeing them as one solution, they should be seen within an ecosystem of planning technologies that facilitate different levels of engagement. As the ways that people participate in political processes varies (Wright, 2012; Marres, 2015), so should the level of engagement with planning, and the provision of technologies to allow this. Technologies, therefore, should be designed to support this varied involvement, as discussed next.

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<sup>26</sup> These changes were made when it updated its 2013 Statement of Community involvement in August 2018 (Newcastle City Council, 2018). Whilst these legislated technologies have an important role in establishing a minimum provision, it is important to note it is difficult for local authorities to go beyond what is legislated for (Butler, 2018). There was a recent pilot (MHCLG, 2015) to explore ending the requirement for local authorities to use site notices, advertise in newspapers and send letters, however, legislation is yet to change ('Consultation and pre-decision matters', n.d.)

### 9.1.2. Mediating Planning Participation with Technology

One of the difficulties identified by this research is that the means through which people engage are the same legalistic documents that planners use to govern space (Graham and Healey, 2007). The methods that are used to engage citizens are those that planning professionals use – with a strict understanding of what is relevant that cannot accommodate place-experiences (Slotterback, 2011).

<b>Constraints</b>	<b>Opportunities</b>
<p><i>Resource</i> Shortage in the availability of resource, such as time, money, support from senior management, experience is using technologies and programming skills.</p> <p><i>Access to Technologies</i> Technologies target particular groups, and do not “reach the boarder public, but rather may be dominated by a ‘disgruntled minority of individuals”” (p. 477), as well as issues around planners access to the technologies.</p> <p><i>Citizen Understanding</i> Citizens not understanding how to use the technologies promoted by the planners, such as mapping technologies</p> <p><i>Biases &amp; Technical Information</i> A fear that introducing non-technical information could lead to biases, for example, in using photorealistic images, and people being ‘wowed’ by the technology and understanding the proposals fully.</p>	<p><i>Enhanced communication</i> “Technology is seen as enhancing a number of the communicative aspects of participation processes [...] including providing information to participants, promoting discussion, and gathering feedback” (p. 469)</p> <p><i>More Accessible Technologies</i> An opportunity to use technologies that are better understood and useable for citizens.</p> <p><i>Attracting fresh perspectives</i> Technology has a role in attracting people to engage with planning, but is more effective “as an add-on to existing and more traditional participation approaches” (p. 480).</p>

Table 14: Opportunities and Constraints of Planner’s Understandings of Technologies

Source: Author, adapted from Slotterback (2011)

Before going on to discuss how technologies might provide citizens with enhanced opportunities to engage with planning, it is important to briefly revisit some of the constraints (such as the limited resource to develop and support technologies, the disparity in access, and people not engaging properly) and opportunities from a planner’s perspective. Work by Slotterback (2011), explores this by engaging with practicing



planners. Table 14 outlines some of these findings, listing constraints to the increased use of planning technologies, as well as the perceived opportunities.

The paper concludes that planners see more benefit to the provision of information through technology, rather than those that are more participatory. The survey suggests that “basic technologies including websites that provide information, as opposed to more advanced technologies that would have greater potential to enhance collaborative and interactive participation approaches” (Slotterback, 2011, p. 468), but that “despite the buzz that seems to be emerging about new technologies [...], there seems to be some scepticism among planners about whether they can be feasibly integrated into participatory processes and day-to-day planning practice” (Slotterback, 2011, p. 479).

The survey of planners’ requirements for technologies contributes relevant findings to research. Whilst opportunities that increased participation from citizens for using digital technologies were identified by planners, when specific technologies were questioned, planners preferred the one-way dissemination of information. This is not entirely unexpected – research has long understood and explored the role of the ‘professional’ planner, and some reluctance to citizen input in planning (Healey, 1997; Vigar, 2012; Clifford and Tewdwr-Jones, 2014), as well as a difficulty in engaging with the opportunities new technologies provide (Vonk and Geertman, 2008). Whilst recognising the benefits of new technologies, it is important to situate the use of participation technologies in a debate about the changing role of planning (Batty, 2018b), professionalism (Vigar, 2012) and power (Brownill and Carpenter, 2007). Part of reducing some of these constraints can, in part, be resolved by more closely aligning what is being engaged on (the scope of comments that can be made) and the methods that are used to support these comments, reducing the work of planners interpreting comments.

### **9.1.3. Opportunities for Participation & Participation Methods**

This research has questioned whether technologies that strive for efficiency and speed are indeed the best ways of promoting citizen participation. The influence the technology has on how people engaged with the device changes the type of comments facilitated through the device. A motivation for this work was to explore how technologies could encourage fresh perspectives through designing alternative technologies that allow people to better describe their experiences of place. Previously, research in town planning has had little

engagement with how the technologies altered people's participation (Ertiö, 2015). Through engaging with different ways of materialising abstracted concepts (Marres, 2015), such as comments and proposals, the work has demonstrated that the design of technologies both changes participation and can provide methods that overcome some of the issues associated with technologies.

Applying the understandings gained from the piloted technologies, this section discusses how these opportunities might better align with opportunities that exist for participation. It applies the discussion of how the technologies shaped participation and attempts to align these to opportunities for citizen input in the current planning system. Citizens to be involved early, during policy development, to have most influence on long-term changes to places (Town and County Planning Act 2012 c. 18). Table 15 shows the different stages for citizen input during the development of local plans and aligns them to design affordances to best influence the participation it facilitates. It illustrates how, as the development of the plan progresses, the issues that are considered narrow – early engagement is able to consider more disparate comments that could be addressed within the plan, whereas later stages narrow in scope, and only take into account technical aspects of the plan, such as policy conformity (Cullingworth et al., 2015).

As the scope of involvement narrows, the methods that facilitate participation should encourage participation in ways that are likely to have the greatest influence. Opportunities for participation are not able to accommodate new views, instead, they are a more technical exercise (Cullingworth et al., 2015) that deals with conformity with national planning policies. Marres (2015) suggests that it is important to consider how abstracted opportunities for participation are made easier to engage with. Applying these understandings to a more formal and structured planning system, technologies should encourage participation that align with the breadth of the discussion.

<b>Stage of Policy &amp; Mechanism for Involvement</b>	<b>Required Input</b>	<b>Opportunities in Current Planning System</b>	<b>Type of Participation</b>	<b>Affordances of Technology</b>
<i>“Development of evidence base”</i> (Newcastle City Council, 2018, p. 5): Evidence during evidence gathering stage of local planning policy development.	“A wide and inclusive view needs to be taken of what constitutes evidence. Anything which assists in understanding a place and a community” (Nadin, 2006 cited in Lord and Hincks, 2010, p. 482) should serve as evidence during this stage.	Early consultation on needs, wants, aspirations: open-ended early discussions around planning issues. The Town and Country Planning Regulations (TCPR) 2012 (reg. 22) requires a minimum number of evidence-based studies and documents reporting on these for early stages of developing a local plan.	Structured data that can be scrutinised and allows planners to understand high-level issues at hand, and which can lead to further investigation. Allows issues to be demonstrated, engaging people (Rydin, 2010).	Primarily text-based to encourage standardised participation that is easily understood. Quick participation that provides a broader understanding of the issues and aspirations people have.
<i>“Public Consultation on a draft document”</i> (Newcastle City Council, 2018, p. 5): Input into initial stages of local plan formation (Issues and Options).	Discussion of long-term issues (usually around 20 years) that covers a range of planning-related futures which discusses the scope of the plan	Issues and options paper provide an opportunity to talk with the community in a more focused way on how their aspirations are being shaped into policy. TCPR 2012 (reg. 18) requires LPAs to engage consult citizens on what the plan should contain – providing the space for more open dialogue and comment.	The aspirations people have for their area. Supported by the evidence-based, encourage creative solutions to issues that are being faced by people.	Creative and reflective discussions about place – technology that promotes reflection, consideration and discussion over speed and quick comments.
<i>“Public Consultation on a revised document”</i> (Newcastle City Council, 2018, p. 5): Specific opportunities to question policies.	Specific, point by point discussion on issues contained within the document.	Draft local plans are published for consultation but with a much more limited scope in what can be discussed. TCPR 2012 (reg. 19) allow people to comment on the plan’s ‘soundness’, where comments are limited to the plan’s technical soundness, such as its conformity with relevant legislation and policy.	Comments must be well evidence and are usually based upon policy conformity rather than long-term aspirations.	Formal participation that is detailed-focussed that cannot introduce new concerns but must question the legitimacy of the plan or individual policies. Current document-based methods in use facilitate this procedural and technical participation.

Table 15: Stages of Participation and Types of Participation

Source: Author

Table 15 applies the opportunities to engage with planning to the technologies that encourage ways of participation which could feed into these processes. Earlier opportunities should align with technologies that encourage the sharing of future visions, and wider experiences of place that might be accommodated during early policy consultation. Later stages, such as making people aware of specific land allocations and proposals, provide little means of questioning the overall direction of proposed policy (Cullingworth and Nadin, 2002), and should therefore not set an expectation that wider issues will be considered. These methods should encourage people to comment on specific policies, targeting inputs on specific elements of proposals. As the research demonstrated, planning technologies should not be considered a catchall method, rather, they should be used with as much thought as non-technological methods (such as is given with Wates' (2014) Community Planning Handbook).

Taking this forward, as well as having different purposes, methods should support differing levels of citizen interest and willingness to participate. Engagement with the planning system should encourage a scale of opportunities with the planning system, where people can report open views, and if interested, can be more involved in the development of specific proposals which require more engagement with formal processes.

Increasing the use of technologies (that do not just mirror offline methods) will require reflection as to how technologies align with current practices. With scepticism towards technology's role in planning (Slotterback, 2011), it is unlikely that there will only be wider take-up of digital technologies if they can bring benefits to practitioners.

The Twitter pilot demonstrated the take-up (and the perceived success from the planners) when technologies closely aligned to the planner's understanding of participation. Posing questions to people on Twitter, and getting responses, aligned with their procedural requirements for consultation. Specific questions could be asked, and their responses logged. The simpler dialogue could easily be added to a report on their efforts to consult more widely. As with ChangeExplorer, comments could be attributed to specific development management cases, and dealt with under current procedures.

The comments encouraged through JigsAudio required more interpretation, leading to inputs which were more challenging to integrate. The representations that were

encouraged through JigsAudio discussed a number of topics (many of which were not directly relevant to planning) but which reported on wider place-based issues and aspirations, and the ways of visualising and understanding the discussions are not conducive to a report format.

Recognising this difficulty, one potential mitigation is for community groups (rather than planners) to work with citizens to understand their perspectives. This also gives them the crucial responsibility of translating the human-centred perspectives into those that can be recognised through official channels. Another might be to use data generated through JigsAudio in more conventional workshops approaches.

Given the difficulties of aligning place-based discussions with planning, it is unlikely that more place-based technologies will be able to reconcile the differences between experiences and practices (Graham and Healey, 2007). As Hillier calls for, planning is going to have to open up to experiential, political and participatory accounts in the future if it is to genuinely engage people, which can in turn “lead to fuller understanding between all participants and to negotiation rather than confrontation [between citizens and planners]” (Hillier, 2016, p. 32). The formulaic planning system retained from 1945 was developed to satisfy the commodification of land that leads to predictable outcomes for land developers. These processes do not adequately engage people, and risk losing the legitimacy of planning as a profession if they are not viewed as fair and democratic (Hillier, 2016). The solution, in the end, may have to be that planning increasingly engages with how people experiences places (Massey, 2005).

The next section discusses how some of the difficulties with participation and current methods might be addressed by increased reflection on the design of planning technologies.

## **9.2 AFFORDANCES TO SUPPORT ENHANCED ENGAGEMENT**

This section describes some of the attributes of technologies that encouraged engagement with planning, as well as how they shaped how people engaged. As described earlier, one aim was to explore whether technologies could lead to a less transactional approach to engaging people.

### **9.2.1. Support the Open Discussions of Place**

The research developed an understanding of the methods that are used for participation and the citizen response. Using approaches that assisted people in communicating their places experiences as open, nebulous and with fluid boundaries, through different medias (Massey, 2005) provided citizens with more ways to communicate their equally complex visions. The medium that was used to facilitate communication had a direct bearing on what, as well as how, people communicated their feelings. Healey (1997), through communicative planning, places an emphasis on how the discussion of place is used to facilitate fairer and richer discussions between citizens and planners.

One approach that engaged people was to seek answers to open questions, and later deciding what the material implications of people's comments are. By engaging with planners, the research found they struggled to make the planning accessible and understandable. They discussed how technologies that could support real-time conversations, as explored by using Twitter. Through this dialogue they were able to respond to comments as they were made, asking for clarifications, and further solidifying the material implications of any inputs.

Another benefit was that people could ask questions directly, rather than having to read long policy documents about abstracted and often irrelevant proposals for the city (and not needing to understand maps and use of colloquial names). Often questions turned specific, meaning that once they understood opportunities for engagement, they began to ask technical questions about specific parts of the planning process. Citizens also asked wider place-based questions, which not forming part of input into planning policy, could encourage people to become more interested in shaping the proposals for their area.

In summary, creating a space for the open discussion of space can be productive in getting people to discuss issues that are important to them, but it requires more interpretation to translate their sentiments into current processes. In taking a place-based approach to planning it is important to recognise these methods were not quicker but were felt to be more productive for both planning officers and the participants (reflected on in the next section).

### **9.2.2. Quicker is not (Always) Better**

A dominant provision of technologies in research and practice are quick methods of participation that allow people to participate anywhere through internet-connected devices (King and Brown, 2007; Vlachokyriakos et al., 2014; Koeman et al., 2015). The aim with these technologies is to create alternative methods that can lead to a quicker understanding of, and participation with, opportunities for participation.

HCI has a longstanding understanding of how a system's design can aid "in learning, understanding and presence to give people time to think and reflect" (Hallnäs and Redström, 2001, p. 203). Part of this understanding has generated interest and calls for 'slow technology', which aims to "to make room for and invite reflection" (Hallnäs and Redström, 2001, p. 204). The aim is for technologies that focus less on speed and quick transactions, and instead encourage reflection, presence and taking meaning from the surrounding environment (Hallnäs and Redström, 2001). As both this research and others have found, encouraging reflection means people are more likely to share, in both more detail and with more consideration, their long-term aspirations for an area (Al-Kodmany, 2001; Sutton-Brown, 2015; Frank, 2016).

In understanding the affordances that can lead to more reflection, it was found that app-based participation methods that encouraged quick participation led to reports of problems, whereas slower, more creative activities led to more reflection and future looking. Slower participation methods gave people more time to reflect, collect their thoughts, and communicate a more salient response. Although quick methods are often touted as being effective for getting new people involved, research has also demonstrated that encouraging people in reflection leads to better dialogue than these quick methods (Lars Hallnäs, 2001; Cheng et al., 2011), with, in many cases, discussions taking place around expedient data being more insightful than the original data (Koeman et al., 2014; Koeman et al., 2015). Within this research, pilots based around reflection and understanding collected more future looking perspectives than technologies that prioritised speed.

The use of the ChangeExplorer app found that the affordances of the app led people to reporting the first thing they saw, rather than making more considered comments. JigsAudio, on the other hand, led to comments that were longer-term, but which also look

more time to complete. Comparing the use of JigsAudio with ChangeExplorer makes a good argument for how technologies that support quick participation do not always lead to better participation, but may engage more people. This research raises further questions on whether promoting speed improves participation (rather than just the number of people participating), which should be the primary focus for the design of digital participation methods. Whilst they might encourage people to participate in planning, they may also encourage comments which will carry little weight (Seltzer and Mahmoudi, 2012).

ChangeExplorer demonstrated a willingness for people to become involved with methods once they were made aware of an opportunity. One potential antidote to these issues is to explore whether ‘quick’ participation methods can feed into methods which then become more involved, as the next section reflects on.

### **9.2.3. A Gateway to Involved Methods**

In order for people’s comments to have more influence it is important that people get involved in both being aware of proposals and opportunities for engaging in discussion (Baker et al., 2007; Baker et al., 2010). This section discusses how technologies might facilitate this, by using a suite of technologies that encourage the scaling up of involvement, allowing people to become more involved should they choose to, and how methods feed into one another. Figure 32 illustrates how a series of methods can work together to support this. This research has shown that there is more interest in participation if the conversations and questions are more engaging, and that people are happy to spend time participating if it is felt to be productive. As people become more involved the methods used can become more complex, and move from one’s personal device towards specially designed engagement activities (Koeman et al., 2015; Golsteijn et al., 2015).



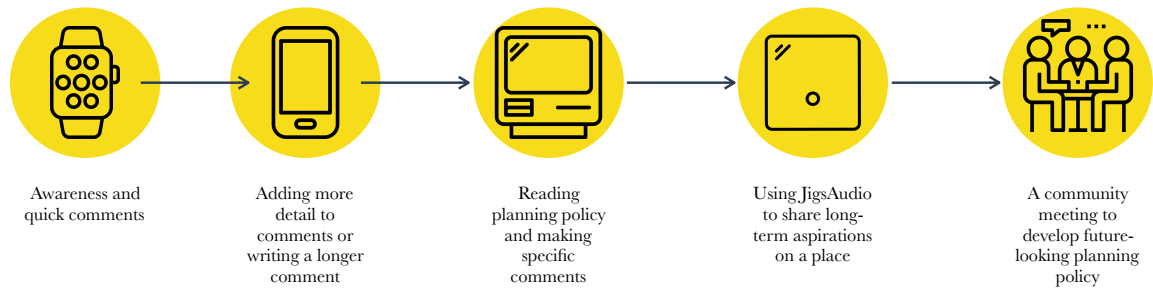


Figure 32: Quick Methods becoming Gateway to more Involved Methods

Source: Author

There are several merits to having methods (both digital and non-digital) that offer low-barrier opportunities for involvement, as well as those that are more involved, that can be used to express feelings and experiences in novel, interesting and engaging ways (Bugs et al., 2010; Bilandzic and Foth, 2012). The opportunity is to provide a variety of media and types of participation that will be preferred by different people, allowing them to the methods which they might be more comfortable with (Baker et al., 2007).

Using a suite of tools would not be overly radical for planning practitioners - these alternative methods can easily sit alongside current participation methods. Through using a suite of tools that provide gateways into more involved methods allows people to choose methods that best suit their way of communicating, and the amount of involvement they would like to have (Conroy and Evans-Cowley, 2008), as well as allowing planners to use different tools depending on the opportunities for input.

These technologies could be used to support either case-specific participation, or an ongoing conversation about place-based issues. One example of having a place-based suite of tools would allow for a digital resource that could be interrogated by decision-makers to get an understanding of issues people are facing (Mistry et al., 2008; Nuojuua, 2009) allowing people to take a place-based approach to discussing where they live (Healey, 1996) and a resource of comments (Foth et al., 2009) without the need to engage with formal processes (Cullingworth et al., 2014).

Rather than needing to rely on screen-based technologies, such as apps and websites (which is expected to grow in the future (Ertiö, 2015)), there is an opportunity to further explore the role of alternative formats of technologies in formal planning contexts. Whilst

these apps can be effective at removing some barriers, they can also create new ones (Baker et al., 2007). With this comes an acceptance, discussed earlier, that technology should not be seen as a single method or media, rather, it should be seen with an ecosystem of tools that perform different functions, where different technologies facilitate and encourage different types of engagement.

### **9.3 RESEARCH QUESTIONS**

The research aimed to understand how bespoke digital technologies create a space for dialogue around places that people cared about. To do this the research asked three specific questions, which are reflected on and summarised below.

#### ***9.3.1. Can alternative planning participation technologies encourage and support the sharing of fresh perspectives from a wider group of people?***

This research was undertaken by challenging the assumption that technologies had to be mass-deployable, and that instead, technologies could be designed for narrower, less generalisable scenarios. The technologies had differing levels of success with engaging fresh perspectives within the planning process. The research demonstrated that downloadable digital technologies, such as the app-based participation method ChangeExplorer (Chapter 6) can provide the means for more people to participate more easily, but that this limits people's engagement with long-term changes, with more creative and expressive activities (Chapter 7) giving people the space and time to communicate complex ideas.

The often-overlooked benefits of technologies that are not apps and websites is that they can engage people who either have no access to smart phones and computers or have no interest in, or knowledge to participate through digital means. The research demonstrated an opportunity for the wider provision of digital tools. Whilst drop-ins and events are less commonplace in planning nowadays, the use of technology to facilitate involvement, expression and dialogue is rare (Ertiö, 2015; Hanzl, 2007). Across the technologies, framing the topics around place, encouraged fresh perspectives, but this often jarred with the restricted understanding of place that planning can consider.

### **9.3.2. Can alternative planning participation technologies be designed to allow people to better share their experiences of place?**

The overriding aim and design rationale for this research was to understand how engaging with place through different elements of materialising, media and place can engage people in sharing their experiences and understandings. The research explored how traditional technologies do not give the vocabulary (usually relying on text) to communicate complicated feelings on place. To counteract this, the research explored the role of alternative medias in the hope it would allow people to better express this.

Instead of focussing on the number of participants, there should be an increased emphasis on the other barriers to meaningful engagement with planning. The focus of planning participation technologies can then seek to understand how technologies and processes can be developed to better align with how people experience and feel about future places, and whether participation methods can facilitate more communicative and expressive engagement.

### **9.3.3. What are the attributes of technologies that better align to how people want to participate?**

During the research several attributes were explored to understand their contribution to an enhanced dialogue on the built environment. The research engaged with Marres' (2015) notion of physicality in the built environment in different ways.

First, engaging with topics of the built environment, rather than those that are strictly planning was shown to be a particularly effective way of starting conversations about where people live. Discussing the built environment was aided by allowing people to add additional context to their comments. One of the drivers of facilitating this communication was engaging with non-text participation, which better facilitated people describing their place visions. It was found that by supplementing comments both those providing them and receiving them could get a better understanding of what was being conveyed.

Second, engaging with alternative and novel medias not usually used within planning consultation drove participant's interest in engaging with the activity; however, this is unlikely to provide a long-term solution to encouraging participation. To achieve this,

planning should engage with people by asking questions that more closely align to the concerns they have with places. Communicating these through novel mechanisms provides enhanced means for people to communicate these, but raised questions on how place-experiences can be used within the planning system

Third, having a suite of participation methods that align with how interested people are in participation was demonstrated to be effective. Rather than seeing technology as a single option, more engagement with the role of different technologies, and their affordances and design, needs to receive increased attention in the design of participation methods.

## **9.4 REFLECTION ON DIGITAL CIVICS RESEARCH**

The introduction (Chapter 1) describes how this work is situated across three fields (planning, HCI and human geography). The aim of digital civics is to explore issues rooted in the local area (Olivier and Wright, 2015). Given this, the research worked with local authorities and organisations using an action research approach (outlined in Chapter 4).

### **9.4.1. Working with Local Planning Authorities and Decision Makers**

Working with local authorities was generally productive throughout the research. A lot of attention was paid to finding the right research partners. The research was undertaken in close partnership with North Tyneside Council, whose members provided an essential perspective on the piloted technologies.

Whilst it was successful in one case, there were challenges. Local authorities are constrained by a legislative framework that requires them to undertake processes in specific ways (MHCLG, 2014) and with constrained resources (Crivellaro et al., 2019). There were also difficulties with opportunities for more open-ended engagement, with many of the challenges not being solved by the introduction of technologies. To allow technologies to be used in this way, decision-making will have to facilitate engagement with how people live, experience and discuss place and have strategies in place for dealing with these representations (Graham and Healey, 2007).

These difficulties led the research to engage with organisations where the research agenda and the organisation's objectives were more closely aligned. The alignment of the two objectives led to a fruitful partnership and allowed the research to be conducted in areas that would be difficult without the organisation's support. Within the requirement to meet strict legislative requirements, the research was able to provide more open opportunities for engagement in ways that more closely aligned to the way places are experienced.

#### **9.4.2. Working with Community Groups & Organisations**

One of the difficulties experienced whilst partnering with civic groups and citizens was a self-critique on how the comments and thoughts put forwards could be used in the 'real-world' – if someone was using a piloted technology it was important their perspective was taken into account by decision makers, rather than it being participation without a purpose.

Partnering with organisations who were willing to engage with the perspectives put forward helped with this. Whilst working with Nexus, the views expressed during the activities were reported on within a consultation document that informed the specification of metro cars that was sent to potential manufactures. The use of technology where comments could be formally acknowledged was much challenging. In particular, it was challenging to understand how abstracted comments would have direct influence in decision making. Again, this was reduced by partnering with decision makers, but not all comments could be fed into formal processes.

Identifying people who are willing to use the technology is relatively easy – decision makers are happy to be seen using new technology that engages people, but the extent to which this actually influences what they do is up for debate (Arnstein, 1969).

Understanding opportunities for the technology's use to influence decision making, and the power implications of them, is more challenging.

#### **9.4.3. Action Research and Technology Pilots**

As described in the methods and methodology chapter (Chapter 4) this research took an action research approach. This meant it had to be nimble and respond to engagement with the communities throughout. This approach, however, is challenging when undertaking long-term research projects that are seeking to explore specific research

topics. Working closely with community groups undoubtedly improved the research, ensuring it was engaging with issues that people were facilitating with participating, but made designing the research more challenging.

## **9.5 LIMITATIONS**

This work was focused on how planning technologies can allow people to more fully participate in planners matters through exploring planning technologies that better align to how they would like to participate. Whilst this was explored, it is also important to acknowledge the limitations of the study (in addition to those identified in the methods used in Section 4.10), and how these might be further addressed and explored in future work.

### **9.5.1. North East Focussed**

One of the limitations of the study is its focus on North East England, and the relatively small number of technological deployments. Whilst it would have been beneficial to deploy technologies more widely across the county (and internationally), logistically and practically it was difficult. Networks took time to nurture and doing so across the county would have been difficult. Understanding the citizen response of citizens to the technologies in different parts of the country should form part of future work, where the type and amount of changes is likely to differ. Visions of change might be different, and these technologies may not be suitable.

### **9.5.2. Evidence of Engaging New People**

This research was not able to assess the extent to which new people were engaged in planning as a result of the technologies. Whilst it was speculated that people who engaged with the technologies would not normally choose to engage with planning, the research cannot prove this. Those that chose not to participate were not included in the research. In order to investigate this, a systematic assessment of all of the technologies piloted is needed.

Understanding how the methods changed people's view of participation was problematic. For a lot of people, participating in an experimental method was a time-consuming task. Asking people to then reflect on the method would have led to further difficulties in

engaging people who typically do not participate, but which led to difficulties when trying to demonstrate the extent to which the pilots changed people's understanding of the activity. One of the difficulties of research 'in the wild' is the time constraints under which it must be undertaken.

Whilst the technologies explored were novel, their long-term impact in encouraging new people to participate was not explored. The novelty of the technologies was a significant driver in some of the pilots, which over time, will be reduced as people become more exposed to the methods. It will therefore be important to understand whether reduced novelty influences how, and whether, people still engage with the piloted technologies.

### **9.5.3. The Place-Based Issues**

As a result of the research, engaging people around the notion of place was found to be effective at generating future-looking comments. The research, however, was not able to fully understand how the abstracted future-looking comments might be understood and used in planning policy and the more official reactions from decision makers. There is a critical step of translation in taking wider discussions of place and understanding their relevance to the procedural planning process that future research should engage with.

Unfortunately, it was not possible for the researcher to systematically understand and document the issues that were put forward by the participants using the planning technologies. Whilst comments were usually passed onto decision-makers, future work should examine what contribution such an approach can make. For example, during a deployment of JigsAudio (Chapter 7), over one-thousand five-hundred perspectives were put forward. Whilst outside the scope of this research, future work should seek to understand how these views might best be represented to decision-makers.

## **9.6 SIGNIFICANCE OF CONTRIBUTION**

This research contributes to the growing body of literature and interest at the intersection of town planning and HCI that explore the role of digital technologies in supporting new forms of technology-enabled participation. The approach of the research demonstrated how, through the design, deployment and evaluation of digital technologies, design and

user-led studies can be used within the social sciences to gain an understanding of the role of technologies in participation.

The piloted technologies had varied outcomes. The research uncovered that technologies that promote speed and in-situ participation often lead to comments that are shorter-term in nature and can serve to reduce the number of issues people engage with. It found that these shorter comments are often in opposition to the longer-term comments that local authorities value during consultation exercises.

Through the deployment of technologies that merged digital and analogue technologies with creativity and expressiveness, it was demonstrated that these methods could open-up discussions about the built environment and reduce barriers to participation. By combining these design criteria, the research suggests that these methods, whilst having higher barriers to their use (in terms of time and having to travel) can elicit views that other app and website-based technologies do not.

The research contributes to our understanding of how alternative forms of technology can provide fresh perspectives in discussing place-based issues, although there remains a tension around how these are integrated into the current planning system. It suggests that by engaging with a suite of participation tools, methods can be more closely aligned to participation opportunities, facilitating a more productive discussion about place for both citizens and planners.

Overall, the research demonstrates the tight coupling between the design, materiality and form of the technology and the type of participation they encourage and facilitate. The research raises questions and provokes increased reflection on the design of participation methods, arguing that increased attention should be given to the design and expected use of digital technology, and how digital methods can support different types of participation.

### **9.6.1. Research Outputs**

The main outputs of this research were two design-led research papers documenting the outcomes of two of the technology pilots. The first paper, documenting ChangeExplorer (Wilson et al., 2019), discusses how quick participation methods geared towards efficiency



lead to people problem reporting, but how lightweight participation methods can be used as a gateway to more involved methods.

A second paper, documenting JigsAudio, demonstrated how methods that encourage reflection, expressiveness and creativity can lead to longer-term visions being shared (Wilson and Tewdwr-Jones, 2019). The research contributes to understandings of how digital and analogue technologies can be used together to reduce barriers to participation whilst encouraging creativity and expression when talking about the future of places.

The technologies were presented at several conferences which covered topics such as HCI, futurism, town planning, visualisation and human geography (full list in the Appendix).

### **9.6.2. Encouraging Engagement with Planning**

ChangeExplorer formed part of a consultation exercise for Spanish City development with North Tyneside Council. Through using the technology, nineteen people were involved in shaping the plans for the area. The use of this technology fed into a pilot programme, led by the Department for Communities and Local Government, that explored enhanced methods for engaging people beyond the current use of statutory notices (MHCLG, 2015). The app was recognised in the Future Cities Catapult's 'Future of Planning' report (Future Cities Catapult, 2016) and used to provide recommendations for notification-based planning within the Catapult's User Research Insights Report (Future Cities Catapult, 2017). JigsAudio was mentioned in Nesta's 'Our futures: by the people, for the people' report' as an example of new approaches to participatory futures (Ramos et al., 2019).

JigsAudio was deployed internationally with over one-thousand five-hundred people engaging with place-related issues, involving over ten research partners and colleagues. The device travelled internationally, being deployed in Colombia and Italy, and was used several times within the UK, including forming part of the 'Great Exhibition of the North' (Newcastle University, 2018) and shaped Newcastle City Council's proposals for establishing a charitable trust to manage parks and allotments. The consultation with Nexus fed into the future design of metro cars in the region.

## 9.7 FUTURE WORK

Cities are going through a shift in how they are governed, with the increased use of technologies to understand and manage our urban areas (Goodspeed, 2015c; Colding, Colding and Barthel, 2018); using “information technology and Internet of things technology to manage and control a city’s assets” (Colding, Colding and Barthel, 2018, p. 2). These changes raise fundamental questions about the future governance of these cities, participation in the digitally enabled city, and the opportunities provided for place-based discussions. As Batty (2018b) notes:

*“The world of urban planning is slowly but surely coming around to [Jacobs’] view as we continue to amass experiences of how difficult it is to try and build cities from the top down, imposing inflexible master plans that always run out of steam due to our ability to provide the organization to implement them and the control to ensure individuals do not undermine them” (p. 6)*

This shift will change how cities are experienced and lived in (Batty, 2017; 2018a). There is also a need to pay attention to how citizens can participate when changes are made minute by minute that can have profound changes on places (this was demonstrated when an app’s algorithm rerouted traffic from a highway through a residential street) without any changes in physical infrastructure. As cities become increasingly technology-driven, it is going to be important to understand participation’s role in facilitating people’s involvement, and how democratic models can both recognise and realise people’s perspectives into the future.

As these technologies are rolled out, the role of traditional placemaking processes (such as town planning) is likely to be reduced (Goodspeed, 2015c). If planning were to maintain a strict definition of development, then its role would be negotiating the physical infrastructure itself, rather than the substantive decisions and discussions about place. This shift, from town planners to engineers, data analysts and programmers will have consequences for how people engage with citywide changes, as well as a foundational role for democratic engagement (Colding et al., 2018).

## 9.8 FINAL REMARKS

Whilst there are widely recognised benefits to engaging people in shaping their local area, there are several barriers to participation, both with traditional methods, and methods that use technology. What, in fact, may be the biggest barrier to engagement is the stripping away and closed-down role of planning, and its thin intersection with people's experiences of places. Whereas planning once had a wider approach to governing places, many of the approaches planners took towards place have been chiselled away by the narrowing of what planning is, reducing its scope in the changes it can bring about.

Whilst these barriers are well recognised, there is little work on whether using this as a prompt for the design of digital technologies might encourage engagement. Through designing alternative digital technologies, the research explored how digital technologies could encourage both the engagement and discussion of place-experiences, feeling and aspirations. Through the evaluation of these, it found how the affordances of digital technologies can encourage different types of participation and engagement on the built environment. It contrasts methods that encourage speed, efficiency and in-place participation with those that support creativity and expressivity can encourage the sharing of longer-term aspirations. The research has explored the different relationships that people have to participation technologies; if digital technologies are designed just to make planning' practice easier, it will be increasingly problematic to engage citizens in these formal planning processes.

The methods used to engage people in planning have, over the previous fifty years since Skeffington, changed very little, often being transferred online rather than redesigned and reevaluated, despite the recognition of opportunities presented by alternative technologies. There is a shortage of research in both planning and HCI that engages with the varied roles of digital participation technologies in encouraging different forms of engagement in planning. This research demonstrates that technologies shape how people participate, and that by changing the design of digital technologies more meaningful engagement with planning can be encouraged. The research raises deeper questions about who designs the technology and who is participation made easier for, and whether technologies that support more expressive engagement are what practising planners want.

The role of digital technologies has transformed people's everyday lives, however, what is missing is a crossover into how planning engagement tools should be designed. Planning will need to find ways of understanding how people are to be involved in the future, as well as what forms legitimate channels of participation. Citizens will use technologies to talk about their built environment; the question is whether planning can respond to the opening up and heightened engagement expectations outside of the planners' parameters beyond those developed over fifty years ago. This research has made contributions to understanding the role of new technologies in planning, however, lots of questions remain.

## **9.9 RECOMMENDATIONS FOR LOCAL PLANNING AUTHORITIES**

- **Put Reflection First, not Technology**

Before the methods for engaging people are chosen, there is a critical step in considering what is trying to be achieved from the engagement – the first consideration should be on what is being engaged on, and the best way to garner meaningful engagement, rather than the technology that is going to be used. It is important to consider the type of response the methods are going to encourage, and how the technologies that are used promote these desired responses.

It is important to reflect on when and when not to use digital technologies. There are things that digital technologies are good at (as this research demonstrates) but there are things that digital technology cannot, or should not, replace. Face to face meetings have their place in engagement – digital technologies should not always be assumed to be the solution.

- **Use Task-Appropriate Technologies**

Given above, it is also important to reflect on the task-appropriateness of different methods and digital technologies that are available, and which would be suit the task being undertaken. Different technologies lead to different outcomes (in terms of the responses they encourage). There is a crucial step in reflecting on the design of the opportunities for engagement, and whether the format of these tools genuinely allows people to give adequate responses.

The methods used to engage people shape the type of participation that takes place through them. Technologies should be chosen based upon the comments they are likely to encourage, with those that encourage reflection and slow interactions are more likely to garner richer comments than those that prioritise speed.

- **Employ a Range of Participation Tools**

Whilst using the internet to engage people in matters of planning might allow more to get involved, there should be reflection on both the type of comments that are coming back, and how the methods support this. It is important to recognise that engaging more people does not necessarily mean that the opportunities for engagement have been more effective – the quality of this participation should always be understood. This research demonstrated that the more most accessible research methods did not encourage the most meaningful engagement. The exploration of digital technologies should go beyond creating apps and websites.

Methods that allow citizens to scale up their involvement as they become more interested in changes and opportunities for involvement. The experience of engaging and using technologies together should be considered, rather than seeing technologies as singular and as in isolation.

As this research demonstrated, digital technologies are good at supporting quick communication between citizens and decision makers, but more involved technologies (for example, those that engage with people's creativity) can support more meaningful engagement between citizens. As previously non-digital methods used to provide a suite of tools, technologies too can be used to support community visions sessions alongside more specific and closed discussions).

- **Design for Citizen-Centred Engagement**

Technologies should be aligned to allow people to discuss what is important to them rather than being required to understand the structural organisation of a local authority, and what constitutes a relevant consideration. Promoting the discussion of place-based issues encourage more meaningful engagement with opportunities for comment than those that were strictly planning-based.



# 10

## References

# 10. References

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# 11

## Appendix

# 11. Appendix

## 11.1 METHODS FOR LITERATURE & TECHNOLOGY REVIEW

This section will use the earlier discussion categorisation of planning technologies discussed earlier. The results are brought together and discussed thematically.

### 11.1.1. Literature Search

A search was undertaken to systematically identify relevant literature to contribute to the literature review. Scopus was chosen due to its good coverage of academic literature and indexing of a number of disciplines (Aghaei Chadegani et al., 2013). The search aimed to identify academic on the design, deployment and evaluation of technologies for planning participation that go beyond the mainstreamed current use of planning technologies (i.e. innovative technologies that aim to move beyond current modes of digital participation).

To capture these technologies, the research documented will meet the following criteria:

- Will have been had the research published in a peer-reviewed journal or conference proceeding that reports on a study of this technology being deployed with citizens
- The technology has been used to explore, or for, citizen participation in matters of formal planning participation or the discussion of place.

To find this research the following search was used<sup>27</sup>:

The following keywords within the Title, Abstract or Keywords:

“urban planning” OR “town planning”

AND “citizen participation” OR “citizen engagement”

AND “technology”

This search yielded 111 research articles. These results were reviewed for their relevance.

Using the inclusion and exclusion criteria outlined below, it continues to discuss 33

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<sup>27</sup> (TITLE-ABS-KEY ( {urban planning} OR {town planning} ) AND TITLE-ABS-KEY ( {citizen participation} OR {citizen engagement} OR {civic} OR {public participation} ) AND TITLE-ABS-KEY ( {technology} ) )



research papers. The justification for individual research papers not being included in the review is noted in the appendix.

### **11.1.2. Identifying Technologies**

Technologies were identified through searches or non-academic reading reports, such as those from the Future Cities Catapult (2016; 2017), the Civic Tech guide<sup>28</sup>, and those discussed within academic research projects (for example, FixMyStreet is a popular app that is frequently discussed in literature (King and Brown, 2007)). The Civic Tech guide is a crowdsourced directory of civic technologies to raise awareness and categorise commercially available civic technologies. As discussed earlier, this research explores alternative means of participation using the innovative potential of technology rather than mirroring traditional processes. For this reason the review provides a background of these methods, often termed ‘traditional’ separately to those that are more speculative.

For the technology to be included in the review satisfies one of the requirements outlined below:

- **Citizen-Facing Participation**

It should encourage people to be involved in shaping their area, rather than be a management tool for planners. Technologies or research that focusses on making back office processes more efficient will not be included.

- **Location-Based**

Technologies that allow people to communicate on their built environment have been included; excluding virtual reality technologies that give people fictional places or urban games. Apps that facilitate the discussion of real places, either ex-situ or in-situ, rather than an abstracted place or discussion from which meaning is taken.

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<sup>28</sup> <https://civictech.guide/>

- **Non-Screen Technology**

An effort was made to find non-app-based technologies, as they are regularly underrepresented within the literature (Hanzl, 2007; Conroy and Evans-Cowley, 2008; Williamson and Parolin, 2012; Ertiö, 2015).

**11.1.3. Previous Reviews**

Previous reviews have explored the role of apps or themes within planning participation, however, there are no academic reviews focussing on these emerging technologies and their potential in providing new modes and media through which people can participate.

Ertio’s (2015) review called for apps that promote discussion between the public and officials, and between the public. They found that the majority of apps were used for the one-way sharing of information, such as masterplans or transit information. The second largest category focused on allowing citizens to report problems but lacked further interactivity. Whilst these apps provided easier mechanisms to get involved in place-shaping, they did not fulfill this chapter’s aims of seeking how influence can be had through early participation, as well as non-traditional and more experimental technology.

In order to not duplicate existing reviews of planning technologies, this review focusses on speculative and emerging methods of interacting with planning, rather than those already in popular use or that mirror offline processes. Earlier reviews have understood apps (Hanzl, 2007) and websites (Ertiö, 2015), therefore the focus of this review is understanding the types of technologies that are underrepresented in both planning and HCI literature.

**11.1.4. Results**

The results include a description of the literature or technology, how they were categorised and their individual contribution to this review.

<b>Format of Technology</b>		<b>Aim of Technology</b>	
App or Website	37	Low Friction Involvement	28
Hardware or Tangible	2	Transparency	25
Social Media	0	Awareness	24
		Expressiveness	20

Table 16: Number of Literature and Technologies within each Category

Table 16 shows that the majority of the technologies identified are apps or websites, with a small number of them being hardware devices. The aims of the technologies are more evenly distributed, with a relatively even spread between low friction development, transparency and awareness. The fewest technologies aim for expressiveness.

## 11.2 SUMMARY OF DATA COLLECTION AND ANALYSIS METHODS

<p><b>11.2.1. Twitter</b></p> <ul style="list-style-type: none"> <li>- Analysis of 11,293 Tweets</li> <li>- Analysis of discussion between Gateshead Council and Citizens</li> <li>- Meetings with LA Planners and the public relations and communication team (3 officers)</li> <li>- Thematic analysis of Tweets relating to Metro using NVivo.</li> </ul>	<p><b>11.2.2. Background Interviews</b></p> <ul style="list-style-type: none"> <li>- Background interviews were conducted throughout the research to understand difficulties citizens were having with participation, directing the direction of the research, but not contributing to any findings of the research.</li> </ul>	<p><b>11.2.3. ChangeExplorer</b></p> <ul style="list-style-type: none"> <li>- 19 citizens were given ChangeExplorer, and they were interviewed following their use of the app.</li> <li>- The citizen comments were discussed, as well as their wider feelings towards the app, with 3 planners in the area.</li> <li>- Thematic analysis was undertaken on the two corpuses separately.</li> </ul>	<p><b>11.2.4. JigsAudio</b></p> <ul style="list-style-type: none"> <li>- Observations of people using the device</li> <li>- Interviews with commissioners of digital technologies, which were then transcribed.</li> <li>- Field notes from observations analysed, transcripts from interviews thematically analysed in NVivo.</li> </ul>
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## 11.3 SUMMARY OF PARTICIPANTS

Date	Project	Who was Engaged with	Notes on Participant	Format of Data Collection	Notes on Analysis
09/07/2015	ChangeExplorer	Planner, Newcastle City Council	N/A	Semi-structured interview, transcribed	Thematic analysis
21/07/2015	ChangeExplorer	Citizen Female	Under 18	Semi-structured interview, transcribed	Length of time with technology: 13 days Thematic analysis

<b>Date</b>	<b>Project</b>	<b>Who was Engaged with</b>	<b>Notes on Participant</b>	<b>Format of Data Collection</b>	<b>Notes on Analysis</b>
21/07/2015	ChangeExplorer	Citizen Male	Under 18	Semi-structured interview, transcribed	Length of time with technology: 13 days Thematic analysis
21/07/2015	ChangeExplorer	Citizen Female	40	Semi-structured interview, transcribed	Length of time with technology: 13 days Thematic analysis
27/07/2015	ChangeExplorer	Citizen Male	Under 18	Semi-structured interview, transcribed	Length of time with technology: 7 days Thematic analysis
29/07/2015	ChangeExplorer	Citizen Male	Under 18	Semi-structured interview, transcribed	Length of time with technology: 9 days Thematic analysis
29/07/2015	Participatory Mapping Technologies	Planner, Newcastle City Council	LA Planner	Meeting minutes	
03/08/2015	ChangeExplorer	Citizen Female	Under 18	Semi-structured interview, transcribed	Length of time with technology: 8 days Thematic analysis
03/08/2015	ChangeExplorer	Citizen Female	30	Semi-structured interview, transcribed	Length of time with technology: 8 days

Date	Project	Who was Engaged with	Notes on Participant	Format of Data Collection	Notes on Analysis
					Thematic analysis
07/08/2015	ChangeExplorer	Citizen Female	32	Semi-structured interview, transcribed	Length of time with technology: 5 days Thematic analysis
07/08/2015	ChangeExplorer	Citizen Male	29	Semi-structured interview, transcribed	Length of time with technology: 32 days Thematic analysis
12/08/2015	ChangeExplorer	Citizen Male	Under 18	Semi-structured interview, transcribed	Length of time with technology: 6 days Thematic analysis
14/08/2015	Participatory Mapping Technologies	Northumberland County Council	Town Planners at Newcastle University	Meeting	Minutes taken
17/08/2015	ChangeExplorer	Citizen Male	23	Semi-structured interview, transcribed	Length of time with technology: 6 days Thematic analysis
28/08/2015	ChangeExplorer	Citizen Male	Under 18	Semi-structured interview, transcribed	Length of time with technology: 10 days Thematic analysis

<b>Date</b>	<b>Project</b>	<b>Who was Engaged with</b>	<b>Notes on Participant</b>	<b>Format of Data Collection</b>	<b>Notes on Analysis</b>
28/08/2015	ChangeExplorer	Citizen Female	Under 18	Semi-structured interview, transcribed	Length of time with technology: 8 days Thematic analysis
09/09/2015	ChangeExplorer	Planner, Gateshead Council	N/A	Semi-structured interview, transcribed	Thematic analysis
11/09/2015	ChangeExplorer	Planner, Newcastle City Council	Newcastle City Council	Semi-structured interview, transcribed	Thematic analysis
18/09/2015	ChangeExplorer	Citizen Female	50	Interview, transcribed	Length of time with technology: 5 days Thematic analysis
18/09/2015	ChangeExplorer	Citizen Female	38	Interview, transcribed	Length of time with technology: 5 days Thematic analysis
22/09/2015	ChangeExplorer	Citizen Female	46	Interview, transcribed	Length of time with technology: 9 days Thematic analysis
22/09/2015	ChangeExplorer	Citizen Female	40	Interview, transcribed.	Length of time with technology: 9 days Thematic analysis

<b>Date</b>	<b>Project</b>	<b>Who was Engaged with</b>	<b>Notes on Participant</b>	<b>Format of Data Collection</b>	<b>Notes on Analysis</b>
23/09/2015	ChangeExplorer	Planner, North Tyneside Council	N/A	Semi-structured interview, transcribed.	Transcribed. Thematic analysis
20/10/2015	Discussion on difficulties with current planning technologies	N/A	Meeting with planners from Newcastle City Council (2 officers) and Northumberland County Council	Background interview – detailed minutes taken	N/A
21/07/2016	ChangeExplorer	Participation and Advocacy, North Tyneside Council	N/A	Semi-structured interview, transcribed.	Thematic analysis
21/08/2016	Discussion of Planning Technologies	Youth Engagement Officer	North Tyneside Council	Meeting	Minutes taken
02/11/2016	JigsAudio: Metro Futures	Citizens and informal discussions with decision makers	Tyneside Cinema	Observation	Field notes taken on observations and discussions
11/11/2016	JigsAudio: Metro Futures	Citizens and informal discussions with decision makers	Gateshead Interchange	Observation	Field notes taken on observations and discussions



<b>Date</b>	<b>Project</b>	<b>Who was Engaged with</b>	<b>Notes on Participant</b>	<b>Format of Data Collection</b>	<b>Notes on Analysis</b>
16/11/2016	JigsAudio: Metro Futures	Citizens and informal discussions with decision makers	Sunderland Civic Centre	Observation	Field notes taken on observations and discussions
17/11/2016	Background Interview on Experiences Participating with Planning	Citizen Female	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis
17/11/2016	Background Interview on Experiences Participating with Planning	Citizen Male	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis
17/11/2016	Background Interview on Experiences Participating with Planning	Citizen Female	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis
18/11/2016	JigsAudio: Metro Futures	Citizens and informal discussions with decision makers	The Brides Shopping Centre	Observation	Field notes taken on observations and discussions

<b>Date</b>	<b>Project</b>	<b>Who was Engaged with</b>	<b>Notes on Participant</b>	<b>Format of Data Collection</b>	<b>Notes on Analysis</b>
20/11/2016	JigsAudio: Metro Futures	Citizens and informal discussions with decision makers	Tynemouth Market	Observation	Field notes taken on observations and discussions
24/11/2016	JigsAudio: Metro Futures	Citizens and informal discussions with decision makers	Newcastle Airport	Observation	Field notes taken on observations and discussions
26/11/2016	JigsAudio: Metro Futures	Citizens and informal discussions with decision makers	Pop-Up Lab – intu Eldon Square	Observation	Field notes taken on observations and discussions
05/03/2017	Background Interview on Experiences Participating with Planning	Citizen Female	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis
14/03/2017	Background Interview on Experiences Participating with Planning	Citizen Female	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis
14/03/2017	Background Interview on Experiences	Citizen Male	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis

<b>Date</b>	<b>Project</b>	<b>Who was Engaged with</b>	<b>Notes on Participant</b>	<b>Format of Data Collection</b>	<b>Notes on Analysis</b>
	Participating with Planning				
14/03/2017	Background Interview on Experiences Participating with Planning	Citizen Male	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis
14/03/2017	Background Interview on Experiences Participating with Planning	Citizen Female	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis
14/03/2017	Background Interview on Experiences Participating with Planning	Citizen Male	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis
14/03/2017	Background Interview on Experiences Participating with Planning	Citizen Male	North Tyneside Council	Semi-structured interview.	Transcribed, thematic analysis

<b>Date</b>	<b>Project</b>	<b>Who was Engaged with</b>	<b>Notes on Participant</b>	<b>Format of Data Collection</b>	<b>Notes on Analysis</b>
17/03/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Newcastle City Library, Newcastle upon Tyne	Observation	Field notes taken
20/03/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Leazes Parks' Potting Shed, Newcastle upon Tyne	Observation	Field notes taken
21/03/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Newburn Leisure Centre, Newcastle upon Tyne	Observation	Field notes taken
22/03/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Jesmond Dene Visitor's Centre, Newcastle upon Tyne	Observation	Field notes taken
23/03/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Newcastle Civic Centre, Newcastle upon Tyne	Observation	Field notes taken
27/03/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Newcastle Civic Centre, Newcastle upon Tyne	Observation	Field notes taken
28/03/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Newcastle City Library, Newcastle upon Tyne	Observation	Field notes taken

<b>Date</b>	<b>Project</b>	<b>Who was Engaged with</b>	<b>Notes on Participant</b>	<b>Format of Data Collection</b>	<b>Notes on Analysis</b>
04/04/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Jesmond Dene Visitor Centre, Newcastle upon Tyne	Observation	Field notes taken
05/04/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Newcastle Civic Centre, Newcastle upon Tyne	Observation	Field notes taken
06/04/2017	JigsAudio: Let's Talk Parks	Observations of citizens using device	Newcastle Civic Centre, Newcastle upon Tyne	Observation	Field notes taken
03/05/2017	Discussion of Planning Technologies	Planners	Gateshead Council	Meeting Notes	N/A
25/07/2017	Discussion of Planning Technologies	Planners	Planners and engagement officers at Gateshead Council	Pre-meeting about the Twitter project and the issues they have with engagement	N/A
22/08/2017	JigsAudio: North Tyneside Council	Leader of North Tyneside Youth Council	Commissioner	Semi-structured interview	Transcribed, thematic analysis
25/09/2017	JigsAudio: Seven Stories	Interview with commissioner of data and staff facilitating the	Commissioner	Semi-structured interview	Transcribed, thematic analysis

Date	Project	Who was Engaged with	Notes on Participant	Format of Data Collection	Notes on Analysis
		exhibition for Aliens love Underpants exhibition			
15/11/2017	Discussion of Planning Technologies	Planners	Planners and engagement officers at Gateshead Council	Pre-meeting about the Twitter project and the issues they have with engagement	N/A
15/11/2017	Twitter	Planners, Citizen Engagement Officers, PR Team	Gateshead Council Offices	Drop in - observations	N/A
15/11/2017	Twitter	Data gathered on how citizens interacted with Twitter when prompted	Gateshead Council Offices: Twitter users	Individual tweets with analytical information from Gateshead Council's Twitter account	N/A
29/11/2017	Twitter	Gateshead Planning Team	Evaluation meeting with planners and communication team	Detailed minutes of meeting taken	N/A
22/03/2018	JigsAudio: Baltic	Citizens and informal discussions with decision makers	Baltic Centre for Contemporary Arts, Gateshead	Observation of JigsAudio at Baltic during Exhibition of the North	Field notes taken on observations and discussions

<b>Date</b>	<b>Project</b>	<b>Who was Engaged with</b>	<b>Notes on Participant</b>	<b>Format of Data Collection</b>	<b>Notes on Analysis</b>
22/07/2018	JigsAudio: Baltic	Citizens	Baltic Centre for Contemporary Arts, Gateshead	59,899 visitors are estimated to have visited the Baltic during the Exhibition of the North, during which time JigsAudio was situated there (Jepson, 2018)	News article
05/10/2018	JigsAudio: Baltic	Citizens and informal discussions with decision makers	Baltic Centre for Contemporary Arts, Gateshead	Observation of JigsAudio at Baltic during Exhibition of the North	Field notes taken on observations and discussions
	ChangeExplorer	Planner, Northumberland County Council	N/A	Interview, transcribed, thematic analysis	

### 11.3.1. Themes raised from Twitter's Thematic Analysis for Metro:

<b>Codes (with Themes Emboldened)</b>	<b>Description</b>
<b>Changes &amp; Contrasts</b>	<b>Discussion of changes and contrasts within the Metro</b>
busy	When the Metro is busy
night or day	Changes between night and day
quiet	When the Metro is quiet
<b>Expected Use of Metro</b>	When people discuss how the Metro is expected to be used
affection or pda	Commenting on public displays of affection
alcohol	Commenting on people's consumption of alcohol on the Metro
antisocial	Discussion of perceived antisocial behaviour
children	Discussion children on the Metro
music	Discussing music on the metro
passenger	Discussing other passengers
pet or animal	Discussing pets or animals
sarcasm, humour	Using sarcasm, humour in their tweet
singing	Discussing someone else singling
youth	Discussing young people
<b>feelings</b>	People discussing personal feelings
angry, annoyance	People discussed, or felt to be conveying that emotion through their tweet
concern	People discussed, or felt to be conveying that emotion through their tweet
confused	People discussed, or felt to be conveying that emotion through their tweet
embarrassed	People discussed, or felt to be conveying that emotion through their tweet
hope	People discussed, or felt to be conveying that emotion through their tweet
indifference	People discussed, or felt to be conveying that emotion through their tweet
positive negative	Discussing negatives of positives of the Metro
negative	Discussing negative things about the Metro
positive	Discussing positive things about the Metro



<b>Codes (with Themes Emboldened)</b>	<b>Description</b>
surprise, shocked	People discussed, or felt to be conveying that emotion through their tweet
<b>interactions with others</b>	discussing, or actually interacting with others, through Twitter or in person
answer	Someone responds to a question
others	Someone discussing their interaction with other people
question	Someone asked a question on Twitter
reminiscing	Someone reminiscing about the past of Metro
update, announcement	Sharing updates on the Metro
<b>Metro Service as a Transport Offer</b>	Wider discussion of the transport offer Metro represents
cleanliness	Metro's cleanliness
commute	One's commute to work
driver	Discussion of Metro driver
fare or price	Discussion of fare/price of Metro
fault	Discussion of fault with Metro
fine	Discussion of being fined for using the Metro
information	Discussion of information provided on Metro
inspector	Discussion of ticket inspectors on Metro
questioning power	Reflections on the decision-makers decisions
finance, money, spending	Money spent on Metro
lack of or no care	Lack of care towards the Metro
local authority	Discussion of local authority
quotes	Quotes from other people
scale	Discussion of the scale of changes
socio-political	Wider socio-political implications of changes
somewhere else	Make changes elsewhere

<b>Codes (with Themes Emboldened)</b>	<b>Description</b>
speculation	Speculation about why a decision was taken
stop	People discussing wanting to stop development
taking formal action	Taking their action off Twitter and using more formal action
wrong decision	People discussing an incorrect decision
reliability	Metro's reliability
service	The service offered by Metro
speed	The speed of the Metro
suggestion	A suggestion to Metro
technical	Technical discussion of Metro
ticket	Discussion of Metro's ticketing system
time	Discussion time whilst on the Metro
upgrade	Discussion of upgrades to the metro
wait	Discussion waiting for the Metro
wider conversation	Wider discussions about the Metro
<b>Self &amp; Discussions of Journeys and Experiences</b>	Discussion of people's experiences of the Metro
attractive	Discussion of 'attractive' people
disgust	Feeling disgust towards others
fear	Reports of being scared
friend	Discussing a friend
journey	Discussing a journey
laughing	Discussing laughing on the Metro
lost	Getting lost on the Metro
missed	Missing a Metro
observation	Observing things on the Metro
reflection	Reflecting on a journey on the Metro
rude	People being rude on the Metro

<b>Codes (with Themes Emboldened)</b>	<b>Description</b>
self	Discussing of personal experiences
Senses	Discussion of people's senses
safety	Feeling of safety
smell	Smells on the Metro
temperature	Temperature of the Metro
theft	Theft on the Metro
waiting	Waiting for the Metro
witness	Witnessing things on the Metro
<b>Space-based Comments and Questions</b>	<b>Comments on specific space and questions</b>
airport	Discussion of airport Metro station
carriage	Discussion of Metro carriage
location	Discussion of location they are in
metro car	Discussion of Metro carriage
repair	Repairs needed to Metro
report	Reporting problems with the Metro
route	Discussion of Metro routes
station	Discussion of Metro station
<b>Time-based Disruptions &amp; Changes</b>	<b>Disruptions on Metro having time implications</b>
delay	Delay of Metro
event	Event leading to changes to the Metro
football	Football games changing the Metro
negative	Negative time-based changes
<b>Other</b>	<b>Other discussion of topics related to the Metro's use</b>
advert	Discussing adverts on the Metro
flooding	Flooding on the Metro
health	One's health on the Metro

<b>Codes (with Themes Emboldened)</b>	<b>Description</b>
phone	Phone signal on the Metro
photo	Discussing/sharing photos from the Metro
thanks	Thanking other people
topic	Specific topics being discussed
exercise	Specific topics being discussed
food	Specific topics being discussed
home	Specific topics being discussed
me,myself,I	Discussion of one's self
places of interest	Specific topics being discussed
shopping	Specific topics being discussed
transport	Specific topics being discussed
weather	Specific topics being discussed

### **11.3.2. Themes raised from ChangExplorer's Thematic Analysis:**

<b>Code</b>	<b>Description</b>
Reporting problems	When the reporting of problem was discussed, rather than long-term issues
Me (selfish)	Sub-category of motivation for participation: discussion of people's motivations for participation (and the changes that affect them rather than others)
More detail	Discussion of wanting more detail on the proposed changes
Further participation	Where people discussed the watch making people want to participate with changes more
Prompting reflection	If the app encouraged people to reflect on their built environment
Encourage thinking about a place	The app generated an interest in thinking about a place
Motivations for participation	When people discussed their motivations for participation

Speed/time of participation	Reflections on the speed and time that is needed to participate through the app
There and then	Discussion of the need to be in a place, at a time, to participate
Acceptance of council's difficulty (from citizens)	Discussion of the acknowledgement of the difficulties councils have in managing changes quickly
Trying to change things	Discussing the difficulty of making changes to their built environment
Categories not sufficiently detailed	Not enough detail can be conveyed when people engage use the app and only leave category comments.
Looking for things to put in app	Where the notification encouraged someone to look for a problem, rather than them thinking it beforehand
Importance of knowing changes	Discussing the importance of knowing what is going to change before it happens
Notifications are good	Discussion of the benefits of notifications for making people aware of changes that are taking place
Other people & take-up of technology	How other people might, or might not, use the technologies
Notification	Discussion of the notifications

### **11.3.3. Themes raised from JigsAudio's Thematic Analysis:**

<b>Code</b>	<b>Description</b>
abstract	Used to describe an image that was not a pragmatic representation (where the image was an abstract depiction)
analogue	Not digital – used to discuss when JigsAudio's 'analogue' appearance was in contrast to other digital engagement tools.
constraint	The opportunity of creative methods overcoming constraints
cost	The cost of sharing the outcomes of JigsAudio activities
creativity	When the device encouraged creative engagement with the activity
current	Used when people discussed things as they currently are (rather than discussing the future)

decision making	Reflection on how the device would be used in decision making
device	Discussing how the device itself was used (rather than what it encouraged), such as pragmatic comments on setting it up
ease of use	Discussed whether the device was easy to use
idealistic	Used to tag images that discussed ideal futures
individual	Reflections on how the jigsaw pieces represented individual perspectives
jigsaudio	Discussion of the overall way the device was used as part of an activity
lacking	Images lacking clarity
listen	People discussing listening to the jigsaw pieces
nothing	Empty recordings from jigsaw pieces
novelty	The novelty of the device itself
pragmatic	When people illustrated their ideas through pragmatic representations
reality	Discussing the lived experiences of reality
sharing	Discussing sharing the outcomes of the activity
speed	The speed of the interaction with the device
text	People using text in their images to communicate
traditional method	Comparing JigsAudio to more traditional methods
translation	Translating the representations in JigsAudio to more pragmatic changes that can be used in policy

## 11.4 STAGES OF PLAN MAKING AND OPPORTUNITIES FOR PARTICIPATION

### Community Participation and Planning Technologies at Open Lab

Stage of Local  
Plan Making  
Process

Evidence Gathering

Identify Issues and  
Generate Options

Preferred Options

Submission to  
Government &  
Adoption

Development  
Management  
Decisions

Activities

Collecting issues around place  
Suggestions on how issues could be overcome  
Identify key issues  
Register interest in the plan-making process

Develop a vision for the area - what you want your area to be like in the future, and the plan's 'objectives' (i.e. what the plan aims to achieve)  
Generate options for the future spatial strategy

Last chance to make amendments to the plan  
Verify all the comments have been taken into account  
If views are put forward, they need to be backed up with evidence

Submitted to planning inspector  
Prepare evidence to speak at examination around the soundness of the plan

"the decision must be taken in accordance with the development plan unless there are material considerations that indicate otherwise"

**Appraise**  
A platform which supports the collection of images, video and audio about events or activities to generate a repository of information that be used to improve these service provision.  
*Andy Dow*

**Citizenize Makers**  
Exploring how data can be collected to provide evidence around problems being experienced in the local environment.  
*Aare Puussaar*

**MakePlace**  
A platform for engaging with communities around place-based surveys and proposals.  
*Anja McCarthy, Sean Peacock, Zander Wilson, Rob Anderson, Andy Garbett & Thomas Maskell*

**Camera Project**  
A project which aims to understand the role of photography in communicating aspirations and visions for where people live.  
*Zander Wilson*

**Twitter Project**  
Looking at discussions taking place online and their relevance to town planning.  
*Zander Wilson*

**Wheelchair Users Experiences of Place**  
Investigating the role of technology in towns and on public transport with a wheelchair mounted camera  
*Sunil Rodger*

**AppMovement & FeedFinder**  
A place-based review platform that enables the making of bespoke apps.  
*Andy Garbett & Madeline Balaam*

**Bootlegger & Planning**  
Storytelling, understanding a multiplicity of places around place and video for the creation of Neighbourhood Plans.  
*Jen Manuel*

**Community Conversations**  
A table-top game to facilitate deliberate talk about place  
*Ian Johnson*

**JigsAudio**  
A project which looks at how drawing and talking can help citizens share and reflect upon visions for their local environment.  
*Zander Wilson*

**Parks Project**  
A website which explores how alternative forms of media and discussions can enhance citizen involvement in the decision-making process.  
*Clara Crivellaro*

**Metro Futures**  
A set of activities around the region which explores ideas for the future of the North East's Metro.  
*Simon Bowen*

*No projects currently doing this specifically, but others could be adapted to fulfil this role, such as MakePlace.*

*No opportunities for citizen participation*

**ChangeExplorer**  
A smart watch application which notifies people when they pass somewhere with proposed changes, and allows them to give quick feedback about changes they'd like to see.  
*Zander Wilson*

Projects in  
Open Lab



Stage of Neighbourhood Plan	Establish the Plan	Preparing the Plan	Develop Policy, Guidance and Proposals	Pre-Submission Consultation	Independent Examination and Referendum
Activities	<p>The parish/town council or prospective neighbourhood forum need to inform the local authority.</p> <p>Think about issues and aspirations the plan might cover.</p> <p>Designate a boundary for the neighbourhood plan.</p> <p>Produce a constitution</p> <p>Care should be taken to ask open questions and avoid 'loading' the process. Simple questions may be asked, like: • what is good about the area? • what is bad about the area? • what makes a neighbourhood good to live and work in? • what pressures affect the area now or in the future? • what needs to change? A technique that works particularly well with school children is to ask them to draw and/or describe how they would like the area to be in the future.</p>	<p>Scope and content</p> <p>Publicising the proposal to prepare a neighbourhood plan</p> <p>Key stakeholders and local partners</p> <p>Community and stakeholder engagement and involvement</p> <p>Build the evidence base</p>	<p>Infrastructure requirements</p> <p>Site allocations</p> <p>Options</p>	<p>Publicise the plan in a manner which brings it to the attention of the people who live, work or run businesses in the neighbourhood area</p>	<p>The local authority will appoint an appropriately qualified and experienced person to carry out the independent examination of the neighbourhood plan</p>
Projects in Open Lab					

Based on: <http://locality.org.uk/wp-content/uploads/Neighbourhood-planning-roadmap-2016.pdf>



## 11.5 SUMMARY OF SYSTEMATIC LITERATURE REVIEW

	Description of Project, Technology or Literature	AW/ HT/ SM	Awareness	Low Friction Involvement	Expressive	Transparency
Site notices	Details of planning applications are posted next to the proposals. They are usually placed for 21 days and provide details on how comments can be made (usually an email and postal address). Site notices, in their current format, are difficult to understand. They are written in technical language, often with small text; making them difficult to understand exactly the changes that are taking place.		●			●
Advertisements in newspapers	Typically, larger applications are advertised in local newspapers, which outline the proposals and details on opportunities for commenting. Newspapers advertisements are used to publicise opportunities for major developments. They have been criticised for being expensive, and there are proposals for the requirement to end.		●			●
Town hall meetings	Meetings between planners and citizens will sometimes take place, usually during the development of planning policy, to explain the proposals, take questions, and gather comments. This type of participation requires people to be available at certain times, available to travel, and feel comfortable at presenting their thoughts in front of other people.		•	•		

	<b>Description of Project, Technology or Literature</b>	<b>AW/ HT/ SM</b>	<b>Awareness</b>	<b>Low Friction Involvement</b>	<b>Expressive</b>	<b>Transparency</b>
Letter writing & emails	Most planning communication is emails or letters, and is the principle means for people commenting on applications and policy development. Writing letters and email requires people to be confident in understand the language of planning as well as communicating these through writing. These also require time. Following this, planners determine whether the comments are 'material'.			•		
'Drop ins'	Planners will usually host drop-ins that allow proposals to speak to them about proposals and for them to comment. The same as town hall meetings, these require people to be aware of these opportunities for comment, as well as being available at certain times and places.			•		
Bluehouse	A platform that allows organisations or institutions to upload planning policy; allowing people to comment on them with text.			•		•
Planning Application Management Systems (Oracle, Idox, etc.)	These technologies are used by local authorities to manage planning applications. They also provide a means for people to view these planning applications through a website. These technologies are used for the back-office processes that are involved with determining planning applications. They often provide a user-facing web portal that allow people to view planning applications, however, these are often difficult to navigate and find applications on. Once applications are found they are written in a technical language that is difficult to understand.	AW				•

	<b>Description of Project, Technology or Literature</b>	<b>AW/ HT/ SM</b>	<b>Awareness</b>	<b>Low Friction Involvement</b>	<b>Expressive</b>	<b>Transparency</b>
FixMyStreet (King and Brown, 2007)	An app and website developed to allow people to more easily report problems in their local environment to local authorities. Maps of everyone's reports can also be viewed. Whilst this app is useful at improving dialogue between citizens and government, the app focusses on problem reporting rather than long-term visioning which is more likely to be useful to town planning.	AW		•		•
StickyWorld	A website that allows organisations to publish media (photos, video, documents) which can be annotated by citizens sticking their comments to it.	AW		•	•	
Let's Talk Parks Project	A suite of tools to facilitate the discussion of the future of park management that included a turn taking 'game', a website for discussing questions and Twitter hours.	AW HT				
SpokesPeople (Maskell et al., 2018)	An app that allows cyclists to report near misses using a button mounted on their handlebar. These reports can be annotated with audio clips following the ride. SpokesPeople was found to be useful at collecting data on cycling, however, using this data for real-world change proved difficult.	AW HW		•	•	•
CommonPlace	A place-based consultation platform that allows organisations to create pages which allow people to input their comments on a map. Users are able to view other people's comments.	AW		•	•	•
PlaceCheck	A web app that mediated walks through areas, asking three questions (What do you like about this place? What do you dislike about it? and What needs to be improved?)	AW		•	•	
ChangeExplorer (Wilson et al., 2019)	A smart watch app that notifies people when they enter an area; giving them an opportunity to make a quick comment about their thoughts on the changes taking place. The results are then displayed on website.	AW	•	•		

	<b>Description of Project, Technology or Literature</b>	<b>AW/ HT/ SM</b>	<b>Awareness</b>	<b>Low Friction Involvement</b>	<b>Expressive</b>	<b>Transparency</b>
JigsAudio	A hardware device that aims to capture people's opinion and place-visions through answering visionary questions by drawing and talking. The drawing and audio clips are then displayed on a website.	AW HW			•	
ArcGIS Online	A platform that allows individuals or organisations to create crowdsourced of images and comments that are displayed on a map.	AW		•	•	
Cycle Atlanta (Le Dantec et al., 2015)	The app captures trips on cycles, as well as any user-added notes and photos using a smartphone app. It collects demographics and the reasons for peoples' routes.	AW		•	•	
VoxBox (Golsteijn et al., 2015)	VoxBox is a modular, tangible system for gathering opinions in a playful way on a range of topics at events.	HW		•	•	
PosterVote (Vlachokyriakos et al., 2014)	PosterVote is a flexible printed circuit board that can be attached to posters; allowing the poster to become interactive and collect responses to multiple choice questions. The responses can be retrieved from the device through a mobile phone, which are then displayed on a website.	AW HW	•	•		•
MakePlace (Peacock et al., 2018)	MakePlace is a website that asks questions and allows the responses to pinned to a map.	AW		•	•	•
Sense my Street	A project that encourages citizens and citizen groups to commission sensor data to be collected in their area to support civic campaigns.	HW AW		•		
Urban Observatory	An open platform that collects and displays sources of data from across the city. APIs are available for people to integrate the data collected by the observatory into their technologies.				•	•

	<b>Description of Project, Technology or Literature</b>	<b>AW/ HT/ SM</b>	<b>Awareness</b>	<b>Low Friction Involvement</b>	<b>Expressive</b>	<b>Transparency</b>
Community Conversational (Johnson et al., 2017)	A physical board game that encourages people to discuss areas by moving physical markers on a paper map. The discussions and marker locations are captured by a video camera mounted above the board. The data collected can then be reviewed through a software interface.	HW				
Voteboxes and Data Visualisation (Koeman et al., 2015)	Discusses some of the disadvantages of screen-based technologies, and how an oversaturated urban environment can lead to screens being ignored. Novel ways of displaying data in place can provide opportunities for engagement and reflection with it.	HW	•	•		
Neighbourhood Planning and Bootlegger (Manuel et al., 2017)	Bootlegger is a app that allows multiple people to capture video footage in response to questions or prompts.	AW		•	•	
Brabham D.C.	Explores the model of crowdsourcing for public participation in planning. It discusses the advantages of these methods for harnessing collective intellect and generating creative solutions from engaged citizens. They identify opportunities in reaching more people with web-based participation methods but identify and discuss with the digital divide and who should be able to participate when participation is undertaken online.	AW		•		
Hanzl M.	Hanzl's (2007) review of planning technologies – conducted over ten years ago (the most recent technology within the review being from 2004) – reviews a number of prototypes and experiments for public participation in four categories, “participatory planning GIS, 3D models, communication platforms and computer games” (p. 289). Since the review there has been technological developments; such as the interactivity of websites, the increased role of mobile computing and smart phone apps.					

	<b>Description of Project, Technology or Literature</b>	<b>AW/ HT/ SM</b>	<b>Awareness</b>	<b>Low Friction Involvement</b>	<b>Expressive</b>	<b>Transparency</b>
Wu H., He Z., Gong J.	3D visualisation is used to as an opportunity to explore its uses in public participation. The paper discusses the technical issues of using 3D visualisations to support this. The paper focusses on the technical aspects of deploying the system city-wide. It concluded that file sizes that support these visualisations are too large to be easily deployed widely.	AW	•			
Drummond W.J., French S.P.	The article reviews development on the use of GIS in planning. It calls for planners to experiment with news types of PPGIS systems, exploring how GIS might be used for citizen input. It, however, identifies difficulties in funding these developments in GIS technologies.	AW	•			
Rinner C., Bird M.	The article reports on the deployment of a technology which puts a discussion board alongside a map - allowing people to discuss and comment on locations. They found that only one person left a location-specific comment, with most discussing the area and proposals more widely, leading to question how technologies can be used to make location-based discussions easier for “non-tech-savvy” people. It ends with a need for further research being carried out on how planners might use the at a from these platforms; and the type of data they find useful.	AW	•		•	
Desouza K.C., Bhagwatwar A.	The article documents citizen apps that use data sources to improve the lives of citizens. It finds the majority aim to improve the efficiency of government services. They, however, discuss the back-office processes that do (or do not) take into account the comments that are from citizens; stating that one-way communication from government to citizen is not sufficient. They make recommendations for future technologies that enable two-way discussion.	AW	•	•		•
Curwell S., Deakin M., Cooper I., Paskaleva-Shapira K., Ravetz J., Babicki D.	The report focusses on the citizen requirements for e-planning technologies. It states that citizens welcome the technologies if they “they save time, reduce cost, widen access and participation, or assist with major life problems and generally ‘make life easier’” (p. 62). It documents a number of preferences, such as mobile phones and personal computers.	AW	•	•		•

	Description of Project, Technology or Literature	AW/ HT/ SM	Awareness	Low Friction Involvement	Expressive	Transparency
Foth M., Bajracharya B., Brown R., Hearn G.	The authors explore the use of web 2.0 technologies and new media technologies for engagement in planning. They use Second Life, a virtual reality environment, to explore whether qualitative data can be collected on people's experiences of these virtual environments. They call for further study into how augmented reality technologies might be used to take advantage of real-world contexts.	AW	•		•	•
Howard T.L.J., Gaborit N.	The paper presents experiments using city models to engage the general public and planners for using virtual environments for planning participation. They report on people liking the ability to make comments, as well as the interactivity of the technology and its user-friendliness. Through surveying more broadly, they found that many people reported they would use such a technology to participate.	AW	•		•	
Khan Z., Ludlow D., Loibl W., Soomro K.	The paper explores different participatory approaches to visualisation and simulation tools. It uses three case studies to explore its role in decision-making and policy development. It found that the technology can be used for better communication and information sharing, however, also engages with the difficulties of requiring specific data for which the technology is required to work.	AW	•		•	•
Silva C.N.	Book					
Alshuwaikhat H.M., Nkweni D.I.	The authors report on an existing systems that attempt to visualise local urban governance. They make findings around public participation and professional management. They suggest that whilst small-scale deployments of technologies within research projects yield positive results, it is more challenging when deploying technologies more widely.	AW	•		•	•

	Description of Project, Technology or Literature	AW/ HT/ SM	Awareness	Low Friction Involvement	Expressive	Transparency
Hosio S., Goncalves J., Kostakos V., Riecki J.	The paper presents a pervasive technology with the aim of facilitating discourse in urban centres through the deployment of a feedback system through public displays. They discuss the difficulties of researchers working with city officials but focus on the screens for the majority of the article. They note that participants preferred the public screens rather than having to visit a website as they're available at the right time. They emphasise the importance of effortless in situ interaction mechanisms for crowdsourcing participation. They end with a call for multi-channel systems that illicit meaningful input in urban contexts.	HT	•	•		•
Williamson W., Parolin B.	A review of web-based communication for planning in local government. They use categories developed by McMillan (2002) for the technologies; monologue, feedback, responsive dialogue and mutual discourse. They find the majority (31%) of the websites were for providing information, such as forms and directors listings. They find the websites are better (through ranking) if populations are larger, and if areas are more socioeconomically deprived they have worse websites.	AW	•	•		•
Bamberg J.	The paper focusses on reviewing online discussions with spatial annotations; focussing on the type of knowledge these technologies produce and how planners use and understand the data. They discuss how all knowledge is situated and local, and as a result of local practices, and that as these knowledges grow, the public arena within which they are discussed becomes important. They found the technologies useful for collecting information but were not interested in having a dialogue with the citizens.	AW		•		



	<b>Description of Project, Technology or Literature</b>	<b>AW/ HT/ SM</b>	<b>Awareness</b>	<b>Low Friction Involvement</b>	<b>Expressive</b>	<b>Transparency</b>
Saad-Sulonen J., Botero A., Kuutti K.	Through the use of a technology, Urban Mediator, the researchers explore the how the interactive system can impact citizen participation in urban planning. They call for platforms that are flexible and versatile, which can be adapted by the users, and thinking about ecologies of tools and participation formats.	AW	•			•
Desouza K.C., Bhagwatwar A.	The research reviews the participatory technologies used in the 25 most populous cities in the USA. They categorise them into four types; “citizen centric and citizen data, citizen centric and government data, government centric and citizen data, and government centric and citizen-developed solutions of technology-enabled participatory platforms” (p. 25). They discuss collective intelligence and the implications for local governance. it ends by discussing how these platforms may slow decision making and issues of the digital divide. They state that public agencies should take more of an active role in designing these technologies.	AW	•	•	•	•
Dambruch J., Krämer M.	The paper is largely technical; documenting how web technologies were used to facilitate public participation. They conduct workshops on their web-based 3D tool and find that people found the technology helpful for planning, and raise issues around data quality, usability (how those with no IT background would use it) and portability (whether something is needed to be installed).	AW	•			•
Quinn A.C., Ramasubramanian L.	The article reports on how a small community uses ICT to participate in planning processes. The project used ‘traditional’ methods of engagement; such as comments on we website or emails. They note that citizen participation processes were largely reactive rather than proactive that pitted leaders against residents.	AW	•	•		•
Repetti A., Soutter M., Musy A.	This paper reports on the development of a tool for understanding urban growth; though a graphic database of spatial indicators used for sharing and editing information, as well as evaluating development in the city. N.b. this wasn’t online, it was disrupted using a CDROM - not interactive in the sense that people could easily send back data to the local authority.	AW			•	•

	<b>Description of Project, Technology or Literature</b>	<b>AW/ HT/ SM</b>	<b>Awareness</b>	<b>Low Friction Involvement</b>	<b>Expressive</b>	<b>Transparency</b>
Houghton K., Miller E., Foth M.	The paper reports on how urban planners perceive ICT. It finds that planners believe ICT has a potential in sharing information and building communities. The findings state that planners believe that as people's familiarity with technology grows, they will start engaging planners with it on their own terms. They stated that an overload of information may be counterproductive to getting people involved.	AW	•	•		•
Kontokosta C.E.	In an argument away from smart cities, the authors argue for the quantified community; neighbourhood information that collect, measure and analyse data on physical and environmental conditions and human behaviour. It aims to use neighbourhood-level sensors to scaffold discussion on human-central problem-solving.	AW			•	•
Al-Kodmany K.	The author used a GIS system alongside a graphic artist to stimulate participatory planning; translating the residents' ideas into sketches. They find that through combining creative (traditional) and computational methods it was beneficial in getting them to think about the past, present and future of their neighbourhood. The images and maps provided a common language through which people could discuss changes. It helps make the 'experts' aware of some of the issues and contexts only the residents were aware of, and built trust between them. They state that the costs, however, were high, but that these were outweighed by the benefits. It ends with implications; that GIS systems should be improved to not prolong sessions, and that planners need to learn new skills in to shift from 'provider' to 'enabler and facilitator'.	AW			•	



## ChangeExplorer Project

### What's the project about?

Change Explorer is an iPhone and Apple Watch App investigating the potential for smart watches in the collection of community thoughts, specifically towards improvements of public realm spaces, such as streets, right of ways, parks and open spaces. The App aims to allow citizens to give quick comments around improvements they'd like to see in the area they're in.

The App notifies citizens when they enter an area identified for comment, asking for an improvement they'd like to see, and who'd they like to see it for. Through a series of quick interactions, it's hoped citizens will be able to communicate their views. The comments are made whilst in the environment being commented on.

### What do I have to do?

We ask you to go about your daily activities with the Apple Watch (provided) and make comments when you're notified about entering an area. Additionally, comments can also be left anywhere you'd like to see improvements made.

After wearing the watch for a few days, a short interview will take place, lasting no longer than half an hour, to discuss your experience of using the watch.

Following participation, the researcher will put your views forward to the appropriate local authority's planning department, who will respond to your comments.



### What are the benefits of taking part?

As well as your views being put to the local authority, you'll receive a newsletter outlining the findings of the research and any publications resulting from the project (by September 2015).

### How will you maintain my privacy and confidentiality?

All data collected from the research will be anonymised, including interview data and comments made in the App. The device's anonymised location is only shared when you make a comment.

The comments made through the watch are not private, but are anonymised. The interview and all other gathered during the project will be kept confidential and only anonymised data will be shared with the appropriate local authority. Data on the watch and phone will be removed following your participation. Some of the data may be used in publications.

### Will you be able to change your mind about taking part?

Participation in the research is entirely voluntary and participants can withdraw at any time. If you change your mind, please get in touch over email or call with either the researcher or the researcher's supervisor and we will destroy all data from your interviews and App usage.

### Who is doing the Research?

The research project is being undertaken by Open Lab at Newcastle University.

### What if I have a question or complaint?

You can get in touch with either the researcher or the research's supervisor with the details below:

Researcher: Alexander Wilson  
Supervisor: Rob Comber

Open Lab, 89 Sandyford Road,  
Newcastle University,  
Newcastle upon Tyne. NE1 8HW

alexander.wilson@ncl.ac.uk (07590 534860)  
robert.comber@ncl.ac.uk





# ChangeExplorer Project

I agree to participate in this research carried out by Newcastle University through using the App during the time agreed and taking part in a concluding interview.

I can confirm that (please initial each box):

I have read and understood the information sheet about taking part.	X
I understand I can ask questions at any point during the research about any aspect of the project.	X
I understand that the device's location data and my responses will be collected when I make comments, but at no other time.	X
I understand that the concluding interview will be audio recorded.	X
I understand that the audio will be transcribed and all potentially identifying information will be removed.	X
I understand that the data collected for this study will be stored in the School of Computing Science at Newcastle University and will follow the EPSRC's policy on data retention. This can be viewed here: <a href="https://www.epsrc.ac.uk/about/standards/researchdata/">epsrc.ac.uk/about/standards/researchdata/</a>	X
I understand that the data collected for this study will only be used for research purposes and submitted to a local authority for comment.	X
I understand that my name will not be used on any documents or in any presentations about the research.	X
I understand that I can leave the research at any time without needing to say why.	X

Signature of participant: .....  
(If under 16, signature of parent/guardian)

Name (in capitals): .....

Date: ..... Age: .....

If you have any questions about the research please feel to contact either the researcher or their supervisor:

Alexander Wilson/Rob Comber  
Open Lab, 89 Sandyford Road  
Newcastle University  
Newcastle upon Tyne. NE1 8HW

alexander.wilson@ncl.ac.uk  
robert.comber@ncl.ac.uk



## **11.6 INVITED TALKS AND PRESENTATIONS**

### **Invited Talks**

- Co-Constructing City Futures: Enabling Participation in Urban Planning Processes with ICTs (2019), Anticipation Conference. Oslo, Norway.
- Visualisations for Knowledge Exchange in Planning: Communication and Digital Participation (2019) Visual Communication in Urban Design and Planning. Leibniz Institute for Research on Society and Space (IRS), Germany, UK.
- Planning's new image? Creative Consultation (2019) Royal Town Planning Institute, Plan TECH Essentials, Manchester, UK.
- Creative, Expressive & Tangible Engagement Methods (2019) Royal Town Planning Institute Young Planners Conference, Gateshead & Newcastle upon Tyne, UK.
- Drawing and Talking about Urban Change: Deploying Digital Technology to Encourage Citizen Participation and Elicit Place Meaning (2019) School of Architecture, Planning and Landscape Lunchtime Seminars, Newcastle University.

### **Oral Presentations**

- Alexander Wilson & Mark Tewdwr-Jones (2018) International Conference on E-Planning, Lisbon, Portugal.
- Alexander Wilson & Mark Tewdwr-Jones (2018) Royal Geographers Society Annual International Conference, Cardiff, UK.
- Alexander Wilson & Mark Tewdwr-Jones (2018) UK and Ireland Planning Research Conference, Sheffield, UK.
- Alexander Wilson & Mark Tewdwr-Jones (2017) Association of European Schools of Planning Annual Congress, Lisbon, Portugal.