FIXING THE GAP:

an investigation into wheelchair users' shaping of London public transport

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I, Raquel Velho, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Date: Signature:

For my father, Paulo.

Abstract

Public transport in London is a massive infrastructure, with over 400km of underground tracks, a fleet of 8000 buses and a rich, 153-year history that has turned it into a symbol of the English capital. Despite its size, accessibility in this infrastructure has been a source of concern for wheelchair users in London. Based on interpretative analysis of thirty-four in-depth qualitative interviews with wheelchair users and policy-makers, observations of training courses and documentary data on London transport, this research asks, "How do wheelchair users use public transport in London?"

This thesis, which sits at the intersection of science and technology studies (STS) and disability studies, has two main arguments. The first contends that the barriers faced by wheelchair users in transport are the result of infrastructural stabilisation that occurred in a period of social segregation (1850s-1950s). This is discussed by intersecting the history of transport in London, with that of disabled people in British society, followed by interviewees' accounts of the barriers they encounter in the infrastructure to this day. The second argument holds that, despite segregation, wheelchair users have taken an active role in the process of shaping transport in London. In this role, they have developed inclusion mechanisms on both micro- and macro-scales, through individual problem-solving on the one hand and collective and political activism on the other.

Drawing from STS concepts like the social shaping of technology and infrastructural invisibility, and engaging with the social model of disability from disability studies, this thesis shows the impact of marginalised users' engagement. It concludes that the social perception of disabled users as 'passive' masks an active interaction with and shaping of the transport network. This thesis therefore provides insights into the paradoxical nature of infrastructure, showing places of agency where previously one saw passivity and exclusion.

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Abbreviations

ANT	Actor-Network Theory
ATDP	House of Commons Transport Committee: "Access to transport for disabled people"
CAT	Campaign for Accessible Transport
CIL	Centre for Independent Living
DAN	Disability Action Network
DDA95	Disability Discrimination Act
DfT	Department for Transport
DIG	Disablement Income Group
DPTAC	Disabled Persons Transport Advisory Committee
DWP	Department of Work and Pensions
EA10	Equality Act 2010
EBA	Evidence-based Activism
Games 2012	London Olympic and Paralympic Games
GLA	Greater London Authority
GLC	Greater London Council
HoCTC	House of Commons Select Committee on Transport
LCC	London County Council
LGOC	London General Omnibus Company
LOGOC	London Organising Committee of the Olympic and Paralympic Games
LPTB	London Passenger Transport Board
LRT	London Regional Transport
LSC	House of Lords Select Committee
LTB	London Transport Board
LTE	London Transport Executive
MBW	Metropolitan Board of Works
NDPB	Non-Departmental Public Body
NSM	New Social Movement
ODA	Olympic Delivery Authority
SFSP	Step-free from street to platform
SFST	Step-free from street to train
STS	Science and technology studies
TfA	Transport for All
TfL	Transport for London
UERL	Underground Electric Railways Company of London Ltd

Theoretically universal, practically difficult.

Step-free. Positive attitudes. Reliability.

Chaotic. Improvable. Challenging.

Patchy. Inadequate. Hopeful.

Economical. Scary. Othering.

Frustration. Difficult. Painful.

Accessible but inefficient.

Better than yesterday.

Very bloody patchy.

Not good enough.

It's getting there.

Could do better.

Not bad.

Could be better.

Behind the times.

Better than it was.

Needs improvement.

Steadily getting better.

Not very accessible yet.

Local knowledge required.

Slow. Unreliable. Frustrating.

Mixed. Varied. Unpredictable.

Labyrinthan. Circuitous. Full-of-stairs.

Well-intentioned. Inadequate. Uninspiring.

Improving. 'Better than anywhere else'. Inaccessible.

Chapter 1: Introduction

What words would you use to describe public transport in London?

Transport for London, the city's transport administrative body, oversees an iconic and recognisable transport infrastructure. Characterised by its iconic "Transport for London" signs, vermillion buses, and the quintessential "Mind the Gap" audio reminder, this network is also one of the most extensive in the world. The Underground system has 402 km of tracks, with over 270 stations. London's distinct red buses comprise a fleet of over 9300 (Transport for London, website), and London's Overground train network has 112 stations. In 2016, almost 4 billion journeys were made using all types of transport modes within this infrastructure (Transport for London, 2017). Given this information, what words might one use to describe London public transport? Perhaps large, expansive, busy.

Many aspects of the system remain, technically, the same if we ask: what does accessibility look like within public transport in London? The 402 kilometres of tracks remain the same, and with the few exception of a touristic "Heritage" route, all buses are, technically, accessible as they are low-floor and have a wheelchair space onboard. The number of accessible stations throughout the system is, however, significantly reduced: of 270 stations on the Underground network, 71 are defined as "step-free" access[1]. Of 112 Overground stations, 57 are step-free. Knowing this, one might wish to use the same words as above to describe the transport, although perhaps with the addition of "limited".

It is tempting, when describing infrastructures such as public transport, to limit oneself to easily quotable "facts and figures". The size of public transport in London, when condensed to these quantitative measures, is impressive, but it tells us very little about the experiences of the passengers in the system. The numbers become particularly unreliable to describe the experiences of a demographic that is often featured in the media due to transport accessibility concerns: wheelchair users. The numbers discussed above show some of the limitations of using public transport in London as a wheelchair user: only one quarter of Underground stations and half of the

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[1] "Step-free" access is defined as "stations have lifts or ramps - or a combination of both - so that customers don't have to use escalators or stairs to move between the street and the platform", according to Transport for London (Transport for London, website).

Overground stations are step-free. One might counter this information by pointing out that all buses are accessible to wheelchair users. Surely that mitigates the limited access to the Tube network?

Given the stories that the media have focused on regarding wheelchair users and transport, it seems that the answer is "no", as much focus has been on the debate of whether wheelchair users should have legal priority over the space onboard buses, or whether it should be a shared space with parents with baby carriages. Then how might accessibility to London's public transport be described by wheelchair users who experience these limitations and debates? The page immediately prior to this introduction to my thesis is a list of answers given by wheelchair users whom I interviewed, responding to that very question. Take a moment to go back to them, and consider their choice of words. It is a fascinating collection of answers: some interviewees opted for adjectives, others for brief sentences. To add to the intrigue, the answers are also often contradictory, or counterintuitive: "accessible but inefficient", hopeful but frustrating, improving but inadequate. These contradictions, even in such short sentences, already tease at a more interesting story than facts and figures could supply; a story of frustrations and innovations.

This research's aim is, therefore, to explore the wheelchair users' relationship with London's public transport system and these contradictory expressions. This thesis proposes to answer a relatively straightforward question: "How do wheelchair users use public transport in London?" Given the limitations discussed above, both in terms of numbers of step-free stations as well as the priority debates, it is not an unreasonable question. How does this demographic tackle a transport system that has limited accessibility, both in terms of number of step-free stations and, according to media portrayal, due to priority debates as well? I propose to answer this question through interpretative analysis of thirty-four in-depth qualitative interviews with wheelchair users (and some of their partners) and policy-makers, supplementing these interviews with data collected in three observation opportunities and with official documents and media accounts of London public transport.

It is worth considering why I may have chosen wheelchair users, specifically, to be the focus of this research. Indeed, there is a wide range of types of impairment, each with specific accessibility requirements, that

might have been the focus of work on transport accessibility in London. As wheelchair users have become engrained in media coverage concerning accessibility due to priority debates, they have also become the "spokespeople" for accessibility in many ways. This may be linked to the perception that a wheelchair user's access requirements are straightforward, captured by the label given to "accessible" stations as being *step-free*. It seemed to be an interesting contrast to discuss the types of barriers this demographic might face given that the description of their requirements is often reduced to such simplistic terms. Furthermore, "wheelchair users" is an interesting demographic itself, as it is not defined by a single impairment or diagnosis. The medical conditions that might lead someone to use a wheelchair are extremely varied, affecting their personal mobilities and abilities in varied ways (Sapey et al., 2005). Consequently, wheelchair users became an interesting group on which to focus, as I imagined that the answer to the question, "How do wheelchair users use public transport in London?" might be enriched if the pool of respondents was varied in all respects.

In addition, the choice of investigating wheelchair users specifically, whose *step-free* requirements have been embedded to some extent into the public transport network, seemed to provide the best entry to studying *infrastructures* more generally. Rather, it occurred to me (thanks in large part to Susan Leigh Star's work, as I will discuss in the literature review) that focusing on this group that is semi-integrated with, yet still on the margins of, this infrastructure might provide novel insights into the nature of technological systems. Within the field of Science & Technology Studies (STS), infrastructures and networks such as transport have been a point of interest for many years. Indeed, my aim was to frame this research through the infrastructure studies lens, to see what insights might be developed if the focus of investigation became not the network, its inception or its developers, but rather the experience that excluded or marginalised groups had of it. As will be shown later in this thesis, this approach proved to be fruitful.

In order to answer this research's guiding question, this thesis consists of nine chapters (including this introduction), four of which have been split into two parts. In the next chapter (Chapter 2), I provide a literature review that discusses more precisely how this work fits into the STS literature, inserting

it within *infrastructure studies* while embracing the insights of other branches such as actor-network theory and systems theory. I will show how sociology provides useful analytic tools to discuss wheelchair users' engagement with transport, and how disability studies' concepts were critical to this research's framework. Disability studies also heavily informed the methodological approach of my work, which is discussed in Chapter 3 along with a revision of the research methods used.

I will then turn to the empirical findings, each chapter with its own shorter discussion section. This part of the thesis is divided into two parts, to structurally represent the paradoxes that appeared throughout the data collected (such as the contradictions discussed above, in wheelchair users' descriptions of accessibility). Part 1 is titled *Exclusion* which consists of Chapters 4 and 5. In this part, I will develop my first argument: wheelchair users use public transport with difficulties. To show this, in Chapter 4, I provide a brief history of London's public transport and intersect it with an abridged history of disabled people in British society, to show an interesting, if frustrating, overlap. I then turn to describing the historical consequences of this overlap in an infrastructure that has consolidated over a century to discuss the barriers that wheelchair users still face in the public transport network in London today, and what this might mean for our understanding of infrastructures.

Until that point, our story has a pessimistic tone: we discuss barriers, segregation, and what this means for wheelchair users' experience of the public transport infrastructure. However, it does not end there. In Part 2, consisted of Chapters 6 and 7, the story becomes empowering as we discuss *Inclusion*. There, I develop my second argument: wheelchair users use public transport in London by developing inclusion mechanisms. In Chapter 6, I discuss the first group of inclusion mechanisms, which I describe as ad-hoc problem solving skills, or *tactics*, which are used while they undertake their daily journeys. I discuss the second group of inclusion mechanisms in Chapter 7, defined as larger, more political *counterstrategies* whose aim it is to actively shape the public transport infrastructure to better suit wheelchair users' access requirements.

Having discussed the two contradictory, or perhaps complementary, themes of our story, exclusion and inclusion, I then bring them together theoretically. In Chapter 8, I propose a theory-based discussion on what

this research's findings can teach about the *nature of infrastructures*, particularly if one opts to undertake this work from the perspective of marginalised users. Specifically, I will be discussing the topic of paradoxes, and how they are constantly present within infrastructures. Finally, in Chapter 9, I propose some concluding remarks and briefly discuss possible avenues for future research.

Chapter 2: Investigating marginalised users of stabilised infrastructures

A literature review on networks, users, and exclusion

This thesis proposes to investigate the relationship between wheelchair users and the London transport system. As discussed in the introduction to this thesis, the aim of the research is to ask how wheelchair users use public transport in London despite having arguably been marginalised within this infrastructure. I will therefore explore the ways in which wheelchair users navigate the system on a daily basis, and what they do when they come across barriers in the network. However, before diving into the empirical work of this thesis, it is important to consider the scholarly work that has provided me with fascinating perspectives to analyse the data I have collected, allowing me to balance a study of *infrastructure* with a sociological study of exclusion.

This literature review covers three sections, each defining important concepts that have aided in constructing the research project. The first segment frames the transport system in STS terms, defining it as a stabilised infrastructure through the process of standardisation. I also show how previous work in STS has investigated the impact of users on the development of technologies to show how my own work both fits with previous research but also expands upon it. In the second section, I explore the literature concerned with theories of exclusion, both from a sociological and an STS perspective. These literatures provide the basis for thinking of infrastructures as materialised expert knowledge, in tension with its users lay knowledge. The last section is dedicated to the concepts my work borrows from disability studies. In doing so, I strengthen the existing overlaps between STS and disability studies.

1. The social construction of stabilised systems

A. *Sociotechnical systems and networks*

The transport system in London is gargantuan, combining an ensemble of technologies and actors to function cohesively. Indeed, the London

transport system has multiple modes of transport which have been brought together and are administrated by a single authority, historically beginning with the London Passenger Transport Board in 1933 that was more recently transformed into Transport for London (TfL) under the Greater London Authority in 2000. TfL therefore oversees all forms of public transport in London, from Rail services (including the Overground and the Docklands Light Railway), to Underground services (the various tube lines), to Surface services (buses, river transport, Barclays bicycles)[2]. The smooth operation of these transport modalities is dependent on the maintenance of tracks, streets, trains, motors… but not only on these technological artefacts. The system is also dependent on human actors such as drivers, operators, engineers, architects, politicians who approve their implementation, and those who give it purpose: the users who are transported. It is this collective of humans and non-humans, including things, artefacts and regulatory bodies, that gives the system a meaning and a goal: that of optimum transportation through Greater London.

In the STS literature, previous research on transportation systems has often come in the form of actor-network theory (ANT), a classic example being Latour's *Aramis, or the Love of Technology* (Latour, 1996). ANT scholars such as Latour study a 'symbiotic' organisation of society, researching both human and nonhuman actors in the construction of systems. Despite some theoretical differences, both Latour and Callon study the building of networks, and trace their histories. The authors have provided concepts such as 'translation', 'obligatory passage points', 'interessement', and 'enrolment'[3] (Callon, 1986a, 1986b; Callon & Law, 1982), or 'immutable mobiles'[4] (Latour, 1983, 1988), all useful tools for understanding how systems are constituted. These authors tell stories of alliances, actors successfully bringing together other actors to work on a

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[2] The history of public transport in London will be discussed more thoroughly in Chapter 4.

[3] Briefly, *translation* is the process through which a single entity becomes representative of an entire network, becoming the *obligatory passage point* through which a variety of actors might converge on a topic, project, or problem. *Interessement* and *enrolment* are two moments within process of translation, the first being the moment in which the obligatory passage point imposes an identity onto other actors of the system it now attempts to represent. *Enrolment* refers to the process of coordinating the identities and roles the representing entity has imposed onto actors within the system, 'enrolling' them as an ally in the network (Callon, 1986b).

[4] *Immutable mobile* is a particularly useful Latourian concept, briefly defined as an inscription that can be transported to different contexts yet is always interpreted in the same way. Some examples of immutable mobiles are maps, money, blueprints (Latour, 1986).

collective enterprise. They investigate technologies and systems which we consider obvious, and try to open up 'black boxes' to show how they came about initially. In *Aramis*, for example, Latour investigates the attempts at developing a personal rapid transit system in Paris and argues that the reason for the system not being successful was due to a lack of negotiation between the various actors involved.

However, ANT theorists are primarily concerned with the agency of single actors and the negotiations between them required for the systems to come together. In a famous Latour study, he argues that Louis Pasteur had to make his laboratory an 'obligatory passage point' for those interested in a cure for anthrax. Similarly, Callon gives the example of the electric car which Electricité de France attempted to develop in the 1980s. Both of these examples focus on the *developers* of the system, investigating the tactics *they* employ to build a network. Evelleen Richards has criticised a general tendency in STS of concentrating on scientists and science which she describes as white-male-centred (Richards, 1996). Like Richards and other feminist scholars of science and technology (Haraway, 1991), I agree that this male-developer narrative is deprived of other rich stories. Approaches like ANT are often too focused on their own internal logic, concentrating on negotiations being held amongst those who are already a part of the system's narrative. Those who are on the outskirts of the network, or excluded from it altogether, are not taken into consideration in these analyses which, therefore, seem not to be as concerned with humans and humanity but with scientists and science (or designers and technology).

It therefore became an increasingly common criticism to ANT that their approach lacked investigations into power dynamics and the impact excluded actors might have on the shape and functioning of systems. In response to these criticisms, John Law edited *A Sociology of Monsters* (Law, 1991), a collection of essays tackling these ideas. In the introduction, Law proposes that STS and sociology, fields which often intertwine, should draw from each others' strengths. Where sociology investigated issues of distribution, STS rarely did so; where STS recognised the impact of technology and the place of non-human actors in society, sociology did not. Combining the methodological stances of both approaches, Law argues, would allow us to perceive the inequalities in, or at the boundaries of,

sociotechnical systems. My own research, drawing from my prior education as a sociologist and my current work in STS, proposes to take up Law's decades-old proposal. By investigating wheelchair users' relationships with the transport system, I am effectively researching the impact of (arguably) excluded actors in the shaping of a network, looking into both technology, and distribution of power.

In tandem to ANT's approaches to discussing large systems, another literature was also developing on the topic of *networks*, a branch of STS closely linked to *systems theory*. This literature is largely indebted to work by Thomas Hughes, who also discussed topics related to transport, such as the development of road systems in the United States (Hughes, 1998). In his work, Hughes defines technological systems as being constituted of both technological artefacts and social structures, different sides to the same coin, which are co-constructed and mutually shape each other (Hughes, 1983; 1987). In addition, these systems have goals and solve problems by "reordering the physical world in ways considered useful or desirable, at least by those designing or employing a technological system" (Hughes, 1987, p. 53).

Hughes' work was done in tandem with social construction of technology (SCOT) theorists, having edited a volume with Wiebe Bijker and Trevor Pinch on the social construction of these technical systems (Bijker, Hughes, & Pinch, 1987). Indeed, Hughes', Bijker's and Pinch's research expands on most SCOT literature as it investigates not only individual artefacts but also the systems into which they are embedded. The most famous example is Hughes' research on the electrification of the United States where he describes the result of network-building by groups of innovators and inventors, such as Thomas Edison (Hughes, 1983). For my work, Hughes' concept of sociotechnical systems is helpful in bringing out the various actors and artefacts involved in the massive London transport system, but it is insufficient. Like ANT, Hugues mostly focuses on the network *conceptualisers*, the inventors and entrepreneurs (Restivo, 2005, p. 358), and this does not suit my goal of investigating the place of *users* in the shaping of a system.

It seems that both ANT and systems theory approaches to analysing infrastructures as large as public transport in London have the same downfall, concentrating largely on *insiders* to the system. This is an

important point if my research is to focus on excluded, or marginalised, users, and therefore I cannot depend solely on either of these approaches. Rather, combined, they both provide useful insights into the *nature* of these networks. I therefore call upon this literature as a reminder of the importance of the *historicity* of infrastructures, as both approaches reached one conclusion in common: networks, or systems, or infrastructures (these words will be used interchangeably throughout the thesis) that are maintained over time are dependent on a process of *consolidation* through standardisation.

B. Consolidation through convention

An important lesson to be learned from both ANT and systems theory is therefore to look to the past to understand the shape on infrastructures. Transport in London is, in fact, an *old* system, one of the oldest in the world, and it celebrates a number of firsts (including the first underground rail network which celebrated its 150th anniversary in 2013). Looking at transport in London through Hughes' lens of technical systems, we can argue that this infrastructure has reached a moment of *consolidation*. Hughes (1987) argues that technical systems go through various stages: invention, development, innovation, transfer, growth, competition, and consolidation. The phases are not meant to describe a linear path; they overlap and systems may even cycle back through them. Consolidation, Hughes writes, has occurred when there are few competing systems with the same goal. This is particularly true in the case of London transport, which is overseen by a single governing body with no competition (TfL).

There has been other work in STS addressing the idea of consolidated or stabilised systems (in my work, the terms will be used interchangeably), especially through the use of standards and their importance in the process of bureaucratisation in modern society. Standards have been discussed by authors from different traditions yet, interestingly, it has never developed into a field of 'Standards Studies'[5]. Within the STS literature, research on standards has developed more recently, beginning with Joan Fujimura who,

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[5] Sociology has been thinking about standards and categories since its inception (Durkheim, 1897; Mauss & Durkheim, 1903), culminating in the Chicago school with theorisations of normalcy and deviation from the norm, which I will expand upon in section 2.A (Becker, 1966; Goffman, 1990 [1959]). As a concept, norm has shifted and changed, from Marx's vision of class structures and power relations (Dahrendorf, 1968), to Durkheim's vision of social coercion and organisation, to Parsons' universal application where all of society is subjected to the same rules (Parsons, 1949). For this reason, a quick overview all of sociological literature concerning standards is difficult.

expanding on the idea of *boundary objects* (Griesemer & Star, 1989), proposed the concept of *standardised packages* (Fujimura, 1992). These packages, according to the author, allow the stabilisation of facts through the combination of various boundary objects[6] and standardised methods. This combination enables collaboration between different groups of actors by providing a stable framework without suffocating individual flexibility. However, here again the question of what happens to those who are *outside* of these standards is yet to be asked.

Using case studies ranging from the rationalisation of German forests to the reassignment of last names in colonies, various authors have discussed the process of standardisation (Brunsson & Jacobsson, 2000; Busch, 2011; Ritzer, 1983; Scott, 1998; Timmermans & Berg, 1997; Timmermans & Epstein, 2010). The majority of them converge on the concept of standards as reality shaping tools used to unify systems around a set of preconceptions, ensuring collaboration to reach a pre-determined goal (for the forests, it was high productivity for the lumber industry; for the last names in colonies, it was to establish government control). In *Seeing Like A State*, Scott argues that bureaucratic governments utilise standards to organise society, reducing the world to easily digestible categories (Scott, 1998). However, this simplification does not occur without resistance. Despite it being a generally successful approach for the State's objectives, it has consequences for those (humans or nonhumans) that are forced into these categories. Some of these authors have also shown the importance of these tools in the consolidation process of modern society and bureaucratisation.

Showing again the intersection between ANT and systems theory, in Law's *A Sociology of Monsters*, Susan Leigh Star also addresses the question of standardisation, asking how systems that have been consolidated through standards affect the non-conventional (Star, 1991). By using the example of her onion allergy, she shows how a seemingly rationalised and efficient system like a fast food restaurant (McDonald's) is easily disrupted by an unconventional (and uncommon) allergy. Going into a McDonald's to grab a quick meal, as she was late for a meeting, it took employees forty-five minutes to prepare her food. In a second outing to McDonalds with

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[6] The authors define boundary objects as "a sort of arrangement that allow different groups to work together without consensus" (Star, 2010, p. 602). They are the definitional lines at which these groups interact.

colleagues, they had finished their meal by the time hers was prepared. With this example, the author illustrates how efficiency is dependent on standardising and categorising according to the network's worldview and what it perceives as relevant. Building reality through these categories inevitably leads to the constitution of 'others', the 'outsiders' who do not fit the system at all. Star's work on *the other* led to a series of collaborations on the theme of categories and standards (Bowker & Star, 2000; Lampland & Star, 2009), and investigations on their utility and impact. In the authors' words, "This [process of standardisation] is not inherently a bad thing – indeed it is inescapable. But it is an ethical choice, and as such it is dangerous – not bad, but dangerous." (Bowker & Star, 2000, Introduction). I will develop this literature further below (see section 1.C, p. 26).

The transport system in London is, in many ways, similar to Star's McDonald's and Hughes' consolidated technical system. Its goal is to provide a service, transportation, to the masses of London as conveniently as possible. And for some of the 4.5 million passengers, the recent maximum registered using the Tube since the 2012 Olympic and Paralympic Games (Beard, 2014), this might be an (crowded) approximation of their transport experience. The notion of hassle-free transportation for some social groups, however, is not a given. Thinking about accessibility issues in transport networks through the lens of standards and categories would be both a useful and a novel approach. As Bowker and Star (2000) discuss, infrastructures are inevitably rich with standards and categories as invisible actors co-producing the environment. We can see the need for standards in the transport system: bringing together such a large number of actors means there is a need for a unifying language to ensure they are communicating effectively to transport people and things across London. Nuts and bolts must be compatible so that engines work, trains maintain their integrity and fit in tunnels; for human actors, communication between engineers, architects, builders, politicians, all need to be done in a common tongue so that messages, such as errors that need to be fixed, or permits for new work to be carried out, can be transmitted efficaciously.

As I argued in the introduction, wheelchair users have been particularly present in the public eye as a group of users that faces difficulties in

accessing public transport[7]. In my Master's dissertation, I have discussed how this can be perceived as the result of their needs not having been inscribed into the public transport system (Velho, 2013). Pairing this work with the literature on categories and consolidated systems, we might see the debates around accessibility as the result of standards and conventions of the transport system having overlooked wheelchair users' requirements, a point which will be discussed in Chapter 4. It must be noted that this was unlikely to be the result of a *conscious* omission of these users from the network, but rather was due to the combination of social and political contexts and priority debates. Barriers to using public transport have not directly translated into a passive acceptance of the situation by disabled users', and it is their reactions to this exclusion which I believe merit further exploration – in particular their attempts to modify the system to better suit their requirements. Before discussing the place of excluded users within the social shaping of infrastructures, I wish to briefly elaborate on the literature on the nature of consolidated infrastructures.

C. Invisible infrastructures

I briefly discussed above the rich collaborations developed by Star with authors such as Martha Lampland and Geoffrey Bowker. An interesting literature on *infrastructure studies* has therefore been gathering momentum in the past decade. Differently from ANT and systems theory, infrastructure studies draw from their work on the impact and importance of standards to use it as a springboard for analyses in a move Bowker and Star call *infrastructural inversion* (Bowker & Star, 1996). By this inversion, the authors mean to highlight the "boring" parts of infrastructures, or bringing to the foreground the processes of "politics and knowledge production" of classifications and standards. Going a step beyond Hughes' systems approach, which would see in standards simply an integrative language, infrastructure studies wishes to uncover the process behind production of these standards, and what this means for the shape of networks.

The questions investigated by infrastructures studies then became about the process of standardisation and its impact. Lampland and Star edited a book dedicated to this topic, bringing a wide range of case studies that discuss these questions (Lampland & Star, 2009). Lampland and Star

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[7] For example, in the overturning in West Yorkshire of the ruling that wheelchair users should have priority to the wheelchair bay on buses in December 2014. This is an ubiquitous issue, as we will see in Chapter 5 ("First Bus wins wheelchair court judgement," 2014).

argue that "infrastructure is designed to become invisible as it is stabilised" (*idem*, p. 207). In other words, as infrastructures, like London public transport, become consolidated, they become part of the background, merging with the landscape and becoming forgettable. However, as they also argue, this stabilisation is dependent on *standards*, which are "incomplete and inadequate" in character (*idem*, p. 14). As argued above, this results in not all potential users of an infrastructure being included in these standards, resulting in "brick walls" for these marginalised users. As Star had already discussed in *On Being Allergic to Onions*, there has not been enough scholarly consideration for these outsiders, particularly when studying networks and infrastructures – a point we are taking seriously in this thesis. Bowker and Star argue that the creation of 'outsiders' is virtually inevitable in the production of standards, and see this as an ethically dangerous consequence of infrastructures. Networks create users whose requirements are met, and users whose needs are not embedded into it. The latter, left beyond the margins of the network, suffer in a variety of ways: be it in waiting forty-five minutes for their McDonald's meal, or waiting for two hours for a bus they are able to board.

Nevertheless, the argument that is made many times by Star, her collaborators, and other subsequent authors is that infrastructures *become invisible* through this consolidation work[8] (Edwards et al., 2009; Graham, 2010; Jackson et al., 2007; Lampland & Star, 2009). In this scholarship, *invisibility* stands as a way of expressing the *taken for granted* character of infrastructures–they blend into the background, largely unnoticed even if they are, literally speaking, still visible or 'see-able'. It is when infrastructures *break down* that they, figuratively, become visible again to those using it, exposing the network's constituent parts. The argument on invisibility and breakdown of systems has become established within this literature, to the point that authors have written that "any genuine infrastructure is mostly invisible" (Edwards et al., 2009, p. 370), using the character of *invisibility* as a defining feature of infrastructure. In the past ten years, however, this has begun to be questioned, primarily by authors writing about infrastructures in the Global South.

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[8] Although there is little discussion of what this means for the marginalised users themselves, for whom, as I will argue in Chapter 8 (see section 3, p. 233), the infrastructure never becomes invisible.

This recent literature has taken the work of its predecessors and applied it to infrastructures developed in the Global South. Authors here have argued that, in many cases, networks are not invisible at all. Rather, infrastructures are in near-constant state of breakdown, requiring significant maintenance and repair work in order to function (Harvey & Knox, 2012; Larkin, 2008, 2013; Ureta, 2014). This work adds a necessary layer to the infrastructure studies literature by drawing attention to other dimensions of infrastructure, beyond the development and impact of standards. Often, these studies have focused on the impact that these infrastructures have on its users from the perspective of *control* through disciplinary devices designed to control users' bodies (Ureta, 2013).

The fine line between function and disfunction, work and disrepair led to another recent crop of infrastructure studies literature, this time focused on the various paradoxical and dual characteristics of these networks (Howe et al., 2016; Larkin, 2013). As these recent studies discuss, it is difficult to define infrastructures according to a predetermined set of characteristics because they are *dynamic* creatures; not simply a collection of technologies in the shape of a network, but also the constitution of a range of interests, policies, materialities. Given this sprawling, diverse nature, some paradoxes can be identified in studying infrastructures. Hence, Howe and coauthors argue that identifying paradoxes, or how infrastructures can be two seemingly opposing states at the same time, is a key step to understanding infrastructure. However, the work they do is largely theoretical. In Chapter 8, I apply their thoughts to the empirical data collected and discussed in this thesis and argue that, through investigating infrastructures from the perspective of marginalised users, many paradoxes can be identified concerning the nature of knowledge, time, rigidity and even visibility within networks. Indeed, it is through an analysis framed by marginalisation and exclusion that these paradoxes arise so clearly.

My criticism towards infrastructure studies literature is that it often frames the role of users as a passive one, having infrastructures *imposed* upon them: they are either in, or they are out of the network. For this reason, pairing the infrastructure studies insights with that of *social construction of technology*, particularly work on the impact of users on the shaping of artefacts, can provide a means for overcoming the limits of either literature.

D. How 'excluded' users matter

Within STS it is now uncontroversial to write about the co-construction of technology and society. In the 1980-90s, collected works by various authors (Bijker & Law, 1992; MacKenzie & Wajcman, 1985) demonstrated through fascinating case studies how the design and adoption of a technology were not the results of it being 'superior' or 'better' to its competitors. Rather, technologies "win out" through a conjunction of social, cultural, and political factors. Soon after, Bijker published what is arguably the most used example of the social construction of technology (SCOT) in STS courses: the safety bicycle (Bijker, 1997). In his case study, Bijker uses the notion of *interpretive flexibility* to argue that different social groups assign different meanings and interpret artefacts in different ways. It is when a large number of social groups, despite their differences, accept a technology (in this case, the safety bicycle) that it is effectively adopted and disseminated throughout society.

This literature had particular goals; it studied a single technology (the bicycle, the refrigerator, the water mill) and enquired as to how it was designed, adopted and disseminated. The work was done mostly through historiographical methods, using documents from the era of the technology's inception. Furthermore, it investigated the overall social context at the time of design, development, and adoption of the artefact. It studied various different social groups and compared how they viewed the artefact at hand. These were socio-historical studies which provided fascinating insight into the process of adoption. However, there was little discussion about the impact users had in the shaping of technologies further than, in the case of the bicycle, the preference of one bicycle model over another.

At a similar time, research was also being done on the impact that technology has on our behaviours. In an often reprinted chapter, Steve Woolgar discusses how artefacts, once designed and applied, work as 'texts' (Woolgar, 1991). According to him, technologies are produced with particular users in minds, and particular ways of being used. ANT theorist, Madeleine Akrich, calls a similar concept the 'script' of the technology (Akrich, 1992). Through texts and scripts, technologies force themselves into being used and employed in predetermined ways, thus becoming actors within society themselves as their users are forced to either adapt to

their demands or to be excluded from their usage. Akrich, for example, defines the concept of de-inscription, or "the mechanisms that allow the relation between a form and a meaning constituted by and constitutive of the technical object" (Akrich, 1992, p. 209). In a piece where she collaborates with Latour, they use subscription and de-inscription to define how human and non-human actors may relate to the scripts embedded in the system (Akrich & Latour, 1992). However, these terms propose an in/out prerogative: either one follows the script, or one denies it outright. This ANT approach therefore left the impact that users have on technological development relatively unexplored, describing a simplistic path of technological development: design, development of competing models, choice through adoption, and dissemination. This linear model of development and users' impact was brought into doubt in more recent research on how users matter (Oudshoorn & Pinch, 2003). The various chapters in the book *How Users Matter: The Co-Construction of Users and Technologies* provide us with an alternative narrative, and an ideal starting point for attempting to understand how particular demographics of users, not just the designers, shape technologies and their uses. For example, in her chapter, Christina Lindsay uses the case of TRS-80 computer's reconfiguration through the formation of support groups and networks (Lindsay, 2003). So what actions might users engage in to adapt artefacts to suiting their needs?

One avenue for investigation might be *hacking* literature, a word often associated to computer science where it is described as "appropriating, modifying, or 'kludging' existing resources [...] to suit other purposes, often in an ingenious fashion" (Paradiso et al., 2008, p. 13). As a practice, it is opportunistic in its attempts to open up systems and infrastructures, based on one's extensive knowledge of them, using commonly-found resources to do so (Davoli et al., 2014). Hacking can be described as an illicit activity (at least from the perspective of the originators of the system), but also as a creatively-driven provocative or transgressive act (Mitchell, 2005; Steinmetz, 2015) which does not aim to destruct as much as subvert systems. Wagenknecht and Korn write the following:

> Through deliberate misuse or re-purposing, hacking creatively undermines the conventions that are, often tacitly, inherent to existing systems and networks; hacking transgresses terms and conditions, established patterns of use, cultural expectations,

economic standards, legal norms as well as programming rules.
(Wagenknecht & Korn, 2016, p. 2)

More recently, hacking language has also made its way into the discipline of geography with terms such as place hacking (Garrett, 2012, 2014). In his doctoral thesis, Garrett writes that, in fact, the first uses of hacking as a practice was to physical spaces referring to the picking of locks and entrance into forbidden areas (primarily the under and overground worlds; tunnels and rooftops). It was later appropriated into computer science literature, in a move of which hackers themselves would be proud. A common thread through all literatures on hacking and hackers is an antiauthoritarian stance, and a push against hegemonic practices or the 'customary'. In "How to be a Hacker", Raymond puts this sentiment clearly:

Hackers are naturally anti-authoritarian. Anyone who can give you orders can stop you from solving whatever problem you're being fascinated by — and, given the way authoritarian minds work, will generally find some appallingly stupid reason to do so. So the authoritarian attitude has to be fought wherever you find it, lest it smother you and other hackers. (Raymond, 2003)

Hacking can provide us with a rich vocabulary on anti-authoritarian practices to refer to when users change the infrastructure from within. It does, however, largely depend on these users having access to the infrastructure in some way, and is insufficient when discussing the impact that *outsiders* to the network can also have. For this type of work, we can refer to the literature developed by Dutch innovation and policy researchers on technical development (Geels, 2007; Van de Poel, 2000, 2003). For example, Van de Poel argued that outsider groups have significant influence in the shaping of technical systems, as they are not inscribed within a technological regime and required (or expected) to adhere to the rules within it. Outsiders, he argues, can therefore trigger significant technological change, particularly in making technologies more "socially desirable" (Van de Poel, 2000, p. 395). This work can provide a balance to discussing technological shaping from the *inside* to thinking about how outsiders can also have a hand in demanding different types of technology, or adjustments to infrastructure.

In balancing the various approaches on how users can shape technology, a solid foundation is set for my own investigation of wheelchair users' impact in shaping technologies. My research therefore bridges some of the gaps between these literatures by investigating a user group that is less often investigated (marginalised users) as work has focused on groups on either

side of the divide (users, or non-users; insiders or outsiders). In *How Users Matter*, for example, Sally Wyatt addresses the importance of the non-users and their choice of not using a technology as not being related to deviance or inequality but as a rational choice (Wyatt, 2003). In the case of my own research, it will be interesting to investigate the case of (arguably) *excluded* users and their impact; not those who choose not to, but rather who are *restricted* into not using.

In this section, I have argued that there is extensive literature in STS which will help the framing of my research. First and foremost, there is extensive literature in STS on networks, systems and, more recently, on infrastructures. In the case of my research, this literature would argue that an infrastructure such as public transport in London has become consolidated through its governance by a single body (TfL) and little competition from other methods of transportation, and through the process of standardisation that aimed to make it functionally cohesive (and consequently *invisible*). It has also been established through previous STS literature that these large-scale systems are both socially and technically shaped; there are various actors that can be investigated to analyse its constitution, one of them being the users of the system themselves. As there has been previous work on the impact of users in the shaping of technology, I can align myself with these scholars yet still expand on their work as my own investigation concentrates on the impact of excluded users in shaping infrastructures as they occupy interesting positions on the fringes of the network. It is to this unique position of *exclusion* that we turn to next.

2. On exclusion and subversion: from social theory to STS

It may have been noted that, thus far, I have often preceded 'excluded users' with the adverb 'arguably'. This has been done primarily as a safe-guard as, on the one hand, it is apparent to daily users of the London transport system, buses in particular, that wheelchair users *have* been thought of in the design process of the various technologies included in the transport network. One can see on the Tube maps, clearly labeled, stations with 'step-free' access, and the ramps specifically deployed on buses for wheelchair users' access. On the other hand, I also drew attention to recent

media coverage on the barriers wheelchair users might encounter when using the public system. Wheelchair users' feeling of exclusion and inability to use the public transport system, therefore, is not unwarranted. I do not intend to take a 'neutral' stance wherein I ask whether their feeling is justified. Rather, I have taken an ideological and methodological[9] stance to believe in the narratives of disabled users, and wheelchair users in particular, that there is a problem which needs to be addressed. In this section, I will discuss concepts of exclusion and subversion, firstly developing the sociological and STS literature concerning theories of 'exclusion' and otherness, both concepts requiring further elaboration to fully justify my claim that wheelchair users are *excluded* users. Then, I will turn to concepts of *control* and agency of bodies, particularly applied to bodies marked as *other*. Lastly, drawing from research on subversion and action, I will discuss social activism and lay knowledge as forms of resistance.

A. Deviance and stigma

A recent article in the New Yorker provided wonderful insight into the life and career of American sociologist Howard Becker (Gopnik, 2015). It also brought to light the shifts that occurred in the sociological world concerning the concept of *deviance*. Deviance was, until Becker's seminal book, *Outsiders*, considered as 'not following the rules', or standing in opposition to 'normalcy' (Becker, 1966). Most renowned scholars of sociology have addressed deviance: Durkheim defined it as a necessary evil, something integral to all societies in its provision of moral boundaries and something to rally against (Durkheim, 1997 [1895]). Yet when the symbolic interactionist scholars emerged in the 1950s-60s, a strong body of research formed around a shift in these definitions. Leading the change in concepts of deviance was Becker. An uncommon scholar whose dream was to play piano in Chicago clubs, he began his academic career by studying jazz musicians and the use of cannabis (Becker, 1953). Becker described the work required to become a marihuana smoker, describing it as an internalisation of this social group's rules. Hence, Becker argued that deviance is not the lack of rules, but rather following a different set of rules.

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9 The methodological stance refers to *emancipatory research*, which I will develop further in section 3.1 and Chapter 3 (see section 1, p. 49).

Goffman, one of Becker's symbolic interactionist colleagues, adopted a dramaturgical lens and used theatrical vocabulary to describe and analyse individuals' actions, and where/how interactions occur. He used the term *performance* to refer to the activity of an individual as they are being observed: it is a moment in which the individual gives meaning to the situation at hand, to themselves, and to their observers (Goffman, 1990 [1959]). It is an exchange of information, both explicit and tacit. Furthermore, the individual performing may be doing so consciously or not; regardless, their actions are being interpreted by their audience, and meaning is attributed to it. Goffman's *performance* permeates all social interactions, and the way individuals act and react to one another are shaped by the information acquired through different social queues and characteristics (conduct and appearance, for example). As such, all members of society perform.

Four years later, Goffman would extend his work on social interactions to consider what he called *stigma*, that is "an attribute that makes [an individual] different from others in the category of persons available for him to be, and of a less desirable kind" (Goffman, 1963, p. 2). It is an attribute, physical or otherwise, which detracts from a person's social status. It is in individual's interests, therefore to 'manage their spoiled identities' (the book's subtitle) or, in Goffman's terms, they attempt to *pass* in society through the concealment of discrediting information about themselves. He used various examples to speak about stigma, from homosexuals to multiple sclerotics, fully aware of different levels of *passing* required for each situation.

The word *deviance* does, however, carry a negative connotation, the reason why I will not address wheelchair users as *deviants*. I am therefore replacing it with the word *exclusion*, or *excluded* to signify that these are users who carry signs of stigma, and attempt to *pass* and *perform* in society (a point that will be particularly prevalent in Chapter 6, see section 2.B, p. 158). Regardless of the dated nature of these texts, with some consideration for word choices, these concepts add an important layer on the topic of bodily, and visible markers of difference that can impact social interactions. Wheelchair users do, after all, carry substantial visible stigma. Contrary to a prosthetic leg, which can vanish under the fabric of trousers, wheelchair users cannot (and should not have to attempt to) hide their

stigma. Furthermore, Goffman has been used by scholars in disability studies literature, discussing cases where disabled people negotiate their identities, disclosing or concealing it from particular people by weighing the consequences of doing so (Goode, 2007; Olney & Brockelman, 2003). For example, Olney and Brockleman (2003) discuss that, to access adequate support, disabled students need to reveal their identities by providing an appropriate 'label' for themselves.

One last note before moving on to STS literature on exclusion, I must consider the limitations of this framework as pointed out by other scholars. Cahill and Eggleston set out a series of issues with the notion of stigma when addressing social attitudes towards physical disabilities. Beyond the point that 'stigma' in Goffman's work is extremely broad and anyone can be stigmatised at some point in their lives, the authors' primary issue is that speaking only of negative stigma "draws attention to their social rejection and away from possible instances of social acceptance" (Cahill & Eggleston, 1995). The authors make a compelling argument and the article itself provides ample evidence of the kindness of others, usually brought about because of the prominence of the wheelchair. However, I believe it is important to think of contextual evidence in the case of transport accessibility. I am not speaking about social attitudes towards wheelchair users in general, but rather their position within the London transport system. The various news articles I have referred to previously point towards this being an area where wheelchair users encounter negative attitudes. For this reason, I insist that using the concepts of stigma and exclusion are still both relevant and useful in this context.

B. Biopower and resistance

If exclusion and deviance have been a constant preoccupation for the world of sociologists and anthropologists, within the field of STS they are a relatively more recent concern. As mentioned in section 1.1, in response to various similar criticisms towards ANT, Law edited *A Sociology of Monsters* (Law, 1991). The introduction included a plea for further intersection between sociology and STS so as to better think about power relations in scientific research and technological development. Goffman and Becker, and indeed the sociologists who came before them, rarely thought about science and technology; but on the other hand, the issue of the *distribution of power* and executive decision-making did not concern STS scholars

particularly. It was largely in the 1980s-1990s, with the involvement of feminist and intersectional scholars in STS, that power relationships began to be addressed (for example: Haraway, 1991; Keller, 1982; Schiebinger, 1986).

As Star argues, stabilised systems are only stable for those who follow these systems' practices (Star, 1991). If we consider the transport system as an able-bodied person, neither carrying too much weight nor accompanied by children, it would seem that it is unproblematic. However, as soon as the user is slightly different than this model one, or as soon as the system itself demonstrates an error, it falls apart. This results in a malfunctioning system if it is a momentary issue, or in exclusion in the case of wheelchair users. Star writes that "there are always misfits between standardised or conventional technological systems and the needs of individuals" (Star, 1991, p. 36). As discussed above, the author suggests we ask *why* infrastructures are shaped as they are, and how they could be otherwise. In doing so, methodologically speaking, our point of departure would not be the system itself, nor would it be those who created it, but rather those who are left at its barriers.

In Star's case, we can see an example of a network's expectations of its users' bodily functioning: an uncommon allergy can seriously disrupt what otherwise is a seemingly efficient system. Similarly, the mapping of a large system onto the control of bodies is largely discussed in much of Foucault's work, and those inspired by him. The term of *biopower* can be evoked here to describe the political power that infrastructures can exert over bodies (Foucault, 2008). Biopower is defined as "the force that constitutes the materiality of any human subject; it forms, secures, and normalizes human subjects through a process of 'subjection'" (Siebers, 2001, p. 173) through various means – medicalisation, sterilisation, etc. Biopower is also materialised in infrastructure, such as is demonstrated by Ureta, discussed above, who uses the concept of biopower to show how infrastructures control user bodies through *disciplinary devices.* These devices, both material and semiotic (such as signage with rules of circulation, or blockages), ensure docility while passengers travel in public transport (Ureta, 2013). While my research does not aim to uncover similar devices, the application of these Foucauldian concepts is useful to consider how

infrastructures are important elements in defining 'normal' and acceptable bodies, through the scripts embedded within them (see section 1.B above).

Largely inspired by Foucault's philosophy, French sociologist Michel de Certeau developed the concept of *strategies* due to his concern with hegemonic power and spaces of conformity. *Strategies*, according to De Certeau, are the means developed by "the strong" to create, "produce, tabulate, and impose these spaces" (De Certeau, 2011 [1974], p. 29). One of the most used examples developed by de Certeau is the case of conceptions of the city. In *Walking in the City*, de Certeau argues that cities are generated by a panoptic, unified view where strategies are developed and imposed by the government and other powerful institutions. He illustrates this through describing the panoptic view of New York City one could have from the top of the World Trade Center[10]. Here we see the theme of "the strong", or those in power, attempting to control the powerless, or the "weak". However, de Certeau's aim was to question the extent of the powerful, and how far the influence of *strategies* can go. Adopting military vocabulary (an interesting contrast to Goffman's theatrical choice!), he proposed that "the weak" develop *tactics* to counter the hegemonic narratives inscribed in daily life.

Tactics, de Certeau argues, are an "art of the weak" (De Certeau, 2011 [1974], p. 37): they are mobile, opportunistic, flexible, and an expression of micro-freedoms. Tactics "must vigilantly make use of the cracks that particular conjunctions open in the surveillance of the proprietary powers" (*idem*, p. 37). Giard, while commenting de Certeau's work, noted the sociologist's admiration for the "powerless", that his aim was to show the forms of resistance that existed in the weak's "truant freedom of practices" (De Certeau et al., 1998, p. xxii). Through these tactics, users reappropriate the spaces organised by the powerful's strategies in opportune moments. Within the example of New York City, these tactics occur while pedestrians are walking in the city, rather than through a panoptic observation: they can be seen in the shortcuts that they take, crossing the street at unmarked locations, window-shopping…

While Foucault's work on hegemonic power is often discussed, it would be unfair not to discuss the place that agency and resistance also occupy in

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[10] Given Foucault's prior work on the panopticon in *Discipline and Punish*, the link between the two French authors is clear.

his work. Towards the end of his life, Foucault became concerned that he may have "insisted too much on the technology of domination and power" (Foucault, 1988, p. 19), despite resistance having often been an underlying topic in his work, either from *within* "the meshes of the art of government" (Revel, 2008) or through the invention of the self, a space over which one can exert unique control. On the latter, Foucault turned to discussing *technologies of the self*, aiming to discuss the ways in which the subject can find ways of acting upon herself. In his words, technologies of the self "permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality" (Foucault, 1988, p. 18).

Both concepts, on the one hand of large, hegemonic control in the shape of strategies, and on the other of smaller subversive, resistance tactics, provide useful concepts for my research. They allow me to ask how an infrastructure such as London's transport system acts upon individuals through strategies, but also how marginalised users might resist these strategies and affect changes to the network. Similar topics have been discussed in infrastructure studies literature. Bowker and Star, for example, have investigated resistance to being categorised, or cases where people fall through typological gaps (Bowker & Star, 2000). Similarly, Scott has thought about resistance to standardisation, showing how unpredictable spaces are created in spite of the state's efforts to build a harmonious and homogenous world (Scott, 1998). Subverting standards, guidelines and norms are interesting moments which deserve to be studied. Observing these subversions can be a way of finding barriers – what areas do people avoid, what objects are used in ways which were not intended? And have marginalised users acquired and learned these subversive tactics at all?

C. Lay knowledge and social activism

The literature on power and subversion become important points for basing the analysis of the experiences of wheelchairs users in navigating public transport in London. However, as I concluded in the last section, it does not necessarily allow us to question the process behind *acquiring and learning* these tactics to navigate the network. For this, drawing on the extensive STS literature on *lay knowledge* and *expertise* can provide the background

to investigate how wheelchair users use public transport in London, and how they have learned to do so.

The status of *knowledge* and who produces or holds it has been a prominent theme within STS. Lay knowledge, in particular, is a contentiously debated concept, often contrasted with the concept of *scientific* knowledge (Nygren, 1999), and who can be considered an *expert* of a field. On the one hand, a handful of authors argue that there is a typology of expertise, largely dependent on the quantity of and capability that its holder has of using it or expanding that field of knowledge (Collins & Evans, 2002, 2008). These authors reserve the word *expert* to those who have acquired a sufficient ability to communicate their knowledge of a field. Their work attempted to do away with the concept of *lay expertise*, arguing that the former was an oxymoronic term. Various criticisms towards Collins and Evans have been published (Jasanoff, 2003; Rip, 2003; Wynne, 2003), most of them pointing out these authors' neglect of the highly political construction of what constitutes knowledge, and who should have it. These critics therefore largely agree that the term *lay knowledge* is not only valid but necessary in debates on the construction of what knowledges are considered legitimate (Epstein, 1995; Wynne, 1994).

The dichotomy between scientific knowledge as modern and epistemologically superior over local or indigenous knowledge, described as practical and "strongly rooted in place" (Nygren, 1999, p. 268) has been a common theme in many fields that investigate the nature of knowledge and science. In this thesis, however, it is rather Wynne's and Van der Ploeg's approaches to lay or local knowledge that are theoretically interesting (Van der Ploeg, 1993; Wynne, 1991, 1992, 1996). In both of these authors' work, the two types of knowledge are discussed for their different epistemic and social values, fighting out legitimacy claims concerning expertise and which type of knowledge holds primacy. For Wynne, lay knowledge is useful specialist knowledge, acquired experientially and locally. In his famous case study on Cumbrian sheep farmers, he discusses how lay expertise on soil and sheep behaviour was ignored by scientists, to the detriment of scientific experiments. Wynne's aim was not to underline a dichotomy between "modern" and "traditional" knowledge, or "lay" and "expert" knowledge, but rather to consider the relation and tensions between these epistemologies.

Combining the literature on infrastructures and lay/expert knowledge can allow us to consider how this dichotomy might translate to the world of networks and their users. The language of infrastructure, highly formalised and standardised, has the same characteristics of *scientific* knowledge, discussed in Wynne's work, that is to say, "a scientific nature of prediction and control" (Wynne, 1996, p. 67) that "gains its image of intellectual universality by achieving social control over the standardisation of what are varied situations (*idem*, p. 71). The "intellectual universality" character of science has also been a topic of interest in STS, through concepts such as the modest witness (Haraway, 1996) and the framing of objectivity to the work of Latour on the dissemination of scientific knowledge through the use of immutable mobiles (Latour, 1986). The latter's power lies in its transportability and fixity: inscriptions of various sorts that can be taken from one place to another and be interpreted in the same manner. Interestingly here, Latour gives engineering drawings as an example of immutable mobiles, arguing that these allow "work to be planned, dispatched, realized, and responsibility to be attributed." (*idem*, p. 27) The argument in the later part of Latour's article discusses the power held by bureaucrats by being at the heart of where the validity of so many immutable mobiles is established. Here, his work prefaces much of the literature on standards from the late 1990s, particularly Busch (2011) who discusses the role of standards as translators, required in transferring knowledge from one area to another. Fujimura's concept of standardised packages (Fujimura, 1992) does similar work. For Bowker and Star, these standards are "deployed in the context of making things work together" (Bowker & Star, 1996, p. 3). As such, within infrastructures, these standards are particularly important in ensuring that various pieces, literally nuts and bolts, come together.

The knowledge of the users of the network, however, is more akin to lay knowledge. Indeed, as Wynne defines it, lay knowledge "allows control [of] a contextually dense and multidimensional reality in which adaptive flexibility towards the uncontrolled is still recognised as a necessary attribute" (Wynne, 1996, p. 70). Hence, much like de Certeau's tactics described above, the knowledge users acquire while navigating a panoptic, commanding infrastructure is more flexible, acquired through experience and sharing. Specifically, discussing wheelchair users in public transport, it is not far-fetched to insist that those who have experienced the barriers

within the network are better placed to speak of the problems that they face. They are, therefore, experts in their experience. Arguably more so than able-bodied engineers involved in the design process, or policy makers who approved the implementation of the network. This contrast is going to be discussed in further detail in reference to the lay/expert knowledge literature in Chapter 8 (see section 1, p. 219).

Some authors have discussed the lay/expert knowledge divide within the context of political activism. This is a relevant literature to review, given the work done by the charity Transport for All in the field of accessibility in public transport in London. This organisation has campaigned extensively since its inception for improvements to accessibility for elderly and disabled passengers across London, their biggest recent action being the Crossrail project (that will be discussed in Chapter 4, see section 1.F, p. 80). It is in Steven Epstein's research that we find work on the importance of social activism and its intersection with lay expertise (Epstein, 1995). This author argues that for lay stakeholders to be included in the decision-making and policy-writing process, they must acquire sufficient legitimate knowledge to be held as credible in the eyes of experts. In his case-study of AIDS activists, Epstein describes the self-taught nature of the expertise acquired by these activists to integrate the world of biomedical research and change a series of policies regarding clinical trials. Importantly, these AIDS activists had substantive impact "both in the epistemic practices of biomedical research and in the therapeutic techniques of medical care" (Epstein, 1995, p. 409). In other words, they changed the way medical research was done.

Expanding upon his 1995 article, Epstein discussed how biomedical research policy was enlarged in the 1980s-90s to include women's and minority groups' health concerns (Epstein, 2007). There, his work combined STS theory with the literature on social movements, discussing the key role played by social activists in these policy changes. A parallel can be drawn in this thesis with the disability rights movement, that also aligns itself with what is called the New Social Movements (NSMs) of the 1960s-80s. Descriptions of NSMs define them as being less materially-inclined (less focus on economic distribution, for example), but rather emphasise personal, civil rights and lifestyles (Buechler, 1995; Offe, 1985; Pichardo, 1997). Aligning themselves with these NSMs, the disability rights movement legitimatises its own cause and demands. Much of the work undertaken by

these NSMs in Epstein's work is dependent on efficacious mobilisation of lay knowledge, reframing and legitimising it within the context of policy-making.

Similarly, a new concept called *evidence-based activism* has been created to describe the shift in strategies used by patients' organisations engaging with health issues, shifting from a focus on patients' rights to direct engagement with policy-makers and health experts (Rabeharisoa et al., 2013). These authors argue that these new patients' organisations collect, formalise and circulate their members' experiences as "a legitimate body of 'experiential knowledge' […or] 'experts of experience'" (*idem*, p. 4). These organisations gather groups of represented people and, in the same move, legitimise themselves as representatives who bring their concerns to light. In collecting and collating their members' knowledge within this new legitimacy, they affect an epistemic transformation of this knowledge, and raise the social status of the people they represent. In a recent summer school run by STS Italia, Vololona Rabeharisoa raised the point that the type of action done by these patients' organisations is to turn personal experience into *collective concern* through the process of legitimation of lay knowledge (Rabeharisoa, 2015). As such, they use this collected lay knowledge, now legitimised, to engage with decision-makers and credentialed experts to reframe issues, question previously accepted definitions (in these authors' cases, of diseases), and ask new questions. They make lay expertise politically relevant, and bring back knowledge from credentialed experts, including information on statutory rights. This literature becomes relevant when partnered with Epstein's work, and will be particularly useful in Chapter 7.

In this section, I have shown that there is relevant literature on the topics of deviance and stigma that allow me to frame wheelchair users as excluded and marginalised users of transport given their struggles with *passing* in society due to stigma symbols. The sociological literature on the topic can provide interesting insights into how wheelchair users might cope with these visible markers of difference while navigating public transport in London. Partnering this sociological literature with STS research can add a level of depth to understanding how infrastructure, as instances of biopower and political strategies, can attempt to constrain its users into acting in certain ways. Nevertheless, users can also develop tactics of resistance,

acquired through lay knowledge that is in constant tension with the materialised expert knowledge that is embodied in infrastructure. Lastly, in discussing the literature of how lay knowledge can be mobilised and legitimised by activist groups, we can see potential entryways for groups such as Transport for All (TfA) into shaping the public transport network into a more accessible system. My work will therefore contribute to these various concepts on inclusion and how mechanisms for shaping infrastructures, investigating individual efforts (such as de Certeau's *tactics*) and collective endeavours (such as Rabeharisoa's *evidence-based activism*).

3. Building (sturdier, more accessible) bridges

Having gone through two sections of my literature review with few references to the remarkable research done by disability studies scholars seems unfair, considering my research is on the intersection of this field with science and technology studies. However, finding a way to justify my own work within STS required a lengthier demonstration of how the London transport system can be investigated through an STS lens, and how much work in our field has been circling similar topics of exclusion, subversion, and the social shaping of infrastructures. Having discussed the concept of exclusion, I will now turn to integrating notions from disability studies into my work. This section will focus first on an overview of disability studies and the concepts I have adopted from it. I shall then turn to showing the overlaps between disability studies and STS and how my research will further bridge the gap between these disciplines.

A. Disability models, studies, methods

Disability studies took off within the academic context sometime after the second World War. At a time when Europe's and the United States' youth was either not returning home, or returning with emotional and physical impairments, the disability rights movement began to take off as political parties fought for power.

Veterans' rights had already become an issue after the first World War–with increasing numbers of injured soldiers returning home, large expectations were placed upon governments to take care of their nation's 'wounded

warriors' (Woods et al., 2005). This meant an important movement of professionalisation of medicine during the interwar periods, which continued in the post-war world. In the United Kingdom, the creation of the National Health Services in 1945 resulted in their framing of injuries and impairments as something which required rehabilitation and cures. The joint result of a high number of injured and impaired veterans and the beginning of rehabilitative services done by doctors and nurses soon led to the institutionalisation of what today is called the *medical model of disability*, a model which individualised disability to a personal characteristic. As a consequence, disability was perceived as something to be 'dealt with' on an individual level, the act and weight of care being left to the family or person themselves if the medical profession was unable to 'fix the problem'. In this way, the absence of disabled people from social environments was normalised, reduced to the notion that a person was hindered by their impairments rather than social perceptions and expectations (Shakespeare, 2006).

The marked social stigma attached to disabled people soon brought about the rise of the disability rights movements. The 1940s-50s were marked by the founding of various disability charities in the United Kingdom (such as the Greater London Association of Disabled people in 1951), as well as the organisation of residential homes for disabled people. The latter provided an independent alternative to family homes or, as was often the case, mental institutions (Close 2011). Along with these movements came the reframing of the notion of disability as activists gave rise to the social model of disability. The social model's origins can be traced to the Union of the Physically Impaired Against Segregation (UPIAS), a disability rights organisation founded in 1972 by Paul Hunt with the aim to end the segregation of disabled people, thereby integrating them fully into society. In a discussion with a group for disabled people, the Disability Alliance, UPIAS proposed as 'fundamental principles to disability' the definition that "disability is a situation, caused by social conditions" (UPIAS & DA, 1975, p. 1), but that, importantly, "disability is something imposed on top of our impairments" (idem, p. 3). Hence, contrary to its predecessor, the social model of disability that emerged from these principles made a clear distinction between the concept of impairment on the one hand, and disability on the other. The former referred exclusively to a bodily reality

(such as lacking all, or part of a limb, or defective bodily mechanisms), whereas the latter was a social construction. In their words, disability is:

> the disadvantage or restriction of activity caused by a contemporary social organisation which takes no or little account of people who have physical impairments and thus excludes them from participation in the mainstream of social activities. (UPIAS, 1976)

The disability studies scholar, Mike Oliver, would then go on to coin the term social model of disability in 1981 (Thomas, 2004), where he captured the essence of UPIAS' principles:

> Hence disability, according to the social model, is all the things that impose restrictions on disabled people; ranging from individual prejudice to institutional discrimination, from inaccessible public buildings to unusable transport systems, from segregated education to excluding work arrangements, and so on. (Oliver, 1996, p. 33, quoted in Thomas, 2004, p. 24)[11]

This model was widely accepted by disability studies scholars in the UK, where the understanding of disability as a specifically social preoccupation quickly spread and became firmly embedded, in part due to its grass roots origins and political/activist utility (Goodley, 2014). The social model allowed scholar-activists to demonstrate the institutionalised character of the exclusion of disabled people, attributing it to social attitudes towards those with impairments (Oliver 1992, 1993, Barnes and Mercer 1997, Blume and Hiddinga 2010). With the social model, a new research methodology of emancipatory research was also proposed, requiring from researchers a stronger political commitment to challenge existing power relationships not only within their own research but also within academia and knowledge-production itself (this methodology is more thoroughly discussed in Chapter 3).

However, the clear distinction between impairment and disability, and subsequent focus on the latter, began to preoccupy critics of the social model. Tom Shakespeare, one of the UK's leading disability theorists, argues that despite its strengths, this model often discards the deeply personal aspect of living with an impairment. Indeed, he and other critics argue that this 'strong' social model "does not allow for the acknowledgement of the role played by impairment and illness in restricting activity" (Thomas, 2004, p. 25), lacking concern for embodiment and

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[11] One might note in this particular definition the lack of the word "impairment" which may, in part, be the reason for the strong criticisms that then followed.

disowning the power that disabled people have over themselves and their bodies (Crow 1996, Paterson and Hughes 1999, Shakespeare & Watson, 2001, Shakespeare, 2006). Alternative approaches, including one based on phenomenological theories, have since been proposed, attempting to bridge the gap between both medical and social models as it recognises the power social environments have on an individual without throwing out the personal experiences of disability and impairment. It should be noted that while the critiques towards the social model of disability are understandable, and the 'strong' model has indeed largely focused on the social aspect of disability rather than the physical embodiment of impairment, the origins of the model in UPIAS's founding documents do not ignore the bodily reality of impairment but describe disability as an additional layer "on top of our impairments", as pointed out above.

It is the political power of the social model of disability that is significant in this research, as will be discussed in Chapter 7 (see section 3, p. 208). As argued by Campbell and Beckett, the weight of the social model of disability is not only one of analytical significance, but also of political weight (Beckett and Campbell 2015). These authors argue that the social model functions as an oppositional device, functioning as a rallying call for the disability rights movement (which, as argued in the previous section, can be considered a New Social Movement, organised around identity and life-quality concerns). Indeed, as the authors argue, the social model describes the constraints experienced by disabled people as caused by the world that surrounds them, rather than by personal bodily constraints. As such, it "can be continually activated to relativise the present and therefore has practical import and impact in changing the present." (*idem*, p. 280). This model therefore plays an important role in the production of the disability rights' movement, and the authors argue that abandoning it would likely destabilise the movement. As such, the social model of disability is adopted in this research in order to politically align myself with the disability rights' movement. Special care will be taken to ensure that the vocabulary of the social model is therefore applied throughout this thesis, in order to differentiate the person with a physical impairment from the person who is disabled by an ableist, or even neoliberal-able environment.

The concept of neoliberal-able environments is owed to a more recent wave in disability studies that has drawn from critical approaches to the

social model of disability to inquire not only the types of barriers and attitudes faced by disabled people, but to question the origins of these barriers. Ableism studies, as it is often called, asks broad questions concerning social order and its impact on the lives of disabled people, shifting the concern from the question of impairment/disability to the relational structure between dis/ability: how, and why, are the boundaries between disabled and non-disabled drawn? This group of scholars distinguishes between the practices of disablism on the one hand and ableism on the other. Disablism is what has preoccupied scholars working with (or on) the social model – it is the segregation of disabled people, or of "less able" people (Wolbring, 2008). Ableism, it is argued, is a preference for ability or what Wolbring (2008) defines as a preference for certain "species-typical normative abilities" over other types of abilities, potentially resulting in policies that "[lead] to the focus on 'fixing' the person or preventing more of such people being born" (Wolbring, 2008, p. 253). These studies often draw on Marxian analyses, framing ableism within modern Western societies within a neoliberal capitalist structure. As such, McRuer (2010) argues that there exists an underwritten compulsory able-bodiedness in societies such as in the UK, where capitalist ideals of productivity and labour demand, and indeed feed off, adaptable, able-bodied workers. Goodley (2014) expands this idea to the concept of neoliberal-ableism, an incubator for ableist citizens: the ideal, smooth, able body is idealised, being that which allows integration into the labour force — and this is the body that is socially catered for (Goodley et al., 2012; Goodley, 2014). Consequently, as the neoliberal-able body is idealised that which opposes it, its antithesis, the disabled body, is vilified and pathologised (Campbell, 2008).

This literature provides an interesting insight in this thesis, as it is also framed by a specific socio-economic context in the UK. Since the economic recession of the early twenty-first century, government roles have been reduced in many countries. In the UK, this has translated into austerity policies, particularly cuts to public services and benefits. Indeed, as Goodley and co-authors point out (drawing from Wood, 2012), in times of austerity, disabled people are often the first in the line of government cuts[12].

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[12] Wood (2012) gives the number as being around £9 billion in welfare support, one third of disabled people having lost their Disability Living Allowance in the UK (cited in Goodley et al., 2014).

This, Goodley argues, is being translated through a "reworking of the ableist ideals of independence and autonomy" (Goodley, 2014, p. 33), possibly reinforcing both of those ideals as necessary capacities from neoliberal-able people, rendering those who are 'non-compliant' (that is to say, benefit-dependent) to those ideals as discardable[13]. Scholars argue that ableism is embedded into the very fabric of society, from our legal institutions (Campbell, 2001) to our communication technologies (Palmeri, 2006). My research draws from this scholarship to show that our infrastructures are no exception.

B. Enriching the STS/disability studies overlap

From its beginnings, disability studies had difficulties in finding its place within academia (Davis, 1999). Despite its exploration of identity and culture, it encountered resistance from other legitimised groups and fields when there were attempts of adding it to the curricula of cultural, social and historical studies. This is potentially connected to "the psychological distance most people put between themselves and disability" (Bérubé, 1997), or a fear that linking their own ethnical identities to disability would somehow diminish their claims, negatively equating "blackness" to "disability", for example. This is one of the reasons for which disability studies has often straddled multiple fields, a very familiar situation to those of us in STS.

I can, nevertheless, count on some intersections which have already occurred between disability studies and STS in recent years. For example, medical anthropologist Annemarie Mol published a book on the shapes and names an illness might take in different contexts and how it effects the perception of human bodies (Mol, 2002). In a similar vein, Stuart Blume has studied technologies surrounding disabilities and impairments, most famously the case of the cochlear implant and its acceptance or rejection by the Deaf community (Blume, 1997, 2009). Leaning more towards my particular research aims, Blume has also worked on the policies around vaccination (Blume & Rose, 2003), and there has also been work on the importance of 'official' stakeholder representation in the development process of a technology (van Kammen, 2003).

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[13] Some research is already showing the link between austerity policies and increasing mental stress, depression and even suicide. See Pring (2015) for example, and Liz Crow's beautiful activist art project, wearefigures.com.

These works explore interesting overlaps between medicine and society, or technology and cultural expectations. However, there has been little work concerning the investigation of the shaping of a technology (or system) by disabled people (in Blume's case, it was more an issue of acceptance or rejection). A better example of this would be Vasilis Galis' and Francis Lee's recent article on the attempts of disability groups to improve the transport system in Greece, yet here it was a story of failure and how it came about, not one to understand activist or individual tactics to face existing barriers (Galis & Lee, 2014).

There have also been some fascinating overlaps with STS on the part of disability studies, particularly by scholars working on *ableism studies* (discussed above). Their concern has been on the place that science and technology might take within ableist societies, particularly given the more recent rhetoric from *transhumanism* and research on *human enhancements* (prostheses, intelligence-boosting pills, etc). Scholars from the field propose we scrutinise more closely how technologies and medicine might redefine social conceptions of the body and "species-typical abilities" (Wolbring, 2008). Indeed, it is argued that scientific advances might cause even larger divides between abilities while still reproducing ableist rhetoric, thereby creating a class of "techno-poor disabled" (Campbell, 2008; Wolbring, 2008, p. 254)

Despite some of the overlaps between disability studies and STS, there seems to be a gap in attempts at understanding inclusion tactics in sociotechnical systems, particularly if these have already been consolidated. My research will attempt to fill this gap by bringing together previous STS literature on the social shaping of infrastructure through inclusion tactics (see sections 2 and 3) as well as the methodological and conceptual considerations brought in with disability studies (see section 3.A).

4. Conclusion

Designing buses so that wheelchair users can not only board them but feel secure whilst doing so requires designers to think about the various types of transport system users. Wheelchair users have different requirements than non-disabled users who have different needs from blind users, deaf users, or even users with suitcases, buggies, and babies or toddlers. This

process is anything but simple, and oversights are inevitable. Particularly when the constitution of the system began at a time when many of these groups were not considered as potential users of the London transport system (see Chapter 4).

If this was the case from the 1850s to the 1930s, it is no longer the case today. As I will argue throughout this thesis, wheelchair users are reacting towards this institutionalised and materialised exclusion. Newspapers have been reporting on the various debates, and even TfL has made attempts towards settling user disputes[14]. From this perspective, it comes as uncontroversial that I would take a political and ideological stance, standing with these excluded users and giving their voices priority in my research. In interviewing wheelchair users and investigating their tactics to embed their voices into the network, my goal is also to understand what type of barriers they face daily in the use of the transport system. Primarily, my research is framed by the field of infrastructure studies and the ways that it understands and defines these large systems, including the importance of standards within them (though, as will become clear, I do disagree with some of the more widely accepted concepts from this branch of STS). However, by studying infrastructure *from the perspective of* disabled people, novel insights can be made for other fields, both within STS and without, such as debates on expertise, studies in social movements, discussions on power and agency (and marginalisation), the strengthening multidisciplinary bridges between STS and disability studies.

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[14] See for example the recent accessibility campaign, "Buggy users, please make space for wheelchair users." More details can be found on TfL's website (TfL, 2012).

Chapter 3: Whose voices are heard?

Methodological approaches and methods to research marginalised groups

"How do wheelchair users use public transport in London?" The thesis' guiding question aims to develop an account of experience of public transport from the perspective of specific actors: wheelchair users. As such, I believed it to be of central importance to place the voices of these actors at the forefront of my research, prizing them as experts of their own experience. The work in this thesis is the result of extensive qualitative research in the shape of interpretative analysis of source material collected during fieldwork, which consisted of thirty-four loosely structured qualitative interviews, three instances of observations, and a large quantity of documentation. This chapter is dedicated to the methodological choices and methods for data collection of my research, beginning with discussing my methodological influences, drawn from emancipatory/action research. In a second section, the process of data collection is discussed, including the choice for semi-structured interviews as the primary source material, partnered with some observations when the opportunity arose, and documentary sources for contextual framing.

1. Methodological inspiration and political openness

Action research has been a primary influence in this thesis' methodology, taken here to be a broad, umbrella term for approaches to research that embed not only a research question but also a call to action (Yin, 2015, p. 214). It often comes under scrutiny due to the researcher's personal political engagement with the topic at hand, their subjectivity bleeding into the interpretation of the data collected. Scholars of the postmodern turn in the social sciences have emphasised this point many times over, arguing that the concept of subjectivity itself is moot given objectivity is an idealised goal, loaded with a history of erasure of others beyond the white male gaze (Haraway, 1996). Given this discussion, I argue that if there is epistemic honesty and openness regarding my personal methodological and political alignment throughout the research, I can allow the reflexivity required to

ensure scholarly rigour as well as give readers the opportunity to engage with my work on both academic and political levels.

My interesting in and fascination with action research came in two waves: the first was my personal familiarity with the work of Orlando Fals-Borda and Paulo Freire, both Latin American authors engaged in postcolonial studies of various types (the former in rural sociology in Colombia, and the latter in pedagogy in Brazil). Both authors have developed analyses of institutions of power and the resulting relations with the "oppressed" or the "silenced". In Pedagogy of the Oppressed, Freire argues for the development of praxis, or "reflection and action directed at the structures to be transformed" (Freire, 2000 [1968], Chapter 4). Similarly, Fals Borda develops the concept of participatory action research, a call to break down the ivory towers of academia, demonopolise science, and "advance people's struggles for power and justice" (Fals Borda, 1996, p. 179). He argues that participatory action research "endeavours to understand, tolerate, and respect different genders, cultures, and races and to heed the voice of Others." (*idem*, p. 180)

The second push towards action research was more decisive, and was partially discussed in the literature review in Chapter 2 concerning the birth of the field of disability studies in the 1960s (see p. 43). As the social model of disability began to garner support, concern for the type of research being done on the topic of disability in general began to grow. Disabled people had little to gain in participating in research, their needs and struggles often going unheard and recognition of their personhood being reduced to disabled. Particularly, disabled scholars worried about the reproduction of power relations within research (Oliver & Barnes, 2006). Mike Oliver therefore called for the development of emancipatory research on the topic of disability in order to "illuminate the lived experiences of progressive social groups, it must also be illuminated by their struggles" (Oliver, 1992, p. 107). Oliver's emancipatory research prizes recognition of participants in research as more than fragments but as individuals with knowledge and experience.

Bringing together postcolonial and disability studies methodologies, I have therefore been particularly inspired by emancipatory/action research approaches. Firstly, as a Latin American, I empathised with disability studies as a field, seeing in it many of the same themes of oppression as

Latin Americans' struggles to decolonise knowledge. Furthermore, as my research on disability and infrastructure developed, I became fretful of reproducing power relations within my own research, particularly as a non-disabled woman. Being inspired by disability studies scholars allowed me to gain confidence in my approach, as well as providing guidance in ensuring my credibility with interviewees to earn their trust in my research. As a result, the guiding question of this research was also owes to this methodology, particularly as outlined by Oliver (1992): it focuses on describing experiences, while re-defining the "problem" (rather than asking why some wheelchair users do not use public transport, it asks how those who do, do it). It also challenges previous research paradigms, particularly work on infrastructure (as discussed in section 1.C of the literature review, p. 19). Lastly, my work acknowledges the disability rights movement's impact, as will be evidenced in the next chapter on the history of public transport, and provides an overview of services established by and for the disabled community in London (this will be seen in chapter 7's discussion of the work undertaken by Transport for All and others, see section 1.C, p. 189).

With a guiding question concerning actors' experiences and narratives of public transport and how they use it, it seemed clear that the best source material would originate from the users themselves. As such, a qualitative approach to methods was chosen as, through interpretation, it is "concerned with understanding the meanings which people attach to phenomena within their social worlds" (Ritchie & Lewis, 2003, p. 3). Consequently, loosely structured interviews were chosen as the primary source for data, which also follows this research's methodological alignment to allow the voice of interviewees to be heard throughout the thesis. Consequently, all empirical chapters use interview excerpts and quotations extensively to ensure their experiences are read by readers, and not only as described by me, an "interpreter" (indeed, even the titles of empirical chapters are taken from interview quotes). Where the opportunity arose through invitations by interviewees, I also scheduled observations in different environments for additional primary data. Documentary sources were also invaluable data in this research in the shape of legislation, parliamentary committee reports, publicly available documents from transport providers, as well as blogs, websites and social media platforms. The next section will provide further details on the collection of this data.

2. Methods

The primary source of data for this thesis was a series of loosely structure interviews with actors concerned with accessibility to public transport in London. Further data was collected in three observation moments, along with collection of extensive documentary sources. In this section, I will detail the process behind the data collection of each of these data sources. Analysis of the data will be discussed in the following section.

A. Interviews

Before entering the field to collect empirical data, it was thought that a clear distinction between two case studies would have been beneficial to answering the thesis' guiding question: "How do wheelchair users use public transport in London?" The first case study would have concentrated on individual actions by interviewing wheelchair users who have undergone wheelchair skills training courses, sessions in which they are coached in using new techniques with their wheelchairs. The second case study would have focused on institutional changes to infrastructure. To do so, it would focus on the case of Transport for All's campaign to make all Crossrail stations accessible. However, once recruitment began for the case studies, I was confronted with many concerns regarding the questions that these interviews may in fact be answering, as well as the voices that might be left unheard. For example, of primary concern in the first case study was the availability of wheelchair skills training. As it is offered by few charities, they are often developed for particular disabilities or demographics. Back Up Trust, on the one hand, will offer it primarily (though not exclusively) to patients with traumatic spinal cord injuries, often paired with rehabilitation services. Whizz-Kidz, meanwhile, will offer it to children which would then cause additional ethical concerns in their recruitment to research, as well as raise general questions regarding their independence of movement on a day-to-day basis. Another concern was that this approach imposed specific categories for types of engagement wheelchair users may have with public transport, labelling them either as an "individual strategist" or as a "political campaigner" and allowing little space for these boundaries to blur. As a result, a more holistic approach was taken to interviewees where, rather than assuming wheelchair users' engagement with public transport was

individual or political, the line of questioning could be looser and about each one's general experiences of public transport.

In the end, a total of thirty-four people were interviewed, the majority of whom were wheelchair users (further details are given in the section on recruitment below). Interviews can be described in a variety of ways, from the rigidly structured formats with precise questions that allow for little digression, to unstructured interviews that follow broad themes during a conversation (Ritchie & Lewis, 2003). The interviews in this research fall somewhere in between, in what is generally called semistructured or semistandardised interviews (Berg, 2001). I have opted to call them loosely structured as interview schedules consisted in a large part of themes, rather than questions, and no scheduled probes were produced (the thematic structure of interviews with wheelchair users and policy makers is discussed in Appendix 6). Semistructured interviews were opted specifically for their flexibility, as two concerns were apparent. First, the possibility that speaking of negative experiences on public transport could bring to light painful memories for interviewees, which require tactful, unscheduled probing, or an easy way of stopping the interview at any moment. Secondly, given the broad range of disabilities that might require the use of a wheelchair for mobility purposes, experiences might be divergent and require different probes. The only point of the interviews that were strictly scheduled were for wheelchair users, where the same final three questions were asked so as to produce some comparable answers (these questions can be found at the end of the thematic structure in Appendix 6). Before beginning my recruitment process, which is detailed in the next section, I secured ethical approval for my research under the 'minimal risk' category (see Appendix 1 for ethical approval form).

I.   Recruitment

A combination of purposive and snowball sampling methods were used in the recruitment process for interviewees. Given the qualitative and demographically specific (wheelchair users who use public transport) nature of this research, purposive sampling is an approach that allows one's previous experience of the field to inform the recruitment process (Berg, 2001). With the experience of recruiting a similar demographic for my Master's dissertation, I therefore opted for a broad range of methods to reach as large a group of wheelchair users as possible, including a diverse

range of gender, age, impairment/ability, employment status and type of wheelchair use. As a result, over forty-seven emails were sent to charities, local authorities, disabled sports teams, gyms that offer disabled facilities (a generic sample of the email sent to these organisations can be found in Appendix 2).

Many organisations responded that they would forward my information to interested parties, fewer posted a call for volunteers on their websites, Facebook or Twitter feeds, and one (Stroke Association) permitted me to post a call myself on their online forum. Inspired by charities' use of social media, I decided to post calls for volunteers on my own feeds (both Facebook and Twitter), through the use of a poster (see Appendix 3). Facebook proved to be limited given personal privacy settings and my network's international nature (less geographical specificity). Twitter, however, was fruitful. The recruitment poster was tweeted by my personal account (@RSVelho) sixteen times between May 14 and August 4 2015, being retweeted 237 times by a variety of individual and organisational accounts. To garner attention, hashtags such as #accessibility, #a11y (a short version of accessibility), and #a11yLDN (accessibility London) were used, as well as requesting retweets from well-followed accounts like Disability Rights UK (@DisRightsUK), DisabledGo (@DisabledGo), and the Disabled Living Foundation (@DFLUK).

While there has been some concern of possibly skewed representation on social media (Twitter in particular) as a self-selecting sample joined by common themes (Gerlitz & Rieder, 2013), it was not the primary tool of recruitment. These concerns can be offset by the volume of emails sent to other organisations discussed above, as well as additional snowball sampling where interviewees refer the researcher to additional persons to interview (Yin, 2015). This is, to some extent, what is done through retweets (there were some cases of individuals retweeting and mentioning specific Twitter handles in the process), but also occurred twice post-interviews. Furthermore, there were cases of targeted sampling where emails were sent directly to interviewees of interest such as Baroness Sal Brinton, whose negative experience of public transport was widely publicised in the media (questions on anonymity will be discussed below).

Interested parties would predominantly contact me through email. I continued contact with a request for an interview, proposing to meet them

at a place that would suit them, being aware of possible complications concerning transport and accessibility. Some interviews occurred on UCL campus, where I ensured that the rooms booked were entirely wheelchair accessible. I also met interviewees at locations they knew were accessible to them, including local cafés, their place of work, or their homes. In cases where meeting in person was not possible, I offered the option of having the interview over Skype or on the phone to facilitate contact. This flexible approach to the place of interview ensured wheelchair users' comfort and minimised possible stress in voluntarily participating in research, particularly given concerns with accessibility in public transport. The recruitment process continued until themes surfacing from interviews were recurring, and no further analytic insights were being brought forward (see further discussion below concerning analysis). In the next section, I will discuss the result of recruitment efforts and the interview process.

II. Interview process

The number of interviewees totalled thirty-four, of which twenty-seven were wheelchair users. Among the non-wheelchair users, one was an engineer with experience in public transport (a man), two were policy advisers (one man, one woman), two worked in accessibility at a London transport provider (both men), and two were partners of wheelchair users (one man, one woman) who accompanied them to and participated in the interview. The choice for interviewing non-wheelchair users was done through convenience sampling and largely due to a network of personal contacts in engineering and policy-making who had free time to speak about their experiences in the industry. It was thought that they could bring some insight into the changes that transport infrastructure may have experienced in the past twenty years, and the reasons for that change. The gender breakdown (table 1) as well as age categories (table 2) can be found below. Among the twenty-seven wheelchair users, there was a variety in the type of wheelchair used: electrical power chairs, manual wheelchairs, and power-assisted chairs, and in some cases the interviewees mentioned having more than one type. As such, a table representation of wheelchair type is difficult to make. To facilitate the reader in navigating the various interviewees, a complete table with further information on all individuals interviewed (listed alphabetically by chosen pseudonym) has been created

(additional information includes, for example, age, wheelchair use [if applicable] and impairment [if disclosed; see appendix 11]).

Some consideration must be given to the ethical and practical aspects of the interview process. Once a date and location were agreed for an interview, I sent the interviewee a reminder and confirmation email 24-48 hours before. To it were attached a complete information sheet and the consent form so that they could read it at their leisure rather than feeling rushed at our meeting. This was also done with an intention of care and concern for the interviewee, whose impairment(s) may also impact vision, or reading under duress. Interviewees were also informed that I would be taking copies of these to be signed the next day, if they consented, so that they did not feel obliged to print out the documents (information sheet and consent forms can be found in Appendices 4 and 5). If the interviews were being held over Skype or on the phone, the consent forms were signed, scanned, and sent back over email before the interview took place.

Gender	Interviewees (wheelchair users)	Interviewees (non-wheelchair users)
Woman	15	2
Man	11	5
Other (gender-fluid)	1	

Table 1: Gender breakdown of interviewees.

Two different consent forms were produced: one for the majority of interviewees, and a second one for interviewees who were involved with policy-making or the transport industry. The difference between them is due to levels of anonymity where it was felt that in cases where their professions intersect with public transport, either on an industry, charity, or on a governmental level, they may be more easily identified or may even wish to waive anonymity to voice their concerns openly. As a result, three levels of anonymity were proposed to them: full anonymity (pseudonym of their choice, vague reference to their involvement with the industry), partial anonymity (pseudonym of their choice, but direct reference to the company or government sector at which they worked), or full disclosure. Baroness Sal Brinton is an example of someone who chose the latter, whereas a former government official chose the first (he also chose this way of being referred to, rather than a pseudonym). For other interviewees, full anonymity was given, to be paired with a pseudonym of their choice.

Interestingly, there were two cases where interviewees chose their own names as a pseudonym, which gave me pause in considering questions of confidentiality. Indeed, there has been some research discussing that "a research participant might want to receive recognition for some or all of what he or she contributes" (Kaiser, 2009, p. 1638). Given that other interviewees were afforded the choice of level of anonymity, it was concluded that the same respect for autonomous decisions should be given to other participants. This was particularly the case given methodological alignments discussed above. Consequently, I clarified their confidentiality choices with the interviewees and, as Giordano and colleagues (2007) recommend, discussed that the use of their interview data may not always be what they envision. They still chose to use their own names and identify themselves; this choice has been respected.

Age	Interviewees (wheelchair users)	Interviewees (non-wheelchair users)
18-30	7	0
31-45	11	5
46-60	8	2
60 +	1	0

Table 2: Age breakdown of interviewees.

Given the thesis' guiding question's aim of investigating the ways in which wheelchair users interact with public transport in London, it was important to concentrate on personal narrative throughout the interviews. As a result, questions and probes placed emphasis on experience and stories, asking if they can recall particular examples of how they travel, or whether they could describe an average journey (thematic structure can be found in Appendix 6).

All interviews were tape-recorded with the shortest one lasting twenty-five minutes and the longest lasting two hours. Interviews were then transcribed in their entirety by me, resulting in nearly 274,000 words. Transcripts were sent to interviewees for revision (a sample of an interview transcript can be found in Appendix 9). There is little evidence that allowing interviewees to revise their interview transcripts adds any particular accuracy to data collection, but it does allow for clarification or even addition of information that might not otherwise have been collected. Furthermore, this practice allows participants a further right in their research involvement by editing or

striking from the record things they said at the interview that they feel uncomfortable about having quoted. Given the personal nature of some stories, and the choice of waiving anonymity, it was felt that this additional step of transcript revision was an ethically sound process (Hagens et al., 2009). The revision period was of four weeks, during which interviewees could also completely withdraw their participation from the research. There were no withdrawals.

An email to thank participants for their time was sent the day after the interview took place. It included details concerning the transcript revision; the four-week timer would only begin when they received the transcript. Three days before the deadline, a reminder email was sent, followed by an email on the last day, thanking them again for their collaboration and informing them of next steps. All participants were informed of my Twitter handle, where updates on the process of my doctoral work were posted regularly. A summary of this thesis will also be produced, to be shared with collaborators, interviewees as well as charities that helped in the recruitment process. While little personal contact was maintained with each individual interviewee, I believe this additional effort of general engagement and openness of research progression is an integral part of my political engagement with this research.

B.   Observations

As mentioned in the introduction, some observations were done when the opportunity arose for them. There were three instances of such opportunities, all of them the result of engagement with interviewees and charities during recruitment. The combined observation notes resulted in nearly 10,000 words. These notes are used in the thesis as supplementary data, often supporting interviewees' quotes or as illustration of analyses.

The first instance of observation was a three-hour "Disability Roadshow" organised by Marie, an interviewee, located at the garage of a transport provider. Disability charities were invited to come to the garage's cafeteria to engage with employees about their accessibility requirements and concerns. The aim, according to Marie, was to show the employees the "human experience", personalise it, rather than receiving email reminders about the company policies regarding accessibility. She invited me to the event where my initial intention was to be an invisible researcher. However, as Marie introduced me to other people present, it became apparent that I

would be a participant-observer as my research topic of accessibility was revealed to other people present (Stoddart, 1986). As a result, the opportunity was used jointly as observation of the relationships forged between the charities and the employees of the transport provider, as well as an opportunity for recruitment for interviewees.

The second observation was spending an afternoon travelling around London with Alan. Towards the end of our interview, Alan asked if I had had the chance to see what wheelchair users might experience while travelling with my own eyes. As I had not, he offered to take me on a trip, using a variety of modes of transport in London, with him and his partner. We met at Richmond station in west London and spent the next three hours using trains, buses and the Underground, as he discussed why he made particular choices when travelling. It was a joint experience of observation and impromptu interviewing.

The last opportunity was a wheelchair skills training session organised by a disability charity (all specific details are anonymised for ethical reasons). This was a case of being an invisible researcher, as I sat on a chair in the corner of the gym for the three hours of training, taking extensive notes on the process of learning new wheelchair skills.

C.   Documentary collection

The third source of data used in this thesis was a collection of documents gathered over the course of doctoral work. This archive is constituted of a large variety of origins, their common feature being that they are all publicly available. The vast majority of these documents were found online, collected through a range of websites and digital archives. They were mostly used in providing contextual information, particularly concerning the legislative rights of disabled people or in the ways that institutions self-define their roles and responsibilities. As such, they serve as both *resource* and *topic*, a distinction made by Pollner and Zimmerman (1970). As a *resource*, these documents provide information about the subject but, in being a production of a stakeholder group, they are also a *topic of investigation*, as they present and re-present particular interests and definitions. Documents collected can be described as falling in either of two categories, either official documentary records, or commercial media accounts, each discussed below.

The bulk of this documentation is official documentary records, or documents "originally produced for some special limited audiences, even if they eventually find their way into the public domain" (Berg, 2001, p. 194). This collection was mostly produced by the English Government and its departments and committees. Examples are acts of parliament pertaining to the rights of disabled people such as the Disability Discrimination Act 1995 (DDA95), and the Equality Act 2010 (EA10). Select Committee inquiries from both Houses of Parliament were also used, such as the House of Commons Select Committee on Transport's inquiry into "Access to transport for disabled people", or the House of Lords Equality Act 2010 and Disability Committee's report. Other example of official records include strategy and implementation frameworks published by the Mayor of London's office, a collection of publications by the Department for Transport (DfT), papers and assessments concerning the construction of Crossrail, and some internal-facing documents produced by Transport for London (TfL) for its employees (like the guide for bus drivers, the Big Red Book). In total, there were over 60 official documents collected.

Other documents are commercial media accounts, or "material produced for general or mass consumption" (Berg, 2001, p. 191). These include newspaper articles on disabled people's access to transport, including particular cases of law suits against transport providers (such as the Doug Paulley case, amply publicised). Other examples are public-facing websites, such as TfL's main website and its various subpages on accessibility and transport, as well as its media-facing press office subsection. The website of the charity Transport for All was also captured, particularly the pages where it describes the services it provides, and its news and blog subsections. Furthermore, with Alan's permission, his blog *Never a Dull Journey* was also used as a source. The quantification of this data is harder, as some websites were consulted online rather than being captured and imported into the data analysis software (particularly blog posts and news websites). It can be estimated to have totalled nearly one hundred press clippings, news articles, blog posts, and website subsections.

3. Analysis

While the narratives used in this research originated from wheelchair users, my position as researcher is one that requires a thorough systematic analysis of the data collected throughout the project. As such, I am placed in the role of interpreter, developing an interpretative qualitative analysis of the data collected during fieldwork. The CAQDAS software NVivo was used to facilitate the process and was used as a catalogue of research materials and to aid with the coding process, based on a thematic content analysis approach (Smith, 1992). Coding was a useful tool in this project as it permitted the labelling and disassembling of the research material into categories, and the progressive reassembling of categories into larger thematic groups (Yin, 2015). Following this approach, the analytic work of this thesis can be recognised as *grounded theory*, "which involves the generation of analytical categories and their dimensions, and the identification of relationships between them" (Ritchie & Lewis, 2003, p. 201).

As interviews were transcribed and added into the NVivo software, a first reading and elementary coding took place, slowly compiling small categories and themes (Saldaña, 2015 [2009]). This initial phase reflected a more grounded theory approach to coding, and as subsequent interviews took place and no new codes were being developed as a result of preliminary readings, it was deemed that a saturation point had been reached and data collection was finalised. Then began a second phase of coding, this time in tandem with the writing process. As chapters 5 through 8 were written, a new engagement with the data was required, using the initial codes and memos[15] as guidance to develop thematic and theoretical insights. This new phase in coding was therefore informed by the guiding question and subquestions of this research, which has informed the structure of the thesis as a whole. It draws from a more structured approach to coding than grounded theory, but is important to ensure that the initial research questions are addressed as they had a role in shaping the interviews' thematic structures (Guest et al., 2012). A selection of themes and codes can be found in Appendix 7, and a sample of a coded interview can be found in Appendix 10.

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[15] Saldaña (2015 [2009]) recommends memo writing as a way of keeping track of initial ideas that may later develop into an important insight.

In conclusion, the investigation into the experiences and practices of wheelchair users using the public transport system in London was based on empirical data, the corpus of which was a combination of loosely structured interviews (n=34), observation opportunities (n=3) and documentary sources (both official and commercial). Through a first grounded approach to coding followed by a second structured revision and reassembly of codes, a thematic structure on the topics of using, subverting and shaping public transport emerged, empirically based on the narratives of wheelchair users, but interpreted and analysed by me. This method was largely inspired by emancipatory/action research, and as such, extensive use of interview quotes will be present throughout the empirical chapters, hoping that in doing so, the voices of my collaborators are present within the thesis. Chapters 5 through 8 are the result of fascinating conversations and rich empirical work, and will discuss the themes emerged from the data corpus.

PART 1: EXCLUSION

Chapter 4: "[I]t is a Victorian network and obviously, back then, people with disabilities weren't really considered important."

Intersected histories of public transport in London and disabled people in British society

In 2013, Transport for London celebrated the anniversary of the London Underground, commemorating 150 years of the subterranean railway with a series of trips on original steam locomotives and the first electric trains on the tracks (TfL, 2013a). Public transport in London is one the city's emblems; the city's tourist shops are abound with magnetic Transport for London roundels with 'Mind the Gap', 'London Underground', or station names in blue block letters and cheap models of bright red double-decker buses. The history of buses in London is even longer than the Underground's and, somewhat arbitrarily, 2014 was dubbed "the Year of the Bus" with a special bus parade (TfL, 2014e). However, the history of *accessibility* in these modes of transport is a much shorter one.

The aim of this chapter is therefore to provide an outline of the history of public transport in the city of London and to intersect it with the broader history of the perception of disabled people in British society. Interestingly, the intersection between these two histories, or lack thereof, was often discussed by interviewees themselves. Carl, for example, provided me with the title for this chapter, and he was not alone in referring to public transport's long history in London, and the general historical lack of concern for disabled people's access requirements. In the following sections, I will therefore contextualise this historical argument often made by interviewees: the infrastructure has barriers to access because it is old and, specifically, because it is Victorian. In the first section of the chapter, I provide an abridged history of public transport in London, starting with the first horse-drawn omnibuses up to more recent developments such as the Crossrail. Given that the majority of interviewees primarily discuss their experiences with buses, trains and the Underground, I will focus on the history of these modes of transport, leaving other modes (such as water transport) aside. Then, I turn to an analysis of the history of disability and disabled people in

England, particularly the positions within society they have been made to occupy in the past centuries. In the last section, I intersect these two histories, using the latter to contextualise the (recent) provision of accessibility for disabled people in London.

I do not claim to develop any novel insights either into the history of public transport nor into the history of disabled people, having drawn exclusively on secondary sources to write this chapter. For the history of transport in London, I draw primarily from Barker and Robbins (1963, 1975), Garbutt (1985), Halliday (2001), Wolmar (2004), Taylor (2012 [2009]) and Martin (2012). For the section on disability and impairment, I use the works of prominent disability studies scholars who have established a broadly accepted history and analysis of the place of disabled people in British society, from the industrial era to today (Barnes, 1991, 1996; Finkelstein, 1981; among others). However, I have not come across any scholarly work that proposes to do the integrated histories of transport and disability. Having done so here, some novel insights into accessibility and infrastructure can be made. As we will see in the final section of this chapter, by looking at public transport in London from the (historical) perspective of disabled people, the reasons for such deeply embedded barriers to access begin to crystallise. I will argue that because public transport developed in London at a time when wheelchair users, and disabled people more generally, were socially segregated and not expected to participate in "productive" roles within society (i.e. work in factories), their access requirements were not taken into consideration in the process of technological development of the infrastructure.

1. A (summarised) history of public transport in London

A. The early days of passenger transport in London (1830s-1880s)

The history of public transport in London is one of intense political and technical complexity. It is also about the growth of the middle classes and the intensification of the divide between the public and the private spheres. The aim of this section is not to provide detailed information of the era, but rather to provide a feeling for the moment in which the *impulse* for public transport was at its peak in London, then leading to its provision in a variety of modes.

Every source I have encountered detailing the history of London transport begins by painting an image of the Victorian era: it was a time of significant population changes. Indeed, Britain was among the first countries to experience the demographic transition (an increase in fertility rates and a decrease in mortality rates) as well as the Industrial Revolution. These factors provoked two types of population changes in the United Kingdom: firstly, a qualitative change as the population became increasingly urbanised and, secondly, a quantitative boom as the number of inhabitants more than doubled in less than a century. Census data estimates that the population of England was of 8.3 million in 1801 and 16.8 million by 1851 (Wrigley et al., 1989, p. 588). In London, for the same years, the population went from 0.9 million in 1801 to 2.3 million by 1851 (Halliday, 2001), meaning 13.7% of England's population called London home[16]. The middle classes experienced a particularly significant increase in numbers, in large part thanks to the industrialisation of manufacturing. For London, this meant the beginning of the sprawl towards the North and North-West of the city, and well beyond its walls (Barker & Robbins, 1963). The consequence of the sprawl was the need for transport, as the distance between the public and private spheres (work and home) began to grow for these middling classes.

The expansion of London's geographical boundaries was exacerbated as industry continued to develop and more residential areas were earmarked as business sites. This is famously the case of the City of London, still the city's financial heart today, where the population decreased rapidly between the 1830s and 1850s. Meanwhile, overcrowding became problematic as displaced inhabitants moved into the next neighbourhoods. St Giles, for example, just east of the City, was reported in 1836 as having "260 houses with an average of 20 people in each" (Barker & Robbins, 1963, p. xxvii). Whereas the middle classes started relocating out of the city, towards richer outer suburbs, the city's poorer population (mainly workers in local markets and clothing and manufacturing industries) crowded within the city.

London was also becoming an attractive destination, for business and pleasure. The invention of the steam engine revolutionised transport in the Victorian era, both for freight and passengers. London, as the financial and

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[16] This ratio has increased since then. The most recent census from 2011 indicates that around 15.5% of England's population live in London (Office for National Statistics, 2016).

industrial centre of the British Empire was among the first to be infected by the steam bug: between 1836 and 1852, five railway termini for long-distance travels opened. These, combined with the construction of hotels and the establishment of museums and galleries allowed for an increase in the number of tourists visiting the city (partnered with the boom of the affluent middle class which could now afford to travel from other towns to the city).

Horse-drawn omnibuses also revolutionised communal transportation, bypassing the requirement to book in advance for a carriage. The omnibuses were brought to London in 1829 by George Shilibeer, after a stint in Paris. His omnibuses would pick up passengers by the side of the road (officially, up to fifteen people), in advertised locations, and do so at precise times. His first route followed the New Road (today known as Euston Road), from Paddington to Bank, avoiding the streets of central London where hackney carriages (the original London taxi) held a monopoly. A proven success, the number of omnibus operators increased and called for the monopoly to be lifted in 1831 in order to reach other destinations. Operators continued to proliferate, resulting in a large merger in 1855 under the name London General Omnibus Company (LGOC). By 1858, LGOC operated 63 routes with almost 600 vehicles but even with this increase in numbers omnibuses were unable to handle passenger traffic alone.

In the early 1820s, London already experienced heavy traffic; the increase in population and inflow of tourists of the time filled London's streets to the brim. Streets were filled with personal carriages, hackney carriages, wagons and carts, and the new omnibuses. It came to the point that a trip from Brighton to London Bridge would be quicker (and more pleasant) than crossing the city from London Bridge to Paddington. By 1855, it became obvious that the situation needed to be remedied: Parliament held a Select Committee on Metropolitan Communications to provide recommendations, resulting in the establishment of the Metropolitan Board of Works (MBW) in 1855. This new authority, funded by property taxes, became responsible for infrastructural improvement of all types within London, from sewers to streets to parks.

MBW quickly started working towards linking London's railway termini with one another and the financial centre, the City, in order to relieve

congestion. Among the many proposals made to link these termini, some suggested subterranean means. Transport enthusiast and author, Andrew Martin, writes that these proposals were unsurprising even at the time as, according to him, "Victorians were moles." (Martin, 2012, p. 24)[17]. There were two strong arguments in favour for underground railways. The first, legal–railways were prohibited within central London. The second was financial–the cost of property in central London was (already) high and contractors would have to acquire and demolish in order to build a surface railway. However, by laying underground tracks, contractors could develop routes that followed public roads and open spaces as much as possible to keep costs low (though they would also have to acquire buildings under which they burrowed).

Here enters an important figure for the construction of the Underground: Charles Pearson, a lawyer and the Solicitor to the Corporation of London[18]. Pearson had already recognised the problems with traffic in London and seen that it affected the poor disproportionately, stating at a Parliamentary Commission on Railway Termini in 1846 that, "A poor man is chained to the spot. He has not leisure to walk and he has not money to ride to a distance from his work." In 1852, Pearson had proposed the construction of the Arcade Railway; but the very nature of the project was resisted and described as "burrowing into the infernal regions and thereby disturbing the devil" (Dr. Cumings, cited in Halliday, 2001, p. 1). The public also resisted to being treated "like parcels, hurtled through the dark, packed tight against faces blank as stamps" (Ashford, 2013, p. 23). Ignoring criticisms, Pearson and others proposed a series of projects with the collaboration of John Fowler, a consulting engineer. Their project was approved in 1858, followed by a period of raising capital, resulting in a public-private partnership between the Corporation of London and railway companies, such as Great Western (Martin, 2012; Wolmar, 2004).

In Spring 1860, the Metropolitan Railway finally began to be built, using a cut and cover method where a trench is dug into the road, the tracks are laid and the road is rebuilt over it. The line followed a 3.5 mile extent of the New Road, starting in west London at Bishop's Road and stopping at five

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[17] Martin is referring here to the Victorians' experience with tunnelling, particularly with the construction of railways. According to him, more than fifty tunnels of over a mile were built in the nineteenth century in England.

[18] Today's equivalent would be the Greater London Authority.

other stations before reaching its east terminus in Farringdon Street. Despite some months' delay and a series of complications[19], the line was finally inaugurated on January 9, 1863. Charles Pearson, its great defender, had passed away four months before, "late enough, at least, to know that the line would become a reality" (Wolmar, 2004, p. 40). One of his legacies was the implementation of cheap workmen's trains that allowed commuting to become a more common occurrence for the population (Walford, 1878).

So began a popular mode of transport in London. In the first day of its service, it carried 30 000 passengers and in the first six months it carried over 26 500 per day (many of whom complained of the smoke produced by the steam engines). The media, originally scathing and sceptical of a project they deemed "utopian" and "an insult to common sense" started to perceive it as "the great engineering triumph of the day" (The Times in 1861, then in 1863, quoted in Halliday, 2001, p. 12). Writing in 1878, fifteen years after its inauguration, Edward Walford noted,

> "So great was the success of the Metropolitan Railway […] that in the next session of Parliament there was such an influx of bills for the proposed formation of railway lines in connection with the new form of transit in the metropolis[. …] [T]here is scarcely any part of London or any of its outlying districts which cannot now be reached by rail, and by trains that are arriving and departing every few minutes." (Walford, 1878)

It would be difficult for him to imagine the two decades that followed as other lines sprouted quickly, all developed by competing rail companies. To simplify (and clarify) the story, I use names of the modern lines rather than their rail company predecessors': The Hammersmith & City line opened in 1864, and the Metropolitan extended its branches to the east in 1865 and to the west in 1868. The District line opened in 1868, and by 1884 the Circle Line was completed, a collaboration (with some rivalry) between two companies, the Metropolitan and District Railways. In the meantime, road improvements provided by the MBW (and the underground rail companies' use of the cut and cover method) in the 1870s-80s reduced congestion and LGOC's profit margins on the surface.

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[19] Among other complications, the Fleet sewer burst into the construction site east of King's Cross and delayed the project by several months.

B. The subterranean boom (1890s-1900s)

London's population continued to grow, expanding from the previous 2.3 million in 1851 to over 7 million in 1911 (Wolmar, 2004, p. 119). The lower classes could not bear the economic burden of paying both rent and commuting into work, with the exception of neighbourhoods serviced by workmen's trains. London continued to be crowded, but as the District and Metropolitan lines extended east and west, more affluent citizens moved further out. Meanwhile, employment rates increased in the West End, the City, and Whitehall, which had recently become the centre of the civil service. Though some traffic was displaced to the subterranean rails, London's streets were still struggling to keep up with the growing number of workers, businessmen, tourists and leisure seekers coming to the city.

The turn of the century therefore brought expansion and modernisation to London's underground and surface network, bringing the first motor buses and new tunnelling technology, the Greathead tunnelling shield. It became possible to burrow deeper into the earth, avoiding the cut and cover method which heavily disrupted traffic in the growing capital. This new method, whereby an iron shield kept the hole from collapsing on the workers as they dug at the tunnel-face, permitted the layering of concrete during excavation. It was a more efficient method for underground railway construction.

Another technological development in London was electrification. Though the rest of the world had only just began to develop underground networks, they were doing so with electrified systems. London, on the other hand, was surprisingly slow to electrify. The first electrified line in London was (and still is) the shortest line: the Waterloo & City opened in 1890, built as a commuter train to join Waterloo station to the City. The Central line came next, inaugurated in 1900 and completely electrified (including station illumination). It was a success; dubbed the Twopenny Tube for its flat twopenny fare, it jumpstarted the process of electrification for other existing lines. The Central line also benefited from being an artery line, linking east and west London through the very heart of the city at the time of a booming economy (Selfridges opened in 1908 on Oxford Street). The incredible success of the Central line was to the detriment of other lines, especially the Metropolitan. Already forty years on from its opening day, it was starting to look tired next to the Central's bright lights.

Administratively, transport in London was going through some chaos as the MBW was caught in the middle of a corruption scandal in 1889. It was disbanded and replaced by the London County Council (LCC), a directly-elected local authority with a higher level of accountability to local population. It was thought that they might attempt to municipalise the underground railways, but this would not be the case for still some decades in London as all new lines continued to be built and operated by private companies. In 1891, three projects were approved for construction: the Charing Cross branch of the Northern line, the Bakerloo and the Piccadilly lines. These projects, and much of the electrification of older lines, was dependent on a second prominent character in the history of London transport: Charles Yerkes.

Yerkes and his well-connected colleagues are largely credited with the boom in the Underground's development at the turn of the century. According to Wolmar, it would be no exaggeration to say "that London's tube system owes its existence almost entirely to American finance" (Wolmar, 2004, p. 147). Often described as a man of few scruples, Yerkes dominated the underground railway game in London for a short, but intense, period, having taken over as chairman of the District line in 1901. Yerkes was particularly well-known for being capable of raising vast funds for his transport projects through particularly complex financial manoeuvres, the details of which are irrelevant to this story. Nevertheless, he raised £18 million to invest in building new underground lines and electrifying existing ones, a fund that is described by Martin as "an accidental Plan Marshall" (Martin, 2012, p. 142). His new underground projects had been approved in 1891 (see above) and were well under construction when Yerkes merged them under the company name Underground Electric Railways Company of London Ltd (UERL). Under UERL, he ensured the District was electrified by 1905, and though Yerkes, like Pearson, passed away a mere four months before the inauguration of his new lines in 1906 (one was opened in 1907), he ensured their expansion towards areas where he had property investments. Consequently, the geographical borders between London and its suburbs became blurred, giving rise to the concept of 'Greater London' that is still used today.

It was a surprise to UERL investors that ridership of the new lines was below predicted. While still alive, Yerkes argued that this was largely due to a lack of communication between the lines. Indeed, the costs of carrying out these large infrastructural projects were huge, and it was difficult to generate a profit on the flat twopenny fare, set by the Central line. Furthermore, Londoners also had to learn how to use this new method of transport. Whereas mainline trains permitted a leisurely attitude to boarding, sitting in, and alighting the carriages, the Tube required a brisker pace. Underground staff pushed and shoved passengers into the trains to maintain their scheduled times, a lack of finesse which the press quickly picked up on as a reason to criticise the foreign entrepreneur's projects.

Transport historians argue that there is much to thank Yerkes for–were it not for him, London might not have a Tube network as, despite Parliamentarian approval for their construction, projects were delayed and often completely interrupted due to "planning and financial difficulties" (Wolmar, 2004, p. 191). Yerkes can also be credited for beginning a process of unification for London's underground network, with the UERL being a starting point. Visually, the new stations showed uniformity and branding, products of architect Leslie Green's design, with the exteriors in terracotta bricks and the platforms in white and green tiles[20]. Yerkes was also remarkably lucky with timing. The new lines were finished and running before the First World War broke out and halted railway planning and construction whilst emphasising the benefits of the motor engine.

In fact, it is argued that the development of the motor bus and the Tube was perfectly timed so that one did not detract from the other: were the motor bus a bigger success earlier on to compete with the Tube, the latter might not have been developed as it did, and vice-versa (Barker & Robbins, 1975). In the 1890s, horse-drawn omnibuses had reached their peak, with over 12000 in service in 1895. Motor buses had begun to appear, interest sparking with the Motor Traction Company in 1899. However, this new technology would only gain traction when petrol engines became a reliable technology and, importantly, when petrol became cheaper than oats for the horses (Wolmar dates this around 1905). The motor bus was quickly recognised as superior to its horse-drawn predecessor: it had a greater

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[20] Some iconic stations in this style are Covent Garden, Chalk Farm, or Russell Square.

passenger capacity, and could generate additional revenue without having to care for living creatures. The LGOC was quick to enter the motor bus game, fearing to lose their virtual monopoly of omnibuses, and was once again ruling surface transport by 1908. They began painting their buses red and branding their vehicles with a spoked wheel with a crossbar and wings, an embryonic version of the well-known London Transport roundel. Through promotional activity and fare-cutting, the popularity of buses quickly increased, bringing about strict vigilance in their licensing by the Metropolitan Police (Public Carriage Office Regulations were set out in 1909).

C. Management changes (1910s-1920s)

Here, our story takes on a new tone, less about planning and construction than about management and unification. In the early 1900s, concern was raised about the fractured nature of the public transport infrastructure. Voices started speaking up for a London passenger transport authority that would defend the interest of the public that had been at the mercy of rival companies for too long. In 1905, the relatively recent LCC wanted to take on the responsibility of overseeing transport, perhaps even municipalising services. However, Yerkes' arrival on the scene thwarted their initial efforts at that time.

The cases of urban transport development in Paris and London are often contrasted. As Wolmar describes it, "The French system of central planning was not the British way, which was still dominated by its emphasis on entrepreneurship and a disdain for a government involvement" (Wolmar, 2004, p. 194). However, this 'emphasis on entrepreneurship' almost failed in London, as UERL struggled with low passenger numbers and little-to-no profits despite the £18 million investment. Its discontented shareholders began to pressure to file for bankruptcy but UERL's new managing director from 1907, George Gibb, restructured the company's finances to avoid liquidation. Gibb decreased expenditure and increased fares (Yerkes's flat fares were often blamed for UERL's financial downturn), saving the company, but it would be his successor, Albert Stanley (future Lord Ashcroft), who would bring financial stability from 1910.

Gibb attempted to coordinate fares among all private transport companies, including LGOC. However, with the ferocious competition among them and no legislative backing, these attempts soon died out. With Stanley in charge

of UERL, the landscape shifted. Firstly, in 1912, he acquired the LGOC, by then the largest bus company in London and operating its new X and B type motor buses. This permitted UERL to run buses in a way that benefitted their own lines as well as providing additional competition to other companies' lines. The Central and the City & South London (today's Bank branch of the Northern line) were already struggling with passenger numbers and both lines were merged into the UERL by 1913. Now controlling over half of the underground lines, Stanley's UERL was in a good position to bring other operating companies together and discuss collaboration strategies. This would begin with a joint booking system, allowing passengers to transfer to other lines without booking a second ticket.

This impressive amalgamation of transport modes was called 'the Combine' and, under Stanley's savvy press and publicity management, a new brand appeared as blue plaques with "UndergrounD" written in white block letters were installed at stations, the final D capitalised. Maps with the different lines represented in different colours were produced by the million and distributed for free. A prototype of today's recognisable roundel was developed: the circle and bar with stations' names on it. Importantly, there were a series of improvements in passenger management as well, aiming to get the public in and out of the stations and trains as efficiently as possible in order to increase revenue. This was largely done through improved signage and renovations: escalators became the norm in deep-level Tube stations from 1913 onwards, replacing lifts in many cases. Improved communication between lines was also part of Stanley's efforts, such as the Bakerloo and Central lines at Oxford Circus station. There, the tunnels for each line run over each other, and a subway connection between them was built to allow passengers an easier interchange.

Having acquired the LGOC, Stanley also saw the potential for motor buses to run longer routes. He therefore extended these services into the suburbs, becoming brutal competition to the electric tramways that reigned in those areas and were subsequently closed down. The pre-war era was one of intense competition and restructuring, with a vast increase in traffic throughout the capital primarily due to the new lines and the introduction of the motor buses. Having acquired the LGOC and securing control over other lines permitted UERL to enter the First World War in a financially

stable position. It was then able to weather the Great War, a stagnant and destructive few years.

D. A time for unification (1920s-1930s)

The Great War had some truly long-term effects on the Underground: it became an era of integration as public transport became a primary mode of transport due to troop movements and road service cuts. It also became clear that the Underground was a "vital part of the infrastructure of the capital" (Wolmar, 2004, p. 218), and the increase in passenger numbers justified planned expansion proposals.

Still, the impact of the war meant that cost of materials and labour increased. Given shareholders' past experiences with UERL's near-disastrous financial plans, there was little private interest in investing in public transport. Surprisingly, it would be the interwar recession that provided an alternative funding plan as Conservatives' *laissez-faire* economics was replaced with more interventionist approaches of the Labour party in Parliament. The government passed the Trade Facilities Act 1921 and then the Development (Loan Guarantees and Grants) Act 1929 to stimulate infrastructure and large public works to create jobs, an attempt to counter the rising unemployment rates. These acts provided the public capital required for an extension of the Northern line (1926), and the Piccadilly line (1933). Meanwhile, the Combine would continue to shift bus and tram routes to make sure they fed into and integrated with the Underground, resulting in an astonishing growth of the suburbs as the country slowly made it out of the Depression. Sections of the Underground system also required some renovation, with capital primarily provided by the Trade Facilities Act. These renovation efforts included the development of new rolling-stock, the Standard Stock, whose new features included air-worked doors and electro-pneumatic brakes.

Motor buses were also significantly renovated in this period as the number of bus users doubled and new technologies were developed. Vehicles became larger and covered tops were allowed from the mid-1920s. Seating capacity trebled and, with six- and eight-cylinder buses becoming the standard, there was also an increase in speed (notably with the introduction of the LS, NS and LT types, all of which were developed in LGOC's own

garages). As the quality of buses increased, they proved even sterner competition to trams which were phased out by 1931[21].

These infrastructural developments were partnered by a series of political changes. The Ministry of Transport was established in 1919 along with a Select Committee to investigate the state of transport in the capital. Their findings and recommendations were succinct: the competition among transport operators had got out of hand–fares were too high and routes were done with little regard to the public's needs. It was recommended that a Supreme Traffic Authority be established but it would only be with the London Traffic Act 1924 that a joint committee would influence and guide the way towards unification. This committee echoed the concerns over acute competition in London transport and recommended a common fund and management team. It highlighted the possibility of coordinating fares and placing general management in the hands of the Minister of Transport, though recommended that this power should be transferred to a local authority if one were created. Herbert Morrison was made Minister of Transport in 1929 and, though he disliked these plans, his counter-proposal was accepted.

Morrison created a public corporation, state-owned but not dependent on governmental subsidies, with the goal of guaranteeing single ownership of public transport infrastructure. The LCC might happily have managed this corporation, but it had limited remit within London while the new underground expansions now ventured well into the suburbs. Extending the LCC's powers would have required substantial political negotiations, so a public corporation was deemed more pragmatic. The new public corporation, named the London Passenger Transport Board (LPTB), was created in 1933, finally marking the end of the private sector's control over the city's transport infrastructure. Stanley, who became Lord Ashfield in 1920, was made the Chairman of the Board and his right-hand man, Frank Pick, was appointed chief executive.

The LPTB was a hodgepodge of "five railway companies (the suburban services of the four mainline companies had a complex pooling arrangement with LT), fourteen council-owned tramways, three private tram

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[21] Trams were re-introduced to London in the 1990s with the Tramlink, based in Croydon and its surrounding area in South London. It is not a central character to this thesis due to its concentrated geographical location.

companies, sixty-six omnibus and coach companies and parts of sixty-nine others" (Wolmar, 2004, p. 266) with a staff of over 70 000 people encompassing the entire chain of production (including building trains and buses). As a result of inner power struggles, there were constant structural changes within the corporation–should modes of transport have separate managers, or should they be lumped under a single leader?

Despite these struggles, the LPTB did develop a clear corporate image, the result of Pick's vision. As stations were modernised, publicity and marketing became more important. This was the period when Underground posters started springing up around London, produced by up-and-coming artists. Pick also chose a special typography to be used exclusively by the Board, the sans-serif Railway Block, designed by Edward Johnston and recognisable for its use of diamonds instead of dots. The most enduring corporate image of the Tube was also a result of this time: the Underground map, developed by Harry Beck in 1933 was a useful schematic representation of the Tube lines, each represented by a different colour.

This period was an ideal time for unification, at a time just before the rise of personal motor cars. This was a time when the majority of the population, of all classes, was dependent on public transport. The importance of maintaining this infrastructure was clearly understood by government, but the Board struggled financially largely due to the debt it had accumulated in its previous incarnation as UERL. While Stanley spoke out against this, painting a dystopian future for the LPTB, his predictions were not put to the test as the Second World War soon broke out.

E. Under new, new, new management (1940s-1990s)

The Second World War would end the heyday of LPTB before this new structure had really taken root, and the decades following the war would be ones of decline for public transport in London. During the war itself, Underground stations were famously used for shelter during airstrikes and there was a shortage of buses in the city as they were taken to be used in the front. Despite plans for a new bus, the popular Routemasters, being put into motion in 1947, they were quickly halted as factories were converted for wartime usage. By the time the war ended, transport in London had barely managed to survive the war and both buses and the Underground were in dire need of renovations. Transport in London now suffered two major problems: the first was a serious lack of investment and the second

was continuous overcrowding despite usage steadily declining over the first couple of decades. One thing was certain: the post-war decades were characterised by numerous administrative shifts in London in general and transport in particular, "a matter of mutating bureaucracies" (Martin, 2012, p. 233).

The first administrative change occurred in 1948 when LPTB was nationalised, an odd decision given it was already a public corporation. Its name became the London Transport Executive (LTE) and it was placed under the remit of the British Transport Commission within the Ministry of Transport, ambitiously responsible for all aspects of transport in mainland Britain. Within the Ministry of Transport, London was not perceived as a priority; its main concern were the country's railways, in state of disarray and in dire need of refurbishment. All potential plans for renovation in London were therefore scrapped. The 1950s saw the lowest level of investment in the Underground, something from which it struggled to recover in the following years. Yet somehow, this was also a decade for the advent of standardisation in London's bus fleet, as the Routemasters finally made it to the production line. These vermillion buses made up a fleet of 6000 by 1954 and were often displayed at trade fairs throughout the world as a symbol of London. Despite this investment, passenger numbers saw a steady decrease in public transport; the motor car had arrived and private transport was thought to be the way of the future.

The 1960s introduced some improvements and a timid increase in investment. The bulk of this additional money was poured into the acquisition of new rolling-stock and into the construction, on the cheap, of a new line. The Victoria line acquired permission in 1962 with the goal of relieving both underground and road congestion in central London. The line was inaugurated in 1968, shortly after the establishment of the Greater London Council (GLC) in 1965 through the Local Government Act 1963. The transfer of transport responsibilities from the LTE to the GLC allowed for the writing off of £270 million in debt, a new slate for the London Transport Board (LTB), finally established in 1970. London became responsible for its own transport.

The LTB had a bright beginning, but it would cause turbulent relationships between the GLC and local boroughs, and the GLC and UK government. It acquired new investments: £275 million over 20 years allowed for extensive

renovations of the underground stations, the development of the Heathrow extension on the Piccadilly line, an extension on the Victoria line, and the creation of the Jubilee line, inaugurated in 1979. It also provided package improvements for bus drivers in 1973 as LTB suffered from a chronic lack of staff from the 1960s onwards. Thanks to these investments and an over-all facelift to LTB, passenger numbers started to rise once again. The future looked promising, but a new character would cause ripples in London transport.

Ken Livingstone took over as leader of the GLC in 1981. Renowned for his socialist convictions, he had won the public's support with a manifesto based on job creation and cutting public transport fares, with the Fares Fair scheme. At the implementation of the new scheme, fares were cut by 32%. This became the source of tension among the GLC, London's boroughs, and the Government, all of whom disagreed on whether the GLC had the authority to change fares. Livingstone also introduced the Travelcard and the zone system of fares, another cause for debate. Throughout the decade, fare prices swung radically and debates continued, eventually causing the then-Prime Minister Margaret Thatcher to intervene.

The Transport Act 1985 caused yet another political change to transport in London, abolishing the Labour-run GLC and creating London Regional Transport (LRT), a branch of the Ministry of Transport. Once again, local boroughs and the public would have little say on the planning of public transport in London. LRT took the shape of a small holding company, with the bus and the Underground services being run as "separate operating subsidiaries" (Garbutt, 1985, p. 74) and much of the services becoming privatised. London Buses Limited was created, responsible for contracting bus services out to private companies. This was the beginning of the end of bus standardisation as new models popped up, run by diverse operators. Much of the public funding would be cut and the network would once again suffer through lack of renovations.

In 1987, a disaster in King's Cross station killed 31 people and injured over 100, caused by poor maintenance. Grease had accumulated in the wooden escalator mechanism and sparks (possibly from a lit cigarette) caused a fire that spread remarkably fast. This disaster would provide a new rush of investments for maintenance and renovation but the recession of the early 1990s cut them short. Thatcher's heritage in London transport would be the

Jubilee line extension towards east London, and the regeneration of the Docklands area primarily through private investment. The Docklands Light Railway was inaugurated in 1987, a new mode of transport for a modern London.

F. Enter Transport for London, and the future (2000s-today)

We are finally reaching the end of our story, which has not been simple, nor short, having already undergone three political changes in as many post-war decades. Now we can move to the last change, a century on from Yerkes: the establishment of today's Transport for London (TfL), the local government body currently responsible for overseeing public transport networks in London.

In 1997, Labour took Parliament from the Conservatives in a landslide victory, committing to restore local governance in London with the creation of a new local authority. The Greater London Authority (GLA) was therefore created by parliamentary act in 1999, comprising of a directly elected Mayor of London and a London Assembly with twenty-five members, all with four-year terms. Transport for London was created in the same act, a public body to be overseen by GLA and its own board, constituted by members appointed by the mayor. The first GLA elections were held in 2000: Ken Livingstone returned to the scene, elected as an independent candidate.

TfL is a complex bureaucratic monster, itself divided into three directorates: surface transport, London Underground and London rail, each responsible for a collection of modes of transport. In fact, TfL would not become responsible for the Underground system until 2003, having taken three years to develop a public-private partnership contract for the network's maintenance though it operates the lines itself. 2003 was also the year in which Oyster cards, the London-wide travel cards, were introduced.

The bus services, previously privatised under Thatcher, continued to be private under the new transport authority: over 700 routes are owned by TfL, and their operation is tendered out to private companies. By 2005, Livingstone had phased out the, now out-dated, Routemasters (also replaced for accessibility reasons, which will be discussed below) and replaced them with the 'Bendy Bus'. Martin believes this was part of the

reason for his defeat in 2008 by Boris Johnson, whom he describes as a "transport romantic" (Martin, 2012, p. 242) for having developed the 'New Bus for London', popularly called the 'New Routemaster', to replace the bendy buses (they had served a mere decade on London's roads).

The newest addition to the TfL family is the Overground system, a complicated collection of bodies overseen by TfL and providing a connection along London's outer periphery. Simply described, London Overground was the result of TfL's slow acquisition, from 2007, of old and neglected railways (some as old as our story here, from 1838). TfL renovated and extended their tracks, modernised stations and contracted out operations to London Overground Rail Operations Ltd. This network now serves over a hundred stations, and usage has more than quadrupled in five years (TfL, n.d.).

We should also give the future a quick look: TfL's newest project, currently under construction, is the Crossrail. This large project will consist of seventy-three miles extending from east to west London, thirteen miles of which will be tunnelled under central London. Originally a partnership between the Government's Department for Transport and TfL, it became a subsidiary solely of TfL when it gained parliamentary approval with the Crossrail Act 2008. It is funded by a collection of stakeholders, including the Government, the GLA, and local ratepayers. Much of this investment will be paid back through the Crossrail fares when it is opened in phases, starting from 2017 and with full services by 2019. A second line, Crossrail 2, is already being proposed and is under consultation, to link London's northeast and southwest.

Here, we end a (somewhat) abbreviated history of transport in London. It is one with twists and turns, literally and politically. Interestingly, however, much of this was not perceived by the public who, despite seeing the fares fluctuate in the 1980s, has called the system *London Transport* since 'the Combine' became the LTPB. Many of the shifts were gradual, as bureaucratic changes are wont to be, and to the public eye not much has changed: Harry Beck's map has endured (with addenda), as has the famous roundel. Taylor writes that, to the casual observer, "The buses in central London are still, by and large, red double-deckers, even though the high degree of standardisation that once characterised the London fleet is no longer in evidence" (Taylor, 2012 [2009]. pp. 61-62). London is a city

whose transport is iconic: "It is the language of the city, whether for Londoners or visitors" (Martin, 2012, p. 270). Yet, is this the case for *everyone*? Here, I turn to describe the places disabled people have occupied in British society over roughly the same time period, to consider whether or not transport is everyone's "language of the city".

2. A brief history of the place of disabled people in society

In the introduction to this thesis, we briefly outlined the number of disabled people in the United Kingdom. In London, 11.2% of the adult population has mobility issues, but these numbers say little about their daily lived experiences. In this section, I use disability studies literature to consider the place that disabled people have occupied in British society. I have drawn from work done primarily by British scholars, given my interest in this locality. It is important to understand the value systems around which Western society is organised to better grasp disability and the barriers disabled people have faced, and still do. As the adage goes, however, "History is written by the victors." The history of disabled people is, as a result, patchier, having often been ignored or erased, or rewritten from "an overtly individualistic medical perspective" (Barnes & Mercer, 1997). It is with the rise of disability studies in the 1970s and 1980s that this history began to be reclaimed. Authors such as Vic Finkelstein and Colin Barnes provide us with a solid starting point and in the following section I develop their arguments (and others') to show how disabled people have, historically, been socially segregated in British society. After this section, I will intersect these two histories, that of public transport in London and disabled people within British society, to discuss how the latter has informed the former.

A. The pre-industrial era

It is difficult to draw a clear starting point for the history of disabled people within British society. For the sake of length, I will only briefly address the ancient world, which, in the ways that it informed Christian religion has also informed British society. Barnes argues that the ancient world is the starting point of people with impairments being perceived as "unfortunate, useless, different, oppressed and sick" (Hunt, 1966, Chap. 12). According to his argument, given the values of physical and intellectual fitness in ancient Greece and Rome, little room was accorded to what they would define as

'imperfections'. Infanticide of disabled babies was common, as were cultural associations of sin with impairments (Barnes gives the example of the tale of Oedipus, who blinds himself as retribution for incest). In Rome, disabled people were also sources of amusement, being put up to fight against women and animals in circuses.

The links between disability and sin continued in Jewish and Christian religions, with religious texts being rife with "references to impairment as the consequences of wrongdoing" (Barnes, 1997). However, in Judaism infanticide was prohibited, and soon these religions developed a custom of care for the sick and less fortunate by the distribution of alms. This introduced a problematic perception of disabled people as the 'objects of charity', making them the vehicle of others' good will rather than being perceived as fully-realised individuals.

Skipping ahead some centuries, Barnes argues that by early thirteenth century, a market-based capitalist economy was being developed in England[22]. Here, he claims that dynamics of dependence of disabled people upon non-disabled people were already established, especially with the Statute of Cambridge 1388. This Statute was a result of labour shortages after the Black Death, when wages for labourers were increased and workers started fleeing their land-owners to become freemen. It also distinguished between "sturdy beggars", those capable of working, and "impotent beggars", referring to the elderly and those with impairments. This distinction served as a basis of definition for the 'deserving poor'; that is to say, those who would be looked after by charity coming primarily from monasteries and churches. These definitions would endure through all of the following 'Poor Laws'. The more well-known of these was the Elizabethan Poor Law, officially the Act for the Relief of the Poor 1601. This act shifted the responsibility of caring for the 'impotent poor' (now defined as 'the infirm, the elderly, and children') to the state, and was organised at a local parish level. The lives of disabled people were governed by state administration. Here, as in the case of church charity, disabled people have little say and are depicted as passive.

Finkelstein's argument takes another route: he identifies different phases in the relationship between disabled people and society, the first of these being the pre-industrial era. His work pre-dates Barnes', and though they

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[22] Barnes bases his argument on Macfarlane (1979).

follow the same broad storylines, Finkelstein sees in pre-industrial era Britain a period of *communities*, where "everyone knew each other" (Finkelstein, 1981). With a similar definition of community as that given by Durkheim (2014 [1894]), he argues that these communities had strict social roles, statuses and obligations for those within it. This was a difficult time to be disabled but, he argues, it was difficult for the vast majority of the population. Despite the budding market economy, it was still a time when work and the home were interwoven for the majority of the population, with workshops and stores in the first floor of the home and families living in the floors above it. 'Cripples', as Finkelstein himself refers to disabled people during this historical period, had an established role within these traditional societies, and contributed in the ways they were able–fulfilling domestic duties, or producing artisanal crafts on small machines.

Increased capitalist forces began to put pressure on this small, local production, demanding larger production of woven material, for example. The work had to be done on bigger mills, placed in factories outside of the home. This, Finkelstein argues, was the moment in which disabled people were further distanced from the general population: the rise of the Industrial Revolution and the machinery of production it brought along with it.

B. The industrial era

The mid-eighteenth century marks the beginning of the Industrial Revolution, characterised by the breakdown of the rural state and church welfare in the United Kingdom. The changes in London's population were briefly described in the beginning of this chapter, but it bears reminding that cities experienced a significant population growth in the century nineteenth, with a large number of rural migrants moving to live closer to where factories were being built. Finkelstein identifies this as the second phase of the relationship between disabled people and society.

By the late eighteenth century, the sizes of machinery had grown due to the drive for bigger and more efficient production. It was also the period of the rise of coal and mining exploits, as well as new and more efficient farming methods, such as the threshing machine. A crucial consequence of these shifts in the mode of production was that the 'average worker' was created, referring to physically able persons who could operate these new technologies. The concept of *average* or *standard* is an important point to

the story, and I want to note here how it is by considering disabled people as non-average, outside of the norm, that they are excluded from the mode of production (see further discussion on this in Chapter 5, section 5). In addition to this, given the larger nature of the new machines, working from home was a less viable option and labourers had to displace themselves to their place of work. This, Finkelstein argues, was what gave the "decisive push which removed crippled people from the social intercourse and transformed them into disabled people" (Finkelstein, 1981). One's social status was now defined by their relationship to the mode of production, to the machines, and disabled people were found wanting due to their physical inability to participate in the paradigm of 'production for profit'. They were perceived as unproductive members of society.

Barnes characterises this era as the advent of utilitarianism, with authors such as Bentham and Stuart Mill. Policies would often be developed thinking of the majority at the expense of the few, and this often legitimised and reinforced the already assimilated perceptions that society had developed about disabled people (Barnes, 1997). This can be seen through an intensification of previous legislative practices, such as the 'New Poor Law' or the Poor Law Amendment Act 1838. Throughout the nineteenth century, disabled people were continually thought of as requiring protection and care, often being placed in institutions or limited to their home. The only income available to them was charity.

Disabled people were often removed from their communities, perceived as burdens to their caretakers, and placed into increasingly specialised institutions. Through this process they were no longer solely subjects of charity, but they also became objects of study. With the gradual professionalisation of the medical occupation (discussed by Foucault, 2012 [1963]) and the subsequent medicalisation of the body (and mind), the exclusion of disabled people became naturalised as well. The authority of biological and medical knowledge resulted in social constructions of the 'good' or 'healthy' body that endured into the twentieth century as bodies became evaluative objects (Barnes, 2011; Snyder & Mitchell, 2001). Hierarchical notions were quickly introduced, embodied in the Eugenicist movement and its fear that disabled people might weaken or 'mediocritise' the human race and its advancement.

These ideas survived well into the twentieth century as can be testified by 'Operation T4' in Nazi Germany (Poore, 2007; Proctor, 1988). The programme officially ran between 1939 and 1941, performing forced euthanasia on over 70 000 adults classified as incurably sick. The programme's practices continued unofficially until the end of the Second World War, the numbers rising to an estimated 250 000 victims with an additional 360 000 disabled Germans suffering forced sterilisation. Here we find a strong version of the implicit segregation of "unproductive" disabled people: the ability to perform "economically productive work" was one of the criteria agreed upon by German physicians to decide patients' future (Poore, 2007, p. 87). Despite this radical example being on the European continent, attitudes were not completely different in the United Kingdom. The economist John Maynard Keynes was director of the British Eugenics Society between 1937 and 1944 and, in giving the Galton Lecture in 1946, noted that he believed nothing mattered more to the human race than "the possession of a sound genetic endowment" (Keynes, 1946). Winston Churchill was also an enthusiast, fearing the influence of the "feeble minded" as a hereditary trait (Woodhouse, 1982). This had some weight still on policies as the notion that society should take on the responsibility of caring for disabled people was seen as an economic burden. The distinction between an "us", the non-disabled, and a "them", the sickly and needy, seemed to grow.

Yet the First World War did provide a small shift in the public perception of disabled people: the exceptionalism of disabled veterans who returned home with physical and mental impairments (Woods et al., 2005). The British Government began to see itself as responsible for the wounded and took a more active role in ensuring the employment of some of them. The Ministry of Pensions was set up in 1916 and became responsible not only for veterans' pensions, but also for their medical rehabilitation (Cohen, 2001). However, this was done in accordance to highly medicalised and standardised definitions of the body, with the goal generally being to normalise the body once more. Wheelchairs were, ideally, to be momentary props. If permanent, they were perceived as a failure of the medical process (Woods et al., 2005).

As such, by the end of the Second World War, the social narrative around disabled people had remained largely unchanged after its intensification in

the mid-eighteenth century. Indeed, the exclusion of disabled people from traditional societies and into segregated institutions or secluded in their homes had happened so progressively that it went largely unnoticed. It is in the mid-twentieth century that we begin to hear calls for change.

C. Post-war and today

The end of the Second World War brought a second large wave of wounded veterans home and pressures on the state to ensure their wellbeing increased. Special employment facilities began to be organised, largely under the Disabled Persons Employment Act 1944, and 'sheltered' workshops were built. Built into the legislation was also a preferential treatment of ex-servicemen and women, as well as the definition of two types of disabled people: those suitable for mainstream employment, and those who were not. Fees were low, £90 weekly compared to the average non-disabled labourer's salary of £200 (Barnes, 1991).

Yet some other steps towards change had begun. Residential homes for disabled people began to be built, proving an alternative to either institutional care or being left at home. Disability charities began to be established during the two decades following the war which, contrary to previous organisations such as the Royal National Institute for the Blind (set up in 1868), were organised by disabled people and their family members. Some of today's biggest disability charities were established in those first years, such as MIND and Mencap (1946) and the Leonard Cheshire Foundation (1948). This was the era of civil rights movements in the Western world, with identity politics coming to the forefront. Disabled people also took to the streets and self-organised, becoming one of the New Social Movements (NSMs) of the late twentieth century (NSMs and, specifically, the disability rights movement's positioning itself as one, is discussed in Chapter 7, see section 3.A).

While there was some agitation on the streets (such as the British Limbless Ex-Servicemen's Association silent march on Downing Street), the 1950s were a decade for organisations. Direct action would become more important in the 1960s as calls for inclusion and equality when demands for appropriate employment and housing intensified. In 1965, the Disablement Income Group (DIG) was established, a pressure group which made contact with sympathetic Members of Parliament and peers. DIG organised a series of disability rallies in Trafalgar Square between 1966 and 1968.

Finally, in 1970, the Chronically Sick and Disabled Persons Bill became an Act of Parliament. The Act required that local authorities provide assistance and welfare to disabled people, taking the form of access to recreational activities and public buildings, among other stipulations.

Finkelstein argues that this moment is the beginning of a third phase of disabled people's relationship with society. Thanks to these progressive improvements over decades, larger numbers of disabled people felt enabled to step forward and speak to their personal experience. This coincides with the genesis of disability studies as an academic field in the 1960s-70s, the first wave consisting of Finkelstein's and Barnes' work, as well as Michael Oliver and Paul Hunt, among others. The latter of the four, Hunt, had published *Stigma: Experience of Disability* (Hunt, 1966), and was already working towards shifting perspectives of disability from medical assumptions about the body to a socially constructed and historically oppressed class of individuals. In 1972, the Guardian published one of his letters where he called on disabled people to form "a consumer group" in order to advance their demands as a social group. In response, the Union for the Physically Impaired Against Segregation (UPIAS) was formed where a new, social, definition of disability was coined. This gave birth to the social model of disability (previously discussed in Chapter 2, section 3.A).

Some American influence bled through to the United Kingdom around this time as well. In 1969, the Independent Living Movement and the Disabled Students' Program in Berkeley (California) established the first Centre for Independent Living (CIL). These centres, run by disabled people, for disabled people, place the emphasis on independent and civil rights. They provide services to empower and enable disabled people, facilitating their integration. Services include provision of information, assistive devices, and contacts with work opportunities. These centres began to appear in the United Kingdom in the early 1980s.

1981 was the United Nation's International Year of Disabled People, with the establishment of both national and international organisations (Disabled People's International and the British Council of Disabled People) to support the development of charities spearheaded by disabled people across the country. The social model of disability played an important role in these organisations, used as an oppositional device and "allow[ing] for the refusal of the forces of subjection" (Beckett & Campbell, 2015, p. 274).

The disability rights movements became stronger as a result, using the social model as rallying point. As Beckett and Campbell argue, though social movements are often heterogenous, having a common goal to combat allowed for cohesion in terms of overall demands. As such, the disability rights movement now had a common enemy: a 'disabling society'. The social model of disability became their frame of reference and "basis for political mobilization" (Blume & Hiddinga, 2010, p. 228). What makes a person disabled is not their impairment but the social circumstances surrounding it. The authors of the second wave of disability studies, such as Tom Shakespeare, quickly worked towards equating and integrating disability to other social rights battles such as race and gender.

In the last decade of the century, even more organisations were founded. In 1992, Disability Awareness In Action was established and Disability Action Network (DAN) followed in 1993 (DAN will play an important role in the fight for accessible transport; see next section). The prominence of the word 'action' in both titles is tell-tale of their proactive natures. During the 1990s, these groups staged over a hundred demonstrations demanding "Rights, not charity". Using civil disobedience and non-violent disruptive methods, DAN blocked Abingdon Street, across from Westminster, in 1995 and threw red paint in front of Downing Street in 1997, symbolising the blood shed by disabled people if the Government went through with its benefit cuts (Oliver & Barnes, 2006). The Disability Discrimination Act (DDA95) was passed in 1995, though it was received with mixed reactions as activists argued that it allowed for justifiable discrimination due to a "reasonable adjustment" clause concerning improvements to the built environment (the reasonable adjustment clause is discussed in this thesis particularly in the context of infrastructural adjustments for wheelchair users, see Chapter 7, section 1.A).

In 2000, the Disability Rights Commission was set up to investigate matters of disability and discrimination. Another half-decade later, the DDA95 was amended and expanded to include protection against discrimination on land transport and small employers. Its definition of 'disabled person' was also amended, as it previously reflected a more medical basis and the amendment shifted it towards the social model. By 2010, the United Kingdom became a signatory of the United Nations' Convention on the Rights of People with Disabilities and the DDA95 was absorbed into the

single Equality Act 2010 (EA10). This piece of legislation is still current, the result of merging legislations such as DDA95, the Sex Discrimination Act 1975 and the Race Relations Act 1976. The EA10 defines age, sex, gender, disability, religion and sexual orientation as "protected characteristics" but of these characteristics, disability is the only one to have a "reasonable adjustment" to discriminatory practices.

Colin Barnes and Mike Oliver have problematised the current state of disabled people's movements. They recognise that there have been significant legislative advances but argue that these, too, may be problematic. In the 1990s, these authors were already cautious of an overly-close relationship with the Government, fearing that the movement might be appropriated and manipulated by political interest. In 2006, prior to the absorption of the DDA95 by the Equality Act, they argued their fears were justified. They saw malice in the creation of the Disability Rights Commission, a way for Government to enrol disability organisations that would defend the *status quo* rather than fight for the rights of disabled people. They affirmed: "We no longer have a strong and powerful disabled people's movement and the struggle to improve disabled people's life chances has taken a step backwards." (Oliver & Barnes, 2006). Barnes and Oliver argue that improvements in the daily lives of disabled people has been "more apparent than real" over the past decade, a statement corroborated by the think-tank Demos. In 2006, Demos published the report "Disablist Britain", concluding that disabled people still experienced discrimination in contemporary British society (Miller et al., 2006) and that, worryingly, disability discrimination is an under-researched topic. It is now ten years since the Demos report and disability is still an often invisible issue, left out of many debates around identity, inclusion, and equality.

3. Centuries of erasure: intersecting the history of transport and the history of disability

Through most of this chapter, I have purposefully not attempted to bridge the stories that link the history of public transport in London and that of the places occupied by disabled people in British society. This section will be dedicated to the weaving of the two stories together, an integration that I have not seen being done anywhere else. It was striking while reading various volumes on the history of public transport, both more popular

varieties such as Martin's *Underground Overground* or extremely detailed ones like Barker and Robbins' two-volume *A History of Transport in London*, that mentions of disabled people using public transport or concerns about accessibility were few and far between. The few times in which it was raised there was a somewhat negative undertone, either in terms of cost-effectiveness or in how it has caused unpleasant changes (to the author). For example:

> "[T]he new LRT authority's general duty extended to providing public transport facilities for the disabled; this is a potentially difficult and costly obligation." (Garbutt, 1985, p. 120)

> "[T]oday the communications are incessant. This is partly determined by disability discrimination legislation, partly because about 20 per cent of the Tube's customers are from outside London and genuinely don't know where to alight for London Zoo." (Martin, 2012, p. 216)

Taylor's small volume on *London Buses*, however, simply mentions it *en passant*:

> After the turn of the millennium, Londoners became used to several varieties of low-floor double-deckers, designed to make boarding and alighting easier for handicapped and elderly passengers. (Taylor, 2012 [2009], p. 59)

In the rest of the books, there were no mentions of disability whatsoever. Their glossaries did not include any of the following words: accessibility, disability, discrimination, step-free, or universal design. It is not my aim to imply that this was done with any malicious intent on the part of the authors, but rather to bring attention to the fact that the world of transport and that of disabled people, at least from transport's perspective, do not seem to intersect until recently.

I argue that the reason for this omission is that the development of public transport in London happened at a time when disabled people were socially segregated, and had already been distanced from society for some time. As argued above, the rise of industrialism in the mid-eighteenth century had deepened the perception that disabled people were to be cared for, unable to work in the factories which required "average", non-disabled labourers capable of working the machines. The, literal, distance between the private and the public spheres, the home and the workplace, increased. This distancing was, as discussed in the first section of this chapter, part of the impetus for the development of public transport in London: making movement within London less chaotic, and hopefully cheaper, for the

population, particularly commuters (such as Pearson's concern to implement workmen's trains, see p. 71). By the time these modes of transport were developed and established in the mid-to-late nineteenth century, it had already been well over a century of exclusion of disabled people. It likely had not even occurred to the architects and engineers and inventors of these means that the needs of disabled people should also be embedded into the technologies, as they were generally house-bound or institutionalised. As such, it was not perceived that they had to bridge the widening distance between the public and private sphere, work and home. Indeed, drawing from the ableism studies literature, this does not come as a surprise: a neoliberal-able society had begun to settle with the industrial revolution, resulting in specific conceptions of the ideal, labour-capable body.

This assumption persisted throughout the development of the network, including even the construction of the Victoria line, inaugurated two years before the Chronically Sick and Disabled Persons Act 1970 (which did not include clauses on provision of access to public transport). Despite some social mobilisation for improving the lives of disabled people after the Second World War, this improvement was mostly done through segregated environments: separate workhouses, separate schools, and the introduction of some door-to-door transport options, such as Dial-a-Ride services in London from 1982. These measures were not about *inclusion*, and created further distinction between the specific requirements of disabled people compared to non-disabled people. Furthermore, with the advent of the motor car and some adaptability in its technology, disabled people would drive themselves or be driven by carers and are, still today, largely dependent on private transport (Barnes & Mercer, 2010). Public transport was rarely perceived as an option.

The Transport Act 1985, which abolished the GLC and created the LRT under Thatcher's Government, created the Disabled Persons Transport Advisory Committee (DPTAC). This committee would be responsible for providing an annual report, advising "as to measures that may be taken with a view to - (a) making access to vehicles used in the provision of public passenger transport services by road easier for disabled persons; and (b) making such vehicles better adapted to the needs of disabled persons" (Transport Act 1985). With DPTAC's input, the DLR in East

London was built with accessibility in mind. The Jubilee extension, built after the introduction of the DDA95, was the first accessible section of the Tube. Other accessibility improvements to the Underground included upgraded rolling stock, with thirty-point colour contrast for people with visual impairments and some dedicated areas for wheelchair users. The rest of the system, however, as far as access to stations is concerned, has had to, or will have to, be retrofitted. Some work has been done in the past two decades, particularly since 2007 and the acquisition of London Overground. Renewing old stations requires compliance to accessibility regulations and, slowly, the number of accessible stations has increased to seventy on the Tube network (a quarter of the stations) and fifty-seven on the Overground system (just about half) at the time of writing (February 2017). A more detailed description of accessibility improvements in the infrastructure over the past decades is discussed in the next chapter (see Chapter 5, section 1).

As discussed in the previous section, the 1990s were a decade of intense political mobilisation by disability rights groups. DAN was one of the most prominent groups in London calling for improved accessibility in public transport. The Routemaster, then still among the most common buses in London despite the decline in standardisation of the late 1980s, was completely inaccessible to wheelchair users, having steps at all its doors. The Campaign for Accessible Transport (CAT), organised in part by DAN, had demonstrators chaining themselves to Routemasters, causing traffic jams throughout West London. From 1994, inaccessible buses were progressively phased out in London after an initial feasibility trial period of new low-floor buses. The last Routemaster was taken out of service in December 2005, with some nostalgia from its proponents and signs saying "Good Riddance!" by disability rights protesters (Associated Press, 2005). Yet "ironies of access continue to abound" (Snyder & Mitchell, 2001, p. 379) as, despite some resistance and nostalgia from those claiming that the Routemaster was a symbol of London, the low-floor buses have benefitted a wide range of users, including elderly passengers and parents with baby buggies. More recently, campaigns for accessible transport have taken over space in newspapers again. Transport for All, CAT's most vocal successor, has taken on an active role in shaping accessibility debates in London, a role that will be discussed in detail in Chapter 7 (see section 1.C).

In 1878, Edward Walford wrote, "[A]s the very nature of a system of underground communication prevents it from being one of the shows of the metropolis, we seldom think of it; unless, indeed, when passing through the streets we at times come across an open sewer that has been laid bare for repairs or some other purpose" (Walford, 1878). Perhaps this is a comment that can be extended to the entire transport infrastructure, something which is rarely thought of, invisible, to those of us who are not faced by its barriers. However, to those whose needs were not embedded into the network throughout the two centuries of its development, the roles become inverted. Those who become invisible are those who were not thought of and, as a consequence, those whose options become limited and whose experiences are diminished through this invisibility (this is discussed in detail in Chapter 8, see section 3). The history of public transport in London is one of indifference towards disabled people at its time of development and, as Hughes' would define it, consolidation. Therefore, this chapter has pointed out how transport developed in London at a time when disabled people had already been placed in the margins of society for centuries, perceived as unproductive or passive. This perception solidified as industrial capitalism become liberal capitalism and then *neoliberal* capitalism, all of these feeding off ideals of productivity and dependent on able-bodied, adaptable workers (Goodley, 2014). Though this paints a depressing picture, it holds explanatory power as to why transport infrastructure struggles to this day with accessibility requirements and also shows how disabled people's place within society has slowly shifted. While for years the infrastructure was unquestioned, this chapter has also shown how it was with the rise of disability rights movement forced progressive changes (though, here too, with some caveats) to an infrastructure that had, for years, been largely left to the intervention of governmental policies rather than outside demands.

In the next chapter, we will begin to explore the current landscape and how wheelchair users experience public transport in London as it is today. While in this chapter the aim was to show the limited intersection between the histories of transport in London and disabled people within it, the next chapter aims to show the impact that this intersection had and the barriers that wheelchair users still face in the infrastructure today.

Chapter 5: "Are we talking about the physical barriers to accessible transport? Are we talking about attitudinal barriers?"

Barriers and their impact on wheelchair users' experience of public transport in London

"Mind the gap, please," goes the world famous London Underground announcement. It is a gentle reminder that, at some stations, there is a rather large gap between the train and the platform and a dangerous hazard should someone's leg go into it. Or, in the case of wheelchair users, should someone's front wheel. Gaps are infamous in London's infrastructure: many of the platforms are curved in part due to the depth at which they were built. Putting a straight train carriage on this curve causes many of these gaps. Furthermore, steps from the train up or down to the platform are also common. The previous chapter discussed the intersected histories of transport in London and of disabled people in British society, arguing that because the former developed when disabled people where socially marginalised, their requirements were not embedded into the infrastructure. Consequently, wheelchair users tackle a variety of barriers to this day, as it has only been two decades since legislation enforcing accessibility features has been introduced. This chapter will be dedicated to these barriers and the various issues that wheelchair users face while using public transport in London. In so doing, the aim is to show how deep the history of exclusion of disabled people runs, including in infrastructure and technology which, as Latour would argue, are society made durable (Latour, 1991).

Despite the barriers encountered to this day by wheelchair users when using public transport, it is important to do justice to the advancements that have taken place in transport infrastructure since the implementation of the DDA95. In fact, in doing so, I also do justice to interviewees' narratives as, in their vast majority, they discussed the improvements that have recently occurred. Having discussed these improvements, I then distinguish between two types of barriers that affect wheelchair users' journeys through

London. This distinction is made according to actors' categories, as can be seen in the title of this chapter, a quote from my interview with Marie. On the one hand, interviewees spoke of physical and/or technological barriers to transport. On the other hand, they described social interactions as another type, or even another level, of accessibility issues. This distinction stands in contrast with approaches such as actor-network theory that argue for an integrated analysis of the social and technical. However, as I will argue in the final section of this chapter, these categories, as discussed by the actors themselves, play an important role in the ways that they experience the infrastructure as, ultimately, a *fragmented network*.

1. A broad recognition of the improvements that have been made

A. The Olympic and Paralympic Games and onwards

In the Parliamentary Session 2013-2014, the House of Commons Transport Committee held a consultation on "Access to transport for disabled people" (ATDP). In the summary to its report, it highlighted the importance of accessible transport as a means of ensuring that disabled people are more widely included in society. The ATDP report also highlighted the Olympic and Paralympic Games held in London in 2012 (2012 Games) as a moment of significant improvements in terms of accessible transport, as well as the subsequent expectations that this would pave the way for further changes in London, and throughout the country in general. The impact of the 2012 Games was such that it was one of the questions in the call for evidence issued by the Transport Committee in November 2012: "What can be learnt from transport provision during the Paralympics and how can we build on its success?" (Transport Committee, 2013, p. 5). Both oral and written evidence in the report reflect this, particularly in the importance of the Paralympics as a rallying point, a goal towards which everyone worked.

> Everybody was united in wanting to make the Paralympics the best they could possibly be. Therefore, every company saw its individual part in this bigger picture, and that helped. – George Fielding, Chair of the Kidz Board, Whizz-Kidz (Transport Committee, 2013, Ev. 3)

The London Organising Committee of the Olympic and Paralympic Games (LOCOG) was praised at oral evidence sessions for having prioritised the transport needs of disabled people in their planning:

> A lot could be learned from LOCOG and how they hosted the best Games. They had disabled people at the forefront of every decision they made. So the transport and accommodation were all accessible because they had gone to disabled people for advice. – Sophie Christiansen, MBE (Transport Committee, 2013, Ev. 3)

The LOCOG did, indeed, place transport and accessibility as a priority on the agenda, calling the 2012 Games "the biggest transport challenge that London and the UK have ever faced" (LOGOC, 2008, p. 14). They developed a ten-point plan, the 'Accessible Transport Strategy', to strive towards improved accessibility, pooling together a variety of already-existing resources to put the plan into action. Among the resources was the DfT's ring-fenced 'Access for All' budget, dedicated to refurbishing inaccessible stations, as well as local stakeholder organisations brought in as consultants by the Olympic Delivery Authority (ODA) under the umbrella "Access and Inclusion Forum". Between the publication of the strategy in 2007 and the 2012 Games, a variety of accessibility improvements were afforded to London's system: Stratford Regional Station, in east London, received improved signage and increased lift capacity; the London Overground experienced a significant overhaul with an additional £107 million to its budget from the ODA and, significantly, London Underground's 'Step-Free Programme' would renovate Southfields, Green Park and Baker Street stations ahead of schedule. King's Cross station was also made accessible with the addition of ten lifts in 2010. Other improvements included signage, lighting, and induction loops at 175 Underground stations, the installation of raised areas (or humps) on platforms to ensure step-free access from street to train and, on the Overground, the manual boarding ramp scheme was introduced, where station staff deploy ramps located at platforms to allow wheelchair users to board the train. These manual ramps required booking 24-hours in advance to ensure a staff member would be present.

The LOCOG and ODA efforts did not go unnoticed. Out of the twenty-four wheelchair users whom I interviewed, eleven referred to the 2012 Games as a moment of changes, both in terms of the physical transport network as

well as people's attitudes. Sophie, for example, points to the 2012 Games as a catalyst for her new attempts at using public transport:

> Well, I've started to use [public transport] a little bit more since the Paralympics, mainly because, 1) I wanted to go to the Games, and 2) There was such a big deal made about the support and the accessibility of it all, etc. – Sophie

Sophie's primary mode of transport is a private vehicle but once she attempted to use the public transport system during the 2012 Games, she says her usage has increased overall. Both her and Peter expressed the same feeling of changed attitudes, beyond physical accessibility.

> [D]uring the Paralympics I got such different reactions in the streets because it was quite late on in the games so people had been […] watching it every day on TV, and people just looked at me, smiled at me very differently when I walked in. It was really interesting, very interesting. – Peter

It is on the back of these improvements that the ATDP consultation was held. A former government official, interviewed for this research, describes the impetus behind it so soon after the Olympic Games as a way to "maintain the pressure" after "a successful Olympics". It was as an extension of these events that other accessibility efforts were rolled out.

B. The renovation efforts – rolling stock and new buses

Since 2012, TfL have published a document titled "Your Accessible Transport Network", with subsequent updated versions. In its first iteration, TfL refer to the success of the 2012 Games, "with more disabled people travelling to more events at more venues and locations than on any previous occasion" (TfL, 2012b, p. 4). Since then, there have been two new versions, the most recent from May 2015. The aim of the document is to detail the improvements that have been delivered since the previous publication and to set out the plans for the year and the future. Sir Peter Hendy, the Commissioner of Transport for London, wrote the foreword to the 2015 version and in it he describes London's transport infrastructure as "one of the most accessible in the world" though "there is much more to do" (TfL, 2015c, p. 4).

In the three years after the 2012 Games, the provision of manual boarding ramps was extended from sixteen stations to fifty-five, no longer limited to the Overground but now also on the Tube. This includes a new type of ramp to be deployed when the train is lower than the platform (the more

common phenomenon is the platform being lower). The need for booking 24-hours in advance was also scrapped, being replaced with a 'turn up and go' approach. An additional six Overground and four Tube stations were made step-free, along with the gradual introduction of the S stock trains on the District and "Neapolitan" lines (an affectionate nickname for the combination of the Metropolitan, Circle and Hammersmith & City lines). The S stock are low-floor trains for easier accessibility and four wheelchair spaces.

As for bus accessibility, in November 2012 TfL launched a poster campaign at bus stops and in buses. On a white background, bold red letters state, "Buggy users please make way for wheelchair users". Low-floor buses with dedicated wheelchair spaces were introduced from 2001 onwards, and quickly these spaces became the object of debate (see sections 2.C and 3.A below). TfL finally intervened in 2012 by requesting that other users give wheelchair users priority to occupy the space. Additional debate arose around what types of mobility aids can be used on buses, such as scooters and larger electric-powered wheelchairs (powerchairs). TfL therefore launched a Mobility Aid Recognition Scheme, also in 2012, giving users of wheelchairs and scooters of specific dimensions a green 'Mobility Aid' card. If there is a misunderstanding with a driver on a bus, for example, the wheelchair or scooter user flashes their card to show that their mobility aid is of an approved size.

Staff training has also been put at the forefront of TfL's concerns, according to "Your Accessible Transport Network". A new programme, titled "All Aboard!" was developed in 2013 and started being delivered to bus drivers from 2014 onwards, as part of required training. By September 2015, 100% of bus drivers should have undergone awareness training, which is aimed at highlighting the experiences of older and disabled people while using public transport and to improve awareness of their needs. Also, as part of TfL's efforts to improve customer information, the new TfL website, launched in March 2014, includes an updated 'Transport Accessibility' page with a variety of network maps including a step-free and an 'avoiding stairs' guide in both normal and large print. In 2013, TfL rolled out another customer-oriented scheme, the @TfLAccess Twitter feed which engages directly with passengers and provides updated information about accessibility on the transport network.

More recently, in March 2016, TfL announced its new budget and business plan which includes many renovation works and improvements to accessibility in the system (TfL, 2016c). Among the announcements was that the station accessibility budget would be doubled, from £75 to £150 million, to ensure that the Mayor's target of half of Underground and rail stations being step-free by 2018 will be met (TfL, 2015a). In May 2016, London's mayoral elections took place, electing Labour's Sadiq Khan into office. Khan's platform included a call for improved bus design and a more "ambitious approach" to step-free access throughout the network (Khan, 2015)[23]. Two new announcements have been celebrated by advocates of accessible transport, including an additional £200 million investment to boost accessibility on the Underground and a new "Please Offer Me a Seat" badge (TfA, 2016b; TfL, 2016b). The latter was trialled by 1200 people on the network, used by those less able to stand, particularly those with hidden disabilities. After a successful trial, it became permanently implemented in December 2016.

The past decade, particularly, has therefore seen a wide range of accessibility improvements to the network, and this has largely been recognised by interviewees who have felt the positive impact on their daily journeys. This was reflected in our conversations:

> But I think the differences I've seen in London since I've moved here has been tremendous. This place that we're here now, King's Cross St Pancras, I use this station all the time and it's brilliant. – Faith

> I think it has improved, I think I realised that the drivers are more trained than before. – Um Hayaa

> So the whole of my narrative includes a sense that things are getting better; Tube stations, Tottenham Court Road is going to be fabulous. There's a couple more in the pipeline. – Anton

It should, therefore, be noted that I do not aim to undermine TfL's efforts in this thesis – this is not an evaluation report of the work they have done in accessibility. My aim is to discuss wheelchair users' experiences of the transport network, and interviewees have recognised and given praise where it is deserved: there have been significant improvement efforts in the past decade. However, this is not where the story ends, as praise for improvements is often followed by words to effect, "it could be better", "but there are problems". As discussed in the introduction to this thesis,

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[23] Sadiq Khan's mayoral campaign website was taken offline as of March 2017.

wheelchair users' descriptions and experiences of the transport network is seemingly contradictory: they recognise the improvements, but quickly qualify these efforts to discuss the various barriers they face. Indeed, interviewees would often add 'but's and 'however's after describing the improvements that have happened, even in terms of the generally positive narrative of the 2012 Games:

> Interviewer: Did you feel a difference during the Olympics?
>
> Yeah, definitely, completely. Absolutely. Whether it stuck? No. – Alex Lyons
>
> TfL services are improving but spotty. – Char Aznable
>
> I think obviously it has improved, but it's too slow and the improvements seem to be focused very much in one area of London. – Carl

This section has covered the improvement efforts of TfL in detail in order to reflect the narratives of interviewees who recognise the work undertaken in the past twenty years. However, we must also turn to the 'but's and the barriers which often characterise wheelchair users' experiences of public transport in London.

2. Physical barriers

A. *"The wonder of technology is the wonder that it ever works":*

When DAN and CAT protested in Trafalgar Square in the early 1990s, their primary target was the, then already aged, Routemaster buses. As discussed in the previous chapter, these buses were completely inaccessible, with steps at each of its entrances. Introducing low-floor buses with automatic extendable ramps, from 1994 onwards, was the first step to introducing some wheelchair accessibility to London's transport infrastructure. In essence, all 8700 buses of TfL's fleet are now low-floor, the single exception being 'Heritage Route' 15 which operates Routemasters on a short section (Evening Standard, Press, 2014). There is no question that this has improved accessibility throughout the city for wheelchair users, and this is widely recognised by interviewees who have seen the changes in London in the past twenty years:

> I moved to London in 1997 for work, straight from university and there was one bus service that I could take in the entire city that was accessible. And all this one bus did was take you from one mainline station to another, to another; it kind of went on a loop. […] Sort of 18 years later, every single bus in London is accessible. – Faith

Yet even accessibility features like ramps to board the bus can be the source of anxieties while travelling. One of the concerns is the design of the ramp: earlier versions of extendable ramps were 'telescopic' and some are still in service. This design has a guard flap where the ramp meets the door, which puts the wheelchair user on a particular incline and "can cause you to fly backwards" (Char Aznable). A bigger anxiety, or at least one more commonly mentioned by interviewees, is the lack of reliability of this particular piece of technology. Fourteen interviewees said that they have often been unable to board a bus due to a broken ramp. The "wonder of technology" title for this section is a quote from interviewee Michael J., referring to the contingency plans he had to keep in mind while travelling, particularly in case a ramp broke:

> The ramp might get stuck so I'm stuck on the bus for 10-15 minutes until they can get me off… So there's lots of things that I have to think about. – Michael J.

The reasons for these technological bugs are multiple. It may be due to the ramp mechanism itself being faulty, or to the environment in which it is deployed. Concerning problems with the mechanism, Faith was upfront about understanding that this can be a concern for any type of technological artefacts:

> Of course, with anything mechanical, the less it's used, the more likely it is to seize up. – Faith

In cases where the ramp's breakdown is due to the environment where it is deployed, this is often due to compatibility issues between it and the streets and curbs of London, in terms of height as well as street furniture that might block its path. Many interviewees encountered this problem:

> The ramp has a kind of sensor, so sometimes when the driver pulls out the ramp, the ramp goes back because it's not actually that there's a problem, it senses something in the way so it gets back. – Um Hayaa

> Or putting the ramp out in front of the bin so it sort of stops short and you have to get off from a height. – Alanni

Interviewees often said that they were concerned with how often they came across broken ramps, generally expressing surprise that buses with faulty ramps were allowed to be in service at all. Ramps and their general unreliability can be the source of anxiety and can derail a journey completely, particularly if they break while a wheelchair user is onboard. In that case, drivers need to stop at a curtail point, and wait for their company's engineering van to come fix the issue, or a wheelchair may

have to be taken all the way to the bus depot and a taxi is called for them to continue their onward journey.

> I've been told that should never really happen because if a bus ramp is out of service or broken, essentially, the bus shouldn't leave the depot. – Carl

> It shouldn't be like that; the bus should be working, and there are so many buses like that in service. I've been to so many bus depots because the ramps were broken and I can't get off. – Adam

Bus drivers are now trained to test the bus ramp before leaving the depot. For one of my observations, I was invited to a disability awareness event at a bus company's depot. There, I noted a prominent banner, consisting of a check-list for drivers before leaving for their driving shift. The fourth item of the list clearly stated: "Check the wheelchair ramp works". Whether this is always done is not something I can comment on, but drivers' training was described by interviewees as a 'social' problem rather than a 'technical' one. As such, it will be discussed in section 3.B below. Three interviewees also said that ramp reliability has improved recently with newer buses and improved ramp designs.

When one is accustomed to London transport, one also becomes used to the various noises made by buttons and alerts throughout the system. During my research, I quickly became used to looking out for wheelchair users when I heard a strident siren on the bus alerting that the ramp is being deployed (either being put out, or being brought back in). Two interviewees brought this siren to my attention, describing it as an intrusive experience:

> [Imitates alarm noise] And everyone looks, everyone stares, and I'm like, yeah, I'm just getting on the bus. – Alex Lyons

> So I don't like the fact that there's the siren that starts wailing at you, or at everybody, when you're about to get on or about to get off the bus. It's all a bit of a big faff, but you get used to it. I mean, public humiliation seems to be… you've got to be able to deal with it if you're disabled. – Sophie

This technology might not physically impact wheelchair users' accessibility, but it provides an additional source of anxiety if they are worried about how it is perceived by other passengers. However, the absence of noise can also be problematic for wheelchair users:

> [T]here's a bell that the wheelchair user normally presses to notify the driver that he or she is going to get off. Sometimes the bell doesn't make a big difference because either the driver

> didn't hear or they have the same sound as the other bells –
> Um Hayaa

> With the internal bell […] when I push the blue button, there is
> no audio indication that I can hear unless I'm listening very
> intently or I can just about hear a buzz. There's no indication on
> my end that that's gone through. – Char Aznable

For wheelchair users to alight a bus, they must alert the driver by pressing a blue bell placed in the wheelchair priority area. This bell indicates to the driver not only that they should stop at the next bus station, but that the ramp has been requested. The problem here, according to Char, is that contrary to other passengers who see the "Stop requested" signal light up on the LED boards, there is no additional indication that the ramp request has been recognised by the driver. As such, interviewees have described situations where the bus stops for non-wheelchair users, but does not deploy the ramp. In these cases, the wheelchair user might have to shout out, "Stop!" and catch the driver's attention, or hope that they have better luck at the next stop.

Finally, and as one might expect, wheelchair users' journeys are also disrupted by broken lifts:

> [Y]ou go on the TfL website, you find out that it's wheelchair
> accessible from platform to street, and then you get there and
> find out that the lift's not working. – Marie

Interviewees make a distinction between lifts which have broken down, and ones which have been taken out of service for maintenance or to be replaced, as the latter is often more prominently advertised on TfL's website or social media. Regardless, the result is the same particularly if the information is not easily found: an alternative route has to be found, or they need to make their way back home. If a lift breaks down and a wheelchair user finds herself unable to continue her journey, TfL is meant to ensure that they reach their destination through an alternative means (usually by booking a taxi for them). Though it is a comforting policy to have, it is unclear how many wheelchair users are aware of this policy and broken lifts are still a source of anxiety as it either extends travelling time significantly or may cause wheelchair users to cancel their plans completely.

B.   The manual boarding ramp and human-dependence

On buses, ramps are automatic: at the press of a button, they deploy, though sometimes getting stuck in the process. Trains on the Overground

and the Underground, on the other hand, require manual boarding ramps. These foldable, yellow and black ramps are found at stations which are considered "step-free from street to platform" (SFSP), and require a member of staff to deploy them for wheelchair users when they arrive at the station, and for this member of staff to communicate with the passenger's end-station that they must deploy one at their end as well (if that station is also SFSP). The human-dependency of these manual ramps is yet another source of anxiety for wheelchair users on public transport, despite also being mentioned in interviews as a welcome solution. Interviewees' criticisms of this method are based on the unreliability of the service, primarily due to human error. This unreliability impacts their journey in a variety of ways. Firstly, when boarding a train at a station, one has to find staff members and notify them that the ramp is required:

> At the gate there's supposed to be somebody there and I'm supposed to say, hello, I'm travelling to, from, and I need some assistance, please, I need the ramp. Now that person may acknowledge you, maybe not, they may come down and help you with the ramp, or may radio somebody to come and assist you, but you don't know what's happened because there's been no communication. – Adam

While the wheelchair user boards the train, the staff member should ask at which stop they will alight. As mentioned above, if that station is also SFSP, they must call the station and inform them that a wheelchair user will require the manual ramp to be deployed. This moment is crucial: if a staff member is not present at their destination, a wheelchair user might be stuck on the train until it reaches a station where they can alight without help, or they will require help from other passengers to let staff know they are stuck. As a result, the thought of whether or not staff will be present is always on their mind:

> Well, we always arrive into Euston on the train and that has got better over the years, but there's always the, "Will the man be there to get you off the train?" and that's a bit of… that's the first concern, are you going to get off the train? – Jo90

In some cases, interviewees described attempting to disembark the train despite the absence of staff with the ramp. Carl, below, is a young wheelchair user and described his skills on his wheelchair as "not poor", having played wheelchair basketball in the past. Despite his abilities, he says he has got himself stuck "a couple of times" when he did tried to disembark on his own:

> I had an experience where the guy with the ramp wasn't there and I attempted to disembark the train and the front caster wheel got stuck in the gap and the main wheel were fine but the front one got wedged in and it was kind of a case of, you know, I hope the guy doesn't just drive off. – Carl

Other interviewees enlist the help of other passengers to alight the train, like Basil:

> I've had the same experience with what we were just talking about, being put on the train in Central London and not knowing that someone's going to be there to get me off the other end. At worse, ended up with a couple of drunk football supporters literally picking the wheelchair up and carrying it back onto the platform. – Basil

Basil continued his story to tell me that it was "kind" of the football supporters to help, but that this should not have been the case, as it is potentially dangerous for all involved. He explained that he has a condition which does not allow for him to be put in plaster. Had the "drunk football supporters" dropped him or put his wheelchair down too heavily and injured him, there could have been major health implications for him. However, while stuck on a train with the doors closing, decisions need to be made quickly, leading to potentially risky choices. This can be true even in cases where the staff member with the manual ramp is present. Basil described another negative experience:

> The chap with the ramps did arrive and he went to put the ramp for me get off with the doors open. The driver of the train either hadn't seen him or didn't want to see him because they were running behind schedule, or whatever, so the doors shut with the ramps in a half position, me inside, and actually clunked the chap on the platform so he fell over. The train just carried on out of the platform, leaving my ramp guy on his back on the platform, me stuck on the train, it was one of the few times in ages I'd tried to get somewhere by myself. – Basil

In this case, with the rush to meet time constraints, Basil found himself in another difficult situation as decisions had to be made on the spot. So while the provision of these ramps improves accessibility for wheelchair users, its human-dependency can prove to be a significant barrier. As Robert explains:

> Here, to get a member of staff to operate a ramp, you need to make sure the person is, gets on, finds the right person, the person meets the right train, and is at the right door. It doesn't matter how well you train staff, you put a human being into the equation and it always raises the area where it can go wrong. – Robert

Robert works at a transport provider himself, and knows the ins and outs of accessibility provisions in London. For example, there have been attempts to remove the human from the equation by installing platform humps at some Underground stations. These, Char Aznable argues, "aren't that difficult" to implement more widely:

> Yes, you lose five metres of the platform while [the hump]'s being built, but it's two doors. Again, it's not that disruptive. – Char Aznable

These humps have been installed on some stations of the London Underground. In some cases, they have even been installed at inaccessible stations to facilitate interchange between lines (in other words, the wheelchair user may not be able to leave the station but can change from one line to the other). All interviewees who mentioned the humps agree that they have facilitated access enormously, but there has been some issue in the way it communicates with the manual boarding ramps. As Alan described:

> Assistance turned up with the ramp, put me in the wrong carriage. I asked him before we set off, because I know at Green Park you have to be in certain carriages to get the raised platforms [humps]. And I said to him, are you sure this is the right bit? And he said, "Yeah, it's alright, this is where you need to be." Put me on the wrong carriage so we got to Green Park which is where I thought I would just wheel off and it'd be easy and there's a great big step, big gap. – Alan

In other words, the interaction between a built-environment solution (the humps) and a human-dependent one (the manual ramp) can be a point of friction. The problem can be argued as one of inconsistency in application of solutions as using these different approaches in different places may cause incompatibility within the infrastructure: there is little standardisation through the process of problem-solving. In this section we have covered issues pertaining to technology and infrastructure, but have made some allusions towards problems with the built environment of the infrastructure (and around it). It is now to these issues that we turn.

C. The built environment

Buses and train carriages are confined environments with recommended passenger capacities and walls that define their sizes. What is put within those walls, however, is flexible: the number of seats, where the engine goes, how handrails are laid out, etc. Among the factors that inconvenience wheelchair users' journeys are these spatial factors, both within the bus,

but also in terms of the layout of the city of London. The latter was already addressed in part above, concerning the impact that street furniture can have in the deployment of buses' automatic ramps. Garbage bins, street lighting and even bus stops themselves can prove to be problematic as ramps may bump into them, activating sensors that force the ramp to retract or even become stuck. New guidance was issued concerning the design of accessible bus stops (TfL, 2014b), ensuring a clear path around the area and curbs of appropriate heights so as to match the ramps (a difficult point given the variety of bus designs and types of ramps). Yet the problem with streets and pavements are not restricted to the area around bus stops, as some interviewees have discussed. A key moment of accessibility is being able to reach bus stops and train stations at all; dropped curbs and level, relatively smooth pavements ensure ease of access:

> Obviously you can't change every pavement in London overnight, of course you can't. But it's, you know, they're always doing stuff to London. If pavements were flat and the dropped curbs there and those sorts of things, you probably wouldn't need to worry so much about getting onto buses. If you have a fairly flat, straight-forward run, you can probably just do that. – Kate

Kate is Basil's wife. She often accompanies him on days out and participated in our interview. At the moment she intervened, we had been talking about the impact of cobbles, specifically the ones that were recently put into the Southbank. To their dismay, these cobbles had a negative impact on their experience of the area, causing one of Basil's wheelchair's axles to break. They laughed the event off, calling them "design cobbles", contrasted to the "historic" ones at Hampton Court which, due to age and wear, were now smooth and navigable. Other aspects of the built environment that may be problematic are dropped curbs, though most interviewees said that these had become much more ubiquitous in the past decades. Some areas, however, seem to have fewer dropped curbs, or at least less consistency in their placement. Anton, for example, said that this is the case in the borough of Westminster. Adam also pointed out this inconsistency in west London, where I interviewed him. From the café, he pointed towards the nearest dropped curb to cross the street and access the Overground station nearest to us:

> They'll spend the money to put things there, then you can't get to them. And it's the simple thing of the dropped curb, when the nearest one is half a mile down the road there. Go all the way

> down there and come all the way back up. Do you know how
> much effort and energy that takes out of you? – Adam

The physical built environment around the transport system can therefore pose additional barriers, as does the design of the space within transport technology. We have seen the barriers that technological breakdowns or lack of human-technology cohesiveness can cause, but we have not yet addressed issues concerning the space onboard buses and trains (or the lack thereof). The crowded nature of London's transport network is notorious, and has been the case throughout its history, as we have seen in Chapter 4. This indubitably adds to the problems that wheelchair users face while using public transport, as interviewees mentioned overcrowding and the size of London's population in our conversations:

> So the Underground is very crowded, it's often very difficult to
> get into the Tube when you're a wheelchair user because you
> need more space, then people get angry with you because you
> take so much space, and then things go wrong. – Kerstin

Buses and trains on both the Overground and the Underground are victims to this situation, particularly in peak hours. While the crowds affect both disabled and non-disabled people, the intensity of the impact is different for wheelchair users, this interviewee argues:

> It's also the fact that it's not 100% reliable that you can get on
> the bus that you want to get on. Obviously that's a given for
> everybody but it's much more of a given to disabled people
> given there's only one wheelchair per bus and that there are
> often some pushchairs and parents who don't want to get out of
> the way. – Faith[24]

For Kerstin, however, the issue is one of design rather the amount of people. She argues that bus design in London is "not the most innovative", and she is not alone in thinking this. Fifteen interviewees argued that the wheelchair space onboard the bus is not large enough, or that it is difficult to manoeuvre into due to barriers such as handrails. Here is Alanni speaking about this problem:

> You have to go backwards. You have to go backwards
> according to the law, so the pole makes it really hard because
> it's there and you're trying to go into this space here. […] It's
> like, easier for my boyfriend to lift the back of my wheelchair
> and yank it backwards with me in it rather than me actually
> trying to shuffle in. – Alanni

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[24] Faith's comment raises the question of whether accessibility for wheelchair users is different than that for non-disabled passengers on a qualitative or quantitative level. I discuss the question of *accumulation* of barriers in this chapter, see section 4.

As Alanni mentions, the design also requires wheelchair users to manoeuvre backwards into the space and face the back of the bus. This is prescribed in the space as the safest way to travel, and once in position, the wheelchair user's back should be against a backrest. This position, in itself, has been described as a nuisance as facing the opposite side of travel can cause travel sickness in some passengers. Michael J. is one such case:

> I suffer sometimes with travel sickness and so I find it easier sometimes to sit the opposite way to how you're supposed to sit in the wheelchair space. – Michael J.

As we will see in Chapter 6 (see section 2.A), wheelchair users subvert prescribed and expected ways of using public transport, but it remains that the design of the wheelchair space is often brought up as unsatisfactory. As seen above, this may be due to barriers to manoeuvring or the position one has to take within the space. However, the size of the space has also been described as insufficient. Many interviewees remark that it should be able to fit at least two wheelchair users rather than one. As Faith points out in her quote above, the policy is that a single wheelchair user is to be onboard a bus at any time. What happens when wheelchair users want to travel together? Um Hayaa has faced this problem while travelling with her sister:

> […] either I offer to my sister, use the bus first, and then I wait for the second one. Sometimes the journey can be very difficult. – Um Hayaa

Alice has had a similar problem with her sister on trains. Train carriages allow for a single wheelchair user per carriage and this prevented them from being able to prepare for meetings while on a journey, having to do the preparatory work beforehand. Such a small space can mean a longer wait for wheelchair users, as they often have to negotiate the small area with a variety of other passengers. Tourists, for example, might use it for their luggage. Or some elderly passengers may use it store their walkers. More often, however, is the negotiation for the space with parents and their children. Though interviewees point out that this problem might be solved through designing a bigger space, or two spaces (one for a wheelchair user, the other for a buggy user), they also describe these negotiations as clear evidence that there is a *social* barrier to accessing public transport. Negotiating with parents with buggies is one among many, which we will be discussing in the next section.

3. Social barriers

A. The "Buggy Wars"

> That is a massive issue with the buggy war [laughs] as I call it in London. – Kerstin

With all but the heritage buses being wheelchair accessible, this mode of transport is often prioritised by wheelchair-using passengers for pragmatic reasons. However, given the space issues discussed above, the so-called "wheelchair priority area" on buses is the topic of heated debated not only in London, but throughout the country. This debate has entered the media as comment and debate articles have been published in mainstream newspapers, including the BBC, the Guardian, and the Daily Mail (Moss, 2013; Rozenberg, 2015; Williams, 2014). One of the primary reasons for such heightened media attention is the "Doug Paulley case". In 2012, Doug Paulley was denied access to a bus in Yorkshire because the space was being used by a mother with a baby in a buggy. He sued the bus operator, First Group, that operated on a 'first come, first served' basis. This approach was ruled unlawful in September 2013, a result which was then overruled by the Court of Appeal in December 2014. Paulley's lawyers have since escalated the case to the Supreme Court. The judgement was passed in January 2017, and will be discussed in Chapter 7 (see section 1.A.III).

In 2015, the disability charity Leonard Cheshire ran a survey with over 179 wheelchair users throughout the country and found that 92% among them have been refused access to a bus, and 61% identified buggies as being the "biggest problem they faced" (Leonard Cheshire, 2015). Among my interviewees, all but three wheelchair users shared this opinion. The problem, many interviewees argued, was down to a question of choice as well as the history behind the origins of the wheelchair space. Regarding the latter, Anton argues that the reason the space exists at all is the disability rights movement of the 1990s:

> In the old days, when all buses were old Routemasters, you didn't take a buggy on the bus. So you had a small pushchair and you would fold it and put it in the luggage hold, and take your baby like that. […] Then wheelchair users started campaigning for a wheelchair space and the wheelchair spaces were implemented, and that dragged in its wake the possibility of bigger and bigger buggies to use that space. – Anton

From the intersected history of disability and public transport in Chapter 4, we know that there is evidence for his claim. The gradual replacement of Routemasters in London and the implementation of accessibility legislation came after a strong wave of protests by the Campaign for Accessible Transport in the early 1990s. However, as Anton himself points out at another moment in our interview, it is a "complex issue" that requires negotiation over the space, and confidence to do this negotiation. More recently, Baroness Sal Brinton, a member of the House of Lords and also a wheelchair user, faced a similar issue. She kindly agreed to be interviewed for this research, and waived anonymity (she will be referred throughout the rest of the thesis as Sal). Here is the incident she experienced in her own words:

> But this particular incidence, it was one of the new Routemasters, so it had a driver and a conductor and I think it was virtually empty. There were, what, 5-6 people downstairs? And the driver put down the ramp and as I started to go up the ramp, I saw that there was a man, presumed father, with a buggy with the wife holding the baby on her lap on a seat, but he refused to move the buggy. He just would not move the buggy. And the conductor came up and remonstrated with him, but he just wouldn't move. And eventually, the conductor said, "I can't force him to move, so you know, you'll have to get off. I'm sorry, I can't take you anywhere else." And I had even tried to explain that if the guy moved out of the way and I parked myself, there was room for him to put the buggy back in front of me and we would both be fine, but he would not move. – Sal

The narrative here is a familiar one to my interviewees, one that they often recount themselves. On the one hand, there is the 'sleeping baby' syndrome, where they feel compassion towards parents with sleeping children in a buggy and would rather they not move:

> Wheelchair users will say, if a baby's asleep in a buggy, and I can't get on, I'm not going to make you lift that sleeping baby. Who? I'm not going to say to a mother take that baby out of there, fold that. What's she to do with a baby when it's sleeping? Leave it. – Adam

On the other hand, there is space for negotiation as well. As Sal, above, states that had the father with the buggy allowed her to manoeuvre into the space, they would have been able to share it (the buggy could have been placed in front of her in the space). This is often the case: two buggies, sometimes three, can fit in that area, and it is just about big enough for wheelchair users in smaller chairs to share with a pram.

> Most of the time, if you can persuade people to move, I can get in the wheelchair space and the space behind me can put the

> buggy, so it doesn't become a battle about who gets in, it becomes a negotiation about how we arrange it so we both do it. – Alan

The wheelchair user's willingness to share the space may be due to their wish to compromise, or even due to social norms and etiquette. As Alice puts it, "it's not very nice to shove a buggy user out of the way" whereas it would likely be more socially acceptable to do so with suitcases, for example. Diana argues that these moments are often politically charged, given the history of the space. The debate than becomes one of choices:

> It's not about who's more important, it's about who has a choice; so I do not have a choice about my use of the wheelchair whereas a baby can be got out of its buggy. – Diana

> I'd love to have some awareness raising poster campaign, to have an adult male wheelchair user sort of, 6'2", sitting on his wife's lap to show, yeah, you can do this with a baby, you can't do this with an adult. So fold your bloody buggy! – Faith

> Not saying a pram should be excluded, I'm just saying that somebody in a wheelchair they have no option but to sit in a wheelchair whereas a baby in a pram can be carried, can be lifted, can close the buggy. – Linda

From the wheelchair users' perspective, parents with buggies should be perfectly able to pick up their child from the buggy, folding it to make space for them to enter the bus. Interestingly, some interviewees remarked that they believe buggies have become bigger since wheelchair spaces were introduced on buses. These new prams are described as "triumphal chariots" (Anton), transporting "all [the parents'] shopping" (Adam), or are simply "unfoldable" (Diana). Most interviewees wondered why there are no size limitations for buggies used on buses while limitations are applied to the size of wheelchairs.[25]

> [O]ne of the things that I'm quite sad that TfL hasn't done is, I think that they should have a ban on unfoldable buggies because that is a choice that someone's made and unfortunately a lot of the non-foldable buggies are a fashion choice rather than necessarily what their child needs. – Diana

Given the situation, it is a wonder that the space on the bus is called "wheelchair space" at all, as it is a constant source of debate. This debate can often expand beyond those who wish to use the space, as compromise is often struck between the different parties. As interviewees pointed out, the source of tension onboard buses and in transport more generally can

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[25] In February 2016, after the United Kingdom's first 'Buggy Summit', TfL announced that it will be working with buggy manufacturers to help highlight to parents the benefits of lighter and smaller buggies in using public transport, with the aim "to reduce conflict and anxiety around the priority space on buses in particular" (TfL, 2016a).

be the staff working within the infrastructure. The next section will give parents and buggies some respite, and focus on the social barriers caused by staff members.

B. Drivers and training

Despite negotiations being tense occasions on the bus, there is often compromise between wheelchair users and buggy users, and it would be unfair to imply that the average user of public transport is completely unaware of the needs of wheelchair users. However, even when there is good will on part of other passengers, staff members can sometimes prove to be a barrier themselves. One ubiquitous example of this is bus drivers:

> It would be great if the drivers could look at the size of my chair and then, you know, make a decision and just be aware that there's space to fit. That's the biggest problem, I think, is if you're a bit harassed as a bus driver then you probably don't always deal with it in the best way. – Aimee

> But occasionally it's the bus driver who doesn't even give me the chance to negotiate with the parent in the space, they just say, "No, there's somebody in the space. You can't get on, you'll have to take the next one." My favourite phrase. – Sophie

The majority of interviewees argued that this attitude on the part of bus drivers is due to a lack of social awareness, or a lack of training. In cases where interviewees argued that it was a lack of training, they would refer to the 'Big Red Book', the London bus driver's manual which describes protocols and procedures. A couple of them brought copies of the manual to the interview; the fifth question in 'Frequently Asked Questions' is about wheelchair users and priority access to the wheelchair bay. It states:

> Wheelchair users are to be given access to the wheelchair priority area even if it is occupied by other passengers or buggies. Use the iBus automated announcement to make it clear that the wheelchair priority area is needed.

> Sometimes it is possible for a wheelchair and an unfolded buggy to share the wheelchair priority area. It would be helpful to explain this to the wheelchair user and buggy owner, as they will be happier with that outcome and you will feel more in control of the situation. You should allow this, provided the wheelchair user is in the correct position. If part of the buggy extends into the gangway, that is allowed provided the gangway is not blocked. (TfL, 2014c)

Additionally, there is an entire section dedicated to 'Older and Disabled Passengers', describing assistance dogs, travel support cards of various kinds, and boarding and disembarking procedures for wheelchair users (including using the new iBus pre-recorded message saying that the

wheelchair priority area is required, and acknowledging the wheelchair user's presence at the bus stop). As I detailed in the first section of this chapter on improvements to the infrastructure, staff training has been placed at the forefront of TfL's concerns (see p. 101), but there still seems to be some cause for concern. It is true that the interaction with drivers can be tense for all users, to an extent, but given the level of interaction that wheelchair users have with drivers and staff members due to their additional requirements, the process can fail at a variety of other levels. Furthermore, the problems they may have with staff is not limited to drivers. As discussed in section 2.B, manual boarding ramps are human-dependent and, specifically, staff-dependent. Here are some examples of problems described by interviewees:

> I was told that they can't phone from one station to the other, now that's a lie. I know that's a lie because I've seen them do it many times. But some people are dicks. – Char Aznable

> The staff, when there's a manual boarding ramp at the Tube station, the staff will often put you on the wrong carriage or the wrong space. – Anton

Char Aznable knows that the staff member was incorrect because it is standard procedure to phone between stations when a wheelchair user boards a train at one location, to inform the station where they are alighting that a staff member will have to be there to assist a disabled passenger. There is, therefore, some inconsistency in this staff member's story, perhaps due to incomplete information and training (or, maybe, as Char Aznable says, "some people are dicks"). The same may be true for Anton's case, where the staff member is unclear which of the carriages will be at level access at other Tube stations. These misunderstandings can cause serious disruptions to wheelchair users' journeys, as do similar cases on buses. This is the reason for the Mobility Aid Recognition card, to clarify to bus drivers what size electric wheelchairs are permitted onboard. Um Hayaa had had some trouble before receiving her Mobility Aid card:

> I have also got a card, they call it a Mobility Aid card, the Mobility Aid card gives the right to the electric wheelchair user to show it to the driver if the driver is unsure whether my electrical wheelchair can be onboard or not.[…] So before I had that card, I had instances where drivers say, "No, your wheelchair looks big, it looks like a scooter, I'm sure you and the wheelchair is more than 300kg." Despite my statement saying no, it's not, they haven't taken that. – Um Hayaa

In other cases, a problem might surface due to how the bus driver parks against a curb. If the bus stop area has other buses queueing ahead of her,

the bus driver might stop further from the curb to allow passengers off. Wheelchair users will not be able to alight in these cases or, if they do, are placed directly on the road:

> I've had the ramp deployed onto the road before. […] When they put me on the road, where do I go from there? I can't move, sorry, don't put me here, you've got to put me on the pavement, how am I going to get on the pavement from the road? – Adam

Drivers being unaware or untrained on the requirements of wheelchair users and the protocols for boarding and alighting the bus can cause significant anxiety to these passengers. However, if they have boarded the bus, they have already gone one step further than they are sometimes able. Interviewees often discussed instances where drivers simply did not acknowledge their presence at a bus stop, and did not deploy the ramp for them to board:

> And then there's the bus driver doesn't actually acknowledge you and put the ramp out. – Alice

> The good thing is that all London buses are wheelchair accessible, the problem are the drivers. [Laughs] You can have the best bus, but if the driver is not willing or whatever to push a button to open the ramp, than the best high-tech bus is not worth the money, and that's exactly what happens. – Kerstin

Interviewees would often conclude their thoughts on drivers and staff members by saying that their attitudes can make a great deal of difference during the journey. In some cases, it may even be the main obstacle or nuisance that they encounter. Both women quoted below agree on this point: being ignored, shunned, or treated as a burden is awful.

> Physical barriers, so, we can redesign the buses, doesn't matter how much we redesign the buses, we could take all the seats out on the ground floor but if people won't move out of the way, what's the point? – Sophie

> You know, Raquel, I would say that the main thing is the attitude of the individual. Trust me, if the attitude of the individual is good, it makes a massive difference. – Um Hayaa

Interestingly, these quotes also reflect the distinction that interviewees would make between technical and social barriers to access: as Sophie puts it, you might redesign the bus but it will not make a difference if other passengers do not move. Or, as Um Hayaa says, a positive interaction with other users of the transport system can be the difference between a positive and a negative journey, regardless of technical barriers. When discussing the reasons behind the social hostilities they occasionally

experience, wheelchair users described them as being symptomatic of a wider social issue. In other words, they saw the origin of these social attitudes in what may be called a *disablist* society that, to this day, has maintained the historical perception of wheelchair users (and disabled people more generally) as passive or unproductive members of society.

C.   The scrounger and inspiration porn

In the brief overview of the places occupied by disabled people in British society in Chapter 4, we saw that for many centuries they have been marginalised, seen as subjects of charity or objects of pity (or research). Despite the rise of the disability rights movement in the 1980s and consequent legislative victories securing the rights of disabled people, eleven interviewees described their negative experiences with public transport as being part of a larger picture: the negative social perception of wheelchair users has only marginally changed. Among those eleven interviewees, there have been mixed experiences. Some argue that there were some improvements leading up to the 2012 Games, followed by a regress "back to Victorian times":

> I was sat at traffic lights waiting to cross the road and I was pushed off my chair into oncoming traffic, and shouts behind, "Get out and run, you fucking lazy bastard." I'm desperate to get across, thankfully traffic stops… But that's not the only form of verbal and physical abuse I've had. I've had a number of incidents. – Adam

Other interviewees argue that there have been no changes at all in the past decades:

> Where the change hasn't happened is that people still have the same shitty attitudes towards disability, disabled people, as they did 20 years ago. I haven't seen any improvements in that, and that saddens me. – Faith

Others still argue that there has been a change, but only in the narrative. In the past, labels of 'unproductive' or 'passive' were applied. Now, it seems that public perception of disabled people oscillates between two ends of a spectrum of *capability*. On one end of the spectrum, there is the 'benefit scrounger'. 'Scrounger' is a commonly used term in conservative newspapers such as the Daily Mail, generally with the intention to shame someone who has been caught using money received from government benefits in an undignified or socially condemnable way (for some examples from the second half of 2016 alone, see Awford, 2016; Baker, 2016; Chan, 2016). This rhetoric is often applied to disabled people who, dependent on

work capability assessments[26], may receive Personal Independence Payments from the Government. Hate crimes against wheelchair users that are reported, even recently, often allude to instances of the attacker calling them "scroungers" (Bullen, 2016). In other words, they must be faking their disabilities and living off other taxpayers' hard-earned money. Interviewees argued that the media may be responsible for this rhetoric:

> It's these programmes that are on the telly at the moment, they paint anybody on benefits as scroungers, and that's not always the case and yet that's the perception you get when you're travelling with these people. – Leda

> The caution comes from things like, I don't know if you've seen the Channel 4 and Channel 5's schedule lately, it's always things like, people in council houses, benefit claimants, people on benefits, people too fat to work, it's basically encouraging abuse against the poor and disabled. – Alanni

In part, these interviewees argue, this is an agenda and rhetoric pushed by the government, in an attempt to justify the cuts that have been imposed in the past five years. Indeed, the Department for Work and Pensions (DWP) has been accused of being irresponsible for claiming that three of every four claimants for benefits are faking their disability ("Benefit applicants - '75% fit to work or drop claims'," 2011). It should be noted that the criteria that disabled people must meet in order to be eligible for benefits are *flexible* categories, they can be changed by the DWP. For example, in March 2016, the formula used to calculate how much claimants would receive per week was changed, particularly concerning the relative importance afforded to the need of 'aids and appliances' ("Disability benefit change to affect half a million," 2016; Murphy, 2016). The flexibility of these categories and criteria enable government spending cuts, a point raised by Diana:

> Becoming somebody with an impairment is the one club of oppressed groups that anyone can join, and in fact, if you went for issues around the benefit system, the vast majority of the population, by the time they die, will have joined that club. But for technical reasons, to save Western government money, we make a distinction around old age, and the disablement that happens in old age, and disability that occurs prior to 65, because of the financial burden that it would then entail. – Diana

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[26] There is much to be said about the process of disability evaluation in the United Kingdom, particularly since the benefit reforms of the Coalition government in 2015, but this falls outside the remit of this thesis. It should nevertheless be pointed out that these assessments are not carried about by the National Health Services but by Atos, a private company that has received substantial criticisms from disability rights groups as well as from numerous members of parliament.

As a result, the working assessments and its flexible categories have fed into a damaging rhetoric, often used as a denigrating term towards disabled people. Some wheelchair users who I interviewed discussed being scared that neighbours might see them out of their wheelchair and call the DWP, accusing them of fraud. Chiara is able to walk short-distances, for example, and to cross streets where the pavement had no dropped curbs, she gets out of her wheelchair. However, she said:

> That's a source of big anxiety for me because, particularly if it's in my local area, I'm worried that someone's going to be reporting me to the DWP for fraud. – Chiara

In short, she is scared of being called out as a 'scrounger', undeserving of benefits and faking her disability (we will discuss how she deals with these potential attacks in Chapter 6, see section 2.B.II). Scroungers, then, are perceived not only as not contributing to society in a productive manner, they are also stealing from well-meaning and honest citizens. In Elizabethan Poor Law terms, they are the *undeserving* poor. However, the perception that wheelchair users are the *deserving* poor, not maliciously faking their disability, is also a common perception, and it often translates into patronising actions from non-disabled people, interviewees argued. In these instances, intervening and 'helping' wheelchair users becomes the action of a 'good Samaritan', the day's good deed for a non-disabled person:

> Some are a little bit patronising, I've had one bus driver ask me, "Are you ok to travel alone?" I just kind of stared him. It's just like, I am travelling alone. Of course, like, this feeds into the wider thing of society's perception of wheelchair users and what we must be capable of. – Chiara

> But the good people then tip over to being too nice and try to push me around when I don't need it. They see me going up a ramp and they come and push the wheelchair. […] They have a good heart, and they mean well, but I really don't want that. It's intrusive and patronising. – Anton

As this research did not interview non-disabled people who engage in helping wheelchair users, it would be inappropriate here to discuss the reasons why they might offer help. Rather, it is from the perspective of wheelchair users that we are discussing these actions, and interviewees often discussed feeling that they are perceived as powerless in situations where a non-disabled person will approach them and, without asking, attempt to help them. Yet, if on one end of the spectrum we have the 'scroungers' who are, apparently, not only unproductive but also malicious,

on the other end we have 'super-humans'. The 2012 Paralympic Games, some interviewees argued, brought this new perception of disabled people, more generally, and had a potentially damaging effect. In its rhetoric, the Paralympic Games want to celebrate "ability, not disability", they are "about what people can do, not what they can't do" (London Olympic Games, 2012). Here, though, the entire disabled community got painted with another bold brush as 'super-humans'. Indeed, at the time of the Paralympic Games, the Wellcome Collection opened an exhibition with that very title to explore the topic of "human enhancement" (Wellcome Collection, 2012)[27]. Yet, is that what disabled people are? Chiara argued this point:

> They happen to be good athletes, lots of disabled people are good at other stuff to the same degree and we don't get called superhumans. It's actually more dehumanising if you do that. – Chiara

There is little to be seen or spoken of the 'in-between', the "the average disabled person who's just kind of using their wheelchair and getting on with life" (Chiara). It is somewhat disheartening that a quarter-decade after Oliver's *The Politics of Disablement*, Chiara's sentiment still echoes his work so closely where he stated that in the twentieth century, "disabled people continue to be portrayed as more than or less than human, rarely as ordinary people doing ordinary things" (Oliver, 1990, p. 1). The options continue to be the 'scrounger', the 'passive' or the 'superhuman', none of them completely true and none of them humanising. Meanwhile, non-disabled people still have little interaction with disabled people, and this causes further awkwardness when encounters do happen in daily life:

> The statistics about the number of people who've got a disabled friend or have invited a disabled person around to their house or even stopped and talked to them is tiny. People are still uncomfortable around disability. – Alan

Alan's point is corroborated by a report published by the charity Scope in May 2014 (Aiden & McCarthy, 2014). In their report, they state that 67% of the British public "feel uncomfortable talking to disabled people", and 43%

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[27] Wendell (1989) has already discussed the place of "disabled heroes" in maintaining the ableist *status quo*. On the one hand, while disabled heroes are comforting to non-disabled people as they seem to *overcome* their impairments, to control their bodies, they are also (often) unattainable models to disabled people as many types of impairments simply sap all energy and stamina from their bearers. As such, it becomes another way of framing disabled persons (non-heroes) who do not achieve the same accolades as failures.

answered that they do not know anyone who has a disability (survey sample size of 2000 respondents).

In Chapter 4 I argued that the perception of disabled people as passive and unproductive has a long history in the United Kingdom. Here, I argue that these perceptions continue to play out in social interactions, having only recently begun to be challenged by the disability rights movement. Indeed, the judgement of disabled people as non-productive members of society persists to this day, with 36% of the British public saying they believe that disabled people are less productive than everyone else (Aiden & McCarthy, 2014). However, and perhaps with the intervention of the disability rights movement, these perceptions have become laden with paradoxes. While the 'scrounger' image persists, painting people with impairment(s) as being undeserving of government benefits because they must be faking their impairment(s), interviewees also expressed frustration to their entry to the job market – an additional concern given the neoliberal capitalist system in which we reside, which expects productivity and independency from individuals in society. They may be faced with a variety of barriers such as access to the building, employers who already see them as a problem (or potentially less productive than a non-disabled candidate, as pointed to previously), and even transport to commute to work:

> I didn't really feel that I had an equal access to the job market because of the way the Tube… if you can't get to work, and it wasn't feasible to drive, then I felt I was being put at a significant disadvantage finding work. – Carl

This is, to some extent, what Campbell (2008) refers to as the "double bind" of disability: in order to attempt to participate, or be included, in a neoliberal society, people with impairments needs to face a variety of disabling barriers. However, it is, within this very same ableist system, still the antithesis of the idealised body. Hence, the negative social attitudes keep feeding back into interviewees' experiences of public transport, in their negative interactions with some buggy users and members of staff, discussed previously, continuously disabling them from fully integrating into society[28]. Combined with the variety of physical obstacles described in the previous sections, it becomes increasingly clear that accessibility for

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[28] It is not limited to those two groups, but can be performed by any other passenger using public transport. For sake of brevity, I have concentrated on these two groups that were most often mentioned.

wheelchair users on London's public transport network can be challenging to say the least.

4. Accessibility as a cumulative problem

A broken ramp. A person in the space. A bad-humoured driver. When taken as separate instances, these episodes could be seen as a nuisance, some bleeps on the radar. In interviews, however, it becomes evident that they are rarely separate instances. The power and impact of these problems comes from their cumulative nature: a series of small issues that together constitute a larger, looming obstacle to wheelchair users' mobility throughout the capital. This is clear in many of the interviewees' descriptions of leaving the house half-an-hour to an hour earlier than a non-disabled person might, to ensure that they have enough time for things to go wrong. In addition, their overall description of travelling has a negative tone, rife with anxieties at the possibility that the journey might go wrong. In these four quotes interviewees describe their anxieties and the barriers they might encounter successively:

> Again, there had been incidents when I have appointments and although I came out half-an-hour from my house and I know that going to that appointment would only take five minutes, I plan beforehand half-an-hour in advance. However, sometimes it happens that I wait for four or five buses because either pushchairs or the attitude of the driver or the ramp is broken or the driver himself doesn't know how to operate the ramp. So there is a full range of different obstacles. – Um Hayaa

> I'll spend an hour trying to get somewhere that should only take me ten minutes, and I'll go from being in a really positive mood to feeling like I just want the world to stop, because I'm just so… after the third or fourth bus, or the second or third train, or whatever, and not being able to do what I need to do or what I want to do, it can be absolutely soul-destroying. – Michael J.

> I once had to wait 45 minutes at the bus stop because every single bus that came had two buggies in the wheelchair space and the driver was either unwilling to ask them to move or the passenger refused to move. What should've been an hour-and-a-half commute than becomes a two-and-a-half hour commute because of that alone. – Diana

> Travelling by bus is very stressful from the moment you arrive at the bus stop […] because you don't know what's going to happen. You don't know whether you're going to get on, you don't know whether the bus driver is going to ignore you, not even to deploy the ramp, which happened on Saturday. You don't know if there are going to be two buggies and whether if there's one buggy if it can be folded or if there can be an arrangement. It means I will set off two hours early. I allowed two hours to get here, and it took me two hours. – Anton

When analysing the interviews, it was striking how similar these quotes were to one another. None of these interviewees knew each (other interviewees had vague connections due to the snowballing sampling method) yet despite living and/or working in different areas of the city, they all expressed similar frustrations: their concern for time-management, the description of numerous problems happening consecutively. When taken individually, a single broken ramp would not seem like a huge problem, particularly in a city such as London where buses often come by every few minutes:

> I'm not going to say it's not a problem, but it's less of a problem in London […] Most of our routes are a matter of minutes before the next one comes along. – Robert

Robert is a wheelchair user who works at a transport service provider in London. It is true, there are many buses that come by in London but if, as described by interviewees, problems are multiple and occur successively, the experience is nevertheless frustrating. Five minutes can easily turn into twenty, or thirty: one bus has buggy users in the space, the second does not stop, the third has a broken ramp, etc. Alone, the barriers are arguably small, a nuisance. Together, they can begin to feel insurmountable and perhaps all the more frustrating when accessibility provisions are being made (the ramps, the wheelchair priority area). Furthermore, if it is the accumulation of these barriers that provides so many difficulties and frustrations, why are wheelchair users distinguishing between physical and social barriers in the interviews?

5. A fragmented infrastructure for the non-standard user

As detailed in the literature review of this thesis, most scholarly work on networks and systems in STS at the end of the 20th century was concerned with the assembling of the network, its period of inception (see p. 22). Less thought was given to the power relations created within it, the boundaries created by it, and who found themselves outside or inside those boundaries. Star and her co-authors' work on infrastructures has therefore been an important influence in the framework of this research. Star (1991) particularly emphasised seeking out exclusion and using it as a springboard for investigations; and the work by Lampland and Star (2009) questions how infrastructures are developed: by whom, for whom, through what means? In part, they discuss the process of infrastructural stabilisation and

consolidation and define the key characteristic of infrastructure as *invisibility*: "good infrastructure is by definition invisible" (Lampland & Star, 2009, p. 17). While this is largely true for those of us who are non-disabled, the experience of wheelchair users in public transport does not seem to recount an invisible infrastructure, but rather one that constantly, and visibly, defies them.

Throughout the process of consolidation, standards play an important role. As discussed in the literature review (see Chapter 2, section 1.B), standards are required to bring together the variety of actors that make infrastructure function cohesively, serving as a unified and unifying language. It would be wrong to assume, however, that these standards are 'naturally' created, pre-existent to the process of technological development. Indeed, standards are adopted into the infrastructure as it consolidates, accretes, slowly (Anand, 2015). Though infrastructure studies will argue that infrastructures often "threaten breakdown and failure" (Appel et al., 2015), I argue that they are particularly fickle and flaky when experienced by those who do not fit within its previously established standards. By this, I mean that these users, in the case of this research, wheelchair users, do not conform to the image of 'reflexive passengers', to borrow from and paraphrase Lindsay (2003). In "From the Shadows", Lindsay distinguishes between reflexive and end users, the former referring to those that engineers imagine will use a technology and the latter to those who adopt it. There is a parallel process occurring here, between the passengers that were originally imagined as using the transport network (non-disabled bodies, heading to work or for leisure into Central London), and those that do so today (a very wide-range of bodies, heading to work or for leisure in many places in London).

In the previous chapter, I discussed the long history of transport in the capital which has experienced numerous changes, both technical and administrative. Yet, to an extent, it has remained stable in its image of the reflexive passenger: a non-disabled commuter or leisure-seeker. As such, the service it provides only marginally, and recently, embeds the needs of other passengers and has resulted in public transport being experienced as a *fractured* infrastructure for its non-standard users. These non-standard users, with bodies other than the 'standardized bodily package' (Moser &

Law, 1999, after Star, 1991), experience a materiality whose norms have not incorporated their bodily needs. Succinctly described by Star:

> [P]art of the public stability of a standardised network often involves the private suffering of those who are not standard – who must use the standard network, but who are also non-members of the community of practice. (Star, 1991)

We can see the "private suffering" of wheelchair users in the various barriers described above, in the cumulative effect that these barriers have in their daily attempts of using public transport. We can also see it in the consequent isolation and frustrations they cause:

> It isolates you even more because your world is getting smaller, and smaller, and smaller, all the time, you're looking for more and more things that you can do as close to home as possible […] And then you end up being very isolated. – Marie

> I should be valued in the same way as any other customer and I just don't feel that we do that here. I think here we are a lesser form of person. That infuriates me. – Faith

As a result of this private suffering, the infrastructure fragments, it constantly breaks down and its edges are utterly visible to wheelchair users. This can be seen in the distinction that interviewees often make between social attitudes on the one hand, and physical barriers on the other, which is why these categories were used for the section above. Interviewees do not describe an integral system; they experience segments of it and distinguish separate elements. The title of this chapter, taken from the interview with Faith, reflects this: what type of barriers are we talking about? Broken ramps are not categorised as the same type of problem as an uncivil bus driver; the noisy sirens are annoying, but negotiating space with abusive passengers is something else entirely. In many respects, the latter problems are seen as bigger issues, as discussed in section 3.C, indicative of a looming social prejudice of disabled people.

Hence, the descriptions that interviewees give of the experiences and barriers they face are rarely, if ever, about the infrastructure as a whole. Whereas for the majority of passengers, the social and the technical aspects blend into one another and into the background, wheelchair users have to force them to collaborate with one another. I argue that, when scholars describe sociotechnical systems and infrastructure in STS, they have rarely done so from the perspective of excluded or marginalised users. As a result, descriptions of a cohesive wholeness of these systems are limited to the experiences of those whose 'bodily packages', whose

requirements, have always been taken into consideration. For wheelchair users on public transport, the experience is an entirely different one: if, as Latour argues, technology is society made durable, infrastructures are society made durable, too (Latour, 1991). We could, as Latour also argues, abandon the "divide between material infrastructure and social superstructure" and, as scholars, argue that infrastructures impose upon its users the order created by its originators. From that perspective, we can see transport infrastructure's inaccessibility to wheelchair users as originating in its history which, as argued in the previous chapter, overlaps a moment of social segregation of disabled people. This scholarly approach provides an explanatory narrative to the exclusion that wheelchair users have experienced (and to some extent still do), and it was within the remit of Chapter 4 to provide this narrative. As I argued there, understanding the overlaps in histories is important to gauge the reasons for the transport infrastructure being the shape it is today, specifically as it is embedded within a *neoliberal-able society* where able-bodiedness becomes compulsory (McRuer, 2010). In this chapter, however, to erase the categories and distinctions made by interviewees between physical and social would be to erase the richness of the interviews and conversations of this research. It would pasteurise the messy, real-world experiences of wheelchair users and, furthermore, it would not reflect the work they do in their daily lives of *identifying* problems as they experience them and, as will be discussed in the next chapters, find alternatives to the barriers.

On multiple occasions I prompted interviewees to describe their average journey on public transport in London. This question was often met with silence and hesitation, followed by long descriptions that were filled with possibilities and conditional *if*s and *or*s. Here is Marie's version of the answer, which has been edited for length:

> An average trip into work is two buses[.] So you get to the bus stop [… and] the buses are about every five minutes and you see a bus coming, you put your arm out and the driver does one of three things. He either stops and looks and then plays the automated announcement that says the wheelchair bay is needed or he shakes his head and makes some kind of gesture with his fingers to say, "No, can't get on, I've got buggies onboard." Or they'll just completely drive past you, and you've got a shelter, so shelters tend to have their back to the road, he will park with his rear doors in front of the shelter, so people who are walking can get on and off the bus, but if you've got a pushchair, a wheelchair, anything like that, you haven't got enough room to get up to the shelter. Presuming I've been able

to get on the bus: get on the bus, everybody else gets on, when you get to Stratford, then you've got to be able to get off the bus, so press the bell, shout down to tell the driver that you want to get off, hoping to God that he's heard you, and then that depends on how busy the bus is and how much noise people are making. If it's three o'clock in the afternoon and you've got a bus full of kids, it's almost impossible that you're going to get heard, so I try not to travel during rush-hour. And then you've got to hope that they do the correct boarding/disembarking process, and they actually let everybody else out the bus and then let me off the bus before they open the doors to let people on, otherwise you've got this weird bottleneck where people are trying to walk up to the seats as I'm trying to back out to be able to get to the doors, and he's had to close the doors to put the ramp out, so you've got people thinking they're helping, and they're banging on the bells and shouting down. It just makes it all very complicated but also it doesn't feel nice. It feels like you're the centre of attention and everybody's looking at you, and you're the one that's causing the problem when really there doesn't need to be a problem. [...] And then once you need to change onto another bus, you've got to do it all again, and if have to get on a Tube you have to do it all again. – Marie

Here, almost all of the barriers discussed in the previous sections can be seen. Marie goes back and forth between them but the social and the technical aspects never come together to allow her an uneventful journey. On the one hand, the physical aspect does not collaborate (there is no space, doors close, bells ring, the shelter is in the way). On the other, humans do not collaborate (the bus driver does not stop, people are staring or do not make way). Making both human and non-human come together takes *repair work* on the part of the wheelchair user. The fragments of the system need to be stitched back together, through their own means and efforts. This will be the topic of the next two chapters.

In this chapter I aimed to explore the various challenges that wheelchair users face while navigating London's public transport system, and what these barriers can add to our understanding of infrastructures. Interviewees described challenges of two different natures. On the one hand, there are physical and technological barriers that hinder their journeys, such as broken ramps or lifts, manual ramps, and even the built environment itself. On the other hand, social interactions can also cause problems, particularly while dealing with the wheelchair priority area on buses, tackling unfriendly and/or untrained staff or, more generally, negative social attitudes towards disabled people. These barriers can potentially disrupt or completely terminate a wheelchair user's journey. Accessibility can therefore be

discussed as a cumulative issue which, taken for its individual incidents does not sound overwhelming but can snowball into a trip "from hell". It is this very cumulative nature that can be seen as the source of much of the anxiety wheelchair users may face when they travel in London.

Scholarly work in STS, particularly from the ANT branch, has often pushed for the distinction between the social and the physical, or technological, to be discarded as this distinction might shield us from seeing the social shaping of technology, or how technology reinforces social power dynamics. Here, I have argued that while this can be true, and it is important to note that in the case of wheelchair users and transport it is no different, this does not necessarily account for actors' own experiences of infrastructure. Instead, due precisely to the fact that wheelchair users are at the margins of this infrastructure, they have a fragmented experience and explicitly identify social and physical categories of problems. This fragmented experience is embedded in the historicity of transport, as wheelchair users were not included in engineers' images of reflexive users and, as scholars, we could do away with the distinction. Wheelchair users, on the other hand, use them daily while navigating the transport infrastructure to help them identify the problems and barriers to accessibility.

Whereas the public transport system might fade into the background, or the underground, for non-disabled people, the same cannot be said for wheelchair users. Hence, I have argued here that the barriers that wheelchair users face in public transport are the specific result of an infrastructure embedded in a neoliberal-able society, wherein abilities "less-than" the species-typical ones are not catered for. The result of this absence both in terms of an ableist society and its material extension (the infrastructure) is this collection of disabling barriers discussed throughout the chapter. Consequently, commuting becomes an activity laced with anxiety and concerns and the nature of the infrastructure is quickly brought to the foreground, its various aspects thrust into relief. As Lampland and Star eloquently put it, "One person's infrastructure is another's brick wall, or in some cases, one person's brick wall is another's object of demolition." (Lampland & Star, 2009, p. 14). In part one of this thesis, 'Exclusion', I aimed to discuss the brick wall: how did it come about, how did it get built, and how do users on the other side of it perceive it? The

next two chapters constitute part two, 'Inclusion', and will discuss the process of demolition, or repair work: the various means through which wheelchair users have strived to include themselves into the infrastructure.

PART 2: INCLUSION

Chapter 6: "They're in charge, but you're in control."
Developing tactics to use London's public transport

Between buggies in wheelchair priority areas, broken ramps, and surly drivers, wheelchair users have to navigate a truly "labyrinthian" transport system in London, as Chiara describes it. To do so, interviewees discussed a variety of techniques, ideas and tactics developed to get around, over or be helped with barriers they encounter in the system. This chapter focuses on daily tactics, processes of problem-solving that have been developed by wheelchair users in order to manage their journeys and make them as smooth as possible. The choice of word *tactic* is deliberate, as it refers back to traditional sociological work by de Certeau (2011 [1974]) on the importance of individual choices (discussed in the analysis section of this chapter, see section 2.A). As such, the work undertaken by wheelchair users in this chapter can be seen as individual actions whose primary intention is ad-hoc problem-solving.

In the first section of this chapter, the many interviews are blended into a joint narrative of experiences of using public transport. The aim is to show the various phases of a journey and the ways in which wheelchair users are identifying problems while they travel. Using empirical data from the interviews and social media, this 'blended narrative' illustrates the decisions made by interviewees as they leave their homes and use public transport. In a second section, de Certeau's notion of tactics allows for a theoretical analysis of this data. There, I propose a taxonomy of tactics developed by wheelchair users, based on the types of problems they identified themselves, as discussed in Chapter 5. As the barriers they have identified fall between a social/physical divide, tactics can also be identified as attempting to solve one of these types of problems. Hence, some tactics are aimed towards an external goal of fixing a problem identified as "physical", and others have an internal, or emotional goal of fixing a social barrier.

1. Navigating the system: a blended narrative

Before entering into a theoretical analysis of wheelchair users' experiences of public transport, I believe it is important to use the voices of interviewees to narrate a story of using public transport in full, showing the techniques they develop to navigate the system. By doing so, we are following some of the methodological recommendations of Oliver (1992) discussed in the Methodology chapter (see p. 52) and "[illuminate] the lived experiences" of this group of users. In this blended narrative, we are recognising interviewees as more than research participants, but as individuals with knowledge. Hence, this section weaves together the stories related to me into a narrative detailing the choices and problem-solving techniques required to make public transport 'work' for them. Our story is composed of three moments: deciding, planning and travelling.

A. Deciding

While speaking about where she chose to live in London, Aimee told me, "You just have to make so many different decisions if you're disabled." She had been telling me about how she had chosen where to live by weighing a list of criteria: desirability of location, cost of housing, how accessible (both physically and financially) the housing was, and how near it was to accessible, and well-connected, transport. When she first moved to London, she did not factor in the latter and lived in a location that "was nowhere near an accessible Tube station". So she moved two years later, to a more expensive location but near an accessible station with a direct link to Westminster station, close to where she works.

This is one of the first steps in transportation for wheelchair users: a series of decisions that have to be made long before they head out of their front door… including the choice of location of this front door! Wheelchair users are already geographically constrained in London given the low number of accessible stations and their poor connections to different lines. As a result, interviewees pointed out a tradeoff between living in an inexpensive neighbourhood but spending more with transport, or living in a more central location, closer to their work, but paying less for transport. As Alex described it:

> Most people move to London and think, "Oh, I'll just find anywhere," and they very often find rooms at the top of houses

> with three flights of stairs in zone 6 because it's cheap and they don't mind the travel, because they just jump on the nearest Tube. Well, when you can't jump on the nearest Tube because it's not accessible, you have to really think about it. So I literally looked at a Tube map and was like, I'm going to house hunt in this area, I'm going to house hunt in this area, I'm going to house hunt in this area, because for me there has to be an accessible Tube station nearby. – Alex Lyons

Chiara, too, expressed a similar thought. She had been living in her parents' home when she got a job in Tufnell Park, but the transport links were poor and she would need more time to get to work. She decided to move:

> [My job] was based in Tufnell Park and I'd previously been living in Chiswick […] and it took me something like an hour and 15 minutes, and transport in general takes a lot out of me, I find it very stressful. And before I had a wheelchair there was also the matter of standing up when I was walking unassisted, not being able to get a seat. So… I moved to Tottenham which is much closer by. It would have taken me about 45 minutes max to get to work. – Chiara

Chiara mentions a "before", before she decided to acquire a wheelchair. It is a reminder that using a wheelchair does not necessarily mean that the user has completely lost the ability to walk (a topic that has been brought up briefly in Chapter 5, in section 3.C concerning so-called 'scroungers'). Her choice of acquiring a wheelchair for her disability is also a significant step. Four interviewees mentioned having connective tissue disorders which affect their joints and cause pain, often resulting in joint dislocations and rendering walking difficult and unpleasant. Due to these disorders, these interviewees all chose to buy a wheelchair for mobility purposes. Three of them described the wheelchair as a liberating mobility aid that, once acquired, allowed them to cease taking pain medications (Char Aznable) or to spend a day out with friends without worrying about becoming tired (Alanni). At the time of our interviews, two of these interviewees, Chiara and Alanni, had only been using wheelchairs for a short time (up to six months). Some days, they still chose to use crutches rather than their wheelchairs. For Chiara, these days were described as useful, used to "scout out" accessibility for when she uses the wheelchair. Alanni, on the other hand, does not self-propel and uses a wheelchair on days she is out with her partner.

The use of a wheelchair was an important factor in this research, as it is concerned with the accessibility of public transport for wheelchair users in particular. Yet choices are not black and white, wheelchair or no wheelchair.

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There are *types* of wheelchairs that can be chosen as well, with the primary distinctions being electric-powered (power chairs) or manually propelled (either self-propelled or by a carer) wheelchairs[29]. Choosing between one type or another can also have consequences on infrastructural accessibility, given power chairs are generally heavier and therefore more difficult to move manually. Some wheelchair users may opt for a single type. Peter, for example, chose a manual wheelchair while Sal chose a power chair. For Sal, it was a question of independence:

> If I'm in my non-electric wheelchair, my carer can tip the chair and get me up onto the floor of the train. But it's just not possible with the weight of the electric wheelchair. And that is the difference between me being independent and not. […] I don't want to have to rely on having a carer to get around London. – Sal

Peter, on the other hand, expressed that he would require a personal assistant whichever type of wheelchair he had chosen. That being the case, he chose a wheelchair with wider and bigger wheels which would allow him to self-propel on flat surfaces. The light weight of the manual wheelchair also allows him better mobility as he teaches his personal assistants how to easily manoeuvre him over gaps and down some steps:

> I need an assistant with me for lots of things anyway […] I think an electric wheelchair sort of hinders you in some way, it gives you some independence but the reality is I'm going to need help at the other end of where I get to anyway, so the person who comes with me might as well push, and that allows me to sort of cheat, because I can get up curbs, I can get up a couple of steps, even a flight of stairs. – Peter

In other cases, both types of wheelchairs are kept as possibilities. Michael J., for example, owns one of each type, and finds himself having to choose between one or the other before he leaves home. On the one hand, the power chair allows him to save energy: he does not have to propel himself and can use his energy for other things. However, he finds that using public transport on the power chair is more difficult.

> As much as it helps me in many respects, having an electric wheelchair to get on and off buses is an absolute nightmare because I need so much room to be able to turn around to be able to get into the wheelchair space and you know, people can be a bit rude sometimes. […]
>
> R: So do you choose when you're going out for the day, when you know that you need to take public transport?

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[29] There are also types in between, such as "power-assist" chairs that have helpful motors to add a boost on difficult ramps, for example.

> […] If I know I have to use public transport, I've realised in a
> very short time that I could not use my electric chair, so I have
> to use my manual. – Michael J.

Wheelchair users are faced with other choices, such as the possibility of alternative transport. Should they insist on using public transport, or invest in a private vehicle? Um Hayaa, Sophie and Basil all chose to do the latter, either as an alternative or in addition to public transport. Um Hayaa decided to get a private vehicle because she felt that she was spending too much time in public transport to take her daughter to extracurricular activities. She had been taking three buses in either direction to these activities which, given the potential to be faced with the cumulative nature of barriers discussed in the previous chapter, was becoming a problem and had been exhausting her. Basil and Sophie, on the other hand, are now starting to use the public transport system again: Sophie placed the impetus to do so at the 2012 Games in London, when she was part of a user trial of the network for Transport for London and says she noticed that improvements had been made. When I spoke to Basil, he had just recently acquired a Freedom Pass and intended to use public transport more often.

Almost all interviewees discussed using taxis as an important alternative to public transit. All boroughs in London have a TaxiCard scheme, which provides a subsidised taxi or private hire service for "London residents with serious mobility impairments or who are severely sight impaired" (London Councils, n.d.). However, this subsidy is limited and it was often pointed out in interviews that taxis are too expensive, or drivers ignore them and do not pick them up. The taxi option was often described as a last resort, when all other options take too long or require too much energy:

> Once before we've had to call a taxi because we were going to
> be late for our appointment because the buses will not stop. –
> Leda

> So I usually end up having to use taxis because the bus routes
> don't really do where I need to go. – Linda

Another transport alternative that was was mentioned by three interviewees was cycling. Basil and Char Aznable mentioned it briefly, and Sophie is associated with a charity that campaigns for more widespread and accessible cycling options for disabled people. This is an intriguing new possibility in terms of transport, but it will not be further expanded in this thesis.

B. Planning

Having chosen one's front door, wheelchair and mode of transport is only the first phase of leaving the house at all. All interviewees placed a strong emphasis on *planning* throughout our conversations. The resources to do this planning are multiple, the most official source being Transport for London. TfL provides a route planner, available on its website under the rubric 'Plan a Route', and produces a variety of maps (available both online and at most stations). Beyond the official schematic Underground map, two others are important to this thesis: the 'Step-Free Tube guide' and the 'Avoiding stairs Tube guide'[30]. The former, pictured below, provides the user with detailed information about accessibility at all stations, but is also criticised by some interviewees as being anywhere between "a bit" (Kerstin) to "incredibly" (Chiara) complicated. Most interviewees did not mention using this complex map, but do use the more common Tube map which has two types of accessibility symbols: a white circle with a blue wheelchair, or a blue circle with a white wheelchair. The first stands for "step-free access from street to platform", and the second is "step-free access from street to train" (definitions according to the key on the map). While complex, the 'Step-Free Tube guide' includes details about how large the step and gap are between the train and the platform, categorised in three classes each (green, yellow, red and A, B, C, in both cases from smallest to largest). The classic Tube map, however, does not include this information and, according to Anton, might not even mention whether or not a step-free station from street to platform has the necessary manual boarding ramps:

> And there's a white wheelchair symbol so that suggests great for wheelchair users. But no, there are no ramps at Upminster. So you can get there but you can't get off the train. […] They should change this map to show which stations you actually can get off and on at, not just which ones you can get to the platform because a lot of people looking at this thing, I can't possibly hop that gap. – Anton

This often means that wheelchair users spend a significant amount of time trying to "work [out] the route" (Marie) to ensure that it is accessible. Aimee estimates that she "probably" spends "an hour a week" looking at the TfL route planner. The work involved in planning out routes requires additional research from these users who know that problems along the way can

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[30] This one was mentioned by Alanni, who uses crutches as well as her wheelchair to get around London.

result in being late at best, or getting stuck in an inaccessible station at the worst. So they plan:

> I do like being spontaneous and I try to be, but there's a lot of… there's often a lot of thought involved because I have to think of every possible contingency, of every possible possibility before I actually step out of my own front door, really. – Michael J.

> I suppose one trick is to get to know the transport network intimately because you can't just pop out of the house and say, "I'm going to town." I have to think it through. So I know the bus network extremely well. I know the accessible Tube station list well. I know lifts. Knowledge. Knowledge is a trick. – Anton
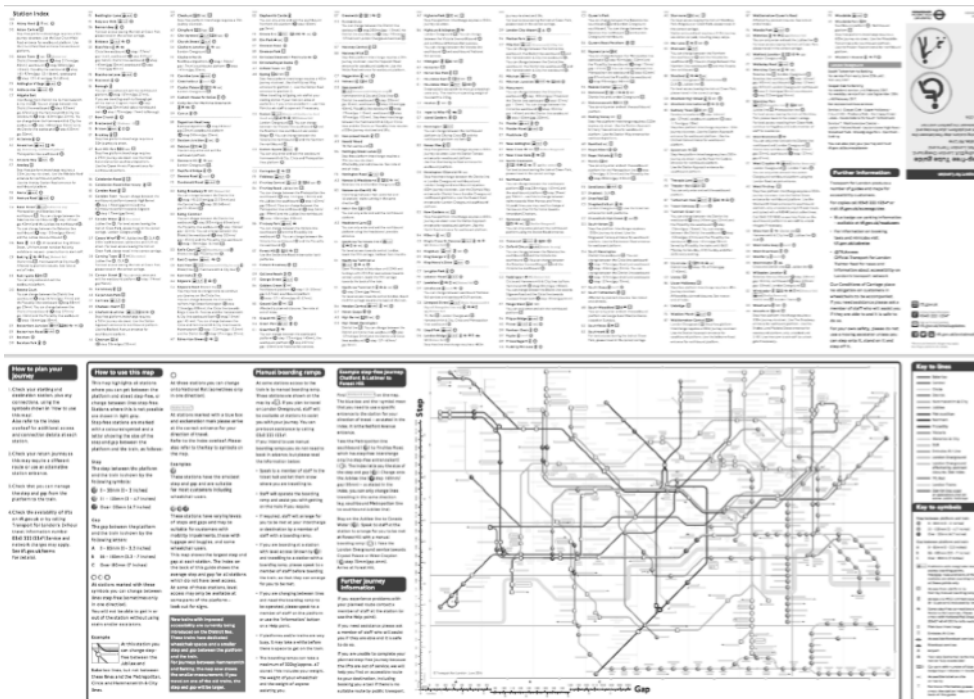
Image 1: Step-free Tube map of London, produced by TfL.

"Knowledge" of the system is often spoken of as an enabling factor, something that "makes a difference" (Alan) for getting around. As a result, many interviewees speak about developing a "mental travel map", as D puts it, of the system. This is a version of the network that they know is accessible to them, personally, as opposed to what the official maps show. These mental maps are developed through experience, trial-and-error, and through research and observation. Not satisfied with a mental map, Aimee has materialised hers onto a physical one:

> You just have to think differently about how you do things, so I've actually got a Tube map where I've just taken a black felt pen and crossed out all the stations I can't use because even if you've got the logos on the Tube map, it's just easier if you see ones that you can use. – Aimee

In other cases, there is no material map but rather a collection of reference points for routes or areas that are less problematic to its user. Alanni, for example, speaks of "safe routes", an adjective also used by D. The strength of these users' knowledge of the system is seen in interviews through the way that they confidently recite their routes or stations of preference, or which ones they know are out of bounds to them. Their knowledge is such that it will sometimes clash with that of TfL employees', as they are aware of places where they can change lines despite the station not being marked as step-free:

> You learn quite quickly which stations you can use and which you can't personally. I know Oakwood is a really good station, thankfully, the local station is good, but… apart from that, the nearest station is Caledonian Road, that's the nearest disabled access station and you've got about seven or eight stops with no accessibility whatsoever between that one and that one. – Leda

> Mile End is officially not accessible, but you can change there. You need assistance from staff, they must call ahead, they have manual boarding ramps, it's not a problem. Whenever I say at King's Cross, for example, could you please call Mile End because I want to change there, they say, "No, Mile End is not accessible." That is right, but I don't want to leave at Mile End, I just want to change to another train, because they are on the same platform, it's not a problem. I don't want to get to street-level. – Kerstin

The downside to these maps, whether they are reference points or physical ones, according to Alice, is that they often do not keep up with changes that occur in the system, either positive or negative. There is a "lag" between the material network and their mental maps:

> I still have network patterns in my mind, network maps, that actually may no longer be valid. Not that they don't work anymore, but more would work and I could make more connections and do more things. – Alice

In these situations, more knowledge (in the form of research or experience) is required to ensure that mental maps are kept up-to-date, including any malfunctions that may be occurring in the system just before leaving home. For this, the use of smartphone applications or checking social media for updates is necessary. One of the most recurrent Twitter accounts mentioned is "Up Down London" (@TubeLifts, also a website), which collects and collates information from various TfL outlets on the status of lifts at Tube stations. Additionally, TfL has a Twitter account specifically for accessibility concerns (@TfLAccess) which also provides up-to-date information on the network, as well as guidance on where to look for

additional information and help (phone numbers, emails, and links to access guides). Among the interviewees, three mentioned referencing these social media outlets as one of the things they do before heading out the front door:

> I check moments before whether the lifts are usable. – Anton

Beyond the logistical preparations, planning out routes and checking whether lifts are in working conditions, there is an emotional preparation that takes place as well. Interviewees often referred to their emotions while travelling as negative ones. Faith describes a constant "anxiousness", Marie says she becomes "nervous at the thought" of leaving the house and Anton speaks of the experience being "stressful", among other examples. The emotional preparation therefore includes having to "psych" themselves up to leave the house (Marie):

> I don't plan anything unless I've got at least 24-hours notice to actually try and work the route and psych myself up. – Marie

> And sometimes I think that's unfair because sometimes I just want to roll out of bed and go where I'm going, but unless you get in a cab, you can't do that. You have to plan ahead, well, that's going to take that long, and it's either this route or the other route. – Alex Lyons

It is a circular process, through which logistical planning might help in gaining confidence to leave the private sphere. This, however, is at the expense of spontaneity of travelling whenever one desires. Consequently, despite having made fundamental decisions about where to live and preferred assistive technologies, wheelchair users still need to dedicate time and effort in acquiring profound knowledge of the transport system. Yet even then a smooth journey to their destination is not guaranteed.

C. Travelling

As we have seen in chapter 5, barriers are still present in the transport system itself. All of the knowledge, research and preparatory work done by wheelchair users often does not suffice to ensure a pleasant or hassle-free journey:

> We normally plan, if we go to a place that is very far, I plan the journey beforehand. Planning it doesn't mean that it will be smooth, there'll be problems. – Um Hayaa

Here, then, we turn to the various ways wheelchair users tackle barriers and bumps encountered while travelling. These tactics begin from the very start of the journey, before they board a mode of transport, and are often

developed over time, through experience or suggestions in conversations with other wheelchair users. To board a bus, for example, some interviewees said they choose at which stops they enter a vehicle. Anton, if possible, will board a bus at its first stop, where "there will be no buggies onboard already". Faith, too, will try to board buses at a stop before notoriously busy ones:

> I will try to get on the bus at an earlier stop because I know, for example, that trying to get on a bus around Liverpool street station on the number 8 bus. – Faith

Tackling Underground and train stations that require a boarding ramp demands a different approach. For one of my observations, I spent an afternoon travelling around London with Alan. This is an extract from my observation notes:

> Arriving at the platform, Alan speaks to the Train Despatch crew. His partner explains to me that he is asking for the Turn Up and Go service, to ask for the ramp to be brought. The man goes to fetch the ramp. He jokes with Alan, saying, "If you've got your own, why make us go get this one?" He has a joking demeanour. Alan laughs as well, and explains lightly about the different sizes [of ramps]. He finishes the explanation with, "Size is everything, you know." He chuckles, as does the guard. They exchange a few more remarks about the flow of passengers, and how [staff] are working a lot because of the Rugby World Cup.

Before this afternoon, I had already interviewed Alan about his experiences with public transport. In our conversation, he had told me about keeping a pleasant demeanour while travelling, developing a friendly rapport with station staff:

> People like personal relationships and […] you benefit from personal relationships. I […] got off the train at Richmond on Sunday, and the guy that got me off the train, I got to the bottom of the ramp, and he stopped me and he said, "Hey! Got a bone to pick with you! I saw you at Kew the other day and you didn't say hello to me, what's going on?" It was the sort of conversation that you have with a mate, you've been in town and whatever and you've not seen him. So it really is… you go about friendships with people that dramatically improve the experience of travel. – Alan

This is echoed in other interviews as a tactic for using public transport in general, not necessarily in relation to station staff. Many of the interviewees would speak about being "calm" or "patient" (Faith), "try[ing] not to have a chip on [their] shoulder" (Alex Lyons), or "having a joke-y style" (Sal) when speaking to other passengers and staff:

> I don't like to talk good about myself but I would say that my nature is to be also kind and to show courtesy to other people, and it makes a big difference how people reciprocate, how people are kind to you when you are also nice to them; and when you give a good smile, they are also very helpful. – Um Hayaa

Friendliness can open a variety of opportunities for wheelchair-using passengers to speak to people and ask for services or favours. This is discussed below as a tactic of "emotional labour" (see p. 169). While necessary, interviewees often point to *confidence* as a broad attitude required in using transport, to ensure that their voices are heard. Confidence was defined in a variety of ways, from not backing down when people do not make space, to being "happy to press emergency buzzers, and buttons and speak to station staff" (Alex Lyons). Travelling at all requires some level of self-confidence:

> Basically, you can't be scared when you're using London Underground and if you're a wheelchair user, these two things don't mix up because otherwise you basically can't use the Tube. – Kerstin

For Kerstin and Alex Lyons, this confidence can be translated vocally and socially[31]. For Alex Lyons, as quoted above, *confidence* consists of being able to ask staff for help by pressing buttons. This can also include calling the accessibility phone line if one is stuck in a train, an event that happened to Basil. By calling the hotline, Basil informed TfL of where he was and they were able to meet him at the next station, with a ramp, to help him disembark. In cases where one cannot reach a phone, reaching TfL staff requires asking fellow passengers for assistance:

> So the next problem was that I wasn't even able to contact someone because there was no help point in Baker Street, and even the shop was closed even though it was in the middle of the day, so I couldn't ask anyone. So what I did then was I just asked random passengers on the platform if they could just walk up the stairs, ask someone to come down. – Kerstin

In her story, Kerstin had got onto a train that terminated at Baker Street Underground station rather than continuing on through King's Cross, where she wanted to disembark and which she knew had lifts. Baker Street *did* have level access from the train to the platform, so she was able to alight the train. The platform, however, has steps to reach ground level. Help points to call for staff were unavailable, so she asked other passengers to

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31 As they both noted in interviews, this can be a heavy burden for people who suffer from social anxiety. Social anxiety must likely add another barrier to using transport by making it difficult to speak to other people, either to ask that they make space, or to ask them for help.

fetch a staff member to help her. Despite a satisfactory resolution[32], Kerstin commented on the potential consequences of such a negative experience had it been someone else in her position:

> So in situations like that, things like that happen to other wheelchair users who are not so confident, they will never use the system again. – Kerstin

Getting help from others can require more physical interventions, either from a personal assistant or carer, or from other passengers in the network. The case of assistants was, to some extent, addressed above concerning Peter's choice for using a manual wheelchair over an electric one, as he required help in other situations as well. Peter teaches his assistants some skills, using a "training schedule" so they know how to get him up and down a step, or a couple of steps, or even a flight of stairs. This, he argues, allows him some flexibility while travelling:

> I do cut quite a lot of corners in terms of access, so if I was fully, 100% independent and didn't have anybody then it can be very much more difficult in a way, because I can sort of get around a lot of things. […] So we bumped down off the train because there was no one there to meet me; it'd already been booked the assistance, the guy was just coming up the platform with his buggy to get the ramp and we were getting to the ticket barrier. – Peter

In cases where staff members are late, or do not come at all, Peter knows he will not be stuck on the train as his assistant can bump him off. Leda and her partner Simon have a similar arrangement, particularly as Leda is, for the moment, still able to walk short distances. In these situations, she stands up and uses her cane to step down from the train while Simon pushes the empty wheelchair off. Travelling with a partner, carer, or friend can provide additional support and, therefore, confidence:

> I never travel alone, I always have someone with me just to help mitigate some of those problems, 'cause then I've got an extra pair of eyes and an extra pair of arms so that if I do need lifting up and down gaps and things like that, there's someone who can do that for me, so I'm not relying on strangers to do that kind of stuff. – Marie

But lone travellers only have recourse to strangers. In cases where staff members with manual boarding ramps are not present to help the

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[32] The resolution to Kerstin's story is a long one: when staff did come to help her, they directed her through a tunnel to connect her to the Circle line, which was then still running on older stock with a large step up to the train. The station also had no ramp, so the staff members had to ask for a ramp from a nearby construction site, bring it down into the station, and use it to help her board a Circle line train which finally took her to King's Cross. According to Kerstin, she believes the member of staff got "told off" for bringing a foreign, non-approved object into the station.

wheelchair user disembark, help from other passengers can make a difference, despite not being ideal. Previously, we had Basil discussing the situation where "drunk football supporters" picked him up to put him on the train (see p. 108), where he insisted on the issue of both reliability and safety. Safety, for Basil, is closely related to his impairment: if, while picking him up, he is accidentally tipped over and breaks a bone, he cannot be put in a plaster, causing further health complications. So while strangers and good samaritans may be a good way of solving an ad-hoc issue like a missing ramp, this is not a reliable source of help. There may not be enough strong, non-disabled people around in case of an emergency. Or the wheelchair user may not be confident enough to ask for this help, as other people might not recognise these situations, nor know how to react. Confidence is not just a question of asking for help, either. It is also required in other, potentially negative, interactions, such as negotiating the wheelchair priority area with other passengers. Leda, for example, remarked that she will "confront" people if they are in the way, particularly if they are taking up the wheelchair priority area on the bus, and request that they move. She added:

> It's not that easy, it's not. Especially when you're a person who doesn't like confrontation. Often you'll just back down, just wait at the bus stop and wait for another one to come along. – Leda

Sophie made a similar remark, adding that she is "not someone who has rows particularly", and will generally back away from a confrontational situation and wait for the next bus. However, as we have seen in Chapter 5 (section 4), accessibility is a cumulative problem. While waiting for the next bus may be a viable option, it can lengthen a journey considerably as the wheelchair user may have to wait for multiple buses to pass before being able to board one at all. In Adam's experience, waiting for too long to board a bus can have traumatic consequences:

> I was stuck once in [Tottenham], trying to get onto a bus that would get me through and it was school time, and I was stuck there for two hours and eventually got mugged. – Adam

Ergo, it can pay off to be, as Adam described himself, "belligerent" and confront people to make way. Additionally, being confident can also mean self-reliance:

> I think because as a disabled person on public transport, you need to be relatively confident in your own ability to make it happen. And that's resilience, thick-skinned, dealing with all the

very low-level discriminatory remarks that can be made to you.
– Aimee

Aimee expresses the notion of "confidence in your own ability", telling the story of a time when she wanted to board a bus despite it having a broken ramp, to the driver's discomfort. She insisted that she would be able to get herself (and her wheelchair) on and off the bus: she had the ability to do it. In a previous segment of our interview, she had expressed how she does not hesitate to get out of her wheelchair and "crawl" out of the train, taking her wheelchair behind her. The knowledge that she is able to do this, and willing to, adds to Aimee's level of confidence while using transport in London. Indeed, it is not just the knowledge of the infrastructure, but also the knowledge of one's physical and emotional abilities that enable wheelchair users to face these barriers on a daily basis (this is discussed below in section 2.B.I). Combining these knowledges, wheelchair users can get creative in their journeys:

> We're always coming up with ideas. When somebody says, "you can't do that", 1) Can't doesn't exist in the English dictionary, and 2) Watch me. Once I've done [it]… You were saying? "Can't get the ramp out for you." I'll crawl on. "No, no, no, you can't do that." Why not? What do you expect? I stay here and don't do what I want? No, I'll do it. I'll do what I'm comfortable with doing. Many people will do so. – Adam

Crawling on, as Adam and Aimee describe it, is one way of getting around barriers. Indeed, when faced by a gap or a step, other wheelchair users described their own ways of surmounting them. This is Alex Lyons' way:

> So there's a gap, so I get out of my chair, step down onto the platform, stand there, hold on to the train, pull my chair behind me. – Alex Lyons

Or, for passengers like Chiara, Alanni and Leda, who still have the ability to walk short distances, they will stand up from their chairs and walk, using the wheelchair as a crutch. Alternatively, they will have a walking stick or proper crutches hanging on the back of their wheelchair, which is helpful in these situations:

> Then I would have to get the stick and stand up for a bit, and get on the train, then Simon lifts the chair up and I sit down again. – Leda

Other ways of getting around barriers include the ability of balancing on back wheels and "bunny-hopping" down a step, or even a couple of steps. These abilities, from here on addressed as 'wheelchair skills', can be acquired through self-taught means, or by attending specific training

courses. Very few charities in the United Kingdom provide wheelchair users with wheelchair skills training courses, but I was fortunate to have been allowed to observe a training session held by one of them (notes from the observation will be discussed in section 2.B.1. below). Interestingly, none of the wheelchair users interviewed for this research had attended training courses, and were all self-taught:

> So, you know, jumping a wheelchair across a gap is just something I've taught myself over the years. – D.

> I'm a wheelchair user since I'm a child, and I learned using my wheelchair by just trying it and falling on my head and whatever, falling on my back, and in a safe environment I just tried it myself. – Kerstin

Interviewees who mentioned having these wheelchair skills were Alex Lyons ("I just kind of got on with it as a small child and did what I did."), Sophie (she says she does these skills in neither "great grace nor great comfort"), Kerstin ("I'm a very, very good wheelchair user"), Michael J. ("all these things [have] become second-nature to me"), D. (quoted above), Char Aznable ("I'm very confident and very aggressive in my chair.") and Carl (to a limited extent, he believes his skills could "certainly be better"). It is important to point out that these are all wheelchair users who use manual wheelchairs, as these skills are limited by the weight of power chairs.[33] Having these skills are also dependent on the wheelchair users' type of impairment and strength, a point that is not lost to any of the interviewees who, after stating that they are able to do these tricks, will continue with a caveat:

> It's like that, making do and getting on with it. Someone like me will be able to do that but other wheelchair users won't be able to do because they can't get out of their chairs without help. – Alex Lyons

As a result, wheelchair skills give those able to do them some flexibility in the face of ad-hoc barriers. Most of the cases where interviewees mentioned balancing on back-wheels and bunny-hopping were situations where something had not gone as planned: if there's an unexpected step, if a ramp breaks down, if a staff member is not there to deploy a manual boarding ramp, or even if the wheelchair user himself has gone in, or been

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[33] It is also interesting to note that out of the seven who spoke of these skills, five identify as men. This can also be due to the sample of interviewees, where 73% of men interviewed are manual wheelchair users (eight of eleven), as compared to 43% of women (six of fourteen). Chiara identifies as agender, and uses a manual wheelchair.

directed to, the wrong carriage[34]. D describes balancing and bunny-hopping as "little tricks":

> It's just one of the little tricks I employ on jumping on or off a Tube train quickly, you know, if there's a gap, I will carefully take myself over the gap and jump the rear wheels and try very hard not to burst the tires as I do. – D

A more radical example of wheelchair skills was given by Char Aznable:

> There are certain stations which I shouldn't be able to use but I can, so for example, the Central line at Liverpool Street station is officially inaccessible. I can ride escalators. – Char Aznable

Later in our interview, he expressed it as the "single most important tip" he can give to other wheelchair users, though it might not "be advisable in a power chair". He explained the process:

> All you do is get yourself lined up in the centre, you grab the handrails, you wait for the step in front of you to go up, and then you pull yourself in and you hold steady. That's it and you lean forward. Down is scary because you have to go backwards. If you go forwards, you will fall out of your chair. Going backwards is scary the first times you do it, so I had a friend to do it and stand behind me with his hands like that. So get someone to spot for you. – Char Aznable

However, wheelchair skills are not always a feasible way of tackling ad-hoc issues while travelling, particularly for power chair users or those who might not have the ability or confidence to do these things. Marie, for example, called these manoeuvres "stunt riding, rather than general, every-day riding". She says she could not do those things as her condition physically restrains her from it, affecting her "internal core structure", "joints" and "muscles". Nevertheless, these wheelchair users have recourse to other techniques:

> Then you've got to attract the guard's attention and there's no way when you're on the train to do that. You literally have to wheel yourself over to the door, place yourself to stop the doors closing on you and it's only then that the guards will look to see what's going on. – Adam

> If somebody doesn't meet me at the other end, I'll stick my footplates in the door. The door doesn't close, the train doesn't go anywhere. – Alan

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[34] This can happen in two cases: for Alex Lyons, it happens when he is at a station with step-free access throughout the platform, going to a station where there are 'humps' which make particular carriages accessible. If he forgets where to go to get step-free access at his destination, he can get stuck on the train and has to find his own way out. For Alan, a power-chair user, this can be more complicated and has happened when a staff member deployed the manual ramp on the wrong carriage for step-free access at a destination with accessibility 'humps'.

> But if they've [the bus drivers] just ignored me, or they've tried to drive and I've heard the buzzer go; or if they've seen me and they've made eye contact with me and they know I'm waiting for them, if it's safe, I'll drop down the road in front of them and just sit there. I did this recently. That's how I stopped this guy leaving. – Char Aznable

> How to scatter a crowd: accelerate towards it. Especially effective in a powerchair. – Anton

Mentions by women of using themselves and/or their wheelchairs as a way of blocking closing doors, stopping buses from driving away or to "scatter a crowd" is almost absent from interviews. This suggests there might be a difference in terms of personal confidence, or perhaps of self-preservation, between men and women in the way they use their wheelchairs[35]. For example, when asked whether she had ever used her chair to block doors, Faith responded:

> No. However, because I wouldn't do that, because I wouldn't want to damage my wheelchair or me. – Faith

She did have an addendum, remembering when she had once blocked the doors, but only because she did not have another option or stay on the train until Wolverhampton. In that situation, she was speaking of national train services, when she was travelling to Birmingham, and does not fit into the specific remit of this research (London public transport). Regardless, it is interesting to note the different levels at which a wheelchair user might feel that it is necessary to use themselves as a tool or, ironically, as a barrier. For Char Aznable, being ignored is far enough: he will drop down to the street in front of the bus and stop it from leaving. He told me he would also take a picture of the driver if possible, and note down the license plate and bus number to ensure he has a complete list of information. For Alan and Adam, blocking doors is another means of getting attention at a station where assistance is not present to deploy manual boarding ramps, particularly for getting *off* trains. Char Aznable has used it to get *on* a train, too:

> So when a train showed up, I sat there and I held the door open, and the train didn't go anywhere for about 30 minutes. I'm aware that I disrupted potentially thousands of people's schedules. I don't care. I have a right to use that service. – Char Aznable

In this particular case, blocking the doors of the train did not get staff to come help him as there were no staff members at this station this particular

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[35] See Footnote 29. To some extent, this might also be due to the sample size and the fact that more men interviewed were manual wheelchair users than women.

evening. In the end, he resorted to another tactic to board the train: getting help from others, which is discussed at the beginning of this section:

> In the end some very large members of the public picked me up and put me on, but those trains should be step-free. – Char Aznable

The lack of station staff can prove to be problematic for wheelchair users, and was expressed as a concern by many of the interviewees. To get around this issue, or even to help speed up the process of manual ramp deployment, another "idea" Alan and his partner had was to put together a toolkit:

> We've also got… all of the ramps on the network are secured in holders and to get access to those, you need a thing called a T-Key which is just a square spanner, really. So we've got one of those because the number of times that you go places and people say, "I've lost it, I can't find it," you go to places, large stations, where there's one T-Key in the whole station. So we carry around, and it costs 3 quid from eBay, you can just say, "There you go, we've got ours." – Alan

While they do not mention using the T-key themselves to get the ramp out, having it has facilitated interactions with staff members. They also carry a screwdriver with them, particularly to deal with taxis:

> The number of taxis that got ramps built into them but the number of drivers that don't have anything to undo the screw to put the ramp out. So you carry, I mean, we carry a screw driver, but you can use ten-pence pieces. – Alan

Alice has also mentioned carrying a screwdriver with her, also to deal with taxis, particularly:

> I carry a screwdriver around because they lose their screwdrivers, then they use that as excuse for not getting in the cab, so we say, "It's fine, we've got a screwdriver." – Alice

Another item that Alan carries with him is his own, foldable and light-weight ramp. It is folded and tucked into the back of his electric wheelchair. When I first interviewed her, Marie mentioned that she would soon be acquiring one, too.

> I've been out and bought a two-foot ramp so I'm going to have a ramp on my wheelchair. If I do get somewhere and I need help, I can just have somebody to hold the ends while I get up. – Marie

When I spent an afternoon with Alan, he and his partner deployed the ramp to board a train at a station, despite it being accessible. I asked them why they preferred using their own ramp there, rather than requesting for staff

assistance to deploy an 'official' ramp. The following is an extract, quoted at length, from my observations:

> Alan explained to me that if they asked for the ramp at Richmond on the District line, [TfL staff] would not allow them to get off at Hammersmith because it wasn't officially step-free there and they would have to call ahead to inform staff where they were getting off. A. explained to me that the Underground's justification for not having manual boarding ramps at Hammersmith is because the platforms are narrow. Therefore, they used their own ramps to get on at Richmond so they could get off by their own means at Hammersmith. […] As soon as we left the station before Hammersmith, Y. stood up and started getting ready by taking the ramp from the chair and opening it. Once the doors opened, she hopped out and hastily placed it in position, and A. came off. When the buzzer went off signalling that the doors were closing, the ramp was still on the door, which meant that the doors closed over it. Y. tugged hard at it for it to come loose. Being my first time in this kind of situation, I found it quite stressful. A. and Y. did not seem particularly phased, and A. instantly pointed to the size of the platform, showing me what they meant by 'narrow' platforms. Due to the way the platform was constructed, the station's support columns and staircases are right where the wheelchair accessible carriage doors are, which means there isn't a lot of space there for a ramp and not a lot of space to manoeuvre at the bottom of the ramp either. We were going to change to the Piccadilly line, which ran on the other side of the same platform, so we didn't have far to go – A. and Y. knew this was the case. […] On the Tube on the way to Green Park, A. explained to me why they didn't take the District line and change to the Piccadilly line at Earl's Court, which is accessible and wouldn't require their own ramp. At Hammersmith, once we got off the District, the Piccadilly was across the platform from us. At Earl's Court, we would have to take an elevator up and then go to another platform. He said he found this simpler.

Alan's toolkit of ramp, T-key and screwdrivers allows him and his partner to negotiate the network on their own terms, to some extent. Having their own ramp, particularly, opens up a wider range of connections between lines, ones which he feels are "simpler", and potentially ones that save energy (physical, mental, and his batteries). He also carries the "Big Red Book", the TfL Driver's Manual:

> As do many other disabled people. So when the driver says, "I can't do that, or that's not how it works," you're on the lookout and say, no, look, here it is. I can show you on your own manual how it's supposed to work. – Alan

Anton mentioned having this manual on his phone, whereas Adam quoted from it during the interview ("The Red Book says you have to give up that space.") and Alanni has a friend who sent her a copy of it ("especially the pages relating to disabled passengers"). Whereas this cannot be said to be a physical trick, such as wheelchair skills or using oneself to block doors,

etc., it can be used to mitigate negative social situations, demonstrating (with evidence) what the protocol is meant to be.

This is, by no means, an exhaustive narrative of the variety of decisions, plans, tactics and things that interviewees expressed doing to manage using the public transport system. The past sections were meant to demonstrate the amount of thought, effort and creativity that is required from these passengers, highlighting through the span of a trip (and even before) the type of decision-making and ad-hoc problem-solving skills that are developed. As was discussed in Chapter 4, the historical intersection between the development of public transport in London and the social perception of disabled people has resulted in a misalignment between what the network provides and disabled people's accessibility requirements. This blended narrative demonstrates some of the places where this misalignment operates but, perhaps more interestingly, shows that the gaps (some literal) are sometimes small. As a result, it might not always be the case that an entire redesign of the system is required. Rather, small adjustments, modelled on the various creative steps already taken by wheelchair users, might be a way forward in realigning and embedding these users' requirements into the infrastructure. In the next section we will therefore turn to a more theoretical analysis of the decisions and techniques discussed above, considering the type of work that wheelchair users undertake in this process of ad-hoc problem-solving.

2. Tactics

Literature on accessibility has mostly been the domain of geography, where authors argue that the daily experience of disabled people is largely inconvenienced by disabling infrastructures, a built environment that does not cater to their physical requirements (Bromley et al., 2007; Imrie, 2000; Kitchin, 1998, 2000). This has been dubbed by Imrie (1996) as a "design apartheid", "which serves to segregate and separate the disabled person from the mainstream" (Imrie, 1996, p. 19). There has been some recognition that, despite disabling barriers, disabled people develop "ideas", as Alan himself described it, and creatively mitigate some of the effects of barriers. *Inconvenience* becomes a part of the *modus operandi* for them. In their research on city-centre accessibility, Bromley and co-authors write:

> Those who are mobility-impaired have to make do with what is on offer, exerting their own agency only to get by, and thus, surviving by their own ingenuity, and rarely though the predetermined volition of city planners, architects and city centre managers. (Bromley et al., 2007, p. 240).

The aim of their research was not to find the ways in which disabled individuals might "make do" or "get by", and they do not expand on this thought. It is, however, the aim of this chapter to do so: how do wheelchair users tackle the problems they themselves have identified within the system?

Having described the various techniques that wheelchair users must develop to use public transport, the question remains: how can we more broadly define the ingenuity and creativity of wheelchair users while using public transport? What encompassing concept can help us to understand the realignment work being done by these wheelchair users? In this section, I use De Certeau's concept of *tactics* to aid in this understanding, and discuss two types of tactics. The first is outer-facing, ways of coping with the materiality of the infrastructure; as such, these are tactics developed to tackle what wheelchair user interviewees largely identified as 'physical' barriers. The second type of tactics is concerned with the self and personal behaviour, and is largely used to face the social barriers they encounter within the infrastructure. Before entering into this taxonomy, however, I will provide a definition of *tactics* and why it can be used in the case of wheelchair users in public transport.

As was discussed in Chapter 4, the public transport system in London has reached a moment of stabilisation, meaning it has reached a moment where there are few competing systems with the same goal (Hughes, 1987). This stability is a problematic one, largely dependent on perspective. As Star points out: "A stabilised network is only stable for some, and that is for those who are members of the community of practice who form/use/ maintain it" (Star, 1991, p. 43). To the *Others*, those considered non-standard within the network, using the system "involves [their] private suffering" (this was largely discussed in Chapter 5, section 5). Star illustrates how standardised and stabilised networks break down in the face of the "out of the ordinary" by using her onion allergy as an example: her order of an onion-less burger at McDonalds took thirty minutes to be prepared, by which time her colleagues had all finished eating. Unwittingly,

she then provided me with the first hint of thinking about tactics to tackle stabilised systems:

> "The next time I went to a fast-food restaurant I ordered along with everyone else, omitted the codicil about onions, took an extra plastic knife from the counter, and scraped off the offending onion. This greatly expedited the whole process." (Star, 1991, p. 35)

Like Bromley et al. (2007), Star's goal was not to highlight this tactic, but her example demonstrates the near-omnipresence of how discussions about inaccessibility and exclusion are often closely followed by examples of boundaries blurring to allow 'non-standards' some degree of agency. Other actor-network theorists have added limited thoughts to the concept of agency, such as hybrid *collectifs* (Callon & Law, 1995), and *material strategies* (Law & Mol, 1995). ANT, in fact, has more often been criticised for a *lack* of discussion on agency, particularly on the part of individual actors within a system. This was the source of Lee & Brown's criticisms that ANT produces an "ahistorical grand narrative" (Lee & Brown, 1994, p. 774), attempting to cover everything and anything in its 'network'. They write:

> "[Being entangled in a network] does not mean we are unable to act on that network even though we may lack access to the toolbox of the heterogeneous engineer." (Lee & Brown, 1994, p. 786)

For Lee and Brown, individuals have recourse to *fractal strategies*, which might not shake the infrastructure to its core, nor cause a revolution in power relations within it. Rather, these fractal strategies are localised somewhere between "total silence" and "domination" and have indeterminable (but short-term) impacts (*idem*, p. 787). Their concept of fractal strategies is loosely defined, but it seems to be closer to a more classic sociological concept of *strategies* and *tactics* as developed by de Certeau in the 1980s.

As discussed in the Literature Review (see Chapter 2, section 2.B), de Certeau distinguishes between *strategy*, and *tactic*. *Strategies*, on the one hand, are developed by "a subject of will and power" (De Certeau et al., 1998, p. xix) to control and police consumers. *Tactics*, in contrast, are defined as being mobile, opportunistic, flexible, and an expression of micro-freedoms[36]. To use these tactics, one "must vigilantly make use of the cracks that particular conjunctions open in the surveillance of the

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[36] The term "micro-freedom" is borrowed from Luce Giard who wrote the introduction to the second volume of *The Practice of Everyday Life* (De Certeau et al., 1998).

proprietary powers" (De Certeau, 2011 [1974], p. 37). They are, as defined by Giard, ways in which de Certeau aimed to explore forms of resistance, seeing these instances as "*truant freedom* of practices" (De Certeau et al., 1998, p. xxii; emphasis mine). It is in this sense that I make use of the word *tactics*: they are moments of truant freedom, creatively developed by the powerless to subvert the authority of the powerful. In the case of wheelchair users, tactics are the moments when they get around the barriers to accessibility in the transport infrastructure by mobilising their knowledge and abilities. The definition is intentionally broad, reflecting the ways that de Certeau himself employs the concept in his books. It allows us the breadth required to cover the activities mentioned above: from acquiring specialist knowledge about the system, all the way to developing toolkits, back to the learning of wheelchair skills to aid in one's mobility. These are all different moments that can be seized by the "powerless", the "non-standard", to express their freedom and subvert the strategies imposed by an institution or, in our case, employed by wheelchair users to bypass the barriers they face in a stabilised infrastructure.

From the empirical data, I propose two tactical approaches, each closely related to the types of barriers that interviewees identified themselves. The first are tactics more concerned with the materiality of infrastructure: its edges, gaps and spaces, and how one perceives its boundaries. The second, more inward looking, are tactics of the self, including self-management and self-presentation, linked to how one negotiates oneself within the infrastructure. They are each discussed in turn below.

A.   Redefining the physical boundaries

In order to tackle the various physical boundaries of the infrastructure, wheelchair users have developed tactics that question the very shape of those boundaries. As such, the two tactics proposed here, *re-scripting* and *hacking* are both practices that question material aspects of the infrastructure such as: how doors close, why spaces are designed as they are, why wheelchair users should not use escalators, why ramps are locked at stations.

I.   Re-scripting the design scripts

Among the tactics developed by wheelchair users interviewed, there is a pattern of *re-scripting* the system, or redefining the scripts to some extent.

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The concept of scripts, as defined by Akrich (1992) was discussed in the literature review (see Chapter 2, section 1.B), along with Woolgar's concept of 'texts' (Woolgar, 1991). These terms were useful in thinking about the problem-solving tactics developed by wheelchair users, as they are both concepts that discuss the way that designers and inventors inscribe particular visions into the artefact they have developed. 'Scripts' and 'texts' normalise particular uses of a technology while proscribing others. Within the transport system, an example of this is the wheelchair priority area, the only safe space where a wheelchair user can travel onboard a bus. Its design, with a backrest in a particular position, prescribes that when a wheelchair passenger boards the bus, the back of their chair should be positioned against the cushioned headboard. This is reenforced in the training given to bus drivers. As the Big Red Book states, "You must make sure they have their back to the backrest and their brakes are applied or motor disengaged if they have one" (TfL, 2014c, p. 69). There are no other wheelchair spaces, and no other backrests against which a wheelchair user may place themselves. In this position, wheelchair users are made to face opposite the direction of travel. If they face the other way, there is no barrier to stop their wheelchair from rolling backwards into the seats opposite the wheelchair area (and onto the legs of any passenger sitting there; see Image 2 below that illustrates how the wheelchair space is most often designed in London buses [there are small variants regarding placement of handrails, size of backrest, colours, among other changes]).

Despite this technological script, wheelchair users have noted in interviews that they will go against the prescribed position and face the other way when travelling onboard a bus. Michael J., for example, suffers from travel sickness when he faces backwards and finds it easier to "sit the opposite way". When he told me this, he paused for a moment and, with a slight chuckle, added: "Yes, and I fully admit and I probably shouldn't admit that but I do." In his tongue-in-cheek confession, Michael J. clearly demonstrated his awareness of what the script of the wheelchair area prescribes him to do, but he prefers to ignore it:

> I'm not five, I do understand, I do know what the rules are. –
> Michael J.

Regardless, it makes the experience of travelling easier for him. In the moments in which he does this, I argue that he is effectively *re*-scripting the infrastructure. I argued in the literature review that the concepts of 'scripts'

and 'texts' are limited, as the user's interaction with the technology is often described by these authors as an in/out prerogative. In other words, one either concedes to the technological scripts or one does not (see concepts of subscription or de-inscription in Akrich & Latour, 1992). I therefore suggest *re*-scription[37] as an additional concept, to embrace the moments where scripts are recognised, but ignored. Re-scription is re-interpretation and re-claiming spaces and artefacts in such ways that they suit one's need and comfort: specifically, when done by disabled people in disabling environments, it is becomes a truant act of freedom as a *recognition* of the neoliberal-ableist script, followed by a wilful disregard of it. When Michael J. expresses that he is aware of what is expected from him and yet chooses to ignore the script, he is not simply de-scripting. He is re-writing the script itself, moulding it so that he does not feel sick while travelling.

Image 2: Inside a London bus (view facing towards the front).

Other wheelchair users have described similar moments of awareness of the infrastructure's scripts and yet choose not to follow them. This is often the case of the wheelchair priority area – Alice, for example, will manoeuvre in the space in whichever way makes it easier to share it with a parent using a buggy, even if it means not being against the backrest (which she calls "the ironing board"):

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[37] Latour and Akrich define a similar sounding term, re-inscription. This one is defined as a "feedback mechanism", a new inscription after the context has become more complicated and artefacts require a new script (Akrich & Latour, 1992).

> I mean, there are two ways you can do it. In a smaller space you can both park with your back to the window instead of… I'm supposed to park with my back at the ironing board but I don't necessarily do that. – Alice

Re-scripting is not limited re-interpreting the space on the bus. Char Aznable does a similar work on the Tube:

> The flip seats, though, are on the inside, so operationally, they don't work the way they're actually marked out. The way they work operationally makes more sense than the way they're marked out and it's the way I'd rather do it because otherwise you have to get people to move out of the way. Doesn't make sense. – Char Aznable

Image 3: TfL escalator warning sign.

Char Aznable, as discussed in the previous section, is a confident and, in his own words, "aggressive" wheelchair user. With the skills he has developed, he is apt at re-scripting the system to suit his needs. One extraordinary case of this, discussed above (see p. 148), is when he uses escalators while in his wheelchair. Steps on escalators are not wide nor deep enough for a wheelchair's wheels to balance on them; the technological script would not expect a wheelchair user to consider using it, nor does it prescribe use. Indeed, the signs stating "escalator etiquette" in London Underground stations makes no mention of wheelchairs at all (see Image 3 to the left, taken from TfL, 2009–interestingly, the sign stipulates dogs must be carried and that smoking is prohibited, the latter perhaps as a grim reminder of the King's Cross fire discussed in Chapter 4, see p. 81). Despite this, Char Aznable "grab[s] the handrails" and pulls himself on, re-interpreting the expectations of who can or cannot use an escalator. This radical type of re-scripting, however, is extremely dependent on the wheelchair user's ability and level of impairment, something which will be discussed in section 2.B.I. below.

II. Hacking the material infrastructure

One way of dealing with physical barriers is re-scripting the infrastructural design. However, wheelchair users often *hack* the system in order to redefine the boundaries of infrastructure. We saw in the literature review that the vocabulary around hacking is often 're-purposing' materials. Its rhetoric is very similar to de Certeau's as opportunistic acts: *hacking* are attempts to open up systems, often based on one's extensive knowledge of how the system functions. Though originally from computer science, Garrett uses the term *place hacking* to describe entrance into forbidden areas, often as an anti-authoritarian move (Garrett, 2012). This chapter's title, a quote from my interview with Alan, is a great example of the hacker attitude many interviewees seem to have developed as a tactic to navigate the transport infrastructure in London:

> One other thing that we… one of the adages we developed early on, "They're in charge, but you're in control." It's their station, they know the rules, they're the ones that can say yes or no, but they can't make you do anything you don't want to do. So you can take as much time as you want, or as you need, because they can't hurry you up. Especially a chair this size. They're not going to lay a hand on me, I'm not going anywhere. They'll put their back out first. – Alan

Perhaps not explicitly anti-authoritarian, Alan remarks that he will do what he feels comfortable doing, not what is demanded from him. He uses his hybrid-self[38] (his own size and weight combined with that of his power chair) as leverage to ensure that no one is able to physically manoeuvre him against his will. As described towards the end of section 1.C (see p. 148-9), other interviewees described a variety of tactics in which they use themselves and their extended bodies (the wheelchair): Adam wheels himself to the door to stop it from closing in order to call staff's attention; Anton accelerates towards a crowd in a station to make way for him. Interviewees described using themselves to hold, or force, doors open–a very literal hacking of the system by prising it open.

Another example of infrastructural hacking is the use of a toolkit, as described by Alan and Alice, who have screwdrivers to prise open ramps or T-keys to unlock other ramps in some stations. The portable ramp used by Alan, and which Marie was waiting to receive, is the most radical example of hacking I identified in the interviews, where interviewees have fully

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[38] The Haraway enthusiast in me wants to use the term *cyborg* here, but it would cause a theoretical deviation from the topic of *tactics*.
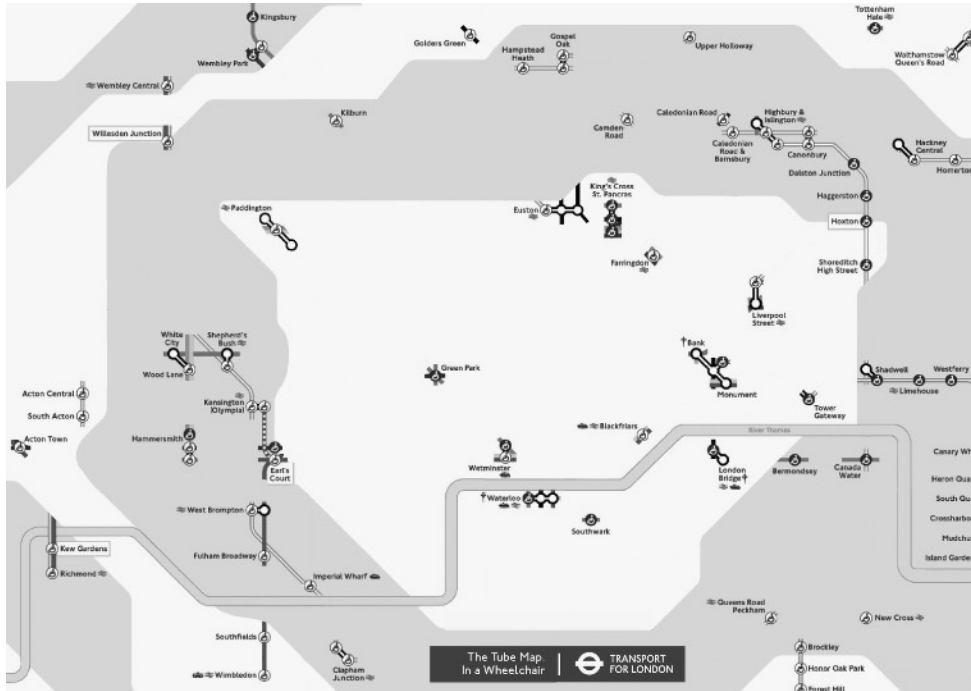
Image 4: The Tube Map, in a Wheelchair. Source: Time Out (2015).

appropriated a piece of common equipment into their daily baggage to have easier recourse to it. Their personal ramps are additional kit, here again prising open a previously insurmountable barrier in the infrastructure.

At a less physically demanding level, Aimee's modified map (discussed on p. 136) is also an example of hacking, in which she materialises her mental map onto a physical map. Through the process of crossing out stations she knows she cannot use from an official information document, she has aptly made a customised tool to navigate the system more effectively. Bardzell and co-authors' work on hackerspaces describes a similar instance, defining the need for self-made tools. These, they write, are not "truly new" ones, but rather "already exist[ed] somewhere, but which were not available in the moment, or which were available, but not in the right size or configuration" (Bardzell et al., 2014, p. 474). For Aimee, the available maps were not appropriately configured. As a result, she developed her own. *Time Out London* has published online an alternative Tube map, similar (though not identical) to what Aimee's would look like, to illustrate the inaccessibility of Tube stations (see Image 4 above). I use it here to show what an alternative, hacked, map might look like.

While re-scripting and hacking are both approaches that allow wheelchair users to negotiate the boundaries of the *material* neoliberal-ableist infrastructure, these tactics are of little impact to the *social* barriers they

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may encounter in the system. Tactics concerned with both bodily and social wellbeing are required for these barriers, and are discussed in the next section.

B. Technologies of the self

Disabled bodies within society have been segregated and controlled, as discussed in Chapter 4, for many centuries. In this context, Foucault's work is of particular interest given his development of the well-known concept *biopower* (see Chapter 2, section 2.B). As discussed by Beckett and Campbell (2015), more focus has been given to Foucault's discussion of the *imposition* of power, as opposed to his discussions of *resistance*. To focus on the latter, his concept of "technologies of the self" as tradition of "[taking] care of oneself" (Foucault et al., 1988, p. 19) is a particularly useful tool to consider resistance tactics. Foucault defined these technologies of the self as "[permitting] individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality" (*idem*, p. 18). As such, these tactics are deeply personal actions, turned to knowledge of the self and of one's surroundings in order to reach an immaterial state (happiness, wisdom). In interviews, I identified examples of technologies of the self, for which I proposed three categories. These are ways in which wheelchair users act upon themselves and their conduct in such a way that they attain an immaterial goal[39]: movement, or perhaps, extending the idea philosophically, *freedom*. In the next sections, I describe the three technologies of the self: managing disability, performing disability, and emotional labour.

I. Managing disability

In many instances in interviews, it became apparent that wheelchair users are managing their disability in a variety of ways, not only while travelling:

> I've got strategies, I manage my disability. And this is it, people manage it, and it's getting people to manage their disability, manage their capabilities, their ability to achieve and do things. Because people want to do things, they can get out and do it. – Adam

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[39] Though the goal may not be as broad as happiness, purity or wisdom, though perhaps, to some extent, it might be seen as *freedom* (of movement).

Adam was the second wheelchair user I interviewed and, perhaps in repeatedly using the word "managing", embedded the notion in my head. His statement allowed a variety of comments in subsequent interviews to crystallise, a pattern of interviewees' awareness and knowledge of their own bodies, their capabilities, and their limitations slowly emerging. They are aware of how their bodies and abilities impacted their decisions (including their choice of assistive technology and transport routes), and of ways in which they might *expand* their capabilities. As discussed in the section on travelling (see p. 141), this awareness is of utmost importance in terms of confidence: to what extent am I able to get around a barrier, or not? Do I have the bodily capability of using some wheelchair skills? Marie, for example, said she cannot use wheelchair skills, or do "stunt riding" (see p. 148), and her reasons for that were explicitly linked to her body in similar ways to Basil's fear for his bodily integrity when helped by strangers on the train. They both went on to describe their "condition":

> Just to give a bit of background of things that people might not be aware of, the condition I have means that if I break a bone, I can't be put into plaster. The whole thing, if there was an accidental fall, it's got much bigger implications, so I'm very mindful of that all the time. – Basil

> For me, that wouldn't be appropriate. My condition affects all my joints, they dislocate very easily. It also affects my internal core structure, and it affects my muscles, so having the strength to be able to balance and still push myself and bunny hop, I just wouldn't be able to do that. – Marie

These descriptions were offered by interviewees with no particular prompting, and medical diagnoses were not often discussed. Firstly, as potentially sensitive information, I opted not to request that information. Furthermore, it transpired that interviewees would often openly describe their bodily capabilities or limitations rather than specific diagnoses. Alternatively, even if a diagnosis was given, it would then be qualified by how it affects their mobility. This is perhaps partly due to the flexibility of medical labelling, as people may experience different symptoms for the same diagnosis. On the other hand, to *manage* one's disability, one must be aware of how their diagnosis physically translates on their body:

> I have Ehlers-Danlos syndrome, so in particular, I have a lot of problems with my hips, knees and ankles and associated nerve pain. So whilst I can walk, I prefer not to because it hurts and it starts to hurt in my back after about 10-15 minutes. – Chiara

> I have Ehlers-Danlos. It can be a progressive condition, it might not be. It's not very well understood because it's so

complicated. I also have a number of co-morbids which exacerbate. – Char Aznable

Chiara, Char Aznable and Alanni are excellent cases of disability management, both from the perspective of awareness of how their body functions, but also in the Foucauldian sense of *technologies of the self*: by being concerned and taking care of themselves to achieve an ultimate goal. All three are wheelchair users who, as Chiara states, "can walk", but have chosen to use wheelchairs. As was discussed in section 1.B above, on "Choosing", this is an important factor in wheelchair users' mobility in the transport infrastructure, but it is also paired with the management of one's disability. Char Aznable told me how he made the choice between continuing to use his crutches, or opting for the wheelchair:

> It's just over a year since I first used a wheelchair. I went to Hellfest in the South of France. I wasn't going to be able to stand for 5 days. I can barely stand for an hour, I could barely stand for 50 minutes at that point. So I rented a wheelchair. At that point I didn't want to use a wheelchair because it's a very big visible "I'm disabled" thing. It was the first weekend in two or three years where I hadn't needed a massive dose of painkillers every 4-5 hours. At the time I was on 240m of codeine, 100mg of tramadol, 550mg of naproxen and 4g of paracetamol a day, which is the maximum of all of those drugs. And I didn't take anything that weekend. – Char Aznable

The use of the wheelchair enabled him to not only spend a full five days at a music festival, it enabled him to do so without the need for painkillers. Alanni told me a similar story:

> I don't know, my partner said something like, "It'd be nice to go for a walk in the park," and I cried because I knew that would never happen, and then he's like, "Well, let's get a wheelchair." And it's made things so much better, I can go out for 12 hour days now, which was unthinkable. – Alanni

The choice for them was not initially obvious – they are both aged between 18-34, and are both aware of the social stigma that a wheelchair signifies. It is a visual marker of difference (Goffman, 1963), and one which, according to both Chiara and Alanni, medical professionals hesitate to either suggest or accept as an alternative:

> [I]f I go and see a relevant healthcare professional using my wheelchair, they'll be like, "We have to get you out of the wheelchair." And I'm like, "Why? Why do we have to get me out of the wheelchair?" So it's still seen like the problem is the wheelchair and not other people. In many ways, to a lot of people, a wheelchair is a huge negative symbol. – Chiara

The management of disability, then, requires the weighing of many factors: one must tackle the social stigma associated with the wheelchair, but there

will be less pain and medication with added mobility throughout the day, despite decreased accessibility on public transport. For these particular interviewees, the weighing of pros and cons revealed the wheelchair to be a useful assistive technology on some days (Chiara and Alanni may still choose to not use the wheelchair on some days). Furthermore, it is a technology of the self as, in making this choice, they have acted upon themselves and have reached their goal: using fewer pain killers, being able to go out with their partner for an entire day, for example. In choosing to use the wheelchair, they also begin to manage their disability in a new way as they adapt to their new assistive technology. Winance (2006) studied this process of adaptation and learning to use a wheelchair, giving particular attention to how it is a continuous and flexible process. Even wheelchair users who have been using this particular technology for years may have to make new choices, as their level of ability might change, or the wheelchair might break, or even become out-dated. Winance describes the process of adaptation as community-building, both materially and emotionally, its result being a collective and extended body. The management of disability is therefore the management of both the body's and the wheelchair's well-being and the performance of both as a continuity (Moser & Law, 1999).

> I'm just speaking from personal experience, my wheelchair becomes an extension, it's part of my body. It needs to be treated respectfully, the way that anybody else has their body treated. It's not something to be pulled or bashed about. They do get damaged but if I break a part of my wheelchair, that's like you breaking your ankle. – Basil

Managing one's disability becomes an important tactic particularly in using public transport. For example, as discussed in section 1.B, Alanni decides to use her wheelchair rather than her crutches on days when she knows her partner will be travelling with her and will be able to assist her in manoeuvring into spaces – she knows that she has difficulties manoeuvring without his help. Likewise, Michael J. trades off his personal energy for accessibility when he chooses to use his manual wheelchair rather than his electric one. He knows that despite being more easily tired, it will also make travelling more easily accessible. In conversations, the topic of *energy* came up a few times, particularly when discussing the process of planning a trip:

> You've got a four-wheel drive, you've got a bit of power, it's fantastic; you can go out for the day. Actually, my batteries last

for about two hours. "What do you do then?" Well, I don't use the power all the time, I only use it when I need it. – Adam

As you can see now, I've tapered a journey, although it's got three different modes of transport, what I've actually done is I've used the shortest possible walking time for me. So there's two parts of my impairment that mean that I'll do that. The first one is that I'll get exhausted quite easily because of the way in which my body works. The second part about it is that because of that exhaustion, I will take the laziest possible route. – D

These examples also speak to Winance's work on the extended body through the wheelchair, discussed above: as well as concerning himself about his own tiredness level, Adam has to consider the charge on his hybrid wheelchair (it can be manually propelled in addition to power-assisted). This will have an impact on, for example, his ability to use ramps: he will save energy on his batteries to use them in cases where he might be too tired, physically, to propel himself up a steep ramp. He also develops back up plans in cases when both batteries, his own and his technology's, are worn out, such as recourse to a taxi. D, on the other hand, plans his routes carefully, using many modes of transport but ensuring that he uses as little of his own energy as possible.

Managing one's disability means knowing the limits to one's energy (one's, here, referring to both biological and extended body), but also what one can do to improve skills without damaging one's body (or extended body). As such, developing wheelchair skills is another example of *managing disability* as a technology of the self. Foucault described *gymnasia* as one of the Greek practices, described as training "in a real situation, even if it's been artificially induced" (Foucault et al., 1988, p. 37). Wheelchair skills training courses and the self-taught nature of some wheelchair users' abilities are great modern examples of the Greek *gymnasia* practice.

Though transport was not the primary focus of the official training courses, the training provided taught skills that had been mentioned by interviewees in our conversations. I had the opportunity to observe a training session, organised into three different groups led by different tutors. The first group was dedicated to electric wheelchair users where they learned to navigate a variety of different surfaces and ramp inclinations; a second one was for novice manual wheelchair users who were being given an introductory course to balancing on their back wheels and attempting to get over a thick rope; and the last group was composed of advanced manual wheelchair users, attempting to go up curbs of two different heights. Throughout the

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afternoon, the discourse was heavy with mentions of awareness of one's body as nurses and carers asked attendees how they felt, and tutors described techniques. Two extracts from my field notes illustrate this:

> A curb with a bigger height was brought in. [The coach] explains why he pushes the way he does, "I have this type of injury (x), so I have my core muscles that I can push into." This was a particularly interesting moment as students take into consideration each other's injuries and capabilities. It should be pointed out that this training is mostly provided for people who have gone through a traumatic injury rather than people with congenital conditions. Nevertheless, this means that [the coaches] are aware that it is unlikely that 'one training fits all', or that everyone will be able to do the same kind of things or develop the same kind of strength. [Observation notes]

> Another [wheelchair user in the novice group] shakes his head, and says it hurts. One of the nurses comes to him and asks him where it hurts, and he points to a point on his back. She nods, "I was afraid of that. It's the jolt, isn't it?" He nods and doesn't try again, making his way towards my side of the court. [Observation notes]

As such, the acquisition of wheelchair skills can add great flexibility in the usage of the transport system in London as it is currently, as illustrated previously with Char Aznable's usage of escalators, other interviewees bumping down trains and over gaps, or even going up ramps more easily. However, I do not believe that the aim of learning these skills is necessarily of tackling the physical barriers of infrastructure but is more likely a way for wheelchair users to build up self-confidence:

> But if they can train you to balance on your back wheels, that's one of the main things that will teach you confidence is that back wheel balance to enable you to tilt to move yourself around. – Basil

> I think it's really, really important to make people confident in how they use their chair and stuff. – Alex Lyons

Furthermore, wheelchair users who do have the ability to use these skills argue that they should not be required from anyone. In a quote from Alex Lyons above (see p. 146), he is well aware that not everyone is capable of resorting to these abilities ("other wheelchair users won't be able to"). Kerstin, who is also a "very, very good wheelchair user", told me that she cannot imagine someone failing to use public transport in London simply because they do not have those skills:

> If the step is too high for someone with average wheelchair skills using it, then the step is too high and must be changed. Even so someone like myself could jump over, but I'm not the model for whatever. – Kerstin

Therefore, in an ideal infrastructure, one's lack of wheelchair skills would not impact their mobility and how they get around the city. However, if by managing one's disability, they find that wheelchair skills may add to their arsenal of abilities, this could boost confidence and enable a wheelchair user to attempt using transport in a new way. And, as Kerstin says, wheelchair users "have to be very self-confident, and very good in problem-solving" to use public transport in London.

II.   Performing disability

A second technology of the self I identified in wheelchair users' experiences of using public transport is very familiar to sociologists: performance. Here, I take performance in the Goffmanian sense, referring to the actions of individuals as they are being observed, giving meaning to the situation, themselves, and their observers (Goffman, 1990 [1959]). Performances are enacted in the 'front-stage', and actors are aware of their surroundings. The observers' expectations of how one should act weighs heavily in these moments, and influences the way one might act. Specifically, in the case of wheelchair users in public transport, interviewees described moments in which they *performed disability*. This is an interesting contrast with Goffman's own work on *Stigma* (Goffman, 1963), where disability is often described as on type of attribute that marks someone as "different from others in the category of persons available for him to be, and of a less desirable kind" (Goffman, 1963, p. 2). Consequently, it would go against Goffman's very definition of *passing*, as a way of managing a 'spoiled identity', for wheelchair users to perform disability, enhancing the perception that they are disabled (see Chapter 2, section 2.A for further discussion on *stigma* and *passing*).

An interesting interaction between *performance* and *stigma* seems to appear in the case of wheelchair users in public transport. Indeed, interviewees discuss wheelchairs, the assistive technology itself, as a marker of difference, a *stigma symbol* (see, for example, Chiara's quote on p. 161, "a wheelchair is a huge negative symbol"). Given its conspicuousness, the possibility of *passing*, acting as though one were not marked by the technology as 'other', is near impossible. The nature of interactions in the setting of public transport is therefore marked by this stigma symbol, a situation which has not previously been discussed by the literature on this subject despite there being contemporary scholarly work

intersecting Goffmanian concepts and disability studies (Goode, 2007; Olney & Brockelman, 2003). Therefore, wheelchair users may opt to *perform* their disability, rather than attempt to *pass*, in order to negotiate social interactions on the bus. Finding themselves in a position where their identity is permanently 'spoiled', the wheelchair user has to negotiate two roles in their interactions with non-disabled people: as a person with an impairment who is capable and does not require help, or as a disabled person who *may* need assistance. Anton expresses this dichotomy well:

> I've had people try and push me into shops if there's a ramp. In my manual wheelchair, if there's a little step like that, I can get over it. And I like to win that battle. I don't like people coming in and saying, "Hey! Can I push you in?" So... it's very double-edged. Because it's a very good piece of... they have a good heart, and they mean well, but I really don't want that. It's intrusive and patronising. I like it, I like the fact that most strangers really want to help. I was struggling up a dreadful slope on Saturday and just rolled backwards and couldn't do it, and I span around and I was out of control, and the nearest man just said, "Hey, let me give you push." I just needed it at that moment and it was great, so he got me out of trouble. – Anton

Is is particularly in cases where wheelchair users might need help that *performing* disability becomes useful. Hence, whereas Goffman spoke of concealment of stigma, it can be argued that there are cases where there is concealment of *ability*. One case is the pressure placed on wheelchair users due to social expectations of ability: if one uses a wheelchair, one should be unable to walk. Chiara and Alanni both expressed the feeling that they are constantly being policed when travelling. As a result, if they move their legs in public situations, they have been confronted by "funny looks" (Alanni), and Leda described similar feelings of people "passing judgement" if they see her standing up from her wheelchair. In her words:

> That sort of judgement, "Oh, you can walk then why do you need the wheelchair?" – Leda

Aware of the social stage and body policing that might be occurring, Chiara said the following:

> There is an onus on us to perform disability, so we need to make sure that we're not getting out of our wheelchairs, that we're not moving our legs in ways that would suggest that we're not disabled. – Chiara

Chiara also spoke of her fear of being caught out walking in her neighbourhood, and being reported for fraud to the Department of Work and Pensions (see p. 121). Hence, performing disability and hiding abilities

may be an apt way of avoiding tense social interactions, particularly in limited spaces like the bus, where one might encounter confrontational passengers. But it does not have to be all negative, and performing can also have a positive output in enrolling other passengers as allies:

> I put on my best little-lady-in-the-wheelchair face and ask really nicely. They'll either move really quickly and be really nice, over-making up for it, or they'll do it really begrudgingly. And I'm sorry if they're not happy, I just think, "Tough." – Jo90

To negotiate the space on the bus with other passengers, Jo90 performs her disability in ways she might not resort to in other circumstances: she "puts on" a particular persona and voice that she believes will incite people to react compassionately towards her, and to collaborate in making space. Her performance is done for a different reason than Chiara's, who performs in order to avoid negative social interactions, such as other passengers confronting her on whether she needs a wheelchair at all.

As a stigma symbol, then, the wheelchair may still provide its user with the possibility of performing and appropriating its negativity to enrol other passengers as momentary assistants, a helping hand. Cahill and Eggleston also identified this type of tactic in their paper that criticises Goffman's overly negative thesis on disability and stigma. Instead, they propose the idea of wheelchair users being the "objects of public kindness", particularly from "unknowns" (strangers) in moments of need (Cahill & Eggleston, 1995). Given the prevailing accounts that interviewees gave of their negative experiences with other passengers on London buses, Cahill and Eggleston may be overly optimistic. Nevertheless, in performing disability, wheelchair users gain an interesting level of control over their public identities, which they can deploy in ways beneficial to them in social interaction. It is also in these moments of *performance* to other passengers that we can identify one last technology of the self, called upon by wheelchair users in order to negotiate their social interactions in public transport.

III.   Emotional labour

Through both managing and performing disability, wheelchair users are juggling a variety of factors while travelling: from their physical integrity and well-being, to gauging the setting they are in, to appraising potential assistants for worst-case scenarios (getting stuck in a train without a ramp).

In these cases, wheelchair users are constantly observing the world around them, identifying possible allies and also potential antagonists. Being able to do these important social observations while juggling their own emotions and those of others is arguably a case of *emotional work*.

The literature around *emotional work* might not seem like it might be relevant to the work of wheelchair users on public transport, as the concept originated as *emotional labour* in the late 1970s as the type of work done by employees in the service industry to ensure their client's satisfaction (Hochschild, 1983). The seminal example is the case of flight attendants who, Hochschild argued, require not only physical, motor and cognitive skills but also an emotional ability to ensure that passengers are kept peaceful and happy (Hochschild, 1979, 1983; Zapf, 2002). As such, the link between the service industry and disabled people may seem unclear, but the concept of emotional labour slowly began to be used by feminist writers to describe the work that women do in private spheres, particularly in providing emotional support and a nurturing environment for others, without monetary compensation (Shakti, 2016; J. Zimmerman, 2015). These recent applications of emotional labour draw inspiration from gender studies and research on the unpaid nature of housework (Federici, 1975; Oakley, 1974).

Despite some differences in the application of the concept, all approaches point to the process of emotion management which requires particular effort on the part of one individual to sooth and ensure the happiness of another (or others). As such, emotional labour in this thesis is taken to mean "enhancing, faking, or suppressing emotions to modify the emotional expression" in order "to interact with customers or clients in an effective way" (Grandey, 2000, p. 95). Or, in the case of wheelchair users in public transport, in order to interact with other passengers in an effective way. It is in this that I saw a parallel in the work undertaken by interviewees while using public transport. Firstly, wheelchair users seem to be constantly observing the world around them, and are aware of being observed themselves (hence the tactic of *performing disability*, discussed above). They also keep a watchful eye for other passengers who may be helpful, or who may seem confrontational. In the case of the latter, they may need to defuse confrontational situations, such as requesting that other people move from the wheelchair priority area. As such, wheelchair users engage

in emotional work, and though it is without the monetary compensation, it may come with significant improvements to their travelling experiences. Their emotional labour is done through self-consciously demonstrating *friendliness*: wheelchair users smile, demonstrate calm and ease in potentially tense situations to defuse them, or enrol potential allies to help. While travelling with Alan, for example, I observed the way he and the staff member joked with each other (see p. 142), and how Alan explained in terms of how he benefits from personal relationships. Likewise, Um Hayaa described how it is in her "nature" to be kind, and how it makes a big difference to her, as "people reciprocate" (see p. 143). Having told me that she found social attitudes to be the biggest barrier to travelling, she nevertheless chooses to be courteous because "when you give a good smile, [people] are also very helpful." Similarly, when I asked Anton what his advice would be to a wheelchair user who intends to use public transport, his first comment was:

> Be friendly to everyone even when you don't want to be. – Anton

This friendliness, therefore, is not just an act of kindness on part of the wheelchair user. It is a tactic that works towards improving potential social barriers, and can ensure a good travelling experience in cases where they may need help, minimising other people's social discomfort or uncertainty of how to act. It is a performance that gives social queues, wherein they signal their approachability but also voice their specific needs. Sal, for example, described the "joke-y" style she adopts to speak to people, and said that "in so doing I'm warning, for example, the bus driver that [the ramp]'s quite steep and [it] may take me a moment to get up it." Furthermore, this can be a long-term tactic. Alan has developed a good relationship with staff at his local station, something he says will help him in the long run as station staff become used to his presence and his personal needs. And there is also another level to this tactic. Throughout the interviews, there is a feeling that wheelchair users are aware of being watched and being a "representative" of a larger community: they are representatives of "disabled people" more generally. Alan, for example, describes himself as an "ambassador" (despite saying he "hates the word). Hence, acting friendly, and not "having a chip on their shoulder" (Alex Lyons), is a way of painting themselves and, by extension, their community in a positive light. The emotional labour that is being done is both for

oneself and on behalf of a large group of people. On performance and representation, Goffman remarked that social interactions are dependent on one's "previous experience with individuals roughly similar to the one before them" (Goffman, 1990 [1959], p. 13). In the way that they speak of being "representatives", some interviewees showed that they are conscious of this social dimension, perhaps more so than individuals who do not carry stigmatising visual markers. This "representative" work is expressed in other moments of the interviews as well, as part of a larger infrastructure-shaping strategy, and will be discussed in the next chapter (see Chapter 7, section 3.A).

We have seen how wheelchair users will engage in a performance of friendliness as a type of emotional labour through which they may improve their experiences of public transport. In "smiling" and joking with passengers and staff members, wheelchair users enrol them as allies and defuse potentially confrontational situations. Unlike previous work on emotional labour, that discussed it from a management and employment perspective (Hochschild, 1983), the recompense gained by wheelchair users from this work is not monetary, but social. They forge both short- and long-term relationships with passengers and staff members who may help them, or can stop a confrontation in its tracks[40]. This type of labour is the last of the three technologies of the self identified in this research, and is another example of the ways that wheelchair users work upon themselves to attain their goal of mobility in the city.

This chapter was the first in "Part 2: Inclusion". The aim was to investigate the types of ad-hoc problem-solving tactics that wheelchair users develop to get around barriers in an imperfect system. The tactics discussed in this chapter are *individual*, moments of *truant freedom* wherein 'non-standard' users of a system find ways to subvert it or momentarily mould it to their needs, an approach based on de Certeau's sociology. Having developed a 'blended narrative' of the ways in which wheelchair users navigate the transport system in London, I then proposed a taxonomy of *tactics*, based on how wheelchair users identify the barriers they face in the infrastructure. Firstly, to counter the nefarious effects of physical barriers, wheelchair

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[40] It should be noted that Hoschchild (1983) also discussed the negative impact that emotional labour can have on the employee, as they are forced to constantly fake positive emotions despite not feeling that way. It is unclear here what type of impact emotional work has on wheelchair users, though it may be an interesting topic for further research.

users redefine the infrastructure's physical boundaries. Indeed, they *re-script* the design of the infrastructure by reinterpreting the uses they can make of it rather than following the prescribed script (such as facing forwards in the wheelchair space, or riding escalators). They also *hack* the system in a variety of ways, forcing doors to remain open or developing toolkits to fix things along their journey. Secondly, I argue that wheelchair users develop three types of *technologies of the self* in order to tackle the social barriers that they encounter in the system. These technologies are ways of acting upon oneself or "[taking] care of oneself" (Foucault et al., 1988, p. 19) to reach a state of 'happiness' or, in this case, of mobility. First, wheelchair users *manage* their disability through gauging their bodily and mental integrity and abilities. They also *perform* disability in moments where it may allow them to gain a social advantage either to enrol an ally or to avoid confrontation. Finally, wheelchair users do significant *emotional labour* by enhancing a friendly appearance to ease passengers and staff around them and to have a better control over social interactions. From this chapter, I ask the reader to carry with the following thought: in order to use the public transport system *at all*, wheelchair users have to engage with a series of tactical practices that allows them to subvert an infrastructure rife with neoliberal-ableist scripts (historically inherited or otherwise) and, despite their efforts, there is never a guarantee for a smooth journey. These practices require a significant amount of work (physical, emotional, or otherwise) on the part of these passengers, and it is worth asking whether it is fair that this case.

The term *ad-hoc* was deliberately chosen to describe these tactics, as was describing these actions as "problem-solving". The term was inspired by Kerstin who said that, to use public transport in London, a wheelchair user has to be self-confident and "very good in problem-solving, just because it's what you have to do if you're using the Tube". The tactics are *ad-hoc* in that they are 'quick-and-dirty', deployed as and when required to solve problems encountered during a journey. As such, these tactics are interesting as they demonstrate that despite an imperfect infrastructure in terms of accessibility, some wheelchair users are still willing to go out and use it. They are aware of the problems that they will face (as described in Chapter 5), and those who *do* use the infrastructure develop various ways of getting over the hurdles and gaps, both physical and social. However, given their improvised nature, these tactics are deployed in an

unpredictable manner. Can such individual actions have a lasting impact on the shape of an infrastructure? It is a difficult question to answer, and I give it further thought in Chapter 8. In the next chapter, however, we turn to larger, collectively organised strategies that aim for infrastructural change. There, we encounter one of the heirs to the disability rights movement of the 1990s.

Chapter 7: "We have a voice to speak."
Developing strategies to shape London's public transport

The previous chapter discussed ad-hoc problem-solving skills wheelchair users develop whilst using London's public transport system. They prove to be useful tactics to deploy while on a journey, finding ways of getting around barriers discussed in Chapter 5, but I concluded by questioning how effective those daily actions can be in shaping an infrastructure as large as the public transport network in London (a topic I will return to in Chapter 8). This chapter veers away from ad-hoc problem solving to discuss more deliberate approaches to shaping the city's transport infrastructure. In Chapter 6, de Certeau's concept of *tactics* was used, whereas here we will turn to his concept of *strategies.*

As discussed in the Literature Review, de Certeau's work was concerned with hegemonic power and how individuals navigate in a landscape of which they only see small parts. He made a distinction between the *producers* who, by deploying *strategies*, create panoptic environments with rules to be followed. De Certeau often refers to these *producers* as 'the strong', but spends less time refining what these strategies might look like than he does describing *tactics*. His distinction between *producers*, those who deploy strategies, and *consumers*, those who deploy *tactics*, is clearcut and offers little opportunity to wonder about how consumers might also have a hand in creating these synoptic environments.

In this chapter, I therefore propose to borrow de Certeau's concept of *strategies*, and ask about cases where *other* groups, those who are not necessarily "strong" (or at least do not wield hegemonic power), contest the strategies of powerful institutions in *strategic* ways, not only on an ad-hoc basis. In doing so, these groups deploy their own strategies to "produce, tabulate, and impose" spaces, or at least reclaim and re-insert themselves into spaces from which they were previously excluded. I propose that we call these strategies employed by "Other" groups *counterstrategies*, ways of *realigning* the "political, economic, and scientific rationality" (De Certeau et

al., 1998, p. xix) of a place proper or, in our case, of London's public transport system. It is less about *use* of the infrastructure than it is about its *reshaping*; less about temporary appropriation than about *transformation*. Indeed, these are deliberate, procedural, and political actions that interviewees described as ways of effecting change, or of raising awareness of the shortcomings of accessibility in London's public transport.

In this chapter, we will therefore investigate these counterstrategies. Writing about effecting change in biomedical research and diversifying the research agenda to include minority group interests, Epstein discussed the importance of having a "tacit coalition" between *insiders* and *outsiders* of "normally recognised" divides (Epstein, 2007, p. 87). A similar coalition is observed in the case of wheelchair users and public transport, and I have therefore attempted to show the work undertaken first by "outsiders" to the political or technical decision-making process regarding transport infrastructure. Having discussed outsider counterstrategies, we will then turn to the influence that sympathising "insiders" can have in the process of transformation of the transport infrastructure. Finally, I will discuss the importance of this coalition for shaping infrastructure and how these counterstrategies are both *dependent on* the out/inside distinction, but also transcends it.

1. Outsider counterstrategies

Given that the majority of my interviewees were not engaged with the political and technological decision-making process of the transport system in London, the first type of counterstrategies that I identified were what I am calling *outsider* counterstrategies. Van de Poel (2000) proposed a taxonomy with three different outsider groups, a classification based on what resources each group had: outsider firms, outsider scientists and engineers, and societal pressure groups.[41] There was no evidence of either of the first two groups in my empirical data, and I will therefore focus on the counterstrategies developed by *societal pressure groups*. These groups, Van de Poel argues, act as "lead articulators" (Van de Poel, 2000, p. 392), capable of inhibiting technologies (such as nuclear power) and provoking technical change. They are interested in the societal impact of technologies, striving for *socially just* uses. Van de Poel does not, however,

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[41] See Literature Review for further elaboration of these groups (see p. 31).

describe how these groups might cause transformative change to the adoption of a technology, which is where *counterstrategies* becomes useful analytical tool. In the following section, I will discuss three different types of counterstrategies used by societal pressure groups to shape public transport in London: legal and institutional pressures, media pressure, and socio-political pressure.

A. Legal pressure: the Equality Act, burden and precedents

I. The weight of legal precedents

> I'm a campaigner and somebody who challenges, so whenever
> I come across a barrier, I [pull people up about it]. – Adam

This was Adam's first response when I asked him to tell me about himself. He continued on to tell me how he had taken legal action against transport service providers in cases where he had experienced what he perceived as subpar accessibility. Legal cases, however, do not occur often, as Adam pointed out himself, largely due to the burden of expenses it can cause the plaintiff. This is an important point because England's legal system is one of *common law*, which works with legal precedents. Legal precedence requires that similar cases have similar rulings applied to them, but where few cases have been judged, there is little space for comparison. They also require cases to go through to judgement. If a case is settled out of court, which Adam claims is often the case, fewer precedents are created for adjudication when a new case comes forward.

Case precedents are distinct from *primary* legislation in the UK which is set by the United Kingdom Parliament. Legislation is statute law, or points of reference that allow to define whether there is a legal case or not to be taken to court. As such, the main legislature that is referred to in cases of failure to provide transport services to disabled people is the EA10, which superseded the UK DDA95. The EA10 put under its remit the "desirability of reducing socio-economic inequalities" through the concept of "protected characteristics", among them age, religion, sexual orientation, and disability. It defines cases of both direct and indirect discrimination. However, the only protected characteristic that has a section titled "Duty to Make Adjustments", is *disability*, in sections 20-22 (Equality Act 2010, p. 11). This duty, the Act describes, is "to take such steps as it is reasonable to have to take to avoid the disadvantage" a disabled person may be put in, in

comparison to a non-disabled person. It has been pointed out by many authors that the reasonable adjustment clause can complicate court cases for disabled people as it is an ambiguous term (Barnes, 2011; Barnes & Mercer, 2010; Beckett, 2005; Bromley et al., 2007; Imrie & Kumar, 1998). As Beckett writes, "Discrimination against disabled people is only illegal if it is 'unreasonable'." (Beckett, 2005, p. 412).

Many of the wheelchair users I interviewed demonstrated a general knowledge of the EA10 or DDA95 (most often the latter), evoking the latter's importance as a landmark piece of legislation for disability equality. It was, as Faith recalled, an important moment for transport accessibility, too: the DDA95 inscribed a series of accessibility regulations, including the deployment of low-floor buses with the provision of wheelchair spaces. Multiple interviewees, however, doubt the efficacy and enforcement of this legislation:

> It's been 20 years since the Disability Discrimination Act came through and I find a lot of places are still very slow to catch up.
> – Leda

> Like, let's get a grip. The Equality Act 2010, why haven't we superseded that, and it's probably because of that reasonable adjustment test, because Parliament, the institutions that they're concerned, put an absolute right. There's no absolute right to discriminate against somebody because of their skin colour, because of their sexuality, but actually, what does that cost in the infrastructure? Nothing, it doesn't cost anything in the infrastructure. It costs money in training people, and it costs money in getting rid of people, and it costs money in societal norms and practices. – Alex Lyons

The "right to discriminate", as Alex Lyons refers to it, is the ambiguity for which "reasonable adjustment" allows, the reasons for strong criticisms towards the legislation. As he succinctly puts it, no other protected characteristic has this caveat, particularly in terms of the infrastructural and built environment changes to access services. In our interview, Ann Frye, a consultant in the field of transport accessibility, described the term as "a typical legal word that means, really, absolutely nothing. One man's reasonable is another man's unreasonable."[42] As such, she believes that legal precedents, such as Adam's, could make a difference:

> That's a real shame, because if we'd got a good body of case law in the first two or three years, there would be lots of legal precedence. You could turn to them and say, I'm sorry, but that clearly is not a reasonable adjustment. – Ann Frye

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[42] Ann Frye was among the interviewees who chose to waive anonymity.

By making use of the counterstrategy of legal precedents, Adam brought about some substantial improvements to accessibility in his area, not only for himself nor simply on an ad-hoc basis. Having taken National Rail to court and won means that he has set a precedent for cases similar to his, but has also required that Wimbledon station be refurbished and made more accessible. He told me that after winning his case, Wimbledon station had new lifts, new gates, additional staff training, and the taxi ranks were moved to an area where they would not obstruct disabled parking bays. Wimbledon is listed in TfL's Tube map as a step-free station, from street to platform (manual boarding ramps are still required). Indeed, this may go some way towards refining definitions of (un)reasonableness in future court cases. However, legal cases are a difficult counterstrategy to deploy regularly as they can be financially unviable for many people, particularly due to cuts made in 2013 to the Disability Rights, and the Equality and Human Rights Commissions. This was the result of the Legal Aid, Sentencing and Punishment of Offenders Act 2012 that cut legal aid (previously available for all civil cases) except in particular exceptions, such as mental health and asylum ("Q&A: Legal aid changes," 2013). Adam's case against Wimbledon was prior to these changes and he had had recourse to legal aid. Today, he may not have been able to do it unless paying out of pocket. Indeed, since the implementation of the Act, the House of Commons Justice Committee concluded that these changes to legal aid "had harmed access to justice for some litigants" (Justice Committee, 2015, p. 67). Therefore, this counterstrategy is deployed by some outsiders, but it should be noted that it is paired with a significant financial burden to the plaintiff[43].

II. "Reasonableness" and financial burden

The ambiguity of "reasonable adjustments" can disadvantage disabled plaintiffs in court cases. Indeed, as discussed above, it allows for disability to be the only "protected characteristic" against which discrimination may technically be legal. As mentioned above, the term 'reasonable' is a slippery term, whose definition is largely context-dependent. When

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[43] It should be further noted that within the ableism studies literature, Campbell has argued that while legal cases may have given individual victories to disability rights activists, legal institutions themselves should be questioned and recognised as factors in maintaining an ableist system. Specifically, she argues, legal definitions have drawn specific boundaries around the 'disabled' subject as 'defective' that do not allow the imagining of a "'disabled subject' in any alternative or positive way" (Campbell, 2001, p. 60).

explaining the ambiguity behind the term, Ann Frye told me that the Disability Rights Commission had provided a Code of Practice for the DDA95, which provided some illustrative examples. She told me of the following case:

> A little corner shop with a very low turnover and you've got a big step up the door, do you have to put in a lift? If a lift would be half your annual turnover, that's not a reasonable adjustment. […] It was meant to take into account the financial basis. If it's Lloyd's bank and they say we can't afford to put in a lift or a ramp, then, you know, I don't think so. – Ann Frye

Indeed, the Code of Practice, the Disability Rights Commission provided some explanations and examples of the duty to make reasonable accommodations. Concerning "reasonableness", it reads the following:

> It is more likely to be reasonable for a service provider with substantial financial resources to have to make an adjustment with a significant cost than for a service provider with fewer resources. The resources available to the service provider as a whole are likely to be taken into account as well as other calls on those resources. (Disability Rights Commission, 2002)

Reasonableness, then, is context-dependent, and is often measured through a cost-benefit analysis of structural changes. It is, to some extent, an attempt at quantifying disabled people's quality of life. Furthermore, the ambiguity of the term is particularly problematic given that the burden of proof is more likely to be placed on the disabled person who will not be able to access the service: provide evidence that you cannot access this service, and that it is unreasonable for this to be the case. Hence, as Ann Frye discussed above, one person's reasonable is another's unreasonable. Leda, for example, used the term when she explained tackling both her painful physical impairment and trying to board a train without a ramp:

> It'll be painful several times a day as it is. I don't feel bitter, I don't. I just want some reasonable accommodations. – Leda

Her perception of a reasonable accommodation might not line up with the *financial* reality of providing said adjustments. Legally, however, these financial criteria are often invoked in the case studies developed in the legislation. The financial argument for reasonableness had already been evoked in Alex Lyon's and Ann's interview excerpts above, and they are not alone in seeing the use of money to justify inaccessibility to services for disabled people. Kate, Basil's partner, saw it as an excuse to stop disabled people from integrating fully into social spaces:

> It's justified by money, isn't it? It's always about, "We can't afford," as if… obviously, there isn't this policy, but it's almost like we're going to stop these people being a full part of life because we haven't got the money for it, and that reluctance to spend that extra bit of money. – Kate

The financial criterion is therefore significant in the legal process: claims of affordability (or lack thereof) can be pivotal in demands for accessibility as they are an important factor in "reasonableness". Here is where using the ambiguity of the term is a useful counterstrategy for wheelchair users in the legal process. The aim of legal pressure, in these cases, is not to create case precedents, but to make service providers settle out of court to cause them financial burden. When asked what ways he could envision to improve public transport in the capital, Char Aznable stated bluntly:

> Court cases. Where companies and operators fail to meet the legal requirements, then they should pay the impinged person a very hefty sum. Not as an, "I want to be paid" measure, but purely as a punitive, "No, fuck you, you can't do that." – Char Aznable

According to him, "hefty sums" could arguably work as a dissuading strategy, hitting companies and service providers where it hurts: their pockets. Indeed, though Adam was the only one of my interviewees who told me of having gone through the court process for accessibility claims, Char Aznable has also found that legal pressure can accomplish interesting results. He threatened National Express with legal action after his wheelchair was damaged on a bus service to Bristol, and settled his case out of court.

> The wheelchair ended up going in the cabin hold and came back with a part snapped off. It wasn't this chair, that's why I got this chair. They paid me £140 for a month in which I didn't have a wheelchair. – Char Aznable

His wheelchair was placed in the cabin because the coach was not wheelchair accessible, despite Char Aznable having requested the service at the time of booking. Given that he is able to walk short distances, Char Aznable accepted the alternative of boarding the bus on foot and having his wheelchair stowed away. His wheelchair was damaged during the trip, and he threatened National Express with legal action. The threat of being taken to court for having failed to provide accessible services proved to be enough for them to offer remuneration, and here is where 'reasonable adjustment' plays an important role. The ambiguity of the term is enough to cause fear that they may not have met the required adjustments (particularly given that Char Aznable requested an accessible service).

Could National Express have won in court? Perhaps, but the risk was not taken at all. Linda, too, implied that perhaps more legal cases would make companies worry more about whether the services they are providing are up to standard:

> Actually, there needs to be criminal prosecutions made and that might have more of an effect to think, "God, well, they were sued for it and they had to pay a big bill, maybe we need to do something because they're starting to crack down on it." – Linda

It is unclear whether Char Aznable's specific case has had an impact on the services provided for wheelchair users by National Express, or indeed to what extent this financially motivated legal pressure would have an impact on transport accessibility more generally. Regardless of its repercussions, it is one of the counterstrategies described by wheelchair users as a way of attempting to nudge the status quo in their favour more permanently.

III. "The Doug Paulley case": a success?

If there is a single legal case that has had an impact on the accessibility landscape in the United Kingdom, it is the one referred to by interviewees as either the "buggy v wheelchair case" or the "Doug Paulley case" (this case was briefly mentioned in Chapter 5, section 3.A). In 2012, Doug Paulley, a wheelchair user in Yorkshire, attempted to board a bus. He was denied access due to a mother with a pushchair refusing to make space, a case that echoes various stories detailed in Chapter 5. Paulley's case gained traction in the past five years as it escalated through the UK legal ladder. In the first instance, Doug Paulley took FirstGroup Plc, the service provider, to court for unlawful discrimination due to his disability; he won and was awarded £5,500. FirstGroup appealed the decision, and it was overturned—the judge ruled that according to the company's Conduct Regulations, the driver was not required to force passengers to disembark the bus unless they are breaking other norms of conduct. As a result, Paulley was granted the right to appeal the decision, and the Equality and Human Rights Commission took his case to the Supreme Court of the United Kingdom where it was heard on June 15, 2016 ("Supreme Court hears wheelchair user Paulley's landmark appeal against bus company," 2016). In an interview to the BBC, Paulley stated that his ongoing legal battle was "about the reasonable adjustments that organisations have to make so that disabled people can have access to the things that other people in society take for granted" (Coleman, 2016). In January 2017, the

Supreme Court's judgement was given, largely in favour of Paulley though, still, ambiguous on various items of the case. Indeed, the Supreme Court ruled that the bus driver had not gone to reasonable lengths to request the parent with the buggy to vacate the wheelchair area. According to the judgement:

> Where a driver who has made such a request concludes that a refusal is unreasonable, he or she should consider some further step to pressurise the non-wheelchair user to vacate the space, depending on the circumstances.

Little is said about what this further step might look like, though the responsibility and burden of judgement in cases of conflict now seems to fall upon the bus driver. Paulley's request that non-disabled passengers be ordered off the bus to vacate the wheelchair area was rejected, both by the Appeals Court and by the Supreme Court. On his personal blog, Paulley wrote that he is "very happy with this judgement", as it technically rules against the "first come first served" concept, effectively stating that wheelchair users should have priority over the space and that bus drivers have the responsibility to ensure this priority (see Paulley's blog at kingqueen.org.uk).

Paulley's case has gained significant attention in accessibility debates. Wheelchair users interviewed for this research often described the situation Paulley himself experienced as an important barrier to accessibility, particularly due to the lack of cohesion between service provider policy (such as FirstGroup's Conduct Regulations) and legislation. These situations are deemed particularly outrageous given the historical origins of the wheelchair priority area as the result of protests organised by disability rights movements in the 1990s (see Chapter 4, section 3). Linda, for example, had good expectations from Paulley's case:

> Hopefully it will bring a bit of clarity and I hope the outcome would be that the guy in the wheelchair wins because at the end of the day, the mums with prams can fold the prams down, there's other ways of travelling easily if you have a pram. – Linda

Furthermore, Robert, an employee at a London transport service provider, said they were watching the case proceed through the courts with interest.

> So far, the court cases have just muddled, or they muddled it worse than it was before. So until we get a clear court ruling, it's sad to say that a driver can say to a person, "Do you mind folding your buggy up?" But if the person really just puts their fingers up at the drivers, the drivers have nothing they can do.

> So we're waiting for the court hearing and then we can work out
> how we apply that too. – Robert

As much of debate was based on whether the bus company can enforce passengers who refuse to make space for wheelchair users to disembark, the ruling concerning driver's responsibility to make reasonable judgements is clear, and it is likely that company policies will have to be changed to better reflect this[44]. It is, however, debatable whether the Supreme Court ruling provided particular clarity priorities as, despite ruling unanimously in favour of Paulley (concerning the driver's responsibility), Justices disagreed on more stringent legislation concerning specific rights over the space and forced removal from it in cases where it is required by a wheelchair user. Nevertheless, as discussed in section 1.A. above, Paulley's case has created an important legal precedent. Given how recently this judgement has been passed, it remains to be seen what type of impact it will have.

Perhaps the most significant impact the case has had is as a *rallying point* for stakeholders in the transport accessibility world. Some political scientists have pointed out the relationship of legislative work and social movements, particularly as the latter works towards shaping the former (Eskridge, 2001; Hilson, 2002; Rubin, 2001). Significantly, Burstein describes legal mobilisation as an important strategy deployed by social movements (Burstein, 1991), and there is evidence in the sections above that wheelchair users interviewed have identified this, deploying it as a way of creating legal precedents and of causing financial burden to transport providers. While Paulley is engaging in this counterstrategy himself, his high-profile case has also served as a unifying force, to some extent: interviewees' awareness of the case and anticipation of the ruling was a continuous theme in conversations. Importantly, the case captured the media's attention when it was escalated to the Supreme Court, putting transport providers in the spotlight for issues concerning accessibility.

B. *"Use the media to shame into action"*

While Paulley's case occupied some important spaces in traditional media such as newspapers and television news, interviewees discussed the

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[44] Current TfL bus policy, which is reflected by all bus service providers, is that wheelchair users are to be given priority to the space. However, as is stated in the Big Red Book, "if passengers are unwilling to move, despite your request, do not make them leave the bus" (TfL, 2014c, p. 70). At the time of writing, the policy states if someone offers to get off the bus to make room, that they should be given a transfer voucher. Interestingly, this is the last step though perhaps it would be more effective if offered from the outset.

importance of *social media* as a counterstrategy to improve accessibility in transport. The use of social media by this demographic is not particularly novel; here has been research on the importance of social media in activist movements throughout the world since the mid-2000s. From the Arab Spring to the #BlackLivesMatter, research on social media activism (or cyberactivism) has become widespread, particularly in media and communication studies (Aouragh, 2008; Gerbaudo, 2012; Papacharissi, 2015; Vegh et al., 2003). The impact is particularly significant given the shift in media models, from what is popularly called Web 1.0 to Web 2.0; or, the shift from generated content for specific audiences and consumers, to one generated by the internet's users and participants themselves. Web 2.0, according to Lievrouw's definition, is "fundamentally interactive", giving "users an unprecedented degree of selectivity and reach in their choices of information and cultural resources" (Lievrouw, 2011, p. 13). It not only allows, but is largely dependent on the public's participation, and provides the rich environment in which cyberactivism can thrive. Mass media might have persuasive power, but it does not guarantee engagement nor action in the way "new media" encourages its users to 'share', 'like', 'comment below', etc.

Wheelchair users described in various ways their engagement with new media, particularly Web 2.0, and the ways in which it may prove to be an effective counterstrategy in shaping transport infrastructure. Below, I will discuss two of the strategies most often discussed by interviewees as being impactful in their experiences: naming and shaming, and complaint logging.

I. Naming and shaming

In February 2012, Baroness Tanni Grey-Thompson, a 16-time Paralympic medallist, publicly discussed her experiences with inaccessible travelling as she had had to get off her wheelchair and then "crawl off" a train when no staff members appeared with the manual boarding ramp for her to disembark. Channel 4 soon ran a news article on her experiences, shaming train services for this lapse ("How Paralympian Tanni had to crawl from train," 2012). A couple of months later and just ahead of the 2012 Games, Channel 4 ran an award-winning investigative reporting series called *No Go Britain* (Marshall, 2013), exposing the experiences of disabled people using public transport throughout the country, and in London particularly. In one of the episodes, *No Go Britain* asked disabled people to take to Twitter to

relate their stories, using the handle @NoGoBritain and the hashtag #nogobritain (Razall, 2012). In 24 hours, they gathered responses from over a thousand people, and the hashtag is still used as a way of tagging inaccessible transport experiences in the country[45]. Among the stories collected and guests invited to be interviewed by Jon Snow was Alan, my interviewee. He told me about the experience:

> I was playing with Twitter, just started on Twitter at the time, and on the day they were doing a news report about access I'd had a really dreadful journey. I got left at a station because the guard had ignored me and all sorts of wrong things, so I tweeted at them and said that I'd had this dreadful journey. […] Because I had been travelling every day for about eight or nine months, I knew all of the station staff really well […] I was talking to one of them after this TV appearance and he said, "Look, I can't tell you this, this hasn't come from me, but you really put the wind out on all the managers on the railway line that I was using, which was Southwest trains, and they heard this thing on the news and they've gone nuts, trying to find out what had happened and why they got such bad publicity." And I thought, oh, well that's interesting, that's kind of fun. And one of the reasons that I had the problem was the ramp was down one end of the platform, the guard was at the other end of the platform, so the whole process wasn't thought about, there wasn't really a logical process to it. And after about two or three weeks, I noticed that all the ramps moved on the platform so they now were down where the guard was so if he needed assistance, he's still by the ramp. – Alan

Harnessing the power of social media, Channel 4's series provided testimony of the issues faced by disabled people throughout the country, giving them space on mainstream media to voice problems and pressuring companies to respond to various stories. On this occasion, Twitter functioned as a powerful tool. It provided a medium to bring these stories to light, *naming and shaming* companies and holding them responsible for subpar service to disabled people. In Alan's case, the joint efforts of using Twitter (where he first exposed his story) and his appearance on national television brought about specific infrastructural change, shifting the manual boarding ramp from one end of the platform to another. In this respect, Twitter's interactive design provides a way of pressuring transport providers that other social media platforms do not. Posting on a company's Facebook page, for example, might not be enough as comments can be moderated (and deleted) by the company itself. Tweets, on the other hand, are linked to a personal Twitter handle and cannot be moderated in the same way, thereby having the power to garner traction:

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[45] Channel 4 has recently begun a new series to compare access stories four years after the 2012 Games.

> [Laughs] I tweet a lot, but I've got just under 26000 followers, so that's very powerful and then people start retweeting, and actually [the service provider] shouldn't treat me any differently than anybody else, but if nothing else it's quite a good way of just releasing the anger of the moment as well. – Aimee

Aimee is a disabled parliamentarian: her Twitter following is significant, and she is aware of the power that this can garner. Twitter functions with exponential growth—the more followers you have, the higher the chances of many of them retweeting something you post, and the more "impressions"[46] you will have. In our interview, Sal, also a politician, discussed her awareness of the weight that her influence can have on social media[47]:

> And the other thing is, I've also learnt that, and this is particular true of train companies, if I have a problem getting on or off a train or the arrangements not being there, the person doesn't arrive to take me off the train, I will tweet it to that train company's handle and because it's in the press office, you always get a response. That always gets a response. And that, the press office, is invariably in the chief executive's department. So I don't write to complain. I don't even bother doing that, I just use social media. – Sal

Sal does not believe that her number of followers has much to do with it, but rather that it becomes an added burden on train companies when she is asked to do interviews concerning her experiences, as Baroness Grey-Thompson did in 2012. In Sal's case, it brought the question of accessibility in public transport back into mainstream media in early 2015, when she was denied access to a bus by a parent with a buggy. She tweeted about the incident:

> And I wasn't expecting it to go quite as bonkers as it did, but it did. And the response we got initially from TfL was not good. It was a legal response, until the following morning I had done three TV interviews and two radio interviews and it got to the press office, and the moment it hit the press office the director of TfL for accessibility was on the radio apologising, saying he wanted to meet me and bladibladibladibla. – Sal

Out of the twenty-seven wheelchair users interviewed, eleven mentioned using Twitter as a way of adding pressure and demanding responses from companies when they faced accessibility barriers. It is possible, though not verifiable with the available data, that the shift towards Web 2.0 and the

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[46] Impressions are Twitter's way of quantifying the amount of times a tweet appears in accounts' timelines. It does not guarantee "interaction", but rather the tweet's weight of presence. Interaction is quantified by people seeing the tweet, clicking it to link to the original account, or clicking through an additional link provided by the original poster.

[47] A reminder that Sal is Baroness Sal Brinton. She is among interviewees who have chosen to waive anonymity.

advent of social media has permitted disabled people to voice their concerns in a more visible way than ever before:

> Maybe disabled people are more vocal. The internet is a huge boost, Twitter is a huge boost. I use Twitter exclusively for accessibility issues and pet rat issues, or pet rat celebration. […] Shaming, public shaming, is important and Twitter is brilliant for that. – Anton

As is pointed out by some disability studies authors, activism can take its toll, physically and mentally, on some disabled people (Bartlett, 2014; Oliver & Barnes, 2006). It requires effort, time, and being able to reach locations in spite of barriers, and fatigue can play a role in a wheelchair user's disengagement with social activism outside the home, such as participating in protests. It was pointed out in the previous chapter that managing one's disability through well-monitored effort levels is an important tactic for dealing with public transport in London (see Chapter 6, section 2.B.I). As such, social media is an important counterstrategy to provide testimony for the barriers they have faced. In so doing, they have been able to shame companies into action, like Alan's case of changing ramps from one side of the platform to another, or to open the discussion more widely, showing how wide-reaching these barriers can be.

II. Complaint logging

Social media has been useful for more than direct naming and shaming of transport service providers. Developing their own content in Web 2.0 through tweets and blogs has provided wheelchair users with another important counterstrategy to tackle inaccessible transport—namely, keeping track of issues and negative experiences they have faced in public transport. There were a number of interviewees who described *complaint logging* as an important counterstrategy to improve accessibility in London transport. Partnering social media and blogging with other "basic" media such as emailing Transport for London's accessibility team or phoning their office enables wheelchair users to keep track of the barriers that they encounter in transport, and how often they occur. Alan is one example:

> I just got left on the train all over and I thought, right, I'm going to keep a record of this, and that's what started me writing the blog. It was something that I could keep a record so that I can go back to the guy, every six months, every year or so, and say, here, I've taken 20-30 journeys, here's the record of them, this is what went wrong. And that's what the blog started out as and it sort of escalated since then, and I… there's about 450 people

> reading it now, I have 450 subscribers which is impressive because it's only word-of-mouth, I don't really shout about it, particularly. – Alan

Alan's blog, "Never a Dull Journey" (neveradulljourney.wordpress.com), is a travel journal: he posts, a few times a month, writing about a specific journey he has taken, and what barriers (if any) he has encountered[48]. When he does post uneventful journeys, it is usually to remark upon a particularly kind driver or staff member (one pleasant example was posted on April 29, 2016, when a bus driver slipped his personal assistant a couple of chocolates, see his post titled "Generosity" in the blog). When there are comments on his posts, they are usually written by other wheelchair users who describe their own, similar, plights with accessibility. Alan also uses his Twitter to describe directly the issues that he faces while travelling, usually tweeting up-to-date issues. He is not alone. Other interviewees described using this quantification tactic, of logging and (re-)tweeting, to rack up the number of complaints on particular issues.

Alan's blog covers over two years of problems, with rarely any praise for public transport in London, and he also often sends complaints to TfL. Anton has described doing the same thing – he keeps a detailed spreadsheet of the emails he has sent to TfL with accessibility complaints. He kindly sent it to me, and has allowed it to be shared in this thesis (see Appendix 8). Between June 2013 and August 2016, Anton registered 130 issues in his "catalogue of complaints", distinguished into six categories: "blue bell broken" (9), "driver refused to ask for wheelchair space to be cleared" (32), "blue bell ignored by driver" (36), "broken ramp" (20) "Big Red Book (other)" (13), and "dangerous ramp" (20). Next to each complaint, there is a copy of the email he forwarded to TfL and, if a response was received, a copy of their answer. Diana said that she, too, had kept an extensive log over eighteen months. She shared these logs with a researcher associated with No Go Britain who analysed them: in the period of time logged, Diana had boarded or attempted to board approximately 350 buses. She had had "some kind of issue" with 150 of those, and was denied access to (or chose not to board) 50 for "accessibility reasons". Jo90, Char Aznable, Faith and Kerstin also spoke to me about the number of complaints they had logged with TfL over the months and years. But what is the aim of this quantification of issues and barriers?

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[48] Alan is one of the interviewees who waived anonymity.

> I think the first step would be if people would complain more often. A lot of people moan, but they never take the time to either call or write to Transport for London. Even if you don't get the best answer, or if you have the feeling, you get a standard letter or whatever, that might be the case, but statistically it makes a difference. […] Or, if you have problems with the station because the staff is rude or lazy or whatever, if you complain and then someone else complains as well, and someone else complains as well, I think the station manager will have issues to explain why they're getting so many complaints about their staff, and things like that. – Kerstin

> I've a policy of complaining to TfL every time something goes wrong. Not because I think it will fix that obstacle. It matters that instant, if someone keeps up the volume of complaints. I want them to see statistically just how bad things are, and if I can contribute to that then it's helpful, I think. – Anton

An important aspect of complaining and ensuring that TfL receives emails, tweets, letters on the issues that wheelchair users face is "statistics". Anton and Kerstin are not speaking of complaints as a way of instantly improving infrastructure, as if their complaint would have a magical impact of the problem. Rather, the influx of complaints is a long-term counterstrategy, whether it is done through social media, emails, or TfL's own logging system. It provides undeniable evidence of the problems that wheelchair users are facing, including details of when, where, and how many times. If the complaints are kept up and numbers keep growing, it becomes difficult for TfL to push them aside or to deal with them later. The wheelchair users' counterstrategy, then, is to keep up continuous pressure, though it does come at the price of being additional (often emotional) work for disabled people, as these interviewees discussed (on the topic of emotional labour, see Chapter 6, section 2.B.III):

> The last thing I want to do sometimes is to make a complaint about bad treatment, the last thing I want to do is have an argument with someone on the bus. I just want to go to work, or I just want to get on home, but I don't feel like I have that luxury, and I don't think that disabled people have that luxury. I think that in order for things to get better, there's certain things that we have to do. – Faith

> After you complain, then you have to write to remind them to get a response. […] And you end up thinking, why should I have this level of aggro? Other people just manage to go out and don't have to complain. And you don't want to come back, every time you have a nice day out, and have to come back and start writing complaint letters. Or what should have been a nice day out. – Jo90

Here, as discussed above, the issue of fatigue and work is raised once more: wheelchair users interviewed for this research discuss the amount of work required not only for getting around, but also for demanding that the

infrastructure be improved for their needs. But there is evidence that their efforts are producing change. When I interviewed two staff members of a service provider, I asked them whether user comments were fed into their new projects:

> Yeah, I've been looking at complaints across different modes. And there are also quite a lot of surveys done for our services, so things like Dial-a-Ride, there are specific surveys that are run to check how… all their calls are monitored, so how long someone takes to get through to call, whether they can actually complete their journey at a time that suits them, where there's availability and things. – Andrew

Despite the amount of work that wheelchair users must do, it seems that their feedback is being taken into consideration (even if changes are perhaps slower than desired). For example, there was a recent renewal of the campaign on wheelchair priority areas[49] (even prior to the Supreme Court's judgement of the Doug Paulley case), and TfL have held a vote to elect the most "transport friendly" buggies to facilitate sharing the priority space[50]. On March 2016, it was also announced that the budget for station accessibility would be doubled, from £75 to £150 million, to ensure that the goal of making half of rail and Tube stations are step-free by 2018 (TfL, 2016c). Sadiq Khan, the Mayor of London, then ensured in December 2016 that £200 million will be invested in the next five years (London Assembly, 2016; see other improvements in Chapter 5, section 1).

Complaint logging has also had some surprising results. Anton was invited to visit a particular bus garage after he had logged multiple messages concerning a bus route that was operated from there:

> I've written to TfL many, many times about the 355 [route] and eventually they somehow got the message and said, "Well, why don't you come to the [anonymous] bus garage and show us what you mean." So I showed them what I meant and I rolled up onto the ramp, tried to get on the bus, tipped back… – Anton

He provided guidance to the engineers and drivers there, demonstrating that the ramp was poorly designed (front casters might get caught on the lip at the top of the ramp, causing the wheelchair user to tip backwards). According to Anton, the engineers discussed the financial reality of

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[49] TfL has re-issued the posters stating in bold letters, "Buggy users, please make space for wheelchair users", with the colours inverted (whereas it was previously a white background with red letters, it now has a red background with white letters.

[50] The vote ran between June 1-26, 2016, although there are conflicting dates on TfL's own website. The results of the vote can be found here: https://tfl.gov.uk/transport-accessibility/best-buggies-for-public-transport?intcmp=41226

retrofitting these buses with new ramps, placing the cost at £6000. However, what is most significant in this story is how complaints and emails produced the possibility to engage with the transport provider. Anton's is not the only example of this; Marie told me of a similar case:

> I actually started out as a passenger who had a really bad experience and it was one of the few times that I have actually complained. TfL fobbed me off, and I wasn't happy with it so I asked Transport for All to help me out and they suggested that we go directly to the garage. So I went to the garage and told the staff at the garage what had happened, and they obviously saw something in me because they invited me back and asked me to speak to a group of drivers… – Marie

Marie's first visit to the garage was in 2014. Six months later she was hired as this transport provider's disability coordinator, in charge of organising physical and awareness training sessions for staff and liaising with disabled passengers who have complaints regarding accessibility. We will return to discuss her role within the company in the next section, dedicated to insider pressure (see section 2.B below). In the quote above, Marie introduces a new character to our story, one that was only briefly mentioned in Chapter 4 (see p. 95). Transport for All is an organisation of older and disabled people fighting for equal access to public transport in London; they are funded by charitable donations. They play an important role in organising social movements demanding for improved accessible transport infrastructure in London.

C. Transport for All

It was discussed in the literature review that the disability rights movement is an example of a New Social Movement (NSM; see p. 41) and, as such, it became larger and more impactful after the end of the Second World War (see Chapter 4, section 3). In the 1970s-80s, with the rise of disability studies as an academic field, the *social model of disability* became more widely spread and today it has been largely adopted by disability charities who use it in their manifestos and vision statements. As such, the social model has become an important oppositional device in the disability rights movement, as discussed by Beckett and Campbell (2015). They argue that the social model provided a *counter-rationality* for disability rights, a move similar to those deployed by other NSMs when they "[transform] themselves and the world in which we all live" (*idem*, p. 273). As the social model shifted the "origin" of disability from an individual, medical ailment to a socially-created and maintained concept that can be fought, it provided

the required rhetoric to fight against unjust barriers to disabled people in the built environment (see further thoughts on the social model of disability in Chapter 2, section 3.A, and in Chapter 4, section 3).

The social model was heartily adopted by Transport for All (TfA), a charity established in the 1990s in London. The organisation was born out of Dial-A-Ride and Taxicard users groups, both initiatives for providing transport to disabled people but often criticised by disability rights groups due to their segregated nature. TfA has since widened its scope to demanding improved accessibility in all modes of transport for elderly and disabled passengers. They have always led or had close involvement with campaigns for improved infrastructure, additional funding, and maintaining subsidised transport schemes (such as free travel for residents aged over 60 in London). In the past five years, they have spearheaded two successful campaigns which has brought about accessibility changes in infrastructure: keeping manual boarding ramps at Underground and Overground stations (and rolling them out in additional ones), and ensuring that all Crossrail stations will be step-free when it opens in 2018. The counterstrategies undertaken by this charity are interesting. Firstly, they provide significant support for the counterstrategies already discussed above (legal and media pressure), calling upon their own experiences to provide effective guidance. TfA have also developed a fascinating way of interacting with *insiders* to the political and technical decision-making process of transport by providing them "first-hand experience". Finally, they also play a significant role in lobbying and liaising between members of their organisation and politicians and the industry. Each of these counterstrategies is discussed in turn below.

I.   *Backing up legal and media pressure*

TfA's campaigns are interesting to observe, as they are active on multiple fronts despite their small team based in an office in Brixton (South London). They resort to similar counterstrategies as some of the interviewees discussed above. For example, they use social media to expose bad behaviour by transport providers by retweeting negative experiences undergone by disabled passengers in London. The TfA website also has a blog, where they collate stories from different contributors about negative experiences in London, or good examples they find in other countries. They also collate narratives of bad experiences, such as in one recent blog post,

"12 disabled and older Londoners share their story for their right to ride on buses" (TfA, 2016a). Combining Web 2.0 approaches, their Twitter account links back to this blog post by using pictures of the passengers whose stories they are sharing and quotes of their experiences. One example is Anne Novis, whose picture is overlaid with the quote, "I often have to wait for several buses, add in broken ramps and I am lucky to get on a bus maybe one in five times" (another example of the cumulative nature of accessibility problems in London, discussed in Chapter 5, section 4). Below it, on a yellow stripe in white letters, is their demand: "Let's ensure that wheelchair priority is enforced on our buses." Their logo is below that, on a white banner with red writing: "Transport for All - Accessible transport is our right".

Beyond their blog and Twitter account, TfA offer a range of services for disabled passengers in London. Adding to the strategy of "complaint logging" discussed in the previous section, they offer to register negative experiences on behalf of users. Adam and Diana, for example, have used this service:

> I tend to alert them when I've had an issue so that they can also take it up on my behalf so that they get the… They're seen to be doing work, they're needed, and they get funding, etc. – Adam

> I don't have the energy or the time to constantly complain about every little thing that goes wrong, and if I think, just on a day-to-day basis, due to my level of transport use, I probably have a complaint-worthy story a day, or every two days, and I just don't have the capacity to do that. So when it meets my threshold of, this is really shit … that is the point where I will email Transport for All and I go, have you heard about this? They'll go, "Oh, tell us about it. Would you like us to put in a complaint for you?" – Diana

Kerstin, who was a member of TfA, asks that people do this. As does Lianna, who worked at TfA at the time of the interview:

> Become a member of Transport for All, report issues to them, they can take it up for you if you don't want to do it yourself. – Kerstin

> And also, to complain when things go wrong and to get in touch with us if you don't want to make the complaint to TfL yourself, tell CC and Transport for All because those complaints to transport providers do make a difference in reminding them that things are not as they should be and getting things gradually changed. – Lianna

Indeed, when accessing their website, TfA have "Your transport complaints" as a sidebar, in which they provide a complaints form and provide guidance

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on "how to complain effectively". If they believe that the complaint may require legal assistance, they also provide contacts and information on the process. This is a service they offered to Char Aznable when he encountered problems with National Express:

> Transport for All saw this was happening and contacted me and offered me assistance. I phoned them up and explained how I thought they, National Express, were breaking the law. Transport for All agreed. – Char Aznable

However, he believes that by having accepted a settlement out of court, he may have precluded the possibility of taking them to court.

TfA also run campaigns outside of the virtual space. They have been active and supportive of Doug Paulley's legal case since his original ruling was appealed by FirstGroup. Indeed, the blog post mentioned above was released on the day of his hearing at the Supreme Court, intending to illustrate that his was not an isolated case and that a clear ruling on the matter is required. They supported Doug Paulley by accompanying him and demonstrating outside the Supreme Court on the day of his hearing. They repeated this action on the day the judgement was passed in January 2017 (TfA, 2017). When they campaigned to keep, and add, manual boarding ramps to stations in December 2012, they sang "access carols" at a People's Question Time with the former Mayor of London, Boris Johnson, in Stratford, changing popular carol lyrics to accessibility themes (York, 2012). The ramps were kept and rolled out at additional stations a week later (TfL, 2012a). They sang again in July 2015 to demand the end of 24-hour assistance booking in trains, to be replaced with "Turn up and go" service, when they went to St. Pancras Station and took over the piano in the main hall (TfA, 2015a). The campaign for a fully accessible Crossrail network was one of their largest campaigns, described by Kerstin in our interview as "the biggest success of Transport for All in the history of the organisation". It ran for eighteen months, and their most-attended action was a "legacy torch relay" in August 2013 ("Disability campaigners' torch relay protest on Crossrail access," 2013):

> The biggest action that we had, the kind of culmination, was the Paralympic legacy torch relay, and so we had members gathering in the far West of London, at Hanwell station, and the far East of London, at Seven Kings station, and then travelling by public transport and meeting at Crossrail's offices at Canary Wharf. And of course, with the transport being so inaccessible, it was quite a journey even getting there. We'd been doing a bit of buses, a bit of taxis, a bit of Tube, and what would've taken

> somebody without any mobility impairments like maybe half and hour from Seven Kings to Canary Wharf took about 2 hours. – Lianna

They rallied in front of the Crossrail offices, 200 campaigners according to their estimate, with various speakers and musicians presenting throughout the afternoon. They kept up the pressure throughout the year, hosting various demonstrations and handing out leaflets at the seven stations that would not be made step-free. Another light-hearted demonstration included, in January 2014, delivering biscuits, iced with the Crossrail and accessibility logos, to the Department for Transport (Browne, 2014). On October 2014, they posted on their news section an article titled, "We won on Crossrail!" The day before a large Transport for London event called "Access for All" (held at the ExCel Centre in London), Boris Johnson announced that all stations would be made accessible in time for the network's inauguration (TfL, 2014d). The next day, an additional £75 million was announced to be invested in making more stations on the Underground and Overground networks step-free (TfL, 2014a).

The counterstrategies here deployed by TfA are not particularly novel within the realm of NSMs – their mobilisations, protests and lobbying take the shape of many other social movement strategies by rallying in large numbers in front of the politically significant opposition (the Department for Transport, or the Crossrail offices, or St Pancras station) or writing directly to Members of Parliament. However, TfA have developed another counterstrategy that I had not come across in other NSMs, inviting *insiders* to spend an afternoon with members of their organisation and experience the barriers to transport in London first-hand.

II. Providing first-hand experience

A counterstrategy developed by TfA to raise *insider* awareness of the issues concerning accessibility in transport is providing "accompanied trips". These trips consist of inviting politicians and decision-makers within the transport industry to spend an afternoon using public transport with disabled and elderly members of TfA, showing them first-hand the barriers they face in their daily lives. Alan, who is a member of the charity, originally told me about these trips. He has taken a manager of Southwestern Railways, Mike Westin (the director of Buses at TfL), and Zac Goldsmith (a former Conservative MP and candidate for Mayor of London in the election

lost to Labour candidate Sadiq Khan in 2016) for trips on different occasions, among others. Alan was also accompanied by other members of TfA, with different impairments[51]. In October 2015, TfA posted on their website a news article, asking members to request their MPs to come along on what Zac Goldsmith tweeted to be "an eye-opening tour" (Goldsmith, 2015). In this article, they mention having taken another four MPs on trips as well.

TfA argues that these trips are important, as they are "a powerful way to show them [the MPs] the impact that inaccessible transport has on our lives" (TfA, 2015b). Adam agreed, telling me that "it makes them realise things aren't as good as they think they are." Alan plans his trips carefully, starting "badly" in areas and modes of transport that provided plenty of challenges, finishing in Green Park station, "one of the better kitted-out stations". When Goldsmith travelled with him, Alan said things "turned out quite well" as assistance showed up with the manual boarding ramp but put him in the wrong carriage, meaning he was unable to disembark at Green Park as their carriage was not level with accessibility humps on the platform there. In the case of accompanied trips, members are hoping that things *do* go wrong, to better illustrate the barriers they come up against. For once, a trip "turning out well" means a trip with plenty of problems. Alan clarified:

> Fortunately, we'd taken our own ramp, so actually I was able to
> get off, but it demonstrated that even when things are supposed
> to go well and everything is set up to go well, it can go quite
> badly wrong. – Alan

These trips are also an opportunity to start a dialogue with those they are accompanying. For Alan, it was a moment when he could detail the issues he has encountered to someone with significant political connections and potentially secure a political promise or commitment. TfA stated that, after their trips, the Labour MP Chuka Umunna promised to take up with TfL the need for larger wheelchair priority areas, and the Labour MP Stephen Timms has written to the Secretary of State for Transport regarding making 'Turn-up-and-go' services a requirement for rail franchises. Alan invited me to accompany him on a trip, and a few weeks after our interview, joined him and his partner at Richmond Station. I found the experience particularly illuminating regarding some barriers and tactics Alan had mentioned

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[51] Alan put particular emphasis on the importance of having a member with autism accompanying them, whose accessibility requirements and difficulties were "different from physical access" (Alan).

throughout our interview. Indeed, a few observation notes show how unnerving the trip could be at times. My observations notes were quoted at length previously (see p. 151), discussing the moment when their personal ramp was stuck in the train carriages closing doors. Two other examples also illustrate that, from that afternoon trip:

> Alan and his partner got on the back door while I went through the front door. The deployment of the ramp was done without opening the front doors which, if I recall the Red Book correctly, is according to procedure. There was a young man ahead of me, however, who was quite impatient and kept banging on the doors (with two fists up) going, "Come on, miss, open up." [Observation notes]

> Alan rang the bell to notify the driver that he wanted to get off at the next stop. She deployed the ramp at the next stop without a problem, and the ramp came down without a worry. Additionally, she lowered the bus itself which meant the ramp gradient would be less steep. However, when she opened the door, it got stuck. His partner and I hesitated and looked at each other. We didn't know what to do, and she hesitantly pushed both of the doors to see if they would open. They gave way a bit, but still didn't open fully. The bus driver got out of her seat, got out of the bus, and came to the back doors. She had a grimace on her face, which worried me a bit because I thought she looked quite angry. She forced the doors open completely, and spoke with an accent: "Always like this this door, for years." [Observation notes]

These TfA-organised trips are unlike the previous counterstrategies in that they do not rely on written or oral testimonies and complaints, or even signatures on a petition, via Twitter, emails or otherwise. They are providing direct experience, showing first-hand the barriers that disabled people face in public transport: I saw the doors getting stuck on the ramp, and the young man banging on the front doors repeatedly for them to be opened; Chuka Umunna heard the wheelchair user he was following being verbally abused by a woman on the bus after another woman had moved her buggy out of the way. These are situations one would not necessarily experience, and they become nearly inevitable when spending two-and-a-half to three hours using public transport with a wheelchair user. In this counterstrategy, TfA is effectively getting politicians and decision-makers to engage with the daily *tactics* that wheelchair users have to develop which, as discussed in the previous chapter, are often *subversions* of the prescribed rules of the transport infrastructure (having to ride backwards, resorting to personal manual ramps). These can be surprising actions to see from wheelchair users, often presumed as passive users of the system. They demonstrate to politicians that they are not idle in their use of transport and are willing to go to extraordinary lengths to deal with the problems they encounter.

Perhaps it is due to this surprising reversal of expectations, seeing wheelchair users as active users of the system and nevertheless encountering barriers, that makes this counterstrategy such an effective tool in securing political promises.

III. Liaising with and making insiders

Lastly, I briefly discussed in the end of section 2.2 that, through repeated complaints, Anton and Marie were put into contact with transport providers to provide guidance concerning accessibility issues. Though Anton received the invitation directly from a transport provider, it was TfA who proposed to arrange a meeting with the transport provider for Marie, and members of TfA accompanied her on her first visit to the garage. It is important to note that TfA do have significant contact with service providers and politicians in the region, who they regularly invite to their quarterly meetings and occasional conferences (TfA, 2016d), and TfA has also provided written evidence for government consultations on the topics of accessibility, mobility, and equality. They also organise the quarterly Pan-London Mobility Forum to which they invite members of various older and disabled people organisations to discuss transport issues, and will generally have transport engineers, designers and representatives from service providers speaking at roundtable discussions. Kerstin, who was a member of TfA, said this contact with representatives from government and the industry was a significant part of TfA's work:

> First of all we were talking to politicians, to staff of MPs, to MPs, ministers, constantly. That is the main work Transport for All, or that I was involved mainly in this work. We are in constant talk with Transport for London, we were meeting with people in charge, we were discussing things. – Kerstin

In their counterstrategy of liaising with politicians, TfA are a traditional interest group who participate in active lobbying. They have developed strategic demands, the most recent example being a manifesto titled, "Disabled People's Challenge to the next Mayor of London" (TfA, 2016c). This document, produced jointly with Inclusion London and the Alliance for Inclusive Education, made a series of demands from the future Mayor of London in the 2016 elections. They had enough influence to arrange individual meetings with each of the main party candidates, Labour's Sadiq Khan (who won the vote in May 2016) and the Conservative's Zac Goldsmith (TfA, 2016c, 2016e).

Lobbying strategies are common for charities, who will often attempt to influence policies and practices relating to their points of interest, particularly in developing coalitions like TfA has done with Inclusion London and the Alliance for Inclusive Education above (Hathaway & Meyer, 1993). It has been pointed out in the political science literature that organising social movements into lobbying groups can prove a challenging endeavour as it entails narrowing down demands and deciding upon issues to prioritise (Costain, 1981). TfA, as a charity vested in the interests of disabled and elderly passengers in London transport, have effectively narrowed their demands to accessible transport, choosing specific actions to concentrate their efforts. Yet, as seen in the section above, their liaison with *insiders* is not limited to lobbying. They invite them out to trips, but have also developed an interesting tactic of *making* insiders.

Making use of their contacts with insiders throughout government and industry, TfA are able to (figuratively) open doors for disabled people into the industry, like the one they opened for Marie. When Marie complained to TfL about inaccessible services on buses, nothing was done. When she took her complaint to TfA, they suggested a visit to the transport provider's garage where, after a successful interaction, the management team asked Marie to work as a disability coordinator. Through TfA's involvement, Marie became an insider to the world of transport, developing disability awareness training to the company and becoming the contact point for disabled passengers with complaints about services. Her range of influence is therefore different, as she has direct involvement in the processes within the transport infrastructure. Nevertheless, she is still in touch with TfA, having invited them to the disability awareness event she organised at her garage. These *insiders* with *outsider* sympathy play an important role in our story, and will be the focus of the next section where we will discuss the counterstrategies insiders develop to shape infrastructure from within.

2. Insider pressure

It was noted in the introduction to this chapter that there is power in a "tacit coalition" between outsiders and insiders to the decision-making process (Epstein, 2007). Similarly, work to change transport infrastructure and improve its accessibility requires people from all sides of the divide: "experts and the laity", and "the powerful and the disenfranchised" (Epstein,

2007, p. 87). Van de Poel also makes a distinction between insiders and outsiders in the process of transforming "technological regimes", that is to say, a set of rules regarding the design, use, and division of labour of a technology (Van de Poel, 2000). Van de Poel defines *insiders* as those who follow the rules of the technological regime, but these rules are often ambiguous and allow "for strategic behaviour of actors" (*idem*, p. 386). In this section we will focus on the counterstrategies developed by insiders to shape infrastructure. It was interesting to note that interviewees themselves expressed the importance of having sympathising insiders to make changes to the infrastructure:

> I do think lobbying is really important, […] but I also think it's really important to change mindsets. You have to change mindsets at the ministerial level because that's where you're going to get the money from, and you have to change mindsets at the top-level: DfT, Network Rail, TfL, they need to have strategic direction, be innovative[.] – Alex Lyons

> I think it shows that it really comes to the people, so Transport for London basically is an organisation of people, so if you have the right person in the right place, like it was with London buses, then you can tackle problems if they think it's important. – Kerstin

> With Baroness Grey-Thompson on the [TfL] board, she refused to sign off on the Victoria refurbishment before because they said that, "Oh, if there's budget left over we'll put lifts in." And she refused to sign off on it until lifts were, if you like, ring fenced, so it was in the budget, in the design. – Char Aznable

> I think they [the Campaign for Accessible Transport] were a catalyst for the organisational changes, but then it takes someone inside an organisation to say, "This is not ok." And often it only takes one person and in London transport that person was Andrew Braddock, and it's interesting, really, and I'm kind of party to this, what happens is, you get a driving force. – Alice

In this section, I propose a taxonomy of insiders. On the one hand, those who are *policy-based*, referring to politicians of various descriptions, from civil servants to peers – here, the counterstrategies are based on maintaining important consultative institutions for the rights of disabled people, and passing legislation that enforces those rights. On the other hand, there are *industry-based* insiders, referring to transport provider employees at all levels, and transport consultants, whose counterstrategies focus on voicing concern and drawing from experiences to propose new approaches to accessibility. This distinction serves a heuristic purpose: it is difficult to provide a clear-cut divide in the world of public transport as TfL, for example, is a public body that hires out services to the private-sector. As

such, TfL here is being considered industry-based as it has no legislative power. Nevertheless, there are some different counterstrategies from each side that can be identified from interviews. It should also be noted that, due to methodological choices, the majority of insiders discussed in this thesis are also wheelchair users (see Chapter 3), but recognition must also be given to other disabled and non-disabled people who have put significant effort into improving the transport infrastructure to make it more accessible.

A. Shaping transport accessibility policy

I. Maintaining institutions of interest

"The Bonfire of the Quangos", as the media referred to it, were plans put forward by the 2010 UK Coalition Government to reduce public spending through a review of Non-Departmental Public Bodies (NDPBs), or quangos (quasi-autonomous non-governmental organisations; see "Bonfire of the quangos: bodies to be abolished," 2010; "Bonfire of the quangos: the victims," 2012; Maddox, 2016). These bodies are not governmental departments nor part of them, but are funded with public money. As such, it was deemed as a straight-forward way of making cuts through a review of these bodies' functions and whether there were any duplicate activities. Once reviewed, quangos received different recommendations: to be maintained, to be reformed, to be merged with another body, or to be abolished. The Disabled Persons' Transport Advisory Committee (DPTAC), established in the Transport Act 1985 (see Chapter 4, section 3), was among those to be abolished, according to a document released in October 2010 ("Public bodies reform - Proposals for Change," 2010). Subsequently, a public consultation was held, asking what alternatives might be established to secure independent "advice on delivering a transport system that is accessible to disabled people and those with reduced mobility" (DfT, 2012, p. 4). The consultation included two workshops in June and July 2012, as well as written comments sent to the Department for Transport (DfT) by September 2012.

As a quango, DPTAC provided "immensely useful" advice to policy-makers, according to a former government official I interviewed. Their weight, he said, often shifted ministers' opinions and DPTAC endorsement had the power to settle debates. According to him, numerous employees at the DfT "battled as hard as [they] could" to show the importance of DPTAC's seal of

approval. The DfT was concerned with what an alternative body to DPTAC might look like: how diverse in the disabilities they represented, and how independent from charities' agendas?

> Fortunately, Norman Baker, a Lib-Dem MP, decided no, he did want to keep DPTAC, so he had to argue back to the Cabinet Office Minister saying no, he wanted to keep them. –Former Government Official

Norman Baker, then Parliamentary Under-Secretary of State for Transport, drafted the consultation document requesting for views on alternative bodies to DPTAC (N. Baker, 2011). He wanted to ensure that some sort of advisory body would be available to advise on accessible transport, though he preferred a panel that would be "called on an ad hoc basis when specific advice is needed" rather than a permanent body. The responses to the consultation were highly critical of his preference (DfT, 2012). Respondents argued, for example, that none of the options referenced "the DfT's statutory duty to consult with disabled people", an obligation embedded in the Equality Act 2010 wherein DPTAC must be consulted prior to any accessibility regulation change ("Summary of results of DPTAC consultation," 2012, p. 3). After a complicated three years with an uncertain future, DPTAC was kept. In June 2013, Baker announced that the committee would be retained, though it was restructured and is reviewed every three years. Its new chair was announced in November 2014 ("New chair to advise on enhancing access to transport for disabled people," 2014).

Insider involvement and support was necessary to ensure DPTAC's survival through the bonfire, and this effort to maintain institutions of interest to reenforce the rights of disabled people is an important insider counterstrategy. A number of employees of the DfT fought for DPTAC; over forty-seven responses were collected during the process, of which seven were "local government" and five were "central government", demonstrating a twenty-five percent interest in its future (half of the respondents were "representative organisations and interest groups"). The quality of their work was supported by the former government official I interviewed:

> Supposedly all policy-makers at DfT ought to be consulting DPTAC […] But it tended to be those of us who were focused on accessibility who used DPTAC most of all. And we were the ones who fought strongly for it to be retained, and also the good work that DPTAC did itself. It did stand out, a number of

members have been given honours for their work and so forth, which is really phenomenal. – Former Government Official

The DPTAC case is an example of insiders fighting for institutional support. Jointly, DPTAC and defenders of accessible transport within the DfT worked as *mediators* (Moore, 1999), translating the interest of *outsider* groups and balancing it with the financial realities of government and industry. Working towards maintaining this committee was a successful counterstrategy on the part of *insiders*, to maintain an important mediating body to negotiate the demands from outsiders with the realm of possibilities of decision-makers. Their survival was largely dependent on their long history of successful mediation between the interests of outsiders and insiders, as well as their powers having been inscribed in legislation (both the EA10 and the DDA95). Legislation is another important area where strategies and counterstrategies play out for improved accessibility.

II. *Maintaining legislative pressure*

Soon after the end of the 2012 Games, the House of Commons Select Committee on Transport (HoCTC) launched an inquiry into the effectiveness of legislation in ensuring equal rights for disabled people in their use of public transport. The announcement was made in November 2012, collecting written evidence until January 2013, holding four oral evidence sessions between March and June 2013, and launching a web-forum for further responses in May 2013. The report, titled "Access to transport for disabled people", was published in September 2013 in two volumes. It is clear in the report that one of the catalysts for the inquiry was the legacy of the Paralympics. In its summary's second paragraph, it states:

> Last year the London Paralympic Games brought a focus on what measures the UK could take to make transport as accessible for disabled people as it is for the rest of the population. These improvements for the Games built a considerable expectation that there would be a significant Paralympic legacy of improved access to transport for disabled people in the UK. (Transport Committee, 2013)

However, the HoCTC concluded that there was some concern over the enforcement of already existing legislation, particularly the monitoring of the Accessibility Action Plan produced by the DfT in December 2012, and made a series of recommendations. For example, it requested transparency from the Government by publishing annual updates on the Accessibility Action Plan as well as to keep data on "changes in the number

and types of journeys made by disabled people" (Transport Committee, 2013, p. 3). It also highlighted how, as a result of Paralympics legacy, TfL staff members had received disability awareness training, pointing to it as good practice that ought to be maintained.

From this consultation, it can be argued that the Paralympic legacy goes beyond the infrastructural improvements that it brought about, such as additional manual boarding ramps and step-free stations. The Paralympic legacy provided an important counterstrategy for sympathetic insiders: a leverage for questions to be asked and legislative pressure to be maintained concerning public transport accessibility. Most interviewees remember the Paralympics fondly, a benchmark of accessibility and even public attitudes towards disabled people. I asked the former government official whether he knew why this consultation was held so quickly after the 2012 Games. He responded:

> I would imagine that it was trying to maintain the pressure. We had a successful Paralympics, a successful Olympics, just to try and maintain that. – Former Government Official

Indeed, legislative pressure has been maintained by *insiders* post-2012 Games. First came the HoCTC consultation, followed by a House of Lords committee two years later. In June 2015, a Lords Select Committee (LSC) on the Equality Act 2010 and Disability was appointed, meeting privately throughout that month, then holding oral evidence sessions up to December 2015[52]. Their report was published in July 2016 and, on the topic of transport, wrote, "The written evidence we have received from individuals tells us more about problems with transport than about any other single topic." (Lords Committee on Disability, 2015, p. 80). The report uses many negative words, including "frustration", "distressing", and one particularly damning conclusion regarding the conversion of buses throughout the country for disabled access:

> We would deplore a loss of services, but the responsibility is squarely that of the operators. They have known of these deadlines for 15 years. A failure to enforce them may give larger operators the impression that they need not be concerned about using larger non-compliant buses beyond the deadlines, the last of which will be reached at the end of this year. (Lords Committee on Disability, 2015, p. 83)

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[52] It is interesting to note that one of the members of this LSC would be Sal, whom I interviewed in October 2015 and who had been in the limelight concerning inaccessible transport in London in April 2015, prior to the committee being organised.

The report also condemned the original Crossrail case, where seven stations were not going to be accessible until outsider pressure eventually succeeded in ensuring additional funding to make all stations step-free (see TfA's campaign on this topic, discussed in p. 192). Under the heading, "Transport: 20 years of inertia", the report stated:

> Employers and providers of services have a duty to make reasonable adjustments to support disabled people. It is scarcely credible that the first plans for Crossrail included seven stations without step-free access[.] (Lords Committee on Disability, 2015, p. 5)

As such, the LSC wrote that it must be ensured that "there is never again a prospect of new rail infrastructure being planned without step-free access being built into the design from the outset" (Lords Committee on Disability, 2015, p. 81).

Both of these reports were concerned with the state of accessible transport in the country as a whole, noting that service (particularly bus access) is "adequate" in larger towns and cities, but inadequate in smaller ones. However, it caused enough concern from operators that TfL felt the need to provide a response, which was subsequently published on the Lords' committee website (TfL, 2015b). TfL detail in their response how they are striving to meet the various recommendations made by the LSC, the requirements set out by EA10 or "surpass[ing] them where [they] can". Furthermore, Select Committee Reports such as these, both from the Lords and from the Commons, require a Government response. As such, they are important counterstrategies to maintain political pressure on the topic of the rights of disabled people in general and accessibility in particular, including the allocation of additional funds to improve infrastructural requirements. Questions concerning "reasonable adjustment", and what it means, are continuously being asked in the reports. I asked Sal about the ways in which she might change the public transport system in her role as a peer, and she gave the LSC as an example:

> The Select Committee, it's quite interesting. It's got three of us in wheelchairs, […] we will use our influence behind the scenes which, in Parliament, is as important as a formal report that comes out, to be very specific about the changes that need to be made. – Sal

She then laughed as she described using "guerilla tactics" in her legislating:

> And then, as I say, we will just go on doing guerrilla tactics. Any transport bill that comes through, I will be putting down

> amendments and particularly about buses, and enforcing, I think section 146 or whatever it is of the 94 Act, 95 Act? And then once that's done, we'll just go on and they'll get bored with us and eventually they'll have to give in. – Sal

As a result of these legislative reports and insider legislative pressure, transport for disabled people has continued to be brought forward as a topic that requires consideration and revision in the UK political scene[53]. At the time of writing of this thesis (February 2017), a further House of Commons inquiry was announced, this time from Women and Equalities Committee, on the topic of "Disability and the built environment"[54], so this counterstrategy is continually used by members of the Houses of Parliament. While it is important to consider the ways that legislation and policy is influenced by the work of sympathising insiders, this does not tell us much about how those policies are applied within industry. Nor does it tell us how industry insiders can also develop counterstrategies to improve accessibility in London's transport system.

B. Industry-based

Marie was previously introduced in this thesis as a disability coordinator at a London transport operator (see section 1.B.II of this chapter): she provides awareness training for staff, as well as "physical training sessions" to show "why correct practices have to be adhered to and followed precisely". During the training, she asks staff to use crutches and wheelchairs, close their eyes to simulate visual impairments, with the aim of illustrating how it feels to board and disembark a bus with different impairments. This, she told me, can show "what those extra few seconds at the stop mean for the person who's disabled, rather than closing the door and heading straight off". Furthermore, Marie has gone through the various departments within the company, checking their protocols and procedures. She remarked that communication between iBus staff and drivers could be improved, so that the former do not pressure the latter to keep to schedule.

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[53] The well-being of disabled people has continued to be in the limelight as debates surrounding changes to the criteria rankings for Personal Independence Payments, benefits given to people designated as disabled after being tested by an outsourced company (Atos or Capita), in March 2016. These debates resulted in Iain Duncan Smith, former Secretary of State for Work and Pensions, to resign from his position and, though an interesting discussion, fall outside of the scope of this thesis ("What is the row around PIPs all about?," 2016).

[54] They have concluded the collection of oral and written evidence, and the report is currently being prepared.

This pressure, she noted, could rush bus drivers through boarding/disembarking protocols:

> It's no good harassing the driver for being late if he's only been allocated six seconds at a stop and there's a wheelchair user there. He needs the time it takes to safely load that passenger.
> – Marie

According to her, talking staff through accessibility requirements has resulted in a fifty percent decrease in inter-departmental complaints. Also according to her, since she began delivering training sessions, there has been a seventy percent reduction in complaints from disabled passengers, with whom she also does liaison work. She has also organised a disability symposium at the company's garage, inviting charities to come speak directly to bus drivers about their transport needs. She invited me to sit in at the symposium, and I requested to meet her a few weeks after the event to ask her about her impressions. She was pleased that representatives from TfL came to speak to drivers about questions they might have regarding official policies and protocols. The feedback from attendants had been positive. It was an interesting occasion to observe, at first noticing the hesitation staff demonstrated about sitting at the tables to speak with disabled passengers. Marie believes that, in the future, these symposia would benefit from being more focused events, with particular disabilities and impairments being given more attention at each one.

When Marie began working in this position, she started at a single garage due to health and mobility concerns; she did not feel that her wheelchair would provide her with enough support to travel further out from her home[55]. Her successes were clear given the improvements at the garage she was currently working at, and not at the others. As a result, her employer company has bought her a new wheelchair, better suited to her needs, so she can provide the same service at other garages. When I interviewed her the second time, she was about to begin working at an additional garage and was looking forward to it:

> I know that there's only a finite amount of hours that I can work in a week and still be able to manage my health properly,[…] and working out where I'm most useful is going to be challenging. – Marie

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[55] Here, too, we hear topics reminding us of the importance of *disability management*, discussed in Chapter 6, section 2.B.I.

Within industry, Marie's counterstrategy of shaping and improving infrastructure consists of some explicit changes in protocols and procedures within the company. She has developed her own training program, aimed to make bus drivers empathise with disabled passengers, and her work has reaped significant benefits for the company whose accessibility complaints have significantly decreased. Marie also argues that simply being present in the work environment has had an positive impact as, with her on the staff list, there is an incentive to follow statutory obligations. Marie argues for a broader employment of disabled people in roles like hers (she is currently the only disability coordinator within transport). In this counterstrategy, her identity as a wheelchair user and her experience as a disabled passenger have significant influence in the work that she does within the industry. They have shaped the type of training that she delivers, hence why she has told me she strives to involve charities dedicated to other impairments so they can voice their requirements as well.

While Marie's role is directly related to her experience as a disabled person, there are other industry insiders whose influence are less explicitly linked to identity. D, for example, is a "transport professional". He feels that, as an insider, he has a "unique opportunity" to provide insight of his experiences:

> I'd say, as a transport professional, I have a unique opportunity to feed into decisions and considerations made by my colleagues and I do get asked my thoughts and opinions and I do feed them in openly and clearly. – D

He feels that, as an insider, he does not have the same liberty to be "politically active" with TfA (though he is a member), but believes his contribution takes a different shape. He tries to strike a balance between his *outsider* engagement with TfA and his awareness of the financial burden accessibility might place on his company, attempting to feed in his concerns about accessibility while still keeping budgetary concerns in mind. Nevertheless, he finds opportunity to feed in his experiences whenever he feels it is appropriate to do so. Similarly, Alice, who is a transport consultant, feeds her own experiences of transport accessibility into her managerial knowledge:

> I know about that kind of thing that goes on in the minds of transport providers where they go, "Ah, but not many people, dot dot dot. So we're not going to make much provision." And

> then that very provision drives the behaviour of wheelchair users and when they first brought in the low-floor buses with ramps in London, there were about two buses and there were people saying, "But nobody's using them." And I said to them, but you can't go anywhere, you might be able to get on a bus somewhere but you can't get off it again. – Alice

Alice's experiences as a wheelchair user who desires to use public transport inform the insights that she gives on the decision-making table as a consultant. She is able to debate allegations that disabled passengers do not use public transport which, from her standpoint, seem based on circular logic (see Image 5 below). She understands the perception of transport providers: it does not seem like many disabled passengers use the provisions made for them. However, she disagrees with the causal relationship: the reason why there are not many wheelchair users using public transport is not because there are not many of them, but because the provisions are insufficient and limiting. As she describes it, "you can't go anywhere". As an insider, she can bring the insight as to where the problems might lie with the accessibility solutions being made, rather than allowing other decision-makers to rely on their assumptions of how and why wheelchair users are using public transport in the ways that they do.
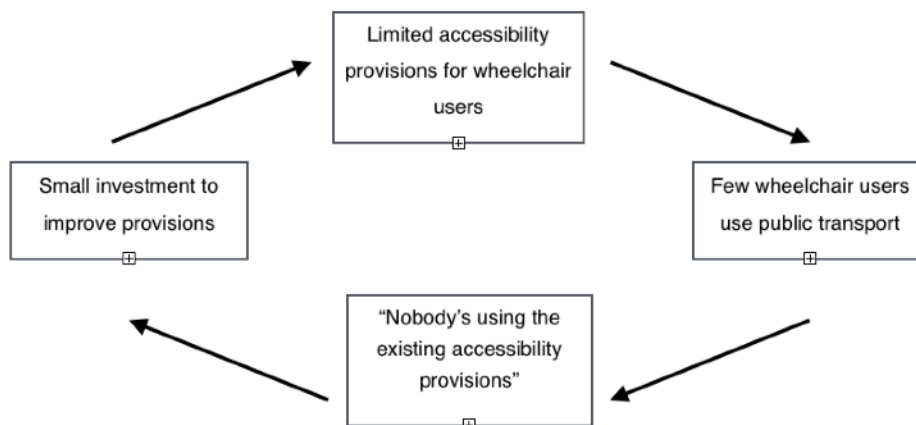
Image 5: Transport providers' circular logic (illustrating Alice's quote).

In this way, sympathising insiders to the transport industry counterstrategies are two-fold: first, like Marie, they can occupy or even create positions whose primary role is in line with the outsiders' demands. In these roles, they can propose solutions and develop protocols that are designed to improve the concerns that are brought to them or, in Marie's case, that they themselves have experienced. Secondly, these insiders, particularly if they are wheelchair users themselves, can call upon their own experiences to re-open debates that might otherwise have been settled. It

is in this way that D and Alice contribute to the decision-making process, gradually introducing their own voices into debates or questioning previous assumptions.

Counterstrategies developed by *insiders* to the the decision-making process, be it within policy or industry, are important contributions to the advancement of outsider interests. Within policy, insiders are constantly striving to bring disability rights into the political limelight, be that in maintaining institutions (like DPTAC) or in developing legislative mechanisms (such as house committees) that enforce those rights. In industry, these institutional mechanisms do not necessarily exist. Consequently, the counterstrategies look different and are often, though not exclusively, related to the identity of the insider as they draw from personal experiences to ensure that accessibility debates do not rely solely on others' assumptions of where the problems lie.

As discussed by Epstein (2007), making a distinction in the work done by the insiders and the outsiders to the decision-making process can be difficult, as the coalition between them is necessary to the continuous progress of the accessibility agenda. Their collaborative work is a strong transformative force in the shape of infrastructures.

3. Counterstrategies that shape infrastructure

Alan's description of himself as an "ambassador" for disabled people was briefly discussed towards the end of Chapter 6 (section 2.B.III, see p. 171), and I discussed how the theme of "representative" work often appeared in our conversations with interviewees. This *representative* work, I believe, is an important counterstrategy that permeates both *insider* and *outsider* approaches to embedding the needs of wheelchair users into the infrastructure. In this section, I want first to discuss how these counterstrategies are largely dependent on wheelchair users working as *representatives* for a broader movement, as well as positioning the disability rights movement as a new social movement that benefits from earlier social victories. Secondly, using the case of Crossrail, I want to show how it is through transcending the various distinctions of inside/outside, disabled/non-disabled that these counterstrategies function cohesively to bring about infrastructural change through a "pincer movement".

A. Engaging a broader group

I. The representative: strength through unity

It should be noted that despite this chapter having largely focused on the contributions and efforts of wheelchair users, the movement for accessible transport infrastructure is not a fight in which they are engaged alone. Indeed, we have also heard some voices from non-disabled actors, both within and without the decision-making process (such as Lianna, TfA's campaign officer, and the former government official). I argue that the effort behind representative work done by wheelchair users themselves is in large part to recognise the diverse group of people who are engaged in the process, as well as an effort in enrolling additional allies to their cause. For example, when discussing their level of abilities in using a wheelchair, interviewees would point out that other people might not have the same capabilities:

> So there's a gap, so I get out of my chair, step down onto the platform, stand there, hold on to the train, pull my chair behind me. Now, I'm able to do that, so I just, again, it's like that making do and getting on with it, someone like me will be able to do that but other wheelchair users won't be able to do because they can't get out of their chairs without help. – Alex Lyons

> I'm… as I demonstrated, very aggressive, very capable. I built this chair. I'm very confident and very aggressive in my chair. But if you're in a power chair, you can't use that station at all. – Char Aznable

In this discourse, they are pointing out that their abilities should not be taken as the average and they are keen to remind me that not all wheelchair users are created equal. Further even to that, they are often keen to point out that not all disabilities are created equal either, discussing the accessibility requirements of other impairments as well:

> I've worked with a lot of people on the autistic spectrum, a lot of people with dyspraxia and things like that. Their disability needs are very marginalised because of the culture we live in. – Basil

> And if you think about somebody who's got brittle bone disease or somebody who's blind and isn't quite sure where the step is, even, and things like that, there's still a lot of work around those areas that I think we need to do. – Marie

The rhetoric slowly becomes much bigger than "accessibility for me is…" or "accessibility for wheelchair users is…". The discussion encompasses the concerns of other interest groups within the disability community, a topic I had first picked up whilst writing my Master's dissertation in 2013 (Velho,

2013). Here, based on Van Kammen's work on women's health advocates and the development of the contraceptive pill, I argued that wheelchair users engaged as volunteers in an engineering research project, through this engagement, wanted to discuss the needs of others from a broader community, which I argued was based on a "collective experience of impairment" (Velho, 2013, p. 33; based on Van Kammen, 2003). Similarly, here, I argue that *representation* is an important counterstrategy to shape public transport in the ways that it encapsulates not only their personal concerns but, through enveloping the concerns of others, make their claim larger and more crucial. And this rhetoric goes both ways. Firstly, it can be seen as "accessibility is the result of *disabled* social movement":

> So 20 years ago, there were no wheelchair bays on buses. It's only because disabled people wanted to be able to have that right to travel and so they took militant direct action. – Marie

Quotes like these are peppered throughout the interviews, but the discourse is rarely "because *wheelchair users* protested", but rather "because *disabled people*" protested. In these cases, disabled people as a whole protested, and fought for the acquisition of the wheelchair space[56]. The story is also reversed: as wheelchair users, the aim is not solely to improve accessibility *for them*:

> For me, it's not just about improving access for me and for wheelchair users, it's about all disabilities, all people, other people, mothers with buggies, the whole spectrum. – Alan

The aims of this social movement of improving accessible transport is, therefore, not only to benefit wheelchair users, but a much broader community of "disabled people". In this way, they represent a large community and, vice-versa, this community represents and puts pressure onto institutions on their behalf as well. Again, this feeds into Epstein's research on policy reformers in biomedical research: the strength of their movement was its diversity, including women's and ethnic minority health representatives, both as outsiders *and* as insiders sympathising with the cause. Similarly, the disability rights movement resists what Epstein calls the "balkanisation" of protest, or the break-down of social movements due to the fragmentation of identities until they become irrelevant for mobilising a large enough group of people. I have consistently argued that the social

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[56] Of course, the wheelchair space does not benefit solely wheelchair users but other disabled people as well, such as elderly passengers with walkers, or blind passengers with guide dogs, as it provides additional space.

model of disability has been influential in the work of *representation*, largely due to its strength as an oppositional device, discussed briefly above. The social model is not only useful in its framing of "disability as oppression", but also in the way it provides the vision of "an inclusive and enabling society" (Beckett & Campbell, 2015, p. 280). Therein lies the strength of the disability rights movement, which largely bases its rhetoric on the vocabulary of the social model of disability. If disability is no longer innate but rather "the result of the disadvantage or restriction of activity caused by a contemporary social organisation", then its members have more in common than not as all are excluded from social activities. As a result, wheelchair users identify themselves not solely as requiring specific accessibility provisions to participate in social activities, but as members of the disability rights movement where, collectively, they voice their demands for social inclusion. It is a bold counterstrategy, wherein they stake claims about accessibility from a wide umbrella, while still identifying and recognising diverse requirements for members with different impairments.

II. Alliances and alignments

In the quote by Alan above, he goes further in broadening the concept of accessibility. For him, accessibility discussions should include not only disabled passengers, but *mothers with buggies* as well. He identifies them as additional beneficiaries of the accessibility agenda and, boldly, enrols them as allies in the fight for accessibility. This implicit enlisting of allies in interviews was also done by other wheelchair users:

> It's not just for wheelchair users. We do have an ageing population, like it or not. It's easier for them, it's easier for me, it's easier for people with prams, it's easier for people with luggage. – Char Aznable

> And it's not just me, because yes, wheelchair users need to use the lift, but also somebody who's got a broken leg, mothers with prams, people with heavy luggage, musicians who've got heavy equipment who are going to concerts and there are so many people that need to use those facilities, but the fact that everybody knows that they've been put in place for wheelchair users puts that special kind of focus on you, and you become the poster-person for it, I suppose is a way of putting it. – Marie

The word ally was explicitly used by Lianna, although it should be noted that, as campaign coordinator, she is most likely aware of the power of the term within the context of political protests:

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> It shouldn't have to be a battle between parents and wheelchair users. In many other areas of accessible transport, they're allies. We're natural allies, we both benefit from step-free stations, for example. I've spoken to so many parents who say, "I didn't realise how inaccessible transport was until I had a baby and started using a buggy." – Lianna

Developing a closer relationship with diverse stakeholder groups would therefore be in wheelchair users' interests as, again, wheelchair users are potential allies for a much larger group. This allows wheelchair users to reach out and discuss other stakeholders' requirements and how they might collaborate to shape infrastructure. It also opens the door for broader discussions on what this segregation means, socially. Faith, for example, argues that disabled people (not just wheelchair users) need to communicate clearly that they are not alone in benefiting from accessible transport, that "it just makes life easier for everybody if you have good access". To do this, she continued, you need a "big supporter base", and to learn from social movements that have come before:

> We need to involve non-disabled people as well, we need to learn from the LGBT movement, we need to know how they have come on in leaps and bounds in terms of change in attitudes. We need to see how other movements of social change have flourished and work with them. – Faith

Numerous other interviewees alluded to other civil rights movements, either in the way that Faith does above (learning from their work in the past) or as comparing the segregation of disabled people to that of the LGBT community or people of colour. There are nine interviews in which the comparisons to other civil rights movements are explicit, placing the segregation and inequality of disabled people in society next to that of women, homosexuals and ethnic minorities.

> You wouldn't have tolerated a society where other groups were excluded. Gay people can't use the Tube? That's just unthinkable. Black people can't use buses? I know the motivation is not actively to exclude, but the refusal to spend money on exclusions is an active failure to do this. – Anton

> You have to see this as an issue of civil liberties, and it connects me a lot to the civil rights movement in America, Rosa Parks refusing to stand up for a white person. The centrality of transport to being equal citizens. – Lianna

In the last quote, the parallel between disability rights and civil rights is particularly explicit. Lianna draws a comparison between black activist Rosa Parks refusing to give up her seat on a bus and access for disabled people, arguing that transport is a key aspect of a person's civil rights. She

uses this comparison strategically and, similarly to Faith's point before, indicates how disability rights movements can learn and grow from previous social movements through large alliances. Again, this is a strategy discussed by Epstein, describing how the development of an inclusive biomedical policy framework was slowly built up on a series of victories and precedents. Through previous successes, representatives of diverse stakeholder groups have a "unity of purpose" and can sometimes "[build] on one another's successes" (Epstein, 2007, p. 53). Drawing on Ann Swidler's work, he argues that different movements often draw on those successes, calling for an "extension of that same solution to their own predicaments" (*idem*, p. 55). While wheelchair users, and disabled people more generally, cannot necessarily call for the exact same "extension of that same solution" that halted the institutionalised segregation of black people from sitting at the back of the bus, they can still draw on that narrative. The aim in this comparison is therefore not the extension of the *policy* but rather an extension of the changes to social perspectives: "We do not, and should not, segregate black people therefore we do not, and should not, segregate disabled people." It is a powerful and illustrative counterstrategy that also strengthens the disability rights movement position as a new social movement, therein legitimising its cause and demands (further thoughts on the social movements literature were discussed in Chapter 2, section 2.C). This approach is also echoed within academic research by ableism studies scholars who have incorporated "queer theory" approaches to critical disability studies ("crip theory"), arguing that the construction and segregation of these categories are dependent on the same processes and are in fact closely interwoven (McRuer, 2008; Wolbring, 2010).

B. Counterstrategies in action: "the pincer movement"

As Epstein points out throughout his book *Inclusion*, there is no single goal that is aimed to be reached by diverse social groups. Rather, it is the combination of all of these groups' actions that resulted in a collection of successes. As such, these social movements often challenge boundaries and binaries, at once straddling the realms of the "public" and the "private", specific individual demands and general group demands (accessibility requirements as a wheelchair users vs increased accessibility for "the whole spectrum" [Alan]). Furthermore, as Epstein also points out, both insiders and outsiders may be members of the NSM, or sympathise with it,

and therefore have a hand in moving their agenda forward. It can be difficult to tell "where the movement ends and the state begins" (Wolfson, 2001, quoted in Epstein, 2007, p. 88). Many interviewees recognised this dialogue between outsiders and insiders, of various types, as being key in the process of infrastructural changes. Alex Lyons, for example, spoke of changing people's perspectives, "one influential person at a time", and Kerstin said they needed to have "the right person in the right place". Both of these interviewees also describe the need to lobby and have outsider pressure. The most eloquent description of this process is a snapshot given by Alice:

> When I was in Railtrack, one of the first things that I did was talk to the Disabled Direct Action Network because they had public transport as top of their hit list so I worked quite hard with them to make sure that they took public transport off their hit list and so that we didn't have the embarrassment of having people chain themselves to trains which was what was happening, and I realised that not long after I'd done that that it was a really foolish thing to do, because actually what you need when you're that passionate person inside an organisation is that pincer movement. You need the pressure from outside as well as your own pressure on the inside, and that's really powerful. So that joint thing, of disabled people and their organisations pushing and someone inside the organisation going, "We have to do this, this is what we need to do." So that, I think, is what makes change happen. – Alice

The recognition, as a sympathising insider, that she had made a mistake in getting an activist group to stop making demands about public transport is a fascinating remark. It shows how each side needs the other: the outsiders require the influence garnered by insiders, and insiders need the pressure applied in numbers and concrete demand by outsiders to justify new projects. It is how, eventually, Crossrail was made step-free at all stations despite the originally planned seven inaccessible stations. When the Crossrail Bill was passed in 2008, these terms were agreed to, but with additional pressure from groups like TfA and other local action networks, insiders in TfL and the DfT showed there was discontent with the situation and worked for additional funding. Alice sees in this the result of successful counterstrategies that had changed disabled people's expectations concerning what they could (and should) demand in terms of accessible infrastructures:

> At that point, I still would say that that was the right thing to do in terms of the use of money, but by the time the Olympics had come and gone, people's expectations had changed, changed the landscape of what people expected, what a certain public

> expected, and that's great, and absolutely how it should be but it was a seismic shift in the expectations of disabled people, and the expectations of non-disabled people around what disabled people could expect, if you see what I mean. – Alice

As people's expectations change, so too will their demands[57]. When the Crossrail bill was passed, it was considered that building a new network, to improve future mobility in London, did not require it being completely step-free (despite the DDA95 already being in place). Within the "reasonable adjustments" clause, these inaccessible stations would be flanked by step-free ones, meaning wheelchair users could take, now accessible, buses to go to the nearest step-free station. Since then, as Alice argues, the 2012 Games and a boost in accessible transport throughout the capital showed that improvements were possible. Expectations grew, and were no longer compatible with the future originally projected by the Crossrail plan, with seven inaccessible stations. The joint efforts of campaigns done by TfA, partnered with the various insiders such as Baroness Tanni Grey-Thompson (who sits on the board of TfL), have continued to build on the 2012 Games legacy, pressuring both local and national governments to find funds required to make all stations accessible. From the first day of operation, the Crossrail network, which will be known as the Elizabeth line, will be (technically) 100% accessible. Whether or not this will translate to wheelchair users' use of it remains to be seen.

Based on Epstein's work on the expansion of biomedical research policy to include a more diverse research framework, this chapter aimed to highlight how tacit coalitions of both sides of the decision-making process are required in order to trigger changes (Epstein, 2007). Firstly, I discussed the counterstrategies developed by outsiders, where I identified individual actions such as legal pressure, media shaming, and complaint-logging as ways of amplifying the voices of wheelchair users and keeping track of the types of problems they encounter (and how often). I also remarked on the important counterstrategies developed by the charity Transport for All in providing services that magnify individual efforts (such as legal and media pressure) as well as more traditional campaigning work. It emerged that they have developed two additional counterstrategies, first in providing insiders (policy-makers and transport service managers) with first-hand

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[57] Crossrail is one example of how infrastructures are *future-oriented* (Howe et al., 2016), and do not instantly reflect changes in social expectations and perceptions (this will be discussed further in the next chapter)

experiences of the barriers that disabled passengers face in inviting them to spend an afternoon travelling in public transport with disabled members. They also try to embed their own members or sympathisers in positions of power, or place them within the decision-making process, such as Marie's position as 'disability coordinator'.

Meanwhile, insiders resort to another group of counterstrategies, and I proposed to distinguish between policy insiders and industrial insiders. The former concentrate on maintaining important institutional mechanisms that reenforce the rights of disabled people, be that in resisting the dismantling of key committees or in keeping the topic of disability and accessibility in the political limelight. Industry, on the other hand, cannot resort to such strong institutional mechanisms. The counterstrategies there are more often based on personal experience, when disabled people take positions at the deliberation table and are able to question assumptions that are often maintained by other managers.

Lastly, I argued that there is something larger that envelops all of these counterstrategies, and that can be seen in the work of *representation* and developing *alliances*, done by most wheelchair users I interviewed. Through representation and alliance, wheelchair users are demanding improvements not only on their behalf, but as part of a larger social movement of civil rights. This allows for a transcendence of the inside/ outside distinction, where actors on either side can be aligned with the aims of the disability rights movement. It is as a result of this "pincer movement", and the pressure coming from all sides, that successful campaigns frequently occur, as I argued was the case for all Crossrail stations being made accessible.

It can be argued that the mechanisms and approaches used by wheelchair users in London to shape public transport are not very different from other social movements'. Many of the arguments concerning insider/outsider relationships striving for change are described in Epstein (2007). This, however, does not detract from the findings in this chapter and, particularly, my main argument that wheelchair users are not only engaged with transport in their daily trips. They are also engaging with the neoliberal-ableist infrastructure of transport on a macro-scale, through political activism both as insiders and as outsiders. This shows, to some extent, an

awareness or belief that engaging with individual tactics on personal trips may not suffice in order to demand extensive infrastructural change.

Combining the concept of *tactics* from the previous chapter and that of counterstrategies here enhances an important point of this thesis. As discussed in Part 1, "Exclusion", wheelchair users have experienced a history of constant social segregation caused by neoliberal-ableist structures. Indeed, the assumption that wheelchair users are passive, or house-bound and are not required to leave the private sphere is, I argued in Chapter 4, one of the reasons for the transport infrastructure embedding so few of their accessibility requirements. Consequently, it is the source of so many of the barriers that wheelchair users still face to this day, discussed in Chapter 5. However, as seen in Part 2, "Inclusion", despite these strong social assumptions that depict disabled people as passive members of society, the evidence collected in this research shows otherwise. If anything, wheelchair users are strongly engaged in both private and public aspects of the transport infrastructure, be it in developing personal tactics in their daily travels or in using counterstrategies to shape infrastructure in the long term.

In the introduction to this thesis, I discussed the various contradictory words that wheelchair users chose to describe accessibility in London's public transport. Uninspiring, but hopeful. Inadequate, but improvable. Behind the times, but better than yesterday. It was in order to reflect these contradictions that the titles of Parts 1 and 2 were chosen to have opposing meanings: Exclusion, and inclusion. Many of the themes throughout this thesis have been of contradictions, and of attempts to fix those contradictions, be it through tactics or counterstrategies. In the final chapter of this thesis, I turn to a discussion of the paradoxes and conflicting concepts that have emerged throughout this research, particularly to consider what they might add to our understanding of infrastructures.

Chapter 8: Unpacking paradoxes

Shedding light on the nature of infrastructures through the experience of excluded users

In Part 1, we have considered the barriers encountered by wheelchair users in London's public transport, and then moved on in Part 2 to investigate the inclusion mechanisms these passengers have developed in the guise of tactics and counterstrategies. We have discussed the literal and figural manoeuvring that wheelchair users undertake at a variety of moments in their experience of public transport. This chapter turns to consider these actions and experiences with a more theoretical, rather than empirical, eye, to consider what this research has highlighted about *infrastructures* through analysing them from the perspective of users excluded from the network, this being the literature that has primarily informed and framed the thesis.

In the literature review, I discussed recent scholarship on the nature of infrastructures, particularly new concepts concerning the *paradoxical nature* of these large systems. Howe and her co-authors argue in their 2016 paper "Paradoxical Infrastructures: Ruins, Retrofit and, Risk" that "any theory of infrastructure […] ought to be a theory of paradox" (Howe et al., 2016, p. 559). Indeed, many of the scholars of infrastructure and systems have pointed to how infrastructures bring together concepts that are generally thought of as contradictory, or perhaps complementary, to one another. For example, they bring together social and technical aspects (Hughes, 1987), they are both "things and also the relation between things" (Larkin, 2013, p. 329), and are constituted of the human and non-human (Latour, Callon, etc). This chapter proposes to build upon these paradoxical concepts surrounding infrastructure studies, adding to work done by the scholars cited above using the case of wheelchair users in public transport to underline the paradoxical nature of infrastructure. Consequently, I have identified three paradoxes, centred around three themes, that will be discussed in turn below. The first paradox we will address in this chapter is that of the interaction of *knowledges*, discussing how the knowledge of wheelchair users' is deployed within an infrastructure that has been created

by the knowledge of experts. Secondly, we will discuss and build upon the paradoxes of the infrastructure itself, as defined by Howe et al. (2016): temporality and materiality. Lastly, we will turn to a paradox that has been discussed by Star and co-authors on the visibility and invisibility of infrastructure (Bowker & Star, 1996; Lampland & Star, 2009; Star, 1999).

1. Lay/expert knowledge revisited: shaping infrastructure through experience

In Chapter 6, I described and defined the tactics developed by wheelchair users to fix problems and barriers on an ad-hoc basis, followed by, in Chapter 7, a discussion of long-term counterstrategies through which wheelchair users can demand changes to the transport network. What we have not discussed, however, is what these inclusion mechanisms (either temporary or long-term, ad hoc or premeditated) have in common. Specifically, what do these mechanisms demonstrate of the knowledge acquired by wheelchair users on transport infrastructure, and how do they deploy this knowledge within an infrastructure that is governed by different expectations? In this section, we will discuss the lay/expert knowledge divide, starting first with an argument for defining wheelchair users' knowledge of the transport network as *lay knowledge*, and the type of knowledge materialised in the infrastructure itself as *expert knowledge*. I will then argue that, by mobilising lay knowledge, this group of excluded users has begun shaping *expert knowledge* (and consequently the infrastructure) through *evidence-based activism*.

A. The lay/expert divide materialised

It became clear in all interviews that these interviewees have a very particular knowledge of the public transport network in London. This was partially discussed in Chapter 5 (see section 1), where a blended narrative of wheelchair users' experience of navigating the system was described – wheelchair users easily provided descriptions of routes, adding details regarding the levels of accessibility. Through all three moments I defined of a journey (deciding, planning, and travelling), wheelchair users demonstrate a thorough *knowledge* of the system, rooted in personal experience ("mental maps" and "safe routes", for example), or acquired through personal research that is then corroborated through personal experience of new routes (using official sources, or third-party information

such as social media). Most significant to my argument in this section, there were cases in which the wheelchair users' knowledge went *beyond* official sources, such as TfL staff who, Kerstin said, have a difficult time planning an accessible route either because there is not one, or because "they just don't get the system themselves".

I argue that "getting" the system, as a wheelchair user, is a form of *lay knowledge*. As I discussed in the literature review, there is rich scholarship within STS on the concept of *lay knowledge* or *lay expertise*, often contrasted with *scientific* expertise (Nygren, 1999). In this thesis, I draw particularly from Wynne and Van der Ploeg's work on *lay* or *local* expertise (Van der Ploeg, 1993; Wynne, 1991, 1992, 1996). Local knowledge has, they argue, different epistemic and social values from *expert knowledge*, and is often engaged in a legitimacy battle to be recognised as a valuable source of knowledge in its own right. In Wynne's seminal work on Cumbrian sheep farmers' knowledge of soils and the behaviour of sheep being ignored by scientists in the wake of the Chernobyl disaster, he defines lay knowledge as *specialist* knowledge, acquired experientially and locally. This, as I have shown in Chapter 6, is precisely the case with wheelchair users' knowledge of the transport system, having been acquired through continuous interaction with the infrastructure.

It is interesting to define wheelchair users' knowledge of the transport network as *lay* knowledge if we compare it to the "official" knowledge provided by TfL, or the language of infrastructure. The latter, highly formalised and standardised, has the same characteristics as the *scientific* knowledge discussed in Wynne's work or, "a scientific nature of prediction and control" (Wynne, 1992, p. 67) that "gains its image of intellectual universality by achieving social control over the standardisation of what are varied situations" (Wynne, 1996, p. 71). The significance of *standardisation* was discussed in Chapter 4, regarding the key role that standards have in stabilising and consolidating large infrastructures over time, as was the case with public transport in London during the nineteenth and early twentieth centuries. We turn to this standards literature again to make a point about their importance as what Latour calls *immutable mobiles*, or inscriptions that can be taken from one place to another yet still be

interpreted in the same manner (Latour, 1986)[58]. The immutable mobiles shows the power of bureaucrats and experts in virtue of their being at the heart of the development of these standards.

Embedded within infrastructures, standards take on a specialist and even *expert* role, analogous to that played by scientists in Wynne's Cumbrian case study. As is discussed by Scott through various case studies, standards work as *reality-building* tools, attempting to simplify a messy and animated reality into a controlled and *predictable* environment in order to ensure efficiency at accomplishing goals (Scott, 1998)[59]. Scientific knowledge, as discussed by Wynne in the paragraph above, has the same intent of "prediction and control", making varied situations *less* varied. With the use of standards, infrastructures are systems which are "supposed to work in a superior way, so long as the demanding standardised conditions can be repeatedly fulfilled" (Wynne, 1996, p. 71). The standardised language of the infrastructure therefore takes on an *expert* character, and becomes dependent on stable variables to remain fully operational. Given the messy reality where this language is materialised, it comes as little surprise that it does not operate as smoothly as standards dictate.

This is where wheelchair users' lay knowledge becomes crucial. In Wynne's words, lay knowledge "allows control [of] a contextually dense and multidimensional reality in which adaptive flexibility towards the uncontrolled is still recognised as a necessary attribute" (*idem*, 1996, p. 70). Interviewees largely showed an awareness of the uncontrolled (and uncontrollable) nature of transport infrastructure in London, discussing its lack of consistency, reliability, and predictability. See, for example, the words that interviewees used to describe their experience of public transport in London, such as "chaotic", "unpredictable", "patchy" (see Chapter 1). In this context, their lay knowledge of the "labyrinthian" system and of their level of capabilities and energy (as discussed in Chapter 6, section 2.B.I), allows them to counter the *expert* and rigid nature of public transport infrastructure and its official, standardised narrative. Lay knowledge allows them to bypass pre-defined categories, such as

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[58] Interestingly, among his examples, Latour offers the case of engineering drawings, arguing that these allow "work to be planned, dispatched, realised, and responsibly to be attributed" (Latour, 1986, p. 27).

[59] In Scott's case study of "scientific farming" (1998, p. 266), the goal was to accomplish higher agronomical yields. In the case of public transport infrastructure, the goal would be to efficiently transport passengers from origin A to destination B.

accessible/step-free or *not accessible*, and to construct labels of their own: *areas I can get to*, *safe routes*, *requires personal ramp*. In navigating public transport, wheelchair users are not taking for granted the status of the infrastructure as a controlled environment whose categories they need to follow to the letter. Rather, through experience (and sharing of experience, which we will discuss in the next section), information about the shape and characteristics of the network, and management of their bodies (both biological and extended, i.e. the wheelchair), they develop mechanisms of control and engagement with an unpredictable environment, truly accounting for its multidimensionality.

Lay knowledge, therefore, acts not solely as an alternative means to navigate the system. It can serve a subversive role in situations where the scientific narrative has proved too rigid for those whose perspectives have not been embedded into the system. In the case of wheelchair users in public transport, lay knowledge allows for tactical manoeuvring in day-to-day trips and provides the basis for bigger counterstrategies to take shape. Particularly through the counterstrategies discussed in the previous chapter, this lay knowledge can slowly take the shape of *expertise* if it is recognised by institutional powers and its insights are used to make changes to regulations and standards. As Star argues, "infrastructure does not grow *de novo*" (Star, 1999, p. 382), it develops on top of an installed base. With transport infrastructure having over a century of history in London, during which disabled people were not expected to participate in the public sphere, it now struggles with "the inertia" of this history to adapt to new social structures. Allowing lay knowledge to circulate, and for it to become, in some cases, *expertise*, could be the first step to affect structural change.

B. *Mobilising lay knowledge to shape materialised expertise*

Collecting and collating information about the network, in addition to that already available through experience, is an important part of wheelchair users' lay knowledge of the transport infrastructure. It quickly became clear in interviews that technology, smartphones in particular, and social media play an important role in knowledge acquisition (see Chapter 6, section 1.B, on the use of social media to plan journeys). In this section, we move from

discussing lay knowledge of the network, to the development of *networks of knowledge* and how the latter can enable infrastructural changes.

Smartphone applications, Twitter, and personal blogs were described in Chapter 6 as important sources for acquiring information on the state of public transport in London (see section 1.B), many of which are developed and maintained by wheelchair users themselves. The founders of the website UpDownLondon, for example, describe themselves as "two transport geeks with a passion for accessibility", one of whom is a wheelchair user (they also use the Twitter handle @TubeLifts)[60]. And Alan's blog, discussed in Chapter 7 (see p. 188), has "450 subscribers", a number he says escalated through "word-of-mouth" as he "[doesn't] really shout about it, particularly". These examples are interesting illustrations of how prominent social media has become in the sharing of the lay knowledge discussed in the section above.

Similar cases of social interactions through the internet have been discussed in the literature of information studies and human-computer interaction, a literature I found to have useful tools for the analysis of this aspect of wheelchair users' interactions online. Specifically, the concept of *networked individualism* has been particularly helpful, defined by Wellman et al. (2003) as "the move from densely-knit and tightly-bounded groups to sparsely-knit and loosely-bounded networks." Networked individualism argues that the internet has brought about new e-communities, mediated through each individual. More eloquently put, "Each person operates a separate personal community network, and switches rapidly among multiple sub-networks." (Wellman et al., 2003). As such, individuals belong to a multitude of groups and networks, each catering to a particular interest or aspect of the person's life. Echoing Granovetter's classic sociological paper, "The Strength of Weak Ties" (Granovetter, 1973), scholars like Yochai Benkler see in digital networks the inception of new platforms for generating the loose affiliation required for *efficient* transmission of information and knowledge (Benkler, 2006; see also Zhao & Rosson, 2009). Similarly, Seufert et al. (1999) argue that information technologies are ideal tools to build *knowledge networks*, or an assembly of people and resources and the relationships with the collective aim to accumulate and transfer knowledge between members. More recent scholarship on social

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[60] See their website at: http://www.updownlondon.com/faq/

media and knowledge sharing has discussed how the former effectively amplifies the latter, particularly in what Leonardi (2014) calls *vicarious learning*, or "learning by watching" and, in the case of wheelchair users sharing information through social media, perhaps "learning by reading".

Social media, then, can be utilised as an important tool to network and share lay knowledge. The words "Facebook" or "Twitter" or "blog" or "social media" were mentioned by seventeen interviewees, often in cases inciting knowledge-sharing:

> I tweet and blog and talk about my transport experience to try and encourage other people to use public transport or so that it might be an option. – Diana

> A couple of people who read the blog have come back to me and said, "Look, the reason why I really like it is 'cause it doesn't only show what can go wrong, but it shows what you can do to overcome it and what you can do to make it work for you." So they've got, from my experience, they've learned stuff that they can then go and apply in their travels. And that's something that Twitter is good for as well, sharing experience. – Alan

As discussed by Panahi and coauthors, one of the most important differences between old web technologies and current social media, or Web 2.0, is "peer-to-peer communication" (Panahi et al., 2012, p. 2), allowing users to communicate with one another directly. Building a network, or a community of users with common interests, therefore enables wheelchair users to share experiences and help others with similar access requirements to find tactics that might be of use to them as well. This can take the shape of either descriptions of journeys and how they react to problems along the way, or more explicit advice for other users. Alan often uses both approaches in his writing. One example of this is his description of having to "get creative" and "devious" by using his own portable ramp to bridge the gap between the kerb and the bus. He continues:

> As a disabled person using public transport it's not enough to have access to information, routes, timetables and the like, you also need detailed and specific knowledge. Sometimes even that is not enough. Sometimes you need your own hardware to literally fill the gaps in what the system provides.[61] [*Never a Dull Journey*]

While not specifically advocating that all disabled passengers buy a portable ramp to get around the imperfections of the transport system (possibly aware that it is not a "one-size-fits-all" solution), Alan recommends

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[61] This quote of Alan's deeply inspired the title of this thesis.

that they develop their own toolkit, or "hardware" to solve these problems. In doing so, he adds to other people's lay knowledge of the network: they may not be aware that portable boarding ramps exist or, more generally, that they should feel free to find their own solutions to barriers. In reading Alan's example of intervening in the system, they may feel free to attempt their own novel problem-solving tactics[62]. In these ways, social media provides a space in which wheelchair users can share experiences, "observe, listen, and imitate best practices" (Panahi et al., 2012), and build networks of knowledge.[63]

Transport for All occupies an interesting position within this network of knowledge in the ways they are called upon by some disabled Londoners. It was discussed in Chapter 7 that Transport for All supports many individual campaigning strategies as well as developing some of its own (see section 1.C.I). Within the network of knowledge, they take on a central role in collecting, and distributing, users' knowledges in a variety of ways. One example of this was given by Lianna:

> [A] big part of the work we do is also giving people advice and information about getting out and about as a disabled person in London. Some of the hints and some of the tips and linking people up with travel training as well sometimes, and what's unique about what we offer, compared to the advice, for example, that Transport for London could give, is it's for disabled and older people by disabled and older people. So people phoning up might get through to Yousef, who's a wheelchair user who can talk from personal experience about how he navigates the Tube. – Lianna

There is a peer-to-peer conversation occurring, connecting people with similar requirements in terms of accessibility to share their experiences, with TfA sometimes taking the role as a central hub. There are cases where TfA intervene even if they have not been contacted directly, as can be seen on their Twitter feed. In the case below, they offer their services of "complaint logging" to someone who has tweeted about inaccessibility:

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[62] It is unclear whether using portable ramps is technically permitted by Transport for London.

[63] It is important to note here that there is also some debate regarding disabled people's limited access to the internet. It has been argued that this can be due to the additional cost of both equipment and internet access, as well as web accessibility in and of itself due to readability, colour contrasts, etc (Internet Society, 2012; Lazar & Jaeger, 2011). How this applies to this particular research is an interesting question given recruitment tactics, and is argued in part in Chapter 3 (see section 2.A.I).

Image 6: Transport for All tweet.

Here, rather than being a central hub for information, they establish themselves within the network of knowledge as a *representative organisation* in a process similar to the one described by French authors working on the concept of *evidence-based activism* (Rabeharisoa et al., 2013; for a more detailed discussion of this literature, see Chapter 2, section 2.C). As discussed in the literature review, EBA is defined as "the development of modes of activism that focus on knowledge production and knowledge mobilisation in the governance of health issues" (Rabeharisoa et al., 2014, p. 2), based around organisations of *represented people* that bring their members' concerns to light. In the case of wheelchair users' accessibility in public transport, TfA takes on a similar role to the patients' organisations described by the authors above. In TfA's own words, they "champion the rights of disabled and older people to travel with freedom and independence in London"[64]. Similarly, such as in the tweet above, they intervene in situations with particular characteristics such as a wheelchair user who was unable to board a bus. Here, they are gathering their group of *represented people*, and in doing so, legitimise themselves as the representatives who bring their concerns to light.

TfA, like the patients' organisations described by Rabeharisoa and her coathors, collect lay knowledge and personal experience, and by collating this knowledge within their now legitimised organisation, epistemically transform *lay knowledge* into *expert* knowledge. As such, they can use this collected lay knowledge, now legitimised, to engage with decision-makers and credentialed experts to reframe issues and debates, and question previously accepted definitions (such as what constitutes accessibility). One clear example of this is in the development of disability awareness programs, "carefully developed in partnership with disabled and older bus

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[64] Description taken from TfA's own website. See: http://www.transportforall.org.uk/

passengers", "[u]sing the personal experiences of passengers with accessibility needs" (TfL, 2013b). On their own website, TfA say this training program was also dependent on "25 years of specialised transport expertise" and that "[courses] are designed and delivered by disabled people". It is clear in this case that TfA are engaged in the work described above: they collect and collate knowledge held by its members, and translating it into politically relevant knowledge, adapting it to be utilised in certified contexts.

TfA is also involved in *evidence-based activism* in the ways that they entangle lay and expert knowledge. Through the organisation of meetings such as the *TfA Pan London Mobility Forum*, the organisation hosts events in which disabled and elderly people (associated to theirs or other disabled or older people's organisations) have an opportunity "to question senior transport managers, engineers and commissioners on issues such as bus design" (TfA, London Mobility Forum sub-page). These are moments in which lay knowledge is highlighted to credentialed experts and decision-makers, a hands-on approach to reframing concerns. It does the work of, as Rabeharisoa proposes, turning *personal experience* into *collective concern* (Rabeharisoa, 2015). In addition, and perhaps in a way that has not been specifically described by Rabeharisoa, Moreira and Akrich, TfA has found another way of doing EBA, through establishing strong connections between lay knowledge and credentialed spaces. This is illustrated in the Marie's case, described in the previous chapter. TfA was what connected her to the transport provider at which she currently holds the position of Disability Coordinator, and she is still in touch with TfA. In these cases, the lay knowledge of members is not only transformed by the organisation, but becomes an epistemic asset to the transport provider.[65]

This section discussed the interaction between types of knowledge and their places within networks of knowledge in the work by wheelchair users within the transport infrastructure. Firstly, this was discussed from the perspective of how wheelchair users overlay their personal experiences and lay knowledge of the infrastructure onto the materialised expert knowledge of the transport system. The intent was to highlight the

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[65] In this process, it could be argued that Marie's knowledge may even have taken on a certified character, now being a part of the professional sphere of transport. This thesis does not intend to answer this question, but it might deserve further investigation concerning the well-debated distinctions between *lay* and *expert* knowledge.

paradoxes of the system, in the ways in which standardisation attempts to control the uncontrollable, demanding stable conditions in a messy reality. In the case of transport infrastructure, expert knowledge in the guise of standards has resulted in a rigid materiality, into which social changes struggle to embed themselves. As a result, wheelchair users' knowledge of themselves and of the network provides them with an alternative way of interacting with the infrastructure which they can use to get past its barriers. Wheelchair users also create networks of knowledge through which, as networked individuals, they can distribute their own experiences, and collect those of others. TfA has developed a central role within this network of knowledge, collating and distributing information to its members, and engaging in activism dependent on the knowledge of its members, here described as *evidence-based activism*. We have illustrated how knowledge is therefore present in a variety of forms within infrastructures, they themselves often being the result of materialised expert knowledge and its users holding lay knowledge of their own. These knowledges are often in tension with one another, and can even *mould* one another, resulting in gradual changes to the infrastructure itself.

2. Intertwining time, rigidity and scale

Making public transport accessible to wheelchair users is, perhaps, becoming increasingly a) acceptable and, b) expected as pressure continues to be piled on institutions to find additional funding to make it the case. In the previous section, I discussed the issues faced by infrastructure concerning it being material expert knowledge that struggles to adapt to changes in social structures. Indeed, Howe et al. (2016), discuss this as one of the many paradoxes of infrastructures. This section will concentrate on their discussion of the paradoxical constitution of infrastructures, which they defined as malleability, temporality, and risk (Howe et al., 2016). It was interesting to observe that similar paradoxes were present in the case of public transport and wheelchair users. Here I will therefore discuss how infrastructures struggle with time, rigidity and scale as they develop and grow, showing how an analysis made from the perspective of marginalised users' highlights these paradoxes with clarity[66]. We will begin by discussing

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[66] This clarity would come as no surprise to Susan Leigh Star and Geoffrey Bowker, whose recommendation of "infrastructural inversion" as an analytical tool for studying infrastructures is a rallying call to foreground work that is not formally recognised.

the temporal paradoxes of infrastructure, followed by its issues with rigidity and lastly its difficulty in dealing with multiple scales.

The topic of temporality was alluded to in Chapter 4 whilst describing the problems posed by the long history of public transport in London and its relation to the social perception of disabled people in British society. A part of the problem with transport infrastructure in London is that it was largely conceived in the early 1900s, at a time when disabled people were not perceived as active members of society. Indeed, through the rise of industrialisation and standardisation of workers' bodies through the firming up of a neoliberal-ableist society, and the consequent distancing between the public and private spheres, disabled people were commonly perceived as belonging to the latter, not the former. As a result, catering to their access requirements was not of concern to experts of the time, and their needs were not embedded or materialised in the infrastructure of transport developed. Consequently, the infrastructure reflects the social condition of disabled people at the time of its inception, a topic discussed by Howe et al. in the following way:

> "A lesson of infrastructure is that it surfaces the social conditions and times in which it is sited; thus, it demonstrates as much about our historical and cultural attentions in a particular moment and place as it does about the thing itself." (Howe et al., 2016, p. 552)

However, with the emergence of social movements and legislation, new accessibility demands were made by disability rights' activists. This is where the paradox of temporality arises as the infrastructure struggles to keep up with changes to the society where it resides. Many of the wheelchair users interviewed were aware of this temporal paradox and the difficulties of bridging a past where "people with disabilities weren't really considered important" (Carl) with a present where the disability rights movement has happened (or, arguably, *is* happening). Large systems such as transport require a lot of planning in the *present*, but its goal is to withstand the passage of time: it is projected into the future. Put in other words, these projects aim "at a structural re-organization of the city's physical fabric" and also symbolise "a new image and trajectory for the city's future" (Moulaert et al., 2001, p. 75). How, then, to demand that those who plan infrastructure projects predict social changes and design with an unknown future embedded into the design, in addition to balancing the factors already existent at the time of planning? The task is impossible, yet

the paradox stands: one needs to consider infrastructure as a piece of the present that juts itself into future. Its consequences are long-lasting, and this needs to be taken seriously in the moment of its inception (Marchau et al., 2010). For this reason, the Urban Studies scholar, Mendel Giezen, argues for an adaptive approach in urban planning, with malleable policies and moments to reevaluate the projects' goals and aims (Giezen, 2013).

It would be naive to believe that infrastructures are permanent and immune to the passage of time, as the history of transport in London easily testifies. Stations are abandoned, others are constructed; new rails are built and others rust through use and exposure to the weather, being subsequently replaced (or discontinued); changing historical contexts and administrations prioritise trains over buses, or vice-versa, and new technologies are applied to (or developed specifically for) the network. Knowing that there are possible points of change and development in the network, authors recommend flexibility to be built into the system (Giezen, 2013; Marchau et al., 2010). Yet even in their recommendations, developments are rarely drastic. Giezen writes that "radical adaptations" generally occur after long moments of inertia and unresponsiveness from the network, and often as a result of "a lot of opposition" (Giezen, 2013, p. 732). Here, too, the history of London transport highlights his argument, through the disability rights movements of the early 1990s fighting for accessibility in London transport. The replacement of London's bus fleet with low-floor buses and ramps is, to an extent, a radical adaptation, but have generated their own tensions both social (with pram users and bus drivers, for example) and technical (such as broken ramps and doors). This begs the question of whether "radical adaptation" is ever possible in an established infrastructure given the unintended consequences of proposed "solutions" (Velho et al., 2016).

As Star reminds us, "[i]nfrastructure does not grow *de novo*" (Star, 1999, p. 382), but rather inherits *generative entrenchments,* or decisions that are made early in the life of the infrastructure root themselves deep into the network, "becoming increasingly more difficult to eradicate" (Lampland & Star, 2009, p. 14). In the case of an infrastructure developed largely within a neoliberal-ableist society, it comes as no surprise that it demands compulsive able-bodiedness from its passengers (McRuer, 2008). And so here, too, is a paradox of infrastructures: from its inception in the past and through its progression into the present, it blunders and manages to

change, but has difficulties in evading its historicity. Not malleable enough to be re-conceptualised fully, users with impairments of public transport fall prey to this slow process of modular increments within the network (Star & Ruhleder, 1996), being both aware of the *reasons* for this sluggish pace of progress, but wanting (and campaigning for) it to be more radical, as is pointed out by Carl, a wheelchair user:

> So we're trying to work with a really old infrastructure but at the same time I still think it's too slow. – Carl

Furthermore, infrastructure plays an interesting game with scales, juggling micro and macro, the individual to the collective, the local to the dispersed. Here, too, is a paradox with which it struggles. It was discussed above that changes in infrastructure occur at an incremental pace, but it is not just a question of pace on the macro level, but also on the micro. For example, the replacement of buses with low-floor models was not done simultaneously, but rather the result of a phased process. Similarly, when stations are refurbished with new lifts, platform humps, or manual boarding ramps, it is not an overnight process for all stations at once, hence the various deadlines that TfL sets for itself for delivering step-free stations (such as an additional thirty stations by 2021/22; London Assembly, 2016). This results in disparate experiences for wheelchair users across the system: those living in west London and those living in east London do not contend with the same types of barriers, almost as if they have to deal with a completely different infrastructure. Faith, for example, acknowledges that she prefers living in east London, where she argues there are more accessibility options than in west London:

> I guess that because I'm used to living in that part of London and I've mostly always been in East London, I suddenly see the difference when I travel anywhere else in London and then it's like, oh my God, I can't use this station. I'm so used to being able to use so many stations in East London and then you realise just how much of a barrier it is. – Faith

As infrastructures do not grow "de novo", it is difficult to implement changes at a macro level; changes such as those would be radical in nature and therefore go against the paradoxes above, on rigidity and the pace of adaptation. Consequently, adaptations are not only incremental, they are also localised, something that interviewees have also remarked upon, such as Diana who says that wheelchair users need "local knowledge" to use public transport in London. Similarly, other interviewees speak of central

London as an accessibility black hole (at least in terms of the Underground):

> The Underground in Central London is appalling. It's going to cost a vast amount of money to fix it, but it desperately needs fixing. – Alan

> I'm aware that I'm pretty fortunate in having a wheelchair accessible station within "walking distance". It shouldn't be as unusual as it is. And once you get into Central London it's just a bit of a nightmare. – Chiara

Hence, though the infrastructure as a whole cannot be completely overhauled overnight, users' experience of it can be quickly changed if their nearby station is the one to have been chosen for modernisation or, inversely, if theirs is the one whose lift has been compromised (momentarily or not). One example of the latter was the replacement of lifts at London Bridge, rendering it inaccessible to wheelchair users and which was mentioned by three interviewees as having been disruptive in their travels. On the other hand, the refurbishment of Tottenham Court Road, a station in central London, is highly anticipated by other interviewees, opening a much-needed route to the very heart of London (particularly once linked to the new Crossrail line and its accessible stations).

Infrastructures, then, are dynamic creatures that have to battle against their own rigidity and scale to answer to new demands and pressures. Following methodology suggested by Star and concentrating on users that are left just at the boundaries of the infrastructure highlights these very paradoxes of temporality, rigidity and scale (Star, 1991). Wheelchair users, as users whose access requirements have only recently begun to be considered, find themselves sandwiched in between all of the paradoxes discussed in this section. The moments in which the infrastructure is malleable can be either in their favour (as stations are refurbished and buses are replaced) or against them (as lifts break down or other humans fail at their tasks). In response to this, it is wheelchair users who become malleable, by developing tactics that permit a certain amount of flexibility within the system (such as Alan's portable ramp). As a larger group, they demand radical adaptations that show how times have changed, protesting inaccessibility and comparing their segregation from society to other prejudices from the past (most commonly race and gender). In the descriptions of these tactics and counterstrategies in Chapters 6 and 7, it is clear that a tremendous effort (both physical and psychological) is required

from these interviewees in order to travel in the city of London. In the last section below, we consider their efforts within the infrastructure in relation to one final paradox of infrastructure: invisibility.

3. Making the invisibles visible

Scholars of infrastructure such as Lampland and Star have put forward *invisibility* as infrastructure's defining characteristic, seeing it as "part of the background for other kinds of work" (Lampland & Star, 2009, p. 17). Precisely for this reason, the tool of *infrastructural inversion*, that is, to focus on the "commonsense notion of infrastructures", is an interesting device in study infrastructures, and the policies surrounding them. This process would allow researchers to bring the "boring, background processes" to the foreground (Geoffrey C Bowker & Star, 1996, p. 3). However, *infrastructural inversion*, as described by these authors, was not the methodological approach used in this thesis as my research and analysis did not depart from the transport infrastructure itself, but rather on the experiences of a particular user demographic; specifically, one which I have argued as meriting the label "excluded users" (discussed in Chapter 2). The approach used here has surfaced its own contributions in thinking about infrastructures, particularly on the paradox of visibility and invisibility of marginalised users within infrastructures, discussed in this section. As such, it provides insights of a similar character to infrastructural inversion, highlighting "boring, background processes", yet with the added benefit of seeing how these processes interact with users not often considered, or underrepresented[67],[68].

The paradox of in/visibility in infrastructure was discussed by Star in the late 1990s, and then in the late 2000s with Lampland (Lampland & Star, 2009; Star, 1999). As discussed in the literature review, they argue that infrastructures are designed to be invisible as they become stabilised over time, standards playing a significant role in this process (see Chapter 2, section 1 and Chapter 4, section 5). However, once a breakdown occurs, the infrastructure becomes visible again, seeping through the cracks. This

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[67] As discussed in the literature review, this approach is also suggested by Star, but in an earlier piece (Star, 1991).

[68] Further, it serves a political purpose of collecting data on the experiences that these users have, thereby serving as evidence to present to institutions who may have stronger influence in speeding the process of changing the infrastructure.

is true for all users: consider, as a non-disabled person, the use of public transport in London. It is mostly unremarkable if, at times, uncomfortable; an Oyster card (or contactless card) is touched on a reader, step into a bus, take a seat. Upon reaching a destination, a press of a red buzzer notifies the driver, they pull in at the next stop, step out. The experience is seamless, unless something goes wrong: the engine breaks down and all passengers have to get out and wait for a replacement bus. Or the buzzer is broken and one has to shout to the driver instead. In these moments, all passengers have to deal with the ragged edges of infrastructure, working to seam them back together through tactics of their own. Infrastructures hover between these two states: a silent backdrop, or a disruption requiring intervention. Further, they can break down for everyone and become visible to all of its users at some point, disabled and non-disabled. What, then, is the difference in the case of wheelchair users in public transport?

The first answer one might give is concerning *quantity*. The breakdowns and disruptions faced by wheelchair users are so constant that this infrastructure is arguably *never* invisible to them. Their awareness of the variety of breakdowns that can occur and the collection of tactics they have developed to intervene in these situations is evidence of this. It seems that there is no moment of passivity while using public transport as a wheelchair user, be it before leaving the house and having to prepare oneself for the trip, or during the journey where one must be wary of one's surroundings, ready to deploy any of the tactics discussed in Chapter 6. It is an interesting twist in the narrative that wheelchair users are such active passengers in transport, given the social stigma that often brands disabled people as passive members of society, unable to care for themselves (Finkelstein, 1981). Not only are these users of infrastructure *active* in its micro-level, in their day-to-day tactics, they may also be *activists* in the macro-level, engaging with decision-makers, or being/becoming decision-makers themselves. As such, wheelchair users in their engagement with public transport are often *at work*.

Analysing the transport network from wheelchair users' perspectives therefore allows us to highlight another aspect of the in/visible paradox in infrastructure, concerning *work*. Work has been a classic topic of inquiry in sociology for decades, particularly in the tradition of symbolic interactionism (Emerson, 1970). In the past couple of decades, however, STS begun to

concern itself with *invisible work*. In the late 1980s, for example, Shapin highlighted the invisible scientific work done by technicians in seventeenth century laboratories, arguing that many scientific discoveries were due to the labour done by unknown and unskilled or semi-skilled assistants (Shapin, 1989). Much of the research from the 1990s onwards seemed to be in agreement over the largely invisible nature of work (Star & Strauss, 1999), something one could see if one looked but, through routine, had become "functionally invisible" (Star & Strauss, 1999). As such, making work visible often takes the shape of *recognition* of work, such as in the case of medicine and healthcare and legitimising the nursing profession through recording work undertaken (Bowker et al., 2001; Bowker et al., 1996)[69]. In treating the various tactics and counterstrategies developed by wheelchair users in the transport infrastructure as work, particularly through the frame of *invisibility*, the relational nature between visible and invisible crystallises in particularly illustrative ways.

I argue that the tactics developed by wheelchair users are a type of invisible work. Being ad-hoc in nature and deployed as contingency plans in the face of a barrier in accessibility, these tactics are an illustrative example of what Star and Strauss call *articulation work*, or work that "modifies action to accommodate unanticipated contingencies" and "is invisible to rationalized models of work" (Star, 1991, p. 275). *Rationalised* work here refers to work recognised and done by the infrastructure: they are institutionalised – official – forms of labour whose aim it is to ensure that the infrastructure is functional, according to the infrastructure's *inner logic*. As such, rationalised models of work do not necessarily recognise the disruptive nature of infrastructure to a particular demographic of users – in the case of this thesis, wheelchair users. These passengers, in turn, undertake significant *unrecognised* repair work to be able to use the infrastructure themselves. Contrary to non-disabled users for whom a breakdown is usually fixed by rationalised work through official and legitimate repair workers, wheelchair users often find their own means of minimising the impact of the constant hurdles they face through their invisible tinkering.

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[69] In this case, the tension is particularly interesting as a balance needs to be found in what types of work undertaken should become visible, given that some of their labour is not quantifiable but rather qualitative.

The tension between *visible* and *invisible* arrises when, through this technically invisible work, wheelchair users make themselves visible to others. This is highlighted by interviewees as well, such as Alan:

> By being out and visible, I'm actually going out, like lots of other disabled people are, and changing people's opinions and impressions. – Alan

In other words, while deploying their tactics in day-to-day journeys, wheelchair users are still physically visible. This, in and of itself, plays an important role in the process of demonstrating two things; first, that wheelchair users, and disabled people in general, do use public transport and that, therefore, more accessible services need to be procured. As I discussed in the previous chapter, Alice describes an interesting negative feedback loop in which little accessibility provision is given, allowing low numbers of disabled people to use the service and thereby causing service providers to justify a lack of investment in additional accessible services through lack of use (see quote on pp. 206-207, and a flowchart can be found in Image 5, p. 207). The rationale then goes, if nobody is using public transport, there is no need to provide it, being unaware that disabled passengers will unlikely be able to use public transport if adequate provisions are not made to begin with. As a result, and as argued by some interviewees, one way of breaking this cycle is by going out and using the public transport infrastructure despite its inadequacies, and being *seen* doing so, becoming *visible*. Kerstin also argued that this visibility was an important step towards improving accessibility in London:

> So I think people should be aware that they're changing the network, the world, just by being there. You don't change anything if you stay at home. – Kerstin

By being present in the infrastructure, using it, wheelchair users make not only themselves visible, but also the infrastructure itself. These are moments in which the cloak of routine is stripped away to other passengers using the infrastructure, revealing to them the gaps that marginalised users encounter and bringing the bare bones of the network to the foreground. As a result, we come full circle in the paradox of the in/visibility of infrastructure: two socially invisible entities become visible through interaction. On the one hand, as disabled people, wheelchair users have for centuries been socially stigmatised and marginalised, *othered* and segregated to be cared for in private spheres. As a result, they became socially invisible and absent. On the other hand, through processes of

standardisation and stabilisation, transport infrastructure has become invisible, only revealing itself in moments of breakdown. In interacting with the latter, wheelchair users break the silence and insert themselves into the narrative, highlighting the inadequacies of infrastructure to those present and showing its limitations. It is perhaps with this in mind that, when asked what words of advice they would give to a wheelchair user attempting to travel using public transport in London, so many interviewees prefaced other advice with a simple "go for it" (Diana).

In the early 1990s, Star had already recommended to study systems and infrastructures from the perspective of those who are not completely at ease within them. In fact, she had explicitly suggested the perspective of wheelchair users:

> If we begin with the zero point […] we enter a high tension zone which may illuminate the properties of the more conventionalized, standardized aspects of those networks which are stabilized for many. Those who have no doors, or who resist delegation – those in wheelchairs, as well as door-makers and keepers, are good points of departure for out analysis, because they remind us that, indeed, it might have been otherwise. (Star, 1991, p. 53)

In this thesis, I literally followed her recommendation by choosing to investigate the transport infrastructure from the perspective of wheelchair users, yet perhaps in questioning not just what "might have been otherwise", but investigating what is happening when these marginalised users engage with the infrastructure they've been excluded from. In this chapter, we have collected the benefits of this approach in terms of its analytical richness and, indeed, analysing infrastructure from the perspective of marginalised users has allowed us crystallise its paradoxical nature. In the first instance, it was argued that infrastructures, as materialised expert knowledge, is in constant tension with their users' (particularly their marginalised users') lay knowledge of the system. In mobilising their lay knowledge either on an individual or collective basis (the latter here being described as *evidence based activism*), wheelchair users can gradually mould infrastructure to better suit their needs. However, this leads to the second paradox discussed in this chapter, that is the way in which time, rigidity and scale constrict the ways in which infrastructures change, often in contest with social changes. Lastly, we focused on the last paradox concerning in/visibility, or the way in which infrastructures hover over the line between routinely invisible and painfully

visible upon breakdown. Given that for marginalised users infrastructures are never predictable and routine, they take on a permanent visible nature to them. In their interactions, wheelchair users bring the transport infrastructure to the forefront for those who are present, serving as a reminder of the materiality beneath it. It is through being visible, and making visible, that wheelchair users also affect changes to the infrastructure, by inserting themselves into the material and social narrative and demonstrating that neither are suitable to their needs.

This, I argue, is my strongest contribution to the field of infrastructure studies, with potential contributions to be made to the field of ableism studies: *infrastructures are paradoxical in a multitude of ways* that have the power to exclude users while still being malleable enough to allow subversive entry-points for change. The notion that infrastructures are *invisible* is privileged perspective – indeed, it is a definition of infrastructure that can only be made by those who are fully, or even mostly, inscribed within the ableist societal structure. For all others, including, for example, women (who may fall prey to sexual harassment in enclosed spaces), parents (with their children, momentarily non-conforming members of a labour-dependent production system), and, as discussed throughout the thesis, wheelchair users (and other disabled people), there is a constant awareness of the various ways in which infrastructure demands additional work on their part in order to make travelling possible.

Had this thesis chosen to explore transport infrastructure from the perspective of non-disabled users, these paradoxes would have been more difficult to pin down, if perceivable at all. Indeed, the narrative may have become one of linear progression, changes affected by technological advances and adjustment to higher demands or external factors such as wars (in the same way that the First and Second World Wars closed Tube lines) or petrol prices. By concentrating on the experiences of excluded users, infrastructures acquired depth and complexity, showing how their edges are defined by specific considerations of who their users are and consequentially placing barriers in the path of those they do not see as part of the system. Yet the story does not end there: this is not a story of being left at the borders but one of entrance, not a story of passivity but of activity and activism. Of exclusion, and *inclusion*. It is through choosing to listen to the stories and experiences of wheelchair users that we see that

infrastructures can be pushed, prodded, moulded by those to which it had not previously catered. This, then, is a story of inversion, not infrastructural, but social. In giving space to the voices of wheelchair users, we have turned the usual social narrative of passive members of society on its head, recognising the unique lived experiences of wheelchair users, and their impact on infrastructures, shaping the latter in innovative ways.

Chapter 9: Conclusions

Throughout this thesis, I aimed to provide a narrative that would answer this research's guiding question, "How do wheelchair users use public transport in London?" My work was primarily framed by scholars from infrastructure studies within STS, as well as inspired by a wide range of literature within STS, sociology and disability studies. The resulting story has taken us from the pre-industrial era, discussing the places disabled people have occupied in British society, to Victorian times with the gradual development of London's underground system, all the way to discussing the future projections of a neoliberal-ableist infrastructure that is created in the past. Here, I propose a quick overview of the topics discussed, before answering the thesis' guiding question explicitly. Lastly, I will make some brief concluding marks, considering possible avenues of investigation of infrastructures that might benefit from the perspective of excluded users.

I have argued in this thesis that the process of stabilisation of the public transport infrastructure in London took place at a time when wheelchair users were not perceived as potential users of the system. In Chapter 4, I showed that the social segregation of disabled people had already become normalised at the point in which the infrastructure was becoming consolidated. Being perceived as house-bound and non-productive, these users' needs were not included in the design process, and therefore were not embedded into the very building blocks of the network: its standards. Here, my work provided novel insights into discussions of marginalisation from infrastructure through intersecting two histories that had not previously been brought together: the history of public transport in London, and that of the places occupied by disabled people in British Society.

With the advent of the disability rights movement in the 1980s-90s and demands to improve access, small infrastructural changes and victories were acquired. In Chapter 5 we discussed some of the improvements made, with an acceleration of this process in anticipation of the London Olympic and Paralympic Games in 2012. Nevertheless, the solutions being proposed were, and still are, retrofitted onto a system that had already reached consolidation. As a result, many of the 'solutions' (such as manual boarding ramps and wheelchair priority areas on buses) brought about unforeseen barriers of their own. When discussing the difficulties they face

while using public transport, my interviewees' often made an explicit distinction between social and physical barriers. This was an interesting perspective given that scholarly approaches in STS argue *against* such distinction. I argued that this distinction is valid to be made from the perspective of wheelchair users and, possibly, to all excluded users of large networks. For those who have not had the privilege of having their 'non-standard bodily packages' embedded into the consolidation process of networks, the experience of these infrastructures becomes *fractured*. The scholarly narrative surrounding infrastructure, networks and systems therefore becomes sterile when discussing excluded users' experiences, and the work they have to undertake in order to engage productively with these systems. As STS scholars, we have to be aware in order to avoid engaging in a second action of exclusion by not engaging with marginalised groups' narratives. If we are not aware of the experiences of excluded user groups, we may be inadvertently reducing our own subject of inquiry through uncritical application of our scholarly frameworks (such as ANT).

The narrative in this thesis could easily have become defeatist in nature, simply discussing the process of exclusion and how marginalised users are left behind through consolidation and standardisation of infrastructure. Had that been the case, it would have been a poor interpretation of the stories shared with me by my many interviewees. To reflect this, I decided to explore the two contrasting parts of the thesis under two separate parts. In the first one, briefly summarised in the previous two paragraphs, the theme is clearly *exclusion*, the struggles faced by wheelchair users as marginalised users of the transport infrastructure. However, inspired by Lampland and Star's quote that "one person's brick wall is another's object of demolition" (Lampland & Star, 2009, p. 14), I wanted to show how wheelchair users developed *inclusion mechanisms* to break down "brick walls".

The first inclusion mechanisms I discussed were inspired by De Certeau's concept of *tactics*, or small acts of truant freedom deployed on an ad-hoc basis during their transport journeys (Chapter 6). I argued that, given their identification of two types of problem (physical and social), wheelchair users had tactics that roughly mapped onto this same distinction. On the one hand, they developed tactics that dealt with physical barriers, such as *hacking* the system using tool-kits or developing their own tools and *re-*

scripting the infrastructure surrounding them (re-interpreting their intended use). On the other hand, they also developed *technologies of the self*, administering a constant appraisal upon themselves to *manage their disability*. In doing so, they are able to gauge what tasks they can accomplish to get around particular barriers, particularly given fatigue levels and ability to stand their ground in cases where they might clash with other passengers or staff members. Through a surveillance of the world around them, interviewees also discussed how they might identify moments where resorting to a *performance of disability* might be beneficial, using their marker of difference as a way of diffusing tension or enrolling help. Wheelchair users also engage in *emotional labour* throughout their experiences of public transport, both through their management of their own disability but also through observations of those around them. Engaging in this type of labour can allow them to identify antagonistic behaviour, or possible allies if a problematic situation arises. However, as I pointed out in the chapter, these tactics are ad-hoc in nature and, as such, it is questionable how much of an impact they have in shaping the infrastructure in a calculated manner. For this reason, I dedicated the next chapter to inclusion mechanisms whose explicit goal was infrastructural improvements to accessibility.

Again inspired by De Certeau's work, I argued that wheelchair users and their allies have developed a series of *counterstrategies* which are used in order to improve accessibility in the transport infrastructure. As with Epstein's work on *Inclusion*, I argued that the work is done by both outsiders and insiders to the political and technical decision-making process. On the part of the outsiders, I argued that important counterstrategies included *legal pressure* and *media pressure*. The former referred to the importance of creating legal case precedents and causing financial burden to companies that were not compliant with accessibility legislation. *Media pressure* can take the shape of using social media to name and shame poor access by companies, as well as using complaint logging strategies to provide quantitative evidence of the barriers encountered throughout the transport system. I emphasised the important role the charity Transport for All plays in supporting both of these counterstrategies but that, importantly, they had developed a creative counterstrategy to engage insiders with the experiences of disabled users of the public transport system through *first-hand experience*. To provide this

experience, Transport for All invites insiders to accompanied trips using London's public transport with disabled passengers, aiming to show their guests the reality of these passengers' experiences. However, it would be wrong to argue that no *insiders* are involved in the process of infrastructural change to public transport. I developed two categories for insider involvement, arguing that they engage in improvements to accessibility from both a policy and an industry perspective. Insiders to policy-making resort to the counterstrategies of maintaining institutions that play a role in safeguarding the interests and rights of these marginalised users. They are also engaged in legislative work, wherein they can maintain political pressure to ensure that these rights are not only maintained but also expanded. Insiders in industry, on the other hand, can rarely resort to such institutionalised practices. In these cases, they often use their personal experiences, in cases where they are a disabled insider, to challenge assumptions made by others within the company and break cycles of reasoning that might otherwise have been left unquestioned.

As I argued in that chapter, many of these counterstrategies are not novel approaches developed by wheelchair users specifically but rather they are an extension of and alignment with work done by other new social movements, such as the civil and women's rights movements. However, it is in combining the lived experiences and tactics discussed in Chapter 6 with these counterstrategies that we start seeing an *inversion of social assumptions.* Despite the negative social assumptions that have often depicted wheelchair users (and disabled people more generally) as *non-productive* members of society, house-bound and passive, the data collected in this research evidences the opposite. Rather, the data here indicates that wheelchair users are engaged actors in seemingly mundane processes such as using public transport infrastructure. Despite their marginalised position, interviewees indicate that they are constantly at work, both on an ad-hoc and on a strategic level of these infrastructures, striving towards improved accessibility and including themselves back into both social and material narratives.

Hence, in Chapter 8, I argued that by investigating networks such as the transport system from the perspective of excluded users, the *paradoxical nature* of infrastructures crystallises in novel ways. Firstly, I argued that the lay/expert knowledge debate can be mapped onto infrastructures in

materialised and fascinating ways as wheelchair users use personal, local knowledge to navigate in an expansive network developed by experts. I also discussed the paradox of malleability within the system or how infrastructures struggle with questions of temporality and scale as they attempt to adapt to social demands. Lastly, I showed how the widely accepted notion that infrastructures are invisible once they stabilise and become visible in cases of breakdown is only applicable to those with standardised bodily packages. To excluded users (in the case of this thesis, wheelchair users), the infrastructure is never invisible. As a result, in their daily usage and interactions with this network, wheelchair users make both themselves and the system visible to those around them, showing the bare bones of this behemoth structure.

What, then, would be the response to this thesis' initial question, "How do wheelchair users use public transport in London?" The answer is, appropriately, two-fold. Firstly, as is argued in the first section *Exclusion*, they use the public transport system with some difficulty, the result of infrastructural stabilisation during a period of social segregation, paired with the paradox of malleability and temporality of infrastructures over time. Secondly, as discussed in the second section *Inclusion*, in order to use the public transport system in London, wheelchair users develop a series of *inclusion mechanisms* to counter the nefarious effects of historical barriers and infrastructural lethargy.

In my work towards answering this question, novel contributions to the field of infrastructure studies were made, largely owed methods inspired by disability studies and emancipatory research, as propounded by Oliver (1992). Specifically, we have identified that excluded users can develop inclusion mechanisms to navigate infrastructures not only through attempts at shaping it as outsiders or insiders, as discussed by Epstein (2007), but also through the deployment of ad-hoc problem-solving *tactics*. Furthermore, we have expanded the lay/expert knowledge debate to question what it might look like when mapped onto infrastructures, exploring how lay expertise can be collated and legitimised in ways that eventually become integrated into expert knowledge and materialised in the shape of networks. Lastly, through exploring systems from the perspective of excluded users, we have questioned the claims on the invisibility of infrastructure. Much like the more recent work done by authors on cases of

infrastructure in the Global South (see Chapter 2, p. 28), the claim that infrastructures are "invisible" is extremely fragile, whether you question it depending on context of implementation (in the Global South, for example), or user-experience (excluded users).

It is important to underline, again, one of my principal claims throughout this thesis: wheelchair users who use public transport, despite exclusion and marginalisation, are not passive users. They do not simply use stations which are marked as accessible, and trust the infrastructure to tell them where they can or cannot go. Rather, they are pro-active and engaged users of the system; they collect, collate, share, disseminate and apply significant knowledge of the transport infrastructure in their daily lives, and also find ways of doing so in counter-strategic ways, progressively shaping the network to their requirements. Not all instances are successful. As I argued in Chapter 6, some solutions provide problems of their own, such as the current debates between wheelchair users and buggy users over the priority area on buses. Nevertheless, these users have shown significant engagement with the infrastructure, arguably more than those in "standardised bodily packages" who do not have to resort to such relentless labour to make the network function according to their needs.

There are, of course, limitations to overly generalising my findings to encompass *all* wheelchair users in London, or even to discussing all wheelchair users who use public transport in London. First and foremost, I noted in the introduction to this thesis that my work is concerned particularly with wheelchair users *who self-identify as users* of public transport by asking the question during recruitment, "Do you use public transport in London?" (see recruitment poster in Appendix 3). This has the advantage of allowing me to discuss particularly the impact of people in wheelchairs who *are users* of the network, but does mean that we cannot apply findings more generally to all wheelchair users in London. Secondly, as I noted in Chapter 6 concerning *managing disability*, it is always important to remark upon the lived experiences of disabled people and to what extent their impairment may or may not limit their capabilities. This has been one of the primary criticisms towards the social model of disability in disability studies. In the past decade, scholars have begun proposing a more phenomenological model to disability, wherein the *lived experience* of disability is the focus, exploring questions of embodiment (Paterson &

Hughes, 1999; Shakespeare, 2006; Shakespeare & Watson, 2001).This is an important aspect to be considered, and I believe that I have taken the lived experience of wheelchair users into the discussion of disability management, ensuring that questions of fatigue and pain are considered when discussing these passengers' agency (and possible limits to this agency). Furthermore, I have been applying the social model of disability throughout this thesis particularly in the terms discussed by Beckett and Campbell (2015), that is to say, an *oppositional device* (see, particularly, Chapter 7, section 3.A.I). Given the political work that the social model enables us to do, my choice to concentrate on the social model over the phenomenological model is not intended as a way of diminishing the lived experiences of disabled people. Rather, my intention was to highlight the ways in which important labour is being done *through* these lived experiences.

It is evident throughout the thesis that considerable changes have occurred in the accessibility landscape in the United Kingdom generally and in London particularly. As I discussed, briefly in Chapter 4 and more extensively in Chapter 5, there have been some significant improvements in terms of inclusion and desegregation of disabled people from the 1960s onwards. As disabled people began to take to the streets, and the Disability Discrimination Act 1995 was passed, accessibility improvements to London's public transport infrastructure became more common. This is particularly true since the mid-2000s, as London prepared to host the Olympic and Paralympic Games. Here, then, is a question that I have left unanswered and which I believe deserves further consideration.

In Chapter 5, I discussed how the London Olympic Games Organising Committee made transport accessibility a priority in terms of infrastructural improvements with their "Accessible Transport Strategy". The Department for Transport's accessibility refurbishment budget, Access for All, was ring-fenced to support this strategy, and the Olympic Delivery Authority supplemented budgets for both London Overground and Underground. Ever since, Transport for London have been publishing the "Your Accessible Transport Network", detailing their aims concerning accessibility changes and improvements, such as the projected number of new step-free stations in the network, and making all bus stops accessible. Furthermore, after an eighteen-month campaign, Transport for All satisfactorily secured

the promise that all stations of the new line, Crossrail, will be step-free from the first day of service. Kerstin, discussing this victory for Transport for All, described all the effort as having been "worth it":

> The next hundred years, disabled people will be grateful that these stations are accessible. – Kerstin

I believe there is something interesting to be investigated in the efforts of the past decade to improve accessibility. It seems that the Olympic and Paralympic Games may have played an important role in changing priorities concerning infrastructural changes, and with the Doug Paulley case (see Chapter 7, section 1.A.III) having been discussed in the media recently, it has been a constant topic of debate. Have we hit a moment of malleability in the infrastructure? And if we have, how can these moments be identified and described, are they dependent on significant monetary injections?

These questions can provide interesting new avenues for discussing the shape and nature of infrastructures. If we can identify these moments of infrastructural malleability, they might provide excluded users with unique points of entry to influencing the shape of infrastructures and embedding their needs into the system as well. Or, perhaps more radically, they may be opening points for dialoguing with a neoliberal system that is, in itself, ableist in its structures. As we have seen in this thesis, there is a chance that excluded users are an ideal way of investigating moments of malleability. Indeed, evidence collected here, particularly discussed in Chapter 7, seems to evidence that wheelchair users have been recognising these moments of malleability throughout the process, deploying their counterstrategies at opportune times to cause the most impact. If this is the case, it may provide further evidence that excluded users are important actors in the shaping of networks and, in our case, deconstruct further the pervasive social assumption that disabled users are passive members of society. Perhaps continuous work in this field can help enable the shedding of this negative social stigma, recapturing the work done by disabled people as active and engaged members of society.

Appendix 1: Ethical approval for research

DEPARTMENT OF
SCIENCE AND TECHNOLOGY STUDIES

🏛 UCL

This document certifies that

Raquel Velho

has received ethical approval for their project entitled

**'Manoeuvers and campaigns: an investigation into
wheelchair users' shaping of the London public transport
system**

in accordance with the UCL Department of Science and Technology
Ethical Research policies and procedures.

Application reference number: STSEth053

Signed:

Department Manager

Date of Approval: 25/02/2015

Appendix 2: Sample recruitment email

Dear sir, madam,

My name is Raquel Velho, I am a doctoral student at University College London in the field of Science and Technology Studies. Currently, I am planning my PhD research, and hoped it would be of interest to your charity, and that you might be able to help me.

The work I am undertaking aims to investigate the relationship between wheelchair users and the London transport system, and the tactics these users may adopt to navigate this network. It asks, "How do wheelchair users find ways of using the London public transport system so as to better fit their capabilities?" To collect information, I would like to interview a wide range of wheelchair users both who may or may not have undertaken "wheelchair skills training" to ask them how they experience public transportation in London.

For my work to move forward, I am searching for wheelchair users who would be willing to be interviewed about their experiences. The interview would last approximately 1 hour, and can happen at a convenient location. I would be most grateful if there was a way to circulate this information. If you know of anyone who might be willing to volunteer, could you please ask them to email me at raquel.velho.12@ucl.ac.uk.

Please do not hesitate to contact me with any questions. There is a link to my institutional webpage in the signature below with further information about myself and my work.

With best wishes,

Raquel Velho

Department of Science and Technology Studies

Accessibility Research Group

University College London

Twitter: @RSVelho

Tel.: +44 (0) 7450 379 045

http://www.ucl.ac.uk/sts/students/Velho

Appendix 3: Recruitment poster (social media)

Appendix 4: Participant information sheet

**Manoeuvres and campaigns:
an investigation into wheelchair users' shaping of the London
public transport system**

Information Sheet

Thank you for agreeing to participate in an interview for my doctoral research! In this document, I will tell you more about my work, the interview process, and how your information will be safeguarded.

The research

As Europe's largest capital, it comes as little surprise that London is also served by Europe's largest underground network. Transport for London (TfL) is responsible for London's 402km of underground tracks with over 250 stations and a fleet of over 8000 buses. Despite its enormity, some user groups are faced with barriers to accessibility. With only one quarter of tube stations being 'step-free' to platform level and priority debates with buggy users, wheelchairs users face particular difficulties and their story with transport is one of battles and campaigns.

My research aims to investigate the relationship between wheelchair users and the London transport system, and the tactics these users may adopt to navigate this network. It asks, "How do wheelchair users find ways of using the London public transport system in ways that suit their needs and capabilities?"

The interview

The interview will cover various topics concerning your interactions with the London transport system, how you navigate it, and your expert knowledge on other topics (e.g. wheelchair skills training, consultancy work). My research data is dependent on in-depth interviews with wheelchairs users, transport consultants, and engineers, so your thoughts and comments are invaluable!

The interview may last around an hour, and will be audio recorded and then transcribed. It may be paused or even terminated at any time, upon your request. Once the interview has been transcribed, you will be sent a copy of it to comment if you wish to expand upon, or reiterate any points we covered. My project has received ethical approval from the Department of Science & Technology Studies, UCL (ref: STSEth053).

Anonymity and withdrawal

To begin, you will be asked to sign the consent form (attached) that you agree to participate in this research. As Transport for London and Crossrail are named in my research, it will be mentioned that you are employed by/involved with these organisations. If you so desire, your contribution may be anonymised by using a pseudonym of your own choice. Your name and contact details will be stored securely, separately from the interview transcriptions.

If, following the interview, you decide you would prefer not to participate in the project, or would like to remove specific comments from the data set, this can be done up to **four weeks** after you receive a transcript of your contributions for comments. Simply contact me at the address below. If you have concerns/questions about the research you would like to discuss with someone else, please contact: Professor Brian Balmer, b.balmer@ucl.ac.uk (my supervisor).

Thank you for your collaboration!

Raquel Velho, MSc (email: raquel.velho.12@ucl.ac.uk)

Appendix 5: Consent form

**Manoeuvres and campaigns:
an investigation into wheelchair users' shaping of the London
public transport system**

Consent Form

Thank you for agreeing to participate in my doctoral research! Please go through the details below and tick Yes (Y) or No (N) in the appropriate box to signify that you have understood and agree with the relevant statements. Please also indicate what level of anonymity you desire in Q.2.

		Y/N
1.	I have read the interview information sheet and understand the information provided and my role as a participant.	
2.	I understand that my participation is entirely voluntary and that any information used for reporting purposes will be done with: [ ] Full anonymity: Pseudonym will be used and we will refer to any organisational involvement in vague terms (eg. 'a disability charity', 'a transport provider'). [ ] Partial anonymity: Pseudonym will be used, but we will refer to your involvement with any organisations mentioned. [ ] Full disclosure: Name and organisational involvement given.	
3.	I understand that I may review and comment on a transcript of my interview, and the withdrawal procedures detailed in the information sheet above.	
4.	I voluntarily agree to participate in this research.	

Name of interviewee: …………………………………………………………………………………

Signature: …………………………………………………………………………………………

Date: …………………………………………………………………………………………

Note: Your contact details are kept separately from your interview data.

Appendix 6: Sample interview schedule

- *Personal experience of using public transport*: this theme was used to start conversation in an broad way, slowly easing the interviewee into the conversation and then used to reflect on stories that may arise from it.

    - What are your general thoughts on public transportation in London? How flexible is it?

    - How often do you use public transportation?

    - What is the average experience like?

- *Positives and negatives of public transport*: here, a more pointed reflection on what the wheelchair user enjoys or hates about using public transport was required. It mostly resulted in discussing barriers they encounter in the system.

    - What have you found to be the best provisions for accessibility?

    - Have you ever faced any particular obstacles?

- *Dealing with the negatives, learning the positives*: this section of the interview asked wheelchair users to consider how they deal with the barriers they might encounter in the system.

    - What do you think has brought about this [previously discussed] accessibility provision?

    - How have you dealt with this particular barrier [previously discussed]?

    - Have you found yourself developing any ways of getting around this issue?

- *Broader engagement with transport*: to gauge what level of political involvement wheelchair users might have, a more specific topic concerning political engagement was covered.

    - Are you engaged in any support, or sports, or political groups? What motivated you to become involved?

    - Have you heard of the charity Transport for All?

    - What do you think about campaigns for better accessibility in London? Would you ever become involved?

- Structured section:

    1. Describe public transport accessibility in London in three words.

    2. Choose two areas in which you would concentrate efforts to improve accessibility.

    3. What words of advice would you give to a wheelchair user newly arrived in London who wants to use public transport?

Appendix 7: Sample themes and nodes

▼◯ Chapter 6 - Fractal strategies (2)
  ◯ 'Hacking'
  ▼◯ Alternative transportation
    ◯ Charity Services
    ◯ Taxis as important alternative
  ◯ Choices
  ◯ Help from institution
  ◯ Local knowledge and relations
  ▼◯ Managing Disability
    ◯ Loss of dignity as tool
    ▼◯ Performing Disability
      ◯ Help from others
    ◯ Using self + capabilities
    ◯ Wheelchair Skills Training
  ▼◯ Personal attitude+brave+courageous+bloody...
    ◯ Confidence+bravery
    ◯ Emotional Resilience
  ▼◯ Tactics from Reports
    ◯ Confidence ++ experience
    ◯ Knowing people
    ◯ Wheelchair as tool
  ◯ Twitter (personal)

▼◯ Chapter 7 - Activism
  ▼◯ Comparison to other civil rights movements
    ◯ Social activism
    ◯ Universal interest (allies)
  ◯ Infrastructural changes (needed)
  ◯ Infrastructural changes (past)
  ▼◯ Pressure (social) - Insiders
    ◯ Disabled voices (fora+consultation)
    ◯ Economic reasoning
    ◯ Legislative changes (needed)
    ◯ Legislative changes (past)
    ◯ Performance - TFL
    ◯ Standards – compromise
  ▼◯ Pressure (social) - Outsiders
    ◯ Campaigning tactics
    ◯ Complaining + belligerent
    ◯ Crossrail Campaign
    ◯ Legal cases+knowledge
    ◯ Media power (representation)
    ◯ Media power (shaming)
    ◯ TfA
  ◯ Social changes (needed)
  ◯ Social changes (past)

Appendix 8: Anton's "Catalogue of Complaints"

Reproduction of first two complaints – total of complaints: 130

Totals --->	Blue Bell Broken 8	Blue Bell Ignore by Driver 17	Broken Ramp 14	Big Red Book Procedure not Followed 25	Dangerous Ramp 19
27 Jun 2013 101254629G RD		This driver was rude to several passengers during my journey - sullenly refusing to give clear information to someone making a perfectly reasonable enquiry, shouting rudely at passengers, refusing to let passengers on the bus after having slammed the doors in their faces. Her behaviour during my entire journey was appalling. She needs some extensive training in correct customer service, and a severe reprimand for today's behaviour. plus in a later email I added I should add that this driver also refused to stop at the Percy Street stop in Tottenham Court Road, even though people at the bus stop were signalling for her to stop, and to make matters worse she waved at them in a mocking manner. For this action she deserves the severest reprimand, and if it were up to me, I would sack her. Please pass this information onto the bus company.			Thank you for your email on 27th June 2013, regarding the 10 bus drivers behaviour on the day concerned, please accept apologies for any distress this matter may have caused you. The safety of our passengers and other road users is of paramount importance to us and it is essential that London's bus drivers promote a positive image of London Buses, as well as operating their bus safely and competently. We expect the highest standards from all our drivers and do not accept anything less than exceptional customer service and such as you witnessed on the day concerned is not tolerated. I have passed the details to London United who is the bus operating company that runs the route for us, so that appropriate action can be taken against the driver to ensure this does not happen again. We work hard to maintain high levels of service and we believe that the vast majority of London bus drivers do an excellent job. Passenger feedback is extremely valuable, both good and bad and I am grateful to you for bringing this to our attention. Thank you for taking the time to contact us. Please contact us again if you need any further assistance or if you would prefer to call us about this matter, please use our cheaper number 0343 222 1234.
7 Jul 2013 101246573G					Dear Mr Dennis, Thank you for your reply, and I am very glad to hear of the replacement of vehicles on the 319 route. I am, however, astonished that you feel that all the buses on your fleet 'meet the legal requirements for accessibility ramps'. The Equality Act 2010, Part 12, Chapter 2, Paragraph 174 states that: (1) The Secretary of State may make regulations (in this Chapter referred to as "PSV accessibility regulations") for securing that it is possible for disabled persons— (a) to get on to and off regulated public service vehicles in safety and without unreasonable difficulty (and, in the case of disabled persons in wheelchairs, to do so while remaining in their wheelchairs), and (b) to travel in such vehicles in safety and reasonable comfort. There have been several occasions where I have NOT been able to get on and off a bus in a wheelchair, using the wheelchair ramp provided. "In safety and without unreasonable difficulty". Because of the shortness and steepness of ramps on certain buses (not all buses), I have been tipped backwards dangerously when trying to board the bus, and I have met an insurmountable obstacle at the metal 'lip' which joins the ramp to the bus; and on leaving the bus, the ramp has been so steep that I have several times fallen forwards out of my wheelchair (which does not constitute "remaining in [my] wheelchair" in (a) above). I am lucky not to have sustained serious injury - others have, as TfL is well aware, though reluctant to admit. The generally recommended safe gradient for all wheelchair ramps is 1:12. The wheelchair ramps on the buses I am complaining about are much much steeper than this. I will be contacting the London Assembly about this matter. TfL and the bus companies are not, in my view, fully complying with the Equality Act 2010 and this is a serious matter not only of equality but also of danger and potentially serious injury. Regards,

Appendix 9: Interview excerpt (uncoded)

Interview with Marie - first ten pages. Interview starts with interviewee question. Speaker changes when there is a time stamp.

You can tell me about anything that you'd like: barriers, what you do when you are faced with a barrier, and how you believe you can go about changing the system and improving it. So, go ahead! #0:0:30.8#

I've lived in London for over 20 years now, and I've only been in the chair for seven, so I've seen it improve a lot but obviously there's still a way to go. So the general day-to-day barriers are the kind of things that people don't think about. You can't just decide you want to go out somewhere and that's it, you walk out your front door and then see how it goes. You've got to plan everything, you've got to make sure that the route's accessible, and you've got things like, if you're getting on the bus, that's the easiest way to get around, but then you've got to make sure that you know where your connections are. You've got to make sure that you can get the driver's attention somehow so that he knows that you need to get on the bus, and then when you want to get off the bus because everyone uses the wheelchair bell, so if you just rely on the bell, chances are he's not going to put out the ramp for you, so you've got to actually vocalise the fact that you need to get off as well. Ramps don't always work, they are supposed to but if a ramp breaks down while the bus is on route, then it can stay on route until, it's called the curtail point, it's the safest point on the route where the bus company can actually send out a replacement bus and they can transfer the passengers and the driver onto the replacement bus and then take the defective one out of service. So it could be… if we're here, obviously, great because we're in the station. But if you're in Manor Park, this is the safest place; if you're three stops down the road then Bow is the safest place, so you can still be going quite a way with a defective ramp where you can't actually pick anybody up. The opposite problem is if you're already on the bus and that breaks, how do you get off? If you're someone like Tanni Grey-Thompson, you can throw yourself out your wheelchair and throw yourself off, great. If you're not, then you have to wait for an engineer to come and get you off the bus, and that can be a long wait. It has been known for it to be an hour and a half, two hours, depends on how busy they are, because there are eight different bus companies in London and each company is responsible for its own buses. So you might see three or four engineering vans go by, but if they're not the engineering vans for that particular company, they won't stop and help. So that's kind of an issue that might be worth TfL thinking about; maybe having a centralised engineering service rather than rely on each company to look after their own system, and then they could station engineers more evenly across the system.

Obviously, you've heard about the problems with wheelchairs v buggies on that space. That's not the only problem that you'll actually find. You'll find that you've got people standing in the space who don't necessarily want to move, or you've got people who've got luggage in the space who don't want to move, or you've got older people who've got their shopping trolley in the space. That's always very problematic. And then, if you're moving on to wanting to get onto the train, you go on the TfL website, you find out that it's wheelchair accessible from platform to street, and then you get there and find out that the lift's not working or, if it's late at night, because there's not staff on the station, they've locked the lifts up so you can't get home. Or it's not actually accessible; it says it's accessible but it's not, because when you get there there's a step that they've forgotten about or something. Or, if they say that it's accessible right onto the train, then can't you get across the gap because there's a set width for the gap limits that they're allowed, but they don't always match it with your wheels. And when you try to take yourself backwards to get out of the gap, then obviously yours wheels don't stay straight, your wheels will spin. So if you have misjudged it and you can't get over the gap, you've got to put your front wheels down and you're not necessarily on the train or you're too far over the platform, so you're heading for the gap in between.

I never travel alone, I always have someone with me just to help mitigate some of those problems, 'cause then I've got an extra pair of eyes and an extra pair of arms so that if I do need lifting up and down gaps and things like that, there's someone who can do that for me, so I'm not relying on strangers to do that kind of stuff. We've got the general bad behaviour, or overly inquisitive is probably another way. People thinking they can ask you all sorts of inappropriate questions that they wouldn't dare ask a normal person. People are thinking that you're an extra seat, or an extra handrail, so I've quite often had people instead of holding onto the rails on the bus or the train or whatever, using my wheelchair as their handrail and holding onto my wheelchair. And what they don't realise is that if I'm looking this way and I don't know, first thing I know about it is when I feel a weight on the back or they get jolted and they're trapped, they're tipping me backwards. So it's not the most comfortable. But it is better than a lot of other cities. I've got friends who live in other areas of the UK, and they get one or two buses a week that are wheelchair accessible on their network. They have to ring ahead and tell the bus company that they want to travel and what time they're going to be at the bus stop, and if they're not at the

bus stop at the time, then they've missed the bus 'cause the bus company have had to put on a bus on that route especially to pick them up. #0:6:9.1#

Can you tell me a bit what's an average trip like? #0:6:14.0#

Ok, well, I live about four miles that way, and so I have to come into work once a week and I go shopping and try and do as much as the normal stuff as you can. An average trip into work is two buses: I've got to get a bus into Stratford and then I've got to change from Stratford and head out to Spitalfields Market which is where the garage is based. So you get to the bus stop, you're sat there and there's two buses that run on the route from where I live into Stratford, so you're sat there and then… The buses are about every five minutes and you see a bus coming, you put your arm out and the driver does one of three things. He either stops and looks and then plays the automated announcement that says the wheelchair bay is needed or he shakes his head and makes some kind of gesture with his fingers to say, "No, can't get on, I've got buggies onboard." Or they'll just completely drive past you, and you've got a shelter, so shelters tend to have their back to the road, he will park with his rear doors in front of the shelter, so people who are walking can get on and off the bus, but if you've got a pushchair, a wheelchair, anything like that, you haven't got enough room to get up to the shelter. Presuming I've been able to get on the bus: get on the bus, everybody else gets on, when you get to Stratford, then you've got to be able to get off the bus, so press the bell, shout down to tell the driver that you want to get off, hoping to God that he's heard you, and then that depends on how busy the bus is and how much noise people are making. If it's three o'clock in the afternoon and you've got a bus full of kids, it's almost impossible that you're going to get heard, so I try not to travel during rush-hour. And then you've got to hope that they do the correct boarding/disembarking process, and they actually let everybody else out the bus and then let me off the bus before they open the doors to let people on, otherwise you've got this weird bottleneck where people are trying to walk up to the seats as I'm trying to back out to be able to get to the doors, and he's had to close the doors to put the ramp out, so you've got people thinking they're helping, and they're banging on the bells and shouting down. It just makes it all very complicated but also it doesn't feel nice. It feels like you're the centre of attention and everybody's looking at you, and you're the one that's causing the problem when really there doesn't need to be a problem. And one of the things that I do with the bus

company I work with is training the drivers around this kind of issue and try to hammer home why doing things correctly is so important. Yes, it may take an extra few seconds, but it's not about the time it takes, it's about the costumer experience and how the costumer feels. At the moment, it's about 50/50. I work in a bus company, it's not always right for me so what does the average person who doesn't realise what the process and procedures are is thinking about it? It's frustrating, it's annoying. Even now, I still get nervous at the thought of the fact that I've got to go out and so I don't plan anything unless I've got at least 24-hours notice to actually try and work the route and psych myself up; make sure I know exactly where I'm going, exactly where my changeover points are and all that kind of stuff. And then once you need to change onto another bus, you've got to do it all again, and if have to get on a Tube you have to do it all again. It makes travelling very stressful. Means that you can't just get a phone call saying, "Hey, we're going out at five o'clock this evening, wanna come with us?" 'Cause you just haven't got enough time to plan, there's no time to prepare. Five o'clock's the middle of rush-hour, wouldn't be able to get on a bus anyway, so there'd be absolutely no point. Where I live, this is the nearest accessible Tube station although there's one in East Ham which is four miles in another direction. The nearest train stations to me, neither of them are accessible. One of them, they're planning on making accessible as part of the Crossrail system, but that was only after a five-year fight, it wasn't going to be accessible because the two on either side of it were going to be accessible so they said there was no need. #0:10:57.5#

How does it feel when you hear somebody say that there's no need? #0:11:2.5#

Worthless. And it's not just me, because yes, wheelchair users need to use the lift, but also somebody who's got a broken leg, mothers with prams, people with heavy luggage, musicians who've got heavy equipment who are going to concerts and there are so many people that need to use those facilities, but the fact that everybody knows that they've been put in place for wheelchair users puts that special kind of focus on you, and you become the poster-person for it, I suppose is a way of putting it. And people just want to live normal lives, they just want to be seen as people, not as disabilities. So when the focus is on the disability and the focus is on you having to fight for the same access that somebody else could take, now how would somebody feel if they had blonde hair and one day somebody decided that stations, say, "Sorry, blonde people aren't allowed

in anymore. We've stopped that, you don't have access." They wouldn't stand for it, yet it's perfectly acceptable to say to wheelchair users, "No, sorry, costs us too much money, can't be bothered, you're not worth our time and attention." #0:12:19.7#

So one of the things that I'm very interested in is tactics. What happens when things go wrong? #0:12:27.0#

All you can do is complain. You can complain on the station at the time and there's not really much point 'cause there's nothing they can do about it. You can complain to the bus driver at the time, and there's nothing they can do about it apart from call the garage and say that there's a person there waiting. So you complain to TfL and TfL's complaint system isn't great. You get an email back saying, "Thank you for your contact. It'll take us about 10 days to look into this." And they never contact you back and tell you what's happening. So next time you complain, you get the same generic email, and then the next time you get the same generic email, and then the next time you go, what's the point in complaining? It's not worth the hassle, and so again, it puts you off wanting to travel. It isolates you even more because your world is getting smaller, and smaller, and smaller, all the time, you're looking for more and more things that you can do as close to home as possible so that you don't have to travel as far, or you don't have to make the transfer, or you don't have to use the transport system at all. And then you end up being very isolated. The community that I live in is a special section of the street that's been set aside specifically for elderly and disabled people and I'm one of the youngest people that lives there. I'm in my 30s, my closest neighbour in age to me is in her 60s. So if I wasn't able to travel, I wouldn't have any friends my own age that I could actually have face-to-face conversations with, and I would be completely locked in at home, isolated, with just the laptop and the people that I've met online. And that's great as far as it goes, but you need that face-to-face social interaction, you can't stay indoors with the same four walls all the time, or it stops being a home and starts becoming a prison. #0:14:27.6#

You were talking about "a fight". Can you tell me more about that? #0:14:33.4#

It's that as soon as you wake up in the morning when you know that you need to go out, it's that fight within yourself, do I really want to do this? Is

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there anyway I can get out of it? Is it worth it, or should I ring up and cancel? And then when you get to a bus stop, I had an instance once where I got to the bus stop a couple of seconds behind a lady with a pushchair and when the bus came, there was room for us both to get onboard, but obviously the priority is that the wheelchairs get on first and she was being really nasty and aggressive about the fact that the driver was letting me onboard the bus even though she got to the bus stop first, even though there's enough room for the both of us to actually get into the wheelchair bay. You have the same if you're getting on the Tube; even though you've got the dedicated bay, there is no priority boarding on the Tube, it's every man for himself, so you're trying to line yourself up so you can get through the door so you've got people stepping over you when you've got bums in your face, or if they're coming off, you've got other bits in the face, you've got elbows in your eyes. And literally, the tiniest gap and they will try and squeeze in so that they get in ahead of you. And then you've got to try and position yourself in the allocated spaces, and if they won't move you can't get into those spaces so then you're stuck in front of the doors because there's nowhere else to go so you're causing hazards. With the Overground system, there's exactly the same problem. Very few of the trains have got a dedicated wheelchair space, so if you can get onboard one, then you're stuck in front of the doors. Sometimes it feels like people are literally going to knock you off because they're coming that close to you, they're filing past that quickly that you just don't feel safe.

And then you've got the fight for accessibility. So 20 years ago, there were no wheelchair bays on buses. It's only because disabled people wanted to be able to have that right to travel and so they took militant direct action. They would literally go out there and chain themselves to buses and refuse to let the buses move. They would chain themselves in rows across the roads and stop the entire traffic and eventually TfL backed down and put priority wheelchair bays on buses. But they never actually legislated that those are priority bays and the way that the contracts with the bus companies run is that we all have to provide a first come, first served service and when somebody has already paid for their fare, we have to transport them from A to B, we can't ask them to get off the bus at any point along their route. So it makes it very difficult for bus companies to be able to enforce the wheelchair priority spaces unless we get some sort of change in legislation that gives us that priority, and whether it's going to be a case of something similar to Network Rail where if people don't move we can physically move them off the bus there and then or whether it's more

along the fare-dodging system where if people don't move, they're handed a fine. But then you've got to have people on every single bus, every single minute that buses are in operation to be able to hand out that fine, so that would be taking us backwards towards a conductor system, so we'd need to have two members of staff on the bus all the time, otherwise it would be pointless because there's no point in fining someone unless you see them refusing to give up that space at that time, it's no good a wheelchair user complaining because how are you going to find that passenger three or four, five, ten days later when you finally get the complaint through with TfL? #0:18:21.0#

You also mentioned the fight for Crossrail, can you expand on that? #0:18:26.0#

All the stations that are on the centre of the route were always going to be fully accessible, and they would have lifts or escalators, but the seven stations at either end weren't going to be made accessible. It was felt that they were older stations, Victorian stations where they would just renew the station and it would be too expensive. Or, what they were going to do is, they were going to bunny-hop, so you'd have an accessible station, an inaccessible station, an accessible station, and it was felt that the people who lived in that inaccessible station, well, they can just travel to one of the accessible ones, what's the problem? But the problem is, if you're banking on the fact that, yeah, you're all getting an accessible stations so now you can start looking further afield for a job, or you can start looking further afield at university opportunities, or you can get to hospital appointments earlier in the day, you're not so reliant on Patient Transport because they're cutting back on Patient Transport eligibilities at the moment, you still need to be able to travel at rush-hour, and if you're waiting an hour to get on a bus at rush-hour because it's packed all the time to be able to get to an accessible station, you're not going to want to travel at rush-hour. So it's not actually increasing your opportunities at all, if anything it's still keeping you trapped and diminished. So I teamed up with an organisation called Transport for All which is a charity that campaigns on behalf of disabled and older passengers within London to actually help to improve the travel system in general, so they work with the buses, they work with Patient Transport, they work with the trains, they work with taxis as well, and actually campaigned for about three years in total to get the stations that TfL weren't going to make accessible, accessible. And that was things like having demos outside the stations, so loudspeakers, banners, explaining

to people why we were there, giving out leaflets, going on the radio, going on TV, and just trying to make people aware that, yes, we want the system, but you can use it as well so why wouldn't you support it? You know, who wants to be carrying a pushchair up four flights of stairs if you can have a lift or an escalator that can take it up for you? And we eventually won that, the press release came out last year that yes, all the stations were going to be made accessible, but everything seems to be a fight. You win one thing, and something else happens and so you have to start all over again. There's no… It would be easier if everything was designed for wheelchair users and then everybody can use them, but people don't think like that. They think, well, if I can use it, that's fine, and you'll find a lot of the things that have been put in place for wheelchairs, they go to the letter of the DDA, that's not a problem, but when you actually try to use it, in practice, it doesn't quite work. So we'll have wheelchair accessible toilets, great if you're in a wheelchair, but a person who has to wear a nappy and you need a changing table to be able to put the person on to be able to change their nappy, you need a shower because you need to be able to clean them up, you can't just leave the dirt engrained wherever they are. So wheelchair accessible toilets are DDA-compliant but they don't help about a fifth of the disabled population. They still don't have any accessible toilets that they can use, or they go into the wheelchair toilet and they have to put a blanket down on the floor and lift the person out of the wheelchair onto the floor, change them on the floor. Can you imagine telling a mother with a baby that she has to put her baby on the floor to change their nappy? She'd go mad, but as soon as you take that baby out of the pushchair and turn it into an adult in a wheelchair, it's fine. It's degrading, but it's the way it is. #0:22:40.5#

Why do you thing that happens, this perhaps disconnect between legislation and practice? #0:22:50.8#

Because they don't bother asking disabled people what they need. They go to think-tanks and they go to lawyers, and they go, quite frankly, they go to able-bodied people. The people that they are asking don't have to deal with these problems and so the solutions are piecemeal solutions. They're not practical, applicable solutions. So, yeah. That's basically the problem. Once you ask disabled people what they need, as they did when they were designing the HS1 carriages, they got a focus group with disabled people and they built a wooden mock-up of the carriages and said, right, there you are, there's your wheelchair, there's your scooter, go and manoeuvre

around the carriage as you would need to if you were going to use the train. And they made a note of where things got broke and where people bumped into things, and then they redesigned the carriage around it so that it flowed properly. For all intents and purposes, from what I've heard, they're perfectly designed now and they're absolutely brilliant to get on. But it took somebody having the foresight to actually go to a group of disabled people and say, can we do this? Rather than just saying we're going to put wheelchair accessible carriages on the train and then finding out when you're trying to get there that they're not… the doors aren't wide enough, you haven't put a wide enough turning circle, or there's nowhere to actually plug your chair to be able to charge it while you're travelling, things like that. #0:24:43.2#

As I was interviewing engineers and policymakers, which aren't numerous so far, but one suggestion that I had was that the issue when it comes to designing for accessibility is that people have not standardised the wheelchair and therefore this was one of the problems for designing. What would your reaction be to hearing that? #0:25:7.5#

It's true. There are no standardised wheelchairs: wheelchairs are not a car, they're not a one-size-fits-all. They are bespoke mobility equipment that are designed to aid a disabled person. So at the moment, I'm in a bog-standard wheelchair, it doesn't do what I need it to do. My company are having to buy me an electric wheelchair because this is rigid, folds up in half like this, but when I'm sat in it, I can't recline the back when my back muscles start to give out, I can't lift the legs when I get pain in my calves and I need to lay down. The wheelchair I'm getting will lay me down completely flat, but the NHS won't provide it, they won't fund it for me. They say this is good enough. It's a chair, it's got wheels, it gets me from A to B, what more to I need? The NHS designs functionality, it doesn't design practicality. If you're wanting disabled people to actually be able to go out to work, to go out to study, to be able to engage with the community, then the equipment they have needs to fit their disability, it needs to meet their needs to be able to do that. And so the transport system needs to fit those requirements as well. So saying that you can't standardise a wheelchair is like saying that anyone who's 7-foot tall shouldn't be allowed to get on the bus because we only built ceiling heights at 5-foot. Why? Why do we only build ceiling heights that high? Why can't we widen doorways, why can't we heighten doorways? It's just somebody who is using that as an excuse not to have to spend the money to do their job properly. #0:26:57.7#

The other things that I've come across in other interviews particularly with wheelchair users when it comes to tactics when things go wrong, is actually using themselves and their wheelchairs to stop doors from closing and things like that. Have you ever done that yourself or come across that kind of situation? #0:27:16.5#

No. I've come across it, but it's not something that I feel safe doing, partly because of my condition. It can cause me quite serious injuries. Partly because I'm not that kind of direct action person, it isn't in me to do that kind of thing. But yeah, I have heard of people and I do know people who do that and it's quite desperate, in my opinion, it's a losing battle. You're then turning everyone's anger and aggression on you because if you're stopping a bus from moving, you've got 50 people who are taking their kids to school, or they're going to work, or they've got hospital appointments themselves, and everything that you're trying to do with your life you're preventing them from doing. It's not their fault you can't get on the bus. Yes, it's the fault of the person who won't move out of the way, but if they're not going to move, they're not going to move and making yourself a problem isn't going to help to resolve the situation. Working for the bus company, we tell our drivers in that situation that you call the police and you get the wheelchair user removed from… because they are the one that are disturbing the public disturbance at that point. So what's the point of ending up with a criminal record because you couldn't get on the bus if the driver's done everything in their power that they could do and it's the person who is in the bay that is refusing to move, what's the point? It's not fair on anyone else, it's going to cause yourself bigger problems in the long-term and you're not solving anything. It's the same with trains and Tubes, bus doors are a lot more sensitive than train and Tube doors and bus doors will notice that there's a blockage and will spring back automatically; train and Tube doors don't necessarily do that so you end up getting trapped and dragged along the platform or thrown out when you're going through a corner or something. Is your life really worth that? #0:29:21.3#

And can you tell me a bit about your work with the bus industry? #0:29:27.6#

Yeah. I work for one particular bus company out of the eight that TfL sub-contract to and my job title is Disability Coordinator, which is quite a broad-

Appendix 10: Interview excerpt (coded)

Interview with Marie - first ten pages. Interview starts with interviewee question. Speaker changes when there is a time stamp.

Personal attitude+brave+courageous+bloodyminded

Economic reasoning

Negative emotions

Importance of Accessibility

Physical infrastructure

Social activism

Buggy vs wheelchair

Waiting

Spontaneity

Wheelchair Skills Training

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You can tell me about anything that you'd like: barriers, what you do when you are faced with a barrier, and how you believe you can go about changing the system and improving it. So, go ahead! #0:0:30.8#

I've lived in London for over 20 years now, and I've only been in the chair for seven, so I've seen it improve a lot but obviously there's still a way to go. So the general day-to-day barriers are the kind of things that people don't think about. You can't just decide you want to go out somewhere and that's it, you walk out your front door and then see how it goes. You've got to plan everything, you've got to make sure that the route's accessible, and you've got things like, if you're getting on the bus, that's the easiest way to get around, but then you've got to make sure that you know where your connections are. You've got to make sure that you can get the driver's attention somehow so that he knows that you need to get on the bus, and then when you want to get off the bus because everyone uses the wheelchair bell, so if you just rely on the bell, chances are he's not going to put out the ramp for you, so you've got to actually vocalise the fact that you need to get off as well. Ramps don't always work, they are supposed to but if a ramp breaks down while the bus is on route, then it can stay on route until, it's called the curtail point, it's the safest point on the route where the bus company can actually send out a replacement bus and they can transfer the passengers and the driver onto the replacement bus and then take the defective one out of service. So it could be… if we're here, obviously, great because we're in the station. But if you're in Manor Park, this is the safest place; if you're three stops down the road then Bow is the safest place, so you can still be going quite a way with a defective ramp where you can't actually pick anybody up. The opposite problem is if you're already on the bus and that breaks, how do you get off? If you're someone like Tanni Grey-Thompson, you can throw yourself out your wheelchair and throw yourself off, great. If you're not, then you have to wait for an engineer to come and get you off the bus, and that can be a long wait. It has been known for it to be an hour and a half, two hours, depends on how busy they are, because there are eight different bus companies in London and each company is responsible for its own buses. So you might see three or four engineering vans go by, but if they're not the engineering vans for that particular company, they won't stop and help. So that's kind of an issue that might be worth TfL thinking about; maybe having a centralised engineering service rather than rely on each company to look after their own system, and then they could station engineers more evenly across the system.

Obviously, you've heard about the problems with wheelchairs v buggies on that space. That's not the only problem that you'll actually find. You'll find that you've got people standing in the space who don't necessarily want to move, or you've got people who've got luggage in the space who don't want to move, or you've got older people who've got their shopping trolley in the space. That's always very problematic. And then, if you're moving on to wanting to get onto the train, you go on the TfL website, you find out that it's wheelchair accessible from platform to street, and then you get there

and find out that the lift's not working or, if it's late at night, because there's not staff on the station, they've locked the lifts up so you can't get home. Or it's not actually accessible; it says it's accessible but it's not, because when you get there there's a step that they've forgotten about or something. Or, if they say that it's accessible right onto the train, then can't you get across the gap because there's a set width for the gap limits that they're allowed, but they don't always match it with your wheels. And when you try to take yourself backwards to get out of the gap, then obviously yours wheels don't stay straight, your wheels will spin. So if you have misjudged it and you can't get over the gap, you've got to put your front wheels down and you're not necessarily on the train or you're too far over the platform, so you're heading for the gap in between.

I never travel alone, I always have someone with me just to help mitigate some of those problems, 'cause then I've got an extra pair of eyes and an extra pair of arms so that if I do need lifting up and down gaps and things like that, there's someone who can do that for me, so I'm not relying on strangers to do that kind of stuff. We've got the general bad behaviour, or overly inquisitive is probably another way. People thinking they can ask you all sorts of inappropriate questions that they wouldn't dare ask a normal person. People are thinking that you're an extra seat, or an extra handrail, so I've quite often had people instead of holding onto the rails on the bus or the train or whatever, using my wheelchair as their handrail and holding onto my wheelchair. And what they don't realise is that if I'm looking this way and I don't know, first thing I know about it is when I feel a weight on the back or they get jolted and they're trapped, they're tipping me backwards. So it's not the most comfortable. But it is better than a lot of other cities. I've got friends who live in other areas of the UK, and they get one or two buses a week that are wheelchair accessible on their network. They have to ring ahead and tell the bus company that they want to travel and what time they're going to be at the bus stop, and if they're not at the bus stop at the time, then they've missed the bus 'cause the bus company have had to put on a bus on that route especially to pick them up.

#0:6:9.1#

Can you tell me a bit what's an average trip like? #0:6:14.0#

Ok, well, I live about four miles that way, and so I have to come into work once a week and I go shopping and try and do as much as the normal stuff as you can. An average trip into work is two buses: I've got to get a bus into Stratford and then I've got to change from Stratford and head out to Spitalfields Market which is where the garage is based. So you get to the bus stop, you're sat there and there's two buses that run on the route from where I live into Stratford, so you're sat there and then... The buses are about every five minutes and you see a bus coming, you put your arm out and the driver does one of three things. He either stops and looks and then plays the automated announcement that says the wheelchair bay is needed or he shakes his head and makes some kind of gesture with his fingers to say, "No, can't get on, I've got buggies onboard." Or they'll just

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completely drive past you, and you've got a shelter, so shelters tend to have their back to the road, he will park with his rear doors in front of the shelter, so people who are walking can get on and off the bus, but if you've got a pushchair, a wheelchair, anything like that, you haven't got enough room to get up to the shelter. Presuming I've been able to get on the bus: get on the bus, everybody else gets on, when you get to Stratford, then you've got to be able to get off the bus, so press the bell, shout down to tell the driver that you want to get off, hoping to God that he's heard you, and then that depends on how busy the bus is and how much noise people are making. If it's three o'clock in the afternoon and you've got a bus full of kids, it's almost impossible that you're going to get heard, so I try not to travel during rush-hour. And then you've got to hope that they do the correct boarding/disembarking process, and they actually let everybody else out the bus and then let me off the bus before they open the doors to let people on, otherwise you've got this weird bottleneck where people are trying to walk up to the seats as I'm trying to back out to be able to get to the doors, and he's had to close the doors to put the ramp out, so you've got people thinking they're helping, and they're banging on the bells and shouting down. It just makes it all very complicated but also it doesn't feel nice. It feels like you're the centre of attention and everybody's looking at you, and you're the one that's causing the problem when really there doesn't need to be a problem. And one of the things that I do with the bus company I work with is training the drivers around this kind of issue and try to hammer home why doing things correctly is so important. Yes, it may take an extra few seconds, but it's not about the time it takes, it's about the costumer experience and how the costumer feels. At the moment, it's about 50/50. I work in a bus company, it's not always right for me so what does the average person who doesn't realise what the process and procedures are is thinking about it? It's frustrating, it's annoying. Even now, I still get nervous at the thought of the fact that I've got to go out and so I don't plan anything unless I've got at least 24-hours notice to actually try and work the route and psych myself up; make sure I know exactly where I'm going, exactly where my changeover points are and all that kind of stuff. And then once you need to change onto another bus, you've got to do it all again, and if have to get on a Tube you have to do it all again. It makes travelling very stressful. Means that you can't just get a phone call saying, "Hey, we're going out at five o'clock this evening, wanna come with us?" 'Cause you just haven't got enough time to plan, there's no time to prepare. Five o'clock's the middle of rush-hour, wouldn't be able to get on a bus anyway, so there'd be absolutely no point. Where I live, this is the nearest accessible Tube station although there's one in East Ham which is four miles in another direction. The nearest train stations to me, neither of them are accessible. One of them, they're planning on making accessible as part of the Crossrail system, but that was only after a five-year fight, it wasn't going to be accessible because the two on either side of it were going to be accessible so they said there was no need. #0:10:57.5#

How does it feel when you hear somebody say that there's no need? #0:11:2.5#

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Worthless. And it's not just me, because yes, wheelchair users need to use the lift, but also somebody who's got a broken leg, mothers with prams, people with heavy luggage, musicians who've got heavy equipment who are going to concerts and there are so many people that need to use those facilities, but the fact that everybody knows that they've been put in place for wheelchair users puts that special kind of focus on you, and you become the poster-person for it, I suppose is a way of putting it. And people just want to live normal lives, they just want to be seen as people, not as disabilities. So when the focus is on the disability and the focus is on you having to fight for the same access that somebody else could take, now how would somebody feel if they had blonde hair and one day somebody decided that stations, say, "Sorry, blonde people aren't allowed in anymore. We've stopped that, you don't have access." They wouldn't stand for it, yet it's perfectly acceptable to say to wheelchair users, "No, sorry, costs us too much money, can't be bothered, you're not worth our time and attention." #0:12:19.7#

So one of the things that I'm very interested in is tactics. What happens when things go wrong? #0:12:27.0#

All you can do is complain. You can complain on the station at the time and there's not really much point 'cause there's nothing they can do about it. You can complain to the bus driver at the time, and there's nothing they can do about it apart from call the garage and say that there's a person there waiting. So you complain to TfL and TfL's complaint system isn't great. You get an email back saying, "Thank you for your contact. It'll take us about 10 days to look into this." And they never contact you back and tell you what's happening. So next time you complain, you get the same generic email, and then the next time you go, what's the point in complaining? It's not worth the hassle, and so again, it puts you off wanting to travel. It isolates you even more because your world is getting smaller, and smaller, and smaller, all the time, you're looking for more and more things that you can do as close to home as possible so that you don't have to travel as far, or you don't have to make the transfer, or you don't have to use the transport system at all. And then you end up being very isolated. The community that I live in is a special section of the street that's been set aside specifically for elderly and disabled people and I'm one of the youngest people that lives there. I'm in my 30s, my closest neighbour in age to me is in her 60s. So if I wasn't able to travel, I wouldn't have any friends my own age that I could actually have face-to-face conversations with, and I would be completely locked in at home, isolated, with just the laptop and the people that I've met online. And that's great as far as it goes, but you need that face-to-face social interaction, you can't stay indoors with the same four walls all the time, or it stops being a home and starts becoming a prison. #0:14:27.6#

You were talking about "a fight". Can you tell me more about that?

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#0:14:33.4#

It's that as soon as you wake up in the morning when you know that you need to go out, it's that fight within yourself, do I really want to do this? Is there anyway I can get out of it? Is it worth it, or should I ring up and cancel? And then when you get to a bus stop, I had an instance once where I got to the bus stop a couple of seconds behind a lady with a pushchair and when the bus came, there was room for us both to get onboard, but obviously the priority is that the wheelchairs get on first and she was being really nasty and aggressive about the fact that the driver was letting me onboard the bus even though she got to the bus stop first, even though there's enough room for the both of us to actually get into the wheelchair bay. You have the same if you're getting on the Tube; even though you've got the dedicated bay, there is no priority boarding on the Tube, it's every man for himself, so you're trying to line yourself up so you can get through the door so you've got people stepping over you when you've got bums in your face, or if they're coming off, you've got other bits in the face, you've got elbows in your eyes. And literally, the tiniest gap and they will try and squeeze in so that they get in ahead of you. And then you've got to try and position yourself in the allocated spaces, and if they won't move you can't get into those spaces so then you're stuck in front of the doors because there's nowhere else to go so you're causing hazards. With the Overground system, there's exactly the same problem. Very few of the trains have got a dedicated wheelchair space, so if you can get onboard one, then you're stuck in front of the doors. Sometimes it feels like people are literally going to knock you off because they're coming that close to you, they're filing past that quickly that you just don't feel safe.
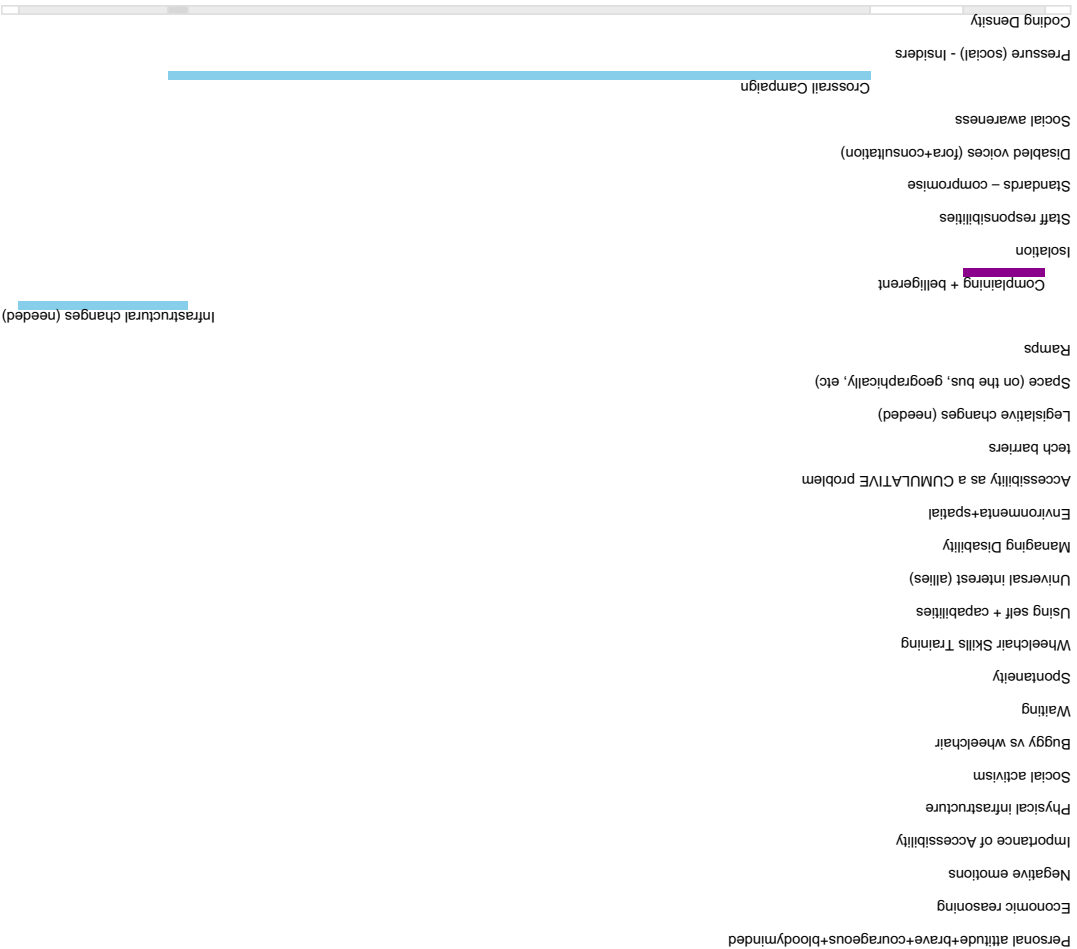
And then you've got the fight for accessibility. So 20 years ago, there were no wheelchair bays on buses. It's only because disabled people wanted to be able to have that right to travel and so they took militant direct action. They would literally go out there and chain themselves to buses and refuse to let the buses move. They would chain themselves in rows across the roads and stop the entire traffic and eventually TfL backed down and put priority wheelchair bays on buses. But they never actually legislated that those are priority bays and the way that the contracts with the bus companies run is that we all have to provide a first come, first served service and when somebody has already paid for their fare, we have to transport them from A to B, we can't ask them to get off the bus at any point along their route. So it makes it very difficult for bus companies to be able to enforce the wheelchair priority spaces unless we get some sort of change in legislation that gives us that priority, and whether it's going to be a case of something similar to Network Rail where if people don't move we can physically move them off the bus there and then or whether it's more along the fare-dodging system where if people don't move, they're handed a fine. But then you've got to have people on every single bus, every single minute that buses are in operation to be able to hand out that fine, so that would be taking us backwards towards a conductor system, so we'd need to have two members of staff on the bus all the time, otherwise it would be

pointless because there's no point in fining someone unless you see them refusing to give up that space at that time, it's no good a wheelchair user complaining because how are you going to find that passenger three or four, five, ten days later when you finally get the complaint through with TfL? #0:18:21.0#

You also mentioned the fight for Crossrail, can you expand on that? #0:18:26.0#

All the stations that are on the centre of the route were always going to be fully accessible, and they would have lifts or escalators, but the seven stations at either end weren't going to be made accessible. It was felt that they were older stations, Victorian stations where they would just renew the station and it would be too expensive. Or, what they were going to do is, they were going to bunny-hop, so you'd have an accessible station, an inaccessible station, an accessible station, and it was felt that the people who lived in that inaccessible station, well, they can just travel to one of the accessible ones, what's the problem? But the problem is, if you're banking on the fact that, yeah, you're all getting an accessible station so now you can start looking further afield for a job, or you can start looking further afield at university opportunities, or you can get to hospital appointments earlier in the day, you're not so reliant on Patient Transport because they're cutting back on Patient Transport eligibilities at the moment, you still need to be able to travel at rush-hour, and if you're waiting an hour to get on a bus at rush-hour because it's packed all the time to be able to get to an accessible station, you're not going to want to travel at rush-hour. So it's not actually increasing your opportunities at all, if anything it's still keeping you trapped and diminished. So I teamed up with an organisation called Transport for All which is a charity that campaigns on behalf of disabled and older passengers within London to actually help to improve the travel system in general, so they work with the buses, they work with Patient Transport, they work with the trains, they work with taxis as well, and actually campaigned for about three years in total to get the stations that TfL weren't going to make accessible, accessible. And that was things like having demos outside the stations, so loudspeakers, banners, explaining to people why we were there, giving out leaflets, going on the radio, going on TV, and just trying to make people aware that, yes, we want the system, but you can use it as well so why wouldn't you support it? You know, who wants to be carrying a pushchair up four flights of stairs if you can have a lift or an escalator that can take it up for you? And we eventually won that, the press release came out last year that yes, all the stations were going to be made accessible, but everything seems to be a fight. You win one thing, and something else happens and so you have to start all over again. There's no…. It would be easier if everything was designed for wheelchair users and then everybody can use them, but people don't think like that. They think, well, if I can use it, that's fine, and you'll find a lot of the things that have been put in place for wheelchairs, they go to the letter of the DDA, that's not a problem, but when you actually try to use it, in practice, it doesn't quite work. So we'll have wheelchair accessible toilets, great if

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you're in a wheelchair, but a person who has to wear a nappy and you need a changing table to be able to put the person on to be able to change their nappy, you need a shower because you need to be able to clean them up, you can't just leave the dirt engrained wherever they are. So wheelchair accessible toilets are DDA-compliant but they don't help about a fifth of the disabled population. They still don't have any accessible toilets that they can use, or they go into the wheelchair toilet and they have to put a blanket down on the floor and lift the person out of the wheelchair onto the floor, change them on the floor. Can you imagine telling a mother with a baby that she has to put her baby on the floor to change their nappy? She'd go mad, but as soon as you take that baby out of the pushchair and turn it into an adult in a wheelchair, it's fine. It's degrading, but it's the way it is. #0:22:40.5#

Why do you thing that happens, this perhaps disconnect between legislation and practice? #0:22:50.8#

Because they don't bother asking disabled people what they need. They go to think-tanks and they go to lawyers, and they go, quite frankly, they go to able-bodied people. The people that they are asking don't have to deal with these problems and so the solutions are piecemeal solutions. They're not practical, applicable solutions. So, yeah. That's basically the problem. Once you ask disabled people what they need, as they did when they were designing the HS1 carriages, they got a focus group with disabled people and they built a wooden mock-up of the carriages and said, right, there you are, there's your wheelchair, there's your scooter, go and manoeuvre around the carriage as you would need to if you were going to use the train. And they made a note of where things got broke and where people bumped into things, and then they redesigned the carriage around it so that it flowed properly. For all intents and purposes, from what I've heard, they're perfectly designed now and they're absolutely brilliant to get on. But it took somebody having the foresight to actually go to a group of disabled people and say, can we do this? Rather than just saying we're going to put wheelchair accessible carriages on the train and then finding out when you're trying to get there that they're not... the doors aren't wide enough, you haven't put a wide enough turning circle, or there's nowhere to actually plug your chair to be able to charge it while you're travelling, things like that. #0:24:43.2#

As I was interviewing engineers and policymakers, which aren't numerous so far, but one suggestion that I had was that the issue when it comes to designing for accessibility is that people have not standardised the wheelchair and therefore this was one of the problems for designing. What would your reaction be to hearing that? #0:25:7.5#

It's true. There are no standardised wheelchairs: wheelchairs are not a car, they're not a one-size-fits-all. They are bespoke mobility equipment that are designed to aid a disabled person. So at the moment, I'm in a bog-standard wheelchair, it doesn't do what I need it to do. My company are

having to buy me an electric wheelchair because this is rigid, folds up in half like this, but when I'm sat in it, I can't recline the back when my back muscles start to give out, I can't lift the legs when I get pain in my calves and I need to lay down. The wheelchair I'm getting will lay me down completely flat, but the NHS won't provide it, they won't fund it for me. They say this is good enough. It's a chair, it's got wheels, it gets me from A to B, what more to I need? The NHS designs functionality, it doesn't design practicality. If you're wanting disabled people to actually be able to go out to work, to go out to study, to be able to engage with the community, then the equipment they have needs to fit their disability, it needs to meet their needs to be able to do that. And so the transport system needs to fit those requirements as well. So saying that you can't standardise a wheelchair is like saying that anyone who's 7-foot tall shouldn't be allowed to get on the bus because we only built ceiling heights at 5-foot. Why? Why do we only build ceiling heights that high? Why can't we widen doorways, why can't we heighten doorways? It's just somebody who is using that as an excuse not to have to spend the money to do their job properly. #0:26:57.7#

The other things that I've come across in other interviews particularly with wheelchair users when it comes to tactics when things go wrong, is actually using themselves and their wheelchairs to stop doors from closing and things like that. Have you ever done that yourself or come across that kind of situation? #0:27:16.5#

No. I've come across it, but it's not something that I feel safe doing, partly because of my condition. It can cause me quite serious injuries. Partly because I'm not that kind of direct action person, it isn't in me to do that kind of thing. But yeah, I have heard of people and I do know people who do that and it's quite desperate, in my opinion, it's a losing battle. You're then turning everyone's anger and aggression on you because if you're stopping a bus from moving, you've got 50 people who are taking their kids to school, or they're going to work, or they've got hospital appointments themselves, and everything that you're trying to do with your life you're preventing them from doing. It's not their fault you can't get on the bus. Yes, it's the fault of the person who won't move out of the way, but if they're not going to move, they're not going to move and making yourself a problem isn't going to help to resolve the situation. Working for the bus company, we tell our drivers in that situation that you call the police and you get the wheelchair user removed from… because they are the one that are disturbing the public disturbance at that point. So what's the point of ending up with a criminal record because you couldn't get on the bus if the driver's done everything in their power that they could do and it's the person who is in the bay that is refusing to move, what's the point? It's not fair on anyone else, it's going to cause yourself bigger problems in the long-term and you're not solving anything. It's the same with trains and Tubes., bus doors are a lot more sensitive than train and Tube doors and automatically; train and Tube doors don't necessarily do that so you end up getting trapped and dragged along the platform or thrown out when you're

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going through a corner or something. Is your life really worth that?
#0:29:21.3#

And can you tell me a bit about your work with the bus industry?
#0:29:27.6#

Yeah. I work for one particular bus company out of the eight that TfL sub-contract to and my job title is Disability Coordinator, which is quite a broad-ranging thing. So I work internally with the staff to actually improve their understanding of what it's like to be a disabled costumer, so I run physical training sessions where we have wheelchairs and crutches and things and we put them in a wheelchair and get them to go up and down the ramp to find out what it's like, using crutches walking up and down a training bus, so the bus is in motion but there's nobody else on it apart from the training staff. They have to walk up and down the bus while the bus is in motion, again, we get them to close their eyes to simulate being blind, again, the same thing, to just show what those extra few seconds at the stop mean for the person who's disabled, rather than closing the door and heading straight off. To get them to understand why correct practices have to be adhered to and followed precisely. I also liaise with people who want to make a complaint, or people who want to comment and compliment our drivers, to actually chaperone them when they're coming into the garages. I've been through all the various departments and looked at the policies and procedures, and see where they needed changing to reflect the needs of disabled costumers. So things like working with the iBus staff, telling them why it's so important that they listen to the drivers if the drivers say, yes, I'm running late because of X, Y, Z, rather than just saying, "Oh no, you're not allowed to run late, you've got to..." So it may take three seconds to board ten standing passengers, but it takes five seconds just to get the ramp out for the wheelchairs, so it takes about ten seconds to load a wheelchair passenger. It's no good harassing the driver for being late if he's only been allocated six seconds at a stop and there's a wheelchair user there. He needs the time it takes to safely load that passenger. I also go out to disabled organisations and charities and try to tell them what we're doing to try and train our bus drivers better and to try and improve the situation, and what qualities they should be looking for and expecting to receive from our drivers. Unfortunately, it's not standardised across the whole of the network, but the hope is that if we can get our company working properly, then other companies will see that and want to follow forward, or TfL will see that and will want to take our best practices forward and say that the other companies have got to implement them as well. I actually started out as a passenger who had a really bad experience and it was one of the few times that I have actually complained. TfL fobbed me off, and I wasn't happy with it so I asked Transport for All to help me out and they suggested that we go directly to the garage. So I went to the garage and told the staff at the garage what had happened, and they obviously saw something in me because they invited me back and asked me to speak to a group of drivers, and then they invited me back again, and again, and after about 6 months they said, "You keep doing this for us,

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we feel really bad you coming in and giving your time for free so how would you like to work for us?" And so they've actually created the job for me and turned a negative experience into something really positive. #0:33:3.8#

How long ago was this? #0:33:6.2#

I complained in March last year and I actually started working for them on the 1st of September last year, so relatively recently. #0:33:20.3#

Have you felt some progression? #0:33:22.7#

There has been . Within me as well as within the company. I find that because I know what the drivers go through now, I'm a little bit more forgiving than a regular wheelchair passenger. Whether that's a good thing or not, I'm not sure. But once you look at one of the buses at the company that I work for against some of the drivers from other companies, you can see a difference starting to come through. The company that I work for, we have three garages but at the moment, because of my wheelchair, I've only been able to work in one garage. And all the structural and support and operation staff have noticed a difference between the garage that I work in and the other two garages. So that's one of the reasons why they're funding the wheelchair for me, so that I can start going over to the other two garages, maybe see the same kind of improvements and changes over there . But in the garage that I work in, we've seen a 70% reduction in the complaints that come through from disabled passengers. #0:34:23.4#

Amazing. #0:34:24.5#

We've seen a 50% reduction in inter-staff complaints so drivers complaining about iBus staff saying that they feel rushed or harassed when they are running late or they're having to take extra time to board somebody. Drivers saying that they feel more comfortable and confident to actually board a wheelchair whereas in the past they would have to think twice about whether they had enough time or whether they were just going to say no and carry on, and leave it to the next person to deal with. So there have been some big improvements in-house but you don't necessarily see them on the road. As we always say to our drivers, you might be the fifth bus driver that I've seen that day that I'm having issues with, but for the bus driver, I might be the first wheelchair he's seen in three or four weeks. So it's difficult for him to always remember what the correct practice is and what he's supposed to do and how he's supposed to do it if he's not doing it all the time. We're a little bit more forgiving within the company in that sense, as long as he's doing most of it right, that's good enough although we have, instead of the training program that I do, we are pursuing it once a year so every driver and every structural support staff member, so every engineer, every iBus controller, has to go through my training program once a year just to remind them and refresh them on what

Appendix 11: Table of participants

<u>Table keys</u>:

- Gender:

  ∗ Male (M)

  ∗ Female (F)

  ∗ Other (O)

- Age brackets (when interviewed):

  ∗ 18-30

  ∗ 31-45

  ∗ 46-60

  ∗ 60+

- Employment status:

  ∗ Full-time (FT)

  ∗ Part-time (PT)

  ∗ Student (S)

  ∗ Retired (R)

  ∗ Out-of-work (OW)

  ∗ Other (filled out)

  ∗ Not given (N/A)

- Wheelchair used (at time of interview):

  ∗ Electric-powered (E)

  ∗ Manual (M)

  ∗ Power-assisted (PW)

  ∗ Both (B - if known that interviewee has both)

  ∗ Not known (N/K - in cases where interview was done over Skype, for example)

  ∗ Not applicable (N/A - not a wheelchair user)

- Impairment:

  ∗ Note that impairments and diagnoses were not officially discussed in interviews and are only disclosed here if openly given by interviewee during conversation.

  ∗ Not discussed (N/D) – this option is put down for non-wheelchair users interviewed as well, as other impairments may have been disclosed.

Pseudonym	Gender	Age bracket	Employment status	Wheelchair used (if applicable or known)	Impairment(s) (if disclosed)	Other notes
'former government official'	M	31-45	FT	N/A	N/D	
Adam	M	46-60	Self-employed	PW	N/D	
Aimee	F	31-45	Self-employed	M	N/D	"I've been in a chair since I was seven."
Alan	M	46-60	Self-employed	E	N/D	Has a personal assistant.
Alan2	F	31-45	FT	N/A	N/D	Works at a transport provider.
Alanni	F	18-30	N/A	M	"My condition affects all of my joints".	Recent wheelchair user, was propelled by partner.
Alex Lyons	M	18-30	FT	M	Cerebral palsy	"Wheelchair user from a young age", can walk short distances.
Alice	F	46-60	FT	E	N/D	Has a personal assistant.
Andrew	F	31-45	FT	N/A	N/D	Works at a transport provider.
Ann	F	46-60	FT	N/A	N/D	Transport consultant.
Anton	M	46-60	R	PW	Multiple sclerosis	

Name	Gender	Age	Employment		Impairment / Condition	Notes
Basil	M	31-45	Self-employed	M	Unable to be put in cast.	
Carl	M	18-30	N/A	M	N/D	
Char Aznable	M	18-30	FT	M	Ehlers-Danlos syndrome	Had been using a wheelchair for just over a year at time of interview.
Chiara	O	18-30	N/A	M	Ehlers-Danlos syndrome	Recent wheelchair user at time of interview (less than six months).
D	M	31-45	FT	M	"I am a person who just happens to have a physical impairment."	Works at a transport provider.
Diana	F	18-30	Student	E	N/D	
Faith	F	31-45	FT	M	N/D	
Jo90	F	46-60	R	E	N/D	
Joker	M	31-45	OW	N/A	Chronic obstructive pulmonary disease, asthma, bronchiectasis.	Leda's partner.
Kate	F	31-45	FT	N/A	N/D	Basil's partner.
Kerstin	F	31-45	N/A	N/K	N/D	"I'm a wheelchair user since I'm a child".
Leda	F	31-45	OW	M	Spinal cancer	
Lianna	F	18-30	PT	N/A	N/D	Was campaign organiser at Transport for All at time of interview.
Linda	F	60+	N/A	E	N/D	

Name	Sex	Age	Employment	Code	Condition	Notes
Marie	F	31-45	PT	M	Condition affects joints (dislocation), muscles ("internal core structure").	Manual wheelchair at time of first interview, had acquired electric wheelchair by second interview. Works at a transport provider.
Marie Claire	F	31-45	OW	E	N/D	
Michael J.	M	31-45	Volunteer	B	N/D	"I've obviously been in a wheelchair most of my life."
Peter	M	46-60	FT	M	Acquired impairment (accident).	Has a personal assistant; self-propels on smooth surfaces
Peter2	M	46-60	FT	N/A	N/D	Transport engineer.
Robert	M	31-45	FT	M	Acquired impairment (accident).	Works at a transport provider.
Sal	F	60+	FT	B	N/D	Had been using a wheelchair for three years at time of interview; ambulatory disabled for five years before that.
Sophie	F	46-60	FT	M	Spinal cord tumour as a child.	
Um Hayaa	F	31-45	PT	E	Muscular dystrophy	

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