



School of Construction Management and Engineering

**Inclusive Design Policy Implementation: An Organizational
Knowledge Creation Perspective**

By

Tangi Rebekka Amakali

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Declaration

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

Tangi Rebekka Amakali

Abstract

The built environment plays an important role in ensuring inclusive access, making a provision for the wider population, especially disabled people, in accessing goods, work, education, facilities, services, health and housing. There are currently 11 million registered disabled people in the UK and the number is expected to rise in the coming years. The majority of this population faces challenges within the built environment due to physical barriers, some of which can be eliminated during the design stages. The DDA 1995, now part of the Equality Act 2010, was brought in by the UK Government to eradicate these barriers and led to Planning Policy Statement 1 in 2005 (also known as PPS1, which replaced by the National Planning Policy Framework in 2012) and Building Regulation Part M 1987, 2000, 2004 and 2010. All of these are designed to minimise disability discrimination by calling for reasonable provision for inclusive access within the built environment. Yet the literature review for this thesis suggests that designs that are not inclusively designed are still being granted permission. Furthermore, the literature review highlights: the limited understanding of inclusive design policy implementation amongst policy actors; the lack of clear policy documents, and; the weak influence of policy in decision-making. This research aims to examine how policy actors gain an understanding of the inclusive design policy implementation process necessary to assess the accessibility of the designs. To understand the research aim an Organizational Knowledge Creation Theory was introduced. In addition, a qualitative methods approach is adopted. The qualitative component involved semi-structured face-to-face interviews with thirteen policy actors from four selected case studies which are Local Authorities, underpinned by an analysis of the inclusive design policy document for each case study.

The findings highlighted three main issues: poor knowledge creation on inclusive design; lack of organizational vision of the inclusive environment, and; access officers' poor involvement in knowledge creation. This thesis makes a number of recommendations for improving the current understanding of inclusive design policy implementation amongst policy actors.

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Glossary

Accessibility - allowing disabled people to be part of the society and to fulfil their rights (Farrington and Farrington, 2005).

Applicant or developer - a house builder, or commercial client or an architect or any other client.

Adopt - means embrace but not necessary implement. As per Chambers 21st Century Dictionary.

Building control or surveyor officers - individuals based at Local Authorities implementing building regulations such as the Approved Document M.

Built environment - is a general term used when referring to man-made surroundings that include internal parts of the buildings and external parts such as pavements, parks and infrastructures.

Disabled people - people with impairment who are disabled by the society (Morris, 2001).

Disability - limited, restricted or disadvantaged in taking part in activities, caused by aspects of the society that takes little account of the needs of people with impairment (Howe, 2010).

Disability group or access group - is an independent group of people with different impairments, normally these people are found in Local Authorities operating under the umbrella of local disability action.

Disabilism - discriminatory, oppressive or abusive behaviour arising from the belief that disabled people are inferior to others (Scope, 2016)

Discrimination - unjustifiable different treatment given to different people or groups, originated from Chambers Dictionary.

Inclusive design expert or access officer - an individual with knowledge in the field of inclusive design.

Inclusive design - The design of mainstream products and/or services that are accessible to, and usable by, as many people as reasonably possible without the need for special adaptation or specialized design (BS, 2008).

Impairment - a body or mind characteristic or feature attribute within an individual which is long term (Morris, 2001; Buchel, 2006).

Oppression - to govern with injustice, originated from Chambers Dictionary.

Social model - the social model of disability is a model that is based on a wider experience of disablement rather than a personal experience of impairment, it argues that barriers in place are disabling people (Oliver, 2004).

Social injustice - people denied their rights, such as the right to education, healthcare and other services; this denial might be due to barriers in place (Farrington and Farrington, 2005).

Social inclusion - includes all members of society taking part in daily activities (Farrington and Farrington, 2005).

Social exclusion - refers to the way in which people are marginalised from society by having limited or no access to public services, education or the political processes. Such exclusion can be intentionally or unintentionally excluding individuals, social groups or entire communities from the benefits and rights that are considered normal (Bilton *et al.*, 2002).

Policy actors - is used to refer to professionals based in three different local authority departments; planning, building control and policy writing.

Policy writers - individuals in charge of writing Local Authority development policies which includes inclusive design policy, often such a policy is implemented by planners.

Planning or development control officers - are individuals based at Local Authorities in charge of planning applications/development approval.

1 Introduction

1.1 Introduction

This chapter commences with an outline of the research context whilst summarising the need for inclusive design in the built environment. Furthermore, the chapter highlights the Organizational Knowledge Creation Theory adopted in this research to gain an understanding of the inclusive design policy implementation process necessary to deliver accessible designs. In addition, the research problem is outlined and the aim of the research is introduced. The methodological approach is described to provide an overview of the philosophical position and the methods selected for data collection. Finally the thesis outline provides a brief description of each chapter.

1.2 Research context

The research focuses upon inclusive design policy implementation, and aims to contribute towards the inclusive built environment at design and planning stages, to respond to the need for inclusive access for disabled people, see Section 2.4. In 2004, 8.5 million out of 59 million people in the UK were registered as disabled; this figure has since increased to 11.9 million registered disabled people out of a population of 63.2 million in 2013 (Papworth-Trust, 2014). It is argued that whilst living longer is regarded as an achievement in the modern world, there is a strong link between disability and an ageing population (Howe, 2010). For example, the UK National Statistics (Howe, 2010) show that a large number of elderly people are classified as disabled people; there is strong evidence of a correlation between age and disability, with 43% of those over the age of 65 being DDA-disabled adults see Figure 1-1.

The disabled population is set to increase with the UK's ageing population rising (Vandenberg, 2012), and some argue that the progress in the field of medicine is a contributing factor to longer life expectancy (Crawford *et al.*, 2010). For instance, in 1993, those aged 65 comprised 16% of the population; this figure is estimated to rise to around 24% by 2050 (Vandenberg, 2012). Therefore to accommodate this growing ageing population, inclusive design provision in the built environment is essential to achieve greater inclusivity.

Making provision to accommodate disabled people in society through an inclusive built environment has a long history, dating back to the 1970s, when the Union of the Physically Impaired Against Segregation (UPIAS) explored the meaning of disability in society (UPIAS, 1976).

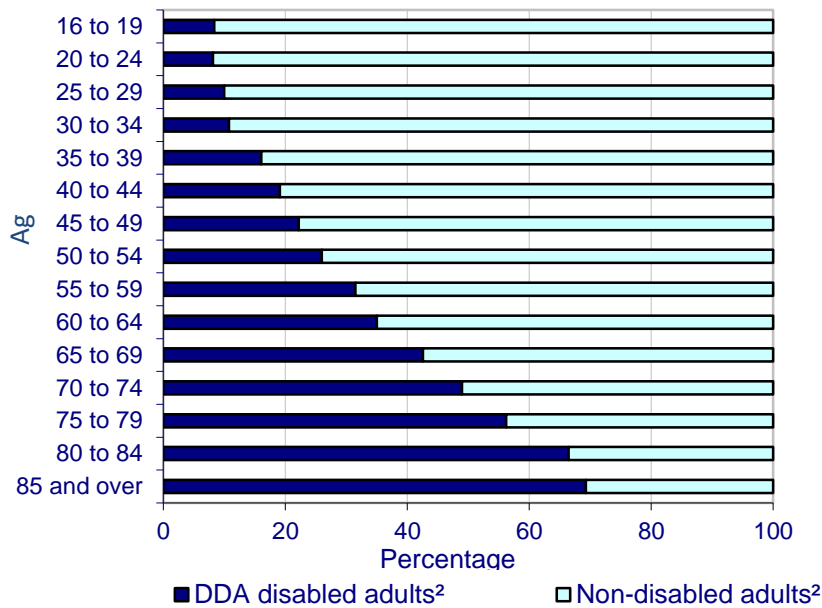


Figure 1-1 Percentage of disabled and non-disabled adults from age 16

Source: Office of National Statistics 2009/2010 (Howe, 2010: p49)

Focusing on the built environment, several scholars, including Oliver (1996) and Finkelstein (2002) insisted that society is structured with barriers that are disabling individuals preventing them from participating in society. They argue that these physical barriers should be minimised. Scholars such as Imrie (2004b) affirmed that the physical barriers experienced by disabled people is one of the key contributing factors towards the creation of a poor accessible built environment that limits movement within the society. For instance, venues and services such as hospitals, schools, housing, workplace, facilities and goods, offered in the environment that is not inclusive may exclude some disabled people.

The UK Government responded to this criticism by introducing the Disability Discrimination Act (DDA) 1995/2005 replaced by the Equality Act 2010 to tackle disability discrimination. It called for 'reasonable adjustments' to be made to allow disabled people to have access to education, healthcare, workplaces and housing. Reasonable adjustment is also required in physical structures of the built environment since October 2004, under DDA 1995/2005. Furthermore, the UK Government introduced a national policy including Planning Policy Statement 1 referred to as PPS1 in 2005, which was replaced by the National Planning Policy Framework (NPPF) in 2012. Both policies are designed for LAs to implement an accessible built environment through accessible designs, referred to as inclusive design, which is the focus of this research.

1.3 Statement of the research problem

Although the introduction of an inclusive design policy proved to be a significant step towards achieving an inclusive environment, there are buildings still being approved that are not inclusive, which present difficulties for the disabled population (Roulstone, 2004). It is believed that a significant number of barriers can be minimised at the early design stage (Thomas, 2004), hence the implementation of an inclusive design policy is important. Yet, there are still several common barriers faced by disabled people on a daily basis in the physical environment, policies and attitudes (Anaby *et al.*, 2013). According to O’Herlihy and Winters (2005) restricted access to the built environment is the greatest challenge to inequality encountered by disabled people in society. Similarly, the study conducted by Newton *et al.* (2007), in which 38 disabled people in work were interviewed, concluded that they experienced a range of barriers in the built environment, both in accessing employment and during employment. In addition, Imrie (2004a) studied disabled people’s experiences regarding the physical barriers encountered within their own homes and their surroundings due to an inaccessible built environment. Several authors have argued that the limited understanding of interconnection between disability and design amongst designers contributes to poor designs in the built environment. This results in access inequality (Imrie, 2012), particularly as these barriers are not taken into account during the design stages (Thomas, 2004). Other problems highlighted by the literature review include: the limited understanding of inclusive design policy implementation amongst LA policy actors (Scotland, 2007; Ormerod and Newton, 2005; Access, 2007); poor clarity in the relevant policy documents, and; poor decision-making in inclusive design during the design assessment. Joseph *et al.* (2008), conducted a study of senior Local Authority (LA) officials in British Columbia, Canada, and affirmed that those individuals that have an understanding of the policy and a set of clear policy documents have a strong basis for decision-making, which is a key to the policy implementation process. The research is aligned with the view that minimising the physical barriers in the built environment through inclusive design can contribute towards the promotion of inclusive access for disabled people.

1.4 Theoretical Framework

To make sense of the research problem stated in Section 1.3, above, the Organizational Knowledge Creation Theory lens is adopted. This theory argues that tacit knowledge is individualized knowledge linked to understanding; it provides the ability for individuals to take action with confidence. In addition the same theory emphasises that tacit knowledge codified into explicit knowledge can be

shared easily or transferred in the written form (Nonaka, 1994; Nonaka and Von Krogh, 2009; Erden *et al.*, 2008). Both forms of knowledge are essential to provide the research with an understanding of the knowledge creation process occurring during the implementation of inclusive design policy. Hence, the tacit and explicit knowledge obtained from the individuals' interaction and the use of policy documents allows this research to examine the understanding gained by policy actors during the implementation of the inclusive design policy. This may be accomplished by initially looking at the way policy actors share experiences, learn from others and collaborate to form a common understanding of inclusive design policy implementation requirements and followed by an assessment of the way policy documents are adopted by LAs.

According to Nonaka's theory, knowledge is created through the four modes of knowledge conversion, namely socialization, externalization, combination and internalization (also known as the SECI model). During knowledge creation, tacit and explicit knowledge continually alternate, advancing each other in the process whilst switching from one form to another, known as the knowledge conversion process, see Section 3.7.

1.5 Research aim and objectives

In order to address the problem framed in section 3.1, the research aim is determined. The aim is to understand the ways in which policy actors create knowledge of the inclusive design policy implementation process necessary to deliver accessible designs. In order to achieve the aim, the main objectives of the research were developed as follows:

- understand how the knowledge is created to improve the implementation of an inclusive design policy within LAs.
- examine the policy actors' understanding of the Local Authority's vision of inclusive environments,
- and examine the policy actors' attitudes towards knowledge creation to improve their understanding of inclusive design policy implementation during the design process

1.6 Brief description of the methodology

To achieve the research aim and objectives the research adopts a philosophical position of interpretive paradigms to provide the basis for interpreting multiple responses from policy actors (Section 4.2). In addition, two methods (interview and document analysis) are selected for complementary purposes and for interpretive paradigms. In addition interviews and document analysis methods are employed together to better understand the inclusive design policy implementation process that contains both policy documents and individual understanding and attitudes towards the policy.

1.7 The organization of the thesis

The thesis is structured into seven chapters. The first chapter introduces the thesis by outlining the research context, the theoretical framework, the methodological approach, and the thesis structure whilst underlining the research gap.

Chapter Two discusses the background of the disability movement, the meaning of disability, inclusion, planning theory and the need for integrating disabled people into the built environment through physical access provision. The chapter highlights the need for inclusive design policy implementation to contribute toward minimising disability discrimination. Poor understanding of inclusive design amongst the policy actors, the lack of clear policy documents and the weak decision-making during design assessment were highlighted as some of the contributing factors towards poor inclusive design in the built environment. Hence, the focus for this research is on examining how policy actors gain an understanding of the inclusive design policy implementation process necessary to deliver accessible designs.

In Chapter Three, Organizational Knowledge Creation Theory provides a theoretical lens, adopted to allow the researcher to further understand the problem identified in chapter 2, see Section 2.9. This includes understanding the way tacit and explicit knowledge are created during the design process. Focus is on the two (tacit and explicit) forms of knowledge creation, known to advance individual and organizational knowledge (Nonaka and Takeuchi, 1995). Four modes of knowledge creation are covered, Socialization, Externalization, Combination and Internalization (SECI), to explain knowledge conversion from tacit to explicit and vice versa as a way of creating new knowledge. Tacit knowledge

is identified as the prime source of knowledge, which enables individuals to justify their true beliefs, take action, and enhance their understanding, and leads to the creation of explicit knowledge.

Chapter Four provides a methodological approach for the research to collect suitable/relevant data to understand how policy actors gain an understanding of the inclusive design policy implementation process necessary to deliver accessible designs, through the theoretical lens of Organizational Knowledge Creation Theory. The qualitative method included the use of semi-structured interviews and document analysis focusing on case studies. In Chapter Five, the data collected using the qualitative approach (interviews and policy documents) is analysed jointly on a case-by-case basis using template analysis with codes drawn from relationships linked to the Organizational Knowledge Creation Theory.

Chapter Six, discusses the meaning and implications of the data analysed in chapter 5, using references drawn from both the literature review and the theoretical lens.

Finally, Chapter Seven concludes by providing an overview of the thesis' key arguments and generalising from the findings. Furthermore the chapter speculates on the key contributions to knowledge. In addition the limitations encountered during the course of the research and the future recommendations are highlighted.

1.8 Summary

The current chapter provides an overview of the research. It highlights a growing population of disabled people that is set to increase mainly due to the ageing population. In addition, the chapter highlights the need for inclusive design policy implementation to contribute toward the provision of an inclusive built environment by accommodating the disabled population. Gaps identified through a literature review include the poor understanding of inclusive design amongst inclusive design policy actors and the lack of clear policy documents that play a role in restricting the extent of policy implementation. With the research gap framed, the research aim and objectives were determined. Furthermore, the Organizational Knowledge Creation Theory adopted provides the research with the lens to examine how policy actors gain an understanding of the inclusive design policy implementation process necessary to deliver accessible designs. In so doing, the research adopts an interpretivist perspective, in order to gather the attitudes amongst the policy actors towards inclusive design policy implementation and an in-depth explanation of the measures adopted by LAs to advance knowledge amongst policy actors. Finally, the outline of the chapters is presented to

provide the reader with a map of the thesis. The following chapter critically reviews the literature in the field of inclusive design policy implementation to identify the problem faced by policy actors during inclusive design policy implementation.

2 Literature review

2.1 Introduction

This chapter offers a critique of the literature in the field of inclusive design and highlights the lack of research into the poor understanding of inclusive design policy implementation amongst policy actors. It begins by introducing debates about the meaning of disability and inclusion and the link to inclusive design. Furthermore, debates about planning theory, policy and implementation are evaluated. In addition, the chapter provides the background to government policies and legislation introduced over the last 70 years to address the integration of disabled people within society. The importance of the inclusive environment in society is discussed and the reasons for the focus of the current research are provided. The chapter argues that although designs are submitted for planning or building control approval to LAs in England, often prior to construction, aspects of inclusive design are sometimes overlooked (Section 2.9). The chapter concludes that, despite the introduction of an inclusive design policy and other relevant design guides, inclusive design is not sufficiently implemented due to: (i) a limited of understanding of the inclusive design policy implementation amongst policy actors; (ii) a lack of clear policy documents, and; (iii) a weak policy influence on decision-making.

2.2 Disability

Disability is defined under two main models, the individual model, also known as the medical model, and the social model. Firstly the research looks at the definition of the individual/medical model of disability then subsequently at the social model of disability is also explained. For a long time disability was described as a condition of the individual that needed medical intervention to resolve their complication and functional limitation, this is known as the individual/medical model (Oliver, 2009). Particularly before the 1980s, prior to social science academia taking an interest in disability studies, the work on disability was confined almost exclusively to the individualistic explanations linked to medicine and medical concerns (Barnes, 2014a). The individual/medical model is closely linked to the theory on normalisation (Wolfensberger and Tullman, 1982; Wolfensberger, 1975), where the onus of change is placed on disabled people; it is they who need to change to be like their non-disabled peers (to become normal). For instance, earlier work of Parsons (1951) argued that it is individuals that are faulty and in need of fixing and curing with medicine. The medical/individual approach did not address disabled people's social position. Hunt (2014), argued that under the medical model, disabled people's position in the society is described as challenging in five main forms "*unfortunate, useless, different, oppresses and sick*" (: p3)

In contrast to the medical model, a social model of disability was formed. Under the social model, disabled people have rejected the medical model approach, insisting that the society of which they are part of should take account of them and call for a stop to disabilism. It is the work of Vic Finklestein through the Union of Physically Impaired Against Segregation (UPIAS, 1976), that sparked the criticism of the definition of the medical model of disability which sees disability purely as a problem of the individual. The single voice of the Union states:

In our view, it is society which disables physically impaired people. Disability is something imposed on top of our impairments by the way we are unnecessarily isolated and excluded from full participation in society. Disabled people are therefore an oppressed group in society. To understand this it is necessary to grasp the distinction between the physical impairment and the social situation, called 'disability', of people with such impairment. Thus we define impairment as lacking part of or all of a limb, or having a defective limb, organ or mechanism of the body; and disability as 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. Physical disability is therefore a particular form of social oppression (: p20).

The above approach takes an interest in the organisation of the society, it is referred to as a social model of disability, (Oliver, 2009). Social model of disability is a phrase adopted by Oliver (1983), a reflection of the growing demand by disabled people for policy and practices that focus on the ways the physical and cultural environment imposes limitations on disabled people. The social model of disability disagreed with the definition of disability which focuses on impairments (individual/medical model), while overlooking issues that cause social exclusion of disabled people. Oliver went a step further to argue that “Disability is wholly and exclusively social” (Oliver, 1996: p41). Similarly, Finkelstein, the prominent figure in the social model, calls for disability studies to distance themselves from focusing on impairments as this was viewed as hazardous to medical professionals, deflecting attention away from crucial issues of minimising disabling social barriers (Finkelstein and Stuart, 1996). However, some writers disagreed with the social model of disability. For instance, Hughes (2014) recognised the significance of the embodiment difference within the disability movement grounded in the different experiences of impairment which showed that the identification of disability is a vast area. Further rejection of the social model of disability’ definition of disability, especially those disagreeing with Oliver’s stand that described disability as wholly and exclusively social, argue as follows:

“there is a tendency within the social model of disability to deny the experience of our own bodies, insisting that our physical differences and restrictions are entirely socially created. While environmental barriers and social attitudes are a crucial part of our experience of disability-and do indeed disable us – to suggest that this is all there is, is to deny the person experience of physical and intellectual restrictions, of illness, of the fear of dying” (Morris, 1991: p10).

“As individuals, most of us simply cannot pretend with any conviction that our impairments are irrelevant because they influence so much of our lives. External disabling barriers may create social and economic disadvantage but our subjective experience of our bodies is also an integral part of our everyday reality. What we need is to find a way to integrate impairment into our whole experience and sense of ourselves for the sake of our own physical and emotional well-being, and, subsequently, for our individual and collective capacity to work against disability” (Crow, 1996: p5).

Oliver (2009) responded to the above critics, especially Morris who referred to disability as an illness, stating that medicalising disability has a tendency to suggest there is something wrong with disabled people, therefore they are the source of the problem. Illness and disability should not be confused. Illness is caused by disease and disability is caused by the way society is organized.

“Most illnesses are treatable and even curable by medical interventions; most impairments are not curable; and all disability can be eradicated by changes to the way we organize the society.

...we spent too much money and time searching for non-existent cures and not enough removing disabling barriers from the world in which we live” (Oliver, 2009: p44).

The social model focuses on a definition of disability removed from individuals with impairments to disabled people’s experience of environmental and social barriers that inhibit their active participation in the economic, political and cultural development of their communities. The social model helps to pinpoint the social disadvantage and exclusion faced by people with impairment in areas such as employment, housing, education, civil rights, transportation and negotiation of the built environment. For instance in the built environment the social model of disability argues that accessible buildings make a positive contribution towards social inclusion, a disability researcher wrote:

“We are disabled by buildings that are not designed to admit us, and this in turn leads to a whole range of further disablements regarding our education, our chances of gaining employment, our social lives, and so on. The disablement lies in the construction of society, not in the physical condition of the individual” (Brisenden, 1986: p5).

Other criticism of the social model’s inadequacy as a social theory of disability came from Corker and French (1999). Oliver (2009), responded to this criticism by saying:

“It seems ridiculous to criticise the social model for not being something that it has never claimed to be” (: p49).

Oliver (2009) claims that the social model is a practical tool designed to help in areas such as Local Authorities to deliver an inclusive service for disabled people. However, Oliver has growing concerns that many organizations who have signed up for the social model lack the implementation guide and that there is no substantial body of experience on how to do it. In addition, this thesis points out that the work of Oliver (2009) concentrates more on empowerment of disabled people, leaving a grey area on issues that could create value and knowledge of inclusion, within the general public and professionals to get behind the idea of the social model and to implement social inclusion positively.

It is also worth noting that there appears to be different views amongst disability scholars, especially in the work of Shakespeare and Watson (2001) who deserted their original position in Shakespeare and Watson (1997), where they defended the social model of disability. Shakespeare and Watson (2001) criticised both the medical model and the social model, arguing that the medical model is narrow focusing only on medical intervention while most impairments are not curable. On the other hand, they distance themselves from the social model highlighting its inadequacy thus failing to address the individuals’ impairments. They view impairments and social oppression as related, therefore both need addressing in disability studies. Shakespeare and Watson (2001) argue that they are not just disabled by the society but they are also people with impairments. They gave an example of someone who has a pain-related impairment who may not be able to work even if social barriers are removed. Shakespeare and Watson’s (2001) work indicates that there is confusion between impairment, pain and social barriers. They seem to miss the main point highlighted in the original work of Oliver (1996) that explained the social model is not about personal experience of impairment but is about collective experience of disabling society (social barriers). Here the author suggests that pain/illness and impairment need to be addressed separately and possibly with different theories. This thesis agrees with Oliver (1996) and Corker and French (1999), that the social model is not a theory and that the hunt for a social theory of disability should continue with

increased speed. In addition, this thesis agrees with the work of Oliver (2009) that the social model is the best practical model available at the moment, endorsed by disability activists and academics. Its aim is to minimise oppressive structures seen as keeping disabled people out of society. Despite Oliver's claims that the social model is a practical tool, it failed to adequately address the practicality of policy implementation, particularly in the built environment (Section 2.9).

While the argument for the social model (Oliver, 1996 & 2009) or medical model (Parsons, 1951) or a mixture of both social and medical model (Crow, 1996; Morris, 1991; Shakespeare and Watson, 2001), or the need for an urgent social theory of disability (Sheldon, 2014) are continuing amongst the disability academia and activists, the social model remains a starting point for many disability studies in Britain (Garland, 2005). This thesis holds a similar position to Oliver (2009) and his followers by endorsing the social model, which attempts to shift attention away from individuals towards the organization of societies to achieve inclusion. There is an indication that the confusion and disagreement surrounding the definitions of disability might have an impact on the way disability is understood by many professionals especially by those in planning departments, as later argued in this chapter. Thus the focus of this thesis is on the way professionals (policy actors) are advancing their understanding of inclusive design policy implementation in their mission to achieve social inclusion despite not having a unified definition of disability.

2.3 Inclusion and exclusion

According to Boardman (2010a), the word exclusion is referred to as the dynamic process of being shut out from any of the social, economic, political and cultural systems which determine the social integration of a person in the society. Social exclusion originates from the literature on poverty, hardship and destitution. It is a terminology often used to refer to the extent to which individuals are unable to participate in key areas of the economic, social and cultural life of society, due to constraints rather than choice being the main driver of the exclusion (Boardman, 2010a). Social exclusion covers a range of areas including disadvantage or discrimination on grounds of age, ethnicity, gender or disability; lack of employment; lack of education and so on (Boardman, 2010a).

Inclusion is the responsibility of a society that needs to change to create a setting where individuals are accommodated and valued despite their differences. It is argued by Boardman *et al.* (2010), that British society has changed during the 20th century. Whilst the standard of living and quality of life

have improved, there are still a significant number of people who are living in poverty and are socially excluded. According to the World Bank (2013), social inclusion is defined as

- (a) *“the process of improving the terms for individuals and groups to take part in society.*
- (b) *the process of improving the ability, opportunity, and dignity of people, disadvantaged on the basis of their identity, to take part in society”.*(: p1)

The thinking behind inclusion is similar to the definition of social inclusion of disabled people. However, social inclusion addresses all types of oppression besides disability, confronting the cultural values by which different forms of oppression are experienced; racism, ageism, sexism, heterosexism and discrimination on the basis of social class. Nevertheless, disabled people should have the same rights to active citizenship as everyone else in the society (Boardman, 2010b). Oliver (2009) refers to this as the social model of disability and argues that disabled people are an oppressed group in the society.

Social inclusion of disabled people in the built environment argues in favour of identifying and addressing the removal of barriers to allow disabled people to participate in mainstream society. Therefore, both inclusion and the social model of disability address the removal of barriers to permit inclusion and involvement of all members in their communities through active citizenship, this includes the built environment. In addition, the work of Hahn (1988) argues that disability should be situated in the wider structural and external environment such as the built environment, because disability is a result of social conditioning of the disabling environment; it is not a personal defect. Therefore, the current work focuses on the design stages of the built environment, as these stages make an enormous contribution to social inclusivity of the built environment. Hence, understanding the way policy actors create knowledge of inclusive design policy can contribute towards achieving social inclusion for disabled people.

2.4 Inclusive design and Universal design

Inclusive design is also known as universal design or design for all. The notion of broad inclusive design is that designs consider all the people to the greatest extent possible. Similarly, universal design is defined as

“the products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised” (Mace, 1988: p1).

The term 'universal design' is less commonly used amongst British disability activists and academic writers compared to other countries, in particular the USA. Nevertheless, both universal design and inclusive design subscribe to the common aim of achieving social inclusion, particularly for disabled people. The focus is on designs also referred to as 'design for all' and sometimes inclusive design and universal design terminologies are used interchangeably (Abascal and Nicolle, 2005; Imrie, 2014). Barnes's (2011) work that look at design for all, concluded that:

"the physical and cultural environment is a key element in the disablement process, therefore addressing these issues is important" (: p70).

In addition, feminist disability philosopher Wendell (1996) argues for a

"universal recognition that all structures have to be built and all activities have to be organized for the widest practical range of human abilities" (: p55).

Since the built environment is designed by humans, understanding disability and the importance of design for all need to be jointly addressed (Barnes, 2011). It is around these themes that the concept of inclusive design focuses. Nevertheless, inclusive design lacks a theoretical framework, in a similar way to universal design (Imrie, 2014), leaving practitioners undirected on implementation. The work of Inger (2014) indicates the division within universal design strategies, by contrasting the rehabilitation professions and disabled people who provide the knowledge of impairments as an aspect of human diversity. Planning professionals provide knowledge of architectural and spatial planning, often based on considerations of access for able-bodied people being the accepted norm, which often results in poor access for disabled people. She suggested that the division may lead to communication difficulties. In addition, Hemingway's (2014) research examined opportunities and barriers within housing for disabled people. She argued that housing practitioners and policy makers can benefit from understanding disabling practices and perceptions. In doing so they should consider accessibility not just for houses but also the local environment and the neighbourhood to avoid confinement. The argument above shows that disabling barriers are not yet understood by many; this criticism is not new. For example, in the built environment, there have been growing concerns for many years about the limited attention given to access issues during development assessment by Local Authority officers (Imrie and Wells, 1993). Likewise, this thesis acknowledges the importance of highlighting the physical environment barriers faced by disabled people amongst planning professionals to achieve inclusive environment (Brown *et al.*, 2014). Thus leading to this investigation into current knowledge creation of inclusive design policy implementation amongst planning actors in charge of scrutinising accessibility of designs of the built environment is necessary.

2.5 Historical background to government legislation in the field of disability

Drake (1999) argues that, prior to the Second World War, the government was silent about the issues facing disabled people. However, after the Second World War many veterans returned to the UK wounded, which prompted the Government to draft the Disabled Persons (Employment) Act, 1944. This Act was introduced to allow disabled veterans, and also non-veteran (ordinary) disabled people, to participate within the labour market (DPEA, 1944). Due to a high number of injured veterans, the Government proposed that the way forward was to provide jobs in order to minimize the use of the state's resources and the responsibility to look after disabled people. The purpose of the Disabled Persons (Employment) Act 1944 was to integrate disabled people into the labour market. This was done by introducing training and resettlement programmes to make employers with more than twenty employees employ a registered disabled person and to establish sheltered workshops (Borsary, 2005). This approach alone could not integrate disabled people and the built environment barriers remained one of the challenges faced by disabled people wanting to participate in employment (Roulstone, 2004).

In 1970, Alf Morris MP introduced the Chronically Sick and Disabled People Act (CSDP Act) (Act, 1970). The CSDP Act called for LAs to ensure the provision of local services to disabled people and to consider their needs in the design of the built environment (Act, 1970). Accessibility in residential dwellings was introduced in 1974 as a United Nations' recommendation for European countries to provide adaptable houses with suitable access for disabled people (Stewart, 2004). Currently, the main responsibility for assessing building designs to ensure inclusive design aspects are incorporated in planning applications, still lies with LAs, although not exclusively.

Although the Disabled Persons (Employment) Act 1944, CSDP Act 1970 and United Nations housing recommendation in 1974 failed to improve disabled people's lives as intended (Oliver and Barnes, 1998), they paved the way for the establishment of the Disability Discrimination Act 1995 (DDA) (Pearson and Watson, 2007). The introduction of the DDA 1995 came after a series of actions throughout the 1980s, including gatherings of disabled people to discuss their integration into society and participation with equal rights with the rest of society (Driedger, 1989). Subsequently, Imrie and Wells (1993) emphasized that physical barriers in the built environment play an important role in disability discrimination. There was a delay in the introduction of the DDA 1995 which was due to the political challenges between the 1980s and the early 1990s. The introduction of the disability discrimination legislation was challenged by the Conservative Government (Pearson and

Watson, 2007). This challenge was based on a number of assumptions including: (i) a lack of evidence that discrimination against disabled people existed; (ii) the cost of its implementation was too high, and; (iii) the proposed law would be unworkable (Doyle, 1996). Nevertheless, following the study conducted by the UK Council of Disabled People (Barnes, 2000), which exposed the existence of widespread disability discrimination, the pressure to develop anti-discrimination legislation was mounting and the DDA 1995 was eventually enacted.

2.6 Disability Discrimination Act - DDA 1995 (amended in 2005)

The introduction of the DDA 1995 was a further improvement in tackling disability discrimination as it insisted on disabled people's rights to fair treatment in employment, education and customer services. However, to exercise these rights, individuals are expected to prove that they meet the legal definition of disability, outlined in DDA 1995, through medical evidence. The DDA 1995 is based on civil rights. It is designed to minimise disability discrimination, including in the built environment, thus improving equal rights. However, these equal rights can only be enforced by individuals who can prove they are discriminated against when accessing services. Therefore, the DDA 1995 can only deal retrospectively with access issues arising out of the barriers met by individuals after a development/building has come into use. The DDA 1995 is not classed as legal law (not enforced by the Government), so the Government does not have a duty to initiate prosecution for disability discrimination cases (Hurst, 2004). For instance, a disabled person who is unable to enter a restaurant due to physical barriers reserves the right to individually challenge the service provider directly for being discriminated against. This approach was criticised as it concentrated on an individual's impairment, rather than the removal of physical barriers that could disadvantage all disabled people (Woodham and Corby, 2003; Pearson and Watson, 2007; Hurst, 2004), as supported through the concept of inclusive design (Section 2.4). Arguably, this is the reason why there were only a total of 95 disability discrimination cases dealt with by the Disability Commissioners in England between 2007 and 2009 (a figure provided by the Equality and Human Rights Office in 2010), despite widespread concerns with access to buildings offering services (Anaby *et al.*, 2013; Thomas, 2004).

In 2000, in response to the DDA 1995, the UK Government introduced the Building Regulation an Approval Document M (Part M), which was reviewed once in 2004 (ODPM, 2004) and again in 2015 (ODPM, 2015). Part M was introduced in England and Wales to assist developers, designers and building control officers to ensure that reasonable provision of access to and use of buildings is

considered. Nevertheless, the overall responsibility for reasonable provision of inclusive access to services, goods, facilities, education and employment for disabled people remains with service providers/employers, as stated in the DDA 1995. However, reasonableness is very open to interpretation, and, at times, business owners find it difficult to know how far they should go in achieving reasonable access for their premises (Roulstone and Prideaux, 2009). Yet there is *“little or no knowledge of impairments”* amongst many designers reflected in their designs (Imrie, 2004b: p279). In addition, Imrie (2004b) criticised the influence of the DDA 1995, mainly for its inability in challenging designers, architects and developers to produce inclusive designs. Another aspect of the Act that received criticism is the use of the medical model as the basis for the definition of disability or a disabled person. However, this definition does not address the important issues faced by disabled people, such as public transport, education and LA policies (Hurst, 2004).

After a decade of criticism of the DDA 1995, the DDA 2005 was introduced by the Disability Rights Commission (DRC) as an extension to the DDA 1995. Since 2007, the DRC has come under the Equality and Human Rights Commission (EHRC). The introduction of the DDA 2005 shifted the focus of the definition of disability from personal impairment, to the discrimination experienced. The EHRC is responsible for: promoting equal opportunities for disabled people; reviewing the achievement of both disability acts; promoting positive discrimination for disabled people (i.e. treating disabled people more favourably), and; eliminating disability discrimination in the UK. In particular, the DDA 2005 introduced the Disability Equality Duty (DED) to put a duty for promoting awareness in disability on public bodies, including LAs, to address disability discrimination under the DDA 2005.

Under the DDA 2005, planning officers are encouraged to proactively assess planning applications where services are to be provided by public bodies in order to prevent the inclusion of barriers and hence eliminate, in advance, the likelihood of disability discrimination as envisaged by the DDA 2005. Furthermore, the DRC published a guide (DRC, 2005), available on the EHRC website, which is aimed at assisting LAs to achieve inclusive design during the design stages. The guide places the duty of inclusive design implementation on those who are involved in making decisions during the design stages such as planning, building control and highway authorities, to improve accessibility in the built environment. Furthermore, the DRC guide called for the involvement of disabled people in the design stages of developments thus benefiting LAs through their personal expertise. The guide suggests that each department should identify individuals to be in charge of access aspects and for all employees to be trained in aspects of disability equality. Although the DRC (2005) guide was introduced with good intentions and certainly made a positive impact in some areas, it took on a less influential role in the built environment, especially outside of public buildings. The DRC (2005) guide

seems to fall short in a number of areas, including an enforcement mechanism, focus, accountability, empirical data, monitoring procedures, and a clear implementation strategy and policy support.

2.7 Planning Theory

According to Fainstein and DeFilippis (2015), defining planning theory remains unclear and difficult to grasp. This is because planning theory is broad, covering the role of the state, the market, civil society in social and spatial transformation. Nevertheless, philosophies, epistemologies and theories broadly associated planning theory with modernism and positivism forming a planning history of practice (Kirby, 1991; Healey, 1992). Allmendinger (2002), argues that there is theoretical fragmentation in planning, and a new orthodoxy is emerging around the idea that the core of planning, needs to engage with a range of stakeholders. In his later work, Allmendinger (2005) states, that the:

“..new insights provided by philosophers of science such as Kuhn, Hesse and Feyerabend, the positivist understandings of the universalisation of conditions of knowledge, the neutrality of observation, the givenness of experience and the independence of data from theoretical interpretation began to be questioned“ (: p5).

In Britain throughout the 1980s planning was concerned more with developing a pluralist understanding of people’s needs, values and ways of experiencing oppression (Rustin, 1985). To date, planning is heavily influenced by wider shifts in understanding and sensibility of social theory as well as the philosophy of science (Allmendinger, 2005). According to Rydin (2007), planning handles multiple areas of knowledge. Engaging with a range of stakeholders; this approach gives a voice and seeks to achieve a planning consensus, through negotiation and mediation between interests (Innes, 2004), using collaborative planning theory (Healey, 1996). Planning theory is dominated by several literatures influenced by the work of Habermas (1984) on *communicative and rationality*; Healey’s (1992) work about *planning through debate*, Forester’s (1993) work of *argumentative planning* and Healey’s (2003) work of *collaborative planning*. Healey (2003), argues that communicative planning theory aims to achieve debates and decisions on matters of collective concern. Healey’s (2003) work argues that planning theory adopts the communicative approach of Habermas to inform understanding and knowledge of conditions, cause and effect, moral values and aesthetics through exchanged experiences, cultural and moral knowledge within participants. Healey (2002) argues:

“Habermas’s communicative rationality has parallels within conceptions of practical reasoning, implying an expansion from the notion of reason as pure logic and scientific empiricism to encompass all the ways we come to understand and know things and use that knowledge in acting” (: p237).

“Knowledge for action, principles of action, and ways of acting are actively constituted by the members of an intercommunicating community situated in the particularities of time and place” (: p238).

Healey’s work on communicative theory focuses on communication and collaboration in planning to advance the knowledge of actors sharing the same space and time to inform a collective understanding. Flyvbjerg and Richardson (2002), argue that communicative planning theory can benefit from Foucault’s work on power, so planning can be done in a constructive empowering way, where individuals are empowered by knowledge. In addition, Gaventa and Cornwall (2008) situates knowledge as one of the resources of power, and argued that knowledge is power, hence more knowledgeable actors can have a greater influence. Flyvbjerg and Richardson (2002), argue that planning is dominated by Habermas’ communicative planning theory which is more theoretical and offers a less practical solution. Nevertheless, Foucault’s work on power is interpreted as an oppressive/dominating power by McNay (1994), and not used as a tool of analysis to understand power that is linked to rationality and knowledge to bring about change as viewed by Flyvbjerg and Richardson (2002). Although Flyvbjerg and Richardson (2002) criticised the communicative theory of planning for not benefiting from Foucault’s work of power, they fail to offer the practical details on how rationality and knowledge can be advanced to empower actors. This is especially indicative in areas where specific knowledge is lacking, for instance, inclusive design policy implementation within LAs. Similarly, the work of Healey on communicative and collaborative planning theory is relevant where planners have prior knowledge of a specific subject, but it does not address the practical solution in areas where the planners’ knowledge on a specific subject is minimal, which appears to be the case amongst planners implementing inclusive design policy (Healey, 2002). Yet, Campbell and Marshall (2005), who examine the planning professionals’ application of value in their daily practice, concluded that little attention is given to value and that planning theories often exclude the subject of value. *“There is a need to assert the value of knowledge within planning alongside the value of hearing diverse stakeholders”* (Rydin, 2007: p22). Richardson (2005), argues that practitioners in planning are working with a different rationality, while they have little capacity and unhelpful literature. Planning theories reviewed here demonstrate a weak link between planning theory and a planning actors’ vision, and fails to offer a mechanism through which a vision

may be created amongst planning actors and to understand what is required of them to achieve such a vision. The current thesis is seeking to understand the way inclusive design policy implementation knowledge is created amongst actors in planning departments while engaged in a mission to achieve diversity and recognize differences. In this investigation, both how the individuals' understanding and policy documents of inclusive design are used to inform a planning actor's decision are important. Therefore, Nonaka's theory of knowledge creation that endorses both explicit and tacit knowledge is later reviewed and evaluated (see Chapter 3). Rydin (2007), endorsed knowledge in planning and argued that knowledge is central to planning for specific actions to take place, therefore the planners' understanding of how such impact follows a specific planning action is important.

2.8 Policy

According to Drake (1999), policy "*may represent stated intentions, describe the principles guiding a government's work, used to denote organizational practice and may be intended to indicate the formal or claimed status of a past, present or proposed course of action*" (: p21). This suggests a wide range of purposes or intentions for introducing a policy. It is further described as "*what government chooses to do or not to do on behalf of the nation, applying law, regulation, or rulings*" (Birkland, 2005: p139). In Britain, public policy is made at a national level, manifested through Law. For instance, disability policies are formulated and implemented by the government. The government provides the foundation for each administration to create and promote policy based on their own "*understandings of disability*" (Drake, 1999: p35). Disability policies are shaped or designed by dominant groups made up of non-disabled people, these groups are subscribed to the specific norms and values (Drake, 1999). For instance, disability is still defined as being a personal impairment (DDA 1995), rather than as a result of the way the society is organised (Oliver, 2004). Arguably those who are committed to the DDA definition may be unable to formulate and implement a policy that suggests improvement in the society is the key to inclusive access.

In the field of inclusive design, the UK government promotes the accessibility of disabled people to the built environment, enforced through the Town and Country Planning Act 1990, Planning Policy Statements (ODPM, 2005) and the Building Regulations 2000 (ODPM, 2004). Prior to policy implementation, operational policy is expressed in Government circulars, i.e. DCLG Circular 01/2006 and statements, i.e. Planning Policy Statement 1 (PPS1) (ODPM, 2005). This allows regulations, design guidance and standards tied to policy objectives to be developed.

For instance, Planning Policy Statement 1 (PPS1) calls for local planning authorities to produce a spatial development strategy and local development documents to provide a framework for planning sustainable developments (ODPM, 2005). The objectives set in PPS1 (see the key points in Appendix C) highlight the need for good planning to ensure good design produces inclusive buildings, and provide a better quality of life for everyone now and in the future. The Government has called for the planning system to be transparent, open, consistent, fair, flexible and predictable, as well as involving communities in the planning processes (ODPM, 2005). Nevertheless, it remains the LA planning department's duty to serve the public and protect the environment against prohibited actions by builders and others (Underwood, 1981). The LAs act as implementation agents in charge of implementing policies, including inclusive design policy.

LAs can use some flexibility when adopting national policies, depending on their local circumstances. It is in line with the intention of the DDA 1995/2005 (now placed under the Equality Act 2010), to prohibit discrimination in public authorities when carrying out their functions and overseeing the integration of disabled people in the built environment. However, the responsibility, for implementing national, regional or local policy for inclusive design, lies mainly with the LA, especially planning officers. It also extends to other stakeholders such as highway engineers, policy writers and feeds into building control, and the work of builders, designers, developers, and building managers. For example, planning/development officers are at the centre of development assessments and, as such, have a responsibility to implement inclusive design during the planning/development application procedure. Therefore, the Government sees this as an opportunity to improve the quality of access in the built environment through the planning stage. This can only be successfully achieved if the planning actors are equipped with the relevant knowledge of an inclusive environment.

2.9 Implementation

Implementation is described as a process of negotiation (Barrett and Fudge, 1981). Healey (1992), studied the role of planning policy guides and the implementation development plans. She argues that implementation studies require exploring the ways that various principles and norms were taken up and used in the multiple interactions taking place. Examining the role of having policies expressed in a plan is important in the implementation studies (Healey, 2003). For instance, in this thesis, the role of having inclusive design policies expressed in LAs plan is valuable.

Healey (1996), argues that there is an obvious force of bottom-up policy resisting top-down policies with frustration amongst policy actors interpreting policies. Policy actors are also faced with other multiple issues ranging from the impact of global conditions on local businesses, and the local manifestation of wider social and environmental movement, making it difficult to incorporate them all. Healey (2003), noted that quality spaces and neighbourhoods were mostly neglected in public resources areas, causing social exclusion. The same work argues that the planners' concept of 'good and just' were constructed through the relationship between knowledge and power (intellectual power) influencing value and the manner of importance of embedding specific issues. Nevertheless, Healey's work failed to offer a practical solution to addressing areas where limited knowledge is experienced by policy actors. The current thesis agreed with Healey (2003), that increasing planner's ways of thinking and acting might influence their decisions. This will require explicit and tacit knowledge of inclusive environment.

Issues that undermine the implementation of inclusive design in LAs range from under resourcing, lack of training, lack of time and ignorance amongst officers about planning for disabled people (Imrie and Wells, 1993). For instance, Scotland's (2007) research on interviewed planners in three LAs concluded that individuals in planning departments have limited knowledge of disabled people's requirements in the built environment due to lack of training on inclusive design issues. Therefore, they are unable to comment on accessibility issues during development planning assessments. In addition, the poor understanding of disabling barriers in the built environment amongst actors is highlighted by Imrie (2003) and Imrie and Kumar (1998). The work of Brown *et al.* (2014), shows evidence that the barriers to inclusion experienced by disabled people are not understood by non-disabled people.

Furthermore, the study conducted by Ormerod and Newton (2005), with 961 responses to their questionnaire from design practices across the UK, concluded that designers had little understanding of disability aspects in the built environment or how the regulations and legislation support inclusive design. This could explain why disabled people experience physical barriers in the built environment (Newton *et al.*, 2007) (see Section 2.5). There is evidence from design standards and guidance which often conflict or contradict so that universal design and its purpose are poorly understood. There is a need for systemic changes to the concepts, values and practices which results in the production of poorly designed environments (Imrie, 2014). The same work criticised the universal design approach for lacking the clarity of its practicality and knowledge required for those involved in the implementation. Other criticisms come from Maynard (2014) who noted that the education programmers do not routinely include disability issues to highlight the problem. In addition, Imrie

(1998) argues that some planning professionals are from an architectural training background where art or aesthetic values take precedence. Therefore, it is hardly surprising that planners in practice have real difficulties in translating any awareness of access issues into tangible policy frameworks as pointed out by Imrie and Wells (1993). In addition, Mace's (1988) work on the definition of Universal Design criticised it for not setting a clear goal and aim to direct its implementation (Hamraie, 2013). Hence, planners do not see the promotion of inclusive design as their role, but see it as an issue that designers should address and for building control officers to enforce (Scotland, 2007). Furthermore, the Brecknock Access Group's consultation report Access (2007) concluded that there is a culture of planning officers granting permission without proper consideration of access issues within developments on the assumption that it will be dealt with later at the building control stage, under Part M of the building regulations. Although, Part M requires buildings to provide access for disabled people to dwellings, a study conducted by Imrie (2004c) concluded that the scope of building regulations is limited and many requirements are not covered.

According to O'Herlihy and Winters (2005), the ineffectiveness of Part M of the building regulations to improve access in the built environment is heavily criticized by disabled people. In addition, the same study highlighted a wide interpretation of Part M amongst building control officers. This research supports the flexibility introduced in the interpretation of the building regulations and policy documents in the field of inclusive design. However, where there is flexibility, it is necessary to minimise or prevent the misinterpretation of the policy/regulations. This is more likely to be achieved by advancing the policy actors' understanding (tacit knowledge) of the wider issues associated with inclusive environment. This research argues that, since most designs are submitted to LAs for planning or building control approvals, it is the policy actors (planners, building control and policy writers) that need to ensure that applications are inclusively designed in accordance within the inclusive design policy adopted by their LAs. This section highlights the difficulties faced by policy actors during inclusive design policy implementation, from policy understanding, lack of training, unclear guides, which results in poor developments and designs assessment. However, there is little information to help understand the current knowledge creation of inclusive design policy/implementation amongst policy actors; here is where this research parted from most of the previous work reviewed.

2.10 Research position

An invaluable empirical insight into what contributes to the poor inclusive access provision in the built environment, especially in the design process (pre-planning to detailed design stage), is well documented (Brown *et al.*, 2014; Maynard, 2014; Imrie, 2014; Scotland, 2007; Newton *et al.*, 2007; Imrie, 2003; Imrie and Wells, 1993). This literature shows that professionals in the built environment face broad challenges ranging from a lack of clear policy documents to poor understanding of what is required of them to eradicate physical or environmental barriers, and a lack of training in the process of implementing inclusive design policy.

Moreover, the lack of understanding of inclusive design by the stakeholders involved in the design stages has persisted in the built environment over the course of the past 15 years, (Ormerod and Newton, 2005; Imrie and Kumar, 1998; Imrie, 2014). This research notes that LA policy actors who assess the suitability of the development plans or detailed designs have a certain responsibility to ensure that designs are inclusively designed through the implementation of their access/inclusive policy or regulation. For example, the implementation of inclusive design policy may include policy actors rejecting or advising revisions of designs that fail to incorporate inclusive design features that eliminate physical barriers. However, for policy actors to effectively implement inclusive design policy during the design stages, this research argues that both the actor's understanding of inclusive design policy and a clear policy document are essential to direct decision-making during the implementation. The literature findings raised questions about the existing knowledge creation approach of inclusive design policy implementation amongst the relevant stakeholders in LAs. So far, there are several unanswered questions such as: How do policy actors come to get an understanding of inclusive design? What support are they getting from their LAs to improve their current understanding on inclusive design issues? What is the policy actor's input on inclusive design policy and implementation process? Therefore, the three issues that have arisen from the review (i) limited understanding of inclusive design policy amongst policy actors, (ii) lack of clear policy documents and, (iii) weak policy influence in decision-making, are chosen for further investigation to determine the processes adopted by the LAs to advance better understanding of inclusive design policy implementation.

(i) Limited understanding of inclusive design policy amongst actors

Having an understanding is explained as the ability to interpret or to form a perception about the situation experienced or information received. Knowing about something provides the basis for individuals or groups to form the perception or interpretation of information or a known situation.

For example, the policy actor's perception or interpretation of information (i.e. a policy document) they receive during inclusive design implementation may be influenced by what they understand or know. Personal (tacit) knowledge is required for the knower to take actions. Such actions are based on reasons, which are understood as a purpose or intention for taking action (Smith, 2007). Griffiths (1967) suggested that there is a connection between knowledge and understanding, which is difficult to formulate. Nevertheless, Griffiths (1967) argues that when someone has an understanding of the situation, they hold the thought that the situation is true and they are sure about it and therefore can justify a claim of knowing (Woozley, 1967). Arguably poor understanding of inclusive design policy implementation amongst policy actors is due to a lack of being sure and unable to justify the truth, raising questions of tacit knowledge amongst the actors

(ii) Lack of clear policy documents

There is an assumption that if policy statements are clearly written, the policy actor can use them to justify their actions. Policy documents need to be explicit (shown or stated clearly) and capable of being interpreted by humans (Collins, 2010). The process of implementation of the inclusive design policy depends on policy actors' interpretation and to determine its meaning in the design context. Therefore understanding explicit knowledge around disability and inclusion created within LAs will shed light on the way policy documents are developed and possibly reveal why they are described by policy actors as unclear.

(iii) Poor decision-making

Several issues that constitute the decision-making process include: mental skill, habit, reflexes and assumptions, personal values, knowledge or information they possess (Keeney and Keeney, 2009). According to Mckenzie and Van Winkelen (2004) organizations need to share relevant experiences and information recorded on past decisions to advance their current situation. Furthermore, Bartzokas *et al.* (2001) note the benefit of named and framed problems encountered during the decision-making process to allow reflection on past experiences. The decision-making process requires both tacit knowledge, acquired through sharing relevant experiences, and explicit knowledge (recorded information) as argued in the Organizational Knowledge Creation Theory (Nonaka, 1994). When one 'knows what to do', knowledge, will allow them to make decisions in a rational manner. Knowledge empowers people (Gaventa and Cornwall, 2008) to make decisions therefore, there is an interdependence between knowledge and decision-making (Manias and Street, 2001).

2.11 Summary

The background section of this chapter gave a brief discussion and critical reviews of disability, inclusion, the history of government legislation and the framework concerning the implementation of integration of disabled people into society (social and environment). Disability studies continue advancing the social model, with the aim of eradicating disabling barriers focusing on collective experiences of physical, environmental and attitudinal barriers (Oliver, 2009). The debates around inclusive design conclude that the built environment holds a central position in the fight for social inclusion of disabled people. Nevertheless, they fail to set clear policies and the mechanism for implementation. Despite the introduction of the Chronically Sick and Disabled People Act (1970) and DPEA (1944), leading to the introduction of DDA 1995 and the extension of DDA 2005, several policies, regulations and legislation were introduced by government to provide LAs with the minimum standards and the basis for inclusive design implementation within the built environment.

Literature findings suggest that the implementation of the policy is proving difficult owing to: (i) a limited understanding of inclusive design amongst policy actors; (ii) a lack of clear written policy documents, and; (iii) a weak policy influence on decision-making. Despite all the above findings, there is little investigation on how knowledge is created amongst policy actors to help them with the inclusive design policy implementation process. The following chapter reviews the Organizational Knowledge Creation Theory as a theoretical lens to construct an explanation of how policy actors gain an understanding of the inclusive design policy implementation process necessary to assess the accessibility of designs.

3 Organizational Knowledge Creation Theory

3.1 Introduction

The previous chapter highlighted several issues facing actors of inclusive design policies (Section 2.9). The problem highlighted in chapter two relates to unclear policy documents and a limited understanding of inclusive design implementation amongst policy actors. Both issues raise questions about the way LAs deal with advancing knowledge of inclusive design policy amongst policy actors and how they develop inclusive design policy documents. This chapter seeks to understand the theoretical framework used to advance both personal and codified knowledge within an organization. It reviews and evaluates the Organizational Knowledge Creation (OKC) Theory, which is adopted as a suitable lens to allow the research to examine how policy actors gain an understanding of the inclusive design policy implementation process necessary to assess the accessibility of the designs.

The chapter begins with an attempt to define knowledge, making a distinction between tacit (personal) and explicit (codified) knowledge. In addition, the chapter reviews the process of the OKC theory with its two main components of tacit and explicit knowledge in exchanging forms in a spiral fashion (also known as knowledge conversion). The advantages of adopting OKC theory compared to Organizational Learning or Information System is reviewed. During knowledge conversion, tacit and explicit knowledge advances by alternating continuously through the socialization, externalization, combination and internalization phases, also known as the SECI model of knowledge creation (Nonaka and Takeuchi, 1995). Three different types of epistemologies - cognitivist, connectionist, autopoietic - are briefly reviewed to determine the most suitable mode of knowledge creation, which aligns with this research. Since this research deals with aspects of explicit knowledge contained in the policy documents and guides, tacit knowledge is recognised as the other component needed by the actors to understand and implement policy effectively. Both tacit and explicit knowledge, known to be complementary entities, and created during the Organizational Knowledge Creation process (Nonaka and Takeuchi, 1995) are viewed as policy documents and drawings (explicit knowledge) and actors' interpretation of policy (tacit knowledge) which are involved in the process. The limitations and the criticisms of OKC theory are discussed in Section 3.8. The concept of Ba is introduced to highlight the context of knowledge creation.

3.2 Knowledge

“What is knowledge?” continues to be a difficult question to answer (Pritchard, 2006; Schultze and Stabell, 2004). Attempts to define knowledge date back to Plato (c.427-347 BC), and have lasted well over 2000 years, yet there is no common definition of knowledge. Nevertheless, Nonaka *et al.* (2008a) defines knowledge as created from people’s interaction with each other and their environment. Similarly, knowledge is defined by Sandercock (1998) in terms of inherently multiple forms, with multiple claims to representing reality and multiple ways of knowing. Rydin (2007) argues that in planning, knowledge is not a scientific truth but rather is associated with a variety of actors in a range of social locations. This echoed the work of Healey (2003) who argues that the planners’ concept of ‘good and just’ were constructed through knowledge (Section 2.9). Both the work of Healey (2003) and Rydin (2007) made an argument that planning knowledge varies amongst the actors in the different social locations and the actors are faced with multiple responsibilities. Furthermore, Rydin (2007) called for planners to be part of the knowledge creation process saying: *“planners not just responsible for procedural aspects of the engagement but more actively involved in the co-generation of knowledge through testing and recognising knowledge claims (:p13)*. With regards to the implementation of inclusive design, knowledge amongst the actors is limited (Imrie, 2014; Scotland, 2007). Therefore, the current research seeks to understand the policy actors’ ways of constructing a good and just inclusive environment through knowledge to ensure the implementation of inclusive design.

The idea that there are two distinct types of knowledge labelled as tacit and explicit is widely accepted (Gourlay, 2006). Tacit is knowledge that is unarticulated and uncodified does not belong to an information category (see Section 3.2.1). While explicit knowledge is codified knowledge, useful in preparing manuals and standards used by organizations in setting policies or rules (see Section 3.2.2). The definition adopted for this research is influenced by Nonaka’s work on explicit and tacit knowledge. Knowledge is defined as justified true beliefs, constructed through the individuals’ interaction with each other and the environment (Nonaka, 1994; Ichijo and Nonaka, 2006). Nonaka and his colleagues distanced themselves from the epistemology that built on a corresponding doctrine which advocates that information processing creates true beliefs. Their definition of justified true beliefs received criticism from Gourlay and Nurse (2005) for implying that knowledge resides outside people’s minds. In response to this criticism, Nonaka and Von Krogh (2009) argued that knowledge is not a pre-given reality or an object, but a true belief that is individualised about a specific object or event, formed through interaction, experiences and observation. Therefore, the truth resides within the individual’s reality. The beliefs become true when justified by the individuals

or groups holding them, or acting upon them or shaping their reality, thus becoming knowledge. This truth is subjective, incomplete, and influenced by values, interests and ideology.

Secondly, knowledge is defined as skilful action gained through task-based performance, rooted in the ability to define the circumstances to permit action (Stehr, 1994). This definition was further explored by Von Krogh *et al.* (2000), who concluded that knowledge enables people to define, prepare, shape and learn to resolve a task or problem. Both definitions of knowledge above are closely linked to Nonaka and Von Krogh (2009)'s work. This research attempts to define what knowledge is and how knowledge is acquired, however, the definition is heavily influenced by Nonaka's work, who argues that explicit knowledge and tacit knowledge are complementary entities in the knowledge creation process.

3.2.1 Tacit knowledge

Tacit knowledge is unwritten and unspoken and is also referred to as unarticulated mental models by Nonaka and Von Krogh (2009). Tacit knowledge is essential to the entirety of a person's consciousness, acquired through people interaction, such as sharing activities or experiences. According to Wilson (2002), tacit knowledge is created by the mind and involves mental processes of comprehension, understanding and learning. For instance, competence, the ability to act and address problems, is a characteristic of tacit knowledge. Understanding is viewed from an individual's standpoint and their ability to support or identify intelligent action required to resolving a problem. Arguably, policy actors with a good understanding of inclusive design policy are better placed to identify intelligent action during its implementation. Nonaka and Konno (1998) argue that tacit knowledge shapes the way we perceive the world. Moreover, Schultze and Stabell's (2004) study placed tacit knowledge under Burrell and Morgan's (1979) four paradigms of social and organizational inquiry. Their study concluded that constructivists require tacit knowledge to support the individuals' coordination and communication of explicit knowledge.

3.2.2 Explicit knowledge

Knowledge that can be articulated, codified and stored is termed as explicit knowledge. Explicit knowledge has objectives or tangible characteristics and can be spoken and captured in writing or drawings (Nonaka and Von Krogh, 2009). According to Nonaka (1994), tacit knowledge is the main source of explicit knowledge, obtained through codifying or crystallizing tacit knowledge. Tacit knowledge may lose some of its tacitness in the process of conversion to explicit knowledge, since it is not possible for an individual to document the entire tacit knowledge they hold on a topic (Nonaka and Von Krogh, 2009). In contrast, the view that tacit knowledge can be converted to explicit

knowledge was rejected by Wilson (2002), who considered that tacit knowledge is personal and cannot be converted. Similarly, Tsoukas (2003) and Fernie *et al.* (2003) argued that knowledge cannot be separated from the knower, the person that possesses the embodied knowledge. To counter the critics, Nonaka and Von Krogh (2009) explained how tacit knowledge is transformed to explicit knowledge, emphasizing that humans

“articulate and experiment with words, concepts and linguistic relationships to convey meanings”(: p642).

One of the benefits of explicit knowledge is that it is easily communicated and shared with others i.e. through computers or other electronic equipment. Explicit knowledge can only be understood by people with the capacity to extract the meaning, using tacit knowledge. Nevertheless, knowledge that is codified provides individuals with the specific standard and procedures of the organization. Similarly inclusive design policy documents and guides may provide policy actors with the codified tacit knowledge of the knower and allow those with the capacity to extract the meaning and individualise tacit knowledge. New tacit knowledge can assist policy actors to achieve better policy implementation

There are several debates involving scholars such as Wilson (2002), Gourlay and Nurse (2005) and Tsoukas (2003). They argue that explicit knowledge is not knowledge but information and therefore requires managing through the use of computers (see Section 3.8). Although, this thesis acknowledges the division within academia between explicit and tacit knowledge, while exploring the OKC Theory (Nonaka, 1994; Nonaka and Takeuchi, 1995; Nonaka *et al.*, 2000; Nonaka and Von Krogh, 2009) the importance and benefits of both tacit and explicit knowledge in an organization are recognized.

3.3 Organizational Knowledge Creation Theory’s suitability

OKC Theory has been in existence since the mid-1990s (Nonaka, 1994). It is defined as:

“the process of making available and amplifying knowledge created by individuals as well as crystallizing and connecting it to an organization’s knowledge system”. (Nonaka and Von Krogh, 2009: p637)

The above definition is in line with the earlier work of Nonaka (1994). Firstly, the theory suggests that tacit and explicit knowledge can be conceptually distinguished along a continuum. Secondly, the process of creating knowledge is dependent on both tacit and explicit knowledge mutually enhancing each other, in the process known as knowledge conversion. Nonaka (1994) argues that tacit and explicit knowledge are complementary entities; both advance through a continuous interaction process (Nonaka *et al.*, 2000). According to Nonaka and Von Krogh (2009), explicit knowledge means very little to those without tacit insight. Similarly, Wiig (2004) argues that decisions or action based on tacit knowledge without explicit knowledge should be regarded as weak and lacking support. Hence, both tacit and explicit knowledge are regarded as complementary entities in this research. Therefore, OKC Theory is recognised for its advantage in going beyond managing knowledge. For instance, knowledge management is defined as:

“the process of capturing and making use of a firm’s collective expertise anywhere in the business – on paper, in documents, in databases (called explicit knowledge), or in people’s heads (called tacit knowledge).” (Awad and Ghaziri, 2006: p27)

Knowledge management concentrates on capturing, storing and making use of existing documented or undocumented knowledge. Knowledge management takes a similar approach to Information Systems (Hildreth and Kimble, 2002), focusing on data warehousing and data mining, documents and software. They capture and store knowledge through codifying, storing and creating efficient access to such knowledge. Davenport *et al.* (1998) refer to it as structured knowledge. Hildreth and Kimble (2002) criticised knowledge management for not recognising the knowledge held in people’s minds. Alavi and Leidner (2001) and Hildreth and Kimble (2002) argue that Information Systems are designed to support the collaboration, coordination and communication processes. Arguably, knowledge management differs from OKC Theory because knowledge management places an emphasis on information systems, while ignoring human’s tacit knowledge. This approach needs to be unambiguous. It will fall short of offering the current research an in-depth understanding of LAs policy actor’s attitudes towards inclusive design policy implementation. As argued by Hildreth and Kimble (2002), knowledge management needs to recognise that knowledge resides in people’s heads, not in machines or documents.

In addition, a closely related theory to OKC Theory is Organizational Learning Theory recently promoted by Argote and associates. Argote and Miron-Spektor (2011) defined organizational learning as the change that occurs in the organization’s knowledge due to experience. Hence, by definition, organizational learning places an emphasis on prior experience. There is evidence that a diverse prior experience increases knowledge creation (Shane, 2000). However, the drawback of

relying on prior knowledge is that experienced (senior) employees may reject new knowledge, and instead insist on using familiar strategies and heuristics when solving a problem (Audia and Goncalo, 2007). In addition, Organizational Learning Theory relies on the intervention of external consultants. Easterby-Smith (1997) criticises Organization Learning Theory for its lack of effective outcomes, and he argues that

“Although people often claimed to have learned new ideas and practices this is frequently not manifested in their behaviour” (: p1089).

Organizational Learning theory is relevant to the current research, yet not suitable to address the current research since the current investigation focuses on policy actors with limited prior knowledge of inclusive design policy implementation (as argued in chapter 2). The author argues in favour of creating new knowledge to advance an individual’s understanding of a particular subject, rather than learning from prior experience as suggested in Organizational Learning. The OKC Theory introduces an approach for developing a consensual view through a dialogue between colleagues, while accommodating the possibility of external challenges. Dialogue improves communication and advances self-awareness as well as strengthening the culture of trust and openness between members of the organization (Schein, 1993). However, the OKC Theory is not without criticism. The work of Nonaka (1994), received several criticisms for the lack of detail of how the process of knowledge creation unfolds (Gourlay, 2006; Gourlay and Nurse, 2005) (see Section 3.8).

3.4 Epistemological assumptions

Epistemological origins deal with the fundamental assumptions adopted to address theories and concepts, to ensure the research closely fits the epistemological position (Venzin *et al.*, 1998). There are three types:

- (a) *cognitivists* believe in knowledge that is fixed, an accurate picture and a representable entity;
- (b) *connectionists* argue that knowledge resides in the experts’ link (team-based and network of interconnected components); and
- (c) *autopoietics* (from the Greek word autopoiesis meaning self-creation) believe that knowledge is always private and differs from one person to another

Firstly, it appears that the cognitivist epistemological beliefs of knowledge are fixed and pre-given (Simon, 1993), arguably in line with the explicit knowledge promoted by Nonaka (1994) as part of OKC Theory. Since, the inclusive design policy implementation process involves documents/guidance and drawings, it can be referred to as cognitive.

Secondly, connectionist epistemology argues that knowledge is advanced through the experts' interaction, since experts are individuals with a special skill or knowledge. Several scholars emphasise the benefit of involving experts in OKC or in the knowledge transfer process (Argote, 2013; Nonaka and Von Krogh, 2009; Dhanaraj *et al.*, 2004). For instance, an expert's input is highly recommended in OKC Theory to lead the process i.e. to evaluate the progress of knowledge creation (Nonaka and Von Krogh, 2009). In addition, Dhanaraj *et al.* (2004) concluded that both tacit and explicit knowledge transferred via experts is trusted; therefore the trust makes experts valuable in transferring knowledge. Arguably, the inclusive design expert's tacit knowledge of policy implementation can be shared and communicated amongst policy actors. Leonard (2006) suggests several ways in which individuals may acquire tacit knowledge through practice (performances), observation (watching actions of experts), and problem solving (analysis with the help of experts). Experts have the ability to map out or evaluate existing knowledge in particular settings and propose ways to make improvements. Based on the connectionists' epistemological view of knowledge residing in the experts, it follows that the connection between experts, such as access officers, and non-experts (policy actors) can lead to knowledge transfer through interaction.

Thirdly, autopoietic epistemology argues that knowledge is always private and varied, depending on individuals, while recognising the interpretation of incoming data. This view is in line with tacit and explicit knowledge as complementary entities (Nonaka, 1994; Nonaka and Takeuchi, 1995).

Given that the current research focuses on the implementation of the inclusive design policy, it contains policy documents and individual policy actors, and some experts in the field of inclusive design. Arguably, all three epistemologies are relevant for examining how policy actors gain an understanding of the inclusive design policy implementation process necessary to assess the accessibility of designs (see Table 3-1).

For example, the process of inclusive design policy implementation involves the use of policy documents and the assessment of drawings, which is in line with cognitivist epistemology; also addressed under explicit knowledge in Nonaka's work. Similarly, the OKC Theory recommends the use of experts to evaluate the input and output of knowledge creation - the theme of connectionist epistemology.

Table 3-1 Epistemological assumptions adopted from Venzin *et al.* (1998)

Profile criteria	Cognitivist Epistemology	Connectionist Epistemology	Autopoietic Epistemology
View of one's own organization	An organization works like a mainframe computer; it is open for information that is collected and stored centrally. Action is steered by the "main frame" of the top management.	The virtual organization consists of individuals who are connected mostly through information technology. Action is self-organized and steered by local rules that refer to several frames of reference.	The autopoietic company is an autonomous and observing system that is simultaneously open for data but closed for information. It is a group of individuals who have created an emergent frame of reference.
Perception of the environment, and positioning in it	The environment is pre-given. The main task for the organization is to represent/picture it and to adapt to it universally.	Clusters of the organizational network produce different pictures of the pre-given world that form the basis for a differentiated adaptation.	The world is brought forth in conversations. The environment and the organization are coevolving systems.
Notion of knowledge	Knowledge is a fixed and representable entity (data) universally stored in computers, databases, archives and manuals. Knowledge can be easily shared across the organization. (explicit knowledge)	Knowledge resides in the connections of experts and is problem-solution oriented. Knowledge is dependent on the state of the network of interconnected components.	Knowledge resides in mind, body, and the social system. It is observer and history dependent, context-sensitive and not directly shared, only indirectly through discussions. (tacit knowledge)
Notion of development	The cognitivist develops knowledge through the assimilation and dissemination of incoming information. Inner representations that partly or fully correspond to the outer world are created.	Local rules in a network of individuals determine how knowledge is accumulated. This allows self-organized groups to develop specific knowledge in order to represent their own environment.	The process of interpreting incoming data in conversations is the cornerstone in knowledge development. This enables the autopoietic systems to make distinctions and to create meaning according to observations and previous experiences.
Characteristics of truth	Truth is the degree to which our inner representations correspond to the world outside. Truth is defined as dependent on the amount of information.	Different experts who have accumulated information about parts of the objective reality bargain about the truth.	Truth is not a main issue. By accepting that there is not an objective reality, different standpoints are possible. Reality is socially created.
Authors included	(Simon, 1993)	(Zender, 1995)	(Nonaka and Takeuchi, 1995)

In addition, Nonaka and Takeuchi (1995) positioned themselves closer to autopoietic epistemology, arguing that knowledge is not a pre-given entity, but is a justified true belief; it is subjective truth, and not objective truth. Subjective truth means individuals hold a range of knowledge, often based on their experiences, while objective knowledge is based on fact, a pre-given entity, and the belief

that knowledge is out there, not residing within individuals. In autopoietic epistemology, knowledge is embedded in the individual's mind; therefore it is difficult to transfer from one person to another. Under autopoietic epistemology, the word transfer refers to a knowledge conversion process, as discussed later in this chapter. This is echoed in Nonaka and Takeuchi's (1995) view that knowledge is created during the conversion process which takes place when tacit knowledge is converted to explicit knowledge or vice versa. However, it is the tacit knowledge characteristics of the OKC Theory that fits closely with autopoietic epistemology (Table 3-1).

3.5 Basic role of the knowledge-creating organization

According to Nonaka (1994), a single individual cannot create knowledge; interaction is necessary between individuals. In addition several enablers that can help organizations to create knowledge include organisational vision, driving objectives, dialogue, practice, shared context, also known as Ba, knowledge assets and the environment (ecosystem) as shown in Figure 3-1 (Nonaka *et al.*, 2008b).

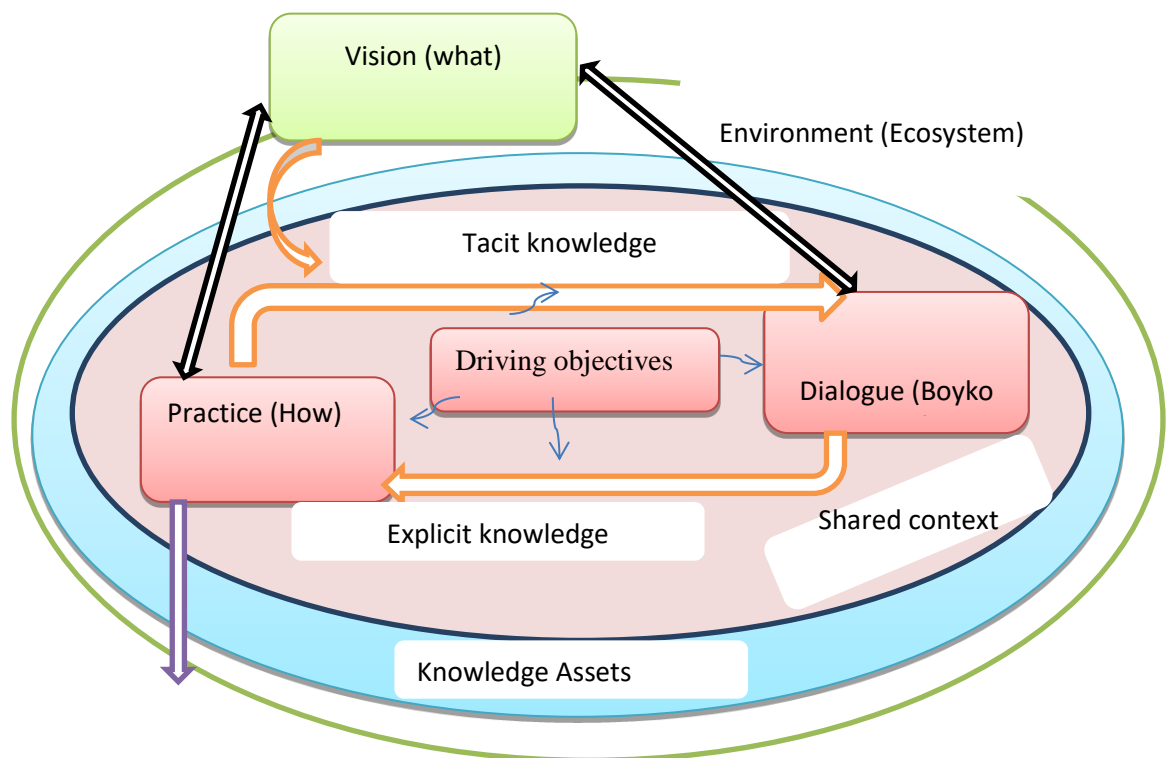


Figure 3-1 Dynamic model of a knowledge-creating organization, adapted from Nonaka and Takeuchi (2011).

The dynamic model of a knowledge creating organization, shown in Figure 3-1 contains the key elements that permit the knowledge creation process (SECI) (Nonaka, 1994). According to Nonaka *et al.* (2008b) the conversion of tacit knowledge to explicit knowledge or vice versa is built around practice and dialogue indicated with tacit and explicit knowledge arrows (Figure 3-1). In addition, the vision and driving objectives specify the direction and the driving force of the knowledge creation process guiding the practice and dialogue within the organization. Knowledge assets determine the inputs and outputs of the knowledge creation process. For example, an inclusive design expert can evaluate the knowledge creation progress of inclusive design policy implementation and identify gaps that need addressing. The environment is an ecosystem of knowledge where organizations benefit from the network of alliances and the outsourcing of knowledge. Furthermore, Figure 3-1 shows the need for Ba, a shared space where knowledge creation and inter-subjectivity takes place; for instance individuals from different parts of the organization sharing their experiences on a specific topic to form a new understanding. The concept of Ba is further explained in the following section (3.6)

3.6 The concept of Ba and four knowledge creation processes

The concept of “Ba” (the English translation is “space”) originates from a Japanese philosopher Kitaro Nishida (Nishida, 1970). Nonaka and associates adopted the Ba concept in their model of knowledge creation as one of their fundamental conditions of the knowledge creation process, initially introduced in the work of Nonaka and Konno (1998). Their idea of space sharing varied from physical space sharing such as sharing an office space to virtual space for instance sharing emails or teleconferencing; and mental space, for example sharing experiences or ideas and ideals. Nonaka and Konno (1998) argue that, under the concept of Ba, knowledge creation takes place amongst individuals, groups, teams and formal or informal meetings. Nonaka and Konno’s (1998) convincing argument is that Ba serves as a foundation of knowledge creation, but also allows value creation amongst individuals, teams and groups sharing the space. For instance, LAs provide Ba where disabled people and planning actors may create knowledge and value of the inclusive environment. Employees from different departments or selected individuals may form a Ba team to expand and advance their perspectives. It is argued that, in knowledge creation, Ba is key, as it provides the energy, and the place to perform the individual conversions (Nonaka *et al.*, 2000). In Ba information is interpreted to become knowledge.

Supporting the concept of Ba is the work by Alvarenga Neto (2007) and Alvarenga Neto *et al.* (2008) who argue that Knowledge Management (KM) benefits more from managing the context where

knowledge emerges and is socially constructed, rather than managing knowledge. In addition, the work of Wei Choo and Alvarenga Neto (2010) reviewed the literature on Ba as a conceptual framework for analysing knowledge creation. Their research reviewed 135 papers, four dissertations and four books. They concluded that the concept of Ba is an important condition for organizational knowledge creation and innovation. Rydin (2007) argues that in the planning process there is a need for space akin to Ba where opposing claims and arguments can be voiced. This argument is in line with the provision of Ba in organizations to create knowledge. Nonaka and Konno (1998) introduced four knowledge creation modes into the Ba concept:

3.6.1 Originating Ba

Originating Ba is where individuals' share feelings, emotions, experience and the mental model, to form care, love, trust, empathy and commitment (Nonaka *et al.*, 2006; Wei Choo and Alvarenga Neto, 2010). Originating Ba is regarded as an important Ba of knowledge creation where socialization (see Section 3.7.1) takes place. Originating Ba involves face-to-face experience sharing, and transferring of tacit knowledge. Vision can be transformed in originating Ba, the individuals empathize with others to remove differences between them. The work of Shipley and Michela (2006), which examined the meaning of vision or the visionary process in planning practices across several planning organizations, concluded that there are several definitions and meanings of vision in planning. Shipley (2002) also criticised the visioning in planning for its lack of theoretical underpinning. However the most used definition of vision in planning is that of Strange and Mumford (2005), which is a statement of desire or an idealized future state or picture of that goal. The vision in planning needs to connect people (planning actors) to the end product, for instance in this case to the inclusive environment. However, it is unclear if there is a vision that connects planning actors to the meaningful outcome of an inclusive environment.

Shipley and Michela (2006) conclude that:

a visioning process that truly engages people in examining the connection of the vision's ends to their values could, in some cases, lead to rejection of the vision, as it should if the connection is weak, or worse. (: p241)

The above argument echoes, Fainstein's (2005) view that planning theory does not make clear connections with the vision:

"the vision raises questions of who owns the city, not in the sense of direct individual control of an asset but in the collective sense of each group's ability to access employment and

culture, to live in a decent home and suitable living environment, to obtain a satisfying education, to maintain personal security, and to participate in urban governance” (: p126).

This confusion seems to be experienced in the field of inclusive design in ensuring an accessible environment for disabled people. This thesis turns to Nonaka’s work on creating an organizational vision and driving objectives. According to Nonaka *et al.* (2008), “*firms create knowledge to change themselves and the environment, based on their vision and driving objectives*” (: p70). They argue that the vision motivates employees to engage in a process of creating knowledge because it provides them with understanding of the societal needs of the end users (moral purpose). In the case of inclusive design, understanding both inclusive built environment and disabled people is more likely to lead to the production of designs that are accessible. For instance a study of the Japanese pharmaceutical firm, Esai-Co, offered a convincing argument that the company’s vision originated from its employees after empathizing with their clients (Nonaka *et al.*, 2008b). Esai-Co employees, having spent time with patients and their families (their clients), realised that their focus should not be solely on producing a drug but recognising that their clients are essential in the health care process. The approach used in this case study ensures that the vision is clearly linked to societal benefits, in this case the patients’ wellbeing. In so doing the employees connected with the patients as individual human beings and not as faceless targets to market their products. Consequently, they were motivated to improve the quality of life of patients who were dependent on the drug they produce. This greater understanding provided the necessary basis to change themselves and their organizations, through knowledge creation.

Another example of vision and driving objectives encouraging individuals’ performance is demonstrated by De Oliveira (2011) through two case studies in the Mie area of Japan,=. The Mie research compared two case studies looking at local policy implementation of (a) air pollution, and (b) climate change policy. The significance of the two case studies is that local people supported the air pollution policy because they understood the societal benefits. For example the link between air pollution and the rising number of asthma patients amongst local fishermen in their communities was well understood. This prompted support for the air pollution policy implementation from both government and the public. However, the climate change policy was not well understood, in particular, its societal benefits were unknown, and hence received less support (De Oliveira, 2011). This support motivates individuals and organizations to participate in the knowledge creation process in a meaningful fashion.

The vision is built by confronting several fundamental questions of ‘what, how and why’ (Nonaka *et al.*, 2008b). Arguably the policy actors’ understanding, of “what” is good for disabled people in terms

of accessing the built environment, in their local community; for “what” purpose are they implementing inclusive design policy in designs and “how” physical barriers in the built environment arise. This may lead to clarifying the moral purpose for adopting an inclusive design policy. The understanding of “why, what and how” is essential for individuals to create value judgements and practical reasoning in different situations in which they might find themselves on a daily basis, and will lead to the start of the knowledge conversion process (SECI).

3.6.2 Interacting/dialoguing Ba

Interacting/dialoguing ba is where peer-to-peer and face-to-face interaction takes place. Individuals’ mental models and skills are shared and converted into common terms forming concepts (Nonaka *et al.*, 2000). The term codify tacit knowledge is created in the socialization phase; the dialogue is the key for this conversion. According to Nonaka and Konno (1998) in interacting ba the team is selected with the right balance of knowledge and capability.

3.6.3 Cyber/systemising Ba

Cyber Ba is defined by collective and virtual interactions (Nonaka *et al.*, 2000). The combination phase of knowledge creation sits well in Cyber Ba, explicit knowledge utilizes different types of technologies forming database, documentation and making use of online platforms. Wei Choo and Alvarenga Neto (2010) suggest that the enabling condition is Information system/management.

3.6.4 Exercising Ba

Exercising Ba is defined by individual and virtual interactions (Nonaka *et al.*, 2000). It is a context where the internalization phase of knowledge creation takes place. “*Exercising Ba synthesises the transcendence and reflection through action*” (Nonaka *et al.*, 2000: p17). At this stage explicit knowledge from the combination phase is turned into individual action and practice. Exercising Ba is also supported by training, and using mentors is recommended. This stage benefits from organization and management direction and structure.

3.7 Dimensions of knowledge creation through the four (SECI) conversions

The knowledge creation spiral begins (at the point indicated with an orange dot) with the sharing and creating of tacit knowledge in the socialization mode (as shown in Figure 3-2). The creation of

new knowledge is heavily dependent on the continuous interaction of tacit and explicit knowledge. The spiral increases in scale (shown at the centre of Figure 3-2) as the knowledge creation process advances through the model of knowledge conversion made up of the four main modes of Socialization, Externalization, Combination and Internalization (SECI). During socialization, knowledge is created through the interaction between individuals, moving to groups where the externalization process takes place, then to combination at the organizational level and back again to individuals at internalization (Nonaka *et al.*, 2008) (Figure 3-2).

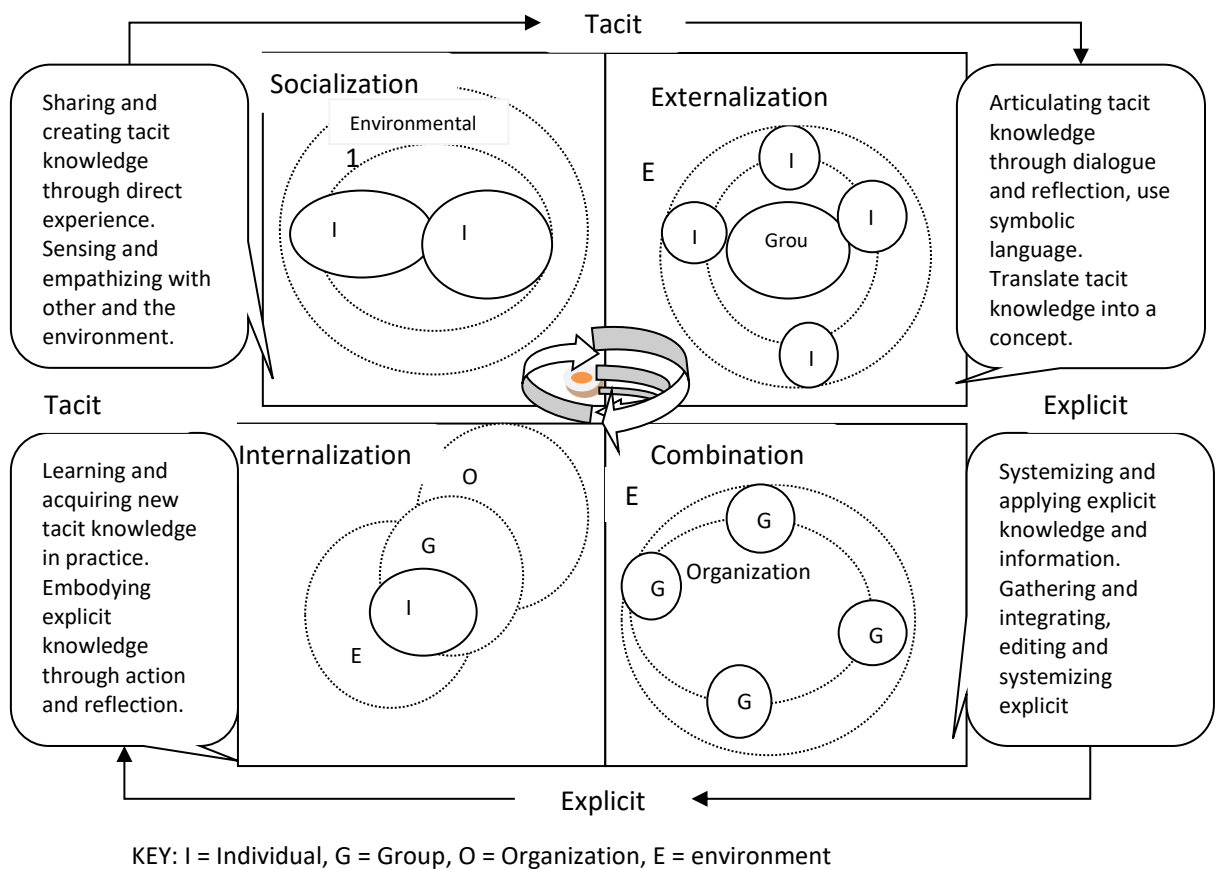


Figure 3-2 The knowledge creating process: SECI Model (Nonaka *et al.*, 2008: p19)

Figure 3-2, provides a general view of dynamic knowledge creation in organizations where a SECI model is built, while Figure 3-3 shows the actual process of knowledge creation. Figure 3-3 extends Figures 3-2 in the context of the LA to understand the knowledge creation process at different stages.

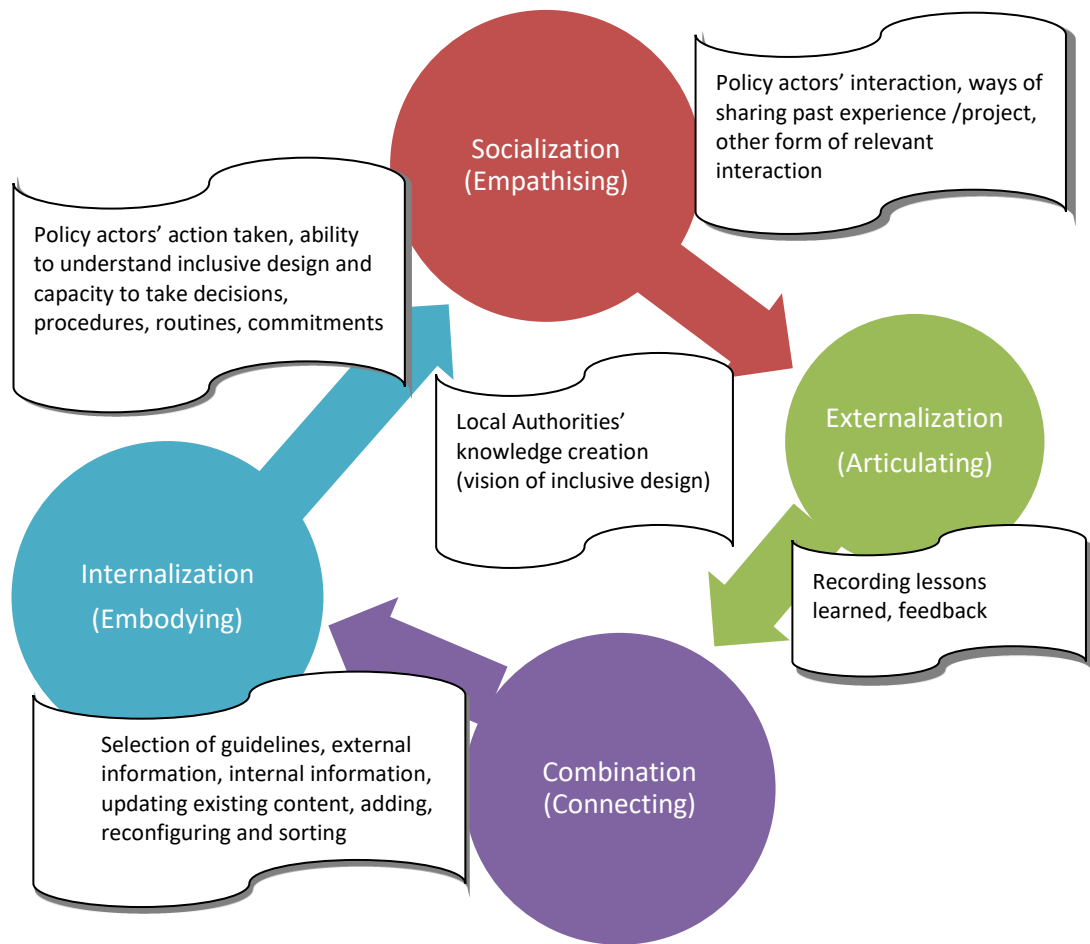


Figure 3-3 Four knowledge conversions, adapted from Nonaka and Takeuchi (1995)

3.7.1 Socialization phase (from tacit knowledge to tacit knowledge)

The socialization phase focuses on tacit knowledge creation through interaction amongst individuals or group-shared experiences, either by a shared environment or by spending time together. Individuals can share experiences, feelings, emotions and mental models, which is referred to as socialization (Nonaka, 1994). This is usually carried out through face-to-face interaction, where one can capture important elements of tacit knowledge that include physical scenes and psycho-emotions. New knowledge is created through person-to-person interaction (Choi and Lee, 2002). For example, practitioners' diversity, such as professionals from various backgrounds interacting, is a source of new tacit knowledge. Furthermore, the process of on-the-job-training or talking to colleagues or client's feedback are some of the examples of tacit knowledge creation. Feedback and training programmes are developed for new ventures to allow the organizational members to develop the skills and ability required for knowledge creation. Although tacit knowledge is known as being a rich source of new knowledge, it is also known to be individualised and subjective, and therefore it is difficult to capture and codify; this often happens through the externalization phase.

Nevertheless, scholars such as Erden *et al.* (2008) argue that the quality of tacit knowledge is improved through a collection of people's interactions in order to perform a task and to achieve a common target. The most important ingredients required in the socialization mode to ensure that the quality of tacit knowledge is achieved are: a common definition of the action required; a shared understanding; achieving group know-how, and; embedding a group identity (Erden *et al.*, 2008). The socialization mode can provide an understanding of the ways LA policy actors interact, share and exchange past experiences so as to create new tacit knowledge, as shown in Figure 3-3.

3.7.2 Externalization phase (from tacit to explicit knowledge)

The externalization phase is influenced by the socialization phase. In the externalization phase, tacit knowledge is codified into new explicit knowledge (tangible), e.g. documented or written material, and is easily shared, as shown in Figure 3-3. The externalization phase benefits companies by recording explicit knowledge and reflecting on the collective tacit knowledge gained during the socialization phase. Explicit knowledge is useful to new employees to gain an overview of the organization, whilst providing a framework for the existing employees to work towards a common goal. The process of conversion of tacit to explicit knowledge depends on the sequential use of metaphor (intuition or holistic imagery), analogy (rational thinking and functioning) and a clear model (Nonaka *et al.*, 2000). The phase begins with the evaluation of the existing explicit knowledge to determine the knowledge gap between what knowledge is aimed to be created and what is created. The organization's vision of knowledge creation remains at the centre of the creation of new explicit knowledge, serving to direct the organization to invest in useful knowledge. In addition, the individuals' experience, interpretation and the ability to eliminate any ambiguity is important in the conversion of tacit knowledge to explicit knowledge. The externalization mode provides the current research with a means of understanding the ways in which LA policy actors extract explicit knowledge from tacit knowledge.

3.7.3 Combination phase (from explicit knowledge to explicit knowledge)

Explicit knowledge is collected from a large number of sources in the externalization phase, from within or outside the organization, and is combined and edited to form new explicit knowledge that can be disseminated or diffused amongst employees. Ichijo and Nonaka (2006), stated that having external contacts is one way that firms/individuals can benefit from external information sourced outside their team. Therefore, those without external contacts are in a weaker position to learn from their competitors or counterpart experiences.

External contacts allow team members to have access to trusted and practical information generated for a common goal. However, the process of determining a reputable source of external information is through relationships with the external environment, such as listening to other peoples' views on what information can be trusted and interpreted. The combination phase provides the current research with a lens through which to understand the research objective: 'how knowledge is created amongst policy actors to improve the implementation of an inclusive design policy within LAs'. Examining policy documents available to policy actors to anchor their decisions during design assessment is likely to shed light on how explicit knowledge of inclusive design policy implementation at LAs is combined. It raises two questions: 1) is the policy document clear or detailed enough for policy actors to understand the meaning and its purpose? 2) How was the document written, for instance as first-hand experience, secondary source, edited or copied from somewhere? Explicit knowledge provides instruction, backs-up decisions and actions especially during the internalization phase (Nonaka and Von Krogh, 2009). Hence ambiguously-written instructions can result in the absence of direction, and consequently lead to taking wrong decisions or actions.

3.7.4 Internalization phase (from explicit knowledge to tacit knowledge)

Explicit knowledge loses some of its explicitness in the process of conversion from explicit to tacit knowledge at the internalization phase. This means that explicit knowledge may be misunderstood or misinterpreted by individuals. Internalization is an individual and physiological process (Nonaka and Von Krogh, 2009). It involves not only unique actions and practices but the individual's acceptance or rejection of explicit knowledge. During internalization, explicit knowledge from the combination phase (i.e. a document) is interpreted into action and practice, enriching the individual's tacit knowledge. It provides individuals with confidence in decision-making on daily operations, organization routines and organizational culture, as shown in Figure 3-3. Practical experience provides individuals with the ability to convert explicit knowledge into tacit knowledge, hence advancing knowledge and allowing them to further understand and take the necessary decisions. For instance, new tacit knowledge prompts individuals to create new or modify existing routines and embedding actions. Both explicit knowledge and tacit knowledge are complementary, enhancing and advancing each other. Since inclusive design policy implementation involves policy documents (explicit knowledge) which are implemented by individuals at the LA, and that this explicit knowledge has to be interpreted for decision-making or for influencing the actions taken, Nonaka's theory provides a suitable lens through which to understand all these processes.

3.8 Organisational Knowledge Creation Theory and vision shortfalls

The OKC Theory is criticised by Gourlay (2006) for lacking the details and evidence in nearly all the SECI phases and for suggesting that knowledge creation begins with the Socialization phase. Gourlay (2006) argues that the spiral of knowledge creation can potentially start at the Internalization phase since new tacit knowledge is created there. Nonaka and Von Krogh's (2009) response to this criticism was that an organization may choose to start knowledge creation during any SECI phase. However, the current thesis is in favour of starting the knowledge creation at the socialization phase, because this phase encourages dialogue between colleagues to increase self-awareness, as argued by Schein (1993). Therefore, the author views this phase as a favourable starting point for knowledge creation. In addition, Hildreth and Kimble (2002) criticised the earlier work on OKC Theory for suggesting that in order for tacit knowledge to be understood, it needs to be externalised. The work of Hildreth and Kimble (2002), argues that the flaw in Nonaka's work is at the tacit-explicit stage. Their view is that there are some circumstances when tacit knowledge can be made explicit but not all tacit knowledge can be externalised. This is because, normally, there is a history of cultural, conventions of language and cross-referencing that is not made explicit. Instead they suggest a possible way forward as the organization providing an environment for people to develop knowledge through interaction with others in the same environment where knowledge is created. Hildreth and Kimble's (2002) suggestion offers a similar approach to Nonaka's (Nonaka and Konno, 1998) Ba concept. Nevertheless, Hildreth and Kimble (2002) fail to provide practical details for this suggestion. Furthermore, they identified two types of knowledge referring to them as hard knowledge and soft knowledge. In their description hard knowledge is codifiable and observed, while soft knowledge is less quantifiable and not easily captured or stored. These two types of knowledge are similar to Nonaka's tacit and explicit knowledge; however what is missing from Hildreth and Kimble's (2002) work are the details of the process to explain ways of creating soft or hard knowledge. Nevertheless, Nonaka and Von Krogh (2009) advanced and elaborated the sources of tacit and explicit knowledge through the conversion. They agreed with Hildreth and Kimble (2002) that during externalization of tacit to explicit knowledge, tacit knowledge cannot be fully converted as it loses some of its tacitness. Similarly, during the internalization phase (explicit to tacit) explicit knowledge cannot be fully internalized as it is likely to lose some of its explicitness. For example, someone reading a written policy document may not grasp its meaning adequately, without some sort of tacit knowledge to form a full understanding of explicit knowledge. A further criticism of OKC Theory offered by this research is the lack of detail on how the organizational vision (Nonaka *et al.*, 2008a), links to the SECI

phases. Although it is argued that vision gives the knowledge spiral a direction (Nonaka *et al.*, 2008b), the current research argues that vision and driving objectives are not clearly linked by Nonaka to the SECI modes of knowledge creation. The SECI modes and the organizational vision are presented separately; which is confusing although they are meant to benefit each other, the link is not fully addressed. For instance Figure 3-2 shows the four modes of OKC theory without indicating the mode that is most closely linked to vision. In addition, it is unclear what comes first, the vision and driving objectives or the SECI mode. Nevertheless, there is a strong sense in addressing the vision and driving objectives possibly prior to knowledge creation within the SECI mode, because employees with a better understanding of the vision are in a better position to create the relevant knowledge to help them accomplish their vision successfully. For instance, Paavola and Hakkarainen (2005) concluded that individuals with a limited understanding of specific topics are not in the best position to create knowledge on that topic. This view is affirmed by Lyles (2014) who argued that defining the problem clearly is the key to the identification of the problem-solving process, and allowing the organization to determine a suitable action. Nevertheless, the OKC theory is generally introduced in organizations with the purpose of addressing knowledge development in companies to understand organizational creativity, innovation, learning and change. This research seeks to understand how policy actors learn the inclusive design policy implementation process necessary to assess the accessibility of the designs. To understand LAs' innovation, learning and changes; the OKC Theory is likely to shed light on the knowledge creation that is currently taking place or the improvement required by LAs to make the implementation of inclusive design more effective.

3.9 The knowledge creation barriers

The OKC process faces barriers, such as the individuals engaged in the process refusing to accept new lessons, insights, ideas and observations; Or, executives who might oppose sharing knowledge with others if they feel they disagree with the opinions expressed. The individuals' experience may result in routine performance, but faced with new situations they may not have developed clear responses. New knowledge can pose a threat to an individual's self-image, since it affects what they normally do. In some cases what we normally do is deeply rooted in our personal identity. Furthermore, the study carried out by Ros *et al.* (2007) to explore the basic individual values and work values concluded that basic individual values influence work values. In addition, Ros *et al.* (2007) highlighted that the meaning of the work values can be undermined by the individuals' past

work experiences. Other barriers organizations face in new knowledge creation include (Von Krogh *et al.*, 2000):

- i. *The use of language.* Language is regarded as important for an organization sharing tacit knowledge or converting tacit to explicit knowledge. Therefore using unfamiliar terminology can be a barrier to new knowledge acceptance.
- ii. *The inability to engage in discussions of past organizational experiences.* Stories help people to relate to themselves or understand how the system works. However, stories can instil negative reactions towards new knowledge, e.g. if the stories are told in a negative form.
- iii. *The procedures in place.* Procedures give organizations direction to perform their tasks; but procedures can restrict cross organizations' disciplinary or functional lines and may not allow time and resources to be spent in creating new knowledge.
- iv. *Company paradigms.* Paradigms refer to an organizational strategy, and its vision/mission and values. The paradigm is structured by the language used, the stories told and the routines followed in the organization.

The identification of the above barriers (individuals or organizational) allows this research to discover if any similar barriers exist in the knowledge creation process that relates to the implementation of inclusive design policy. For instance, these might involve the inclusive design policy actor's views of the policy's terminology or the use of language in the inclusive design policy, the procedures adopted by the respective LAs, or vision/mission and values attached by the policy actor.

3.10 Summary

Chapter 3 reviews the OKC Theory (Nonaka and Von Krogh, 2009; Nonaka, 1994), whilst this is not the only option, it was selected as a suitable theoretical lens for the current research. In addition, the concept of Ba was considered key in the knowledge creation process and provides the research with a basic understanding of the context of the need for knowledge to be created. The knowledge creation barriers and limitations provide an understanding of issues that may undermine the process. Four modes of OKC theory - Socialization, Externalization, Combination and Internalization (SECI) - play a major part in new knowledge creation, where knowledge is converted from tacit to explicit

forms, and vice versa. During socialization, individuals create tacit knowledge, developed from sharing experiences. During the externalization mode the new tacit knowledge created during socialization is converted to explicit knowledge through codification, making it formal and sharable in a documented form. Furthermore, the combination mode is an extension of the externalization mode, whereby knowledge that is externalized is edited and combined with other written materials from either within the organization (including existing knowledge) or outside it, to form new explicit knowledge for it to implement. Finally, explicit knowledge from the combination mode (documented guide) is put into practice/action by individuals during the internalization stage, where it informs and supports the decision-making process. Tacit knowledge is the primary source of knowledge. The lens of the OKC theory is adopted in the current research to examine how policy actors gain an understanding of the inclusive design policy implementation process necessary to assess the accessibility of the designs. To address the research aim, the next chapter identifies a suitable methodology and data collection methods to enable the researcher to gain an in-depth understanding of the problem.

4 Methodology and research design

4.1 Introduction

Chapter two critically reviewed ‘disability’ and the meaning of ‘inclusion’, inclusive-design related policies, legislation and their implementation within the built environment. It also analysed some of the main contributing factors to the physical barriers in the built environment. These barriers include the poor understanding of inclusive design policy implementation amongst the policy actors, the lack of clear policy documents and the weak decision-making during design assessment. Chapter three reviewed and evaluated the relevance of the OKC theory in understanding the policy actors’ personal knowledge of inclusive design and the policy documents used in the process of inclusive design policy implementation. This chapter discusses the philosophical assumptions, the data collection methods, the sampling strategy of inquiry and the methods of analysis adopted, in order to address the main research aim

This chapter begins with a discussion surrounding the dominant research paradigms used in social science studies to underpin the philosophical position of this study. This is placed within the constructivist paradigm, because of the multiple reality constructs assigned to the inclusive design policy actors. In addition, the qualitative components are introduced in this research. The qualitative component comprises face-to-face interviews and policy document analysis, designed to provide the research with a deeper understanding of the way knowledge of inclusive design policy implementation is addressed amongst the actors. The case studies of four LAs are introduced to determine the boundary of the research and so ensure the data are manageable and focused. The qualitative interviews and document analysis are designed to collect data concurrently to address the main research question, for complementary purposes. This chapter is divided into three parts. Appendix D summarises the research design adopted.

Part One introduces the philosophical approaches used in social science research: this includes ontology, epistemology, human nature and methodological assumptions (Lincoln *et al.*, 2011). Part Two discusses design strategies (Creswell, 2009). Part Three focuses on qualitative sampling and inquiries (Creswell and Plano Clark, 2011; Johnson and Onwuegbuzie, 2004).

4.2 Part One: Paradigms and perspective assumptions

Paradigms are concerned with the principles that explain how the world is perceived by the researcher and how the world should be studied or understood (Sarantakos, 2012). According to

Guba (1990), paradigms are “*a set of beliefs that guide to action*” (: p17); thus, they define the world views or belief systems that guide researchers (Lincoln *et al.*, 2011). Paradigms are based on ontological, epistemological and methodological assumptions (see Section 4.2.4).

4.2.1 Ontology

Ontology is a philosophical term and derives from the Greek word *ontologia*, with *onto* meaning being or existence, and *logia* meaning doctrines or a study of. Ontology defines the nature of being, the existence and reality (Creswell, 2012), or the form of reality (Howell, 2013). For instance, the reality of knowledge can either be external to the human mind (materialism) or constructed in the mind of the observer (idealism). Rydin (2007), argues for:

“... the specific contribution of knowledge within planning while still seeing knowledge as socially constructed, multiple and constituted in the form of claims, open to contestation and recognition.” (: p21)

The current research relates disability to the built environment. As argued by Hahn (1988), the focus should be on interaction between both individuals and the environment because disability is a result of the social conditioning of a disabling environment. For instance, in the 1980s, several disabled people and researchers began to explore disabled people’s individual and collective experiences to highlight how environmental and social forces influence their life chances (Barnes, 2014b). Priestley’s (1997) research argues that the core principles of an ‘emancipatory’ disability research model is the adoption of a social model of disability as the ontological approach. According to Barnes and Sheldon (2007): “*emancipatory* means disability research should be judged by its ability to empower disabled people” (: p15).

The data generates the need to have meaningful and practical outcomes for disabled people. The social model of disability also underpins the work of the UK government initiated by the Disability Right Commission (DRC) and is incorporated internationally into the recent development of the work of the World Health Organization (WHO) as argued by Barnes and Sheldon (2007). Both the social model of disability and the emancipatory research paradigm have had a positive impact on many researchers conducting disability research (Barnes, 2014b). For instance, research conducted by Barnes (1991) on the oppressive society in which disabled people are forced to live, incorporated the ‘emancipatory’ principle. Nevertheless, the use of the social model of disability and the emancipatory research paradigm was rejected in recent years by some academics, especially Watson, (2012), who argued in favour of a traditional scientific individualising approach, that explores both

the experience of impairment and that of disablement. Although the current research seeks to make a contribution towards minimising physical disabling barriers, the focus is not on experience of impairment or the disablement, but on how these issues are understood in the planning context.

Nevertheless, the current research has been influenced by the social model of disability, with the aim of understanding a multiple view of policy actors in an LA planning department. It contends that inclusive design policy actors construct their own local understanding that may differ from person to person. In line with Hahn (1988)'s perspective, the focus is not on disabled people but on the disabling society, its values, attitudes and public policies. Therefore a constructivism paradigm of inquiry is selected, as the realities of knowledge exist in the form of multiple personal mental constructions. For example, in examining how policy actors gain an understanding of the inclusive design policy implementation during the design process, and the meaning attached by policy actors according to their experiences, the researcher can reach a better understanding. Therefore, the nature of reality, also known as ontology, is constructed.

4.2.2 Epistemology

The term epistemology originates from the Greek word epistemologia, with *episteme* meaning knowledge and the word *logia* meaning doctrines or a study of. Epistemology is defined as the doctrines or study of knowledge. Epistemology places emphasis on the relationship between the researcher and what is being researched (Creswell, 2012; Howell, 2013). It defines the nature of the knowledge to be obtained, whether it is tangible (hard data) or intangible (soft data).

Given that this research is placed under the umbrella of interpretivist perspectives, it seeks to access the multiple realities held by inclusive design policy actors in LAs which are constructed through experiences based on local situations. The reality is not out there and pre-determined, but in the human mind and is different in each person's mind (constructed). Therefore the nature of knowledge, also referred to as epistemological, is obtained from soft data, through interpreting people's different reactions to the same or similar situations, and the meaning attached by those individuals.

4.2.3 Methodology

Methodology is the science of methods. According to Creswell (2012), methodology describes the process by which the researcher seeks to know the world. For instance, if the researcher treats the world as an object, that is hard, real, and external, then the methodological approach focuses on

measurements (objective). However, if the researcher views individuals as the creators of their world, the researcher concentrates on the individuals' differing experiences and understanding (subjective). Methodology guides the researcher to address questions such as: how should the inquirer go about finding out knowledge? Or, what is the process of research? It sets out the theory of research proceedings, by explaining and justifying the methods. This research views individuals as the creators of their world; hence it concentrates on different experiences and understanding. Therefore, it seeks to gain knowledge through a qualitative methodology (Section 4.3). Furthermore, following the tradition of some past studies (e.g. Scotland, 2007), that were concerned with the improvement of access for disabled people in the built environment, the selection of LA case studies and the use of methods such as interviewing planning actors and policy documents from each LA reviewed have been successfully used (Section 4.3.3).

4.2.4 Main theoretical perspectives used in social science

Trying to chart a course through the numerous theoretical perspectives and the often subtle differences is problematic. However, three main paradigms from social science are used to help make sense of this: critical perspective, positivism and constructivism. Their basic assumptions are summarised below in accordance with Sarantakos (1998) and Guba (1990):

- i. **Critical perspective:** this is an ideologically-oriented inquiry (feminism and race studies often adopt this stance). The nature of knowledge is structured around historical insights. Epistemological assumptions are based on a subjectivist approach. Social structures, freedom and oppression, and power and control are known to have an effect on these types of studies (Lincoln *et al.*, 2011).
- ii. **Positivism:** this perspective is rooted in materialism and existing reality. Its epistemological assumption is that the researcher can discover the truth, or the single reality/truth that is measured. Positivist/empiricist inquiry originates from what is called in Latin, *quantitas*, meaning quantitative, which relates to differences in amounts (objective). Positivist researchers value the scientific evidence, whilst paying minimal or no attention to the scientific impact on society (Lincoln *et al.*, 2011). Their ontological basic interest is in discovering how things really are and how things really work (Guba, 1990). Furthermore, the positivist ontological assumption is that reality can be totally understood (Howell, 2013).

- iii. **Constructivism:** in contrast to positivists, constructivists place an emphasis on the non-existence of the truth; therefore all truths constructed are incomplete, partial and multiple in nature (Lincoln and Guba, 1985). The words “*constructivist, constructivism, interpretivist and interpretivism*” (Schwandt, 1994: p221), are terms used in social science methodologies and philosophies. They are often used interchangeably and share the goal of understanding the complex world of a lived experience, from those who lived that experience.

Both constructivists and interpretivists hold the view that the world is understood through interpretation, and through understanding the meaning and definition of the situation as presented by the actors. Whilst the constructivist’s inquiries focus on the actor’s lived experience, the interpretivist’s inquiries seek to understand the actor’s interpretation of their understanding or meaning of their social phenomenon (Schwandt, 1994). The interpretivist perspective rejects the objective approach, the uniformity, standardising of the nature and the use of linear models applied to behavioural variables such as presupposed fixed and obvious meanings (Gage, 1989). Since the current thesis investigates Local Planning Authorities, the interpretivists’ inquiry is a suitable approach because planning is an interactive and interpretive process as described by Healey (1992).

4.3 Part Two: research design - qualitative methodology

4.3.1 Qualitative inquiries in social science

A qualitative research strategy is often expressed in words rather than numbers (Bryman, 2012), and is rooted in constructivist research perspectives (Section 4.2.4 iii). Qualitative research inquiries are often built with flexibility to accommodate unexpected empirical or emerging information. The epistemological position of qualitative research emphasizes the understanding of the social world through interpretation of the participants. The strengths and weaknesses associated with qualitative research are summarised in Table 4-1.

4.3.2 Methods

As argued by, Flyvbjerg (2006) “*Good social science is problem-driven and not methodology-driven, in the sense that it employs those methods which for a given problem best helps answer the research questions at hand*” (: p27). Whilst adopting an interpretive research perspective, two methods of

data collection allows the researcher to gain a better understanding of the multiple constructs of the actors in inclusive design policy, through the use of interviews and document methods, instead of relying exclusively on a single method.

Table 4-1 Strengths and weaknesses of qualitative research, (Johnson and Onwuegbuzie, 2004: p20)

Strengths	Weaknesses
<ul style="list-style-type: none"> • The data are based on the participants' own categories of meaning. • It is useful for studying a limited number of cases in depth. • Provides individual case information. • Can conduct cross-case comparisons and analysis. • Provides understanding and description of people's personal experiences. • Can describe, in rich detail, phenomena as they are situated and embedded in local contexts. • Data are usually collected in naturalistic settings in qualitative research. • Qualitative researchers are responsive to changes that occur during the conduct of a study. 	<ul style="list-style-type: none"> • Knowledge produced may not generalize. • It is more difficult to test hypotheses and theories. • It may have lower credibility with some administrators and commissioners of programmes. • It generally takes more time to collect the data when compared to quantitative research. • Data analysis is often time consuming. • The results are more easily influenced by the researcher's personal biases and idiosyncrasies.

According to Creswell and Plano Clark (2011), in some studies one source of data may be insufficient to elaborate and clarify some of the issues on the studied topic. The use of two methods increases the interpretability and meaningfulness of constructs and inquiry results by capitalizing on both inherent method strengths. In particular, the current research seeks to understand both policy documents currently in use, and policy actors' view of creating knowledge of inclusive design policy to advance its implementation process. Both methods address the main research aim which is to understand the ways in which policy actors create knowledge of the inclusive design policy implementation process necessary to deliver accessible designs - see Figure 4.1. Therefore a combination of policy document analysis and face to face interviews are likely to increase the meaningfulness of the data collected.

i. Interviews (face-to-face)

Interviews are an important method for collecting qualitative data and are often used within the constructivist paradigm perspective, the position of this research. Interviews allow follow-up

questions, clarification and eye contact between interviewee and interviewer. In qualitative studies, interviews are recognized as a primary method for collecting data from individuals (Creswell, 1998). Traditionally, interviews are designed to understand the questions of how and why interviewees come to hold a particular perspective.

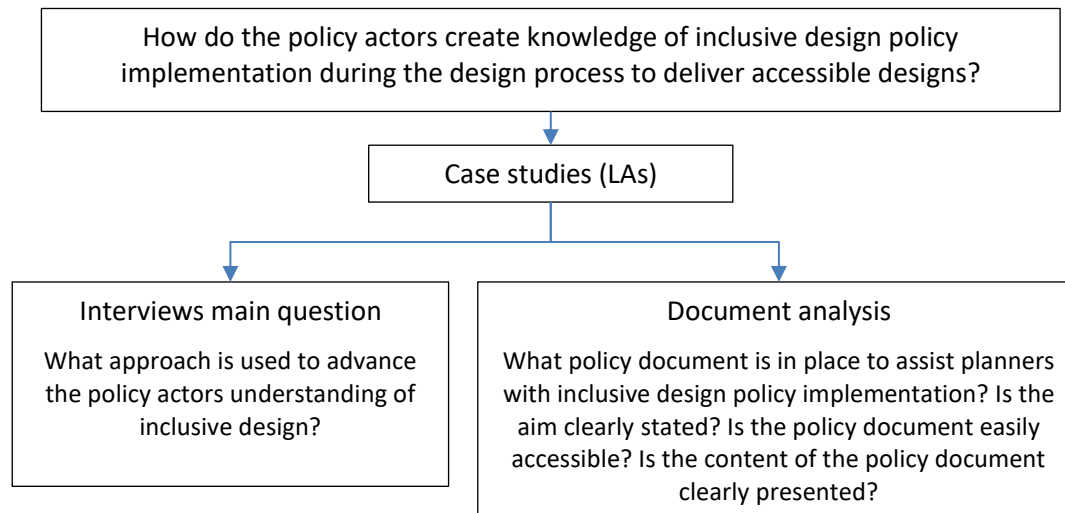


Figure 4-1. Interviews and document analysis addressing the same main research question.

The three types of interviews are:

1. structured interviews, which are set with fixed and predetermined questions in a standardized manner;
2. unstructured interviews, which are very general and spontaneous during the interview process; and
3. semi-structured interviews, which follow outlines of interview topics.

In addressing the current research objectives (Section 1.5) a face-to-face semi-structured interview style with open-ended questions was selected. Objectives such as ‘to understand how knowledge is created amongst policy actors to improve the implementation of an inclusive design policy within LAs’, is addressed through the use of both methods i.e. interviewing policy actors to explain what their LA has in place and secondly document analysis method has contributed to the understand of this objective (see the following section). The objectives, such as examining the policy actors’ understanding of the LA’s vision of inclusive environments and examining the policy actors’ attitudes

towards knowledge creation aimed at improving their understanding of inclusive design policy implementation during the design process are better understood through face to face interview data.

Semi-structured interviews offer flexibility as one of their advantages, as well as providing detailed data suited to the specific topics to be covered (Bryman, 2012). In addition, it provides rich data as both interviewer and interviewee have the opportunity to clarify the questions or responses, and seek further elaboration on a given answer. During semi-structured interviews new and unexpected themes are likely to surface, but an outline structure is needed to keep the interviewer focused and to ensure that the researched problem is properly addressed (see Appendix A for semi structured outlined questions).

A total of thirteen interviewees were selected for the research from four case studies, with three interviewees from each LA. The interviewees were selected (by the contacted manager) mainly from three departments, planning, building control and policy, with one interviewee from each department. No specific requirements or characteristics regarding the individuals (interviewees) were stipulated by the researcher as long as these individuals were from within the specified departments. However, in one LA, Indigo, an additional person from their local Disability Action Organization was interviewed, although this organization operates outside the LA, it has strong links with it to ensure inclusive design policy implementation. The Disability Action Organization participates in several workshops on inclusive design policy implementation conducted by Indigo and contributes to the adoption of the inclusive design policy implementation process. Their contribution was regarded as valuable to this research.

Access to Local Authorities during interviews

Suitable interviewees from the selected departments were provided by the LAs following a written request detailing: i) why the LA was selected; ii) what would happen during and after the study; iii) the time and resources needed by the interviewees/interviewer; iv) any disruption likely to occur, and; v) the benefits of taking part in the study.

Sufficient information about the interviewer and interview, the confidentiality of the interview were addressed prior to interviewing. With the interviewees' permission, all the interviews for this research were audio-recorded and transcribed for data analysis. As Bryman (2012) and Gillham (2000) suggest, the interview can be less distracted if the interviewer minimises writing during the interview, allowing better concentration. Audio-recorded information is more accurate compared to hand-written information recorded during the interviews. Each interview lasted approximately one

hour. According to King (1994), a one-hour interview can take more than one working day to be transcribed and up to three days might be needed to analyse the obtained data. The voice-recorded interviews for this research were transcribed, for analysis purpose, with each case study taking approximately two days to transcribe and eight days to analyse. During the interview interviewees seemed relaxed and free to talk at some length. Interviewees also had the freedom to ask for clarification in case they did not fully understand a specific question. Time for acquiring both access and data varied depending on the availability of interviewees, and was approximately 12 weeks.

ii. Document analysis

Documents are described as material that can be read and which relates to some aspect of the social world (Gilbert, 2005). Document analysis is one of the methods used in qualitative research (Bowen, 2009). Documentation plays a large role in many aspects of the organizational life. Information such as the historical process of the employees' interactions, formal policy documents, and communication and records of the events within the organizations are all important in developing an understanding of the group being studied (Marshall and Rossman, 1999).

While the research aims cannot be achieved solely by the policy document analysis method, it is an essential part of the research to understand the explicit knowledge used to guide or direct actions or decision-making during policy implementation. A policy document is likely to show the way inclusive design policy is expressed and transmitted to others within LAs. According to Hildreth and Kimble (2002), explicit knowledge can be formally expressed and transmitted to others through manual, rules, regulations, and procedures. Analysing a policy document fits the description of explicit knowledge and Nonaka's theory of knowledge creation process which embraces the use of both tacit and explicit knowledge. For instance, in order for the current research to address the objective: 'understanding how knowledge is created amongst policy actors to improve the implementation of an inclusive design policy within LAs', analysis of inclusive design policy documents is necessary to provide some understanding of the types of documents in place which policy actors are using to anchor their decisions during design assessments. Although this objective is only partially addressed by the current method, it is however important to assess the policy documents availability, the wording of it, accessibility and if it is a locally-developed policy or if it is a copy/paste policy. Furthermore, there is a benefit in adopting a documentation analysis approach; it is time-saving, since most documents are conveniently located for easy access (Forster, 1994). However, Forster (1994) warns that the documents should be assessed for their authenticity to ensure reliability.

A useful checklist designed by Bryman (2012) and Bowen (2009) was used to ensure data sourced via document analysis was adopted in this research, which included questions such as: Is the meaning of the document clear? How easily accessible is the policy document to those intended to reach? Who produced the document and was it written as a first-hand experience, secondary source, edited or unedited? What is its purpose? Are there potentially several interpretations of the document? The latter is particularly important for this research which will consider the likelihood of different interpretations emerging in the implementation of the policy.

The documents used varied from policy statements or guides aimed at inclusive design implementation, especially documents published on the LA's website, such as Supplementary planning documents, Planning Policy Statement 1 and any other explicit materials that interviewees may point to as their inclusive design policy guide. Since the policy documents adopted by LAs varied widely, the document analysis approach is informal.

For instance, in the case of Green, the document used in the current study, called Inclusive design guidance for planning services, published in February 2008, is an in-house document. This document is not available online, it was provided in person during the visit to the Local Authority.

In Indigo's case the documents used were their Supplementary Planning Documents (SPDs) called Accessible Housing, published in March 2009; Inclusive Landscape Design, published in January 2010. Both documents are accessible via online.

For the Blue case study, at the time of the visit there was no document to guide their inclusive design policy implementation; however their website states that they were using the London Plan. Given that the London Plan document is produced by the Greater London Authority for all London LAs to adopt, referring to such a policy does not necessarily show that Blue have committed to the implementation of inclusive design. Nevertheless, interviewees at Blue LA stated that they are in the process of adopting a policy document.

In Red's case, the document used is called the Red Borough Local Development Framework (Core strategy) adopted in January 2008, where inclusive design is published in various sections of the Core strategy. The document is accessed through the Red LA's website - the researcher was guided to the link by the interviewee from policy section. The document analysis data collection for all four LAs took approximately two weeks to complete and is described in Chapter 5.

4.4 Part Three: sampling

4.4.1 Population sample

- Policy actors in LAs who are in charge of policy document production, in line with the national policy, and which includes the inclusive design policy to ensure the local communities' needs are addressed. Their involvement in inclusive design policy production/implementation is important to this research, which seeks to examine how policy actors gain an understanding of inclusive design policy implementation and their input in the policy implementation process.
- Planning/development control departments take charge of implementing inclusive design policy at an early stage of the design; thereafter building control departments oversee the developments through the construction stages to completion. The former are deeply involved in inclusive design policy implementation from the pre-planning to planning stages of the development and have a strong link with policy writers, while the latter take over from the planning stage at the later stages of the development process and they are likely to focus on the details of the design. It is their experiences in the process of inclusive design policy implementation and their understanding of the impact of the policy in the design that is important to this research.

4.4.2 Qualitative component sampling strategy (case studies)

Sampling strategy is defined as the process of selecting the study participants or cases needed to achieve the aim of the study (Patton, 1990). In qualitative research data collection, sites, organizations or individuals studied are often selected purposefully. Several purposeful sampling strategies which apply to this research are:

- **Snowball or chain sampling** is used to select the case studies of interest through the recommendation.
- **Extreme or deviant case (outlier) sampling** focuses on selecting case studies that are information-rich because they are unusual, such as those known to have outstanding successes or prominent failures.

- **Typical cases as sampling** examples provide a benchmark for poor or excellent cases. Bryman (2012) referred to typical cases as exemplifying cases that are not extreme or unusual. Nevertheless, in some instances unusual cases help to illustrate issues that are overlooked in ordinary cases.
- **Criterion sampling** is useful in selecting cases that meet a predetermined criterion; For instance, in the current research anyone from the four selected LAs (case studies) located in planning, policy and building control departments were deemed suitable for interviewing.
- **Convenience sampling** means doing what is fast and convenient, such as selecting a sample because it is convenient for accessibility or inexpensive to study. According to Patton (1990), convenience sampling is not a purposeful method of sampling, but a process of selecting a convenient sample. In this study convenience sampling was useful to speed up the sampling selection process, so for example where accessing the initial selected cases proved difficult, alternative accessible case studies were considered.

4.4.3 Case studies selection

A case study is defined as *“not a methodological choice but a choice of what is to be studied. By whatever methods, we choose to study the case”* (Stake, 2000: p435). The case study approach in this research is adopted to determine the boundary for the studied topic, and to assist in selecting a manageable size for the researched sample. According to Patton (1990), case studies provide an in-depth understanding, allowing the researcher to learn a great deal from issues focused on in the particular study. In addition, Creswell (1998) recommends that in multi-case studies, four case studies are sufficient to form an in-depth understanding. Multi-case studies have been used in a similar setting to this research, for instance the study conducted in Scotland (2007) across four LAs (case studies). The study concluded that planners do not see the promotion of inclusive design as their role, but see it as an issue that designers should address and one that building control officers should enforce. Therefore, four English Local Authorities, located in either London or the South East of England, were selected as the cases for the current study. The cases are not selected for comparison purposes but chosen to gain a better understanding of the problem studied, as argued by Stake (2013). He argues that comparisons divert the reader’s attention from understanding a wider issue by focusing on the few points that are being compared. The aim is to focus on cases that offer an advance learning opportunity of the implementation of an inclusive design policy. Therefore a number of cases that are geographically accessible and that potentially offer a learning

opportunity based on their inclusive design policy published or not published on their website and the size of the LA were contacted. Access to the cases took precedence over their suitability. In total, twelve LAs were contacted to provide access, five of the LAs contacted did not respond, while another three declined to provide access; a further four accepted.

To gather rich data the selection took into account whether or not the LA had published an inclusive design policy and employed an access officer or related inclusive design expert as well as their reputation for implementing inclusive design policy. Assessing LA's websites provided adequate and relevant information to guide case selections.

The *first* case choice was a LA with a detailed SPD on inclusive design policy, and one that would be accessible for the study. It has a relatively clear inclusive design policy document on its website and the policy is easily accessible, as well as procedures that can potentially improve policy actors' understanding of inclusive design policy implementation processes. It also employs an access officer/expert on a full-time basis to help with inclusive design policy implementation. This case is likely to offer a greater number of learning opportunities. According to Flyvbjerg (2006), extreme cases reveal more information, and it is important to clarify the deeper causes behind a given problem. This case, is referred to as Indigo for this research, and is located in London.

The second and third case choices were selected primarily because they were available. Neither had published an inclusive design policy on its website. However, both referred applicants who wish to implement inclusive design to use either national or regional inclusive design policy guideline publications; hence their implementation strategy does not seem well developed. Nevertheless, the current research can learn from whatever strategy is in place and the way they deal with inclusive design implementation. The two selected in this category are referred to as Red LA (located in South East England) and Blue LA (in London). Red LA has employed an access officer, while Blue LA has not. Although they are both referred to as typical mainly because they do not have a local policy, the two have different approaches to inclusive design policy implementation. Therefore, the data collected is not for generalization purposes but for a learning opportunity to understand the individuals' views regarding their authority's approach to the inclusive design policy implementation during the design stage.

Finally, the *fourth* case was an LA with a poor approach to inclusive design policy implementation. Its website has neither an adopted inclusive design policy nor refers applicants to the national/regional policy or employs an access officer. Nevertheless, this case is selected to learn from their current

approach on inclusive design policy implementation without a policy in place. The Green LA is in South East England.

4.4.4 Qualitative data analysis strategy

There are at least three different types of qualitative data analysis: description analysis, conceptual order and theorizing (Corbin and Strauss, 2008). In description analysis the researcher seeks to construct a common description of objects, people, activities, events, moods, and so on. In conceptual order the researcher seeks to classify the data into types and stages; this is particularly useful in identifying and defining research into specific properties and dimensions. Theorizing analysis on the other hand is concerned with organizing data into themes and concepts to explore and explain a theoretical framework that explains a specific subject. All three are relevant to data analysis in this research.

4.4.5 Template analysis

Template analysis is not related to a particular philosophical perspective and helps to understand what is happening in people's lives on an everyday basis. Template analysis originated from Miller and Crabtree's (1992) work and has recently been promoted by King (1994). The main differences of template analysis from say, grounded theory and phenomenological analysis, are: the use of prior themes set and driven by literature reviews; the theory (Organizational Knowledge Creation), and; the research question/aim or from first interview data. However themes are often revised during the analysis. The template analysis approach can be viewed as abstract, tailored to exclude new sets of concepts that arise. Nevertheless, this research argues that having a prior theme driven from the OKC Theory in this research, gives the researcher a direction for undertaking relevant and meaningful enquiries and to make a contribution to understanding the ways policy actors advance their knowledge of inclusive design policy.

According to King and Horrocks (2010), in template analysis a paragraph/sentence can be coded under more than one theme in the research (overlapping). The current research adopts both descriptive and interpretative analysis. Descriptive coding has no restriction on the amount of text coded but the meaning of the data is not fully explained. Interpretative analysis elaborates the meaning of the data. The template adopted is divided into two parts, the initial and final template. The initial template is made up of themes from OKC Theory and initial interviews and then revised to form a final template (Chapter 5, Table 5-1). Revising initial templates involves assessing the themes' relevance to the data collected and modifying (remove or redefine) them accordingly (King and

Horrocks, 2010). The data collected from interviews and document analysis were initially arranged and coded to produce suitable themes electronically (Nvivo software) on a case-by-case basis, before being copied onto a word document for final analysis.

4.5 Summary

This chapter identifies and justifies the research alignment with the constructivism paradigm, to understand the multiple views of policy actors about how knowledge is created to improve the inclusive design policy implementation process necessary to deliver accessible designs. This is best understood through the interpretation of multiple constructs to determine the meaning from the participants. Both interviews and document-based methods are designed to provide clarification and enhancement of the other's findings, whilst increasing the data interpretability and meaningfulness of the studied topic. Both methods address the main research question and the data collection is carried out concurrently (approximately at the same time) for complementary purposes. For example, in order to understand how knowledge is created amongst policy actors to improve the implementation of an inclusive design policy within LAs, the use of both methods i.e. interviewing policy actors and analyzing LA's inclusive design policy documents, is necessary. However objectives such as examining the policy actors' understanding of the LA's vision of inclusive environments and examining the policy actors' attitudes towards knowledge creation to improving their understanding of inclusive design policy implementation during the design process are better understood through the interview data. Four LAs were selected as case studies, setting the boundary for an in-depth data collection through thirteen interviews and document analysis (inclusive design policy documents of each case study). The data collected from both methods (interviews and documents) are jointly analysed in the following chapter (Chapter 5) using themes derived from the OKC Theory and from the data collected during the initial stages of the research.

5 Data analysis

5.1 Introduction

The previous chapter reviewed the methods suitable for data collection and analysis to examine ‘how the policy actors gain an understanding of the inclusive design policy implementation during the design process’. The present chapter contains the analysis of the data collected through the methods identified in chapter 4 i.e. the interviews supported by policy documents. The qualitative data collected from both interviews and policy documents are jointly analysed on a case-by-case basis, in accordance with the themes based on the Organizational Knowledge Creation (OKC) Theory as set out in Chapter 3. For instance, themes drawn from the combination phase (a knowledge creation theory phase) are used to understand the inclusive design policy document adopted in each case study; whilst the themes drawn from (but not exclusively) the socialization phase are suitable for the interview data. The themes used in each case study are found in Table 5.1 - the final template. These themes are arranged in accordance with the research theoretical lens, with the purpose of understanding policy actors’ involvement in knowledge creation of inclusive design in their respective LAs.

By adopting Nonaka’s four modes of knowledge conversion, socialization, externalization, combination and internalization (see Section 3.7) to guide the analysis, an insight can be gained into the knowledge creation process amongst individuals during the inclusive design policy implementation process. For example, the analysis about the socialization mode in this chapter is designed to provide the research with a better understanding of the way tacit knowledge is created by LAs to advance the actor’s know-how. During the socialization mode the analysis is dominated by the data (tacit knowledge) collected from interviews with a lesser contribution coming from document analysis. The combination mode allows the research to elucidate on the way explicit knowledge is created. The analysis of the combination mode (Section 3.7.3) is dominated by the data (explicit knowledge) collected from policy documents (document analysis), supplemented by interviews.

Externalization and internalization modes (Section 3.7.2 and 3.7.4) consist of both tacit and explicit knowledge; therefore all the types of data collected contribute to these modes where applicable. The two methods are not adopted in this research for the purpose of comparing the results. But they are used, where possible, to support each other to form a better understanding of the problem researched. Some parts of the analysis are easily understood through the data by applying a single method of data collection, whereas, other parts of the discussion may require greater coverage of

data from different methods for improved clarification, achieved through the use of the data collected using all two methods and subsequently analysed.

The chapter begins by briefly setting out the approach used to derive the themes used in the final template after a revision of the initial template analysis Table 5.1. This is followed by the case study analysis of the four LAs studied following the SECI model of the OKC Theory and organised under the themes from the final template analysis. Each case is presented in the OKC Theory format, starting with Socialization, Externalization, Combination and Internalization. The data is organized accordingly, in the relevant part, for example data sourced from the documents are likely to be presented in a Combination phase, and so on. Furthermore, a summary of each case study, which follows the same layout as the final template, is presented at the end of each individual case study analysed. The interviews and policy document analysis key themes are linked to the OKC Theory; however, some themes are derived from the data. The background for all four case studies is briefly examined to give the reader a flavour of the general approach taken by each LA on inclusive design policy implementation.

5.2 Initial and final templates

The data analysis chapter introduces the template analysis in tabular form. The initial template is constructed from a combination of different sources: dominated by themes from the theory of OKC used as a theoretical lens in this research, research problems and the literature review. However, during the data analysis, the initial template was revised, incorporating the practical aspects of inclusive design policy implementation as explained by the interviewees. The revised template is referred to as the final template of analysis; both initial and final templates are shown in Table 5-1. The main themes in the final template analysis are defined in brief to give the reader a flavour of the analysis and to direct the researcher in organizing the relevant data into themes.

5.3 Case study analysis of inclusive design policy implementation

In all four case studies, as discussed in section 4.4.3, the research examines how policy actors gain an understanding of the inclusive design policy implementation process necessary to deliver accessible designs.

Table 5-1 Initial and final templates

Initial template	Final template
<p>Theme 1: Socialization (verbal explanation of the task). During the socialization phase, individuals or groups sharing experiences through interaction are forming new tacit knowledge (Section 3.7.1)</p>	
<ul style="list-style-type: none"> ● Training/CPDs ● Inclusive design expert ● Sharing experiences 	<ul style="list-style-type: none"> ● Teamwork ● Colleagues ● Information communication ● Training/CPDs ● Inclusive design expert ● Sharing experience, interaction and communication
<p>Theme 2: Externalisation (recording information in an understandable and interpretable manner). The OKC Theory encourages individuals or groups to crystallize their tacit knowledge (understanding) into explicit knowledge (documentation) during externalization, as described in (Section 3.7.2)</p>	
<ul style="list-style-type: none"> ● Knowledge codified to prevent its loss ● Recording information ● Collective reflection 	<ul style="list-style-type: none"> ● National policy ● Local Authority ● Collective reflection
<p>Theme 3: Combination (a combination of different guides or policies). The combination phase focuses on explicit knowledge collected from inside and outside of the organization (Section: 3.7.3)</p>	
<ul style="list-style-type: none"> ● External information ● Policy location 	<ul style="list-style-type: none"> ● Internal information ● Updating content ● Inclusive design policy currently in use and the policy origins ● The inclusive design policy ● External information
<p>Theme 4: Internalization (know how), the explicit knowledge is transformed to tacit knowledge, individualised. Explicit knowledge is converted to tacit knowledge during the internalization process. Individuals with prior tacit knowledge are better placed to reflect, and interpret explicit knowledge into action, to form the basis of new routines that can lead to new tacit knowledge (Section 3.7.4).</p>	
<ul style="list-style-type: none"> ● Decision-making ● Actions ● Understanding of the explicit knowledge ● Value ● Experience/expertise 	<ul style="list-style-type: none"> ● Decision-making ● Actions ● Understanding of the explicit knowledge ● Value ● Experience/expertise

Therefore, the main focus is on interviewing policy actors based in the planning, policy and building control departments of the selected LAs. The analysis also incorporated data from inclusive design policy documents/guides currently used at each of the authorities studied as discussed in section 4.3.3 (ii), to better understand the extent of explicit knowledge in inclusive design implementation. The policy documents were all accessed from the LAs' websites, except the Green Local Authority which was given to the author as a hard copy during the visit because their website was under construction at that time. Further information collected through semi-structured interviews was analysed as part of the case studies to determine the policy actors' understanding, and implementation, of inclusive design policy. Furthermore, adopting the lens of the theory of

organizational knowledge creation, the research seeks to better understand the creation of tacit and explicit knowledge at the LAs studied to advance inclusive design within the built environment. Two of the LAs studied are based in London, where inclusive design policy is adopted based on three policy levels, national policy, regional policy (London plan) and local policy such as the Supplementary Policy Document (SPD). The other two case studies are selected from the South East of England, where inclusive design is often adopted based on two policies, national and local policies.

5.4 Case study 1, [Indigo]

Four people were interviewed from Indigo Local Authority: a planning officer (Planning I), a building control surveyor/officer (Building I), a policy/access officer (Policy I) and a disability action officer (Disability I), see Appendix B, all of whom were involved in inclusive design policy formation.

Table 5-2 Indigo Interviewees

Case study Indigo		Quote reference
First Interviewee		
Position	Deputy manager	Planning I
Department	Planning /Development control	
Length in the position	Over 12 years	
Second Interviewee		
Position	Building surveyor (senior officer)	Building I
Department	Building control	
Length in the position	Over 14 years	
Third Interviewee		
Position	Senior officer	Policy I
Department	Policy and planning	
Length in the position	Over 10 years	
Fourth Interviewee		
Position	Manager	Disability I
Department	Disability Action in Indigo	
Length in the position	Over 6 years	
Policy document/guide		

5.4.1 Key findings

The key findings of Indigo case study are:

- Learning and sharing of new knowledge techniques are adopted.
- Local policy is adopted (developed).
- An access officer plays a key role in advancing tacit knowledge amongst policy actors.
- It is not clear where the accountability lays with regards to inclusive design implementation.

5.4.2 Background to the Indigo case study

Indigo is a LA in the Greater London created by London Government Act 1963. The estimated population of Indigo is 221,031 with a population density of 39,000/sq. mi. Its area is 14.85 square kms. Indigo has a wide variety of transport ranging from underground stations, over ground stations and railway stations. In 2000, some responsibility for highways and planning control was taken from the council, but the council remains a multi-purpose authority in terms of its range of powers. Indigo has an adopted inclusive design policy for a considerable number of years. In addition, it is suggested by the interviewees that Indigo is probably the first LA to create a full-time access officer position to oversee the aspects of inclusive design within the built environment. Indigo emphasizes the importance of having had a dedicated inclusive-design expert (access officer) employed fulltime for over 15 years as well as a strong links with local disability groups. These were regarded as beneficial and an important part of their inclusive design policy implementation process. The inclusive design experts and the disability groups play an important role in the implementation of inclusive design through their influence on the formation of local policy in a bottom-up approach. As demonstrated in section 3.6.1, the concept of Ba encourages individuals' shared feelings, emotions, experience and the mental model, to form care, love, trust, empathy and commitment. Indigo, benefits from having policy actors, access officers and disability groups working together to form and develop a similar vision of inclusive design.

“A district surveyor at Indigo, used to sit on the Access Committee for England, and he got that post established. I think one thing is that Indigo probably had the first access officer in the country, so there's been an access officer for 15 years, dedicated, full time. Whereas most other places, it was tacked on to somebody's job.” (Policy I)

“Engage with local disabled people so that they can contribute to developments around the local environment and planning.”(Disability/policy I)

5.4.3 Socialization (focuses on verbal explanation used by LA to improve knowledge)

5.4.3.1 Inclusive design training/CPDs

The interviewees highlighted the fact that training, CPD and surgeries (*face-to-face interaction with an access officer*) have been introduced in Indigo LA to raise awareness of both disability and inclusive design during design assessment. The theory of knowledge creation shows that experts such as access officers are trusted; therefore the trust makes experts valuable in transferring and creation of knowledge. Indigo policy actors, having undergone training which explains the tasks required in the process of inclusive design policy implementation, recognise its benefits of understanding access issues.

“I attend our very good access officer seminar. I haven’t been on any training for a long time. There was a recent, very good series of seminars which were an effective way to learn from access professionals. The training improved my understanding of access issues. That was internal, but with external speakers” (Planning I)

However, concern was expressed in the policy department that the decrease in disability awareness training experienced by interviewees is likely to jeopardise the progress made to date of policy actors’ understanding of inclusive design within the built environment. For instance, surgeries allow policy actors to interact with access officers in order to find a solution to inclusive design queries that may arise.

“We do surgeries, and this year we did seminars which are proper formal lunchtime things. We would always talk about subject specific disability awareness during training. So, for us it would all be around the built environment stuff, but that does not happen anymore. And I think that is a huge problem, because it’s not at the forefront of people’s minds” (Policy I)

Face-to-face interaction with an access expert works positively in surgeries run by inclusive design experts as they aim to raise awareness and understanding of inclusive design aspects. The surgeries allow a greater number of policy actors to participate in inclusive design implementation during planning assessments. Greater participation by policy actors in inclusive design implementation can minimise the workload for inclusive design experts. This allows policy actors to successfully resolve challenging planning applications. Without this diffusion, the sole responsibility for scrutinising the

development applications to ensure inclusive design implementation can fall on the inclusive design expert. This limits the number of planning applications that can be assessed for full conformity to inclusive design specifications. It also restricts the extent of knowledge transfer to the authority's policy actors.

“And then, obviously part of that [inclusive design expert] access officer’s job is to do things like run seminars and conferences, or distribute information. What I think is working quite well, is doing these surgeries [surgeries are face to face interaction where policy actor can ask questions to the access specialist], because it’s not appropriate that access officers do all the access work and an access officer can’t assess inclusive design achieved in all applications anyway. The idea is that generally, people’s awareness grows, so that their own performance, the way they do their jobs alter.” (Policy I)

Interviewees consider that an understanding of inclusive design policy is achieved through a variety of ways and, in particular, dialogues with access expert colleagues and other professionals. Talking to colleagues or getting client’s feedback are some of the examples of tacit knowledge creation. Involving colleagues from different backgrounds in tacit knowledge creation improves the quality of tacit knowledge because a collection of people’s interactions can result in better task performance and individuals are likely to achieve a common target. In addition, having a clear policy document (also known as explicit knowledge) created through the OKC Theory can advance employees’ understanding. Section 5.4.5 covers explicit knowledge creation in details.

“[Inclusive design understanding was developed] from reading, dialogue with colleagues who are access specialists. And I suppose dialogue on various construction projects, with architects, and other members.” (Building control I)

In addition, interviewees noted the decline of training attendees in recent years. The interviewees highlighted the reasons why, which include: the individuals’ lack of interest in inclusive design and an unwillingness to change their routines, despite their limited understanding of inclusive design aspects. In particular, interviewees acknowledged that older employees, who do not view the seminars as being mandatory, are more reluctant to attend compared with the junior staff that have a better attendance record. Consequently, the perception is that the importance of the training is under-estimated by some of the staff and attendance could be better secured through a mandatory policy towards inclusive design training. This is what OKC Theory called the lack of procedures in place. The theory argues that procedures give organizations direction to perform their task and that

the lack of procedures in place may restrict time and resources to be spent in creating new knowledge to improve the implementation of inclusive design policy as shown here in the example of Indigo.

“And the people who aren’t very interested and aren’t very good, and are very busy, don’t come. We tend to get the converted coming. You really need the management to say, this is mandatory, you have to go. Some of them do, but it’s not really the hard-core that you want, the ones that are really not getting it. And there are some of the older people who I think they are aware that they don’t know, they’re not up to date with things, but they’re very reluctant to admit that they don’t. Whereas the fresh faces, the younger guys, are perhaps a little bit more, I’ve got lots to learn and I’ll go along to anything.” (Policy 1)

Policy actors suggest that disability groups are an additional group of experts who have a wealth of personal experiences that can have a positive influence on inclusive design policy implementation. Indigo’s local disability groups are involved in the inclusive design implementation process through the inclusive design expert, i.e. involved in consultation, forums and developer’s meetings. Involving local disability groups can advance the tacit knowledge of those involved in implementing inclusive design policy in the local built environment. For example in the production of the Supplementary Policy Documents (SPDs), Indigo interviewees recognize that their input is genuine and influential in the socialization phase of knowledge creation through their reflection of experiences.

“I feel that we are very blessed that we have access groups. I think that however poor involvement and engagement might be across the council, people will find it quite hard to look at an original, genuine statement from a member of access groups and say, I don’t agree with that, we’re not going to do that. It’s about as direct as it gets. And another thing these particular individuals [disabled people] have got used to working in that multi-impairment environment. Increasingly they’re reflecting on each other’s experience.” (Policy 1)

“I also wanted to emphasize the importance of involving people from across the impairment groups, which again not a lot of authorities, always understand that asset at the outset. There are people who are deaf, people who are blind or partially sighted people with learning difficulties, people with mental health issues, people with hidden impairments, and people with physical impairments. So, it’s not about saying it’s got to be perfect for everyone, but it is about being aware of what that differential impact is, and making sure the planners and the developers take into account all those issues.” (Policy/disability 1)

In particular, disabled people who were involved in consultations relating to all three SPDs in the field of inclusive design, have built up further expertise, particularly in understanding planning drawings and identifying problems of inclusivity. Such understanding, results in an effective contribution and confident interaction in the process of SPD formation. The approach demonstrates that disabled people's understanding and ability to read planning drawings allow them to make an informed contribution to the SPDs.

"Now, some of the people (disabled people) have been involved in all 3 of those SPD consultations. So that means, that those people were able to build up their expertise in terms of looking at plans, looking at proposals, then being very well aware of how their own experiences may be brought to their... In terms of their influencing what's going to be decided." (Disability/policy I)

5.4.3.2 Sharing experiences, interaction and communication

'Sharing experiences', as part of the socialization phase, plays an important role in creating the tacit knowledge needed to give the policy actors the ability to make effective decision during inclusive design policy implementation. Indigo Local Authority has not established a formal way in which individuals or groups can share their experiences with regard to inclusive design. However, there is an informal exchange of knowledge between colleagues by swapping notes regarding lessons learned from past projects/experiences as a way to improve their future performances. However, it is by no means sufficiently comprehensive.

"I suppose there is a fairly informal way, that [Eys - a work colleague] and I will swap notes about what's occurred and something that's innovative or terrible, and how did you argue your way out of that situation? And we're sort of keeping a list of things where we feel our SPD falls short at the moment." (Policy I)

Furthermore, sharing experiences allows individuals to share a common thread of thinking about a particular aspect. For example, a close link between planning and building control individuals can further advance their understanding of inclusive design policy implementation by participating in an exchange of each other's basic requirements, particularly in aspects which overlap. The sharing of experiences between colleagues can minimise the current problems faced, such as development approval that can present problems in subsequent stages.

“I think there’s so much about understanding between the two teams, and we did try at one point to have some sessions which were about planners talking to building control and about generally what they do, the scope of their work and the detail of the work, and vice versa. Colleagues of mine have approved things, because in planning terms there’s not a problem. But then when it goes through to building control, it’s a change of use which then requires an access improvement, which is not possible within the envelope which has been approved by planners. So, there’s that. Obviously you can’t know everything that the other discipline knows, but you need to know more than you generally do.” (Policy 1)

In addition, interviewees highlighted the necessity and the potential benefit for policy actors and policy makers to learn from each other. It can enhance inclusive design policy implementation based on the experiences derived from ongoing communication and from a common understanding and vision of both parties (bottom-up approach).

“The necessity of development management being well aware of policy, and being able to ask questions the whole time about policy. And similarly, as you say, policy feeding off their experience in knowing what works and what doesn’t work, and then amending things in line with actual experience rather than what the Mayor might have said.” (Policy 1)

The interviewees suggested that ‘ongoing communication’ is needed, whether formal or otherwise, to contribute to advancing inclusive design. They highlighted that, in the past, when planning and building control departments shared the same space, communication was considerably better compared to the physical division that was later introduced between the departments. One interviewee saw the separation of departments as ‘disastrous’ with departments that share the same space (building control and planning) communicating better with ‘lots of connections’. The experience of separation and then re-integration showed that policy actors work much more effectively as a closely-knit team. However, more importantly, the same interviewee recognised that the close relationship between departments was likely to produce an environment better suited to the creation of new tacit knowledge amongst those participating in the socialization phase through acts that promote communication.

“The division between building control and development management (planning team), that’s a problem because they ought to communicate properly. But there is another problem here, where you have planning policy and development management, and we were always like one team. And on the same floor, and people would be walking about and talking to

each other, and informally and formally there were lots of connections. And then we got divided into separate departments. It was just disastrous. And we're back together again, and it is notably better, although we're not perfect by any means.” (Policy I)

Collaborating with other colleagues is understood to yield positive results in creating tacit knowledge as part of the socialization phase. Colleagues learn from each other's area of expertise about the basic requirements during design application assessments that relate to, or conflict with, inclusive design policy implementation. The interviewees highlighted that, through interaction with colleagues from different departments, individuals acquire the ability to prioritise relevant aspects of inclusive design which might otherwise go unnoticed. Tacit knowledge produced at this level of interaction is considered important enough by the interviewees to be incorporated into a formalised document in the externalization phase. Therefore, collaboration as part of the socialization phase can lead to the creation of a new source of tacit knowledge used in the formation of inclusive design SPDs (explicit knowledge).

“One thing we've done recently in planning is producing a supplementary planning document (SPD). But anyway, the way that we produced that, was a collaborative thing with colleagues from Highway, Green Space, trees, conservation, and children's services around play. And that was such a useful thing. One thing was that we managed to produce a document, but the other thing was that I learnt so much about, well, highway engineering and things like that, which have informed the way I look at the applications. But we need more of that sort of thing going on institutionally, so that we cannot ignore the priorities of other things.” (Policy I)

5.4.4 Externalization

5.4.4.1 Collective reflection and codification

Collective reflection of individuals or groups can play an important role during the externalization phase i.e. extracting explicit knowledge from tacit knowledge putting it in written format. A collective reflection process gathers and records information from a group or individuals. OKC Theory referred to the process as externalization of tacit knowledge forming an explicit knowledge known to be useful to new employees to gain an overview of the organization, whilst providing a framework for the existing employees to work towards a common goal. In Indigo's case only complaints and investigations raised by Disability Action are put in writing for future use. Currently, there is no systematic way for Indigo policy actors to discuss and record their past experiences, nor

do they monitor or record the impact of inclusive design on the built environment. Although in the previous phase (socialization), Indigo demonstrated that they have established ways of advancing tacit knowledge; the current phase (externalization) indicated some weakness in codifying their tacit knowledge to improve and update their existing policy document gaps.

“About monitoring, I am saying it doesn’t happen. And occasionally it happens, that through Disability Action, generally, would get somebody complain about such and such a building. And we can investigate something to some extent once we know about that. But there’s no systematic way of that. At the time we’re terribly excited that this might be possible, but it just proved a virtually impossible task, and the funding was insufficient for that task. I still think it would be a fantastic, a sensible way of going ahead, to have that kind of super-conscious systems.” (Policy I)

5.4.5 Combination

5.4.5.1 Inclusive design policy currently in use and the policy origins

In 2004, Indigo adopted the Supplementary Planning Document (SPD) produced by the Mayor of London for London Local Authorities to implement inclusive design. At the time of this research Indigo had adopted the London Mayor’s policy called Accessible London: Achieving an Inclusive Environment (2011) to address inclusive design in planning proposals. The London Mayor’s policy originates from the national policy for inclusive design/access. Since this research commenced in 2009, the inclusive design policy referred to originates from the national Planning Policy Statement 1 (PPS1): Delivering Sustainable Development 2005 (briefly summarised in Appendix D). Indigo further produced several SPDs to include details lacking in regional and national policies or where local circumstances differ. These SPDs are called Accessible Housing, published in March 2009; Inclusive Landscape Design, published in January 2010. They are the focus of this research. The SPDs are heavily informed by local information but guided by the requirements of regional and national policies. For instance, the Indigo Local Authority area is densely populated, with many more flats than houses. According to Lifetime Home standards; sixteen standards should be incorporated in house designs to qualify as a ‘Lifetime Home’. However, these are more suitable for houses, but less useful in the design of a block of flats. Therefore, Indigo has produced an SPD to ensure flats are designed with adaptable features to ensure Lifetime Homes.

“We interpret Lifetime Homes in a very particular way in [Indigo]. So, we have our own supplementary document (SPD). We do implement the London Plan policy, like 100% Lifetime

Homes, 10% wheelchair accessible homes, but we interpret that in a very particular way in [Indigo]. So, we have our own supplementary policy document. What that actually means is that Lifetime Homes, the way they're conceived and the way they're described at a national level, what it's described to you is a very conventional, like an estate house, semi-detached house or a terrace or something. We don't have or hardly any of those in [Indigo], mostly what we have are flats. So, we had to think, well, what are we trying to achieve? We need to achieve adaptable housing and some wheelchair accessible housing.” (Policy I)

Indigo's dedication to the provision of inclusive environment involves local disabled people. For instance, the SPDs are produced in conjunction with local disability groups to ensure their knowledge and experience of inclusive design contributes to the policy documents and has a positive impact on the local built environment. The process of SPD production was commissioned by Indigo through Indigo Disability Action, a local organization representing disabled people's rights.

It's that service that [Indigo] have commissioned, in order for us to engage with local disabled people so that they can contribute to developments around the local environment and planning, and the SPDs” (Disability/Policy I)

Another approach undertaken to produce inclusive design SPDs at Indigo includes access auditing performed by using information gathered locally. For example, the 'Green Space SPD' (design guide that covers green spaces such as parks), was produced after undertaking access audits about disabled people's use of local parks. The interviewees suggested that the audits performed indicated that disabled people are likely to find access around local parks difficult, and yet there is a lack of information in the policy document to assist policy actors' decisions on green space designs. The information collected, guided policy actors at Indigo to identify and address the issues relating to access resulting in improved inclusive-design implementation for green spaces. Knowledge created from such experiences is codified and forms part of the Indigo SPD, currently used by policy actors.

“We're initially working with green space to look at whether and how disabled people use local park spaces, as well as auditing, doing the access audits of some local green space. And a whole raft of issues came up around the fact that many parks aren't accessible or are particular detriments to people from particular impairment groups. And a lot of that work was taken on board and those issues were addressed. But we realised that actually one of the key things that needed to be done, as new green space was developed is that the people who are responsible for planning, need to learn from this experience” (Disability/Policy I)

The SPDs produced by Indigo focus on several areas where they perceive that existing documents lack detail. For instance, their current three SPDs address: (a) accessible housing design in 2009, (b) inclusive landscape (green space), in 2010, and (c) accessible streets (2011/2012).

“Three SPDs produced by Indigo to address housing, landscape and streets.”(Policy I)

Under the London Plan, all LAs are required to produce 100% Lifetime Home standards. However, Indigo accessible housing design SPDs contain the ‘interpretation’ of Lifetime Homes to satisfy the local context. For example, one of the sixteen Lifetime Homes standards interpreted by Indigo Local Authority is the requirement of Lifetime Homes with multi levels i.e. three or more levels. Indigo SPD suggests that all development proposals with three or more levels require a provision for lifts. Although the provision for lifts is not a requirement under the sixteen Lifetime Homes standards, Indigo has recognized the need for lifts to ensure that mobility-impaired people can access these properties.

“But what we are asking for is more than Lifetime Homes. So, we have to say, it is Lifetime Homes plus. So, we are saying in Indigo, because it is high density, it’s urban, we are committed to car free development. For instance, having something that meets all sixteen standards but is on the third floor with no lift and no possibility of any lift, that shouldn’t be considered a lifetime home, because it’s not visitable or adaptable, to accommodate disabled people.” (Policy I)

5.4.5.2 Inclusive design policy or any guide currently used

The collection of information that make an inclusive design policy drawn from various policy documents outside the Local Authority (LA), as well as local consultation documents and other relevant guides, are combined to form SPDs, a typical goal of the combination phase (section 3.7.3). All the current used SPDs are published and easily accessible on Indigo’s website. For instance, Indigo’s inclusive design policy website makes several references to London Policy 7.2 (regional policy) which provides direction for what is required with regard to inclusive design within London areas. However, the London policy needs to be related to the LA’s local area to work effectively. Below is the London Plan policy’s goal quoted from Indigo’s website:

“[Indigo]’s emerging Development Management Policies state all developments shall demonstrate that they:

- *provide for ease of and versatility in use;*

- *deliver safe, legible and logical environments;*
- *produce places and spaces that are convenient and enjoyable to use for everyone, and*
- *bring together the design and management of a development from the outset and over its lifetime” (Indigo policy of inclusive design, website Accessed in 11 July 2013)*

Indigo Local Authority refers to the above policy as their general policy framework drawn from regional policy. Although the above policy is potentially correctly worded, such a policy is not self-explanatory or easily interpreted by policy actors in charge of its interpretation. For instance, there is no mention of inclusive design or how such a policy can deliver accessible designs. Therefore, in conjunction with the London policy, Indigo Local Authority has further published detailed local policies (SPDs) for specific uses. For instance, inclusive housing see below quote, Indigo’s housing policy calls for all new houses to be designed to Lifetime Home standards and 10% of them to be wheelchair accessible:

Inclusive housing - *Indigo operates “London Plan policy 3.8”, Housing Choice that requires:*

- *all new housing is built to ‘The Lifetime Homes’ standards*
- *ten per cent of new housing is designed to be wheelchair accessible, or easily adaptable for residents who are wheelchair users (i.e. in developments of 10 units or more) ” (Indigo policy of inclusive design, website. Accessed in 11 July 2013)*

The lack of detail in the London policy and the lifestyle (high density) of Indigo prompted them to produce a relevant policy with more details. For example in response to the London Plan policy for inclusive housing policy stated above, Indigo produced their in-house SPD with various details suitable for their local access needs and specifying the type of developments where their policy should be implemented, as quoted from their website:

Indigo’s “Accessible Housing Supplementary Planning Document (March 2009)” sets out the Council’s standards for accessible housing and applies to all new housing, whether new build, refurbishment, extension or conversion.” (Indigo policy of inclusive design, website Accessed in 11 July 2013)

5.4.5.3 External information used to support the implementation of inclusive design

Apart from Indigo’s SPDs and London policy, several national standards guides/legislation are quoted in their inclusive design policy documents such as DDA legislation (DDA, 1995) or Equality Act 2010

and Part M of the Building Regulations (ODPM, 2004). This shows that Indigo uses a combination of various documents to provide a suitable accessible environment to meet their local needs. The OKC Theory argues that explicit knowledge is collected from various sources of externalized materials, including materials from within or outside the organization, and is combined and edited to form new and relevant explicit knowledge that can be disseminated or diffused amongst employees to inform their decisions.

“It can be said that you could make an argument for that if you have taken reasonable care and you have fulfilled the building regulations to the best of your knowledge, that you’ve gone some way towards meeting the DDA or the Equalities Act that is what we can do. I suppose under building control legislation, we’re dealing with accessibility under Part M of the building regulations.” (Building control I)

5.4.6 Internalization

5.4.6.1 Understanding inclusive design policy

Explicit knowledge is transformed into individualised knowledge (tacit). The interviewees suggested that the current policy documents are clear and detailed, providing a better understanding of inclusive design aspects, which are otherwise not explained by the national policy. Furthermore, the benefit of a detailed policy is the provision of specific details enabling policy actors to assess a development application more thoroughly.

“I think policy is clear because there are clear umbrella policies, and then there are good documents with the nitty gritty if you like. You might say all shops have to enable access for all. But then you’ve got the nitty gritty of doors should be this wide, lobbies should be this big. You get the actual information about how to make sure that’s adequate” (Planning I)

However, there is a concern about the ‘inconsistent interpretation’ of Part M amongst building control surveyors, because the document is less explicit in some areas. For policy actors to close those gaps, a grounded understanding of the vision of inclusive design is needed. However, a better communication between planning and building control departments, setting out clearly a common vision for achieving accessible environment through the use of SPDs and other relevant documents to anchor their decision where there are gaps in the regulations, may reduce inconsistency of interpretation. This approach requires the LA to provide a space (Ba) where socialization between departments may take place. In addition, the OKC Theory argues that unclear instructions can result

in the absence of direction, and consequently lead to taking wrong decisions or actions. Hence, addressing gaps in regulations is key.

“There’s a lack of consistency between interpretations and between possibly building control surveyors, which I find in the profession, is a bit worrying. So, there should be a consistent interpretation of the regulations, but the regulations themselves leave a lot open. (Building Control I)

Although some aspects of inclusive design are dealt with after the planning stage, i.e. during building control, the interviewees at Indigo Local Authority emphasise the importance of inclusive design at the earlier design stages, while noting the limitation of what can be achieved under Part M. Early involvement of the actors is more likely to succeed in incorporating inclusive design aspects. Being expansive in the application of the policy to overcome any building regulation constraints, and early incorporation of inclusive design, is more likely to yield satisfactory results for both applicants and policy actors.

“[what we say to the applicants is] Never mind what building regulations say. We need it [development] to be inclusive, we need you to bear in mind of the equalities act and we just can be more expansive. And we may be successful and we may not, they’ll know, at the end of the day building regulations only goes so far, but at least we would have that first opportunity to try and raise the bar.” (Policy I)

5.4.6.2 Decision-making

The interviewees experienced a change in attitude from developers after the adoption of the policy, compared with their previous reluctance to inclusive-design implementation when Indigo had produced a design guide. Policy adoption has a positive influence on the decision-making negotiation process, such as supporting decisions taken by policy actors. The adoption of the policy benefits both inclusive design policy actors and developers who are now more likely to accept the local policy, reducing the chance of appeals against planning actors’ decisions. A local policy provides a platform for negotiations with developers over inclusive design issues. OKC Theory argues that explicit knowledge provides instruction, backing-up decisions and actions.

“I suppose there is a point [in having policy document in place]. Very often you really have to rely on it primarily as a negotiating tool, because things get very tricky when you get into refusing and going to appeals and things like that. But there’s a fantastic difference in the

developer's attitude once it is an adopted policy document as opposed to if it's just a guide. Because in our SPD for a couple of years we just had a guide, and that was really hard to argue the case. As soon as it was an adopted SPD, the mind-set does change out there, that they ought to do it. I think having it as an official adopted policy thing does alter what actually gets built.” (Policy I)

5.4.6.3 Actions

Although, Indigo adopted SPDs, the interviewees acknowledge the challenges faced in enforcing some aspects needed to meet inclusive environment. For instance it is not explicitly stated in the SPDs, what procedures can be followed by disabled people if buildings continue to be built with poor access regardless of the policy. The interviewees suggested that this is a gap in their SPDs. They welcome any new procedures to closely tie in with the SPDs to be acted upon by a dedicated individual within the LA. OKC theory suggested that feedback from the product users is important in the process of knowledge creation. This indicates weakness and gaps in Indigo's process of knowledge creation. Furthermore, the interviewees highlighted that, currently, Indigo is not fully demonstrating the will, nor assigning the resources needed, to achieve enforcement. Although OKC Theory does not address extra resources for implementing knowledge creation, organizations need to view knowledge creation as part of their daily procedures not as add-on resources.

“Well, not exclusively, but I think an issue that comes up again and again is enforcement. So, often you can have a good policy, a good document. But there then has to be both the will and the resources for the Local Authority to make sure it works in practice.” (Disability/policy I)

“Well, it's quite difficult. I mean, I would just say that in any policy or SPD, the enforcement needs to be part of that document. It can't be something that sits outside it, because otherwise before you have the great policy, that you don't actually detail chapter and verse, because it's chapter and verse that gives people power, or empowers, doesn't it? So, if you know you've been involved in something, we can point people and say, well, we were involved in that piece of work, let's go and look at it.” (Policy/disability I)

Where lack of detail that could result in attempts to undermine inclusive design aspects unavoidably appears within Part M positive results are more likely through the use of persuasive language. This approach is often more successful than simply relying on the vagueness of prescribed regulations. This shows that tacit knowledge is necessary to successfully implement inclusive design policy. This is

supported by Nonaka's work of organizational vision suggesting that understanding the "why, what and how" is essential for individuals to create value judgements and practical reasoning in different situations. Arguably, in such situations greater reliance is attached to a thorough understanding of inclusive environments and disabled people aspects that can be underpinned by knowledge creation.

"Sometimes I see it in an alteration, for instance an office place, I just have to remind them about accessibility, by saying you're doing all this lovely work, and I have to use persuasive language and emphasize the positives" (Building control I)

As previously discussed in this chapter the disabled people's expertise contributes to the policy actors' understanding of inclusive design policy and in particular the SPDs. However, the interviewees further suggested that the disabled people's involvement is strongly linked to the action taken by developers and policy actors. It is suggested that there are comparatively few enforcement cases originating from disabled individuals who are discriminated against within the built environment. It is still recognised that the (informal) enforcement process could be more effective if policy actors were to work in conjunction with disability groups to deal with accessibility issues. For example, shop owners are most likely to understand and react to disabled persons' complaints, as opposed to LA personnel, hence highlighting the importance of having disability group involvement in inclusive design issues. However, the effectiveness of any involvement could well vary depending upon which stage of the development and the level of involvement of disability groups. It can generally be argued that the successful experiences from action previously taken by disabled persons, even though the cases are generally few, strongly suggests that the input from disability groups is also likely to be effective. In particular, in local policy making and planning, it is recognised that explicit knowledge is lacking and requires support from the tacit knowledge held by disability groups.

"And there have been occasions when enforcement action has been taken and we've forced people to remove steps and things. It doesn't happen very often, I have to say. But I feel that it would be a much more effective way of working is that engaged with the local disabled people, because I think those belligerent shop owners for instance, if they're forced to take notice of a complaint of somebody who can't get in or has had a bad experience or whatever, it will hit home much more forcibly than me going along with my office local authority badge, saying, you didn't... Well, who cares whether I've got my proper planning permission or I built in accordance with the plans. The fact is there are individuals and countless others who can't make use of the service now." (Policy I)

The interviewees suggested that in the majority of cases the enforcement process is only triggered by complaints made by disabled persons affected by physical access barriers, since it is very unlikely that a LA officer will initiate an investigation. The interviewees have indicated that they might not take action even when they have been notified of the barriers faced by disabled people. Consequently disabled people might be discouraged from raising issues regarding inaccessible buildings. Arguably, advancing their knowledge creation procedures may improve policy actors' understanding of inclusive environments and disabled people's needs, allowing them to eliminate most problems relating to inclusive design and minimise complaints from disabled people later when accessing the premises.

" As good as it gets at the moment, a complaint would come through and we might pursue it and I might visit." (Policy I)

Furthermore, the policy actors' action is influenced by an applicant's appeal on decisions, and the likelihood of winning a case if there was an appeal on the decision made. Although, the Indigo interviewees were satisfied with the production of the SPDs, and backed by the local disability groups, there is a credible concern when it comes to appeal cases. The concern is due to the relatively weak support for inclusive design issues in national or regional policies, yet it is these that carry the necessary weight in appeal cases. Despite this drawback, the Indigo interviewees argued that the adoption of SPDs is a step toward improved inclusive design implementation. With this in mind, policy actors at Indigo are well aware of the balance that needs to be struck when considering inclusive design through negotiation. Furthermore, it is noted that the actors at Indigo possess the confidence to deal with planning applications, acquired through having tacit knowledge on inclusive design aspects. This type of confidence allows them to convince developers to accommodate the necessary changes in inclusive design aspects through the art of persuasion without always having to worry about any repercussions from appeals.

"We ask for more specific features than other boroughs do. There have been appeals around housing development. Access is rarely the main issue in question, but obviously everyone's really looking for as much ammunition as they can get, but our legal advisers have said to us on more than one occasion, I really don't want to use something from the [Indigo] local guidance. I don't want to make that the focus of the inspectors' concern, because they might chuck out the whole SPD. So, all we're going to focus on in terms of the appeal is anything that's national or regional, like the London Plan. And then we feel more confident to hold that up. But if we were to draw attention to the fact that [Indigo] asks for something more

onerous than another borough, we could be in trouble. Planning is a special discipline. But anyway, I'm just saying that we are sort of confident about setting our own standards. But on the other hand there is an anxiety and nervousness about it because nationally there's not a great deal of support for it." (Policy I)

"There are things that can temper policy if you like. Sometimes you will get an appeal decision. A government inspector will say, well, no, this is not adequate or this policy is out of date, or even though this doesn't adhere to the dimension you say, there's another way of doing it and I think this is fine. So, sometimes you have to think about appeal decisions when you're looking at how closely you can adhere to. But generally I think the access policies particularly are robust at [Indigo] Local Authority." (Planning I)

5.4.6.4 Values

Values play a large role in rational moral action. Following the socialization, externalization and combination phases, individuals or groups justify truthfulness in the internalization phase, meaning that individuals can justify their actions based on values. The interviewees suggested that the progress of inclusive design implementation is undermined by some of the stakeholders' negative views that need addressing. In particular, individuals that hold a negative view on the implementation of inclusive design policy might not implement such a policy. In addition, poor understanding of inclusive design aspects amongst policy actors to underpin issues such as for "what" purpose are they implementing inclusive design policy in designs and "how" physical barriers in the built environment arise, may lead to a lack of moral purpose for adopting an inclusive design policy.

"At the moment it's all negative. No one is thinking about what positive things we can do. That's what worries me. What can we do?" (Building control I)

Indigo interviewees emphasised that the main focus is on defining and solving inclusive design problems. This would help to achieve a built environment that provides 'visitability and adaptable buildings' which can accommodate the wider needs of the population, while relying, to a lesser degree, on individual design guides or standards. The focusing on a specific goal to be achieved, indicates that Indigo's implementation of inclusive design policy is guided by a vision for providing visitability and adaptability buildings, rather than solely depending on policies.

“I think that’s what we try to hang onto the whole time, is that in my mind, a lifetime home is about visitability and adaptability. Never mind individual standards, but that is what you should be trying to achieve.” (Policy I)

In addition, policy actors’ worries are growing over a recent planning policy framework that allows non-restrictive developments. The framework is supportive of more housing production and ‘less cost within a short period of time’, whilst paying less attention to inclusivity. This indicates a growing threat to inclusive environments and the possible discouragement of policy actors to disapprove developments that are less inclusively designed. Arguably this view may threaten the progress in OKC for Indigo.

“This new planning policy framework thing that says you’re not supposed to impose restrictions. So long as the house builders are saying to the government that planners are getting in their way, it will be difficult to achieve. But anything that seems added cost or time to the development process is going to be under attack really.” (Policy I)

5.4.7 Case study 1 summary

Table 5-3 Case study 1 (Indigo) summary

Template	Summary
Background of the case study	Local Authority Indigo is known to have adopted an inclusive design policy. Indigo has an access officer in a full time position for over 15 years and has strong links to the local disability groups who contribute towards the local development and planning framework.
1. Socialization	
1.1 Inclusive design training/CPDs	1.1 Indigo introduced training and CPDs, seminars and surgeries around disability awareness within the built environment. <i>“So, the idea is that we get people’s awareness to grow, so that their own performance, the way they do their jobs alter” (Policy I)</i> . The difficulty experienced during training is that there is less senior staff attendance compared to junior employees. Interviewees suggested that management should make the inclusive design training mandatory.
1.2 Inclusive design experts	1.2 Dialogues between inclusive design experts and other professionals in the built environment have a positive influence within policy actors as demonstrated in indigo. For example, the surgeries on inclusive design conducted by Indigo have minimised the workload faced by their access officers due to better understanding of inclusive design amongst policy actors. <i>“It’s not appropriate that access officers are expected to do all the access work and can’t do it anyway” (Policy I)</i> .
1.3 Sharing experience, interaction and communication	1.3 There is an informal exchange between some policy actors with regard to innovative or bad experiences. Interviewees highlighted the poor collaboration between the various relevant parties, while noting the possible benefits of better interaction. Building control and planner interaction has the benefit of understanding each other’s basic requirements. Interaction between Indigo Local Authority and local disability groups is known to enlighten the policy actors understanding of issues faced by disabled people in the built environment. The need for communication between policy actors is highlighted.

Table 5-4 Case study 1 (Indigo) summary (contd.)

Template	Summary
2. Externalization 2.1 Collective reflection and codification	2.1 The progress /impact of inclusive design policy implementation is not monitored at national, regional and local level. Interviewees argued that monitoring the progress and impacts of inclusive design is complicated and difficult to understand, hence simplification is required.
3. Combination 3.1 Inclusive design policy currently in use and the policy origins 3.2 Current policy (policy document) 3.3 External information 3.4 Internal information	3.1 Indigo’s policy originates from a combination of several documents: regional policy (London Plan), national policy PPS1 and local information of inclusive design collected through access auditing and consultation. 3.2 The adopted policy focuses on the provision of a built environment that is safe and easy to use, non-disabling and flexible for future adaptation with a realistic approach to accommodating different needs. 3.3 Indigo made a reference to several external information sources(national documents) such as Part M, DDA and PPS1 3.4 Indigo produced SPDs to ensure the local accessibility needs are incorporated based on local information, while aligning the SPDs with the regional and national policy <i>“We interpret that in a very particular way in [Indigo]. So, we have our own supplementary document (Policy I).</i>
4. Internalization 4.1 Understanding inclusive design policy 4.2 Decision-making 4.3 Action 4.4 Values	4.1 Indigo interviewees noted that the inclusive design policy (SPD) adopted is understood and provides clear guidance. 4.2 The adoption of inclusive design policy has a strong influence on decision-making. The applicants take an adopted policy more seriously compared to having guidance or no policy at all. Moreover disabled people’s involvement is known to have a genuine and direct influence on the decision-making process. 4.3 Although having a clear policy makes a contribution toward the justification of decisions and actions, interviewees highlighted the lack of will and availability of sufficient resources as part of the reason for poor enforcement of inclusive design policy implementation. Interviewees highlighted the benefits of acting on inclusive design policy implementation at the earlier stage of the designs. Overall actions are more influenced by persuasive arguments, hence tacit knowledge is important. <i>“I just have to say, well, your accessibility, you’re doing all this lovely work, and I have to use persuasive language and emphasize the positives”</i> (Building control I). 4.4 The interviewees noted that the field of inclusive design is dominated by negative views amongst stakeholders. However, interviewees at Indigo are focusing on achieving visitable and adaptable buildings.

5.5 Case study 2, [Red]

Three people were interviewed at Red Local Authority, a planning officer (Planning R), a building control surveyor/officer (Building R) and a policy officer (Policy R), see Appendix B.

Table 5-5, Red interviewees

Case study: Red		Quote reference
First Interviewee		
Position	Planning officer	Planning R
Department	Planning /development control	
Length in the position	4 years	
Second Interviewee		
Position	Deputy manager	Building R
Department	Building control	
Length in the position	16 years	
Third Interviewee		
Position	Principle planner	Policy R
Department	Policy team	
Length in the position	12 years	
Policy document/guide		
Quote from policy document		Red LA Policy document

5.5.1 Key findings

The key findings of the Red case study are:

- Poor approach to knowledge creation (weakness in both explicit/tacit components).
- No inclusive design policy adopted.
- Access officer's role concentrates on planning application assessments, paying less attention to interaction with actors or training to raise awareness of inclusive design.

5.5.2 Background of the case study Red

Case study Red is a local authority for the Borough of [Red] in the English county of Berkshire. Berkshire is a ceremonial county, without administrative responsibilities. [Red] Borough Council is a unitary authority. It has the powers of a non-metropolitan county and district council combined. Red Borough Council has adopted the committee system of governance. The borough has a population of approximately 160,825 and a density of 10,310/sq mi. It is located on a low ridge between rivers. Local public transport is largely by road, with very few railway stations. At the time of the interviews Red LA had yet to formally adopt an inclusive design policy. However, their Core Strategy, dated

January 2008, and called the [Red] Borough Local Development Framework makes a reference to social inclusion and diversity. The phrase 'inclusive design' is not mentioned in the policy; however, it is designed to "address the needs for all in society" through safer usability and accessibility.

"There isn't the word inclusive specifically, but it does talk about addressing the needs of all in society, making sure they're accessible, usable, and easy to understand, that they're safe. So, there's a whole series of design objectives in that policy. So, this is another key policy that people would use when assessing applications." (Policy R)

5.5.3 Socialization (focuses on verbal explanation used by LA to improve knowledge)

5.5.3.1 Inclusive design training/CPDs

The interviewees referred to issues of inclusive design as voluntary not a statutory requirement and that individuals have no time to attend training, unless it is mandatory. Training is traditionally accepted to be an effective way of raising awareness and advancing tacit knowledge amongst individuals. Therefore, individuals without training or any other equivalent ways of knowledge creation as quoted below might overlook inclusive design issues due to having poor tacit knowledge.

"We also have continual professional development, and we're supposed to do 50 hours of professional development every two years. I would suggest that many planners don't get a chance to do that (CPDs), just because they're so busy. If something came in that made us change what we do, we would change. If someone suggested doing something voluntarily, we just haven't got the time, I don't think" (Planning R)

5.5.3.2 Inclusive design expert involvement in knowledge creation

Although the interviewees noted that an access officer is employed by Red Local Authority, they felt there was no one with inclusive design expertise to attend related queries that might arise. This is in contrast to other areas such as conservation where there are experts to assist policy actors. Furthermore, the interviewees argue that the lack of experts in inclusive design aspects is a reflection of the lower priority given to inclusive design within the built environment. OKC Theory recognises the use of experts, often referred to as a connectionist epistemology, arguing that knowledge is advanced through the experts' interaction, since experts are individuals with a special skill and knowledge. Consequently, as Red policy actors do not have an inclusive design expert to interact this may undermine knowledge creation process.

“I don’t think that we have anyone expert [in inclusive design] in the council. In terms of other matters, we have someone who is an expert in conservation; we have the people that deal with certain types of applications that really know their stuff. But in terms of Lifetime homes and access, other disabled access issues, there’s no real expert to talk to. So, I don’t think it is a priority, sadly.” (Planning R)

Despite having an access officer in Red LA there was no interaction between access officers and policy actors. The current role of the access officer is the assessment of planning applications for inclusive design provision, but only for applications that are referred for the officer’s attention. However, the decision to refer applications for the attention of the access officers lies with junior planners. This process raises questions about how a less-experienced policy actor can make a sensible decision on which application(s) should be reviewed by an access officer. In addition, the lack of training in inclusive design can affect the junior policy actor’s decisions of what can or cannot be referred to for the access officer’s attention.

“We have an officer, an access officer, but when an application comes in, a technician who’s one of the younger planners, has to go through and decide who to consult. So, they will tick whether the access person gets consulted or not.” (Planning R)

Furthermore, the interviewees suggested that although there are many applications that require inclusive design assessment, there is a limit on the number of applications that can be referred to the access officer, in order to prevent overloading an individual access officer with too much work. Arguably inclusive design aspects are not assessed in most applications; consequently buildings are likely to be built with poor accessibility. This indicates the need for knowledge creation in place to equip most policy actors with tacit knowledge of inclusive design to effectively advise the applicants in planning process.

“Most... I would imagine an awful lot of applications don’t even get to the access officer. Even if they did, it probably wouldn’t get given huge amount of weight. I gave you an example earlier if you appealed” (planning R)

5.5.3.3 Sharing experience, interaction and communication

The interviewees suggested that upon the introduction of a core strategy there was discussions between colleagues to give them an understanding and meaning of the policy’s phrases. Furthermore, the interviewees see such an approach as a way of restoring confidence in the policy

actor. Nevertheless, there is a feeling that such a discussion did not address inclusive design or possibly was not attended by most policy actors. The first part of Section 5.5.3.2, shows that there is still a limited understanding of inclusive design and no assistance currently available on this subject.

“Introducing documents, particularly the core strategy, we did have a number of sessions, both in formulating policies and having discussions with our colleagues about: if we were to have a policy of this wording, how would this work for you, how do you think you might be able to apply that? How easy would it be to defend that, if you were using that as a reason for refusal? Or does it feel just too... I can’t quite pin point... It’s just words, it doesn’t mean anything. So there would have been a whole process of discussing that with our colleagues.”
(Policy R)

It was further suggested that the interaction between policy actors is limited, due to the broadness of policy in the built environment. The poor interaction between policy actors in the departments is considered endemic and is likely to discourage the exchange and creation of knowledge and reduce the possibility of improving the understanding of inclusive design.

“The policies are very broad, and I feel that every planner in their education is taught about the built environment and appropriate design. And therefore, there isn’t an awful lot of interaction between individual officers.”(Planning R)

In addition interviewees highlighted a limited communication between departments as a threat to knowledge creation progress. For example, Red’s planning and building control officers are in separate departments with ad hoc communication between planning and building control teams on certain aspects. Building control issues are referred to as separate and complicated, therefore planning officers have to rely on building control for inclusive design implementation. It can be argued that inter-department interaction is likely to benefit both sides while contributing to knowledge creation. In addition, the planning stage influences the building control stage enormously as demonstrated in the Indigo case study, despite their differences. It may help if both departments identified common issues of inclusive design that need early intervention from those in planning department and form a communication platform based on these issues. This may alert planners also on any new or any change in building regulation that might affect some of their decisions.

“So, we do communicate. But the thing is, often we can’t with some things. It might not be an issue they can deal with under planning. Maybe it’s just a building regs issue.” (Building control R)

“I think they [building control] would rely on their counterparts in planning to apply and assess things against that. They obviously have their own raft of regulations which are quite complicated. And we have to make sure that there is a tally between the two. So, there are times where we’ve liaised and there’ll be something new that comes out of building control which then makes some of this, defunct (albeit it’s only a few years old), because there are newer regulations.” (Policy R)

5.5.4 Externalization

5.5.4.1 Collective reflection and codification

Collective reflection is one of the ways individuals or groups can reflect on past experience such as documenting their tacit knowledge to create new explicit knowledge. Red Local Authority has not developed ways for codifying tacit knowledge; however they have developed a checking mechanism to ensure the designs reach a reasonable standard. Nevertheless their checking approach is not comprehensive, nor does it focus on inclusive design aspects. Arguably, there is no reflection on or documenting of past experience of the policy actors on inclusive design issues to help them with future improvement or innovation to advance their current policy.

“In regard to monitoring, the Local Authority and whoever’s doing the building, just check they’re actually doing it as they want it to be done, or to a reasonable standard. There’s some sort of checking system really but not specifically on accessibility.”(Building control R)

5.5.5 Combination

5.5.5.1 Inclusive design policy currently in use and the policy origins

The Red interviewees noted that, currently, the core strategy makes reference to several policies, such as the area of inclusive design, addressing the social inclusion of diversity, health and education and Lifetime Homes standards. There are no details of how the policies highlighted in the core strategy are addressed in terms of the built environment. The purpose and the focus of an inclusive design policy are unclear. The OKC Theory argued that ambiguously-written instructions lead to wrong decisions and actions. It can be argued that the authority relies on broader policies relating to access issues, which presents difficulties in addressing local issues of inclusive design.

“We’ve got a policy which is KS3, Social Inclusion Diversity, we were trying to capture a number of things about ensuring there’s access to all sorts of health and education and so

forth. We also have a policy, KS15, which has specific reference in it to lifetime home standards. We also have referenced from within the policy MM5, proposed policy on a housing mix, which talks about all new build locations which are on sites of ten or more dwellings, will be built to lifetime home standards.” (Policy R)

The interviewees highlighted that the local policies (SPDs) approach is influenced by what is important in the local community, based on their community strategy objectives. However, their objectives and aim are unclear if achieving an inclusive environment in the local context is an important aspect.

“We have to look at what’s important in the local context, and apply that appropriately to what our need are, what our particular community strategy has said about what our key themes and our key objectives and aims are, over a period of time. Then translate those into something that we can use when we’re assessing applications, proposals that are coming forward to us.” (Policy R)

For instance, with regard to housing, currently there is a proposal for adopting the provision of Lifetime Homes Standards (these standards consist of accessible features) based on local support. However, the interviewees suggested there was a lack of strong national support for Lifetime Home Standards and that these are yet to be adopted for new housing by Red. This is in contrast to Indigo LA who prioritises the inclusive design required in their local area to meet the need based on local support, Red seemed to be relying on national policy support.

“One of the topics on one of the days was this policy [Lifetime Homes Standards]. And there were issues raised about, you know, there’s no strong national policy basis for doing this. And we said, well, this is what is coming out of information that we’re looking at locally, and this is what we’re going to do.”(Policy R)

The interviewees highlighted the fact that the proposed policy document went through a wide consultation that included different organizations and individuals. In contrast to Indigo, Red interviewees made no mention of disabled people involvement in their policy draft production. The lack of involvement of disabled people in the process raises questions as to Red LA’s ability to create knowledge that link disability and design and to create a vision that motivates policy actors to engage in a process of creating relevant knowledge to meet inclusive design needs of the end users.

“I know that obviously in producing these documents we’ve consulted far and wide, both internally but a whole raft of organizations, individuals and so forth.” (Policy R)

5.5.5.2 Inclusive design policy or any guide currently used

There appears to be a poor presentation of several policies which make reference to inclusive access. The policies drafted by the authority are general and open to interpretation and organised into different/separate sections under different titles and so not easily accessed. This could present a problem and confusion for both policy actors and other professionals trying to access the policy on their website. Consequently, this may undermine the progress on inclusive design policy implementation. From the wording it is unlikely that it will mean anything to policy actors during decision-making at the design assessment stages. For example, the inclusive design policy published in Red Local Authority core strategy is quoted below, presented in different sections as documented by Red:

- ***“Policy KS3: Social Inclusion and Diversity***

Major developments, should demonstrate measures to enhance social inclusion in terms of access to housing, employment, services, community facilities, leisure, health, education, and other services and facilities

- ***Inclusive Access***

4.32 Inclusive access, both in terms of location and physical access, is identified as one of the key principles of planning at the national level, which can contribute to delivering sustainable development (PPS1)

- ***Policy KS5: Inclusive Access***

All buildings should be located, sited and designed to provide suitable access to, into and within, its facilities, for all potential users, including disabled people, so that they can use them safely and easily.

4.34 PPS1 specifically states that “Development Plans should contain clear, comprehensive and inclusive access policies”, which in turn “should consider people’s diverse needs and aim to break down unnecessary barriers and exclusions in a manner that benefit the entire community”. (Red LA Policy document, website Accessed in 14 July 2013)

The interviewees agreed that some policies directed to inclusive design are adopted. However, there is a lack of a detailed local policy document of inclusive design. Therefore, despite having a core strategy, there is still a poor focus on the inclusive aspects of design. This could be due to the weakness presented in creating both explicit and tacit knowledge in Red LA.

“We do have policies that look at that [inclusive design]. Rightly or wrongly, probably wrongly, we don’t focus that much on those things.” (Planning R)

Amongst policy actors the confusion and contradiction over the adoption of inclusive design is clear. For instance, interviewees based in the planning department noted there is a policy in place but not in use (see the previous quote). However, interviewees mainly involved in policy adoption, hold a different view arguing that, although the proposed local policy has been formulated, it has not been officially adopted and so merely acts as a guide to policy framework direction and used as an overall assessment tool. Furthermore, the interviewees highlighted that the local policy formulated cannot be relied upon to influence a development application since it is not adopted.

“There is attention being paid to this [proposed policy document], but it can’t be used if somebody’s looking to refuse an application, if they feel that there’s enough issue with it, they couldn’t use a policy in here as the reason for refusal, because it isn’t adopted. But you could use it in terms of an overall assessment to show what the direction of travel is of our policy framework. So, that would be valid, but to use it as the sole means for something would not be appropriate and somebody could take you to the cleaners on that, and challenge you. For the moment, in terms of assessing applications, depending on where the site is, if it were a central site, for argument’s sake, we would obviously use national policy”
(Policy R)

5.5.5.3 External information used to support the implementation of inclusive design

The interviewees recognised the need for external information to gain/create relevant knowledge, to allow them to achieve accessible buildings through national policy (PPS1), Part M of the building regulations and British standards. Nevertheless, these standards are set for national use and might not be relevant or appropriate in some cases as demonstrated in Indigo’s case. However, in the case of Red it sounds like it was the only option available in justifying their application assessment decisions. OKC Theory supports the use of external information in the process of explicit knowledge creation, however the theory argues such knowledge needs to be edited and combined to form relevant explicit knowledge.

“We would obviously use national policy.” (Policy R)

“We do work on building regulations. So, if somebody puts in a building regulations application for an extension or a new house or commercial premises, shop, factory, warehouse, offices, then we check compliance with Part M of the building regulations, and the associated British standards it refers to.” (Building control R)

5.5.6 Internalization

5.5.6.1 Understanding inclusive design policy

Explicit knowledge is transformed to tacit knowledge, becomes individualised, meaning such knowledge can be put to use by individuals. Although having a policy document in place is important, understanding the policy purpose is essential for policy actors to have a meaningful interpretation of a policy, especially inclusive design which seems vaguely written and presented in this LA. Red Local Authority seems to be missing both the tacit and explicit knowledge of inclusive design (section 5.5.5), especially as there is no formally-adopted inclusive design policy leading to inconsistencies.

“But in terms of the actual policies, they’re very much general. And we apply them with our own understanding I think. It could be interpreted in a very great many number of ways. And it really is subjective”. (Planning R)

In addition, the interviewees highlighted that those in building control still find themselves relying on their own interpretation of the building regulations. The frustration is growing due to the ability of some developers to deviate from Part M by manipulating a non-statutory document. Since a personal interpretation seems to take precedence over the written standards, these issues are likely to be resolved by the LA making sure that tacit knowledge amongst policy actors is created, to address the gap between disability and design. In addition, both interviewees in planning (previous quote) and building control (quoted below) departments indicate that they use persuasive language to advice applicants. Therefore a more rounded understanding of inclusive design is likely to strengthen the negotiation process. Arguably, Red LA does require a clear vision for inclusive design, so that persuasive language is always attached to meeting inclusive environment needs. OKC Theory argues that tacit knowledge can eventually be expressed in a more persuasive argument.

“No. It’s frustrating really, but if you’ve got, say, a shop, and you need to get access from one level to the other, Part M of the building regulations ask for a lift or access the same, but then they do it completely differently. Because the problem is the approved documents are not statutory. They’re guidance, and you can manipulate how you can approach that. Whether you say, either you refer to the British standard eight three-hundred or you comply with Part M. We tend to enforce in Red Local Authority, originally, what the requirements are, but you can put your own interpretation on those requirements.”(Building control R)

“And you can use ways of manipulating the person, without it being... enforced, it’s the last resort. You’re trying to, if you can, persuade them, and quote what the legislation says. And usually they comply, but you do get the odd person who tends to hold out.” (Building Control R)

5.5.6.2 Decision-making

General decisions are made in accordance with the development plan, using policies and other material considerations to anchor decisions. Policies support decisions made by actors, while applicants (developers) and other relevant bodies adhere to them, depending on the policy adopted by the respective LA to support their decisions or appeals. However, policy actors are likely to feel exposed during decision-making when the policy is not adopted as in the case of inclusive design policy at Red Local Authority. It is likely that policy actors will leave inclusive design issues unaddressed during application assessments.

“So, going back to when we make a planning decision, it must be in accordance with development plan, these policies, or any other material consideration. So, when we make a decision, we base it on grounds of design and in these policies is something that we anchor the decision to. So, it’s a very bizarre relationship.” (Planning R)

Decisions need the backing of policy documents (explicit knowledge) as well as a solid understanding of such a policy (tacit knowledge). The interviewees suggest that policy actors continue to deal with a number of competing policies addressing different aspects of the design simultaneously. Therefore with a lack of knowledge of linking disability to design, the likelihood is that inclusive design issues are likely to end up at the bottom of the list of priorities. This is likely to be the case where decisions are being made by policy actors with little understanding of inclusive design as seen in Red case study. Arguably, individuals who understand the importance of inclusive design are more likely to value or prioritize access issues.

“And we should be looking at this [inclusive design], but there are so many different aspects of a planning application, it’s not always the top of the list I’m afraid.” (Planning R)

Besides, it is suggested that the developments with a poorly-designed access feature cannot be refused based solely on access as this is not considered an appeal battle worth fighting given the amount of effort that could go into a potential challenge. The interviewees recognise that applicants can try to argue that inclusive design is incorporated later at the building control assessment stage as a way of avoiding some aspects of inclusive design. It is argued that policy actors at Red Local Authority prefer to avoid any confrontation with developers over inclusive design issues. This can be partially explained by the lack of an adopted local policy that the policy actors can rely on as a strong basis for making powerful and persuasive arguments in support of inclusive elements.

“If you turn it around the other way and we refused it solely on the basis of access, with that just one reason, say, we are refusing just because you don’t provide appropriate access; I would feel that our case would be weaker. And we are under a lot of constraints and so we need to fight the battles we can win. And if it was solely on that one reason, it would be very difficult to argue, I feel, at appeal, that they should do these things. I’m sure they should, but they would argue... They would come back and say, well, we’ll do this for the building regs or something like that.” (Planning R)

There is a view that inclusive design is influenced by building control and planners are unable or less willing to refuse a development based on accessibility aspects. This is a long standing argument in the built environment; possibly due to the absence of an inclusive design vision i.e. that policy actors need to work together. Without knowledge creation of inclusive design in place it is likely that this argument will continue.

“I would have to say that I suspect, I don’t necessarily know, but I would suspect that probably still building control aspects are probably having a greater level of influence. And that may be because planners, in making their decisions, perhaps don’t always feel that that would be the reason to refuse something.”(Policy R)

In addition, it is recognised that there is a lack of clarity over the responsibilities of inclusive design amongst policy actors; as demonstrated by some interviewees who assume that their colleagues in different departments are overseeing inclusive design aspects. Although the inclusive design policy implementation is also directed towards policy actors based in the planning department, their poor understanding of the implementation process and lack of clear policy documents limits their action.

Therefore, planning officers assume that building control officers are dealing with inclusive design aspects of the building, and building control surveyors assume that the planning department are making a provision for inclusive design. OKC Theory argued that procedures in place give organizations direction to perform their tasks. This case study demonstrates the lack of clarity over the responsibilities, possibly due to lack of procedures in place that detail who does what and when.

“I would think that a lot of officers would just assume that building regulations would pick that [referring to inclusive design] up at that stage.” (Planning R)

“I think [building control] would rely on their counterparts in planning to apply and assess things against that [inclusive design]. They obviously have their own raft of regulations which are quite complicated.”(Policy R)

5.5.6.3 Actions

The interviewees highlighted that most actions for development approval are influenced by appeal-decision history. Therefore depending on what issues previously received high levels of appeals, planning managers instruct planners on the actions and emphasise what is required of policy actors. With regard to actions, it is suggested that not having an adopted policy makes it extremely difficult to reject applications even if they are overly weak on inclusive design. Therefore, appeals are unlikely at the Red Local Authority as rejections based on inclusive design are rare. Looking at the process in reverse, the approach taken by Red maintains that, since any appeals based on an inclusive design feature are unlikely to be successful, it is counterproductive to reject an application. The interviewees believed that the opposing side’s success in the appeals procedure for the non-inclusion of some of the inclusive design features is likely to be due to the shift towards national policy during appeals. This would represent a shift away from any potential persuasive arguments made at the application stage and which are rooted in a well-written local policy. So it is well understood that the pressure from the possibility of an appeal that is likely to rely on national policy and legislation makes planners anxious.

“A very difficult process to follow [implement inclusive design]. We have a planning manager, who would be cracking the whip and saying, you need to do this and need to do that. That would probably be driven by [the threat of] appeal decisions. When a planning application’s refused, it goes to the government to determine, if the applicant appeals.” (Planning R)

5.5.6.4 Values

An individual’s ability to value what is important is primarily influenced by their tacit knowledge/ understanding of a particular situation. The Red interviewees recognised that they pay less attention to inclusive design aspects, while giving far more weight to issues such as ensuring the development fits in with the existing surroundings.

“In terms of giving weight to those aspects [inclusive design], we would probably, rightly or wrongly, give far more weight to ensuring that the building was in keeping with the surrounding buildings and everything else, rather than looking at the particular detail of the access. It’s not always the top of the list I’m afraid.” (Planning R)

It is suggested that the government plays a trivial role in inclusive design implementation, due to weak legislation. This requires redressing to ensure that implementation of the inclusive design policy within the built environment is achieved. However, it can be argued that if policy actors have a better knowledge of inclusive design and awareness of the importance of inclusive design in creating an inclusive built environment for disabled people they could influence planning applications in a positive way.

“I do feel sometimes the legislation’s not strong enough. It’s just not strong enough. It’s a shame that the government don’t, I suppose it’s having a checking body that checks.” (Building Control R).

Case study 2 summary

Table 5-6 Case Study 2 (Red) summary

Template	Summary
Background of the case study	Red Local Authority’s core strategy made a reference to several policies such as social inclusion and diversity; however policy is not adopted yet. There is an access officer employed.
1. Socialization	
1.1 Inclusive design training/CPDs	1.1 At Red Local Authority, inclusive design training and CPDs are referred to as voluntary activities, policy actors have no time to attend. <i>I would suggest that many planners don’t get a chance to do that, just because they’re so busy. If someone suggested doing something voluntarily, we just haven’t got the time, I don’t think”</i> (Planning R)
1.2 Inclusive design experts	1.2 Red Local Authority is known to have employed an access officer. However, there appear to be gaps on the interaction between the access officer and other policy actors <i>“there are no real experts to talk to. So, I don’t think it is a priority, sadly “</i> (Planning R). It is the planners’ duty to refer applications for the attention of the access officer. Generally less weight is attached on inclusive design issues

Table 5-7 Case Study 2 (Red) summary (contd.)

Template	Summary
1.3 Sharing experience, interaction and communication	1.3 Red Local Authority holds discussions between policy writers and planners to clarify any ambiguity in the wording within policies that might be misunderstood. Broader policies and less interaction between individuals. There is communication where an update occurs in building control legislation to brief the planners on such changes. <i>("There are times where we've liaised and there'll be something new that comes out of building control" (Policy R)</i>
2. Externalization 2.1 Collective reflection and codification	2.1 There is some checking on an individual basis, however not specifically directed to inclusive design.
3. Combination 3.1 Inclusive design policy currently in use and the policy origins 3.2 Current policy (policy document) 3.3 External information 3.4 Internal information	3.1 The proposed policy originates from national policy PPS1. 3.2 The proposed policy made a reference to wider issues of inclusive design, in particular social inclusivity and diversity, health, education and lifetime home standards, however the document lacks implementation details. 3.3 External documents referred to include PPS1, Part M and British standard. 3.4 No local policy is currently adopted such as SPDs.
4. Internalization 4.1 Understanding inclusive design policy 4.2 Decision-making 4.3 Action 4.4 Values	4.1 Some interviewees at Red Local Authority expressed a lesser focus on inclusive design issues and a lack of understanding of inclusive design aspects. 4.2 Decisions are anchored to the national policy. The absence of an inclusive design policy at Red Local Authority puts actors in a weaker position to argue their case. 4.3 The actions are influenced by the appeal cases. More difficult to reject an application where there is a policy. Most inclusive design actions are influenced through persuasion in particular at building control stage. 4.4 Inclusive design is not a priority; therefore less attention is paid to access issues. <i>"we would probably, rightly or wrongly, give far more weight to ensuring that the building was in keeping with the surrounding buildings and everything else."</i> (Planning R)

5.6 Case study 3, [Green]

Three people were interviewed at Green Local Authority, a planning officer (Planning G), a building control surveyor/officer (Building G) and a policy officer (Policy G), see Appendix B.

Table 5-8 Green Interviewees

Case study Green		Quote reference
First Interviewee		
Position	Team Reader	Planning G
Department	Planning /development control	
Length in the position	18 years	
Second Interviewee		
Position	Manager of building control team	Building G
Department	Building control	
Length in the position	20 years	
Third Interviewee		
Position	Manager	Policy G
Department	Planning strategy and Policy	
Length in the position	Over 14 years	
Policy document/guide		
Quote from policy document/guide		Green LA Document guide

5.6.1 Key findings

The summary of the main key findings for Green case study are outlined as follows:

- The interviewees demonstrated a limited understanding of inclusive design
- The LA has not adopted an inclusive design policy but produced an outline guide mainly copied from CABE guide
- No training or any other forms of socialization were conducted to allow policy actors to share their experiences.

5.6.2 Background of Green case study

Green is a local government district and a borough in Kent, South East England. It was formed in 1974 by the merger of Folkestone, Lydd and New Romney [Municipal] Boroughs along with Elham and Romney Marsh Rural Districts. Its population is approximately 116,105 with a density of 192/sq miles. The main transport link is by road with only a few railway stations. Green LA had previously employed an access officer; however this position is now closed. It does not have an adopted policy and is currently using an inclusive design guide that is published as a single A4 page to deal with accessibility issues and is to be found on the LA's office. At the time of the interviews the Green

Local Authority was in the progress of developing a core strategy, where the local policies such as SPDs are normally attached.

“We haven’t yet adopted an SPD on inclusive design, but there’s one in preparation as we speak.” (Policy G)

The interviewees suggest that one of the reasons the authority has not adopted the SPD is the perception that politicians in government are concerned that inclusive design policy imposes unnecessary restrictions on development. Arguably, since politicians are often in power for at least 4 years, there is the ever-present risk they will fail to take a long-term view of the benefits of inclusive design. They may pressure the policy actors to take a more relaxed approach to inclusive design policy implementation based on a cost argument. The implications that may arise are that the actors can turn a ‘blind eye’ to some of the inclusive design aspects of a development which can result in future accessibility issues.

“Unfortunately, how to put it, K County Council, the politicians have got a bit worried about it (SPD in inclusive design), that it’s imposing a lot more restrictions on development. In the current economic climate, we want it to be opening and welcoming as a county, so [KCC] have, how to put it, gone a bit cold on it.” (Policy G)

5.6.3 Socialization

5.6.3.1 Inclusive design training/CPDs

It was reported that there were no CPD or training on inclusive design issues attended by the interviewees. However, the interviewees noted that they have a basic understanding of people’s needs developed through experience and interaction with other designers. Although interacting with other designers is a positive way of creating knowledge, understanding the link between disabled people and design is likely to be improved by talking to relevant people, in this case both designers and disabled people, who are affected by built environment.

“So, I’ve not had any training [on inclusive design aspects], it is I suppose part of the DNA of an architect or a designer, talking to people and understanding their needs and then trying to make sense of it all.” (Policy G)

Inclusive design training and CPD are some of the techniques which can be applied to create knowledge amongst policy actors and allow them to form an understanding of what is required of

them in practice to meet inclusive environment requirements. The lack of inclusive design training or other interaction techniques creates difficulties in understanding its meaning in building design terms or recognising the key points that need to be considered during application assessment. Although interviewees were mindful of equalities legislation and other relevant policy guides, they highlight confusion and inability in addressing inclusive design issues. The main concern appears to be the ability to link disability and design, possibly due to a lack of tacit knowledge creation procedures in place.

“[Planners] they are aware of the need or the issue, but maybe not aware of how to go about it, or have the training. I suppose in a way at planning policy, PPS1, CABE guidance, you have the Equalities Act, all the equalities legislation. There’s been other people working on this [policy document proposal], have actually looked at that legislation and said, what does it mean for planning? What does it mean for design? Distilling out the key points.” (Policy G)

The interviewees suggested sharing training sessions or workshops with other LAs in their region to raise awareness of the importance of inclusive design within the built environment and to share the cost of external experts conducting the training. The training can assist policy actors to make faster decisions on inclusive design issues. This suggestion is sensible as OKC Theory argues that the most important ingredients to ensure that the quality of tacit knowledge is achieved is through employees holding a common definition of the action required; a shared understanding and achieving group know-how. This can be achieved through interaction with all relevant parties within or outside the organization.

“Or maybe [Mauve Local Authority] will do a joint training workshop exercise to show how that will work in practice, and just raise the profile and consciousness of everybody about inclusive design being important. Because it’s all a bit, what does it mean? And planners, they’re hard pressed, trying to live with the planning application, they have all this legislation they’ve got to go through, trying to make their lives as easy as possible.” (Policy G)

5.6.3.2 Inclusive design expert involvement in knowledge creation

Green Local Authority has no internal expert (they previously had one but they have closed this position) for inclusive design policy to assist with translating clearly the meaning of legislation in planning terms, such as drafting an SPD. The interviewees noted that the authority had previously hired an external expert with a better understanding of inclusive design to draft an SPD by translating the Equality Act 2010, and its meaning in the built environment. Despite their use of an

external expert to draft their SPD on inclusive design, Green's tacit knowledge of inclusive design is relatively poor and therefore they are unable to implement their drafted policy. Arguably they could benefit from a knowledge creation process through the use of external experts such as access officers, disabled people's groups and other designers from well-established organizations with a good reputation for implementing inclusive design such as Indigo LA.

"See, I didn't do that side. We ended up getting somebody in to help us who had more time and had more knowledge about the Equalities Act and equalities legislation, to filter out from all that legislation what was critical and what was important, and how it could then be translated into a planning document and something that was workable for planning. Because a lot of this legislation, how to put it... Aspiration some of it, it's very good practice, but it's translating that into something that... You detail a step or a ramp, or make a distinction of coloured paving or textured paving work out there for somebody that's partially sighted or a guy that's got mobility issues."(Policy G)

Similar to interviewees in Indigo LA, Green interviewees recognised experts in disabled people as positively influencing the process of inclusive design policy implementation. They argue that the contribution of disabled groups when involved is beneficial to the process. This is demonstrated in a revealing example where disabled people participated in implementing inclusive design successfully within the built environment. Interviewees refer to the process as an informal enforcement through interaction with disabled people resulting in the provision of an inclusive environment. Through interaction with a disabled group and observation of the enforcement process, it is suggested that an experience is created and shared that can inevitably lead to the individuals involved acquiring tacit knowledge, which would otherwise have been unattainable without this form of socialization.

"It was an old pub...They did the work without an application, so we had to sort that out. We found out they moved the lavatory from the ground floor to the basement... And they tried to argue that it made it better. ...We took the access committee ...The chap in the wheelchair said, well I might be able to get out of my chair and get down there. I said how are you going to get back up? Finally, they had to rebuild the toilet block at ground floor level. So, we didn't have to formally enforce, but we had to informally enforce." (Building Control G)

In contrast, although it is suggested that access groups which involve disabled people hold valuable personal experiences, they are also known to have insufficient understanding of design guidance, therefore limiting their contribution. However, it can be argued that most of the disabled people's

limited contribution can be improved and expanded through increased exposure and deepening of their knowledge through a steady involvement in inclusive design aspects. For example, by involving disabled people in inclusive design policy-making process as seen in Indigo case, Green could initiate other measures such as providing Ba context where both parties; policy actors and disabled people could interact to advance each other's tacit knowledge. It is anticipated that greater participation in more detailed aspects of design can allow both designers and disability groups to contribute to the improvement of inclusive design through knowledge creation. This also means that through greater participation, disability groups will become connected to the knowledge conversion process within the local planning process. Arguably, disabled people are discouraged in participating by the current approach or by the lack of their understanding of design process, possible the reason why there are only few attendees.

"I don't think there are many on the access groups who would be that familiar with the design guidance." (Planning G)

5.6.3.3 Sharing experience, interaction and communication

Sharing experiences has the benefit of providing a common understanding amongst the parties involved. Interviewees at Green Local Authority noted that there is a minimal interaction between individuals based in different departments; for example during the production of their inclusive design guide. Although Green has only managed to produce a one-A4 page inclusive design guide, the interviewees acknowledge that the process of its production benefits the individuals involved in learning from each other's experiences while producing a guide that is understood by everyone. The process of sharing experiences is known to be useful in advancing tacit knowledge.

"Inclusive design guide, is a very easy thing to incorporate, but just somebody has to make people think of that. So, the little group consisted of our previous access officer, our urban design architect who is also a policy writer, the building control, and planner." (Planning G)

The interviewees, suggest that LAs could work together to speed up the inclusive design implementation process whilst maximising the resources, thus avoiding the current duplication of work due to the lack of communication. For instance, they could agree to produce an inclusive design policy for them all to implement. Working as a team is supported by OKC Theory for advancing tacit knowledge amongst the parties involved.

“There was work that [Khaki Local Authority] was doing on its own, and they simply weren’t talking to each other. And I said, well hang on a minute, I’m on this group here and there’s this group here. Do you know what the other one is doing? It seemed to be such a big overlap.” (Planning G)

“There were 14 district councils, all doing the same thing. Why don’t we actually get together and collectively produce a document on, sustainable design or water efficiency, or inclusive design? Have a working group, three or four people from whichever districts that produces that document that all the districts then will pick up. I’ve done something like that on Highways.” (Policy G)

In contrast, some interviewees suggested that the division between planning and building control departments is a justified one, allowing officers to deal comprehensively with their specific issues. However, it is argued that a better understanding of inclusive design issues can be gained through interaction across these two departments and can benefit both sides to understanding each other’s basic requirements; especially aspects of inclusive design that are likely to overlap or when one department requires to make a provision for the next step to happen. This is usually beneficial where a clear vision in an organization is set, as argued in OKC Theory.

“The issue is on the planning side, but planning can’t become involved with issues that are covered by other administrations. So, you’ve got the planning administration, the building regulation administration. You can’t have duplication, really. So, planning obviously requires them to meet certain requirements, but it’s not gone into in any great depth at the planning stage, because that will be dealt with by the building regulations.” (Building Control G)

5.6.4 Externalization

5.6.4.1 Collective reflection and codification

The externalization phase is influenced by the socialization phase, where tacit knowledge is codified into new explicit knowledge such as documents. At Green LA there is no socialization, or provision of Ba, to allow policy actors to interact to form tacit knowledge on inclusive design. This resulted in poor externalization; policy actors are unable to document their tacit knowledge of inclusive design. The findings suggest policy actors at Green LA record information annually focusing on a range of issues with little focus or influence on the inclusive design process. This results in very little

contribution to any attempts at reconfiguring existing information through 'sorting or combining' to create new knowledge of inclusive design.

"We produce an annual monitoring report, but as you can imagine there's a lot of issues in there that need to be covered. How many houses we've delivered, how many new jobs or loss of jobs have happened?"(Policy G)

Furthermore, the interviewees suggested that the role of those in charge of writing the policy is as tool providers, with no time to monitor its implementation or its performance. Such a statement raises questions on the quality and usefulness of the inclusive design policy guide adopted. Arguably policy actors' poor knowledge of inclusive design limits the implementation capability and possibly the reason why they have not produced their in-house inclusive design policy, but copied and summarised CABE's design guides as their own. Therefore, it can be argued that policy actors are required to have an understanding of the task in order to produce a useful and suitable policy document to implement inclusive design. Green Local Authority demonstrated a limited ability for the knowledge creation process; such a gap is reflected in the weakness encountered in the externalization phase.

"I think, in a way, I suppose my role here is actually providing the tools (referring to inclusive design policy). We don't have the time to monitor it or see how effective it's been." (Policy G)

5.6.5 Combination

5.6.5.1 Inclusive design policy currently in use and the policy origins

It was noted that, currently, the document used in implementing inclusive design at Green Local Authority is an inclusive design guide that originates from the Commission Architecture and the Built Environment (CABE) publication. CABE is a government body helping communities, including LAs, to deliver sustainable communities through delivering spaces that meet their needs. Since 2012, CABE's operations have been conducted under the umbrella of the Design Council. OKC Theory argues that during combination, explicit knowledge documented within the organization and that sourced from several external documents is combined and edited to form a suitable explicit knowledge for the organization to give direction to employees. Green LA findings show that the combination phase is very weak. There was no combination process taking place, instead their approach is a copy and paste of CABE materials. This contrasts with Indigo's approach where policy actors combined

different explicit knowledge to form a meaningful and relevant policy to meet their local inclusive environment needs. The interviewees noted:

"You know the Commission for Architecture and the Built Environment (CABE). There's some good stuff in there that encourages inclusive design to be considered. So, that was there, embodied in this policy which gives you the hook, so we can then develop in more detail the design guidance and what's called supplementary planning documents that add weight to that and the detail to that." (Policy G)

The interviewees expressed difficulty in accessing the exact location of the inclusive design guides published due to the poor design of the LA's website. Green policy documentation is difficult to access, individuals are likely to attain less explicit knowledge and consequently less likely to make concrete decisions with regard to inclusive design due to the lack of explicit knowledge support.

"It's just how the website looks, how you access the information, because some of it is buried a bit. It's just finding it sometimes. Rather than three clicks you go through about six or seven." (Policy G)

The current policy guide is very brief and is seen by the interviewees as a summary designed to provide basic requirements. The guide is described as user friendly and self-explanatory; however, interviewees expressed the need for the provision of an inclusive design policy with the details required to help the policy actors. It can be argued that such a brief guide can only be an outline and is only likely to cover inclusive design superficially. Hence, the guide only provides limited help for policy actors assessing for inclusive design during the planning application. In addition, it can be argued that not enough has been done to produce a detailed local policy through the combination of the various documents and other relevant explicit knowledge.

"What we've got in our local plan 2006, is a very basic policy, which we use all day every day in development management that the development's got to be suitable for everybody. That's a very vague, but useful policy, and that's always been there. I think the idea is that we want some more specific development management policies. And then I think the idea is the SPD, inclusive design, will hang on the end of that. [For inclusive design guides] we just produced a little A4 thing, which still exists. It's on our website actually as well. And it's just called Inclusive Design. It's got, this is what building control does, this is what planning does, and these are some easy things for you to think about when you're designing buildings. That's all it was." (Planning G)

5.6.5.2 Inclusive design policy or any guide currently used

The inclusive design guide adopted by Green Local Authority states their commitment to achieving inclusive design in all new developments so as to ensure access for everyone. However, without documenting details of how this will be achieved, it is unlikely this commitment is honoured. CABE's five key principles were carried forward (in a copy and paste format) in the Green inclusive design guide, claiming that they are directing applicants.

In its current form, the inclusive design guide lacks sufficient detail and clear objectives on how to achieve an inclusively-designed development. This can enable most professionals in the design environment and, in particular the policy actors, to make the challenging decisions required to achieve inclusive design. For instance, Green's inclusive design guide states in its summary:

"Inclusive design Guidance

Green Borough Council is committed to ensuring that new developments in the borough produce an inclusively designed environment. An inclusive environment is one that can be used by everyone regardless of age, gender or disability. This applies both to urban environments and to any design and developed areas of the countryside.

This guidance highlights issues for applicants and agents of proposed developments and suggests sources of information and advice. Its incorporation will result in developments that are easy to use for the widest range of users possible.

There are five key principles identified by the Commission for Architecture and Built Environment (CABE) which are at the heart of inclusive design:

- 1. inclusive design places people at the heart of the design process*
- 2. inclusive design acknowledges diversity and difference*
- 3. inclusive design offers choice where a single design solution cannot accommodate all users*
- 4. inclusive design provides for flexibility in use*
- 5. Inclusive design provides buildings and environments that are convenient and enjoyable to use for everyone."(Green LA Document guide)*

5.6.5.3 External information used to support the implementation of inclusive design

In addition to the inclusive design guide, Green Local Authority interviewees made a reference to external materials that include, the DDA, CABE guides and Part M of the Building Regulations as part of their source of information on inclusive design.

The interviewees acknowledge that Part M of the Building Regulations is the minimum standard of requirements that provide physical access to facilities within buildings. It was further suggested that it is designers' responsibility to ensure the provision of accessibility for facilities in their development proposals. However, without relevant knowledge, it is unlikely that policy actors are capable of facilitating inclusive design into buildings.

"Well, the building regulations, Part M of the building regulations, impose requirements for access facilities for people with disabilities, and also for other people who might need access, people with prams, pushchairs. So, the idea is how you can get people to buildings, into buildings, so they can use the facilities within the building. It's a statutory requirement. The designers have to provide facilities and access. The building regulations are a minimum standard, not a maximum." (Building Control G)

5.6.6 Internalization

5.6.6.1 Understanding inclusive design policy

The interviewees argue that the inclusive design national policy and the legislation (DDA) are worded in a complex way, therefore they are often avoided during implementation. For instance, the interviewees highlight the difficulty experienced in understanding the implementation of inclusive design issues through the use of national policy and legislation. They praised the CABE guidance for being clearer and more easily understood. It is argued that unless national planning policy is well understood it is unlikely that policy actors can take the necessary action to implement inclusive design successfully. The use of OKC Theory is likely to improve their understanding of the link between disability and design.

"I mean the CABE work was nice and clear, so that was quite good. I still think I've frightened the people [employees and stakeholders] with it [National policy and DDA], because it's such a complex issue. They still go, oh dear; I don't want to do one of those, because it appears complex." (Planning G)

Those responsible for writing the policy at Green Local Authority expressed their inability to draft an inclusive design policy because of limited understanding (tacit knowledge) that resulted in hiring an external inclusive design expert to assist with the draft of the current proposed SPD. Even though Green has a draft policy produced by their external expert, interviewees are still finding it difficult to use the draft. Furthermore, it is recognised that the poor understanding of inclusive design by the policy actors at the authority is unlikely to produce meaningful experiences from socialization, externalization and combination that can be internalized to become the individuals' new tacit knowledge to help them understand the policy. It can further be argued that the effectiveness of any degree of internalization resulting from the process of formulating a new local policy by an external expert is likely to depend largely on the level of involvement of the Green Local Authority policy actors.

"I didn't do that side [inclusive design policy]. We ended up getting somebody in to help us who had more time and had more knowledge about the Equalities Act and equalities legislation, to filter out from all that legislation what was critical and what was important, and how it could then be translated into a planning document and something that was workable for planning. But it's translating that into something that you detail, a step or a ramp, or make a distinction of coloured paving or textured paving work out there for somebody that's partially sighted or a guy that's got mobility issues. I think there's a general consciousness of it, but maybe a lack of the detail of how do you translate that appreciation into practice." (Policy G)

5.6.6.2 Decision-making

The interviewees acknowledged that the 'decision-making process' could be tightened by the introduction of a local inclusive design policy, rather than simply relying on their current inclusive design guide, which is difficult to implement. The interviewees noted that currently, policy actors at the Green Local Authority are making decisions on inclusive design with reference to the national policy since their guide document is only a recommendation. Indigo interviewees argued that their experience of relying on the implementation of a policy design guide was not taken seriously by most applicants. However, upon the introduction of their local policy the applicants' mind set changes positively. Designers were more willing to incorporate a local policy than a policy guide.

"I think it would be better if we'd got the adopted policy, because otherwise it does rely on me keep saying it." (Planning G)

“You can refer to regional policy or national policy or a core strategy that’s been formally adopted locally, to give you the legitimacy and the policy hook.” (Policy G)

Similarly to Red interviewees, Green interviewees suggest that those based in the planning department hold the view that it is the responsibility of those based in the building control department to ensure inclusive design provision under Building Regulations. Similarly, those responsible for writing the inclusive design policy argue that they are not responsible to ensure such policy is implemented successfully. OKC Theory argues that procedures in place give organizations direction to perform their tasks. Green is disadvantaged by a lack of direction to clarify how both parties can achieve an inclusive environment.

“I suppose my role here is actually providing the tools. We don’t have the time to monitor it [policy implementation] or see how effective it’s been.” (Policy G)

“The biggest step forward has actually been building regulations changing. I think that’s what’s actually helped us, because all builders can’t ignore it.” (Planning G)

5.6.6.3 Actions

Similar to interviewees at Indigo and Red Local Authorities, Green interviewees acknowledged that any influence on inclusive design implementation are rooted in the appeals procedure and the need for the use of a ‘justification of policy’ as the basis for successful appeals. There is the perception that policy actors are aware that reliance on a guide weakens their arguments in any appeals. Hence, any action taken in the absence of an adopted local policy (SPD) is likely to err on the side of caution and can result in the dilution of any action needed to reinforce inclusive design. Interviewees at Red and Indigo suggested that often the process is dependent on persuasive language, this is why policy actors need relevant knowledge to persuade applicants about the need to incorporate inclusive design aspect in their developments.

“Because it’s very difficult in planning [without justification], you’ve got to have an audit trail. You produce something and the barrister in the appeal says, well, where’s this come from?” (Policy G)

Policy actors pass on their duties of inclusive design implementation to other parties such as developers; arguably because they have not produced a sufficiently detailed policy guide to support their action or have a lack of understanding of the inclusive design action required. Consequently, this results in a poor internalisation mode. There is a false sense that developers are designing

inclusive buildings voluntarily. For instance, interviewees suggest that, in the case of large commercial developments, the responsibility for implementing inclusive design lays with the developers and their architects, rather than the LA's policy actors. Therefore, it can be argued that policy actors who share the view that it is a developer's duty to provide an inclusive environment can be reluctant to take relevant action. Furthermore, interviewees noted that because large commercial developers understand the business case attached to the provision of an inclusive environment, the majority of the developers aim to produce inclusive buildings.

"Most designers, commercial and industrial schemes will have an idea, a good understanding of what's required. So, when they're preparing the planning brief, when they're advising their client, they should be referring to building regulation. We don't have much problem.

And commercially, one point of interest is, if you take the big plans, like the Sainsbury's and the Tesco's, they are very much aware. Because it's been determined that one in four families is affected by so many particular problems. And they will usually go, further than the statutory requirements, because commercially it makes sense." (Building Control G)

5.6.6.4 Values

The interviewees noted that there is the pre-conception amongst policy actors influenced by their values that disabled people are not interested in multi-storey living accommodation but rather their interest lays in single-storey buildings or accessible flats. However, it can be argued that the lack of interest from disabled persons for multiple-storey properties without lifts is due to the lack of access provision to the upper floors in the first place. In addition, policy actors with the view that disabled people, particularly wheelchair users, are not interested in multi-storey properties can affect their ability and willingness to implement accessibility in upper floors through negotiation or persuasion during the planning process. The quote below indicates a limited understanding of disabled people's need in society with regard to an inclusive environment; arguably, interaction between disabled people and designers might address some of these issues. For instance Indigo's understanding of disabled people is much better and so they are better positioned to address inclusive design aspects.

"[Under Part M], the housing is really restricted to access at the main entrance and lavatory facility. That's the only requirement they have to meet. You don't have to put a lift in, say for argument's sake, for people in a wheelchair. They probably wouldn't be interested in a property like that. They would probably more want a bungalow or a single storey property or if there is a flat with a lift." (Building Control G)

It can be argued that due to the perceived weaknesses in the national or regional policies, there is reluctance on the part of some inspectors to fully support inclusive design, despite national policy stating that developments should provide inclusive access for all. For instance, in the housing industry, access for all is far from a reality as demonstrated by an interviewee who was hindered from implementing Lifetime Homes standards in new dwellings. This occurred despite the improved access provided by the implementation of Lifetime Homes standards compared to Part M regulations. There is an indication that inspectors lack an understanding of the benefits of living in a house that is built to a Lifetime Homes standard and therefore are not supporting them. LAs need to set a clear strategy, with vision and values to ensure that there is a structure in place for policy actors to advance their knowledge on inclusive design, especially to benefit Lifetime Home standards.

“Because it’s not statutory, we tried to get lifetime home standards into our core strategy, but the inspector ruled it out. We were trying to use that as a policy that new homes should meet the Lifetime Homes standards. We could see the inspector, he was about to say no.”

(Policy G)

5.6.7 Case study 3 summary

Table 5-9 Case study 3 (Green) summary

Template	Summary
Background of the case study	At Green Local Authority inclusive design policy is not yet adopted at the time of the interview <i>“We haven’t yet [adopted an inclusive design policy], but there’s one in preparation as we speak”, (Policy G)</i> . No access officer is employed by the LA. The LA has a link to the local disabled groups.
1. Socialization 1.1 Inclusive design training/CPDs 1.2 Inclusive design experts 1.3 Sharing experience, interaction and communication	1.1 The lack of training within inclusive design is recognised. Policy actors are aware of the need for inclusive design provision, but lack of implementation clarity. 1.2 No access officer was employed at Green Local Authority. An external expert was employed to translate the legislation into planning terms (a current SPD draft). 1.3 Within Green Local Authority, there is minimal interaction between policy actors. Secondly, disabled people involvement is understood to be effective especially for informal enforcement of inclusive design issues. Communication gaps between LAs raised questions on the possibility of performing the unnecessary duplication of work. Interviewees suggested that some LAs within the same districts can benefit from better communication. The communication between planning and building control officers held no importance and regarded as near redundant due to the perceived differences in the nature of their work. <i>“Planning can’t become involved with issues that are covered by other administrations. So, you’ve got the planning administration, the building regulation administration.” Building control G</i>

Table 5-10 Case study 3 (Green) summary (contd.)

Template	Summary
<p>2. Externalization 2.1 Collective reflection and codification</p>	<p>2.1 There is neither time nor accountability for monitoring the progress of inclusive design. <i>“I suppose my role here is actually providing the tools. We don’t have the time to monitor it or see how effective it’s been.”</i> (Policy G)</p>
<p>3. Combination 3.1 Inclusive design policy currently in use and the policy origins 3.2 Current policy (policy document) 3.3 External information 3.4 Internal information</p>	<p>3.1 Green Local Authority inclusive design policy guide originated from Commission for Architecture and the built environment 3.2 No policy document but inclusive design guide is in place 3.3 The external information referred to at Green Local Authority to include, Part M, DDA and CABE guides 3.4 No internal information records to assist Green Local Authority for improving inclusive design implementation.</p>
<p>4. Internalization 4.1 Understanding inclusive design policy 4.2 Decision-making 4.3 Action 4.4 Values</p>	<p>4.1 Although CABE guides are referred to as clear guides, interviewees expressed lack of understanding in the meaning of inclusive design as well as the policy translation produced to give easily understandable details. However they expressed the awareness for the need of inclusive design. <i>“I think there’s a general consciousness of it, but maybe a lack of the detail of how do you translate that appreciation into practice.”</i> (Policy G) 4.2 At Green Local Authority interviewees underlined the importance of having an officially adopted policy to anchor the decisions. <i>“You can refer to regional policy or national policy or a core strategy that’s been formally adopted locally, to give you the legitimacy and the policy hook.”</i> (Policy G) However, at the time of the interviews Green Local Authority have not adopted an inclusive design policy but had an inclusive design guide. 4.3 Perceived Appeal case threats influence decisions and actions at the Local Authority Green. Furthermore, in the case of commercial developments inclusive design business sense is well understood by the architects and developers particularly by the large supermarkets that are more likely to implement inclusive design. <i>“And commercially, one point of interest is, if you take the big plans, like the Sainsbury’s and the Tesco’s, they are very much aware.”</i> (Building Control G) 4.4 There is a view that disabled people are not interested in multi storey properties. <i>“You don’t have to put a lift in, say for argument’s sake, for people in a wheelchair. They probably wouldn’t be interested in a property like that. They would probably more want a bungalow or a single story property, or a flat with a lift.”</i> (Building Control G) There appears to be a weakness in understanding the policy of inclusive design. In addition current Local Authority Green adopted an inclusive design guide, but not a policy. There is no support for Lifetime home standards <i>“Because it’s not statutory, we tried to get it into our core strategy, but the inspector ruled it out. It was in; we were trying to use that as a policy that new homes should meet the lifetime home standard.”</i> (Policy G)</p>

5.7 Case study 4, [Blue]

Three people were interviewed at Blue Local Authority, a planning officer (Planning B), a building control surveyor/officer (Building B) and a policy officer (Policy B), see Appendix B.

Table 5-11 Blue interviewees

Case study Blue		Quote reference
First Interviewee		
Position	Team leader	Planning B
Department	Planning /development control and conservation	
Length in the position	12 years	
Second Interviewee		
Position	Building surveyor officer	Building B
Department	Building control	
Length in the position	9 years	
Third Interviewee		
Position	Team leader	Policy B
Department	Planning strategy and policy	
Length in the position	Over 20 years	
Quote from policy document		Blue LA policy Document

5.7.1 Key findings

The summary of the main key findings for Blue case study are outlined as follows:

- Inclusive design aspects are not well understood by policy actors.
- Regional policy 7.2 (The London Plan Policy) is referred to but it appears to be short on implementation details.
- No training conducted on inclusive design.

5.7.2 Background of the case study Blue

Blue is a local authority in Greater London. It has an area of 26.83km, and a population of approximately 318, 216 with a density of 31,000/sq mile. Despite the borough's population density,

there are a number of open spaces. In addition it contains railway stations, and London underground stations. Some responsibilities for highways and planning have been taken from the council by the Greater London Council since 2000; nevertheless the council remains a multi-purpose authority in terms of the available range of powers and functions. Since Blue is a London-based LA, the inclusive design policy adopted is a regional policy, called the London Plan published in 2011. As interviewees at Blue Local Authority stated,

“This is from the London Plan 2011. If you look on the Mayor’s website, and then look for the London plan 2011, policy 7.2, that’s a very important policy. And as I say, we have to be in conformity with this.”(Policy B)

5.7.3 Socialization (focuses on verbal explanation used by LA to improve knowledge)

5.7.3.1 Inclusive design training/CPDs

There is a sense of a lack of understanding of inclusive design amongst policy actors at Blue. Blue Local Authority highlighted that there has been no training/CPD available to equip them with a better understanding of inclusive design aspects. As demonstrated in Indigo Local Authority, policy actors who took part in training, CPD and other forms of face-to-face interaction on inclusive design advanced their tacit knowledge. This is essential to the entirety of a person’s consciousness. In addition Blue Local Authority could benefit from a Ba concept to allow interaction between policy actors and other relevant parties to advance their understanding of inclusive design.

“We have had no training on inclusive design” (Policy B)

5.7.3.2 Inclusive design expert involvement in knowledge creation

The general view is that, experts are known to play an important role in knowledge sharing, and their roles are respected. The interviewees at Blue Local Authority noted that an access officer has not been employed, nor has an external access officer been hired to assist them with inclusive design.

“There is no access officer employed by Blue Local Authority” (Planning B)

5.7.3.3 Sharing experience, interaction and communication

Sharing the same departments is generally known to achieve effective communication between the parties, encouraging employees to participate in both formal and informal conversation referred to

as socialization. Interviewees at Blue Local Authority are situated within the same office space, despite belonging to different departments making communication easy, but there is no indication of communication about inclusive design aspects.

“We’re all in the planning department as such, but we’re different parts of the planning department. Yes, communication is relatively easy.” (Policy B)

5.7.4 Externalization

5.7.4.1 Collective reflection and codification

The interviewees suggested that Blue Local Authority records obtained through ‘monitoring’ are not sufficiently comprehensive to allow the assessment of the level of inclusive design achieved. There is no indication that their monitoring strategy addresses inclusive design aspects or contributes towards explicit knowledge at Blue Local Authority.

“Monitoring tends not to be qualitative, because they’re desk based I suppose. So, we do revisit things, but it’s on an ad hoc basis, and it’s largely the more significant developments, not the smaller scale ones. So, there’s some monitoring, but it’s by no means comprehensive.” (Planning B)

However, the interviewees further acknowledge that photographic evidence is kept for successful developments as future reference, with the purpose of learning from past projects and so assist the aesthetics and functionality in future projects. It can be argued that, although such an approach is recognised as one of the techniques for learning from past experience to advance tacit knowledge, it is only possible if the vision of knowledge creation is clearly stated and its focus is understood by the parties involved in the process. Since the vision of inclusive design policy implementation is not clearly defined by Blue Local Authority (see section 5.7.5.1), the benefits from the past reflection of experiences might be limited.

“And as a team, we keep photographs and records of successful detailing and good designs, so that we can refer people to... Because a lot of it for us is not just about the functionality but also the aesthetics.” (Planning B)

5.7.5 Combination

5.7.5.1 *Inclusive design policy currently in use and the policy origins*

The interviewees suggested that Blue Local Authority has not published an inclusive design policy, however, reference is made to the London Plan (Regional policy) as the document used to address accessibility in all new developments. Nevertheless, it was suggested that all new housing is built to lifetime home and that 10% of new housing is wheelchair accessible. Blue have not produced any further details on how exactly their inclusive design implementation will be met.

“And for Blue, the development plan is the London Plan which covers the whole of London, but it also covers part of Blue because we are in London. For example London Plan policy seeks to ensure that all new housing is built to lifetime home standards and that 10% of new housing is designed to be wheelchair accessible or easily adaptable for residents. And that’s something which we’ve certainly carried on ourselves as a general standard that we look for.”

(Policy B)

Currently, the regional policy adopted by Blue Local Authority is for strategic planning. Although such a document offers support to policy actors, it lacks the detail required by policy actors to assess a development. The interviewees noted that such details will be added later. Nevertheless, currently, inclusive design implementation at Blue Local Authority does not seem to go far enough.

“And following on from that there’s other documents we’ll be producing which will set out more detailed policies, and site allocations which will be coming along later.” (Policy B)

5.7.5.2 *Inclusive design policy or any guide currently used*

Inclusive design policy is poorly presented on the Blue Local Authority website. There is no useful information for developers/designers who may wish to incorporate inclusive design aspects in their developments. In addition, limited information is likely to discourage planners insisting on the implementation of inclusive design. We have seen examples of Indigo where designers, disabled people and policy actors are working together to address barriers in their local area directed by their policy document. Yet, Blue Local Authority’s website made reference to the London Plan as follows:

“The Mayor will require all new developments in London to achieve the highest standards of accessible and inclusive design”. (Blue Local Authority statement; website Accessed in 12 July 2013)

5.7.5.3 External information used to support the implementation of inclusive design

The interviewees noted that the London policy is adopted to influence inclusive design implementation at Blue Local Authority. In addition to the London policy, the DDA and Part M are referred to as the external documents used in connection with inclusive design. The use of external information plays a prominent role in the combination phase; however, it requires additional information from internal experience to produce explicit knowledge that is practical and meaningful in the local context. This is not the case for Blue Local Authority.

"There's the London Plan policy to bear in mind, which seeks to ensure that all new housing is built to lifetime home standards, and that 10% of new housing is designed to be wheelchair accessible or easily adaptable for residents. So, the Greater London Authority is looking at a wider basis than Blue Local Authority is." (Policy B)

"And we bear in mind the disability discrimination act (DDA). And in a lot of our work, we have to be mindful of the building regulations." (Planning B)

5.7.6 Internalization

5.7.6.1 Understanding inclusive design policy

Despite the long-standing use of inclusive design terminology in the built environment, the term is not yet understood by some Blue policy actors. For instance, interviewees were seeking clarification of the meaning of inclusive design prior to the interviews, thus demonstrating a lack of understanding of the meaning of the term. This lack of understanding was expressed by some interviewees at Red Local Authority, an indication of a widespread problem.

"The first question I'd like to ask you is, what do you mean by inclusive design? What are you talking about?" (Policy B)

Furthermore, some of the interviewees at Blue defined the job characteristics under inclusive design as making sure that the buildings and building work have a life span. The definition indicates limited understanding of inclusive design in the built environment, and arguably most policy actors are not capable of assessing the implementation of inclusive design in applications.

"So, in terms of it being inclusive, I suppose off the top of my head, it's inclusive in the sense that we're making sure that the buildings and any building work that has been done, has a life span, a continual rolling program." (Building control B)

In addition, the interviewees noted that inclusive design is a new topic that is poorly understood and not considered very important in planning terms. For instance, the interviewees acknowledge that previously their general policy documents referred to inclusive design issues in the footnote and not in the actual document; the issues were not considered a priority in planning. This research argues that although inclusive design has been on the planning agenda for many decades, there is an indication that Blue Local Authority has not incorporated inclusive design in the development framework as part of their local policies, possibly due to a lack of a knowledge-creation procedure being put in place.

It can be further argued that, unless the difficulties faced by policy actors in understanding (tacit knowledge) inclusive design are dealt with, Blue Local Authority's plan to introduce inclusive design in the forthcoming policy may not result in significant improvement in inclusive design implementation.

“So, it's quite complicated to understand the old UDP, which came before 2007. So, that's the old plan which, as I say, didn't really talk too much about inclusive design, because it wasn't really a hot topic at that time. Because this is all fairly recent, Inclusive environment is not something that's been around for a long time. It's only coming in more recently. If you look at our old UDP, there wasn't actually a policy on inclusive design, but we did mention in terms of a footnote because we brought it in at the very last minute. But now it is, and we're moving forward and replacing it with this document.” (Policy B)

Policy actors are expected to take account of inclusive design aspects when making decisions on planning proposals. Arguably, a knowledge of inclusive design at an individual level is key when making these kind of 'judgments' on inclusive design and access as described below.

“Development management case officers would be expected to make their own judgements on design and access, as part of the planning process.” (Planning B)

For instance, the interviewees highlight that the DDA embarked on 'reasonable' provision of access to goods and services for disabled people; it follows that the interpretation of what is 'reasonable' will arguably depend to a large extent on the individual's own judgement. Therefore they focus on determining the balance of what is reasonable depending on the use of the building and the services provided, and 'not the blanket of the requirement'. It is recognised that the word “reasonable” is widely interpreted and depends on the use of the building or even the type of services offered within such a building. The interviewees further acknowledge that it is a challenge for individuals

trying to interpret the word 'reasonable' in the context of the built environment. Arguably that is why an easily-understood detailed policy document supported by the individual's tacit knowledge is an approach that is likely to improve inclusive design policy implementation at Blue Local Authority.

"The requirements of the DDA are reasonably clear, that it's not a blanket requirement, its reasonable steps. And we have to consider what's reasonable and what isn't, and it very much depends on the use of the buildings, the services provided and so on. I think that there's always going to be an issue around wording and acts, just as it is with planning legislation. Just because it requires reasonable steps to be taken, you know, what is reasonable? Someone has to take a judgement on that, and the applicant might have a different view than us. And someone who's refitting a shop front will think it's unreasonable that we're expecting them to dig up floors, to make significant additional alterations for them to meet the requirements of the DDA. And that's a judgement that has to be made with each application, and whether we go to that way or not."(Planning B)

5.7.6.2 Decision-making

Decisions are made in accordance with the development plan, using policies and other material considerations to anchor the decisions. Policies support development application decisions, therefore policy actors, applicants and other relevant bodies are all heavily dependent on the policy adopted by the respective LA to support such decisions. However, it can be argued that by not publishing an SPD or an inclusive design policy in their local development plan, actors of inclusive design will be forced to rely heavily on regional policy, which they may not even understand or that lacks relevant details for their local area. Decisions based on a wider regional policy are more difficult to justify and hence policy actors will be more reluctant to challenge planning applications that require revision due to inclusive design issues. In addition, the quote below contradicts the previous section where interviewees argued that implementing inclusive design is not about blanket requirements but to ensure that reasonable steps are taken towards meeting disabled access needs. If all decisions are anchored to the planning policies (quoted below), in the absence inclusive design policy it is unlikely reasonable provision can be justified or assessed.

"Everything that we consider has to be considered against the planning policies, because we're a local planning authority and our decisions have to be made based on the development plan, those documents being the suite of development plan documents. So, if we have a problem with a proposal, we have to be able to say that it doesn't conform to a particular policy. That's really our starting point, because if we want to refuse a scheme, or

to seek significant amendments to it, we have to have good reason for that. We can't just do it on a whim. That's reasonably fair?" (Planning B)

Decisions are influenced by potential appeal challenges. The applicants can appeal to the government departments to revise the decisions in cases where the design is rejected. In the case of appeals, inclusive design issues are likely to be negotiated better by individuals with both tacit and explicit knowledge. Blue Local Authority actors have to rely on regional policy knowledge to make decisions on inclusive design. Because regional policy has the inherent weakness of a wider interpretation, it makes it difficult for actors to challenge applicants in an effective way on issues relating to inclusive design. Hence, actors in Blue Local Authority are unlikely to gain a wealth of experience in the field of inclusive design that allows the transformation of explicit knowledge to tacit knowledge. Consequently, having low levels of explicit/tact knowledge due to the absence of a detailed policy is likely to result in minimal internalization and prevent the creation of new rich tacit knowledge in the field of inclusive design. This is likely to impact on the ability of the actors to participate in negotiating inclusive design aspects in applications. In the absence of any negotiating skills, priority is given to the decisions that are more likely to avoid any potential challenges or appeals over the implementation of inclusive design issues.

"Because remember people can challenge us in court. Although we are the council, that doesn't mean that people cannot challenge us. The planners, building control, people can appeal against their decisions. If we can reject it, they can go to government departments and say, look; can you have a look at this? We don't think building control is right, and they can go for what is called a termination. People have different ways in which they can actually challenge our decisions." (Building control B)

5.7.6.3 Actions

Policy actors are at the forefront of the building designs they are expected to play a proactive role in advancing inclusive design within the built environment. The interviewees noted that only a few enforcement cases, if any, arise from a poor accessible environment. Arguably, the distinct possibility of decisions being challenged by applicants, made more likely by the lack of a detailed policy at Blue to support decisions, can result in an increase in the number of applications with poor access not being rejected.

“It would be reasonably fair to say that we don’t have many enforcement cases arising purely out of access issues. What I’m not sure of is whether we’ve ever refused a scheme solely on access issues.” (Planning B)

In addition, the interviewees distanced themselves from the ‘responsibility’ of inclusive design policy, noting that they expect inclusive design aspects to be dealt with by architects or developers by the time the development reaches the Part M stage of assessment. This is similar to Green and Red Local Authorities interviewees who argued over their colleagues’ (in different departments) responsibility to oversee the implementation of inclusive design. This is an indication of a lack of procedures and vision in place to provide them with a direction of who does what and at what stage, so that all parties work towards the same vision despite their departmental separation.

“But in terms of inclusive designs, building control doesn’t have any specific policies as such about inclusive designs, because by the time it comes to us, the architects, they will have gone through planning. The architect will have had their design and that inclusion will already be there.”(Building Control B)

“I would say that most developers of medium to large schemes employ architects who are competent, who are well aware of the issues and requirements. And the vast majority of times, most schemes would be reasonably compliant or in the right direction. They wouldn’t present significant issues.” (Planning B)

5.7.6.4 Values

The interviewees recognize that the DDA does not have the impact they expected. In particular, cases deriving from individuals discriminated under the DDA are not brought forward as anticipated initially when the DDA was introduced. For instance, the interviewees acknowledge that, although there are developments that are not meeting the DDA requirements, the LA has not experienced complaints from disabled individuals or groups with regard to such issues. The lack of cases brought forward, is viewed by some policy actors and developers as a less important issue compared to other aspects of the planning process. The view expressed in the quote below indicates that policy actors lack an understanding of a vision linked to societal benefits for disabled people’s access to the built environment. Arguably, understanding what is good for disabled people in the built environment, might help policy actors to deliver inclusive environment, as demonstrated in the case of the Esai-Co case study discussed earlier in section 3.6.1.

“I must admit that when the DDA came through, I anticipated a greater level of interest in terms of people contacting us and saying, these proposals aren’t following the spirit of the DDA, what are you going to do about it? But it’s not something we’ve really seen.” (Planning B)

5.7.7 Case study 4 summary

Table 5-12 Case study 4 (Blue) summary

Template	Summary
Background of the case study	With regards to inclusive design, Blue have adopted a regional policy (London plan)
1. Socialization 1.1 Inclusive design training/CPDs 1.2 Inclusive design experts 1.3 Sharing experience, interaction and communication	1.1 Blue Local Authority interviewees have not had training on inclusive design aspects. 1.2 Not applicable 1.3 Blue Local Authority is situated within the same office space, despite belonging to different departments so communication is notably easy, but with less focus on inclusive design aspects.
2. Externalization 2.1 Collective reflection and codification	2.1 Although there is a monitoring facility it is not considered comprehensive, however details of certain successful projects are collected for future reference.
3. Combination 3.1 Inclusive design policy currently in use and the policy origins 3.2 Current policy (policy document) 3.3 External information 3.4 Internal information	3.1 Blue Local Authority’s policy of inclusive design is based on the London plan (regional policy). 3.2 Currently there is no policy or SPD related to inclusive design published by Blue Local Authority; however the website refers applicants to the London plan <i>“The Mayor will require all new development in London to achieve the highest standards of accessible and inclusive design”</i> . (Blue Local Authority policy Document) 3.3 Blue Local Authority interviewees made reference to the London plan, Part M and DDA 3.4 No local policy or recorded information from LA informing inclusive design.

Table 5-13 Case study 4 (Blue) summary (contd.)

Template	Summary
<p>4. Internalization 4.1 Understanding inclusive design policy</p>	<p>4.1 Prior to interview, the interviewees at Blue Local Authority seek for clarification of the meaning of inclusive design. Furthermore it is highlighted that inclusive design is a new topic, it is not covered in their previous unitary development plan. Interviewees highlighted the complications faced in understanding such a policy. According to the interviewees at the building control department inclusive design is understood as building and building work is carried out with a life span in mind. <i>“It’s inclusive in the sense that we’re making sure that the buildings and any building work that has been done, has a life span, a continual rolling program.”</i> (Building control B).</p>
<p>4.2 Decision-making</p>	<p>4.2 Decisions are made by individual officers based on planning policies <i>“So, if we have a problem with a proposal, we have to be able to say that it doesn’t conform to a particular policy”</i> (Planning B) Decisions diverting from policy, risks challenges through the appeal process.</p>
<p>4.3 Action</p>	<p>4.3 Few appeals arise due to accessibility issues, <i>“It would be reasonably fair to say that we don’t have many enforcement cases arising purely out of access issues”</i> (Planning B). It was underlined by the interviewees based at building control that inclusive design is dealt with by the architects. <i>“Because by the time it comes to us, the architects, they will have gone through planning. The architect will have had their design and that inclusion will already be there.”</i>(Building Control B)</p>
<p>4.4 Values</p>	<p>4.4 Interviewees at Local Authority Blue, anticipated the introduction of the DDA to have a greater impact on the inclusive design provision, however the influence experienced is relatively low. Inclusive design is rooted within the DDA and requires ‘reasonable measures’ not the standard requirements.</p>

6 Discussion of results

6.1 Introduction

The previous chapter analysed the empirical data through the theoretical lens of Organizational Knowledge Creation (OKC). The purpose of this chapter is to discuss the meaning and implication of the findings from the data analysed in chapter 5, using key arguments and debates aired in chapters 2 and 3. The data was collected using two methods (interviews and policy documents) and these are jointly discussed to determine how policy actors gain an understanding of the inclusive design policy implementation process necessary to deliver accessible designs. From the analysis chapter, the data indicates that all four case studies vary in their approach to developing and implementing inclusive design policy, highlighting the difficulties and tensions around the subject. Nevertheless, the use of four case studies, all with different approaches, is designed to highlight the wide approach used in LAs in the process of implementing inclusive design policy for learning purposes, as discussed in Section 4.4.3. Where the data permits, the author will note the commonality and the differences of the LAs approaches and understanding of inclusive design policy actors in the different authorities, see Section 6.2.5 and Figure 6-1. The empirical data indicates that the LAs' implementation of inclusive design is shaped by the knowledge amongst the actors and rarely makes use of experts. Finally, several barriers of knowledge creation (Section 3.9) encountered by policy actors in the process of inclusive design policy implementation are discussed. Both Table 6-1 and Figure 6-1 at the end of the chapter are designed to highlight and summarise the main findings.

6.1.1 Inclusive design training amongst policy actors

The concept of tacit knowledge is in line with Healey's (2003) collaborative planning theory and the work of Rydin (2007). Both authors argue that planning handles multiple sources of knowledge, and is therefore likely to benefit from collaboration and the sharing of experiences. In addition, to achieving planning consensus, theorists and practitioners have to engage in negotiation and mediation between competing interests (Innes, 2004) and can benefit from collaboration. In the past, collaborative theory in planning received criticism for lacking the detail to guide planners as to how it should be put to practise (Tewdwr-Jones and Allmendinger, 1998). To date, a lack of collaboration is still experienced amongst planners, as the research findings suggest. For instance, the findings from Indigo Local Authority indicate the existence of a sharing of experiences and collaboration but this still falls short of being sufficiently comprehensive (Section 5.4.3.3) as it is not an LA procedure. Instead it is carried out by individuals voluntarily and in an informal way. As previously stated, the work of Rydin (2007) argued that there is doubt as to the ability of planners to take part in the collaborative process successfully. Particularly in the field of inclusive design, where a limited understanding of the link between disability and design is experienced amongst planning actors,

there is doubt as to their ability to take part in a collaborative process. Nevertheless, Indigo Local Authority established methods for explaining inclusive design aspects through training, face-to-face surgery, CPD, and seminars to raise awareness of inclusive design amongst policy actors. Training, CPD, seminars and surgeries are ways in which new tacit knowledge is created or diffused amongst individuals or groups, which can result in changes in cognition and behaviour. Indigo LA made a provision for office space for face-to-face surgeries to take place; this approach is in line with the concept of Ba, that argues that a vision can be transformed in Ba, if individuals empathize with others to remove differences between them (Section 3.6.1). For instance, the interviewees at Indigo highlighted the benefits of inclusive design training, surgeries and CPD in the individual's task performance, giving them knowledge and an ability to understand inclusive design policy implementation (Section 5.4.3.1). This is also in line with the work of Gaventa and Cornwall (2008), that argues that knowledge is the source of power. Flyvbjerg and Richardson (2002) who call for planning theorists to use Foucault's work of power as intellectual power not dominant power is often understood and highlighted in the work of McNay (1991).

The difficulties and tension in implementing inclusive design policy highlighted by the Indigo interviewees includes low attendance at the training sessions by some of the older/senior policy actors as opposed to younger/junior policy actors, even in cases where inclusive design aspects were not understood by their peers. The rejection of training as experienced in the past when an access officer held training for architects but found they did not attend (Imrie, 1996a), is possibly the reason why designers have little or no knowledge of impairments to help them in designing an inclusive environment (Imrie, 2004b). When both policy actors and designers reject inclusive design training there is no doubt as to why limited attention is given to access issues during development assessment (Imrie and Wells, 1993) or why planners continue to approve designs that are not inclusively designed (Access, 2007). The author suggests that there is a need for policy actors to be knowledgeable about the link between disability and design to effectively and meaningfully direct designers on the issue. The introduction of OKC Theory may be of some help in this journey.

The OKC Theory acknowledges that some individuals may reject new knowledge for which they have not developed a clear response and routines (Von Krogh *et al.*, 2000). Often senior employees reject new knowledge, because it is seen as a threat to their self-image that can destroy known habits or simply because they are not willing to admit that the training expert, such as an access officer, has superior knowledge (Section 3.9). This is in contrast to junior employees who have yet to create their routines and are willing to learn, as demonstrated by the Indigo Local Authority interviewees. Nevertheless, the findings suggest that individuals who attended face-to-face inclusive design

training, CPD or surgeries are relatively knowledgeable and expressed their ability to negotiate inclusive design aspects during the application assessment (Section: 5.4.3.1). Therefore the research argues that LAs need to make it mandatory for relevant stakeholders to attend. The interviewees at Indigo Local Authority are concerned about the decline in training/CPD sessions experienced recently, threatening their progress of knowledge creation or transfer.

In contrast, interviewees based at the other three LAs, Green, Blue and Red, have not received training, CPD or any other form of knowledge-sharing activities to help them understand the application of inclusive design policy within the built environment, leaving practitioners undirected on implementation as argued by Imrie (2014). For example the interviewees at Green Local Authority acknowledge the need for an inclusive environment in the local community, while accepting the difficulties faced in understanding the meaning of inclusive design policy in the built environment due to lack of training. Furthermore, interviewees based at Red Local Authority stressed that their lack of training attendance is due to the high workload. The subject of lack of training of inclusive design in the built environment is long argued as seen in the work of Imrie and Wells (1993) and Scotland (2007). The current work suggests that may be a need for a paradigm shift to address the LAs' strategy and routines for policy actors' training attendance (Section 3.9). The OKC argues that the lack of an organization paradigm is one of knowledge creation barriers (Von Krogh *et al.*, 2000). For instance, LAs may wish to make it mandatory for all relevant policy actors to attend inclusive design training to improve their understanding and to interpret inclusive design policy implementation in a meaningful way.

6.1.2 Inclusive design expert and actor interaction

Inclusive design experts are also known as access officers. They are employed by some LAs to assist with inclusive design policy implementation, but their role is very wide and often drafted specifically by the LA. Based on connectionist epistemology, tacit knowledge is advanced through experts (Zender, 1995), this view was echoed in the work of Argote (2013) and Nonaka and Von Krogh (2009) thus supporting the view that the knowledge creation process can benefit from an experts' involvement. Experts are known to have a bank of knowledge collected and advanced through their network, an approach known as connectionist epistemology (Section 3.5), i.e. most access officers are members of the Access Association (AA). For instance, in London, access officers are supported by the London Access Association; they hold regular meetings to discuss issues that are emerging in the field of inclusive design. It is through such interaction that new knowledge can be created.

The findings showed that while both Indigo and Red Local Authorities employ access officers, they perform different roles in each of the LAs. For example, Indigo Local Authority employs a full-time access officer, who is actively involved in face-to-face interaction with policy actors across several departments within the LA. The access officer at Indigo also participates in the production of inclusive design policy documents and the assessment of planning applications based on the standards of inclusive design, often through a consultation process with local disability groups. Nonaka's Ba concept argues that the use of training and mentors is recommended in the knowledge creation process (Section 3.6.4). The interviewees at Indigo highlighted the benefit of having face-to-face interaction with the access officer as a way of advancing their understanding of inclusive design policy implementation. Knowledge gained through experts is more easily accepted and acted upon compared to knowledge from an individual perceived not to have the relevant/adequate experience (Argote, 2013). The benefit of having an interaction with the access officer is the potential transfer of knowledge for the whole team of professionals in the LAs as part of the socialization phase. This has the effect of minimising the work load otherwise faced by a lone access officer and allows more time for the officer to deal with more challenging issues. A more knowledgeable team of professionals (as in the case of Indigo Local Authority) is capable of assessing the majority of development proposal applications to ensure the desired level of inclusive design is achieved.

In contrast to Indigo, the role of Red Local Authority's access officer concentrates solely on design application assessments, without any face-to-face interaction with policy actors. This lack of interaction between policy actors and the access officer has contributed to a poor understanding of inclusive design policy implementation as expressed by the interviewees (Section 5.5.3.2). This possibly explains why inclusive design was referred to as less important compared to sustainability or the aesthetics of the design by interviewees at Red Local Authority; consequently, less focus was placed on inclusive design during the assessment application.

This research argues that the current role of access officers in Red Local Authority needs to be redirected so that the focus is on inclusive design policy implementation diffusion amongst policy actors through training, demonstration, workshops, CPD and other face-to-face interactions to advance the individuals' understanding required to perform access-related tasks.

Nonaka and Von Krogh (2009), argued that an expert's knowledge contributes towards knowledge creation. This argument was affirmed by the lack of understanding of inclusive design policy implementation amongst interviewees based in LAs without access officers or those with access officers that are not actively involved in the knowledge creation process. For instance, the interviewees based at Green and Blue Local Authorities that did not employ an access officer,

demonstrated a limited understanding of inclusive design policy compared to Indigo Local Authority which has an access officer.

Other useful expertise resides within local disability groups. It is argued in the work of Sandercock (1998) that knowledge being held outside the planning organisations and by groups other than professionally-trained planners should be considered. This knowledge results from experience and local knowledge. Rydin (2007) argues that the approach of seeking knowledge in new forms, may transform planning, because it allows previously unheard voices to be heard, giving planners an opportunity to gain new knowledge. According to Rydin (2007):

“a socially disadvantaged community can provide rich knowledge about their lived experience that could highlight previously overlooked problems of poverty. This knowledge could shape the details of regeneration strategies.”(; p10)

For instance, disabled people’s expertise is often overlooked on the basis that they possess little understanding of design guides. The disability groups’ expertise is undermined as indicated by a number of interviewees; Blue Local Authority interviewees see them as being non-influential entities within the built environment. Previously, Imrie and Kumar (1998) highlighted the exclusion of disabled people in the built environment as being due to poor involvement of disabled people in the policy process. Rydin’s (2007) explanation is that planners are often unsure of how to handle multiple sources of knowledge, and how to change decision-making as a result. This maybe one of the reasons that disabled people’s involvement in planning is regarded as non-influential by interviewees at Blue. Nevertheless, the PhD work of Adams (2006) concluded that if disabled people were to be involved in every design stage the end product is more likely to be suitable for their use. The interviewees based at Indigo and Green Local Authorities acknowledge the benefit of involving disability groups in inclusive design policy implementation. They describe it as useful and recognise a direct and genuine impact whenever they are involved in the process (Section 5.4.3.2). Disabled people’s expertise may not necessarily influence the know-how needed to implement inclusive design policy amongst policy actors. However, they can create awareness of disabled people’s needs in the built environment and alert the policy actors and other stakeholders to the access challenges they face in their local area based on personal experience. It is this understanding of the connection between disabilities and design for all, that is still challenging for most professionals, as argued in the work of Barnes (2011).

6.1.3 Sharing experiences through interaction

It is acknowledged that sharing experiences in a formal (pre-arranged meetings or seminars etc.) or in an informal setting, advances tacit knowledge (Nonaka, 1994). The interviewees at Indigo Local Authority recognise that the current informal approach of colleagues exchanging ideas about past and current projects or innovations, to advance or improve future decision-making, are beneficial but rarely take place. Such feedback contains rich tacit knowledge, and is referred to as learning directly from one's own experience (Argote, 2013). Nonaka *et al.* (2008b) recognised the importance of shared context, the space (ba) where inter-subjectivity takes place, for individuals from different parts of the organization to share their experiences to form a new understanding.

Nevertheless, none of the LAs studied had developed formal or meaningful ways in which policy actors can learn from each other's experiences of inclusive design policy implementation. Poor communication is a drawback which is caused by the division that exists between the planning and building control departments at all the LAs studied. The research argues that, since inclusive design issues are dealt with by several departments, sharing experiences can benefit relevant stakeholders' knowledge, which is in line with the concept of Originating ba where individuals' share experiences and the mental model, to form care, empathy and commitment (Choo and Alvarenga Neto, 2010) - see Section 3.6.1. For example, interaction amongst professionals in the same department (e.g. planning professionals' interaction) contributes little to organizational knowledge creation, compared to the interaction between a range of professions from planning, policy and building control departments where the diversity of tacit knowledge is amplified into a richer form of tacit knowledge. This is demonstrated in the example of Esai-Co (Nonaka *et al.*, 2008b). The division of departments has the undesired effect of overlooking important aspects which do not fall within the actor's immediate responsibility.

In contrast, a number of interviewees at Blue and Green Local Authorities point out that the planning issues should remain separate from the building control aspects of the design. Although, the point made for maintaining departmental separation sounds reasonable when one takes into account the differences encountered in their administrations, the interviewees at Indigo Local Authority hold opposing views. They recognise the need for the departments to demonstrate a common understanding of inclusive design aspects and concur with Nonaka and Toyama (2007) in that departments' need to form a common organizational vision. For example, the lack of common understanding of inclusive design aspects between departments, as expressed by interviewees at Indigo Local Authority, causes planning officers to approve developments that are not in line with Indigo's inclusive design policy. Furthermore, if any issues are missed or only noticed at the building

control stage it is sometimes impractical, or too late to make amendments. Indigo Local Authority produced Supplementary Policy Documents (SPDs) through a collaboration mechanism involving professionals from relevant departments, supported by disabled people. The team is selected with the right balance of knowledge and capability, in line with Interacting ba (Section 3.6.2). Thus, the interviewees stressed that the process was fruitful since it enabled the policy actors to understand the basic requirements and the importance of other interrelated aspects of the designs that can positively impact directly or indirectly on inclusive design.

It can be concluded from the socialization phase of LAs' that inclusive design policy implementation is not established by the policy actors. This is due to the limited interaction amongst the relevant stakeholders as shown in the case studies' results, thus resulting in poor understanding of inclusive design as argued in the work of Imrie (2014). Therefore, the socialization phase of LAs can benefit from the introduction of interactive techniques suggested by Nonaka (1994), such as training, seminars, CPD, workshops and surgeries that promote inclusive design policy implementation understanding amongst policy actors.

6.1.4 Production of an inclusive design policy document

Collective reflection refers to individuals reflecting on their experiences collectively to achieve a common understanding (Erden *et al.*, 2008). Tacit knowledge gathered in socialization is articulated through dialogue and reflection to provide a framework for all employees (Nonaka and Von Krogh, 2009). Crystallizing tacit knowledge into explicit knowledge, in the context of inclusive design, depends on the policy actors' understanding of inclusive design policy implementation and their ability to participate in any dialogue. The findings illustrate that all four LAs studied, have a lack of codification procedures in place, to extract explicit knowledge from tacit knowledge especially in the field of inclusive design policy implementation; although, Indigo Local Authority has an informal way of recording events and the situations experienced. Furthermore, the findings demonstrated that the externalization phase is difficult to accomplish where interviewees have poor tacit knowledge, as illustrated in three case studies (Blue, Red and Green Local Authorities). In addition, LAs appear not to utilize different types of technologies to form databases, documentation or make use of online platforms, nor do they have an information system or management in place to record useful explicit knowledge as suggested in Ba concept (Section 3.6.3). These LAs show that their inclusive design policy is made in a top-down policy fashion and that there is the possibility of bottom-up policy resistance from policy actors, as argued by Healey (1996). Furthermore, Colin (2014) argues that the society is responsible for accommodating and valuing individuals despite their differences. Therefore, there is a need for a bottom-up inclusive design policy with policy actors well placed to take on that

role. Arguably, for the policy actors in Red Local Authority, who referred to inclusive design as a “daunting task”, to attempt to codify tacit knowledge is an insurmountable challenge. This is clearly the case, since policy actors lack the required level of tacit knowledge or understanding of inclusive design policy to successfully perform the externalization process.

In addition, the interview findings suggest that common sources of external information that contributed to the production of inclusive design policy include the DDA, Part M, CABE and PPS1, which are mainly national documents. The other source of external knowledge recommended by the theory of OKC Theory is learning from other similar organizations. This view is affirmed by the organizational learning theory, which suggests that organizations operating in similar settings can benefit by learning from one another’s experiences through knowledge transfer (Argote, 2013). For instance, explicit knowledge from reliable LAs can be beneficial to the combination phase of other authorities. However, the findings suggest that none of the LAs studied is learning inclusive design policy by relating to other organizations. This research argues that the approach of inclusive design policy implementation used by Indigo can benefit other LAs currently in the process of producing policy documents. Useful measures recommended to advance knowledge transfer are to be found in the use of an expert able to assess the input and output of the knowledge creation process (Nonaka and Takeuchi, 2011).

To conclude, the findings suggest that policy actors are struggling to externalize tacit knowledge, particularly those policy actors based at Blue, Red and Green Local Authorities who demonstrated a weak approach to the socialization phase. In addition the combination of explicit knowledge collected from inside and outside the organization to form new explicit knowledge is generally weak across most of the LAs studied as demonstrated by Blue, Red and Green. Although these LAs often make a reference to the national policy or standards, an issue persists in that these documents are commonly used as a copy/paste exercise.

6.1.5 Inclusive design policy currently in use and the policy origins

According to Nonaka and Takeuchi (1995), written material (explicit knowledge) collected from several sources within or from outside the organization are combined to form new explicit knowledge. This section discusses the combination process adopted by LAs to create new explicit knowledge such as Supplementary Policy Documents (SPD) or any other written materials used to form new documents or improve existing inclusive design policy documents. It further discusses the contents of inclusive design policy documents or guides adopted to guide the policy actors. The

policy document analysis and interviews indicated a wide range of approaches to the combination phase amongst the LAs:

- a) In particular, the Indigo policy document originates from a combination of documents in line with national, regional and local information of inclusive design. These documents are edited and combined to produce a number of SPDs from Accessible Housing Supplementary Planning Document to Inclusive Landscape Design Supplementary Planning Document. In addition, the approach consists of local explicit knowledge documented during consultations and access auditing. Other supporting external documents are national and regional standards/legislation such as BS8300, Part M and several best practice inclusive/accessible design guides in the built environment. The use of external materials is supported by the work of Ichijo and Nonaka (2006) (Section 3.7.3). The inclusive design SPDs for Indigo address most areas that are not covered or obscured in Part M or that need resolving prior to building control assessment stage. For instance, Indigo's SPD suggests that accessible parking spaces in their borough should be in accordance with BS8300 recommendation, because BS8300 parking spaces are detailed and spacious compared with Part M. In addition, Indigo SPD for accessible housing design, follows mostly a Lifetime homes standard approach, such as recommending that house design incorporates visitability features (i.e. a step free approach and threshold with living space and a WC at entrance level) and adaptability (i.e. designs should have the capacity for quick and inexpensive alteration to enable a resident to stay should they develop a mobility impairment). Indigo policy also requires 10% of new housing to be wheelchair accessible (meaning a wheelchair user can live permanently, comfortably and conveniently). According to Indigo, 10% of all new housing units were recommended by Greater London Authority in 2002 based on their London Housing Survey that interviewed 8,000 households. Furthermore, Indigo's accessible housing policy gives details on room sizes, parking distances, gradient levels and distance from the car park to the house entrance. In addition, their policy recommends that the design of dwellings over more than one-storey is required to provide a space for the stair lift and the identification for a suitable space for a through-the-floor lift from the entrance level. The above mentioned are only a handful of Indigo's inclusive design policies in the built environment. From the author's perspective the inclusive design policy of Indigo reads well, is clearly presented, and is easily accessible online with references to the origin of the information. Furthermore, the main contributors to Indigo Local Authority's SPDs are local disability groups, internal inclusive design experts and other relevant stakeholders in the field of inclusive design. This collaboration informs the actors from different departments,

forming an understanding of how their work/performance interlink with other colleagues and jointly identified gaps available in inclusive design documents. For instance Indigo's policy suggests that the distance from the car parking spaces to the main entrance should be kept to a minimum of no more than 50m. This dimension is specified only in Indigo's inclusive design policy, other documents such as Part M state that the travel distance from the car park to the main entrance should be kept to a minimum without specifying what that is. A collaborative approach gives policy actors the opportunity to understand both disabilities and design to achieve an inclusive environment as argued by Barnes (2011). Possibly, this is the reason why Indigo Local Authority's SPD is described by the actors as meaningful and well understood in the local context of the built environment. It also clarifies the missing details from the national and regional policy, which may be relevant to their local area (Section 5.4.6.1). For example, some interviewees at Indigo argued that their borough has a high population density that needs accommodating in their local policies. The Indigo Local Authority's approach used to develop an inclusive design policy has, to a certain extent, applied the principle of the combination phase of the OKC Theory. For example, the current inclusive design SPDs adopted at Indigo Local Authority aim to be: (a) safe and easy to use for everyone, (b) not disabling, (c) flexible and responsive to different needs and (d) realistic, offering optional solutions to suit different needs. OKC Theory argues that unfamiliar terminology can be a barrier to new knowledge acceptance. Indigo produced clear aims coinciding with the inclusive design policy aims documented in PPS1 (see Appendix D) and set in their local context. This approach brought clarity to the stated aims and removed much of the ambiguous terminology common to national and regional policy. This has offered a rich source of explicit knowledge for the authority's actors on which to base their decisions for inclusive design implementation. In addition, the explicit knowledge created from the combination phase at Indigo is the source for new tacit knowledge created through conversion in the subsequent internalisation phase.

- b) In contrast to Indigo, Green Local Authority does not have an inclusive design policy document in place; however it has produced an outline called an inclusive design guide. The policy guideline in place originates from the Commission for Architecture and Built Environment (CABE) guide, a top down policy approach; the CABE guide is firmly rooted in national policy. Although CABE guides are endorsed by the government, each LA should create and promote the policy based on their local needs and their understanding of disability as argued by Drake (1999). Nevertheless, there is no combination phase involved

in producing their policy guide at Green Local Authority, and so poor or no new explicit knowledge is created that can contribute to a better or clear written inclusive design policy document. In addition, their policy document is not produced first-hand but copied and edited from the CABI website indicating that policy actors were not involved in its production. Possibly, this is the reason why interviewees expressed difficulty in justifying planning application decisions on inclusive design aspects using their adopted policy guides. Green Local Authority produced a policy guide, replicating CABI's (Commission for Architecture and Built Environment) aim of inclusive design which is to (a) place people at the heart of design, (b) include an acknowledgment of diversity and differences, (c) offer choices where possible, (d) account for flexibility and, (e) be convenient and enjoyable. The above aim is not linked to the local disabled people's needs; it is purely a summary of the CABI guide. Bearing in mind that the guide introduced by Green Local Authority is not an adopted policy, issues that focus on inclusive design can be undermined since there is no detailed policy on which to justify decisions made by policy actors. In addition, their guide is only presented in a one A4 page, with no practical details that can help policy actors to quote or interpret during design assessment to achieve the aims adopted from CABI.

- c) Red Local Authority had drafted a policy document but this was not adopted at the time of the interviews. The policy draft is described by the interviewees as a document used to provide policy direction, not for implementation purposes, as seen in the example of Indigo's SPDs used to back-up planning assessment decisions. The interviewees suggested that the combination process took place during the documenting of their policy draft, i.e. they used information collected from local consultations and referred to national documents such as Part M, Lifetime Homes standards, British Standards and Planning Policy Statement 1 (PPS1). However, the approach lacked sufficient contribution from the policy actors and the local access groups. Red Local Authority drafted a policy document that states the purpose as enhancing social inclusion in access terms, to facilities, services, jobs, employment and health. Their policy draft appears to lack meaningful detail which would be useful to policy actors to anchor decisions. Nor does the creation of new explicit knowledge seem to take place. For example, the Red draft states that they aim for 'social inclusion provision'. In their explanation, planning for 'social inclusion' refers to all age groups, cultural diversity, and pockets of deprivation and employment inclusion and accessibility. Their explanation is unclear and lacks the details of how this will be achieved and at what stage. Possibly, this is the reason why interviewees at Red Local Authority expressed their lack of understanding of

an inclusive design policy document as demonstrated in the previous chapter. In addition, the work of Hamraie (2013) argues that inclusive design lacks a goal and a clear aim, therefore implementation is limited. For example, at some point the draft states that Red's housing policy requires a proportion of dwellings built to Lifetime Home Standards, to address the growing ageing population in their local area. It is unclear what exactly that proportion is. The draft is also difficult to read and appears poorly organised and difficult to access on their website. Unlike Indigo where the whole document is dedicated to inclusive design policy, the Red draft covers inclusive policy scattered across different sections of their document making difficult to access and understand. It is also difficult to access the document without being guided to the website by those who are familiar with navigating their system for information. For instance, one of the interviewees did not know such a policy existed on their website. The guidance of a senior policy actor who was more involved in policy development provided the researcher with a useful link to the website.

- d) Unlike the other three LAs, Blue Local Authority relies on a regional policy of inclusive design (a generic policy design for all London Local Authorities). The findings suggest that Blue Local Authority has failed to put in place a combination process possibly due to a lack of both socialization and externalization procedures. Although, inclusive design policies have been introduced in LAs for more than a decade, the policy is not documented on their website alongside other policies. This corresponds with the admission by the policy actors that *“a new inclusive design policy will require accommodating in the foreseeable future”*. Blue Local Authority refers applicants to the London Plan (regional policy); no specific aim or details are provided on their website. This lack of clarity can hinder the progress of inclusive design as previously criticised by Imrie and Wells (1993) and Imrie (2014). However, the interviewees at Blue Local Authority claim that it conforms to the regional policy calling for all new developments in London to achieve inclusive design. Nevertheless, Blue failed to produce a best practice guide for their local area (such as a SPD) through editing and combining a range of documents, leaving policy actors unguided with relevant information.

The above four case studies demonstrated that there is a widespread inconsistency in producing and adopting inclusive design policies. For instance Red, Blue and Green Local Authorities have no inclusive design policy documents in place nor do they incorporate the combination mode to produce new explicit knowledge in the area of inclusive design; their strategy for developing and presenting inclusive design policy varies massively and their aims differ ranging from scant and ambiguous to no involvement of policy actors. Yet, the literature review chapter demonstrated that

policy documents used in implementation process of inclusive design policy are unclear. Possibly the reason why three of the LAs studied - Blue, Green and Red - have not successfully adopted inclusive design policy documents. Consequently, the interviewees faced difficult challenges during the design assessment when attempting to negotiate the inclusion of inclusive design aspects with stakeholders resistant to their inclusion. This was echoed by Imrie and Kumar (1998) who highlighted that only a few LAs have adopted access policies or are implementing them. In addition, according to Lyles (2014), clear policy aims and objectives allow actors to draw on resources for direction and decision-making. Furthermore, Von Krogh *et al.* (2000) warns that the use of ambiguous terminology can be a barrier to the knowledge creation process and, by extension, policy implementation. There is a need for change in the approach to inclusive design policy development to ensure policy actors are involved and understand the aim of the policy document and what is required of them and at what stage such a policy needs to be implemented.

In contrast, interviewees at Indigo produced several local policy documents (SPDs) on inclusive design through a combination of materials (explicit knowledge) as suggested by the OKC Theory (Nonaka and Takeuchi, 1995), see (a) above. The process used by Indigo in producing their policy document included knowledge codified by various relevant stakeholders from within their organization, external groups (access groups and designers), and good practice guides and other national standards. Indigo addressed the implementation of inclusive design locally in their SPDs, clarifying, editing and elaborating the national policy where necessary to meet the needs for their targeted audiences. For example, the interviewees at Indigo Local Authority feel that their policy documents offer a clear and detailed explanation of inclusive design (Section 5.4.6.1). Indigo's SPDs seem well articulated, clear and easily accessible and understood.

6.1.6 Understanding inclusive design policy

Imrie (1996b), argued that while LAs are keen to develop access policies, the implementation of these requires an ability and willingness for the policy actors to participate in the implementation. The findings suggest that since policy actors at Indigo have successfully applied the socialization, externalization and combination phases, their understanding of inclusive design policy is advanced; hence they have the ability to implement the policy.

In contrast, the Red, Blue and Green interviewees stated that they only possess a limited understanding of inclusive design aspects, referring to them as complicated and frightening or unimportant aspects. In addition, Imrie and Kumar (1998) argued that the built environment is designed by planners, architects and builders with limited disability awareness. This could possibly

be the reason for giving a planning approval even when the development proposal has a shortfall of inclusive design features (Access, 2007). Limited understanding of the concept, values and practice of universal design continues to dominate within the built environment as highlighted by Imrie (2014).

6.1.7 Policy actors' decision-making (ability to make decisions) of inclusive design

In the internalization phase, policy actors require tacit knowledge during decision-making to interpret explicit knowledge (inclusive design policy document). Interviewees from all four case studies (including those without an inclusive design policy document in place) acknowledged that having an adopted policy document is an essential stepping stone in the decision-making process. For instance, the interviewees based at Green and Red Local Authorities express the lack of a policy document as comparable to a driver without a map or direction; such a view is in line with Wiig's (2004) statement which explains that the purpose of explicit knowledge is to provide the direction and that the purpose of tacit knowledge is action. Similarly, Nonaka expressed the view that tacit and explicit knowledge are complementary entities; this is further discussed in section 6.2.4.3. Therefore, this research argues that for policy actors to make the decisions that enable the implementation of inclusive design policy they require both direction (policy document) and action (understanding through tacit knowledge).

In addition the interdependence between knowing and decision-making is supported by Manias and Street (2001). For example, the interviewees at Indigo are using the policy document (SPD) as a negotiating tool to address the issues of inclusive design policy implementation, hence making strong decisions, described as beneficial. Similarly, interviewees at Red Local Authority took the view that it is through the use of negotiation and persuasive language that inclusive design aspects are incorporated in the designs. Yet it is tacit knowledge that gives the actors the capability to interpret policy and make judgments and decisions on the extent of inclusive design policy implementation through negotiation with the relevant stakeholders. The power of knowledge enables effective decision-making, as argued in the work of Flyvbjerg and Richardson (2002), and further explain that planning theorists need to focus more on intellectual power to empower planning actors. Acting on the inclusive design policy and making decisions on its implementation provides the setting whereby the actor can internalise explicit knowledge, linked to the policy, into new tacit knowledge through experience and reflection, thus completing the internalisation phase.

The findings suggest that it is only Indigo Local Authority that has successfully produced explicit knowledge in the form of comprehensive inclusive design policy documents through the socialization,

the externalization and the combination phases. Thus, they are likely to have the explicit knowledge necessary to benefit from the internalization phase and convert explicit to new tacit knowledge. This explains the reasons why the studied LAs with weak policies also suffered from weak decision-making during inclusive design policy implementation.

6.1.8 Policy actor's actions and justification

Despite the fact that the interviews suggest that the policy actors of inclusive design make regular references to national, regional or local policy of inclusive design, the findings indicate a weak implementation of such policies. For instance, even though the policy actors based at Green Local Authority are familiar with the national policy, action is rarely taken to reject applications with inadequate inclusive design as they have a limited understanding of inclusive design issues. The work of Innes (1990) linked knowledge and action in planning. She argued that knowledge influences policy implementation. The interviewees based at Red, Green and Blue Local Authorities shared the view that it is not reasonable enough justification for the refusal of a development proposal application on the basis of lacking inclusive design aspects. In addition, interviewees highlighted that the implementation process depends on what issues previously received high levels of appeals, and are highly driven by planning managers who instruct planners and emphasise what is required of policy actors. Despite the growing concerns amongst disabled people over poor access to buildings offering services (Thomas, 2004; Anaby, 2013), their voices continue to go unheard by planning managers. Section 2.6 demonstrated a daunting task faced by disabled people who are discriminated against, indicating that a new approach is needed.

Furthermore, as highlighted by the research findings, policy implementation is often influenced by the use of persuasive language. Arguably, the lack of tacit knowledge of the link between design and disability is a contributing factor to the policy actor's inability to justify the refusal of design applications that are poor in inclusive design aspects. Likewise, Imrie (2004c) noted that some officers who are in charge of implementing Part M of the building regulations are finding it difficult to enforce regulation they don't understand themselves. Since tacit knowledge provides individuals with the ability to justify what they believe to be true (Nonaka and Von Krogh, 2009), policy actors with an understanding of inclusive design are better placed to justify decisions or action for refusing any applications with inclusive design shortfalls.

6.1.9 Values of inclusive design amongst policy actors

During the internalization process individuals reflect on the meaning of what they have learned from their action in practice. The meanings drawn from practice become part of the individuals' tacit

knowledge, influencing their behaviour and routines. In the case of inclusive design policy implementation the findings suggest that there are policy actors who have little understanding of its societal benefits. For example, some interviewees who have little understanding of the societal benefits held the view that inclusive design issues are non-existent; hence there is no need to conduct a research on this topic. Whereas others see inclusive design as a low priority issue that requires less attention from policy actors. In addition, in Imrie and Kumar (1998), focus groups consisting of disabled people, that are designed to capture their experiences of the built environment, highlighted the sense of low priority in inclusive design policy. In Imrie (2004c), officers in charge of implementing Part M of the building regulations stated that disability and access were not high priority compared to most other regulations. This was possibly because they were unsure of the influence or impact of the policy.

De Oliveira (2011) has argued that when local people understand the cause of the problem and the effect it can have locally, support for the policy and its implementation notably improves. This was illustrated in the case of an air pollution policy study in Japan (Section 3.6.1). The air pollution policy was supported at both public and government level, mainly because the locals understood the impact of air pollution on local asthma patients.

The research argues that the limited support for an inclusive design policy or its implementation amongst policy actors could be due to their lack of understanding of the access required by disabled people in the built environment. For instance, the interviewees at Green Local Authority believe that there is less interest from disabled people for multi-storey properties. Therefore they conclude that there is no need to make a provision to accommodate disabled people on the upper-levels of multi-storey properties.

“You don’t have to put a lift in, say for argument’s sake, for people in a wheelchair. They probably wouldn’t be interested in a property like that. They would probably more want a bungalow or a single storey property, or a flat with a lift” (Building control G).

The above reasoning that disabled people are not interested in properties without lifts is an example where the policy actors justify the belief that inclusive design is not so important in multi-level buildings. Likewise, Imrie’s (2004c) study noted that some officers argued that there is no need for access provision on multi storey houses because disabled people would not purchase them. This is an indication of how policy actors allow their bias to affect their judgement in issues relating to accessible buildings for disabled people. This is despite the number of academics who have documented the lack of accessible housing, leaving disabled people in inadequate accommodation.

For instance, disabled people's shortage of accessible housing is highlighted in the work of French and Swain (2006) and Thomas (2004). Nonaka and Von Krogh (2009) affirmed that beliefs are true when justified by the individuals or groups holding them or acting upon them or shaping their reality and eventually become knowledge. Paavola and Hakkarainen (2005) argued that individuals with a limited understanding about a specific issue are not in the best position to create new knowledge.

Arguably, policy actors with the view that inclusive design is not a priority or wheelchair users are not interested in multi-storey properties might be based on personal beliefs that do not value an accessible environment that is inclusive. Such beliefs may hinder the individual's or group's capacity to act effectively. Although it is not practical to make all designs accessible, it is however important to provide an inclusive environment where possible. For example, most wheelchair users depend on lifts to access multi-storey buildings; therefore, multi-level properties without lifts do not satisfy a wheelchair user's basic needs. In contrast, in the case of Indigo, the argument is that the policy actors' rich source of tacit knowledge influences their values in a positive way resulting in a different view on the meaning, importance, and the need for the provision of an inclusive environment compared to the other three LAs. Hence, at Indigo the emphasis is on housing design with adaptability and visitability features.

To conclude, since the internalization phase is about the conversion of explicit to tacit knowledge, this research contends that, where explicit knowledge fails to represent the practical situation faced by policy actors or fails to convince them on the action required, it is of limited value in guiding their action or practice (Nonaka and Von Krogh, 2009). For instance, Red, Blue and Green interviewees emphasized that the weaknesses of the inclusive design policy implementation is due to the lack of clarity in the wording of national policy. In addition, policy actors lack the relevant tacit knowledge of inclusive design policy implementation to convert it into explicit knowledge. The research argues that LAs that adopt regional or national policy in a copy/paste fashion, without addressing the policy actors' understanding, are likely to struggle with internalization as demonstrated in the Blue, Green and Red Local Authorities. The findings illustrate a link between having clear policy documents (explicit) and the policy actors' ability to understand the policy (tacit) as demonstrated in Figure 6-1, and echoed by Nonaka and Takeuchi (1995) view of tacit and explicit knowledge being complementary components of the OKC Theory. The Socialization phase is the key source of knowledge creation. The findings indicate that LAs with poor socialization, demonstrated a lack of knowledge creation throughout the rest of the phases, as illustrated by the amber colour in Figure 6-1. Figure 6-1 indicates that Indigo Local Authority has an overall advantage in knowledge creation

over the other three Local Authorities because their socialization phase is generally better compared to the others.

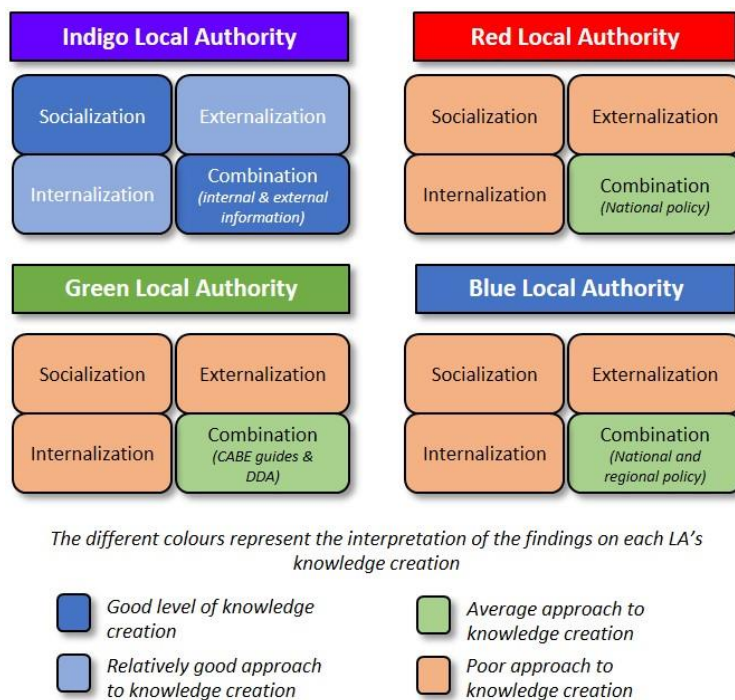


Figure 6-1 A representation of the Organizational Knowledge Creation Theory, reflecting the relative importance of each of the four knowledge creation modes for each case study

6.2 Similarities and differences between case studies

Inclusive design policy documents - the findings suggest that the availability of inclusive design policy documents ranges from LAs that have a policy document in place, to those that have none (see Table 6.1). Policy documents highlight the LAs' focus or intention to address the problem of inclusive design in the local area. Therefore, the majority of policy actors interviewed across all LAs see policy documents as their supporting evidence or a reference point during the decision-making process. This includes those in the case studies who have not yet adopted a policy of inclusive design, but are in favour of inclusive design policy adoption, as opposed to not having any policy in place. Nevertheless, there are difficulties in developing and implementing an inclusive design policy possibly due to the lack of knowledge. For instance, Indigo produced in-house local policy SPDs with an input from the most relevant policy actors, access officer and local disability groups. Red has a drafted policy document not yet adopted but has less involvement of its policy actors. Blue (based in London) uses a regional policy published in the London plan with no policy actors or local disability group involvement. Green has a guide summary copied from CABE (Section 6.1.5) instead of a policy

document. This highlights a significant inconsistency in the way in which inclusive design policies are developed and implemented. Apart from the issue of limited knowledge, highlighted as a reason for poor implementation of inclusive design, policy actors have also cited a lack of support for an inclusive design policy, especially in the case studies outside London. Both Red and Green Local Authorities expressed their willingness to implement Lifetime Homes Standards yet both experience a lack of support in doing so. On the other hand, Indigo and Blue, both London-based LAs, feel supported by a London policy that states that all LAs should implement Lifetime Homes Standards.

In addition, the cases studies show an inconsistency in their inclusive design policy aims (see Table 6.1). All four LAs have taken a different approach to producing an inclusive design policy, with only Indigo managing to produce detailed policy documents to support their aim, by making effective use of the combination phase. Indigo's policy document's aim appears to be in line with the national policy for inclusive design, and is accompanied by the details and clarification to address all aspects of inclusive design required in their local area. The Red, Blue and Green Local Authorities replicated either the regional or the national policy of inclusive design but did not incorporate any details. For instance, Red Local Authority's aim is to ensure the provision of 'social inclusion and diversity' in their local community, but does not state the details or clarify in simple language what is required of policy actors to meet such an aim. Interviewees based in Red, Blue and Green LAs expressed difficulty in implementing inclusive design due to the ambiguous policy documents used to assess inclusive design implementation.

Policy actors' understanding of the inclusive environment - currently, the findings suggest that across all the LAs studied, the policy actors' understanding of the moral value of providing an inclusive environment in their local area is limited, and rarely addressed (see Table 6.1). In addition, most interviewed policy actors, especially those based at Red, Green and Blue LAs, are not sure whether the inclusive design policy adopted by their LA is improving accessibility for all members of the community within the built environment. This lack of a basic understanding of how an inclusive design policy influences disabled people in the local area may possibly be the underlying reason why accessibility is regarded as a less important criterion during the assessment of applications at the development control stage. The policy actors interviewed, especially those from Red, Blue and Green LAs, hold a view that it is the developer's responsibility to ensure the implementation of inclusive design is adhered to. Across all four LAs, interviewees held the view that designs lacking features of inclusive design are rarely rejected during the planning assessment; there are no records of planning appeals based on inclusive design related issues. This is another reason why interviewees think that inclusive design has a lower prioritisation.

Inclusive design experts - access officers, supported by disabled people’s groups, are recognized by the interviewees for their invaluable contribution to the process of inclusive design policy implementation, especially those based at Indigo and Green Local Authorities. Nevertheless there is still a variation in appointing officers and their role across all four LAs (see Table 6.1). For instance, the current role of an access officer in the Red Local Authority focuses on the individual design/planning application assessments; there is limited or no interaction with policy actors. Policy actors at Red Local Authority expressed less interest in inclusive design policy implementation and a lack of help from their access officer was given as one of the main contributing factors for their limited understanding of inclusive design implementation. This is the opposite of Indigo Local Authority interviewees’ experience, who interact regularly with their access officer. Furthermore, Green Local Authority had an access officer but the post is now closed due to the lack of funding. Interviewees at Green demonstrated limited understanding on inclusive design policy. Blue Local Authority has never employed an access officer. Having an access officer is not mandatory but remains a choice made by each LA. Nevertheless, the findings show better implementation of inclusive design policy where an access officer interacts with policy actors.

6.3 Result summary table

Table 6-1 Result summary table

Template	Indigo Local Authority	Red Local Authority	Green Local Authority	Blue Local Authority
Background of the case study <i>Adoption</i>	SPD is adopted	Inclusive design policy is not adopted.	No policy adopted but inclusive design guide is adopted.	Adopted a regional policy.
<i>Access officer</i>	Access officers employed for over 15 years.	Access officers currently employed.	Access officer was employed in the past; position currently closed.	No access officer
<i>Links with disability groups</i>	Strong link with disability groups.	No mention of disability group links.	Established some links with disability groups.	No link to Disability groups.
<i>Accessibility of the policy</i>	Easily accessible via online	Difficult to access online - presented in different sections of the document	Not online, the guide was picked up in person from their office	The Blue website gives a direction to Greater London Authority website

Table 6-2 Result summary table (contd,)

Template	Indigo Local Authority	Red Local Authority	Green Local Authority	Blue Local Authority
<p>1. Socialization</p> <p><i>1.1 Inclusive design training/CPDs</i></p> <p><i>1.2 Inclusive design experts</i></p> <p><i>1.3 Sharing experience, interaction and communication</i></p>	<p>Training and CPDs are conducted; weekly surgeries</p> <p>Expert is available</p> <p>Limited collaboration between departments; good interaction amongst actors and access officers; Recognise the need for better communication between parties.</p>	<p>No training</p> <p>Expert is employed.</p> <p>Limited collaboration; no interaction between access officer and policy actors; weak communication between parties.</p>	<p>No training</p> <p>No expert</p> <p>Limited collaboration amongst parties; no access officer to interact with; weak communication.</p>	<p>No training</p> <p>No expert</p> <p>Limited collaboration amongst parties; no access officer to interact with; relatively easy to communicate in the current setting (planning and building control share same space).</p>
<p>2. Externalization</p> <p><i>2.1 Collective reflection and codification</i></p>	<p>No strategy is developed to reflect on past experiences.</p>	<p>No strategy is developed to reflect on past experiences.</p>	<p>No strategy is developed to reflect on past experiences.</p>	<p>No strategy is developed to reflect on past experiences.</p>
<p>3. Combination</p> <p><i>3.1 Inclusive design policy currently in use and the policy origins</i></p> <p><i>3.2 Current policy (policy document)</i></p> <p><i>3.3 External information</i></p>	<p>Current policy originates from national, regional and local information.</p> <p>Provision of developments that are safe and easy to use, non-disabling and flexible for future adaptation.</p> <p>Made a reference to The London Plan, Part M, DDA and PPS1.</p>	<p>No policy but, decisions are anchored to national policy.</p> <p>No policy currently but proposed policy refers to ensuring social inclusion and diversity, health, education and Lifetime Home standards.</p> <p>Made a reference to PPS1, Part M and British standard.</p>	<p>No policy, design guides based on Commission for Architecture and the Built Environment (CABE)</p> <p>Design guide in place putting people at the heart of the designs and acknowledging diversities and differences, provision of choice if possible, account for flexibility.</p> <p>Made a reference to Part M, DDA and CABE</p>	<p>Regional policy is in use</p> <p>No aim or standard of inclusive design provision stated but the Blue Local Authority website refers applicants to the London plan.</p> <p>Made a reference to The London Plan, Part M and DDA</p>

Table 6-3 Result summary table (contd,)

Template	Indigo Local Authority	Red Local Authority	Green Local Authority	Blue Local Authority
<i>3.4 Internal information</i>	Local information collected through collaboration and involvement with several bodies, users and local studies.	There have been Local consultations, but no mention of user participation	A design guide was produced through collaboration between internal parties	No local information
4. Internalization				
<i>4.1 Values</i>	Focusing on the provision of visitable and adaptable buildings.	Less focus on inclusive design issues, it is less of an important issue.	There is a view that disabled people are not interested in multi-level properties, so there is no need for inclusion in a wide range of building designs.	Perceive a weak influence from the DDA, hence weak policy; there is a view that inclusive design is a new topic, hence will be dealt with in future.
<i>4.2 Understanding inclusive design policy</i>	SPD adopted provides a clear guidance and it is well understood.	Limited understanding of inclusive design policy.	The inclusive design guide adopted is described as clear.	Lack of understanding of inclusive design policy. Inclusive design is referred to as a new policy yet to be addressed.
<i>4.3 Decision-making</i>	It was noted that having a policy in place makes the decision process relatively better.	Policy adoption is important. In addition, appeals influence decision-making. No appeals on poor inclusive design.	Policy adoption is important. In addition, appeals influence decision-making. No appeals with regard to poor inclusive design.	Policy adoption is important. In addition appeals influence decision-making.
<i>4.4 Action</i>	Actions are influenced by the policy in place, through persuasion and dialogue between policy actors and developers.	Actions are influenced through the use of persuasive language	Actions are influenced in some cases when developers understand the financial benefits of providing inclusive design.	Actions are influenced in some cases when developers understand the financial benefit of providing inclusive design.

6.4 Summary

The discussion chapter highlighted the poor knowledge creation, particularly amongst three of the four LAs studied. The main issue is the lack of participation in the socialization phase (to create knowledge that is individualised) during inclusive design policy implementation. Firstly, the techniques suited to sharing and creating knowledge amongst individuals or groups, such as interaction (especially with those who are knowledgeable on inclusive design), on-the-job training or other methods of face-to-face collaboration, are known to yield positive results. However, the findings suggest that only the interviewees based at Indigo LA had undergone training or participated in any other knowledge creation process. The policy actors who underwent training or CPD demonstrated a better understanding of inclusive design policy implementation and had confidence in taking or justifying actions through negotiations during development design assessment. Experts such as access officers and the disability groups are known to have a positive contribution to the knowledge creation process, helping policy actors to understand the implementation of inclusive design policy but yet are not utilised effectively.

Secondly, the externalization phase where policy actors codify tacit knowledge to explicit knowledge appears to be performed poorly in at least three of the LAs (Red, Green and Blue). Thirdly, the discussion chapter highlighted tensions and difficulties in implementing an inclusive design policy; the policy documents varied, ranging from a well-detailed local policy to no policy adoption. The combination phase where the process of collecting explicit knowledge from inside and outside the organization, which is then combined and edited and disseminated throughout the organization, is rarely adopted by the LAs studied. Although the findings suggests that most interviewees are in favour of the policy document to support their decisions during the design assessment, currently most of the policy documents used are simply copied and pasted, and not produced through the knowledge creation process, as in the Green and Blue Local Authorities. This poses a difficulty for policy actors to understand and act on the instruction of inclusive design policy. Fourthly, the findings suggest that the Internalization phase is weak in LAs with poor Socialization, Externalization and Combination as seen in Figure 6-1. The interviewees with tacit knowledge of inclusive design policy demonstrated the ability to grasp the meaning of the explicit knowledge and have indicated the ability to make firm decisions and justify their actions during the internalization phase. Finally, this chapter highlights that the absence of knowledge creation in Green, Blue and Red LAs contributes to a poor understanding of inclusive design policy implementation amongst the policy actors, also a lack of clear policy documents and the weak decision-making during the design assessment.

7 Conclusion and recommendations

7.1 Introduction

This research examines how far inclusive design is incorporated into planning policy for the built environment. In particular, it investigates how policy actors in LAs create the knowledge of the inclusive design policy implementation process necessary to deliver accessible designs. The need for this study arises after a critical review of literature in the field of the built environment (design stages), which highlights the poor understanding of inclusive design amongst the policy actors, the lack of clear policy documents and the weak decision-making during the implementation of the inclusive design policy. Therefore, the research investigated individuals with the role of inclusive design policy implementation in the LA and the different ways in which their understanding is translated into practice. In particular, the thesis explores, empirically, the policy actors' attitudes towards inclusive design, their involvement in the policy-making process and a possible way of knowledge creation. The OKC Theory is adopted to provide a lens for this research to understand the implications of tacit knowledge and explicit knowledge creation in the context of inclusive design policy implementation. Accordingly, the individuals' understanding of inclusive design policy implementation is viewed and reflected through the lens of knowledge creation (Nonaka and Takeuchi, 1995). The data collected from the LAs highlight the difficulties encountered in developing and implementing inclusive design policy and a wide variation of understanding of inclusive design.

This chapter begins with an outline of the research background and its position, which reiterates the significance and the focus of the research in the built environment. Thereafter the contribution to knowledge is summarised, highlighting the key new knowledge derived from the research findings. In addition, the chapter discusses the limitations encountered during the research. A recommendation for a practical way forward and future study is presented to help LAs to improve on their acquisition of knowledge in the field of inclusive design. Furthermore, areas for further study are suggested, followed by the research summary.

7.2 Background of research

Notwithstanding that the argument and disagreement within disability studies continue within academia and disability activists over the definition of disability, there is a need to put into practice the best practical tool available (the social model) to address barriers faced by many disabled people. Therefore, the research agrees with Oliver's argument that physical barriers need to be eradicated from society and researchers need to pay less attention to searching for a cure of impairments.

Inclusive design in the built environment plays an important role towards the provision of inclusive access, and makes a contribution to the elimination of physical barriers which can potentially impose access limitations for certain individuals in society. For instance, most services, goods and facilities are located within the built environment, which sometimes imposes physical access barriers on impaired people, who make up a significant part of the population (Vandenberg, 2012). This research takes a similar standpoint as that held and addressed by other scholars for example Imrie (2012; 2004a) and Oliver and Barnes (1998) in the field of inclusion. The view that expects the built environment to incorporate flexibility and adaptability and be designed inclusively for the wider range of human mobility needs that arise over the course of the lifetime of a person. Designs that make allowance for a wide range of users, particularly those with restricted mobility, are suitable for other users who are not considered impaired; whereas designs that focus only on users who are considered able-bodied are likely to present accessibility challenges to mobility-impaired users. Hence, an inclusive environment needs to accommodate a wide range of users. This research argues that there are man-made physical barriers within the built environment that can be avoided through good design.

7.3 Research position

Although the building design process involves several professionals, nearly all development proposals are ultimately submitted to LAs for design approval, hence the research focuses on data collected from Local Authority policy making and policy implementation. As the planning and building control design stages are carried out prior to the commencement of the construction of a building, most possible physical barriers to access can be minimised in the early stages of design, through the implementation of an effective inclusive-design policy. The research gauged policy actors' views and understanding of inclusive design and how such understanding is influencing their decisions during case assessments. These actors are those who (i) write development policies at a local level, (ii) assess the design proposals at the planning stage based on these policies, and (iii) assess the design details proposal at the building control stage.

From the literature review, Access (2007) and Ormerod and Newton (2005) show that, whilst some progress has been made by attempting to introduce policy documents, most of the barriers encountered by policy actors during inclusive design policy implementation are due to inadequacies in three key areas:

- Policy actors' limited understanding of inclusive design policy;
- Lack of clear policy documents;
- Weak inclusive design policy influence in decision-making.

The empirical basis of the thesis is the face-to-face interviews and document analysis in 4 localities. The data are organised around, and interpreted through, the lens of the Organizational Knowledge Creation (OKC) Theory to make sense of the research problem. The research concludes that there are three possible areas that require urgent attention to improve the policy actors' understanding of inclusive design policy to help them in making informative decisions in the field: (a) LAs lack knowledge creation procedures to advance policy actors' understanding of inclusive design policy, which contributes to the limited understanding amongst policy actors; (b) the lack of LAs' vision of the inclusive environment to help policy actors understand the physical barriers and daily challenges faced by disabled people, and; (c) the need to redefine access officers' role in the LAs to make knowledge creation a priority.

7.4 Contribution to knowledge

The following are three key areas where the current research makes a contribution to the current knowledge.

7.4.1 How knowledge is created to improve the implementation of an inclusive design policy in Local Authorities

The research contributes to: (i) the literature in the area of 'planning and design' within the built environment (Imrie, 2012; 2014), and; (ii) the Local Authorities' policy actors' way of creating knowledge to improve their understanding of inclusive design policy implementation during the design process, by proposing the adoption of an organisational knowledge creation process.

- i. The research contribution made to the planning and design literature is aligned with Imrie's (2014) work that argued that inclusive design practitioners are undirected on implementation. Furthermore, Imrie (2012) asserts that there is some disconnection between design (designers' understanding) and disability, limiting any progress in overcoming inequalities of access in the built environment. This research makes a contribution to the literature in the field of 'planning and design in the built environment' by focusing on understanding the underlying reasons that contribute to

the lack of understanding of inclusive design policy implementation amongst LA policy actors. In so doing, the research argues that the absence of a knowledge creation process and the provision of Ba within LAs are recognized as the likely main source of the poor understanding of the inclusive design policy implementation process amongst policy actors. The research further contends that unless the process of implementation of inclusive design policy is understood by policy actors, poor designs (in terms of inclusivity) will continue to receive design approval.

- ii. The research argues that a lack of knowledge creation undermines the progress of inclusive design policy implementation in LAs. Therefore, this part of the research contributes to the LAs' organization at the planning and design stages by arguing that they can benefit from adopting the four stages of knowledge creation - SECI - as suggested by the OKC Theory and summarized in Figure 7-1. The process of SECI is designed to advance knowledge through the continuous alternating process of tacit (individual understanding) into explicit (documented) knowledge and vice versa. However, it is rarely practiced by LAs, as illustrated in the context of inclusive design policy implementation in the cases studied. The continuous alternating tacit and explicit knowledge enhances the individuals' or groups' capacity to act, and creates new tacit and explicit knowledge. As demonstrated throughout the studied cases, the policy actors often rely on the use of persuasive language to achieve the inclusive design aspects implemented in development designs. In addition, the findings suggest that the inclusive design policy documents in place fail to address all aspects of inclusive design faced by policy actors and, often, these policies are copied from external documents. Yet the findings show that only policy actors with a good understanding of inclusive design are best positioned to persuade applicants to accommodate the inclusive aspects of the design. Policy actors with limited knowledge of inclusive design continue to approve design applications without scrutinizing the accessibility aspects of the design. Therefore, the thesis argues the fact that the SECI process is rarely incorporated in inclusive design policy implementation, during the design stages (as seen in three out of the four case studies), which can lead to poor decision-making by the policy actors. For instance, during the socialization mode, a lack of social interaction between individuals or groups within the LAs not only prevents the creation of tacit knowledge during this phase (referred to as the cornerstone of the knowledge creation process) but also has a direct negative impact on the subsequent phases which are interdependent with each other in the knowledge creation process. Therefore, where the policy actors have a

poor record of implementing inclusive design policy, failure to apply the socialization phase can perpetuate the issues arising from poor inclusive design. In line with the research findings, by adopting an acceptable level of socialization, Indigo Local Authority has acquired a better understanding of inclusive design policy implementation compared to LAs with a poor socialization approach. In addition, LAs with a limited understanding of inclusive design policy have not produced a policy document by utilizing the SECI process (in the combination mode), nor have they ensured that the implementation process of inclusive design is understood by the policy actors. Furthermore, the understanding of inclusive design policy implementation is undermined by the failure to treat tacit and explicit knowledge as complementary entities. Instead, it is noted that in at least three of the LAs studied there is a pervasive over-reliance on poorly-understood explicit knowledge when dealing with inclusive design implementation. This is an indication that they are not utilizing the SECI process to improve both tacit and explicit knowledge. Therefore, LAs need to address both tacit (individual understanding) and explicit knowledge (written materials) of inclusive design policy, as suggested in the four modes of knowledge creation (Figure 7-1).

7.4.2 Policy actors' understanding of Local Authorities' vision of the inclusive environment and its alignment to inclusive design policy

The research makes a contribution within two areas of organizational vision: (i) Towards the planning and design stages in LA organizations by arguing that an organizational vision, that sets out the LA's current and future vision in delivering an inclusive environment, is required to act as a catalyst for starting the knowledge creation process, and; (ii) it contributes towards the OKC Theory, by arguing that the theory shows little understanding of how the knowledge creation process can begin (Section 3.8). Although organizational vision and knowledge creation have been discussed in the field of OKC Theory, as yet, the importance of the relationship between the two has not been clearly established. For instance it is unclear how the organizational vision links to the SECI model or to which one of the four modes it links. The researcher contends that the organizational vision has a strong link to knowledge creation and further contends that a vision needs to be established prior to the socialization mode. Without an organisational vision to act as the catalyst, knowledge creation in inclusive design policy implementation, made possible through the SECI process, is more likely to proceed slowly. This is particularly noticeable amongst policy actors in settings where an inclusive design policy implementation is not considered important e.g. the Red, Blue and Green Local Authorities. Therefore, if the knowledge creation process remains stagnant due to the absence of an

organisational vision, it will be difficult to generate new tacit and explicit knowledge and this will likely lead to little progress in inclusive design policy implementation.

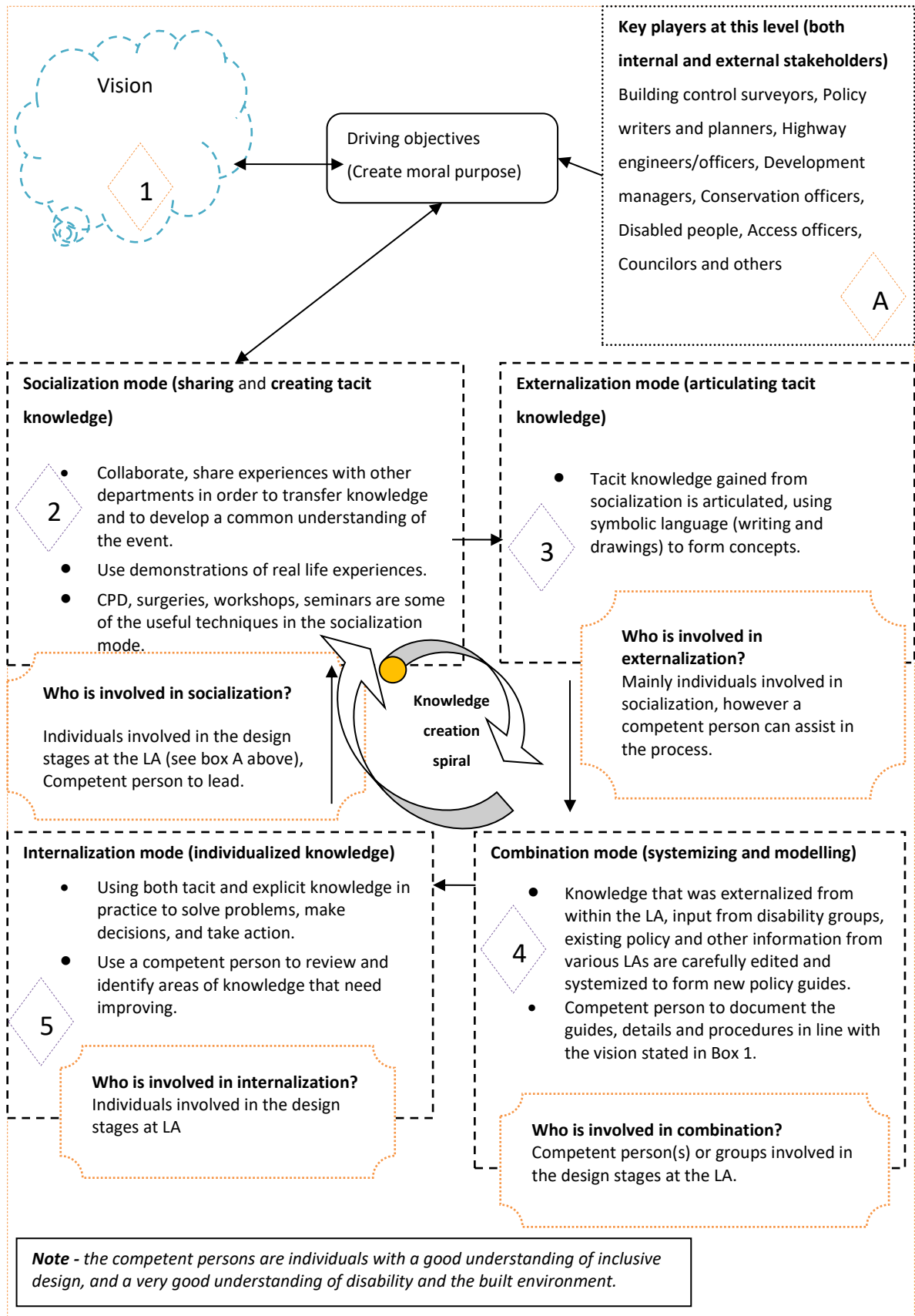


Figure 7-1 Knowledge creation model for all the relevant stakeholders at Local Authorities

The vision in this context looks at the bigger picture of an interaction between disabled people and the built environment that creates an understanding of the societal benefits of inclusive design amongst policy actors (Box 1 in Figure 7-1). In its simplest form the vision can aspire to providing a built environment that is accessible by able-bodied as well as most disabled people in the LA. The important issue is the recognition of the need for an inclusive environment, before considering the detail of how it can be achieved through the SECI modes (Boxes 2-5 in Figure 7-1). However, it is important that the organisational vision for an inclusive environment is developed from within the LA and that it is rooted in the belief that societal benefits will flow from its vision for the “common good”. This approach was shown to be fruitful as indicated in case studies published by De Oliveira (2011) and Nonaka *et al.* (2008b). Furthermore, the vision will only be believable and acted upon if the policy actors form values and a moral purpose for what is good for the local disabled community in the built environment. The research argues that LAs have not clarified their vision for an inclusive environment, leaving policy actors with a lack of a basic understanding of the connection between disabled people and the built environment. However, this research contends that with the vision in place, policy actors can be helped to understand the societal benefits of an inclusive environment by analysing three questions (the what, why and how of disabled people in the built environment) drawn from examples given by Nonaka *et al.* (2008b):

- i. What does the LA want to achieve in the built environment to cater for the disabled people in the local community?
- ii. Why are disabled people affected by a built environment that ignores some of the physical barriers introduced in the design process?
- iii. How are disabled people excluded from some areas of the built environment?

The vision is essential in fostering the actors’ participation and commitment in the field of inclusive design and hence, as a result, more likely to trigger the knowledge creation process represented in the SECI model which requires the participation of actors as shown in Figure 7-1 and in Appendix E.

7.4.3 The role of access officers in knowledge creation to improve the implementation of an inclusive design policy within LAs

The research makes a contribution to LA organizations. It was identified that by giving the access officers, or other inclusive design experts (access consultants) a role to engage in inclusive design policy implementation in the LAs, the roles that encompass the creation of tacit knowledge amongst policy actors, it is possible to accelerate the spiral process of knowledge creation (SECI). There is an

argument previously made by Imrie (1996b; 2004b) and Imrie and Wells (1993), that designers and policy actors reject training of inclusive design offered by access officers; the thesis findings support this claim. Furthermore, the thesis argues that both organizational vision and the knowledge-creation process require a leadership role suited to an access officer, or a competent person from within or outside the LA (i.e. a member of the National Register of Access Consultants or equivalent body) who can identify knowledge gaps and evaluate the input and output of the knowledge creation process. According to Nonaka *et al.* (2008b), the knowledge creation process requires individuals that can demonstrate leadership capabilities and can coherently synthesize, direct and implement the various elements that foster knowledge creation. Currently, the role of most access officers in LAs focuses on design application assessments, not leading knowledge creation. However, this research argues that the role of access officers in the building design process needs redefining, so they can primarily act more as a point of knowledge creation amongst policy actors. For example, an access officer may play a role in co-ordinating workshops and CPD for actors to reflect and share their past experiences, as demonstrated by Indigo Local Authority. The role of access officers can extend into devising suitable training for policy actors based on their level of understanding of inclusive design policy implementation. In addition, the access officer role needs to include the monitoring of the progress of inclusive design, and facilitate collaboration between disabled groups and the policy actors, or be proactive in identifying the key areas where tacit and explicit knowledge can be improved.

7.5 The limitations of the study

7.5.1 Access to case studies:

There were several limitations encountered at the time of seeking access to the LAs selected for data collection. For instance, access was denied by a number of managers contacted because they felt that their LA was not a good example of inclusive design policy implementation as quoted:

“It is just to say that I have spoken to colleagues in the Planning Service and they were surprised that Local Authority [Brown] has been chosen as they don’t feel that this borough is doing anything original with inclusive design. We therefore consider that Local Authority [Brown] would not be a good case study” (Local Authority Brown manager contacted for gate access).

Nevertheless, there were several other LAs in similar circumstances, who provided access for data collection; however each LA has a different approach therefore the findings cannot be generalized.

7.5.2 Findings:

There is a geographic constraint in the study as, of the four LAs studied; two were based in London and the other two in the South East of England. Although only four LAs were selected, the research provided sufficient information to understand how policy actors gain an understanding of the inclusive design policy implementation process necessary to deliver accessible designs. All four LAs studied showed major differences in the way their inclusive design policy documents were adopted and understood by policy actors. Nevertheless, there is a benefit in discovering various approaches of policy implementation that can potentially enrich the research's conclusions and recommendations.

7.5.3 Access to online policy documents:

Inclusive design policy documents from some LAs were difficult to access online through self-navigation and so the interviewees were contacted for a direct link leading to the policy document site. More importantly, those seeking to use inclusive design policy documents may also face difficulty in locating them.

Furthermore, government policy changes frequently. For instance, the present study data collection was conducted during a policy transition period; hence it was difficult sometimes to locate the policy document currently in use. In addition during the interviews, the LAs were still in the process of preparing the core strategy in which inclusive design policy will be placed. Nevertheless, the study focused on the policy actors' understanding of the inclusive design policy implementation process, whilst the policy documents were a secondary source of data to provide backup information.

This study began in 2009 at a time when inclusive design national policy was based on Planning Policy Statement 1 (PPS1): Delivering Sustainable Development (ODPM, 2005). Therefore this study made several references to PPS1. However, changes and revisions on inclusive design national policy are ongoing. For instance, the current government that took office in 2010/11 initiated the withdrawal of PPS1, which was superseded with a National Planning Policy Framework (NPPF) in 2012 (ODPM, 2012), to which most LAs were still actively respond to at the time of the data collection. The change was introduced as a response to the Localism Act 2011, introduced to empower local planning authorities to focus on local development requirements. Although, in principle, both the NPPF and PPS1 call for the provision of an inclusive environment, the NPPF's

approach is not as comprehensive compared to the previous version of PPS1 (see Section 2.7). Therefore, this research contends that the ongoing changes of inclusive design policy reinforce the increasing need for LAs to prioritise tacit knowledge to provide policy actors with the relevant understanding required to respond to new policy documents when they are introduced.

7.6 Recommendations

7.6.1 Practice recommendations

The research findings have given rise to several recommendations which could benefit the LAs studied and the way they could address any poor understanding of inclusive design policy implementation amongst their policy actors. The following recommendations suggest what steps LAs can take, although the details of the action plans needed are likely to vary for the different authorities:

- Learning from other LAs. The benchmarking approach is known to be very effective (Argote, 2013), i.e. benchmarking against a specific organization to learn from those that are known to be implementing inclusive design policy and are operating in a similar practice setting.
- Knowledge transfer or dissemination of inclusive design aspects can be used as a starting point for those LAs which have individuals with a poor understanding of inclusive design, i.e. training and CPD (Table 7-1). It is recommended that training and CPD are conducted by a knowledgeable candidate, having a rounded knowledge of building design and disability awareness. For instance, access officers or registered access auditors/consultants, supported by disability groups where possible, are knowledgeable individuals suitable for conducting such training and CPDs. Currently, disability groups are rarely embedded in the inclusive design policy implementation process. Yet disabled people's participation in the planning process can assist in pinpointing the difficulties they face due to poor physical access in the built environment. This is a relevant task that can help policy actors better understand the value of accessible buildings. In addition, the access officer's role could involve identifying areas where external training should be hired, and assessing the progress of policy implementation in the built environment. They can also recommend LAs to learn from disability groups, whilst ensuring that local disabled people have a voice and remain at the centre of inclusive design policy implementation. The training can be conducted in several ways, for example, roundtable discussions, or demonstrations using real life

examples, such as past or current drawings, to illustrate ways in which individuals can make decisions during the assessment stage of the application. Furthermore, the training can benefit from encouraging the attendees' participation; senior employees or managers at LAs are best placed for making training mandatory. In addition, training should be designed to raise disability awareness and advance the understanding amongst policy actors of the importance of incorporating inclusive design aspects within the built environment as a way of creating a vision and its driving objectives.

- It is advisable that policy actors collaborate with other stakeholders from different departments, such as highways engineers or green space (Montgomery and Sparks), planning, conservation and building control surveyors, to form a common basic understanding of inclusive design and to learn from each other. The purpose is to form a collective definition that allows the individuals involved in the design stages to develop and define a common goal for inclusive design.
- The creation of policy documents through the Organizational Knowledge Creation process is recommended mainly because knowledge derives from the local experiences of the policy actors themselves. However, this is only possible where individuals understand inclusive design and have ways to reflect and share their past experiences collectively to create new knowledge. Otherwise individuals with poor understanding may not be able to create new knowledge, which is why collaboration with diverse groups can be helpful. Furthermore, it is recommended that the policy documents should clearly state the vision and driving objectives of each LA. This will help policy actors realise the importance of engaging in the knowledge creation process that is needed to improve inclusive design policy implementation and achieve inclusive access.

7.6.2 Future study recommendation

Although policy actors recognise the benefit of undergoing inclusive design training, the purpose of this research was not to attest the benefit of the training to finished buildings, but to understand its influence during the implementation of inclusive design policy. Undertaking access audits of the actual buildings, approved by policy actors who attend the training, would determine how their understanding actually impacts on the physical access of the buildings. This was outside the scope of this study but would be of interest for future studies.

7.7 Summary remarks

This chapter highlights several issues that contribute to the lack of understanding of inclusive design policy implementation amongst the policy actors. This can result in the ambiguous interpretation of inclusive design policy documents and poor decision-making during the design application assessment that encompasses inclusive design. The research concludes by identifying three main issues that hinder the progress of inclusive design in the built environment:

- i. The policy actors' basic understanding for the "what and why" of inclusive environments is needed in their local area and "how" the problem of a poor accessible environment is disabling some people in the community. The research argues that without the vision and moral purpose defined and clearly understood by the policy actor, i.e. their commitment towards inclusive environment for disabled people in the community, it is unlikely that the policy actors will commit to knowledge creation to address the problem of inclusive environment in their local context.
- ii. The four modes (Socialization, Externalization, Combination and Internalization) of knowledge creation are rarely adopted by LAs to improve the policy actors' understanding of inclusive design policy implementation and the production of a clear policy document. The research contends that unless knowledge creation is adopted the policy actor's poor understanding is likely to persist among LAs.
- iii. The current access officer's role is compromised by focusing solely on individual application assessments. In contrast by expanding the access officer's lead role to include knowledge creation or knowledge transferring techniques such as initiating CPDs, training, workshops or face to face surgeries, the policy actors' understanding of inclusive design policy implementation can be expected to improve.

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Appendix A: interviews and document analysis guides

<i>Key: Planners= P, Building control= BC, Policy Implementation advisor= PIA, Document= D, Desktop= DT, Researcher=R</i>			
Objectives	Who	Questions	Methods
To understand the decisions made in LAs.		Decision-making 1. Q- How decisions are made, and parameters that guide decision-making?	
	P & BC	<ul style="list-style-type: none"> - Who makes decisions (including final decisions) on inclusive design aspects? - At what point would you consider refusing or approving a design? - Besides refusal or approval what other actions are taken during project assessment? - When will you consider the development as inclusively designed/accessible? - How does inclusive design policy influence your decisions during the case assessment? - What types of schemes are likely to achieve a high inclusive design standard? Why? - What difficulties are faced during decision-making? 	interviews
	P,BC & PIA	<ul style="list-style-type: none"> -Are decisions made in line with inclusive design policy intention? -Do you recall any decision you or your colleagues made that ended in court? 	Interviews
	P,BC & PIA	<ul style="list-style-type: none"> -How important or not so important is inclusive design in your view? 	Interviews
To examine the current understanding amongst actors		Understanding Q- How is inclusive design policy understood by the actor?	
	P & BC	<ul style="list-style-type: none"> - What do you think is the LA's goal of inclusive design? - What is your understanding of inclusive design policy requirements? - What was your input in the policy design or implementation strategy? - In your opinion why is inclusive design policy necessary - How do you keep up-to-date with current issues of inclusive design? - Have you attended inclusive design related training before? - What improvement if any would practitioners like to see in regard to the IDPP? 	Interviews

Key: Planners= P, Building control= BC, Policy Implementation advisor= PIA, Document= D, Desktop= DT, Researcher=R			
Objectives	Who	Questions	Methods
		Q- How appropriate is inclusive design policy in the actor's view?	
	P,BC & PIA	<ul style="list-style-type: none"> - Do you feel the policy has been overall increase physical access for all in the built environment? - What improvement if any would you like to see in regard to the inclusive design policy? - What do you find most difficult during policy implementation? 	Interviews
To examine LAs policy guidelines, in relation to the intention embodied in PPS1.		<p style="text-align: center;">Clear and consistence</p> <ul style="list-style-type: none"> - Q- How clear and consistent are the objectives, goals and guidelines of inclusive design policy in the LAs? 	
	R	<ul style="list-style-type: none"> - Do the LAs inclusive design objectives differ from original policy objectives? - Is this requirement/standard in line with government policy intention? - What types of developments are addressed by the LA policy? 	Desktop
	PIA	<ul style="list-style-type: none"> - Was policy modified during the implementation? - Why was it modified? 	Interviews
	PIA	<ul style="list-style-type: none"> - What are the principal factors affecting policy goal implementation as intended? 	Interviews
	PIA	<ul style="list-style-type: none"> - How do you ensure policy is understood by actors? - In cases where the LA has produced their own policy guidelines to help them build inclusively, which method was used to create the guidelines and how were these guidelines shared? 	Interviews
	P,BC & PIA	<ul style="list-style-type: none"> - What enforcement strategy does the LA have in place? - How successful is it? 	Interviews

Appendix B: List of interviewees

Case study Indigo		Quote reference
Position	Deputy manager	Planning I
Department	Planning /development control	
Length in the position	Over 12 years	
Position	Building surveyor (senior officer)	Building I
Department	Building control	
Length in the position	Over 14 years	
Position	Senior officer	Policy I
Department	Policy and planning	
Length in the position	Over 10 years	
Position	Manager	Disability I
Department	Disability Action in Indigo	
Length in the position	Over 6 years	
Case study Green		
Position	Team Leader	Planning G
Department	Planning /development control	
Length in the position	18 years	
Position	Manager of building control team	Building G
Department	Building control	
Length in the position	20 years	
Position	Manager	Policy G
Department	Planning strategy and Policy	
Length in the position	Over 14 years	

Case study Red		
Position	Planning officer	Planning R
Department	Planning /development control	
Length in the position	4 years	
Position	Deputy manager	Building R
Department	Building control	
Length in the position	16 years	
Position	Principle planner	Policy R
Department	Policy team	
Length in the position	12 years	
Case study Blue		
Position	Team leader	Planning B
Department	Planning/development control and conservation	
Length in the position	12 years	
Position	Building surveyor officer	Building B
Department	Building control	
Length in the position	9 years	
Position	Team leader	Policy B
Department	Planning strategy and policy	
Length in the position	Over 20 years	

Appendix C: Key points of Planning Policy Statement 1

The policy studied in this research is quoted below. The national planning policy's key principle as stated by the ODPM (2005:6) Planning Policy Statement 1 (PPS1)

- 13. *"(iv) Planning policies should promote high quality inclusive design in the layout of new developments and individual buildings in terms of function and impact, not just for a short time but over life time of the building. Design which fail to take the opportunity available for improving the character and quality of an area should not be accepted.*
- *(v) Development plans should also contain clear comprehensive and inclusive access policy in terms of both location and external physical access."*

The policy also promotes social cohesion and inclusion ODPM (2005:17):

- 14. *"This means meeting the diverse needs of all people in existing and future communities, promoting personal well-being, social cohesion and inclusion and creating equal opportunity for all citizens.*
- 16. *Development plans should promote development that creates socially inclusive communities, including suitable mixes of housing. Plan policies should:*
 - *Ensure that the impact of development on the social fabric of communities is considered and taken into account;*
 - *Seek to reduce inequalities*
 - *Address accessibility (both in terms of location and physical access) for all members of the community to jobs, health, housing, education, shops, leisure and community facilities"*

Appendix D: Research design summary

<p>Topic and methodology Research topic: Method:</p>	<p>Inclusive design policy implementation during the design stage of the built environment: a knowledge creation perspective Constructivism (an interpretivist approach)</p>
<p>Methodological construction of the topic Research Question: Strategy of inquiries:</p>	<p>How policy actors gain an understanding of the inclusive design policy implementation process necessary to assess the accessibility of the designs? Methods inquiries (qualitative) The qualitative component is dominant. Conducted in LA settings, with both interviews and document analysis methods used for data collection.</p>
<p>Sampling procedures</p>	<p>For qualitative method: four case studies, semi-structured interviews for three to four professionals per case study (LAs), thirteen interviewees in total. The interviewees were taken from planning, policy or building control departments, at least one from each department. And a document analysis of the inclusive design policy document was performed for each case study.</p>
<p>Data collection</p>	<p>The data collection for the interviews took approximately 12 weeks. The researcher conducted all interviews in person and each interview took about one hour. All the interviews were digitally voice recorded, then transcribed. In addition a desktop research (policy document) of each case study, was conducted.</p>
<p>Data analysis and interpretation</p>	<p>Interview data are analysed using template analysis, accommodating both descriptive and interpretative approaches. The themes drawn from the OKC Theory and the data collected were used to guide the data interpretation. In addition the contents of the inclusive design policy document (document analysis) for each LA studied are analysed, the main focus is on the aim of the inclusive design stated.</p>
<p>Data Discussion</p>	<p>Finally all the data collected via document analysis and interviews are jointly discussed, addressing How policy actors gain an understanding of the inclusive design policy implementation process necessary to assess the accessibility of the designs? The discussion of the data primarily applied the lens of the OKC Theory to discuss the findings.</p>

Appendix E: LAs' recommendations

The table below provides a recommendation for LAs to advance understanding of inclusive design policy implementation amongst policy actors, in line with OKC Theory.

Activities template	Summary of recommendations
1. Vision and goal (create moral purpose)	<p>1. LAs' vision of inclusive design should aim to highlight what and why an inclusive environment is needed to create an understanding of the societal benefit amongst policy actors. In addition LAs are recommended to set a long-term and short-term goal for inclusive design policy implementation, in line with national or regional policy goals, whilst using complementary local information. LAs can further benefit from departmental goals and accountability and targets, in line with the goal set nationally.</p>
2. Socialization- 2.1 Inclusive design training/CPDs 2.2 Inclusive design experts 2.3 Sharing experience, interaction and communication	<p>2.1 Developing collective action through shared events and experiences to enable policy actors to solve familiar tasks and define boundaries for collective identity. It is recommended that LAs introduce training and CPDs, workshops, seminars and surgeries around disability awareness within the built environment. In addition, it is recommended that management should make inclusive design training mandatory by encouraging the compulsory attendance of all relevant parties. The focus in the training is to highlight the goal of inclusive design, while stating clearly why inclusive design policy is an important part of development design.</p> <p>2.2 The research recommends the use of inclusive design experts, particularly individuals with a good understanding of both disability awareness and development/building designs, supported by local access groups. The experts can be employed by an individual LA; alternatively they can be hired from external bodies such as the National Registered for Access Consultants or any other registered body with similar experts. For LAs that have employed access officers, their role needs to focus more on transferring knowledge to their colleagues to ensure inclusive design is widely understood, rather than focusing solely on individual development design assessments.</p> <p>2.3 It is recommended that LA managers encourage a setting and culture that allows individuals to interact with their colleagues, either from similar departments or other relevant departments, formally or informally, to exchange experiences, as the process is known to influence understanding. Furthermore, collaboration between the various relevant parties can highlight the connection between the different parties involved in the building design. For instance, the building control surveyor, highways engineer and planner interaction can improve the individuals' understanding of each other's basic requirements with regard to inclusive design. Similarly, it is recommended that there is sharing of information or group meetings consisting of individuals from the following departments: disability/access groups, planners, policy actors and policy writers. Such interaction can serve to advance the policy actors' understanding of the issues faced by disabled people in the built environment while pinpointing the relevant actions necessary in order to meet the goals of inclusive design.</p>
3. Externalization- 3.1 Collective reflection	<p>3.1 Group and individuals with tacit knowledge should be encouraged to make it explicit.</p>

Activities template	Summary of recommendations
<p>4. Combination-</p> <p>4.1 Inclusive design policy currently in use and the policy origins</p> <p>4.2 External information</p> <p>4.3 Internal information</p>	<p>4.1 Explicit knowledge from within or outside the LA is edited and combined to form a current policy document. Policy documents must contain a clear vision and the driving objectives for achieving inclusive design. They must be supported by inclusive design action details that are clear and meaningful to policy actors during the application assessment stage. Policy documents should not only originate from explicit knowledge (national policy) but should also take into account the tacit knowledge contributed by interested parties.</p> <p>4.2 External information from other LAs, known to have established a robust approach, can be used. For instance, LAs that have adopted SPDs have made them available on their websites. This is an opportunity for LAs to learn from others that have demonstrated, or are known to have a good reputation for, inclusive design implementation.</p> <p>4.3 Internal information is recommended to ensure the SPD policy is designed to meet the local need. Local information can be gathered through collaborating with disability groups.</p>
<p>5. Internalization</p> <p>5.1 Understanding of the explicit knowledge</p> <p>5.2 Decision-making</p> <p>5.3 Action</p> <p>5.4 Value</p>	<p>5.1 The key to the internalization phase is that explicit knowledge becomes personal (tacit knowledge). Tacit knowledge is required for individuals to understand explicit knowledge, i.e. to correctly interpret policy documents.</p> <p>5.2 The combination of a clear policy document at LA level, complemented by the individuals' understanding, is recommended as a key requirement of decision-making. Hence a clear policy document is recommended.</p> <p>5.3 The research concluded that policy actors use persuasive arguments to motivate applicants to incorporate inclusive features in the designs. Therefore, policy actors require a good understanding of inclusive design policy implementation to take part in effective negotiation.</p> <p>5.4 The findings suggest that some policy actors see inclusive design policy implementation as less important. Often those who hold this view have a lesser understanding of the inclusive design features needed by disabled people in the society. This understanding can be improved by knowing why inclusive design is needed in the built environment, then address how to implement the policy.</p>