
This item was submitted to [Loughborough's Research Repository](#) by the author.
Items in Figshare are protected by copyright, with all rights reserved, unless otherwise indicated.

An investigation of digital inclusion in UK rural communities

PLEASE CITE THE PUBLISHED VERSION

PUBLISHER

Loughborough University

LICENCE

CC BY-NC-ND 4.0

REPOSITORY RECORD

Wagg, Sharon. 2021. "An Investigation of Digital Inclusion in UK Rural Communities". Loughborough University. <https://doi.org/10.26174/thesis.lboro.17026574.v1>.

An investigation of digital inclusion in UK rural communities

Sharon Wagg

A thesis submitted in partial fulfilment of the requirements of Loughborough University, for the award of Doctor of Philosophy

November 2021

Acknowledgements

I would like to thank my supervisors Professor Louise Cooke and Dr Boyka Simeonova for all of the advice and assistance they provided me throughout the course of my PhD. I could not have asked for a better team in terms of the expertise and general support they have provided. It has all been greatly appreciated. Similarly, I would like to thank Professor Peter Kawalek and Professor David Allen for enriching this thesis with their comments during the viva.

I would like to thank the School of Business & Economics at Loughborough University for funding my PhD through the prestigious Mark Hepworth scholarship, without which I would not have been able to undertake such a research journey. I would like to thank my friends and fellow PhD students, Centre for Information Management colleagues, and all of the support staff in the school office for always being approachable and very knowledgeable.

This study would also not have been possible without those who gave up their time to participate in the research, or to help me source participants. There are too many people to thank individually; however, please know that I am very appreciative of your contribution.

Finally, I would like to extend my warmest thanks and gratitude to my family, my husband David, who has supported me throughout my PhD and the patience of my children, Jess and Abbie.

Publications associated with this research

Wagg, S., Cooke, L., and Simeonova, B. (2020). [Digital inclusion and women's health and well-being in rural communities](#) in: Yates, S. and Rice, R. (Eds.), *The Oxford Handbook of Digital Technology and Society*, Oxford University Press, UK

Wagg, S. and Simeonova, B. (2021) A policy-level perspective of digital inclusion in rural communities. *Information Technology & People*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/ITP-01-2020-0047>

Abstract

This study challenges the current ‘utopian’ discourse in digital inclusion rhetoric by providing insights into the complexity of digital inclusion initiative provision as a multilevel phenomenon, against a backdrop of digitalisation and digital-by-default policy.

The aim of this study is to investigate digital inclusion initiative provision in the context of UK rural communities. Underpinned by the philosophy of critical realism, the study employs an exploratory qualitative case study that provides a critical discussion of digital inclusion initiative provision and a granular analysis of the dynamics, processes, experiences, and behaviours of those involved in the phenomenon. More specifically the study explores digital inclusion initiative provision from a multilevel perspective, from digital inclusion stakeholders that operate nationally across the UK; intermediaries delivering digital inclusion training and support in three specific rural regions of the UK with populations at increased risk of digital exclusion; and individuals who have received digital inclusion support within those three specific rural locations.

Data collection involved semi-structured interviews, focus groups, observations, complemented by a brief document review. Activity Theory was utilised as an analytical framework to provide guidance from data collection through to empirical data analysis to help investigate digital inclusion initiative provision as a multilevel phenomenon.

Key findings reveal digital inclusion initiative provision is a complicated process that is fraught with challenges and contradictions, that hamper the realisation of the digital inclusion agenda. Digital inclusion training and support is provided to individuals from ‘all walks of life’, not just the digitally excluded, and not everyone has beneficial outcomes. Importantly, the study reveals the bridging role of human intermediation, and the need for rural communities to be considered in UK government digital policy.

Contributions of this study include new insights into the understanding digital inclusion initiative provision and the inherent challenges in that process, the usefulness of Activity Theory to help unravel the complexity of digital inclusion initiatives as a multilevel phenomenon; and recommendations for change in the provision of digital inclusion initiatives that have implications for policy and practice.

Table of Contents

<i>Declaration</i>	<i>2</i>
<i>Acknowledgements</i>	<i>3</i>
<i>Publications associated with this research.....</i>	<i>4</i>
<i>Abstract</i>	<i>5</i>
<i>List of Tables</i>	<i>10</i>
<i>List of Figures</i>	<i>11</i>
<i>Chapter 1 Introduction</i>	<i>12</i>
1.1 Introduction.....	12
1.2 Digital inclusion in the UK and UK rural context	13
1.3 Research problem	16
1.3.1 Research on digital inclusion initiatives.....	16
1.3.2 Digital inclusion initiative provision as a multilevel phenomenon	17
1.3.3 Research on digital inclusion initiative provision within context of UK rural communities	19
1.3.3 Digital inclusion initiative provision through a theoretical lens	20
1.4 Research Aims and Objectives	21
1.4.1 Key research questions.....	21
1.5 Research design	22
1.6 Motivation for study	24
1.7 Significance of study	24
1.8 Thesis Structure	26
1.9 Chapter summary	27
<i>Chapter 2 Literature Review</i>	<i>28</i>
2.1 Introduction.....	28
2.2 Origins of Digital Inclusion research	28
2.3 Definitions and conceptual factors of digital inclusion	31
2.4 Ambiguities in digital inclusion research	33
2.5 Barriers to digital inclusion	34
2.6 Digital inclusion initiatives	37
2.7 Differentiation of Digital Inclusion Initiatives	39
2.8 Drivers of digital inclusion initiatives.....	40
2.9 Digital inclusion initiative approaches.....	41
2.10 Digital inclusion initiative factors and components	43
2.11 Digital inclusion Intermediaries.....	48
2.12 Digital skills training and support	50
2.13 Digital inclusion and rurality	53
2.14 Rural UK digital inclusion initiatives	55

2.15 Criticism of digital inclusion initiatives	59
2.16 Conclusion and research gap.....	61
2.17 Chapter summary	62
Chapter 3: Theoretical background.....	64
3.1 Introduction.....	64
3.2 Overview of theories	64
3.2.1 Institutional Theory	64
3.2.2 Structuration Theory	65
3.2.3 Actor Network Theory	65
3.2.4 Activity Theory.....	66
3.2.5 Comparing theories and rationalising the use of Activity Theory	67
3.3 Theoretical origins of Activity Theory.....	69
3.4 Generations of Activity Theory.....	70
3.5 AT Principles	74
3.6 Application of Activity Theory	76
3.7 Applying AT to this study	79
3.8 Chapter summary	80
Chapter 4: Methodology and Research Design.....	81
4.1 Introduction.....	81
4.2 Research Philosophy	81
4.3 Critical Realism	84
4.4 Research design and strategy.....	86
4.4.1 Qualitative research	86
4.4.2 Case study approach.....	88
4.4.3 Case study context and scope	93
4.4.4 Multilevel framework	94
4.5 Data Collection Methods	97
4.5.1 Interviews	97
4.5.2 Focus groups.....	98
4.5.3 Observations.....	99
4.5.4 Document review	99
4.6 Ethical considerations	100
4.7 Quality of research	101
4.8 Method and data collection in study	102
4.8.1 Study semi-structured interviews and focus groups	105
4.8.2 Interview design (one-to-one and focus groups)	106
4.8.3 Observations.....	109
4.8.4 Document review	111
4.9 Data Analysis	111
4.10 Chapter summary	113
Chapter 5: Findings.....	115
5.1 Introduction.....	115

5.2 National-level Findings	116
5.2.1 Overview of national-level activity system.....	116
5.2.2 Tools, rules and norms, community, division of labour overview	120
5.2.3 Mediating factors	122
5.3 Intermediary-level findings	144
5.3.1 Overview of intermediary-level activity system	144
5.3.2 Tools, rules and norms, community, division of labour overview	150
5.3.3 Mediating factors	151
5.4 Individual-level Findings	172
5.4.1 Overview of individual-level AT system.....	172
5.4.2 Tools, rules, community, division of labour overview	174
5.4.3 Mediating factors	175
5.5 Multilevel findings	189
5.5.1 Overview of interacting activity systems.....	190
5.5.2 Introduction to multilevel findings	193
5.5.3 Multifaceted nature of digital inclusion initiatives.....	193
5.5.4 Crucial role of human intermediation	200
5.5.5 Experience of receiving digital inclusion initiative training and support.....	203
5.5.6 Essential components of digital inclusion initiative provision in UK rural communities	206
5.6 Chapter summary	207
Chapter 6: Discussion	208
6.1. Introduction.....	208
6.2 Overview of the research.....	208
6.3 (RQ1) Digital inclusion initiative drivers, approaches, & delivery in UK rural communities	209
6.3.1 Introduction.....	209
6.3.2 Drivers of digital inclusion initiative provision.....	210
6.3.3 Approaches to digital inclusion initiative provision	214
6.3.4 Delivery of digital inclusion initiative provision.....	217
6.4 (RQ2) Role of digital inclusion intermediaries and actors in the delivery of digital inclusion training and support in UK rural communities	221
6.4.1 Introduction.....	221
6.4.2 Evolving role of human intermediation in digital inclusion delivery	221
6.4.3 Capabilities and skills of intermediaries	225
6.4.4 Delivering in a trusted supportive environment.....	228
6.5 (RQ3) Experience of people living in UK rural communities who have received or are in need of digital inclusion training or support	230
6.5.1 Introduction.....	230
6.5.2 Recipients of digital inclusion initiative training and support	230
6.5.3 Attitudinal experience of digital inclusion initiative recipients	232
6.5.4 Trusted supportive environment for digital inclusion support for individuals	236
6.6 Chapter summary	238
CHAPTER 7 CONCLUSION	239
7.1. Introduction.....	239
7.2 Research objectives and main findings.....	239
7.2.1 Overview.....	239
7.2.2 To explore how digital inclusion initiatives are approached, driven and delivered in UK rural communities	243

7.2.3 To explore the role digital inclusion intermediaries and actors play in reaching and engaging with UK rural communities in need of digital inclusion training and support	244
7.2.4 To investigate the experiences of people living in UK rural communities, who receive digital inclusion training and support.....	245
7.2.5 To investigate the essential components of digital inclusion initiative provision in the context of UK rural communities	247
7.2.6 To use Activity Theory to explore digital inclusion initiative provision as a multilevel phenomenon through a theoretical lens	247
7.3 Contributions.....	248
7.3.1. Contribution to knowledge.....	248
7.3.2 Methodological contribution.....	250
7.3.3 Contribution to theory.....	250
7.4 Importance of research findings.....	253
7.5 Recommendations for policymakers, digital inclusion stakeholders, and intermediary organisations.....	256
7.6 Recommendations for future research.....	257
7.7 Limitations.....	260
7.8 Reflections on study	261
References.....	263
Appendixes.....	293
Appendix 1	293
Appendix 2	296
.....	296
Appendix 3	297
Appendix 4	298
Appendix 5	299
Appendix 6	300
Appendix 7	301
Appendix 8	302
Appendix 9	304
Appendix 10	305

List of Tables

TABLE 1 STUDY RESEARCH DESIGN	24
TABLE 2 DIGITAL INCLUSION FRAMEWORKS	32
TABLE 3 APPROACHES TO DIGITAL INCLUSION INITIATIVE PROVISION	42
TABLE 4 APPLICATION OF DIGITAL HUMAN CAPITAL FRAMEWORK TO DIGITAL INCLUSION INITIATIVES, BACH ET AL, 2013, P.254.	45
TABLE 5 MEASUREMENT MODELS OF INDIVIDUALS DIGITAL LITERACY/COMPETENCE/SKILLS	51
TABLE 6 KEY ASSUMPTIONS WITHIN THE REALM OF CRITICAL REALISM	85
TABLE 7 SUMMARY OF QUALITATIVE INQUIRY STRATEGIES (CRESWELL, 2009, P.18)	87
TABLE 8 FIVE PRINCIPLES OF CRITICAL REALIST CASE STUDY. ADAPTED FROM WYNN AND WILLIAMS (2020).90	
TABLE 9 DESCRIPTION OF MULTILEVEL STAKEHOLDERS IN THIS STUDY	96
TABLE 10 CRITERIA TO ENSURE RESEARCH QUALITY	102
TABLE 11 DATA COLLECTION TECHNIQUES FOR STUDY.....	103
TABLE 12 NUMBER OF INTERVIEWS/FOCUS GROUPS.....	106
TABLE 13 RESEARCH PARTICIPANTS INTERVIEWED AT MULTIPLE LEVELS	109
TABLE 14 STUDY OBSERVATIONS.....	111
TABLE 15 THE PHASES OF ANALYSIS TAKEN IN STUDY	112
TABLE 16 QUESTIONS ASKED OF THE DATA THROUGH THE LENS OF AT	113
TABLE 17 DIGITAL INCLUSION STRATEGIES WITHIN THE UK.....	117
TABLE 18 PRIMARY CONTRADICTIONS (NATIONAL-LEVEL).....	143
TABLE 19 SECONDARY CONTRADICTIONS (NATIONAL-LEVEL)	143
TABLE 20 PRIMARY CONTRADICTIONS AT INTERMEDIARY-LEVEL	171
TABLE 21 SECONDARY CONTRADICTIONS AT INTERMEDIARY-LEVEL.....	171
TABLE 22 VARIETY OF MOTIVATIONS FOR DIGITAL INCLUSION SUPPORT	173
TABLE 23 EXAMPLES OF ATTITUDES FOR SPECIFIC DIGITAL INCLUSION SUPPORT.....	176
TABLE 24 VIGNETTES OF ATTITUDINAL JOURNEY OF DIGITAL INCLUSION SUPPORT.....	178
TABLE 25 PRIMARY CONTRADICTIONS FOR INDIVIDUAL-LEVEL	188
TABLE 26 SECONDARY CONTRADICTIONS FOR INDIVIDUAL-LEVEL	188
TABLE 27 AT ELEMENTS/FACTORS ACROSS INTERACTING DIGITAL INCLUSION ACTIVITY SYSTEMS	190
TABLE 28 CONTRADICTIONS OF MULTILEVEL CONTRADICTIONS.....	193
TABLE 29 APPROACHES TO DEMAND-SIDE DIGITAL INCLUSION INITIATIVE PROVISION.....	216

List of Figures

FIGURE 1 MEDIATED ACT - ADAPTED FROM VYGOTSKY (1981)	70
FIGURE 2 HIERARCHICAL STRUCTURE OF ACTIVITY - KAPTELININ AND NARDI, 2009. P.64.....	71
FIGURE 3 SECOND-GENERATION ACTIVITY THEORY (ADAPTED FROM ENGSTRÖM 1999).....	71
FIGURE 4 THIRD-GENERATION ACTIVITY THEORY (ENGSTRÖM, 2001, P. 136).	73
FIGURE 5 FOUR LEVELS OF CONTRADICTION (SOURCED FROM KARANASIOS, 2018).....	75
FIGURE 6 CYCLE OF EXPANSIVE LEARNING (ENGSTRÖM, 1999B)	76
FIGURE 7 MULTILEVEL FRAMEWORK FOR CASE STUDY DESIGN	95
FIGURE 8 ACTIVITY SYSTEM OF NATIONAL-LEVEL DIGITAL INCLUSION INITIATIVE PROVISION	116
FIGURE 9 ACTIVITY SYSTEM OF INTERMEDIARY-LEVEL DIGITAL INCLUSION INITIATIVE PROVISION	144
FIGURE 10 TYPOLOGY OF INTERMEDIARY ORGANISATIONS	145
FIGURE 11 TYPOLOGY OF INTERMEDIARIES.....	147
FIGURE 12 TYPOLOGY OF SUPER INTERMEDIARIES	148
FIGURE 13 ACTIVITY SYSTEM OF INDIVIDUAL-LEVEL DIGITAL INCLUSION INITIATIVE PROVISION	172
FIGURE 14 THE FOUR C'S ATTITUDINAL JOURNEY OF DIGITAL INCLUSION SUPPORT	178
FIGURE 15 INTERMEDIARY/INDIVIDUAL-LEVEL DIGITAL INCLUSION ACTIVITY SYSTEM.....	186
FIGURE 16 MULTILEVEL INTERACTING ACTIVITY SYSTEMS	189

Chapter 1 Introduction

1.1 Introduction

Despite the increased ubiquity of digital technologies in almost every aspect of our lives, the use of such technologies remains unequal and problematic. Importantly, sub-groups of society face digital exclusion due to their inability to access, operate, and use digital tools and technologies in a meaningful way (Hosman and Comisso, 2020). In addition, rurality continues to play a part in digital exclusion where 'rural areas are increasingly found on the wrong end of the digital divide' (Salemink et al., 2017, p.361), in both developing and developed countries (Mubarak et al., 2020), due to the variability in access to and distribution of technological infrastructure, and barriers to digital inclusion (McGillivray et al., 2017; Philip and Williams, 2019).

Thompson (2016) states that 'full and democratic participation in the information society depends upon digital inclusion, which must extend even to the most disadvantaged segments of society' (p.38). But what is digital inclusion? Digital inclusion in general terms is described in policy and academic literature in relation to the equality of access to digital technologies and the Internet and associated benefits. While definitions vary, core elements often used to define what it means to be digitally included are: access, skills, motivation, participation and trust. For example, Helsper (2014) defines digital inclusion as 'an individual's effective and sustainable engagement with ICTs in ways that allow full participation in society in terms of economic, social, cultural, civic and personal well-being' (p.7).

The UK government refers to digital inclusion as the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have the right access, motivation, skills and trust to navigate confidently online and access opportunities on the Internet (Government Digital Service, 2014). Whereas Thompson et al. (2014) defines digital inclusion as 'outreach as a means to empower underserved and marginalised populations' (p.9). What links all of these definitions is the understanding that there is a growing body of empirical and theoretical research in digital inclusion without coming to a common definition' (Ragnedda and Mutsvairo, 2018, pviii).

But why does digital inclusion matter? As alluded to above, digital inclusion is important for helping people access information online, staying in touch with family and friends, learn new things and access entertainment. But digital inclusion goes deeper than that. It has a strong social aspect. It is important for social equality (often otherwise referred to as social inclusion) and to ensure equal access to the benefits offered by digital technology and the Internet (Mervyn et al., 2014; Williams, 2016; Díaz Andrade and Doolin, 2016).

The issue of digital inclusion has long preoccupied policymakers, governments, technology providers and civil society organisations, as evidenced through their involvement in initiatives designed to enhance digital inclusion through technological infrastructure, digital literacy training and support. Such digital inclusion initiatives are designed to address digital inequalities (Mariën and Van Audenhove, 2012; Al-Muwil et al., 2019; Yates, et al., 2015b), and are critical to bridging the digital divide in local communities (Mervyn et al., 2014).

However, scholars argue digital inclusion policies continue to struggle to address significant inequality issues, due to the incorporation of narrowly conceived, short-term, technology-centric solutions (Mariën and Prodnik, 2014; Díaz Andrade and Techatassanasoontorn, 2021). Furthermore, scholars identify the multiple factors which contribute to digital exclusion are complex, making the task of implementing workable digital inclusion solutions particularly challenging for policy makers (Jaeger et al., 2012; Bach et al., 2013; Ragnedda, 2018). Importantly, scholars highlight how the introduction of digital-by-default policies in developed countries has brought a significant layer of complication to the digital inclusion realm, as individuals struggle to access online services previously available face-to-face (Mervyn et al., 2014; Mariën and Prodnik, 2014; Al-muwil et al., 2019).

1.2 Digital inclusion in the UK and UK rural context

Digital inclusion remains a priority for the UK Government, yet despite many national campaigns and initiatives to reduce this inequality, a segment of society remains not engaged with digital technology. At a national level 15.2 million UK adults are either non-users, or limited users of the internet (Good Things Foundation and Yates, 2017); and eight out of ten people in rural areas in the UK do not have access to 4G mobile

coverage (Ofcom, 2017). However, it is problematic to assume that being geographically rural or remote constitutes being at greater risk of digital exclusion than in urban areas. The picture is far more complex, as variations in internet use are not only the result of available digital infrastructure; they are also influenced by demographic factors such as age, education and occupation. Digital exclusion therefore is a problem for both rural and urban populations, particularly those residing in locations at increased risk of multiple deprivation.

From a UK policy point of view, 'digital inclusion is about having the right access, skills, motivation and trust to confidently go online' (Government Digital Strategy, 2014, n.p). The UK Government Digital Strategy (Cabinet Office, 2013) sets out how government and partners from the public, private and voluntary sectors should come together, through a multilevel effort, to increase digital inclusion, and develop ideas for national initiatives, to help people become capable of using and benefiting from the Internet.

To put this into action the UK Digital Inclusion Charter (2014) outlines a set of activities to which government and Digital Inclusion Charter signatories are committed. Such activities include using a common definition of essential digital skills and capabilities, and supporting cross-sector, national partnership programmes. The updated UK Government Digital Strategy (2017) has introduced the concept of Local Digital Skills Partnerships (Local DSPs) with the aim of bringing together businesses, charities and public sector organisations to tackle local digital skills challenges.

To support national digital inclusion strategies, district councils, and local authorities at local government level are including digital inclusion in their strategies to support their digital objectives (Firmstone and Coleman, 2015). Community organisations are also providing support developing and maintaining digital skills across the UK. For example, the Online Centres network are working in partnership with the Department for Education (DfE) to offer community-based assistance to the digitally and socially excluded through the Future Digital Inclusion programme (Richardson, 2018). Partnerships with the private sector (such as banks and telecommunication organisations) have also been established to tackle the barriers to digital inclusion, such as providing funding to create courses to build people's digital literacy (Richardson, 2018; Gann, 2019).

However, UK rurality continues to be a barrier to accessing digital public services and thus a concern for UK policymakers (Ofcom, 2018). For example, twelve per cent of rural premises struggle to access a decent broadband service, compared to only one per cent of urban premises (Ofcom, 2018). Indeed, research shows that the UK's internet use is stratified geographically, with regional differences as well as a well-documented urban–rural divide (Grant et al., 2018). For example, according to the Lloyds Bank UK Consumer Digital Index 2020, London and the South-East have the highest percentage (86%) of digital engagement of all the UK regions, whereas Wales, Scotland and the North-East of England have the lowest. Furthermore, the Oxford Internet Survey (OxIS) in 2019 found that people living in cities are more likely to be 'next- generation users' (those with multiple devices), compared to those living in rural households (Grant et al., 2020). In an effort to combat this digital divide, during the 2019 Conservative leadership race, Prime Minister Boris Johnson pledged that every home will have access to full fibre broadband by 2025. However as evidenced in the literature, while access to good quality broadband is enough for some people to be digitally included, for others their journey to digital inclusion is more complex, or impossible due to their personal circumstances and demographics.

Scholars argue that the problem of digital exclusion in the UK has still not been adequately resolved and worry that pushing on with ambitious UK digital policy agendas, such as digital-by-default, will exacerbate existing inequality of access to digital services (Mervyn et al., 2014; Mariën and Prodnik, 2014; Al-muwil et al., 2019). Indeed, Hepburn (2018), argues that this failure to address digital exclusion appears symptomatic of both central and local government's abiding inability to successfully implement much of its digital policy agenda. This issue appears most apparent following the introduction of Universal Credit (GOV.UK, 2013), a scheme that replaces a range of other existing benefits - where claimants have to apply for their benefits online. Closure of banks, where customers are increasingly encouraged to bank online, has also amplified this situation (Díaz Andrade and Techatassanasoontorn, 2021), as has the movement towards online health services through the UK's NHS digital strategy (Gann, 2019). This makes the understanding of digital inclusion initiatives ever more urgent, as those who cannot get online might struggle to claim benefits, conduct online financial transaction or access health services.

1.3 Research problem

The above discussion highlights the need for the provision of digital inclusion initiatives, that reaches out and engages with those in need of digital inclusion support. Yet a critical discussion and analysis on how provision of digital inclusion initiatives is tackled and how stakeholders translate digital inclusion policy remains amiss in the literature (Reisdorf and Rhinesmith, 2020). Indeed, it is difficult to have a clear picture of the outcomes and social consequences of digital inclusion initiatives without a critical discussion of the processes involved, and many questions remain unanswered: What are the drivers behind digital inclusion initiatives; how are digital inclusion initiatives approached and delivered; what are the experiences of those who have received digital inclusion training or support through digital inclusion initiatives; what are the inherent challenges in that process, particularly in the context of UK rural communities; why do some digital inclusion initiatives fail; and how can digital-by-default be balanced with digital inclusion in the UK? The understanding of the provision of digital inclusion initiatives, specifically in regard to their implementation, associated challenges, and social and cultural context, appears scarce. Therefore, in light of the existing literature and persistent challenges of digital inequality, there is a need for research on the provision of digital inclusion initiatives, particularly within the context of UK rural communities at risk of digital exclusion as further outlined below:

1.3.1 Research on digital inclusion initiatives

The literature confirms the multiple factors which contribute to individuals and communities being digital marginalised, makes the task of implementing workable digital inclusion initiatives challenging (Bach et al., 2013). In some instances, this has led to failed digital inclusion initiatives (Davies et al., 2017; Madon et al., 2009). Yet scholars highlight the provision of digital inclusion initiatives is critical to reducing digital inequalities in local communities (Mervyn et al., 2014; Wagg et al., 2020; Reisdorf and Rhinesmith, 2020), and is often put forward as the solution to the digital divide in policy and scholarly rhetoric.

Descriptions of digital inclusion initiatives in the literature are broadly split between supply-side initiatives related to the supply of digital telecommunication infrastructure that provides mobile and broadband access and connectivity (Salemink and Strijker, 2018); or demand-side initiatives that encourage the provision of digital skills training

and support through human intermediation (McGillivray et al., 2017; Manlove and Whitacre, 2019; McMahon, 2020; Wagg et al., 2020).

From assessing the literature, it is clear that supply-side initiatives dominate research. Scholars highlight the scarcity of research in relation to demand-side digital inclusion initiatives, particularly in relation to the different approaches taken to implement digital inclusion initiatives that address digital inequalities (Reisdorf and Rhinesmith, 2020), the role digital inclusion intermediaries play within digital inclusion initiatives in providing digital inclusion support (Sorrentino and Niehaves, 2010; Mervyn et al., 2017), and whether digital inclusion initiatives achieve their intended impact (Wagg et al., 2020; Reisdorf and Rhinesmith, 2020). Indeed, scholars emphasise how limited scope and robustness of empirical research related to digital inclusion initiatives 'restricts policy-makers ability to devise and implement social strategies and activities' (Mervyn et al., 2014, p.1100). It can therefore be concluded that research on demand-side digital inclusion initiatives is scarce and provides an opportunity for research. To be clear it is demand-side digital inclusion initiatives that is the focus of this study, referred to as digital inclusion initiative provision moving forward in the study.

1.3.2 Digital inclusion initiative provision as a multilevel phenomenon

Scholars argue digital inclusion is a multilevel phenomenon that needs to be tackled through a multilevel effort that includes the intervention of governments, policy and intermediary organisations to solve the digital divide (Mariën et al., 2012; Thompson, 2016; López et al., 2018; Mubarak et al., 2020; Reisdorf and Rhinesmith, 2020). Indeed, from the literature, it can be ascertained that digital inclusion initiative provision is carried out through a plethora of organisations and institutions that operate at international, national, country and policy level, through to organisations that operate at regional, local and community-level (Ragnedda, 2018; Mubarak et al., 2020; Robinson, et al., 2020a).

In addition, it can be ascertained from the literature that a number of these organisations operate as intermediaries that reach out, engage, and deliver digital inclusion activities for individuals that require digital inclusion training and support (Mariën and Van Audenhove (2012). It can therefore be determined that digital inclusion initiative provision constitutes a multilevel phenomenon where the

involvement of stakeholders operate at multiple levels in an effort to reduce the digital divide and provide digital inclusion solutions. Yet the literature reveals that existing research on digital inclusion tends to be more focused on the experiences of individuals or what could be constituted at individual or micro-level (Garrido et al., 2012; López et al., 2018; Helsper, 2019), with less emphasis on policy, institutional or organisational level of digital inclusion (Mariën, 2016). Furthermore, the literature reveals that research is often undertaken in the form of a single-level analysis (Garrido et al., 2012) that paints an incomplete picture of the mechanisms that influence digital inclusion.

Scholars argue that a more comprehensive view of digital inclusion is required to understand the issues that 'hamper the realisation of sustainable digital inclusion' (Mariën and Van Audenhove, 2012, p.6). Nearly a decade later this call to research is ever more urgent as scholars highlight the need to challenge the current status quo dominated in 'policy and scholarly discourses on digital inclusion and the stigmatisation of Internet non-users' (Díaz Andrade and Techatassanasoontorn, 2021, p.185).

This study argues one way to achieve a more thorough understanding of digital inclusion is to provide a critical discussion on digital inclusion initiative provision as a multilevel phenomenon that provides a granular analysis of the dynamics, processes, experiences, and behaviours of those involved in the phenomenon. More specifically, this study argues there is demand for multilevel research (Kim and Love, 2014, Molina-Azorin et al., 2019) that overcomes some of the limitations of single level research, where key phenomena may be explored incorporating a multilevel point of view that integrates the perspectives of digital inclusion stakeholders that operate at different levels to gain an in depth understanding of the provision of digital inclusion initiatives in context (Garrido et al., 2012; Mariën, 2016; lordache, et al., 2017). Indeed, the researcher believes it is only by asking, observing, and listening to stakeholders implementing and delivering digital inclusion initiatives provision, together with those individuals in need of digital inclusion support, can a more holistic, granulated view be obtained and reviewed, that considers policy, delivery challenges, social and cultural issues, and local contexts in digital inclusion initiative provision. This study therefore

moves away from the individual level perspective of digital inclusion research by taking a multilevel approach.

1.3.3 Research on digital inclusion initiative provision within context of UK rural communities

The last few years have seen a significant bolstering of the UK national digital inclusion agenda; particularly, following the release of the UK 2014 Government Digital Strategy and progression of the UK Government's Digital-by-Default agenda (replacement of services delivered through face-to-face, telephone and paper-based interactions, with online services). This has resulted in the development and implementation of digital inclusion initiatives to help individuals overcome digital exclusion and marginalisation (Williams et al., 2016; Ragnedda, 2018; Hosman and Comisso, 2020). However, despite this activity, scholars maintain rurality continues to play a role in digital exclusion, limiting digital participation and access to online services (Salemink et al., 2017; Townsend *et al.*, 2013; Farrington, 2015), and threatening the social and economic health of rural areas (Philip, et al. 2017).

While acknowledging digital exclusion is an issue for both urban and rural locations, there is a growing body of literature in relation to the rural digital divide and rural broadband initiatives in the UK (Philip, et al., 2017; Philip and Williams, 2019; Cowie et al., 2020), which debate how rural areas continue to suffer from the uneven distribution of digital and technological infrastructure through market-driven approaches, leaving rural communities unable to exploit the full potential of the Internet and digital technology (Philip, et al., 2017; Roberts et al., 2017a). Indeed, scholars argue this issue is further exacerbated by policy programs and digital inclusion initiatives which ignore the rural socioeconomic and geographical contexts, resulting in generic initiatives with limited effects on the adoption and use of ICTs by the most vulnerable groups in rural and remote areas (Salemink, 2016; Philip and Williams, 2019).

However, while there is research on rural digital inclusion initiatives that focus on digital connectivity and the availability of broadband (Cowie et al., 2020), there is relatively little research that focuses on the intricacies of the implementation and delivery of (demand-side) digital inclusion initiative provision targeted at those living in UK rural communities at risk of digital exclusion. Exceptions include studies by

Huggins and Izushi (2002) and Faulkner and Kleif (2005) which while pre-mobile and broadband connectivity and pre-digital-by-default, highlight issues that are just as relevant today for UK rural communities. Against a backdrop of increasing digitalisation and digital-by-default online services, this appears to be an issue that has been largely overlooked in the literature and is an opportunity for further research. To be clear the focus of this study is on UK rural communities that have been targeted for digital inclusion initiative provision, where the likelihood of deprivation and digital exclusion are greatest. Therefore, when referring to UK rural communities in this thesis moving forward, this relates to rural communities particularly as risk of digital exclusion opposed to 'leafy' more affluent rural locations.

1.3.3 Digital inclusion initiative provision through a theoretical lens

Selection of an appropriate theory to underpin a study is critical, primarily because it provides guidance from the data collection through to empirical data analysis, and helps deepen and enhance understanding of a phenomenon. Yet a lack of literature exists that specifically explores digital inclusion initiatives through a theoretical lens (Al-Muwil et al., 2019; Wagg et al., 2020). Notable exceptions include the work of Madon et al. (2009), Teles and Joia (2011), Mervyn et al. (2014), Correa and Pavaz (2016), and Aires et al. (2018) who have drawn upon contemporary social theory such as Actor Network Theory, Structuration Theory, Institutional Theory, and Activity Theory. However, these are the exceptions rather than the norm. The use of an underpinning theory as an analytical framework in this study has the potential to make significant contributions to digital inclusion research. However, selection of an appropriate theory can be difficult (see chapter 3 for a description of this process).

The multilevel involvement of stakeholders in digital inclusion initiative provision invites the researcher to consider a suitable theory that can transcend a single level of analysis and that considers the context of the phenomenon of interest. Activity Theory (AT) is deemed appropriate in which to analyse the multilevel phenomenon of digital inclusion initiative provision as it offers a visual model (unlike other theories) that enables a holistic analysis of the multilevel phenomena influencing the activity process, and develops a 'nuanced understanding of the relationship between ICT artifacts and purposeful individuals taking into account the environment, culture, motivations, and complexity of real-life settings' (Vassilakopoulou and Hustad, 2021,

p.11). The advantages of AT are that it supports analysis of the dialectic interactions between people and the ways technologies shape and are shaped through the social and contextual activities in which people develop their skills, personalities and consciousness (Sannino, Daniels, and Gutierrez, 2009; Allen et al., 2013). More importantly AT introduces the notion of contradictions which offers significant insights on change and development within an activity, a concept largely 'unavailable' in other theoretical approaches (Karanasios and Allen, 2013, p.301). The use of AT as an underpinning theory for this study therefore offers the opportunity to explore digital inclusion initiative provision through a theoretical lens, and answer calls from scholars for the need to use a theoretical lens in digital inclusion/digital divide research (Al-Muwil et al., 2019; Wagg et al., 2020; Vassilakopoulou and Hustad, 2021).

1.4 Research Aims and Objectives

Considering the research problem outlined above, the overall aim of this PhD study is to investigate the provision of digital inclusion initiatives in the context of UK rural communities from a multilevel perspective.

In order to achieve this aim, the research has been divided into five specific objectives considered from national, intermediary, and individual-level perspectives:

1. To explore how digital inclusion initiatives are approached, driven and delivered in UK rural communities;
2. To explore the role digital inclusion intermediaries and actors play in reaching and engaging with UK rural communities in need of digital inclusion training and support;
3. To investigate the experiences of people living in UK rural communities, who receive digital inclusion training and support;
4. To investigate the essential components of digital inclusion initiative provision in the context of UK rural communities;
5. To use Activity Theory to explore digital inclusion initiative provision as a multilevel phenomenon through a theoretical lens.

1.4.1 Key research questions

The key questions investigated in this study are:

1. How are digital inclusion initiatives approached, driven and delivered in UK rural communities?
2. What role do digital inclusion intermediaries and actors play in the delivery of digital inclusion initiative training and support in UK rural communities?
3. What is the experience of people living in UK rural communities who receive digital inclusion initiative training and support?

These questions are considered from a multilevel perspective, or more specifically from national, intermediary and individual-level perspectives.

1.5 Research design

Underpinned by the philosophy of critical realism, this study employs an exploratory qualitative case study to investigate digital inclusion initiative provision as a multilevel phenomenon in the context of UK rural communities, through the perspectives of digital inclusion stakeholders that operate nationally; intermediary stakeholders operating in one of three specific rural regions of the UK with populations at increased risk of digital exclusion; and individual stakeholders residing in one of those rural locations that struggle with access and use of digital technologies and require digital inclusion training and support.

The thesis begins with a critical review of the literature. The aim of the literature review is to examine prior studies investigating digital inclusion and digital inclusion initiative provision in other contexts, revealing debates around the concepts of digital inclusion, digital divide, and issues that influence and challenge the digital inclusion process. The most prominent factors evident from the literature are: conceptual definitions for digital inclusion, barriers to digital inclusion, supply-side and demand-side digital inclusion initiatives, approaches to digital inclusion initiative provision, multilevel involvement of stakeholders, digital training and support, intermediaries, and the rural digital divide.

A multilevel framework is devised to enable a multilevel perspective of digital inclusion initiative provision in UK rural communities across three levels of stakeholders (national, intermediary, and individual). Existing theories are reviewed for their suitability to explore digital inclusion initiative provision as a multilevel phenomenon, a topic currently under-theorised in the literature. Such theories include *Actor network*

theory, Structuration theory, Institutional theory and Activity theory. Activity theory has been adopted as the most appropriate underpinning theoretical framework for this study, specifically third-generation activity theory (Engeström, 2001).

Data collection for this study is carried out (pre-COVID-19) in two phases. The first phase has involved a set of semi-structured interviews with stakeholders who can provide a national perspective of digital inclusion initiative provision in the UK. A second phase of data collection has involved semi-structured interviews, observations and focus groups with intermediary stakeholders operating in one of three specific rural regions of the UK with populations at increased risk of digital exclusion; and individual stakeholders residing in one of those rural locations who have struggled with access and use of digital technologies and received digital inclusion training and support. As mentioned earlier, it is important to note that the sample focus is not on rural communities in general such as ‘leafy Surrey’ but on deprived rural areas where the likelihood of digital exclusion is greater and targeted for digital inclusion initiative provision. Data collection for this study is complemented by a review of UK digital inclusion policy and digital inclusion training materials.

Data analysis is theory driven guided by AT. Thematic Analysis (Braun and Clarke, 2006) is also employed to allow the data to ‘speak’. The philosophy of critical realism underpinning this study, together with the use of the multilevel framework combined with AT and its concept of contradictions, is usefully applied to this study to enable a critical analyse of the data gathered to reveal key challenges that hamper the delivery of digital inclusion initiative provision in UK rural communities. The findings are discussed in relation to the existing literature, and essential considerations and recommendations for future digital inclusion initiative solutions are offered. An illustration of the research design for this study is presented below in Table 1.

Research gap (chapter 1 & 2)	Research Problem Literature review
Research Philosophy (chapter 4)	Critical realism
Theoretical lens (chapter 3)	Activity Theory
Research Strategy	Exploratory qualitative case study

(chapter 4)	Multilevel framework, Activity Theory, Critical realism
Data collection (chapter 4)	Semi-structured interviews - (national, intermediary, Individual level) Focus groups - (intermediary, Individual level) Observation - (intermediary, Individual level) Document review
Analysis (chapter 5)	Activity Theory and Thematic Analysis Findings at National, intermediary, individual, multilevel
Discussion (chapter 6)	Discussion of the significant findings in light of previous published literature
Conclusion (Chapter 7)	Implications and contributions of study Recommendations

Table 1 Study research design

1.6 Motivation for study

The motivation for this investigation stems from the researcher's interest in digital inclusion initiatives following her work as a researcher for a national digital inclusion organisation within the UK where she undertook research and evaluation of UK digital inclusion initiatives. This experience highlighted many positive outcomes for recipients of digital inclusion initiative provision but also many complexities, due to the multiple factors which contribute to digital exclusion and digitally marginalised communities. However, during this experience, the researcher became aware of what can be described as the 'utopian' discourse in digital inclusion agenda, and over-emphasis of the benefits of digital inclusion, and a relative lack of consideration for UK rural communities with populations at risk of digital exclusion within the UK digital inclusion landscape. It therefore became apparent to the researcher that a more rigorous investigation of digital inclusion initiative provision was warranted particularly in relation to UK rural communities, with a particular focus on populations residing in rural locations at increased risk of multiple deprivation and likely digital exclusion who require digital inclusion training and support. A review of the literature supports the researcher's view and motivation for this study.

1.7 Significance of study

This study is significant in its theoretical granularity, and identification of digital inclusion initiative provision as a multilevel phenomenon. Providing new insights into digital inclusion initiative provision in UK rural communities, this study identifies multiple levels of stakeholder involvement, granular behaviours and sophisticated

dynamics in digital inclusion practice, and provides much needed criticality and granularity to the field of digital inclusion research.

This study is important theoretically as it investigates an underexplored area identified in academic literature. It is also important for the practice of digital inclusion initiative provision, specifically stakeholders who work, provide funding, and design initiatives in the context of UK digital strategy and national and regional digital inclusion policy, (national level); intermediary practitioners who deliver digital inclusion training and support; and 'established' intermediary organisations (e.g. housing associations, advice centres, public libraries etc.) who are developing digital inclusion strategies to support their clients.

Theoretically this study challenges the current 'utopian' discourse advocated by policy makers and some digital inclusion stakeholders, that digital inclusion initiative provision is a simple solution to digital exclusion. Indeed, following a critical discussion of current drivers, approaches and delivery strategies in digital inclusion initiative provision, and insights from those delivering and receiving digital training and support, this study revealed a complicated process that is fraught with challenges and contradictions, that hamper the realisation of the digital inclusion agenda.

Another important aspect of this study is the use and role of Activity Theory as an underpinning theory that provided guidance from data collection through to empirical data analysis to help investigate digital inclusion initiative provision as a multilevel phenomenon. The application of AT, strengthened ontologically by critical realism, enabled a thorough, critical investigation that revealed many contradictions and mechanisms that influenced the digital inclusion process, and crucial behaviours of those delivering and receiving digital inclusion training and support.

The results from the findings enhance our understanding of digital inclusion initiative provision by confirming some existing relationships, challenging others and opening fruitful avenues for future research.

A brief synopsis of the contributions this study provides to theory and practice of digital inclusion initiative provision:

1. Developing a granular study that identifies digital inclusion initiative provision as a multilevel phenomenon, multiple levels of stakeholder involvement, and granularity in behaviours and sophisticated dynamics in digital inclusion practice;
2. Categorising approaches to demand-side digital inclusion initiative provision;
3. Evidencing essential role of human intermediation and granularity of involvement articulated through the development of typologies of intermediaries;
4. Introducing the new concept of the 'super intermediary' and their boundary spanning, knowledge sharing, collaborative behaviours;
5. Developing the 'four C's attitudinal journey of digital inclusion support' model, to evidence the experience of recipients of digital inclusion training and support;
6. Applying a multilevel framework supported through the use of AT - an approach unique to digital inclusion research;
7. Utilising AT as an underpinning theory as a theoretical framework for the study;
8. Extending AT to consider the 'granularity of the *subject*';

1.8 Thesis Structure

This thesis comprises of seven chapters. The current Chapter 1 presents the background to the study; the UK context; the problem statement; the research aim, questions and objectives; as well as the study design; study motivation, and the significance of the study. The remainder of the thesis is organised as follows:

Chapter 2 reviews the literature in relation to digital inclusion, digital inclusion initiatives, and more specifically in relation to rurality and the context of UK rural communities.

Chapter 3 reviews existing theories and assesses Activity Theory for its appropriateness for the purposes of this study and its use as an analytical framework.

Chapter 4 discusses and justifies the research design and methodology used to undertake this study and outlines the research philosophy of critical realism underpinning the study, research strategy, and the approach to data analysis.

Chapter 5 presents the findings of this study at national, intermediary, and individual-level and then at multilevel. Through the lens of AT findings are described through the interacting elements of each activity system, where primary and secondary contradictions are revealed.

Chapter 6 provides a discussion of the findings identified in chapter 5 in relation to existing literature, how these findings challenge current thinking in digital inclusion research and contribute to the further understanding and expanding of this research topic.

Chapter 7 concludes the thesis by drawing together the findings and discussion to summarise the research in relation to the research aims and objectives. Contributions of the study are outlined, divided into contribution to knowledge, theory and methods. Essential considerations and recommendations for digital inclusion initiative solutions are offered, together with a retrospect of the limitations of the study and future research opportunities.

1.9 Chapter summary

This chapter outlined the existing gaps in the literature and the research problem with regards to the implementation and delivery of digital inclusion initiatives, specifically in rural communities in the UK context. The research aim, objectives and research questions of this study are defined together with a brief description of the methodological approach applied in the study. The chapter concludes by outlining the motivation and significance of the study.

The following chapter reviews the literature in relation to digital inclusion, digital inclusion initiatives, and more specifically in relation to rurality and the context of UK rural communities.

Chapter 2 Literature Review

2.1 Introduction

The focus of this chapter will be to explore the literature relating to digital inclusion initiatives that provide digital inclusion support for individuals and communities, particularly those living in rural communities.

The review begins by exploring and problematising the concept of digital inclusion, providing an overview of the multifaceted nature of digital inclusion and the experiences of those in need of digital inclusion support.

The review then explores digital inclusion initiative provision, by providing digital inclusion initiatives in various contexts, revealing the drivers, differentiation of digital inclusion initiatives, and the multilevel involvement of stakeholders. Approaches to digital inclusion initiatives to reach, engage and upskill individuals with digital skills and digital technology are also revealed together with essential factors and components required to implement and deliver digital inclusion initiatives.

The review then moves on to explore the literature in relation to intermediary organisations and actors involved in the delivery of digital inclusion initiatives, and an overview of digital skills training and support as part of that process.

Finally, the literature review looks at digital inclusion initiatives and rurality and then more specifically digital inclusion initiatives in the context of UK rural communities. This is followed by a critical overview of the digital inclusion landscape.

2.2 Origins of Digital Inclusion research

The origins of digital inclusion research can be argued to have emerged from research on the 'digital divide' which continues to exert an influence on research, literature and the policy agenda regarding Internet access.

A substantial body of scholarship exists on the 'digital divide' which traditionally focused on the binary issue of whether individuals had or did not have access to the Internet and Information Communication Technology (ICT) (Campos-Castillo, 2015; van Deursen and van Dijk, 2019), sometimes referred to in the literature as the first-level digital divide, and the 'haves' and 'have-nots' of ICTs (Norris, 2001; Mubarak,

2015; Mariën and Prodnik, 2014). As Internet connection rates increased, research moved to what is commonly referred to as the second-level digital divide which looked at literacies, skills and usage (Hargittai, 2002; DiMaggio et al., 2004; Thompson, 2016).

However, it is important to emphasise here that the study of the 'digital divide' stems from earlier debates on social inequality in the 'information society', and the identification of 'information haves' and 'information have-nots' as access to technology and telecommunication networks widened the gap between 'information rich' and 'information poor' citizens (Chatman, 1996; Norris, 2001). Scholars have debated at length how it is possible to be excluded from access to sources of information as a result of barriers to education, culture, language, politics, but also technology (Marcella and Chowdhury, 2020). It can therefore be argued that the origin of digital inclusion research has emerged not only as a manifestation from digital divides scholarship, but also from the longer tradition of scholarship of information divides (Yu, 2006) that focuses on information poverty and the information poor (Chatman, 1996; Britz, 2004; Yu, 2006; Yu et al., 2016; Marcella and Chowdhury, 2020), and the information behaviour of disadvantaged groups (Jaeger et al., 2014; Thompson, 2016; Borkert, et al., 2018).

Digital inclusion research therefore extends the notion of the 'digital divide' away from the singular access-only view to one that acknowledges the experiences and 'complex reality of various people's differing access and usage of digital technology' (Warschauer, 2003, p.44). As such, digital inclusion literature, whilst acknowledging research on digital divides (van Dijk, 2005; Warschauer, 2004; Norris, 2001), seeks a nuanced understanding on how people use and do not use ICTs (Pearce and Rice, 2013; van Deursen et al., 2015a), seek information online (Potnis, 2015; Thompson, 2016), and how people use technology in limited ways (Yates, et al., 2020) rather than purely on whether they have physical access. Furthermore, according to Rashid (2016), digital inclusion focuses not just on levels of access to ICTs, but also on factors such as motivation, knowledge, and skills that enable individuals to have the ability to engage with technology and online information.

Indeed, digital inclusion research is increasingly being supplemented and linked to research on digital inequalities (DiMaggio et al., 2004; Hargittai and Hinnant, 2008;

Yates et al., 2015b; Helsper, 2017; Robinson et al., 2020b), information inequalities (Yu, 2006) and information poverty (Haider and Bawden, 2007; McKeown, 2016; Marcella and Chowdhury, 2020). As a result, digital inclusion literature has come to recognise the high degree of correlation between digital inequalities and social exclusion (Mervyn et al., 2014; Helsper, 2008); and the strong link between socioeconomic exclusion and digital exclusion (Clayton and Macdonald, 2013; Borkert, Fisher, and Yafi 2018; Buchanan et al., 2018). Indeed, the social emphasis in digital inclusion has led to ongoing scholarly debate of the correlation between digital inclusion and social inclusion (Mervyn et al., 2014; Taylor and Packham, 2016), and challenges whether the former (digital inclusion) leads to the latter (social inclusion), arguing that some communities while not digitally included, were not materially deprived (Clayton and Macdonald, 2013; Buré, 2006).

Other literature on digital inclusion highlights how research on the 'third-level digital divide' has gained attention focussing on the benefits of Internet use and tangible outcomes, (Scheerder et al., 2017; Robinson et al, 2015; Van Deursen & Helsper, 2015; Van Dijk, 2017; Van Laar, Van Dijk & de Haan, 2017), but also new divides and negative consequences (Vartanova and Gladkova, 2019). For example, scholars such as Ragnedda (2017) highlight the possibilities offered by the Internet in economic, political, social and cultural areas are not exploited by citizens in the same way, where those already enjoying social advantages can use the Internet to become further privileged, opposed to those who use the Internet and technologies in a limited way. For example, van Deursen et al. (2015a) found that online activities with 'productive' outcomes (e.g. using search systems, finding online courses and training, independent learning) are favoured by those with higher levels of education and with higher incomes. In contrast, analysis of data collected from Scottish CAB clientele revealed that users who are least proficient in digital skills are also the least likely to take advantage of training opportunities (Beattie-Smith, 2013). Certainly, what is apparent from the literature is that the concept of digital inclusion is evolving and requires further explanation.

Yates et al. (2020) draw attention to an emerging fourth dimension to the digital inclusion debate that considers that digital inequalities have to be understood in correspondence with other 'fields' of social, cultural and economic inequality. Referring

to the work of Helsper (2012) the scholars highlight how digital inclusion policy and research has historically focussed on non-users of technology, rather than also limited and narrow users, stating that 'ignoring such groups may miss people who are nominally deemed online but nevertheless need attention and a different policy approach' (p.2).

2.3 Definitions and conceptual factors of digital inclusion

The issue of digital inclusion has long preoccupied governments, technology providers and civil society organisations, generating on-going discussion and debate about its meaning and policy implications (Ragnedda and Mutsvairo, 2018).

Definitions of digital inclusion abound, but in general terms is often described through permutations of access, skills and literacies, participation and empowerment. For example, Thompson et al. (2014) defines digital inclusion as 'outreach as a means to empower underserved and marginalized populations' (p. 9). Hache and Cullen (2009) argue that digital inclusion is the process of democratisation of access to ICTs in order to allow for the inclusion of marginalised groups in society.

Broadly speaking, digital inclusion refers to the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have equal opportunities, the right access, motivation, appropriate skills and trust to navigate confidently online and access opportunities with technology and on the Internet (Department for Digital, Culture, Media & Sport, 2017; ITU, 2019). Digital inclusion activities essentially include (but are not limited to) five key elements: 1) affordable, and good quality broadband and mobile access, 2) Internet-enabled devices, 3) quality technical support, 4) accessible applications and online content designed to enable and encourage self-sufficiency, participation, and collaboration, and 5) access to digital skills training and support (NDIA, 2017; Park et al., 2019; Al-Muwil et al., 2019, Fang et al., 2019).

However, the concept of digital inclusion suffers from conceptual inconsistencies and dichotomies that lead to ambiguities in understanding why and what it takes for individuals to be included in the information society (Nemer, 2015; Jaeger et al., 2012), resulting in the development of a number of digital inclusion frameworks as illustrated in Table 2.

For example, according to Bradbrook and Fisher (2004) digital inclusion should be conceptualised around issues of: content (information), connectivity (access), confidence (self-efficacy - a belief in one's ability to succeed), capability (skill), and continuity (of usage). Helsper (2008) argues that issues of, digital access, motivation, skills, and extent of engagement with technologies need to be considered; whereas Thomas et al. (2016) emphasise access to appropriate technology, affordability of internet services, and the ability to apply digital technology in work and life in their digital inclusion index.

Other notable frameworks discussed in the literature which conceptualise technology access in relation to digital inclusion are van Dijk's model which emphasises motivational access, material access, skills access, and usage access; and Roberts and Hernandez (2019) 5 A's of technology access framework which highlights the need to consider availability, affordability, awareness, ability, and agency.

Models	Description	References
'5 Cs' of digital inclusion	Referred to as the ladder model, this framework identifies five criteria that influence digital inclusion: Connectivity (access) Capability (skills) Content Confidence (self-efficacy) Continuity	Bradbrook and Fisher (2004)
A cumulative and recursive model of successive kinds of access to digital technologies	This model conceptualises access that comprises four barriers: Motivational Access: limited take up of ICT, lack of interest and negative attitude. Material Access: Lack of actual ICT material Skills Access: Lack of digital skills, low user friendliness of ICT, lack of education & social support networks Usage Access: Lack of usage opportunities & the uneven spread of this opportunities across societies	van Dijk (1999, 2005)
Framework of digital resources	Digital resources are grouped into four broad categories: ICT Access Skills Attitudes Extent of engagement with technologies	Helsper (2008)
Australian Digital Inclusion Index	Australian based framework measures digital inclusion as a combination of: access to appropriate technology, affordability of internet services ability to apply digital technology in work and life.	Thomas et al., (2016)
'5 As' of technology access	This model conceptualises technology access across five categories: Availability Affordability Awareness Ability Agency	Roberts and Hernandez (2019)

Table 2 Digital inclusion frameworks

Certainly, what these variations demonstrate is that digital inclusion and digital inclusion research is on an evolving continuum in response to developments in digital technologies and media. As confirmed by Carmi and Yates (2020) key themes remain, such as: 'material and financial access to technological devices and services; skills and digital literacy; effective use by citizens and communities to participate in political and civic discussions and activities; the impact of socio-economic factors; motivation and attitudes; and, more recently socio-economic and socio-cultural variations in patterns of usage' (p.4).

The literature repeatedly offers how such conceptual factors of digital inclusion should be considered in policy and when designing digital inclusion initiatives and programmes (Carmi and Yates; 2020; Borg et al., 2018; Helsper and Reisdorf, 2016). Literature on models related to digital inclusion initiatives is discussed in section 2.10.

For the sake of this study, the researcher has used the definition of digital inclusion, appointed by Helsper (2014), who defines digital inclusion as 'an individual's effective and sustainable engagement with ICTs in ways that allow full participation in society in terms of economic, social, cultural, civic and personal well-being' (p.7).

2.4 Ambiguities in digital inclusion research

Ambiguities in digital inclusion research are apparent in the vocabulary used to describe 'digital inclusion initiatives' as highlighted.

Firstly, the literature is broadly split between two camps that either focus on initiatives related to the installation, implementation and supply of digital broadband and telecommunication infrastructure to provide access and connectivity (Salemink and Strijker, 2018), sometimes referred to as 'supply-side' initiatives; or initiatives that aim to enhance digital participation through the advocacy, encouragement and provision of digital skills training and support, sometimes referred to as 'demand-side initiatives' (Salemink, et al., 2017; McMahon, 2020). While there is a relative amount of literature on broadband digital inclusion (supply-side) initiatives, there is much less literature on demand-side digital inclusion initiatives that provide digital training and support through human intermediation (Manlove and Whitacre, 2019). To be clear, it is this second perspective of digital inclusion (demand-side) initiatives that relates to

increasing digital participation through the advocacy, encouragement and provision of digital skills training and support that is the focus of this study.

Secondly, while in some instances the literature referred to 'digital inclusion initiatives' in other instances the literature referred to digital inclusion 'programmes' or 'interventions', 'digital literacy initiatives', 'ICT initiatives' or 'e-inclusion initiatives' (Al-Muwil et al., 2019; Torrecillas et al., 2014). For added clarity, the term 'digital inclusion initiatives' will be used throughout the thesis.

Thirdly, while digital inclusion literature regularly talks about the need to have appropriate digital skills to be digitally included, the literature would frequently use other terminology such as digital literacy or digital competence as synonyms, often with little or no explanation of what these terms actually mean, leaving the reader unclear of the meaning of such terminology (Wagg et al., 2020; Pawluczuk et al., 2019; Palmeiro et al., 2019; Chetty et al., 2018). These ambiguities are partly explained by the interdisciplinary and fragmented nature of digital inclusion research as identified by Jaeger et al. (2012) and Wagg et al. (2020). For example, digital inclusion research for this literature review was drawn on academic articles from a wide range of disciplines, including business, communication studies, computer science, economics, Information Communication Technology for Development (ICT4D), information science, information systems, international studies, and others. Differences in terminology can also be explained according to the context or geographical location of the research. As identified by Spante et al. (2018) the use of 'digital competence' is more present in papers in Europe and Latin America. Ambiguities in digital inclusion terminology research may also be explained by the rapid evolving nature of digital inclusion and the set of skills, practices and thinking that are necessary to be 'digitally included', to keep up with the latest technology (Carmi et al., 2020).

2.5 Barriers to digital inclusion

Despite the increased ubiquity of digital technologies in almost every aspect of our lives and the acknowledged personal and societal benefits of utilising digital technologies, their use in society remains unequal and problematic (Newman et al., 2017; Borg et al., 2018; Meryvn et al., 2014). In response to this, a number of scholars

identify the need for a more nuanced understanding of those communities and individuals who are digitally excluded, or marginalised through digital (Mariën and Prodnik, 2014; Helsper and Reisdorf, 2016; Zheng and Walsham, 2008).

Many researchers and policymakers trying to understand the barriers to, and drivers of digital exclusion identify a myriad of reasons as to why people are not engaged with digital technologies and the Internet, beyond the issue of access. Borg et al. (2018) identify that 'digital exclusion does not necessarily come from physical access to ICTs, but rather from what people are *able* to do and what they *want* to do with these technologies' (p.1).

Key barriers to digital inclusion identified by scholars include the cost to purchase digital devices and paying for online services such as broadband and mobile phone subscriptions and material barriers such as the design and accessibility of digital devices (Van Deursen and Van Dijk, 2019). Other barriers include insufficient digital skills, scarce resources and support, and limited opportunities regarding training (Helsper 2012; Mariën and Van Audenhove 2011; Borg et al., 2018; Tsatsou, 2019; El-Haddadeh et al., 2019; Mahmood et al., 2018). A lack of motivation and negative attitudes towards ICTs, such as computer anxiety, sometimes referred to as 'technostress' (Ayyagari, et al., 2011) also decrease the likelihood that an individual will access and engage with technology and the Internet (Dutton and Reisdorf, 2019; Reisdorf and Groselj 2017). The literature also highlights how the journey to digital inclusion is not linear, where individuals, previously using technology to some degree, may disengage with technology due to negative outcomes or consequences of using it (Scheerder et al., 2019), changes in personal circumstances (Olphert and Damodaran, 2013; Damodaran and Sandhu, 2016), cost of mobile data, or perhaps their life stage, resulting in skills 'becoming obsolete as technology changes' (Yates, et al., 2020, p.1).

The literature also reveals how scholars explain why certain demographic groups are less likely to use the Internet at all, or to use it in certain ways. For example, studies show that overall non-users are increasingly older, less educated, more likely to be unemployed and on a low income, disabled, refugees and socially isolated (Helsper and Reisdorf, 2016; Borg et al., 2018; Alam and Imran, 2015). Other scholars focus on the issue of gender (Martínez-Cantos, 2017; Arroyo, 2020), specifically women in

developing countries and their inability to access, operate, and use digital tools and technologies in a meaningful way (Rebollo and Vico, 2014; Rashid, 2016). Other studies focus on those living in rural or remote communities who lack digital access and local infrastructure, and experience poor-quality internet speeds and mobile reception (Townsend et al., 2013; Farrington, 2015; Correa and Pavez, 2016). Literature on the issue of digital inclusion and rurality is further discussed in section 2.12 and specifically in the UK context in section 2.13.

In addition, there are ongoing challenges in relation to people's trust with the Internet and technology (Dutton and Shepherd, 2006), particularly in relation to government online services (Al-Muwil et al, 2019); government initiatives (Tapia and Ortiz, 2010; Smith, 2011); and where they can access these services in public venues (Gomez and Gould, 2010). People's fear and lack of trust in technology and the Internet is also highlighted in the literature in relation to cybersecurity and worries about the collection and understanding of personal data (Pangrazio and Selwyn, 2019), and the growing issue of disinformation, misinformation and malinformation found on the Internet (Carmi et al., 2020).

The usability of online services introduced through digital-by-default, particularly in relation to welfare and benefit services, is increasingly cited in the literature as a barrier to digital inclusion (Yates et al., 2015b; Damodaran et al., 2015; Park and Humphrey, 2019; Mervyn et al., 2014). Indeed, as highlighted by Helsper (2008) and Mariën and Prodnik (2014), the obligatory use of ICTs through digital-by-default, is effectively creating mechanisms of user-disempowerment and limiting individual ability to make free digital choices. Park and Humphrey (2019) study on the social welfare services in Australia found 'existing punitive service paradigms can result in exclusion by design when introducing big data and automation into service delivery systems' (p.950). This highlights how digital technologies intended to assist people's interactions with service providers may in fact be yet another source of digital exclusion, where the embedding of smart technologies and automation into commercial and government services, effectively reinforces existing inequalities, as those who need to use these services the most are unable to (Al-Muwil et al, 2019; Mervyn et al., 2014; Yates et al., 2015b; Park and Humphrey, 2019; Schou and Pors, 2019).

Recent literature by Robinson et al. (2020b) and Robinson et al. (2020c) attempts to capture and understand 'legacy' and 'emerging' digital inequalities and thus barriers to digital inclusion, through the development of the 'digital inequality stack'. Made up of inter-related components of digital inequalities, the 'digital inequality stack' is composed of 'legacy digital inequalities' including economic class, gender, sexuality, race and ethnicity, ageing, disability, healthcare, education, rural residency, networks, and global geographies; together with 'emergent digital inequalities' spawned by 'the platform economy, digital labour, automation, big data, the use of algorithms in the criminal justice system, cybersafety, civic engagement, mobility, gaming, well-being and the life course, and assistive technologies' (p.2). The rural residency component of the digital inequalities stack is of particular relevance to this thesis, discussed in more detail in section 2.13.

Given the alignment between those who stand to benefit the most from digital technologies and those who are digitally excluded, having a better understanding of the drivers and barriers for utilisation of online services and digital technology is needed to design and implement relevant digital inclusion initiatives (Helsper and Reisdorf, 2016; Borg et al., 2018; Palmeiro, et al., 2019).

2.6 Digital inclusion initiatives

In recognition of the need for individuals to be able to access and use digital technologies to participate fully in society, governments, technology providers and civil society organisations around the world have sought to develop and implement digital inclusion solutions and initiatives, to assist access to opportunities of using digital technology and the Internet and provide funding, training and support to help individuals overcome digital exclusion and marginalisation (Ragnedda, 2018; Hosman and Comisso, 2020). Indeed, the benefits and impact of digital inclusion initiatives help to enable individuals to participate actively in society, to access digital services, products and networks, and support better economic, health and social outcomes for those on the wrong side of the digital divide (Bach, et al., 2013; Diaz Andrade and Doolin, 2019).

However, as identified by Bach et al., (2013), the multiple factors which contribute to digital exclusion are complex, making the task of implementing workable digital

inclusion solutions challenging for policy makers. Indeed, even when access is available, individuals are unable or choose not to go online and use digital technology (Klecun, 2008; Mariën and Prodnik, 2014). Warschauer (2003) states 'access to ICT for the promotion of social inclusion cannot rest on providing devices or conduits alone. Rather it must engage a range of resources, all developed with an eye toward enhancing the social, economic, and political power of the targeted clients and communities' (p.47). Indeed, supporting this point, Gurstein (2012) states while providing access is necessary, digital inclusion policy and initiatives must engage and reflect social practices that will drive 'effective use' in a variety of community settings. This highlights the need to go beyond the rhetoric of 'access-only' programmes, historically dominated in digital inclusion policy, 'to tackle the digital divide in a way that is meaningful' (Yates et al., 2020, p.3) to gain a better understanding of the implementation of digital inclusion initiatives (Madon et al., 2009; Ragnedda, 2018; Robinson et al., 2020a) to reach 'non-users' traditionally targeted by government and charitable organisations, (Díaz Andrade and Techatassanasoontorn, 2021), but also limited users of the Internet (Yates et al., 2020).

Digital inclusion initiatives are conducted all around the world in both developed and developing countries. Indeed, despite the global trend towards online connectivity, it is apparent that even in developed countries there are certain groups of people who are not utilising available digital opportunities (Borg et al., 2018). Examples of digital inclusion initiatives that have provided digital skills training and social support in developing countries found in the literature include studies by: Ferreira et al. 2016 (Brazil); Correa and Pavez, 2016 (Chile); Madon et al. 2009 (India, South Africa and Brazil); and Smith, 2015 (Ireland and South Africa). In developed countries examples found in the literature include studies by Aires, 2014 (Portugal); Mariën and Van Audenhove, 2012 (Belgium); Mervyn et al. 2014; Damodaran et al. 2015; Gann, 2019 (UK); Wu et al. 2015 (France); Palmeiro et al. 2019 (Spain); Warschauer et al. 2014; Manlove and Whitacre, 2019 (USA) and Hodge et al. 2017; Park and Humphry, 2019 (Australia). A recent international research collaboration by Robinson et al., (2020a) reviewed digital inclusion initiatives across the Americas and the Caribbean which brings together scholarship from Uruguay, Chile, Peru, Brazil, Mexico, Cuba, Jamaica, the United States, and Canada.

2.7 Differentiation of Digital Inclusion Initiatives

When describing digital inclusion initiatives, the literature tends to take a macro- or micro-level perspective. For example, Saleemink et al. (2014) in their systematic review on unequal ICT availability, adoption and use, take a macro/micro approach to analysing the literature, highlighting macro-level literature focussed more on policy and agenda setting issues compared to micro-level papers which looked particularly at the evaluation of specific local projects. Indeed, the systematic review by Wagg et al. (2020) draws attention to how digital inclusion initiatives are often described in the literature from a macro-level, top-down perspective referring to government and regional policy and infrastructure or from a micro-level perspective, which look at specific local or regional digital inclusion projects and case studies and how they have impacted local communities. Some of the literature initially provides a macro perspective and then provide an example of an initiative at micro-level e.g. Correa and Pavez, 2016. Other studies look at more than one project in a single country e.g. Mervyn et al., 2014; Gann, 2019; across regions e.g. Manlove and Whitacre, 2019; Gladkova and Ragnedda, 2020; and several projects across a number of countries e.g. Robinson et al., (2020a); Madon et al., (2009).

A more limited amount of literature looks specifically at the involvement of intermediary organisations, (sometimes referred to as delivery partners) in digital inclusion initiatives who provide digital skills training and support, such as public libraries, local government, advice centres, adult education organisations, housing associations and learning centres (Mariën and Van Audenhove, 2012; Al-Muwil et al., 2019; Yates et al., 2015a; Hodge et al., 2017), and intermediary actors such as digital champions (Casselden and Dawson, 2019; Whitworth et al., 2012) and front-line workers (Mervyn et al., 2014). Literature on intermediaries is discussed in section 2.11.

When looking specifically at the impacts of digital inclusion initiatives the literature tends to be more focused on the impacts of individuals and communities (Garrido et al., 2012; López et al., 2018; Helsper, 2019) with less emphasis on the impacts at macro and intermediary-level of digital inclusion (Mariën, 2016), and is often in the form of a single-level analysis (Garrido et al., 2012). Table 2.3 in section 2.12 illustrates the growing number of measurement models used in the literature and in practice to measure individuals' level of digital literacy or digital inclusion. From the

literature it is clear that digital inclusion initiatives operate across a multiple level of stakeholders (Mariën and Van Audenhove, 2012; Robinson et al, 2020a; Reisdorf and Rhinesmith, 2020). Indeed, scholars argue digital inclusion is a multilevel phenomenon that needs to be tackled through a multilevel effort of interventions and initiatives through policy, governments and public, private and third sector organisations to solve the digital divide (Mariën et al., 2012; Thompson, 2016; López et al., 2018; Mubarak et al., 2020; Reisdorf and Rhinesmith, 2020), confirming that digital inclusion initiative provision is a multilevel phenomenon, yet research conducted within the digital inclusion sphere from a multilevel perspective remains scarce.

Furthermore, there is lack of literature that specifically explores digital inclusion initiatives through a theoretical lens (Wagg et al., 2020; Al-Muwil et al., 2019). Notable exceptions include the work of Madon et al. (2009), Teles and Joia (2011), Aires (2014); Mervyn et al. (2014) and Correa and Pavaz (2016), who have drawn upon contemporary social theory such as Actor Network Theory, Structuration Theory, Institutional Theory, and Activity Theory. A more detailed account of how these theories have been utilised to describe digital inclusion initiative provision is in the next chapter in section 3.2.

2.8 Drivers of digital inclusion initiatives

Digital inclusion initiatives are often driven by supranational organisations such as the European Union (EU); intergovernmental organisations and agencies such as the International Telecommunication Union (ITU); international organisations such as corporate technology providers; civil society organisations; and national governments to address digital inequalities; implement government digital-by-default strategies; improve social inclusion, and distribute digital technology and universal connectivity (Robinson et al, 2020a; Richardson, 2018; Ragnedda, 2018; Olphert and Damodaran, 2013).

Digital inclusion initiatives are further driven at regional, local and community-level through digital inclusion strategic activity at grass-roots level where organisations engage with communities and individuals in need of digital skills training and support (Robinson et al, 2020a; Richardson, 2018; Damodaran et al., 2015). This activity is

delivered by a plethora of organisations (public, private, charities and social enterprises), such as public libraries, local government, advice centres, service providers, adult education organisations, housing associations and learning centres, as well as banks and telecommunication corporations (Mariën and Van Audenhove, 2012; Al-Muwil et al., 2019; Yates et al., 2015a; Hodge et al., 2017; Reisdorf and Rhinesmith, 2020). While national government and corporate organizations may participate in or fund community-based projects, many of these initiatives are located in the public sector with heavy involvement from grassroots and non-profit institutions like libraries and community centres (Sweeney and Rhinesmith, 2017), highlighting efforts in multi-agency, cross-sector working, and inter-organisational processes.

2.9 Digital inclusion initiative approaches

Digital inclusion initiatives ‘encompass a range of methods and approaches used to help individuals and communities to access and understand digital technologies’ (Pawluczuk, 2020, p.2), and are often in the form of short-term or long-term funded programmes that are followed up with an evaluation process (Gann, 2019; Pawluczuk, 2020; Mariën, and Van Audenhove, 2012; Carmi et al., 2020).

For example, some research emphasises the need for digital inclusion initiatives to use participatory solutions in community-based organisations such as digital storytelling, digital film-making (Gangadharan, 2017; Mariën and Van Audenhove, 2012; Taylor and Packham, 2016; McMahon, 2020) and non-organisational contexts (Gripenberg, 2011), for individuals and communities to learn digital skills and improve computer self-efficacy. Other scholars note the value of using an asset-based strategy to digital inclusion, which ‘seeks out community anchor institutions as the locus of existing capacity-building and community-development efforts’ (Reisdorf and Rhinesmith, 2018, p.43).

The majority of the literature on digital inclusion initiatives which include some kind of digital skills training or social support (demand-side), broadly describe initiatives which take approaches which are either *community-based*, *top-down* or *reactionary* in focus as outlined below in Table 3.

Digital inclusion initiative approaches	Description of approaches
Top-down	<p><i>Top-down</i> initiatives are planned, funded digital inclusion activities where targeted demographics are offered formal or informal digital skills training through digital inclusion engagement strategies (Gann, 2019; Helsper, 2014; Richardson, 2018; Robinson et al., 2020a). Often in the format of a top-down approach, these initiatives are delivered through intermediary organisations and actors at national, regional and community level, for a set period of time until the funding ends or is withdrawn (Haché and Centeno, 2011; Mariën, and Van Audenhove, 2012; Damodaran et al., 2015). Examples of target driven initiatives within the UK include NHS Widening Digital Participation in England and the Digital Heroes initiative in Wales (Gann, 2019) and Future Digital Inclusion programme (Richardson, 2018).</p>
<i>Reactionary</i>	<p><i>Reactionary</i> initiatives relate to specific organisations (such as public libraries, housing associations, advice centres as well as local government departments) whose operation is having to <i>react</i> to the disintermediation of public services and the demands of government ‘digital-by-default’ agendas, such as the UK’s introduction of Universal Credit (GOV.UK, 2013), a scheme that replaces a range of other existing benefits - where claimants have to apply for their benefits online (McGillivray et al., 2017; Mervyn et al., 2014; Al-Muwil et al., 2019; Yates et al., 2015a). Organisations involved with <i>reactionary</i> driven initiatives, find themselves having to <i>react</i>, often on-the-spot, to the complex needs of individuals (often those who are socially excluded or marginalised) who are unable to use online government services and need support through an intermediary organisation or actor to help them with their specific information need (Mervyn et al., 2014; Al-Muwil et al., 2019).</p>
Community-based	<p><i>Community-based</i> initiatives are those that are based within a community setting, often driven by a local community/grass-root organisation supporting the local community with access to technology and digital devices, and informal digital skills training, often in the format of a bottom-up approach through creative, participatory and collaborative solutions (Damodaran et al., 2015; Taylor and Packham, 2016; Micklewaite, 2018; McMahon, 2020). Community-based initiatives have the ability to reach and engage at-risk groups because they are locally embedded, asset-based, and involve intermediaries that have developed a relationship of trust with at-risk communities and hence are in the position to advocate the societal benefits of digital technologies (Haché and Centeno, 2011; Mariën, and Van Audenhove, 2012; Damodaran et al., 2015; Reisdorf and Rhinesmith, 2018).</p>

Table 3 Approaches to digital inclusion initiative provision

2.10 Digital inclusion initiative factors and components

While a labyrinth of frameworks has been developed to evaluate the digital literacy/competence/capabilities of individuals as mentioned earlier (see Table 2), academic literature for assessing the effectiveness of digital inclusion initiatives in community contexts remains scarce. Key studies that have developed frameworks to identify crucial factors and components to implement digital inclusion initiatives include studies by Madon et al. (2009), Armenta et al. (2012), Smith (2015) and Bach et al. (2013).

Madon et al. (2009) identify three crucial factors that must be considered when planning digital inclusion initiatives namely: the value, sustainability, and scalability of the project. Madon et al. (2009) describe how three digital inclusion projects demonstrate a complex mix of success and failure, and while the projects are unique in themselves, they share four common components including:

- Enrolling government support
- Generating linkage to viable revenue streams,
- Getting symbolic acceptance by the community,
- Stimulating valuable social activity in relevant social groups

Madon et al. (2009) conclude that rather than assessing digital inclusion projects solely on impact, additional assessment models need to be developed to further expand on the ideas of sustainability and scalability in order to more accurately evaluate the success of digital inclusion projects.

Armenta et al. (2012) describe a seven-stage framework to accomplish unified digital inclusion initiatives aimed at reducing the digital divide in rural, underserved and less-privileged populations in developing countries that includes the following factors: 1) Identification and evaluation of regional socioeconomic condition, 2) Assessment of external factors which impact the region's sustainable development, 3) Identification of those ICT more favourable to support sustainable development, 4) Analysis of financial viability of ICT infrastructure and operations deployment, 5) Development and implementation of a technology adoption and training programme, 6) Development and implementation of an ICT application focused on the regional sustainable development needs, and 7) Evaluation of the project.

Smith's (2015) analysis of digital inclusion initiatives identifies digital equity, excellence, opportunity, and empowerment as four key components for implementing successful digital inclusion initiatives. Combining these four components with Madon's (2009) three crucial factors of digital inclusion initiatives - value, sustainability, and scalability Smith (2015) developed a conceptual framework for analyzing the success of digital inclusion initiatives. Using this framework to analyse two digital inclusion initiatives, one in Ireland and the other in South Africa, Smith (2015) identifies the following key factors:

- Community involvement in the planning, implementation, and evaluation stage was essential.
- The evaluation process must occur on a regular basis in order to ensure a higher level of success
- Providing communities with increased access alone is not enough
- Education and training for individuals and the instructors using the technology should be a priority
- Empowerment of the community to transfer the skills obtained by individuals from simple consumers of basic technologies to digital innovators

Bach et al. (2013) developed the Digital Human Capital framework to serve as a measurement tool for evaluating digital inclusion initiatives. Their framework includes four outcomes for individuals participating in digital inclusion initiatives: civic engagement, influence on policy, skills taught, and learning content; and four digital inclusion initiative 'values and competencies' necessary to achieve these outcomes: ideology/mission; partnerships, social change, and economic advancement. Table 4 illustrates how this framework is applied.

Project values & competencies	Digital human capital outcome: civic engagement	Digital human capital outcome: influence on policy	Digital human capital outcome: social change	Digital human capital outcome: Economic advancement
Ideology/mission	To involve participants in community issues and to produce meaningful experiences and explore solutions	To influence policy & push for reform benefitting marginalized communities	To push for significant changes in cultural values & norms, which disenfranchise groups	To create opportunities for living wage jobs and personal educational goals

Partnerships	Include advocates for technology, health, education, and economic advancement; governmental entities	Realize positive impacts on a broad cross-section of groups and concerns	Collaborative efforts to push for inclusive social programs and policies	Collaborative efforts to push for education, skills training and other opportunities for living-wage jobs
Skills taught	Video recording and editing, blogging, photography, online social networking, website creation	Storytelling on digital platforms, sharing videos with policy makers, online petitioning	Video recording and editing, blogging, photography, online social networking, website creation	Relevant software programs, online job searching, electronic resume creation
Learning context	Public computing centres and existing social service infrastructure (e.g. libraries, community development corporations, recreation centres, senior centres)	Public computing centres & social service infrastructure (e.g. libraries, community development corps, recreation & senior centres)	Public computing centres and existing social service infrastructure (e.g. libraries, community development corporations, recreation & senior centres)	Public computing centres and existing social service infrastructure (e.g. libraries, community development corporations, recreation centres, senior centres)

Table 4 Application of Digital Human Capital Framework to digital inclusion initiatives, (Bach et al, 2013, p.254).

Using this framework on two digital inclusion initiatives in the US, Bach et al. (2013) conclude that digital inclusion initiatives must go beyond connectivity and basic computer literacy and call for ‘more rigorous forms of training that enable traditionally disenfranchised communities to harness the Internet for social, political and economic endsand pathways toward fostering civic engagement’ (p.248).

Other studies such as Borg et al. (2018) systematic review on digital inclusion and health communication found that digital inclusion initiatives which apply collaborative learning strategies among older adults (i.e. learning through interaction with others with commitment to a shared goal) significantly improve participants’ computer and Internet knowledge and skills, self-efficacy and eHealth literacy and thus are an important consideration for initiatives. The review also identifies social support received from family members, friends, carers and service providers as a key enabler to digital inclusion, and thus an important factor for digital inclusion initiatives.

Robinson et al. (2020a) identify common factors and components in digital inclusion initiatives across the Americas and the Caribbean including the importance of having backing from across the political spectrum, and integration of local stakeholders. For example, in Mexico, Brazil and Canada, indigenous and rural communities

collaborated to drive digital development initiatives in ways that meet their self-determined interests, ranging from setting up infrastructure to developing and delivering appropriate digital literacy programmes. Robinson et al. (2020a) also highlight access and provision to devices and access and opportunities for skill development; culturally appropriate digital literacy resources, and a strong ethos of sharing and collaboration particularly across low-resourced environments, contribute to the success of initiatives. Importantly the scholars highlight the importance of grass-root, community network initiatives, often organised around non-profit or cooperative models, which help overcome the limitations of market-driven and state-funded initiatives in rural and remote regions. Serrano-Santoyo and Rojas-Mendizabal (2017) state to ‘effectively reduce *new divides* emerging from technology change and social change, community development must be the purpose and central objective of the digital inclusion projects’ (p.216). The scholars go on to propose that national and regional agencies in charge of defining and implementing the agendas for digital inclusion initiatives, particularly in rural and underserved communities need to consider ‘comprehensive social action plans conducive to connect ICT with community prosperity’ (p.213).

However, while many digital inclusion initiatives have achieved successes (Mariën and Van Audenhove, 2012; Taylor and Packham, 2016), others have reported incidences of failure. For example, Armenta et al., (2012) state that community-based digital inclusion initiatives tend to fail when they ‘only take into account telecommunications infrastructure and hardware, leaving social and human factors unattended’ (p.347). This feeds into the dominance of supply-side digital inclusion initiatives in policy rhetoric referred to earlier and the lack of consideration for communities when designing such programmes. Davies et al. (2017) highlight how technical problems sustained at the initial stages of the initiative studied, together with staff turnover, specifically head teachers engaged in the initiative and a key individual who spearheaded the project contributed to the failure of the initiative and highlights tensions between the stakeholders involved in the project. Indeed, Tapia and Ortiz, (2010) highlight how failure of such initiatives can lead to mistrust between digital inclusion stakeholders such as local governments, public officials, and citizens.

Pavez et al. (2017) discuss digital inclusion initiatives in Latin America targeting rural areas. Their research confirmed that most of these policy-making initiatives focused on the provision of infrastructure; yet while access to both devices and infrastructure connection cannot be dismissed as a logical first step, it does not necessarily entail internet adoption, particularly in isolated, rural contexts. The researchers recommend that policy-makers should take into account the social, cultural, and economic context of where these initiatives are implemented. In addition, Yates et al. (2020) also recommend policy-makers consider the local and personal social contexts of citizens when designing interventions, 'to help understand people's communities and how to tailor intervention strategies in a way that is meaningful to them and their everyday lives' (p.36).

Meryvn et al. (2014) investigating the influence of mobile technologies on social exclusion in two urban areas within the UK report on two contrasting local government digital inclusion initiatives which provide access to local online support and services. The first of the two initiatives advocate a bottom-up infrastructure-based model, with non-state involvement that focusses primarily on achieving the provision of physical access to the internet. Whereas the second initiative takes a much more proactive and centrally planned approach to service provision with the use of intermediaries. A key finding reveals that in some cases 'issues with literacy, technology skills and in some cases the socioemotional condition of some of the socially excluded combined with the complexity of their information needs fundamentally undermines the direct access model for this section of the community' (p.1086). Another key finding from their study concludes that while both approaches succeed to some extent, initiatives are much more likely to succeed if they are 'part of a process of supporting existing intermediaries' (p.1098).

While this section provides examples of studies on digital inclusion initiative provision, this body of work is limited and tends to focus (with the exception of Robinson et al. 2002a) on one or no more than three initiatives as part of their study. What is lacking is a critical overview of digital inclusion initiative provision as a phenomenon, to gain a perspective of the digital inclusion landscape, for example, for a particular country, that takes into consideration the multilevel involvement of stakeholders together with the experiences of those delivering and receiving digital inclusion training and support,

and the challenges and influences inherent in that process. Such a critical discussion could reveal why indeed some digital inclusion initiatives fail, key barriers to digital inclusion initiative provision and how initiatives are balanced with the growth of digitalisation of services and digital-by-default policies.

2.11 Digital inclusion Intermediaries

As illustrated above, a key aspect to digital inclusion initiatives is the role of intermediaries in the form of intermediary organisations and actors (sometimes referred to as human intermediaries) who reach out and engage with communities and deliver face-to-face digital inclusion training and social support. With governments increasing digital-by-default agendas and movement of services going online, some individuals, particularly those on the margins of society, rely on support from intermediaries in public libraries and community anchor institutions (Jaeger et al., 2014; Real et al., 2014).

Torrecillas et al. (2014) literature review identifies that intermediary organisations can be defined as ‘public, private and third sector organisations which intentionally address social inclusion goals through ICT or promote the use of ICT to enhance the socio-economic inclusion of marginalised and disadvantaged groups and of people at risk of exclusion’ (p.9). Acting on behalf of an organisation or as an individual, human intermediaries play a crucial role in reaching out and empowering communities (Bleumers et al., 2012; Damodaran et al., 2015), often providing face-to-face support in negotiating systems and finding strategies to deal with issues (Chaudhuri, 2019), but also ‘redressing people’s literacy, numeracy and technical skill deficiencies, which prohibits access and use of public information’ (Mervyn et al., 2017, p.3).

As Majchrzak et al. (2016) identify, the role of the human digital inclusion intermediary may be formal or informal, deliberate or an entirely emergent role depending on the context and situation. For example, in their study on human information intermediaries providing support for socially excluded group, Mervyn et al. (2017) found that ‘intermediaries were not professionally trained people and not provided by the state. Rather, they emerged as a consequence of the non-interventionist business model adopted by the Council’ (p.5). Examples of human intermediaries in the literature include trainers, tutors, digital champions and frontline staff within a variety of settings,

and in some instances are referred to as 'information intermediaries' (Warren, 2007; Mervyn et al., 2017; Buchanan et al., 2018), 'infomediaries' (Gomez et al., 2012; Ramírez et al., 2013; Sweeney and Rhinesmith, 2017), or as monitors who 'play the role of facilitators enabling the use of digital technology' (Aires et al., 2018, p.4).

As such intermediary roles evolve when the implicit requirements of ICT use are shown to be lacking. For example, Williams (2013) and Brown (2017) note that intermediaries demonstrate boundary spanning behaviours as they use their position in the community to actively bring together distinct networks such as governments, community members and organisations. Other scholars describe the role of intermediaries as vitally important as they act as brokers between policy and individuals (Mervyn et al., 2014). Indeed, Ramírez et al. (2013) explain to provide a brokering service, 'infomediaries must be trusted gatekeepers; i.e., they must be embedded in their local community and offer the services needed to minimize exclusion' (p.7). In their study on intermediaries in Bangladesh, Chile, and Lithuania, Ramírez et al., (2013) found that the empathetic competencies of intermediaries are particularly important for supporting individuals with lower ICT skills. Similarly, Sweeney and Rhinesmith (2017) in their study on caring institutions note how care is an essential part of the role of the infomediary and should be embedded 'as an ongoing and participatory process, prioritizing people and community relationships over deliverables' (p.1491).

Intermediaries also play a community capacity-building role in the form of digital champions. As identified by Casselden et al. (2019), taking on such a role requires individuals to get training in essential digital skills, with an expectation that they would then cascade knowledge gained to their local communities, by using autonomy, working one-to-one with learners, and knowledge sharing. Following their review of a digital inclusion initiative in Belgium, Mariën, and Van Audenhove (2012) state how stimulating knowledge exchange on digital tools and skills amongst community members is a solution to community capacity building and ultimately the sustainability of digital inclusion activities. This therefore highlights the important and potential capacity building and empowering role digital inclusion intermediaries play in digital inclusion initiatives.

However, the literature also identifies concerns with the level and quality of digital skills owned by intermediaries which can obstruct them providing the necessary digital inclusion support (Helsper and van Deursen, 2017; Buchanan et al., 2018). For example, Pawluczuk et al. (2019) reveal in their study with youth workers that an anxiety associated with the lack of digital skills exists in the youth work sector, and argue that further research and practical digital training initiatives should be undertaken to examine youth worker's digital skills. Damodaran et al.'s (2015), research on sustaining IT use by older people note that an inadequacy of support and the need for readily available on-going IT support within the community for digital inclusion to succeed.

Despite this crucial role within the digital inclusion arena, literature that specifically focusses on intermediaries appears relatively scarce and underexplored (Sorrentino and Niehaves, 2010; Mervyn et al., 2017) particularly in relation to their role and how they deliver digital inclusion training and support, especially in developed countries such as the UK (McGillivray et al., 2017; Wagg et al., 2020) and thus warrants further research.

2.12 Digital skills training and support

Throughout the literature as identified in section 2.5, the lack of digital skills is emphasised as one of the key barriers to digital inclusion and being part of the digital economy. As stated in section 2.4, a plethora of terminology is used to describe digital skills and literacies required to be digitally included such as digital literacy, digital competence, ICT skills, information literacy etc. Martinez-Cantos (2017), for example, considers 'digital literacy and associated competences play a key role in the development of the *Information Society*, and is becoming a priority in initiatives for social inclusion and human capital' (p.420). Information literacy, for example, is highlighted by scholars as an important literacy for ICT adoption and increased use of digital devices (Aleixo et al., 2012; Yu et al., 2017), without which 'the benefits of digital participation will be significantly diminished' (Anderson and Johnston, 2016, p.8). This feeds into the debate on information poverty and the 'information rich' and 'information poor' (Chatman, 1996, Haider and Bawden, 2007) where some scholars argue technology and the digital agenda has the potential to exacerbate information poverty and exclude individuals who cannot access information online or interpret the

information available, thus restricting their ability to seek information and make informed decisions based on that information (McKeown, 2016; Marcella and Chowdhury, 2020). However what exact skills and abilities people need to be digitally included differ quite radically from person to person (Carmi et al., 2020) and are often determined by peoples' information seeking behaviours and motivation (Wilson 2006, Jaeger et al., 2014). The literature highlights how scholars and policy-makers increasingly want to understand and measure the level of individuals digital literacy or digital competence, particularly when evaluating the outcomes of digital inclusion training and initiatives. This has resulted in the development of measurement frameworks and models used to measure the digital skills/digital literacy/digital competence of individuals. Table 5 illustrates recent examples of models developed in Europe.

Essential Digital Skills Framework	Framework designed to support providers, organisations and employers across the UK who offer digital skills training for life and work across five categories Communicating Handling information and content Transacting Problem solving Being safe and legal online	Department of Education, (2018)
European Digital Competence Framework for citizens (DigiComp)	European framework that aims to build 'digitally-competent citizens,' describes information literacy, communication, content creations, safety and problem solving as key requirements.	Carretero, et al., (2017)
Digital literacy index	Internationally accepted digital literacy index which. offers policy makers a means to monitor the diffusion of digital skills.	Chetty et al., (2018)

Table 5 Measurement models of individuals digital literacy/competence/skills

These frameworks break-down digital skills into specific activities and components for life and work, and as such provide a useful guide for evaluating digital inclusion initiatives. Work by lordache et al. (2017) provides a comprehensive overview of digital literacy measurement models as such a description is beyond the scope of this thesis.

The literature provides examples of where face-to-face digital skills training and support takes place. Notable venues or places frequently referred to in the literature include community centres, education centres, telecentres, cybercafes, technology hubs and schools (Gomez and Gould, 2010; Garrido et al., 2012; Davies et al., 2017; Price et al., 2018; Robinson et al., 2020a). Other venues referred to include care

homes, housing associations and refuge centres (Mervyn et al., 2014; Richardson, 2018; Ragnedda, 2018; Olphert and Damodaran, 2013) and also in people's homes (Hill et al., 2008; Mervyn and Allen, 2012). Public libraries are frequently referred to as providers of free broadband Internet service and WiFi and access to devices for their communities (Real et al., 2014; Jaeger et al., 2014; Gann, 2019; Strover et al., 2020). In some instances, this is in the form of a public library digital media bus (Wihlborg and Engstrom, 2017) or a digital access vehicle (Ahmed, 2019). Digital skills training and support is also provided through networks of organisations such as the Online Centres, public libraries, advice centres but also through informal social networks such as friends, family, peers, and work colleagues (Philip and Williams, 2019).

The literature also provides examples of specific digital skills training that encourages and enables individuals to use the Internet and digital technology, sometimes referred to as the demand-side of digital inclusion initiatives. Generically such examples include group sessions tailored towards a specific audience such as 'broadband for seniors' or 'digital support for job seekers', to more informal drop-in one-to-one sessions, such as in a public library, where individuals can seek support and guidance from a librarian to access government services or health information (Strover, et al., 2020; Gann, 2019). Other examples are linked to local and national initiatives such as Get Online Week in the UK, during which organisations that offer digital inclusion support are given the opportunity to promote their services more broadly and celebrate their successes with positive case studies and testimonials of how their support has benefitted individuals. Various digital inclusion approaches to such digital skills training and support is outlined in section 2.9.

However as highlighted by Helsper and van Deusen, (2017) despite many countries rolling out digital skills training in public places, such initiatives 'have not been as successful as hoped in tackling digital exclusion' (p.700). This therefore raises questions into how digital skills training is provided and delivered. For example, Ferreira (2016), states that 'users need to feel capable of using ICT administered through training classes and peer support to overcome lack of experience and to encourage participation' (p.39), but as identified by scholars, individuals will only participate with digital and use the Internet if they see its merit or relevance (Gerli et al., 2020; Helsper, 2017) or perceived value (El-Haddadeh et al., 2019). Other

scholars identify the need for digital skills to be taught or mentored through a balance of structured and unstructured activity. For example, in their study Warburton et al. (2014) reveal how rural social work practitioners recognise the need for both formal and informal opportunities for older people to build up digital skills and knowledge in the community sector.

Other scholars recognise the need to focus on the 'social support' received as part of the digital skills training process (van Deursen et al., 2014; Courtois and Verdegem, 2016; Asmar et al., 2020). For example, Taylor and Packham (2016) in their UK study state how 'training and support needs to take into account the barriers identified to enable the achievement of the outcome of long-term ICT adoption and use' (p.56). Indeed, from the literature it can be ascertained that so much emphasis is placed on digital skill improvement that the notion of 'social support' received during this process is often obscured, rather than being looked at in unison (Asmar et al., 2020; van Deursen et al., 2014). Asmar et al. (2020) define the digital inclusion concept of 'social support' as the emotional, instrumental, and informational support individuals receive when being helped to use digital technologies. Emotional as in the support given through appraisal or social companionship during a time of heightened distress caused, for instance, by an individual's fear of technology; instrumental support such as a task-oriented form of support; and informational support in reference to guidance and advice during a learning process. However, scholars identify the quality of support individuals receive is unequally distributed and replicates existing inequalities (van Deursen et al., 2014; Helsper and van Deursen, 2017; Asmar et al., 2020). For clarity the thesis will use 'digital skills training and support' as an umbrella 'catch-all' phrase for the digital support received by individuals through digital inclusion initiatives.

2.13 Digital inclusion and rurality

From the literature it can be ascertained that levels of digital inclusion vary geographically between developed and developing countries, within individual nations, and regions, but also between urban and rural populations where rural populations benefit less from policy initiatives than their urban counterparts (Robinson et al., 2020a). Indeed, despite the high levels of connectivity in developed countries and growing Internet access in developing countries, digital inclusion in rural areas remains a strong concern for policymakers (Correa and Pavez, 2016; Saleminck et al.,

2017; Robinson et al., 2020a) as rural communities continue to be at risk of digital exclusion and disadvantage (Warburton et al., 2014).

The literature includes many policymaking efforts that have promoted broadband and Internet connection in rural areas (Ashmore et al., 2015; Williams et al., 2016; Gerli et al. 2020; Manlove and Whitacre, 2019), yet evidence suggests that digital inclusion is a multifaceted and complex phenomenon that is not 'solved' after access is provided (Pavez et al., 2017; Serrano-Santoyo and Rojas-Mendizabal, 2017). For example, in their study of seven rural local governments in New South Wales in Australia, Park et al. (2015) found that 'rural digital exclusion results from a multi-layered divide where elements of infrastructure, connectivity and digital engagement are intertwined' (p.3631).

Pavez et al. (2017) highlight the importance of understanding rurality, and exploring how people from rural and geographically isolated contexts may experience digital connection differently from an urban perspective, when designing digital inclusion initiatives. For example, Correa and Pavez (2016) study on rural populations in Chile reveal remote rural communities face specific characteristics, such as lack of economic resources, geographic isolation, an aging population, and outmigration of young people, that need to be considered for their particular context. Roberts and Hernandez (2019) study on technology access in the Philippines highlight how rural populations are more prone to not being aware of digital inclusion initiatives and services. Indeed, a study by Pearce and Rice (2013 in Armenia argue, in rural areas, more people may work in agriculture compared to working in offices in urban areas and thus have less exposure to technology at work.

Rural communities in developed countries face similar challenges. As highlighted by Saleminck et al. (2017) in their systematic literature review in developed countries on unequal ICT availability, adoption, and use in rural areas, that while non-spatial or urban digital inequalities literature assumes ubiquitous connectivity, in rural areas 'ubiquitous connectivity does not exist' (p.366). For example, Robinson et al. (2020a) highlight rural Internet users in the U.S. not only lack high-speed Internet infrastructure but also have lower adoption levels of Internet devices compared to urban users. Scholars report similar rural digital inequalities in other developed countries such as Australia (Hodge et al., 2017; Park et al., 2019); The Netherlands (Saleminck and

Strijker, 2016); Portugal (Aires, 2014); Canada (McMahon, 2020); and UK (Williams et al., 2016; Blank et al., 2018).

Other studies in developed countries focus on specific rural populations. For example, Warburton et al. (2014) study in rural Australia considered whether improved access to ICTs could build social inclusion among rural older people. Their study concludes that there exist major barriers due to poor ICT usage by many rural agencies, and poor ICT usage among rural older people, brought on by a lack of skills as well as lack of access and resources. Whilst this study highlights barriers to digital inclusion within a rural context, it also provides an example of the growing phenomenon in developed countries of aging rural populations who are less engaged with digital technology than the rest of the population (Hill et al., 2008; Damodaran and Sandhu, 2016; Hodge et al., 2017).

Other studies focus on indigenous rural populations within developed countries. For example, work by Rennie et al. (2013) focus on remote Aboriginal indigenous communities in Australia and the challenges they face accessing digital technology. A study by McMahon (2020) discusses two examples of digital inclusion initiatives co-developed with First Nation, Inuit and Métis indigenous populations in Canada with details of a supply-side intervention focused on digital access policy, and a demand-side intervention focused on digital adoption. McMahon (2020) concludes how more emphasis should be placed on co-development initiatives that address the specific contexts of user groups, and promote local ownership and control of digital inclusion initiatives and reflect the specific characteristics of user communities.

However, according to Salemink (2016) digital inclusion initiatives are criticised for ignoring rural socioeconomic and geographical context, highlighting how digital agendas of government and NGOs are not necessarily aligned with those people living in rural communities.

2.14 Rural UK digital inclusion initiatives

The literature identifies that a rural/urban digital divide exists in the developed world (Skerratt *et al.*, 2012; Salemink *et al.*, 2017; Hodge et al., 2017; Blank et al., 2018; Robinson et al., 2020a) and is broadly dominated by research on the diffusion of broadband and mobile connectivity, broadband initiatives and issues with

infrastructure in everyday life at home and in the workplace (Manlove and Whitacre, 2019; Price et al., 2018). This trend in the literature is also prevalent within the rural UK context (Warren, 2007; Ashmore et al., 2015; Gerli et al., 2020). For example, from the literature it can be ascertained that there is a growing body of literature looking at the issues and regional variations of the rural digital divide and rural broadband and mobile connectivity within the UK context (Townsend et al., 2013; Ashmore et al., 2015; Philip et al., 2017; Roberts et al., 2016; Roberts et al., 2017; Salemink et al., 2017; Gerli et al., 2020; Williams et al., 2016). Furthermore, despite a recent bolstering of the UK national digital inclusion agenda through a plethora of digital inclusion initiatives driven by the UK government's Digital Strategy (Cabinet Office, 2013; DCMS, 2017) and associated Digital Inclusion Strategies (DCMS, 2014, 2017), rurality continues to play a role in digital exclusion, limiting digital participation and access to online services (Salemink et al., 2017; Townsend *et al.*, 2013; Farrington, 2015), and threatening the social and economic health of rural areas (Philip, et al. 2017).

For example, Yates et al. (2020) in their study of limited users within the UK, highlight that rural access is one of eight key demographics identified associated with limited use and continues to be a policy concern. Indeed, scholars highlight how despite the diffusion of broadband initiatives, such as the Broadband Delivery UK (BDUK), a proportion of the rural population in the UK are still unable to connect to broadband and 4G mobile networks (Ashmore et al., 2015; Philip et al., 2017; Gerli et al. 2018; Philip and Williams, 2019). Some scholars attribute this to problems regarding the provision of broadband infrastructure, which due to the rurality of some locations are 'economically unattractive to the private companies that characterise today's telecommunications industry' (Gerli, et al., 2020, p.540). Others attribute this to the poor quality or intermittent connectivity provided in rural communities (Williams et al. 2016; Gann, 2019), resulting in the emergence of alternative broadband providers focusing on unserved rural areas due to the failures of market-based and government-led broadband initiatives (Gerli et al., 2018; Salemink, et al., 2017). Indeed, over a decade ago Warren (2007) argued that while the benefits of ICT in rural areas can be more noticeable than in large cities, the provision of ICT infrastructure is often weaker in rural than in urban areas. Philip and Williams (2019) recent study on the Rural Public Access Wi-Fi Service project in rural Shropshire in England, reminds us of the persistent issue of infrastructure in rural areas and how 'access to and use of fit-for-

purpose broadband is not ubiquitous for those living and working in the UK's remote rural areas' (p.316).

Against the backdrop of the UK's digital-by-default agenda (Cabinet, 2013), where services are increasingly being moved online, Williams et al. (2016) highlight that there is an urgent need for online services to be accessible by all those residing and working in rural, difficult to reach areas in terms of broadband infrastructure provision, in both coverage and speed. However, providing connectivity to communities does not necessarily mean they will 'take-up' and subsequently use the Internet, due to the social, cultural, economic and demographic factors and barriers described earlier. As Gerli et al. (2020) states 'in practice, whatever the ambitions of politicians to provide everyone with access to the Internet, not everyone will use it' (p.549) due to the multitude of barriers as outlined in section 2.5. Furthermore, those that do 'take-up' using digital may only do so in a limited way, as a limited user (Yates et al., 2020).

Despite the persistence of digital exclusion within the UK, there appears to be limited research that focusses specifically on digital inclusion training and support as part of digital inclusion initiatives within the context of UK rural communities at risk of digital exclusion. Exceptions include studies by Huggins and Izushi (2002) and Faulkner and Kleif (2005) which while pre-mobile and broadband connectivity and pre-digital-by-default, highlight issues that are just as relevant today for rural UK communities.

For example, Huggins and Izushi (2002) review of digital inclusion initiatives in rural counties across the UK identifies criteria for digital inclusion good practice. These include use of community resource centres; targeting of personal and cultural activities that fit into community life; support for self-managed learning; mobile provision of training programmes (training beyond fixed locations to support the 'transport-poor'); demonstrations of the benefits of digital through the use of in general services; and financial support due to the additional costs incurred through delivering training in rural locations, often referred to as the 'rural premium'. Huggins and Izushi (2002) also identify the most effective digital inclusion provision require strategies that integrate different programmes into a coherent package at the community level that adopt a collaborative approach between relevant organisations; recognize the community sector as an important actor if ICT initiatives are to become sustainable; and 'engagement of local communities in the very early stages so that they facilitate the

sense of 'ownership' and the development of a self-managed learning process' (p.119).

Faulkner and Kleif (2005) study in a remote rural region of Scotland focuses on a capacity-building digital inclusion initiative. Through a network of community resource centres, the initiative provides access to informational and technological resources, and one-to-one training and support through community support workers (selected for their local knowledge and potential community development involvement rather than for their digital skills). An outcome of the initiative is the development of an informal network of local ICT experts in the community who from their training built digital capability to support others. An important aspect of the initiative observed by the scholars was how the community support workers were viewed as 'role-models' by those who 'are computer reticent and/or do not have many opportunities for informal ICT learning in their own social networks' (p.56).

From a rural business perspective, a more up-to-date study by Price et al. (2018) focuses on an initiative in rural Lincolnshire on supporting rural small and medium-sized enterprises (SMEs) to take up broadband-enabled technology. The scholars highlight how in the second phase of the project, training events and workshops, one-to-one support and access to technology hubs was offered (over a limited number of hours) to help rural enterprises embed technology within their business. While tailored and differentiated support was provided, the results show that while training events provide entry-level support for broadband use, more intensive support such as one-to-one advice leads to the significant changes within the business.

From a user-design perspective, recent studies by Hayes et al. (2019) and Knowles et al. (2019) focus on a digital inclusion project situated in South Lakeland, a rural district of Cumbria in North West England. The scholars report on the co-creation aspect of the project aimed at producing a mobile app to help older adults' living in rural areas access public services and events in order to promote independent living and address loneliness and social isolation. Working with participants from rural communities, the scholars identified technological interventions (mobile app) that address loneliness and social isolation need to take a situated practice approach in which the use of ICT 'remain situated in the daily lives of older adults for it to be meaningful and relevant' (p.4288). Whilst this is just as relevant in urban areas as in

rural areas, the scholars identified limited public transport availability in rural areas as a key issue facing older adults and needs to be taken into consideration when promoting events on mobile apps.

Other recent UK studies include an evaluation of two rural community broadband initiatives Connecting Cumbria and B4RN by Gerli, et al. (2018). The study briefly mentions how through the use of local champions B4RN offered weekly training and content on the needs and interests of individuals, and Connecting Cumbria provided supportive information through local workshops and through its website, to support the adoption of superfast broadband. While the theme of digital support is approached, it is not discussed in an extensive way and clearly not the focus of the study.

The UK studies mentioned above highlight the importance of providing digital inclusion support when designing and implementing initiatives in rural locations, however, apart from these examples, literature within the UK rural context remains scarce especially in relation to current digital inclusion support offered in everyday contexts.

2.15 Criticism of digital inclusion initiatives

While it is important to acknowledge the benefits of digital inclusion initiatives on communities, from the literature it can be ascertained that there is a notable lack of critical perspectives on the optimistic statements made in government discourse and advocates of digital inclusion programmes (Eubanks, 2011; Mori; 2011) and by some scholars (Ragnedda, 2018). For example, the ongoing rhetoric emphasised largely through European social policy for the need to counter social exclusion through digital inclusion, appears to put the responsibility on individuals and communities to learn digital technologies, while placing lower priority on structural or societal issues (Taylor and Packham, 2016; Gallistl et al., 2020). Mariën and Van Audenhove (2012) highlight that digital inclusion policy too often relies on a positive attitude towards ICTs leading to digital inclusion initiatives not reaching their objectives. Furthermore, while digital inclusion brings opportunities it also brings risks, often due to the lack of in-depth consideration to the complexities surrounding digitally excluded populations (Mori; 2011; Mariën and Prodnik, 2014). Risks include privacy intrusions (Gangadharan, 2017), vulnerability to scams and fake news (Carmi et al., 2020) and the creation or

reinforcement of mechanisms of social exclusion due to the generic nature of initiatives (Adam and Kreps, 2006; Newman, et al., 2017; Mariën and Prodnik, 2014).

Klecun (2008) calls into question current discourse and initiatives addressing the digital divide and their current limitations, asserting that people should be allowed to make an informed choice concerning joining or declining to join the digital society, something that is often portrayed as negative or a deficit and discussed in terms of resistance or ignorance (Seale et al., 2010). Reisdorf and Rhinesmith (2018) add to this argument stating that studies on digital inequalities often emphasize the deficits of communities rather than their assets. As a result, digital inclusion strategies tend to focus on bringing technology, resources and knowledge into marginalised communities from the outside rather than tapping into the knowledge and strength that already exists within that community. In relation to digital skills, scholars have highlighted the limited range of digital skills sometimes offered in digital inclusion training and support. For example, Pawluczuk, (2020) argues many digital inclusion initiatives are corporate-led that primarily focus on functional digital literacy (such as how to access information online) as opposed to critical digital literacy (how to critically analyse information online). In addition, Helsper (2017) highlights how too much focus is placed on digital skills within the rhetoric of digital inclusion initiatives. There is a need to move away from skills and more towards the understanding of motivation and attitudes, as the only way to engage with people if they can see the relevance for it.

This provides an opportunity for further research to explore a more critical perspective of digital inclusion initiatives, and answer the call for social scientists to take a more critical role within the configuration of digital interventions (Ruckenstein & Schull, 2017; Lupton, 2018; Hine, 2015). This is particularly important due to the reported incidences of failed digital inclusion initiatives (Davies et al., 2017; Madon et al., 2009; Tapia and Ortiz, 2010), during a period of increasing digital-by-default services and an evolving digital inclusion landscape. Indeed, the limited research from an intermediary perspective from digital inclusion delivery organisations provides an opportunity to ascertain what is really happening on the ground in relation to digital inclusion initiative delivery and the impact this has on the 'utopian' discourse in digital inclusion agenda.

2.16 Conclusion and research gap

The academic discussion on digital inclusion and the provision of digital inclusion initiatives is complex and, at times, contradictory. The interdisciplinary nature of digital inclusion has led research to be fragmented in nature (Jaeger et al., 2012; Wagg et al., 2020). This together with ambiguities in digital inclusion terminology, and the rapid changing landscape of the digital world has led researchers from different disciplines to interpret digital inclusion in different ways. Important social aspects of digital inclusion emerged from the literature, including debates of the correlation between digital inclusion and social inclusion and the influence of culture, trust, motivation, and social, economic and geographical barriers to digital inclusion. The growing number of digital inclusion frameworks used to measure peoples' level of digital inclusion is also highlighted. Scholars argue digital inclusion is a multilevel phenomenon that needs to be tackled through a multilevel effort of interventions and initiatives through policy, governments, public, private, third sector and voluntary organisations to solve the digital divide (Mariën et al., 2012; Thompson, 2016; López et al., 2018; Mubarak et al., 2020; Reisdorf and Rhinesmith, 2020). The literature review also confirms that digital inclusion initiative provision is a multilevel phenomenon, yet a critical discussion of this phenomenon in the literature appears lacking.

The review provides details of studies that have investigated digital inclusion initiatives, highlighting the split between supply-side and demand-side initiatives, crucially revealing limited examples of demand-side initiatives that include the provision of digital inclusion training and support as part of their approach and the role of intermediaries in that process. The review importantly provides insights into the drivers of such digital inclusion initiatives, and categorises approaches currently being undertaken. A significant revelation was also the lack of underpinning theory used in studies to discuss digital inclusion initiatives. Finally, the literature review reveals limited research on digital inclusion initiative provision in the UK specifically in UK rural communities.

Whilst existing studies provide important insights into digital inclusion and digital inclusion initiatives, there is limited research that focuses on digital inclusion initiative provision as a multilevel phenomenon. Indeed, the research that does exist lacks a critical discussion on how stakeholders translate digital inclusion policy, how they

tackle the delivery of digital inclusion initiative provision, and the challenges inherent in that process. Instead, digital inclusion rhetoric tends to be dominated with a focus on digital skills and beneficial outcomes from initiatives, rather than a more nuanced critical discussion.

This review therefore concludes that there is a need for research that fills this gap. Specifically, there is a need for research that investigates digital inclusion initiative provision as a multilevel phenomenon, in the context of UK rural communities through a theoretical lens, that considers the perspectives of stakeholders operating at multiple levels, including those that have a national overview of digital inclusion initiative provision (national stakeholders); intermediaries delivering digital inclusion initiative training and support (intermediary stakeholders); and recipients of such training and support (individual level). Moreover, there is need for research that unpicks digital inclusion initiative provision as a multilevel phenomenon, that provides insights into the drivers, approaches, delivery strategies, and challenges inherent in the process, and the experiences of those delivering and receiving digital inclusion training and support. Research questions to address this research gap are listed in section 1.4.

2.17 Chapter summary

This chapter explores the current literature relating to the evolving nature of digital inclusion initiatives that provide digital inclusion support for individuals and communities. It begins by exploring the origins of digital inclusion research, followed by a problematisation of the concept of digital inclusion, digital inclusion frameworks, and highlighting ambiguities in digital inclusion research. Barriers to digital inclusion are then explored and the challenges and experiences faced by individuals inherent in accessing and using digital technology.

The chapter then explores the literature on digital inclusion initiatives, revealing the drivers and differentiation of digital inclusion initiatives, and the multilevel involvement of stakeholders in various contexts. From the literature, approaches to digital inclusion initiatives are then summarised and essential factors and components required to implement and deliver digital inclusion initiatives are revealed.

The limited literature on intermediary organisations and actors that deliver and provide digital skills training and support through digital inclusion initiatives is then explored,

and an overview of digital literacy models and digital skills training and support is provided.

The chapter then looks at the literature related to digital inclusion and rurality across developed and developing countries, and then more specifically at digital inclusion initiatives in the context of UK rural communities. The chapter concludes with a critical overview of the digital inclusion landscape.

In the next chapter an overview is provided of existing theories used to underpin research and a justification of the selection of Activity Theory as the theoretical framework for this PhD study. The historical development of activity theory is described followed by a rationale of the suitability of utilising activity theory to investigate our understanding of the provision of digital inclusion initiatives and answer the research questions posited.

Chapter 3: Theoretical background

3.1 Introduction

The previous chapter identifies a relative lack of literature that explores digital inclusion initiatives through a theoretical lens. Notable exceptions include the work of Madon et al. (2009), Teles and Joia (2011), Mervyn et al. (2014), Correa and Pavaz (2016), and Aires et al. (2018) who have drawn upon contemporary social theory such as Actor Network Theory, Structuration Theory, Institutional Theory, and Activity Theory. As explained by (Zheng, 2015), such theories emphasise a socio-technical view where technology is not perceived as neutral, but instead ‘understood to be socially constructed, malleable and entangled with social practices, often producing unintended consequences’ (p.3). This chapter briefly introduces these theories and how they have been utilised to explore digital inclusion initiatives. The chapter then discusses Activity Theory in more depth, rationalising why it is deemed the most suitable and appropriate theory for this thesis.

3.2 Overview of theories

3.2.1 Institutional Theory

Institutional theory is concerned with the deeper and more resilient aspects of social structure. It considers the processes by which structures, including schemes, rules, norms, and routines, become established as authoritative guidelines for social behaviour (Zheng, 2015). Institutional Theory (DiMaggio & Powell, 1983) provides a lens for examining organizations and their structures, operations, and efficacy. The analytical elements outlined in this theory allow the researcher to understand the distinct qualities at the organizational or institutional level in terms of how it functions, what role it plays in the community it serves, its rules and norms, the resources available for the organization, and how the organization manages change and adaptability to new circumstances (Garrido et al., 2012). Madon et al. (2009) used selected elements of Institutional Theory, specifically symbolic structures, social activities, material resources, and dynamics of institutional stability to analyse the institutionalisation processes of three digital inclusion initiatives in three developing countries (India, South Africa and Brazil). The scholars found Institutional Theory useful for studying digital inclusion initiatives in this way to reveal an institution’s value, sustainability and scalability and the way in which it changes or adapts to new

circumstances (Madon et al., 2009). While Institutional Theory has a number of strengths helping researchers understand qualities and attributes of an organisation, for example, a digital inclusion organisation or initiative, having emphasis of the analysis at institutional level means the theory does not reveal such deep insights at other levels of analysis such as the individuals who have received digital inclusion support through the initiatives (Garrido et al., 2012).

3.2.2 Structuration Theory

Structuration Theory (Giddens, 1984) provides a lens in which to analyse a social phenomenon whilst considering *structure* and *agency*, by introducing the notion of interdependency between human actions and organizational structures. More specifically, as explained by Zheng (2015), Structuration Theory enables researchers to investigate institutional contexts in which technological adoption transforms practices. Correa and Pavez (2016) utilised Structuration Theory in their study on digital inclusion in rural areas in Chile. Justifying their choice of theory, Correa and Pavez (2016) highlight that Giddens defines *agency* as 'the capability of individual actions in determining outcomes, whereas *structure* refers to the social system that organizes social practices and defines the outcomes' (p.249). More specifically, this means that individuals have agency, but are bounded by social structures or systems, which in turn are reinforced and reproduced through collective actions and people's decisions. Indeed, Giddens (1984) proposes a view of human agents and social structure as a mutually interacting duality instead of independent conflicting agents. Using Structuration Theory to investigate the challenges faced by people using the Internet in isolated, rural locations, Correa and Pavez (2016) found that 'the negotiation between agency and structure becomes more relevant in remote, and rural communities because geographic isolation makes the social context more decisive in any action or decision' (p.249). In addition, the scholars found that remote rural communities face specific characteristics that need to be taken into account when thinking about digital inclusion policies, such as training that is relevant to their context and focuses on their needs.

3.2.3 Actor Network Theory

Actor-Network Theory (Callon, 1986; Latour, 1992) considers the relationships that link people and technologies in dynamic networks. As stated by Teles and Joia (2011)

Actor-Network Theory (ANT) 'helps to understand the cyclical processes of negotiation, redefinition and appropriation of interests in networks' (p.193). Central to actor-network theory (ANT) is the actor-network, where 'actor(s) enrol other actors to form a network, and mobilize the members of the network to achieve shared objectives' (Sein et al., 2019, p.14). Inherently unstable and dynamic, ANT advocates that networks can be stabilised through alignment achieved through four aspects of 'translation', which involves *problematization*, *interessement*, *enrolment*, and *mobilisation* (Callon, 1986). *Problematization* as in defining a problem for which a particular technology is a solution; *interessement* as in getting others to accept this problem-solution); *enrolment* as in defining the key roles and practices in the network; and *mobilisation* by engaging others in fulfilling the roles, undertaking the practices and linking with others in the network (Greenhalgh and Stone, 2010).

Teles and Joia (2011) highlight how ANT is especially attractive to those engaged in studying the use and impact of technology on society, due to the fact that ANT 'treats human artifacts on an equal footing with man in the possibility of being an actor-network' (p.192). In their study, Teles and Joia (2011) applied the translation framework of ANT to evaluate the Digital Pirai programme, a digital inclusion initiative in the city of Pirai, in Brazil. The scholars used ANT to develop a digital inclusion model, and investigate the formation of heterogeneous networks of actors around the components of the aforementioned model in Pirai. Using ANT as a theoretical framework, enabled the scholars to immerse themselves in the digital inclusion process in Pirai, to achieve a good understanding of how actor network grids had developed in the Digital Pirai programme and establish how the city of Pirai had fared in the digital inclusion process.

A criticism of ANT is that it has a 'flat' ontology where human and non-human are given equal emphasis or symmetrical treatment, meaning that ANT would have little to say on structure and agency, for example on institutional sources of power and inequality (Zheng, 2015; Greenhalgh and Stone, 2010).

3.2.4 Activity Theory

Activity Theory, sometimes referred to as cultural-historical activity theory (CHAT) provides a sociocultural, analytical framework to understand mediated actions within an activity system (Leontev, 1978; Vygotsky, 1978). AT is useful for understanding

complex activities, situated in cultural and historical contexts (Detlor et al., 2016), and dynamic, in that it recognizes that activities, actions, and operations change over time (Allen et al., 2011). Using activity as a unit of analysis, AT provides a set of interacting elements formulated by Engeström (1987) that include subject, object, tools, rules, community, division of labour, and outcome. Furthermore, AT consists of a set of basic principles: 1) object-orientated human activity; 2) multi-voicedness; 3) historicity; 4) contradictions; and 5) transformations (Engeström, 1999). Drawing on these interacting elements and basic principles, ‘an activity system is the site for analysing interaction between actors and collective structures and the use of tools, providing an analytical framework for studying the specific activity and practices at a multilevel, stratified manner, in context’ (Karanasios and Allen, 2014, p.531).

AT’s focus on the mediation of human behaviour through tools and technologies, its ability to bridge the gap between structural and individual level explanations, and its notion of extracting tensions and contradictions from an activity system, are key strengths which scholars have drawn upon when using AT in digital inclusion research to gain an understanding of the development and change taking place within an activity (Engeström, 1987). For example, in a digital inclusion study in rural schools in Portugal, Aires (2014) identified contradictions in the dissemination of digital technologies and digital inclusion in families and schools in rural communities demonstrating worsening inequality and digital access. Mervyn et al. (2014) and Mervyn et al. (2017) utilised AT to research and evaluate two contrasting UK local government digital inclusion initiatives which provided access to local online support and services, revealing contradictions and opportunities for change. See section 3.6 for a more detailed account of these studies, and section 3.3 for an overview of AT.

3.2.5 Comparing theories and rationalising the use of Activity Theory

A difference between Structuration Theory and AT is the focus on activity as opposed to a broader social phenomenon and the incorporation of cultural-historical tools within the analytical framework. However, there are complimentary aspects between the two theoretical approaches. For example, a major similarity is that they both consider structure and agency inseparable, as outlined above. Institutional Theory is also congruent with some of the aspects of AT. For example, even though Institutional theory does not focus on the concept of activity or mediating technology, its focus on

the establishment of rules and norms for explaining behaviour is similar to the notion of cultural-historical rules and norms in AT (Karanasios and Allen, 2013). Several differences have been noted between ANT and AT (Miettinen, 1999; Spinuzzi, 2008). For instance, ANT, avoids using concepts such as subject, object and culture, whereas AT considers it necessary to use them in order 'to analyze how they evolve, are determined by each other, and change into one another' (Miettinen, 1999 p.176). Furthermore, ANT is underpinned by a 'flat' ontology, where people and objects are given equal emphasis, whereas AT is underpinned by dialectical ontology (Karanasios and Allen, 2013; Miettinen, 1999). In addition, as highlighted by Karanasios (2014) new social practice theories such as ANT and Structuration Theory focus on the 'habituality of practice', 'making it difficult for them to make sense of changes in human practices' (p.3), whereas classical practice theories, such as AT, 'emerged as a way of understanding change and development of human practice' (Karanasios, 2014, p.3). For example, bringing the concepts of technology and the social together in the AT framework, brings the use of technology into the realm of specific human activity, countering the concern raised by scholars surrounding the absence of the role of technology in organisational life, or privileging the social over the material (Orlikowski, 2005; Karanasios and Allen, 2014).

Most importantly, AT emphasises the notion of contradictions, a concept not explicitly available in other contemporary social theories, which enables the examination of contradicting perspectives represented in one activity system or across a network of various activity systems as a means of understanding change and action (Ilyenkov, 1974; Engeström, 2001; Karanasios and Allen, 2013). Such contradictions can be viewed negatively as tensions or inefficiencies or problems within an activity system (Kuttii, 1995), however contradictions can also be viewed as drivers for innovation, knowledge creation and learning (Engeström, 2000; Helle, 2000; Engeström and Sannino, 2011; Allen, Karanasios, & Slavova, 2011). Therefore, as highlighted by Karanasios and Allen (2013) other theories, where the notion of contradictions is deemphasized, or abstracted, are 'less capable of understanding constantly evolving and transforming activities and the dynamics, inefficiencies, and importantly, opportunities for change' (p.4).

From the above discussion, AT is deemed the most suitable and appropriate theory for this study. AT is particularly appealing as it provides a holistic framework which can be employed as a model of analysis and an underlying conceptual framework, useful for understanding complex situations such as the phenomenon of digital inclusion and digital inclusion initiative provision. The use of AT allows the researcher to explore the social, historical and collective nature of digital inclusion initiatives through multiple perspectives, and reveal contradictions within the activity system that can lead to future development and change.

Indeed, the emergence of contradictions represented within single activity systems and across various activity systems, is seen by the researcher to be particularly applicable to the aim of this study and a useful tool for investigating digital inclusion initiatives from a multilevel perspective, as is the theory's ability to bridge the gap between structural and individual level explanations. More specifically, the researcher believes there is a need to analyse contradictions within digital inclusion initiative provision more generally to reveal the essential factors required to implement and deliver digital inclusion initiatives in UK rural communities, the experiences of those in receipt of digital inclusion initiative training and support, and the challenges inherent in this process to ascertain how digital inclusion initiatives are currently approached and how they could be potentially changed and improved. AT therefore offers a useful lens in which to study digital inclusion initiatives. The rest of this chapter discusses the theoretical origins and background of AT and how it has been applied in digital inclusion research.

3.3 Theoretical origins of Activity Theory

AT is based on the concepts of the cultural-historical school of Russian psychology centred on the unity of consciousness and activity. Developed and evolved through the contributions of theorists such as Vygotsky (1978), Ilyenkov (1977), Leont'ev (1978) and Engeström (1987), AT has developed into a contemporary social theory for studying work and social activity (Karanasios and Allen, 2018), and evolved to encompass theoretical concepts for studying collective activities and organizational practices (Clemmensen et al., 2016). At its core, AT focuses on 'activity'—'a purposeful, social, mediated, multilevel, and developing interaction between actors ('subjects') and the objective world ('object')' (Clemmensen et al., 2016, p. 609). AT is

a theory-based sociocultural framework that provides a lens through which to view mediated actions within an activity system or community and study goal-directed activities (Leont'ev, 1978; Vygotsky, 1978). A descriptive tool rather than a predictive theory (Karanasios, 2014), AT provides a language for understanding and making sense of complex real-world activities situated in cultural and historical contexts (Engeström, 1987, 2014; Roth, 2004; Detlor et al., 2016). Activity theory bridges the gulf between the individual subject and the societal structure by taking the object-orientated, artefact-mediated collective activity as its unit of analysis (Engeström, 1999).

3.4 Generations of Activity Theory

The original concept of activity theory stems from the work of Vygotsky who emphasised the interaction between the people and the world in terms of culture and society, emphasising that this interaction is not direct but mediated by tools (Vygotsky, 1978). Often referred to as the first-generation of AT, Vygotsky developed a triangular unit of analysis (see Figure 1), to explain human behaviour in mediated relation to its social-cultural environment, and to illustrate what Vygotsky referred to as the *mediated act* (Vygotsky, 1981),

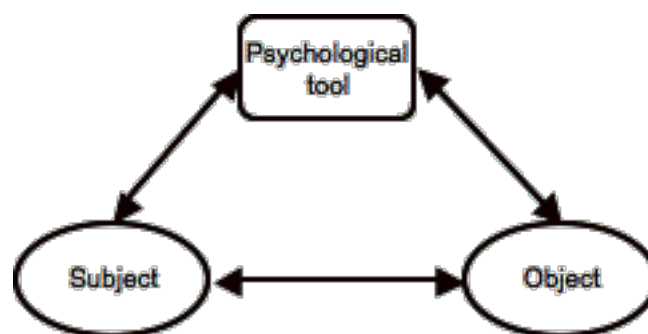


Figure 1 Mediated Act - Adapted from Vygotsky (1981)

Building on the idea of mediation, Leont'ev (1978, 1981) extended Vygotsky's idea by introducing the concept of activity, composed of three different units of analysis (activity, actions, and operations). Each of the three units identified according to the particular psychological function. Illustrated as a hierarchical structure (see Figure 2), the top of the structure is composed of activities, which are directed to achieve collective motives. In the middle are actions, which are directed to achieve individual goals, and at the bottom are operations, which are identified by the conditions in which they are carried out. Moreover, an action can become an operation through

internalisation, and an operation can become an action through externalisation (Leont'ev, 1978).

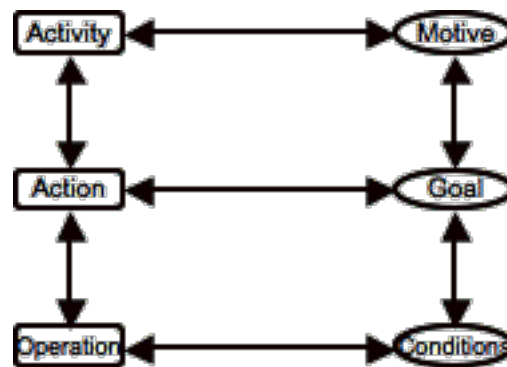


Figure 2 Hierarchical structure of activity - Kaptelinin and Nardi, 2009. p.64

Engeström (1987) expanded Vygotsky's and Leont'ev's (1978) versions of AT by introducing the human activity system model that elaborated the notion of collective action and considering the wider social context of the activity by introducing several components of the activity system: community (in and for which an activity takes place), rules and norms, and the division of labour. Referred to as the second-generation of AT, this conceptualization opened up the possibility to understand different, even contradicting perspectives represented in one activity system or across a network of various activity systems. Figure 3 below illustrates an activity system as a unit of analysis that structures the different elements that influence an activity (subject, object, mediating artefacts, rules, community, and division of labour). Briefly the basic premise is the activity system illustrates that a subject, driven by a motivation to achieve an object and desired outcome, undertakes an activity. This process is mediated by tools and signs (mediating artefacts) in collaboration with the community. This process is governed by cultural/historical rules and behavioural norms, and executed by a division of labour.

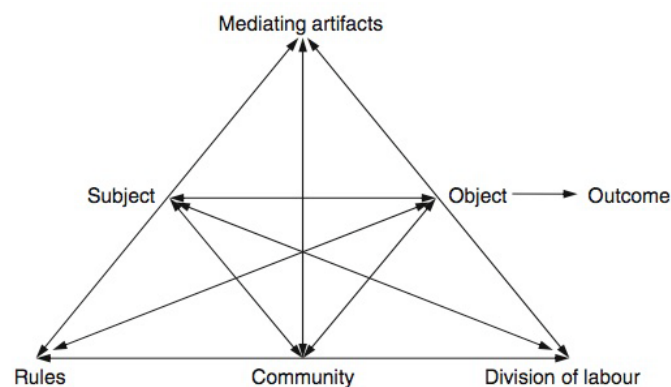


Figure 3 Second-generation Activity Theory (adapted from Engeström 1999).

Detailed assumptions associated with the elements of the activity system are outlined as follows:

- **Subject** is the individual or group involved in the central activity (Engeström, 1987) whose position and viewpoint is adopted as the perspective of the analysis (Engeström and Sannino, 2010).
- **Object** (objective or goal) precedes and motivates activity. It refers to 'the 'raw material' or 'problem space' at which the activity is directed, and which is moulded or transformed into outcomes with the help of physical and symbolic, external and internal tools' (Engeström, 1993, p.67). AT effectively problematizes the object (Karanasios, 2018) with 'sense-making' or reasons for the subject's behaviour (Kaptelinin, 2005).
- **Tools** mediate the object of activity and are extensions of human agency (Karanasios, 2018), yet carry with them culture, history and affordances (Simeonova, 2018). Mediated actions are activities that incorporate socially constructed tools to achieve a concrete or abstract goal. Tools themselves may be concrete (e.g. technology) or abstract (e.g. language, psychological), and both actions and tools are shaped by the social, cultural, historical and institutional experiences of the community (Engeström, 1987).
- **Community** comprises of the individuals and subgroups who share the general object (Engeström and Sannino, 2010).
- **Division of labour** refers to the horizontal and vertical division of power and status (Engeström and Sannino, 2010).
- **Rules** are explicit and implicit norms that regulate actions and interactions within the system (Kuutti, 1996).

Applying these elements broadly into the context of digital inclusion initiatives as an activity system (drawing on the findings from the literature review), stakeholders (national and local) of digital inclusion initiatives (subjects) implement and provide digital inclusion support (object) with the view that communities become more digitally able and skilled (outcome). Tools or mediating artefacts used include but are not limited to mobile devices, WiFi and online learning content; Rules and norms comprise of digital skills training frameworks and digital regulations, as well as attitude, culture and political climate. Community incorporates those who share a general or common

object in the activity, i.e., digital inclusion stakeholders such as policy makers, digital inclusion intermediaries, tutors, volunteers, and digital inclusion beneficiaries; and Division of labour among activity participants such as the collaboration of volunteers and digital training tutors. Chapter 5 provides a more detailed account of digital inclusion initiatives as an activity system within the context of this study.

Engeström (2001) further expanded his work, through the third-generation of AT, by acknowledging that activity systems do not exist in isolation, but in fact can be linked with different activity systems, or joint activity or practice, which share a common object as the unit of analysis for activity theory (Allen et al., 2013; Engeström, 1999; Simeonova, 2018). It emphasises the multiple perspectives or multi-voicedness among interacting activity systems, as well as the use of diverse tools by different subjects in achieving a common object (Daniels and Warmington, 2007; Hasu and Engeström, 2000), and is concerned with examining networks of activities, where different boundaries are crossed. For example, components of one activity system can be analysed to see how they interact with components of another activity system. The outcome of these systems may be the same, but may also have competing objects (Mishra et al, 2011).

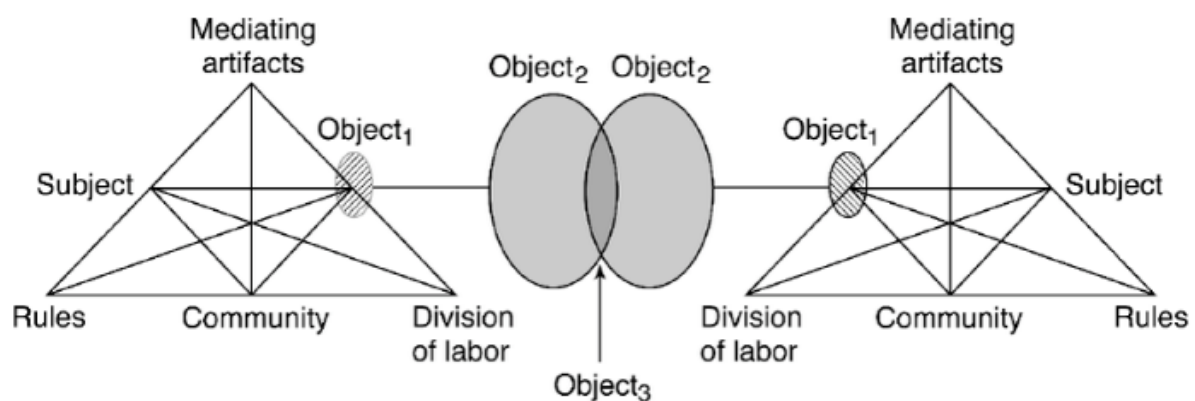


Figure 4 Third-generation Activity Theory (Engeström, 2001, p. 136).

Figure 4 is a minimal representation of two concurrent activity systems (as provided by Engeström (2001), however the objects (labelled Object 1 and Object 2 for both activity systems) need not be identical for the two activities, although in some cases they are. The model also takes into account that several subjects can have common interests (Object 3).

3.5 AT Principles

Engeström (1999) suggests that activity theory may be summarized with the help of five principles that represent the underlying structure and dynamics of activity. These five principles can be summarised as i) the activity system as a unit of analysis; ii) multi-voicedness and different perspectives; iii) historicity; iv) contradictions as a source of change and v) expansive transformation (Engeström and Sannino, 2010).

The first principle – the activity system – is the unit of analysis, which is object-orientated, structured with the six elements, as illustrated in Figure 3.3, that influence an activity. In the case of this study there are three units of analysis on digital inclusion initiatives within the context of UK rural communities – one at national-level, one at intermediary-level and one at individual-level which are brought together

The second principle of activity theory is multi-voicedness: the activity, for example, involves a collective of interacting individuals, communities, and organisations who express different interests and perspectives; therefore, in the case of this study it will be the perspectives of national, intermediary and individual-level digital inclusion initiative stakeholders.

The third principle emphasizes the historicity of activity: the activity system develops over time and understanding its current form requires knowledge about its past, for example the historical development of UK digital inclusion policy and practice.

The fourth principle focuses on the notion of contradictions within an activity. A key tenet of Engeström's framework is that activity systems are constantly developing. The development is understood in a dialectical sense as a process driven by contradictions. As contradictions arise, they expose the dynamics, inefficiencies and, importantly, opportunities for change within an activity (Helle, 2000; Allen et al., 2011), where changes in one component lead to the whole system to transform (Ditsa & Davis, 2000). Subjects initiate changes in order to resolve occurring contradictions (Engeström, 1999). The literature refers to contradictions as conflicts, (systemic) tensions, or misfits and to their visible manifestations as problems, raptures, or breakdowns and disturbances (Kuttii, 1995). Engeström identifies four types of contradictions in activity systems as illustrated in Figure 5 within the elements of an

activity (e.g., tools, rules, subjects); ii) between elements of an activity (e.g., between a subject and a tool); iii) between a central activity at one point in time and more advanced form of the activity at a later point in time; and iv) between co-existing or neighbouring activities (Engeström, 1999; Karanasios and Allen, 2013). Revealing and analysing contradictions in this study highlights issues in relation to digital inclusion initiatives in policy and practice, deepening our understanding of the process of digital inclusion initiatives and inherent challenges within this process.

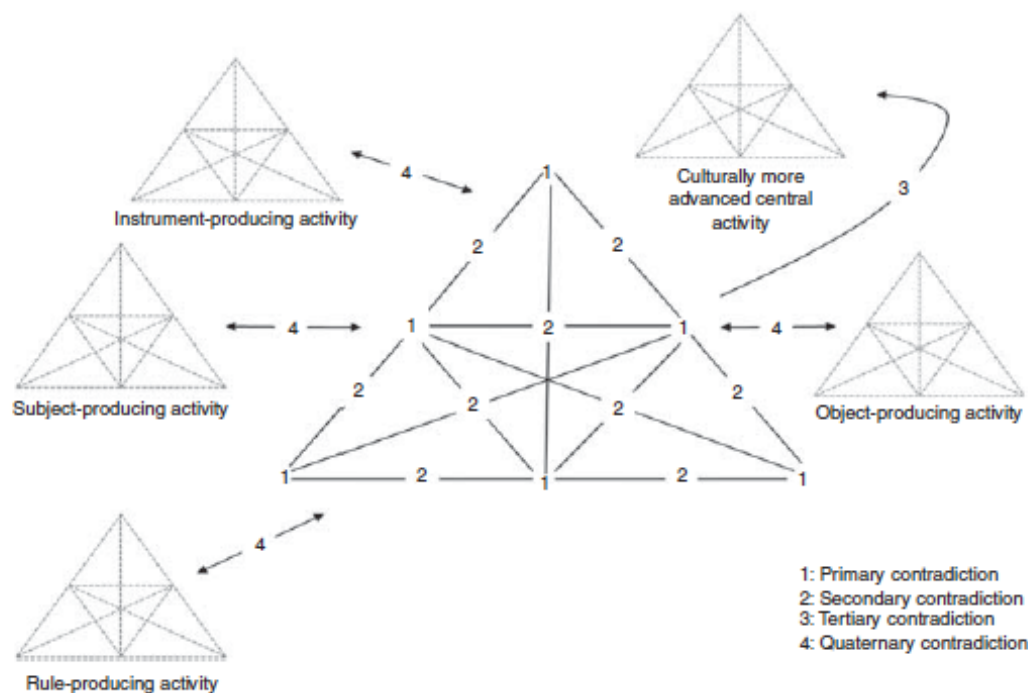


Figure 5 Four levels of contradiction (sourced from Karanasios, 2018)

The fifth principle refers to the possibility of expansive transformations or collective change of the activity as a result of these contradictions, for example, developing a new process or approach. For example, the introduction of a new digital inclusion training tool and the implications for change this has on community engagement with learners. Expansive learning relates to the notions of internalisation and externalisation briefly mentioned in section 3.4, through cycles of development. ‘As the disruptions and contradictions of the activity become more demanding, internalisation increasingly takes the form of critical self-reflection – and externalisation, a search for solutions increases. Externalisation reaches its peak when a new model for the activity is designed and implemented.’ (Engeström, 1999, p.33-34). The different levels of contradiction relate to different stages of the cycle. For example, primary contradictions trigger stages of questioning and secondary

contradictions provoke analysing actions (Foot, 2014). Figure 6 below shows the seven stages of the expansive learning cycle as proposed by Engeström (1999).

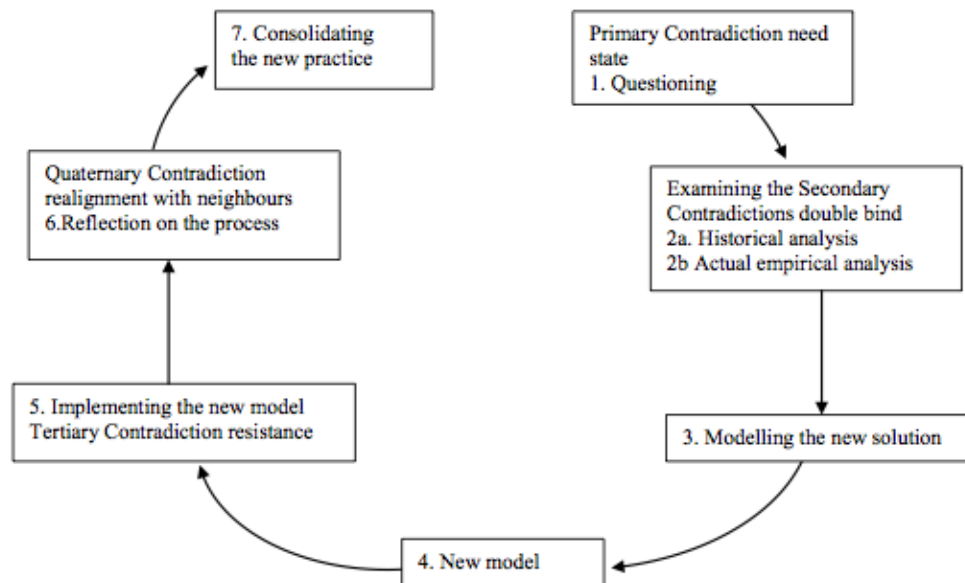


Figure 6 Cycle of expansive learning (Engeström, 1999b)

3.6 Application of Activity Theory

The application of AT has been dominated by research in learning and development in educational, workplace and organisational environments (Engeström et al., 1999; Blackler et al., 2000), and has inspired theoretical reflection in a variety of fields including organisation studies (e.g., Engeström, 2000); management (e.g., Jarzabkowski, 2003); culture (e.g., Ash, 2014); education (e.g., Roth and Lee, 2007); Information and Communications Technologies for Development (ICT4D) (e.g., Karanasios, S. and Allen, D. (2013); Human Computer Interaction and system design (e.g., Kaptelinin and Nardi, 2009) and information systems (Karanasios and Allen, 2013, 2018; Clemmensen, Kaptelinin, and Nardi, 2006; Karanasios, 2014).

Used as an analytical tool to study, analyse, describe and understand human activity and the use of technology in various contexts, AT has been used as a ‘framework for analysing interactions between professionals and their clients that includes not only the interpersonal/communicative aspects of those relationships, but also the cultural, historical, political and economic dimensions’ (Foot, 2014, p.3). For example, AT has been used in illuminating the interactions between doctors and patients; social workers and their clients; teachers and their students; healthcare and social service provider organisations (Foot, 2014). Indeed, AT scholars emphasise AT’s potential utility for

analysing evolving and complex practices due to its multi-dimensional, systemic approach (Kaptelinin and Nardi, 2006; Foot, 2013, 2014; Yliruka and Karvinen-Niinikoski, 2013).

Engeström (2001), specifically highlights how third-generation AT is suitable to study inter-organization where activity systems of two or more agencies are interacting (as illustrated in Figure 3.4). Engeström's (2001) study exploring the relationships and contradictions between a health centre, a children's hospital and a patient's family in Helsinki demonstrates this concept. More recent examples of where third-generation AT has been used to investigate multi-agency work include work by Daniels et al. (2010); Mishra et al. (2011); and Allen et al. (2014). For example, Mishra et al. investigated the relationships and contradictions between a fire, police and ambulance service in the UK. However, the application of AT in the field of digital inclusion appears relatively scarce. Notable exceptions as mentioned earlier include qualitative studies by Mervyn et al. (2012, 2014, 2017) and Aires (2014), which used AT predominantly as a lens to problematise and study the inter-organization of digital inclusion initiative provision.

Aires (2014) utilised AT in a longitudinal study to explore the opinions of parents and teachers on the Magellan (Magalhães) digital inclusion initiative in Portugal, to investigate common understandings and contradictions in the dissemination of digital technologies and digital inclusion in families and schools in rural communities. In her study, Aires highlights the usefulness of AT as it provides a flexible framework in which to study different aspects of educational technology, and the notion of contradictions is used to explicate tensions in using technology in home and school environments. Contradictions revealed in the study include a mismatch of expectations and pedagogical practices between teachers and parents where teachers had a low level of involvement in the use of the laptops for learning in their classes in school, compared to parents' intensive involvement in the home, who explored the laptop with their children through play and developing technical skills. Furthermore, despite the termination of the digital inclusion initiative and out-of-date laptops, in the face of worsening inequality of digital access, measures that aid the domestication of computer technology in economically and educationally deprived households can contribute to digital and social inclusion.

Mervyn et al. (2012, 2014, 2017) used AT to provide a theoretical and analytical framework as part of their research looking at two contrasting digital inclusion initiatives, delivered by two UK local government agencies which provided access to local online support and services. The study applied the basic principles of AT (discussed above in section 3.5) by drawing upon Wilson's Activity Process model (2006) to describe the work activities of those impacted by the initiatives - council workers and third sector workers - involved in the implementation and delivery of the initiatives and social support; and the socially excluded people themselves involved in claiming welfare benefits online. The first initiative advocated a 'laissez-faire' approach, with non-state involvement that focussed primarily on achieving the provision of physical access to the Internet and online services. Whereas the second initiative took a more 'interventionist' and centrally planned approach to service provision with the use of intermediaries. Findings revealed that the 'information needs of socially excluded individuals are much more complex than technology developers and government presuppose' (Mervyn et al., 2014, p.1100) and in some cases the technology itself presented a barrier. It was also found that without human intermediaries, a layer of complexity is added to the process of accessing and exploiting public sector information and services.

In both instances, these studies specifically draw on the AT principles of multi-voicedness and contradictions and highlight how AT enables a multi-faceted analysis of the multi-agency stakeholders involved in the implementation, delivery and social support of digital inclusion initiatives. For example, using the elements of AT, Mervyn et al. (2014) identified the motivation and goals of each initiative, the higher level objective, the tools, the rules and norms, the division of labour, the community of stakeholders, the expected outcomes, the evaluative criteria to assess project success and the areas of tension and contradiction. Furthermore, these studies show, how AT is not merely a methodology, it is a theoretical framework valuable in the analysis of human practices on the multiple dimensions of individual activities and social interaction (Kuutti, 1996). Most importantly, these studies demonstrate that AT provides a valuable theoretical lens in which to study digital inclusion initiatives and thus a suitable framework for this PhD study.

3.7 Applying AT to this study

In this study, the researcher draws upon the work of Engeström, utilising the third-generation of AT (see Figure 4) and is framed through the guidance of the underlying principles of AT as outlined in section 3.5, as a theoretical and analytical framework. The study relies on AT as a framework in general and specifically the principles of contradictions and multi-voicedness to bring meaning and sense to the complexities of digital inclusion initiatives and digital inclusion support. A specific focus on contradictions provides an opportunity to understand how digital inclusion initiatives perform, innovate and change during implementation and delivery, but also in how delivery is experienced and received through support. A specific focus on multi-voicedness enables the examination of digital inclusion initiatives through multiple perspectives, in the case of this study, through the perspectives of digital inclusion stakeholders involved in the implementation and delivery of digital inclusion initiatives (national and intermediary-level stakeholders), and through the perspectives of those who have received digital inclusion support (individual-level) as explained in chapter 4. It should be noted that while this study refers to the multi-level nature of digital inclusion initiative provision, it does not explicitly draw on the hierarchical, (multi-level) structure of activity namely, activity, action and operation (Kaptelinin and Nardi, 2009).

The study draws on activity systems with the intention of revealing an understanding of the complexity of digital inclusion initiative provision by exploring the interplay of the elements within a single activity system at national-level, intermediary-level, and individual-level digital inclusion stakeholders, and then by bringing these three activity systems together as shown in the findings in chapter 5, section 5.5.

Yamagata-Lynch (2010) advocates the benefits of using AT as an analytical tool, or more specifically incorporating AT systems analysis in qualitative research by offering researchers the opportunity to make sense of complex real-world data sets through a) working with a manageable unit of analysis, b) finding systemic implications, c) understanding systemic contradictions and tensions, and d) communicating findings from the analyses.

Engeström's five principles are particularly useful for this study as they can be used to conceptualise the research findings by providing a framework of the activity under

investigation and reveal the underlying structure and dynamics that shape the activity. This in turn will reveal how the activity under investigation functions, provide insights into the complexity of digital inclusion initiatives from a national, intermediary and individual-level perspective, and offer answers to the research questions posed. The concept of contradictions, as mentioned in section 3.5, is particularly useful for this study as the identification and analysis of these contradictions helps to understand the dynamic interaction between technology and humans which in turn can be used to inform and improve digital inclusion policy and practice. Ultimately identifying contradictions in and across the activity systems are integral to answering this study's research questions and highlighting opportunities for change and development.

3.8 Chapter summary

The following chapter will discuss the research design of this study, the philosophical beliefs informing the choice of research methods, and their appropriateness to this study. This is followed by a discussion on the approach to data analysis for this study including the employment of Thematic Analysis (Braun and Clarke 2006) supported by the use of AT as an analytical framework.

Chapter 4: Methodology and Research Design

4.1 Introduction

The focus of this chapter will be to discuss the research design of the study, the philosophical beliefs informing the choice of research methods, and their appropriateness to this study. It begins with a discussion of critical realism as the underpinning philosophy for this study, followed by an overview of the research strategy and design including methods of collecting data and ethical considerations. This is followed by a discussion on data analysis including the employment of Thematic Analysis supported by the use of Activity Theory (AT) as an analytical framework. At this point the researcher would like to highlight that whilst digital inclusion as a topic is interdisciplinary, as identified from the literature review, this chapter will draw on literature predominantly from information systems and management to support the points being made.

4.2 Research Philosophy

When considering choice of methodology and research design, it is important to reflect on our own philosophical assumptions of the worldview or research paradigm. Selection of a philosophy for research is a strategic choice that leads the researcher to generate, analyse, and evaluate data by applying appropriate methods (Orlikowski and Baroudi, 1991; Maxwell, 2008; Creswell, 2009). Guba and Lincoln (1994) define a paradigm as a basic set of beliefs or worldview that guides research action or an investigation. As stated by Kivunja and Kuyini (2017) 'a paradigm constitutes the abstract beliefs and principles that shape how a researcher sees the world and how s/he interprets and acts within that world' (p.26), thus researchers who share a paradigm share a particular set of rules and standards for practice. According to Denzin and Lincoln (2011) a philosophical paradigm encompasses four elements namely: axiology; epistemology; ontology and methodology. Axiology refers to values and the ethical issues that need to be considered when planning a research study; epistemology concerns how the researcher knows the world or more specifically 'how we know what we know' (Crotty, 1998, p. 8). Bryman argues that when considering an approach to research, epistemological issues are central to the framing of the research questions and the choice of methodology; they ask 'what is appropriate knowledge about the world?' (2008, p.4). Blaikie (1993) describes ontology as 'claims or

assumptions that a particular approach to social enquiry makes about the nature of social reality', (p.6). Even more broadly, Silverman (2006), states it is 'what reality is like and the basic elements it contains' (p.13). Methodology concerns the means of gaining knowledge about the world and the actual techniques used to collect and analyse data. Having an understanding of these four elements ultimately helps a researcher reflect on their philosophical orientation as they 'comprise the basic assumptions, beliefs, norms and values that each paradigm holds' (Kivunja and Kuyini (2017, p.27).

Various philosophies, including positivism, post-positivism, constructivism, interpretivism, critical realism, and pragmatism can be applied for academic research (Myers, 2009). Dominant research orientations that have been regularly adopted to investigate social contexts and situations are Positivist and Interpretive (Orlikowski and Baroudi, 1991; Myers, 2009; Guba and Lincoln, 1994; Neuman, 2005). Indeed, the dominance of positivism and interpretivism, specifically in information systems research, is acknowledged by scholars (Wynn and Williams, 2012; Allen et al. 2013.)

Positivism is often associated with techniques that employ the scientific method of studying human action (Schwandt, 2007). In a positivist view of the world, science is regarded as the only way to uncover truth in order to predict and control phenomena and phenomena can always be observed and tested. The key beliefs that are commonly associated with positivism include causation, and deductive reasoning (Brewer, 2003). Indeed, researchers adopting this philosophy often work with quantitative data and hence hypothesis testing is typically part of the research. Thus, positivism primarily involves research with numerical data, which are used to measure and explain social phenomena statistically (Bryman, 2004). In terms of the four assumptions of a paradigm, for the positivist paradigm, Kivunja and Kuyini (2017) state that 'its epistemology is said to be *objectivist*, its ontology *naïve realism*, its methodology *experimental*, and its axiology *beneficence*' (p.31). The nature of the aim and objectives of this study are not focussing on the measurable nor is it seeking to verify hypotheses. Indeed, positivism focuses only on what can be observed and cannot account for how people understand the actions of themselves and others, or how social reality is constructed. As such a positivist research philosophy was found to be inappropriate and therefore rejected for this study.

In comparison, interpretivism is a research philosophy that is usually associated with qualitative approaches and natural setting, that assumes a subjectivist epistemology, a relativist ontology, a naturalist methodology, and a balanced axiology (Kivunja and Kuyini (2017). The central endeavour of the Interpretivist paradigm is to understand the subjective world of human experience (Guba & Lincoln, 1989) and 'to get into the head of the subjects being studied to understand and interpret what the subject is thinking or the meaning s/he is making of the context' (Kivunja and Kuyini, 2017, p.33). Hence, the key tenet of the interpretivist paradigm is that reality is socially constructed (Bogdan & Biklen, 1998). In this paradigm, theory does not precede research but follows it so that it is grounded on the data generated by the research act, thus data are gathered and analysed in a manner consistent with grounded theory (Strauss & Corbin, 1990). While this study takes account of individual understanding and experience; if it adopted a purely subjectivist approach, many aspects of context that act as influential factors would be missed or downplayed. As a result, interpretivism was also rejected for this study.

Many scholars criticise the dominance of positivist and interpretivist approaches and see the application of such paradigms in the field of social sciences as problematic (Orlikowski and Baroudi, 1991). One example is Bhaskar (1998) who argues against positivism by suggesting that 'science is not merely a matter of recording constant conjunctions of observable events but is instead concerned with objects, entities and structures that exist (even if they are not observable) and generate or cause observable events' (p. 23). The interpretive research philosophy has also been subject to criticism. One such criticism is that research from this perspective does not expose or place emphasis on the unintended consequences of action, which by definition cannot be made clear by simply explaining the intentions of the humans concerned. In addition, the interpretivists' low priority to discovering any historical explanation of how participants come to be in a particular situation may also be seen to be an inherent weakness of interpretivism.

These criticisms of interpretivist and positivist approaches have led scholars to search for a '*third way*' (Allen et al. 2013, p. 835) beyond both positivism and interpretivism and call for more critical paradigms. One such approach put forward and favoured by

the researcher of this study is Critical Realism (Bhaskar, 1975; Mingers, 2004; Sayer, 2000).

When commencing the research into understanding the provision of digital inclusion initiatives in UK rural communities, the researcher continuously asked herself what is *really* going on here? And what is the *real* issue? Indeed, the researcher believes that a reality exists independent of human thinking which includes not only observable phenomena but also abstract or hypothetical entities. As such, this train of thought steered the researcher towards a critical realist world view. Furthermore, the nature of the aim and objectives of the study is not only to investigate, understand and document, but is also to provide a critical analysis and question the current thinking and socially constructed assumptions related to digital inclusion initiatives. Thus, the critical realist philosophy was deemed appropriate for this study. The central tenets of critical realism and how they relate to this study are discussed below:

4.3 Critical Realism

Advocates of critical realism believe the world is structured, stratified, differentiated and changing (Wynn and Williams, 2020). Critical realism is an approach that allows for an understanding that the world exists independently of our thinking about it (Zachariadis, Scott and Barrett, 2010), yet it is subject to our own subjective interpretation. It also recognises that this interpretation may be fallible, so it is not possible to perceive the real world in its true form (Robson, 2002). Therefore, this perspective is critical of our ability to know reality with certainty.

Critical realism offers opportunities to investigate complex organizational phenomena in a holistic manner, such as this study. As explained by Wynn and Williams (2012) 'critical realism is positioned as an alternative to the positivist and interpretivist paradigms, and leverages elements of both to provide new approaches to developing knowledge' (p.787). Danermark et al. (2002) highlight that the main characteristic of critical realism is that it involves a shift in focus from the epistemology to the ontology and within the ontology a move from events to mechanisms. Critical realism therefore pays attention not only to observable events in the world, but seeks to understand the deeper structures, mechanisms and processes that generated those events (Wynn and Williams, 2012; Bhaskar, 1975; Mingers, 2004; Sayer, 2000). Thus, if one is to

understand the ‘real issue’ there must be a focus on mechanisms and not solely on empirically observable events (Danermark et al., 2002, p.5). As highlighted by Robson (2002) critical realism is critical in that it does not accept at face value the accounts of social actors, but criticises the practices and understandings within which it studies. Furthermore Mingers et al. (2013) suggest critical realism has the ability to offer ‘exciting prospects in shifting attention toward the real problems that we face and their underlying causes, and away from a focus on data and methods of analysis’ (p. 795). A summary of the key assumptions within the realm of critical realism are tabulated below in Table 6.

Table 4.1 Key assumptions within the realm of critical realism

Ontological assumptions	Epistemological assumptions
Independent and objective reality Stratified reality Emergence Society as open systems	Mediated knowledge Objective is to explain and not predict Gain knowledge of unobservable mechanisms Knowledge is fallible and there are multiple possible explanations

Table 6 Key assumptions within the realm of critical realism

Critical realism therefore supports this study in a number of ways. Firstly, as identified from the literature review, digital inclusion as a research topic is interdisciplinary in nature which suffers from a fragmented research landscape. Danermark (2002), Bhaskar and Danermark (2006) and, Price (2014) highlight the importance of approaching interdisciplinarity in a philosophical way, claiming that critical realism is a fruitful way to cope with the philosophical challenges evident in interdisciplinary research to address the complexity of real world issues. Indeed, recent work by Danermark (2019) on applied interdisciplinary research emphasises how critical realism has the ability to sustain and strengthen interdisciplinary research. Furthermore, examples in the literature of research on digital inclusion exist where critical realism has been applied as an underpinning research philosophy (Clarida et al., 2016), including examples in information systems research (Allen et al, 2013; Sylvester et al., 2017).

Secondly, as highlighted in the previous chapter this project is utilising AT as an analytical framework. Part of the decision to use this approach involved the researcher considering how critical realism works with AT. Simeonova (2017), Allen et al., (2013) and Wheelahan (2007) all assert how critical realism can be blended with AT and how

it allows ontological depth. Simeonova (2017) specifically highlights how critical realism contributes to AT by helping to ‘explore the deeper levels of structures, mechanisms, and relationships that enhance or obstruct the events/outcome’ (p.7). Furthermore, the idea of the fallibility of human nature in critical realism fits well with Engeström’s (1999) notions of contradictions within an activity system as described in chapter 3, section 3.5. As Bhaskar highlights, if false understandings, and actions based on them, can be identified, this provides an impetus for change (Bhaskar, 1986). An outline of how AT was utilised as part of the data analysis of this research is provided in section 4.9. How critical realism supports the research design of this study is incorporated into the discussion below.

4.4 Research design and strategy

Research design and strategies are frameworks for the collection and analysis of data (Bryman 2004, p.26). This study was developed utilising a qualitative exploratory case study strategy which sought to gather data from multiple stakeholders at national, intermediary and individual levels involved in UK digital inclusion initiatives. Details of the research design are elaborated on in the following sections.

4.4.1 Qualitative research

Critical realism looks beyond the classical debate of qualitative versus quantitative approaches to research, instead referring to intensive and extensive approaches. For example, Danermark et al. (2002) highlight that ‘the research process involves an intensive and extensive element’ (p.167), intensive in that the ‘empirical procedure contains substantial elements of data collecting and analyses of a qualitative kind’ (p.163), and extensive in that the ‘procedure has to do with quantitative data collecting and statistical analysis’ (p.163). Although critical realism supports pluralism, scholars have identified that critical realists tend to have humanist leanings, thus favouring ‘intensive’ methods over ‘extensive’ methods (Sayer, 2000). Indeed, as stated by Zachariadis, Scott and Barrett, (2010), ‘based on the stratified ontology of critical realism, qualitative methods are justified as being important in order to dig into the ‘real’ and uncover the mechanisms and structures that cause the events we actually observe and experience into the ‘empirical’ domain’ (n.p.).

More broadly a qualitative approach was considered suitable for this study due to the need to look for ‘a complex, detailed understanding’ of the issue under scrutiny (Creswell, 2009, p.40). By its very nature, qualitative research methods provide researchers with relatively richer, more flexible, context-orientated data to gain a better understanding of the real world (Mason, 2002) and seeks to understand what people believe, how they feel, and how they interpret events (Gorman and Clayton, 2005). More specifically, due to the multi-faceted nature of digital inclusion initiatives (Tsatsou, 2011, Bach et al., 2013), a qualitative approach was deemed suitable for this study as it adopts openness in the research approach, aiming less at testing existing or hypothesised knowledge and more at discovering new aspects of the topic under study (Flick 2015, 11). Furthermore, AT (utilised in this study) can be used as a supplementary tool in qualitative approaches (Yamagata-Lynch, 2010), and offers a ‘holistic and contextual method of discovery that can be used to support qualitative research’ (Hashim and Jones, 2007, p.1). Therefore, the decision was made to conduct this study utilising an intensive, qualitative approach.

Common research strategies in qualitative research include case study, ethnography, phenomenology, narrative inquiry and grounded theory (Myers, 2009; Creswell, 2009) which are characterized by specific design assumptions, sampling procedures, data collection, and data analysis protocols as outlined in Table 7.

Approach	Description
Ethnography	An approach in which the researcher studies an intact cultural group in a natural setting over a prolonged period of time.
Grounded Theory	An approach in which the researcher derives a general abstract theory of a process, action or interaction grounded in the view of the participant.
Case Study	An approach in which the researcher explores in depth a program, event, activity, process, phenomena.
Phenomenology	An approach in which the researcher identifies the essence of human experiences about a phenomenon as described by participants.
Narrative inquiry	An approach in which the researcher studies the lives of the individuals and asks one or more individuals to provide stories about their lives.

Table 7 Summary of qualitative inquiry strategies (Creswell, 2009, p.18)

Critical realism does not obligate the researcher to utilise a particular research approach or strategy (Wynn and Williams, 2012; [Javidroozi et al., 2018](#)), as it is a heterogeneous philosophy that ‘clarifies the way to move from action to outcome and assists the researcher in selecting a strategy and method for study based on a research question and its characteristics’ ([Javidroozi et al., 2018](#), .n.d.). Consideration

was given to the qualitative strategies outlined above. For example, a phenomenological approach was considered for this research. Creswell defines phenomenology as ‘a strategy of inquiry in which the researcher identifies the essence of human experiences about a phenomenon as described by participants’ (2009, p.13). Phenomenology focuses on sense experiences as the source of knowledge. The focus on experience rather than the underlying structures and mechanisms differs from the critical realist approach favoured by the researcher. A Grounded Theory approach was excluded as the aim of the study is not to generate theory, but to investigate and explore. Ethnography was also excluded as a research strategy, as it ‘involves direct and sustained contact *with* human beings, in the context of their daily lives, over a prolonged period of time’ (O’Reilly, 2012, p.3). Although aspects of ethnography were drawn upon, such as reflexivity, the most appropriate approach to address the research problem of this study was deemed to be case study as discussed next.

4.4.2 Case study approach

With respect to critical realism, Easton (2010) believes that case study conforms with critical realism philosophy, and is well-suited for investigating complex events in information systems research subjects, such as inter-organisational relationships and flow of information amongst them. Indeed, Wynn and Williams (2012) highlight how several critical realist scholars have identified case study as ‘the best approach to explore the interaction of structure, events, actions and context to identify and explicate casual mechanisms’ (p.795).

More broadly, case study research is consistently described as a versatile form of qualitative inquiry most suitable for a comprehensive, holistic, and in-depth investigation of a complex issue (phenomena, event, process, social situation, organization, programme, individual or group) in context, where the boundary between the context and issue is unclear and contains many variables (Creswell, 2014; Merriam, 2009; Stake, 2006; Denzin and Lincoln, 2011). Case study research can be used to study a range of topics and purposes, however, an essential requisite for employing case study stems from the motivation to illuminate the understanding of complex phenomena (Merriam, 2009; Stake, 2006). Thomas (2010) states that the case study is particularly good for getting a ‘rich picture and gaining analytical insights

from it' and is about 'seeing something in its completeness, looking at it from many angles' (p. 23). Numerous examples of case studies exist within digital inclusion research (Hepburn, 2018; Mariën and Van Audenhove, 2012).

Furthermore, case study methodology is recommended for research that adopts AT because it provides an 'extended, holistic view that allows for the contribution of multiple perspectives (Barab, Evans, and Baek, 2004, p.208). Indeed, Yamagata-Lynch (2010) argued that case-study research was particularly compatible with AT analyses because 'activity systems analysis involves the examination of self-sustained systems that are difficult to remove from the context and when investigators engage in data collection and analysis they need to be able to treat goal-directed actions, object-oriented activities, and activity settings as separate yet highly interrelated bounded systems' (p.79). Moreover, as referred to in section 4.3, using critical realism as the underpinning philosophy with AT provides ontological depth.

The most common definitions of case study come from the work of Stake (1995), Merriam (2009) and Yin (2009, 2014). For example, Yin's (2014) two-part definition focuses on the scope, process, and methodological characteristics of case study research, emphasizing the nature of inquiry as being empirical, and the importance of context to the case. While Stake (1995) takes a more flexible stance concerned with rigor in the processes, maintains a focus on what is studied (the case) rather than how it is studied (the method). Merriam (2009) includes what is studied and the products of the research when defining case study as 'an in-depth description and analysis of a bounded system' (p.40). Like Stake, Merriam emphasises the defining feature of case study research as being the object of the study (the bounded system; i.e. the case) adding that case study research focuses on a particular thing and that the product of an investigation should be descriptive and heuristic in nature.

Case study research has sometimes been criticised for lacking scientific rigour and providing little basis for external validity or generalisation (i.e. producing findings that may be transferable to other settings). In some instances, case study can allow theoretical (as opposed to statistical) generalisation beyond the particular case being studied. It largely depends on the design of the case study that best addresses the aim of the study and the researcher's worldview. Indeed, there are differences in how case study is understood depending on the philosophical position of the researcher

and how case study is advocated by specific authors. For example, case studies citing Yin are largely positivist in approach whereas case studies citing Stake are largely interpretivist in approach. Suggestions on how to design a critical realist case study are less cited in the literature. Examples include suggestions by Wynn and Williams (2012) and Easton (2010). However, there is a tendency of ignoring the philosophical position of case study research, evidenced where studies have drawn on more than one approach, either intentionally or unintentionally, which can be problematic in understanding and interpreting the various approaches of the case study research.

Wynn and Williams (2012) propose a methodological framework revolving around five principles derived from the ontological and epistemological assumptions of critical realism as shown in Table 8.

Explication of events to identify and abstract the events being studied as distinguished from empirical experiences
Explication of structure and context to identify components of the social and physical structure, the contextual environment, and the relationship between them
Retroduction to identify and elaborate upon powers/tendencies of structure that may have interacted to generate the explicated events
Empirical collaboration to ensure that the proposed mechanisms have casual power and that they have better explanatory power than alternatives
Using triangulation and multi methods to employ multiple approaches to support casual analysis based on a variety of data types and sources, analytical methods, investigators, and theories

Table 8 Five principles of critical realist case study. Adapted from Wynn and Williams (2020).

Put more simply, Easton (2010) proposes a six-step process in order to conduct a critical realist case study.

1. The phenomenon to be studied should be complex, dynamic and relatively clearly bounded.
2. The research question should be of the form 'what caused the events associated with the phenomenon to occur'.
3. The objects or entities which characterize the phenomenon should be identified, taking into account necessary as well as contingent relations among them.
4. Data should be collected through several collection techniques, with a particular focus on plausible causal mechanisms.

5. Data should be interpreted through retroductive logic and taking into account double hermeneutic - the knowledge in the scientific community as well as in the phenomenon under study.
6. Alternative explanations should be compared through 'judgemental rationality' (reasoned, provisional and public discussion of alternative judgements about reality).

Drawing on the guidelines offered by Easton (2010) and Wynn and Williams (2012, 2020), this study has developed an exploratory qualitative case study, underpinned by the philosophy of critical realism. Easton (2010) suggests how a critical realist case study approach is suitable for complex phenomena such as 'interorganisational relationships or nets of connected organisations' (p.123). The object of the case study or entity of interest is digital inclusion initiative provision as a multilevel phenomenon. This resonates Easton's suggestion as revealed in the literature review, digital inclusion initiative provision is complex and multifaceted that incorporates cross-sector stakeholder involvement across various levels of operation. Since the aim of this research is not in finding generalisable theoretical constructs by comparing several cases, but rather to understand a unique case through a holistic exploration, a single case setting can be seen as the most appropriate. Indeed, critical realist case studies are not concerned about statistical generalisation to populations, but instead, are meant for hypothesising causal mechanisms that have generated observed outcomes in a case (Tsang, 2013). Details of the steps taken to ensure rigour and quality research are detailed in section 4.6 and 4.7.

The boundaries of the case study are drawn to the current state of digital inclusion initiative provision in the UK, with specific attention given to stakeholders involved in digital inclusion initiative provision operating at a national level; intermediary stakeholders that operate in one of three selected rural regions of the UK with populations at increased risk of multiple deprivation and likely digital exclusion; and individual stakeholders who have received digital inclusion support in one of those three specific rural locations in the UK. Individual-level stakeholders residing in urban areas were excluded from this study, as were corporate actors and stakeholders from Northern Ireland who were not included in the scope of this study, due to time constraints and complexity in accessing such actors. To clarify the case study was

further bounded by its rural context, with a specific focus on three rural regions with populations at increased risk of digital exclusion. One was in the highlands of Scotland, one was in North Wales and one was in North east England, regions targeted with digital inclusion initiative provision at the time of data collection.

As suggested by Easton (2010), research questions (see section 1.4) have been formulated to gain an understanding of ‘what caused the events associated with the phenomenon to occur’ (p.123). This requires addressing ‘how’ and ‘why’ questions, which fit well with the focus of this study. The objects or entities which characterize the phenomenon are digital inclusion initiatives and stakeholders operating at multiple levels to achieve a shared objective of digital inclusion provision. A multilevel framework of stakeholders is outlined in section 4.4.4. Different sources of data collection are proposed to meet the complexity of the case and to build a comprehensive case study. Data collection is through semi-structured interviews and focus groups, observations and document analysis as outlined in section 4.8. Using this range of data collection methods enabled ‘triangulation’ of the data sources in order to enhance the reliability and validity of the research (Lincoln and Guba, 1985; Bryman, 2012). Interview questions were informed from the findings of the literature review, mapped against AT elements and principles, and framed to get an understanding of digital inclusion initiative provision within the UK and UK rural communities.

Data collection and analysis of interviews, focus groups, policy documents and observations are theory driven guided by AT and supported by Thematic Analysis (Braun and Clarke, 2006) to allow the data to ‘speak’. This was an iterative process where retroductive/abductive reasoning embedded within critical realism was considered. This was achieved through the lens of AT which played an important role in integrating different sources of data and examining emerging themes. More specifically through the use of AT the findings are described through the interacting elements of three separate activity systems, where primary and secondary contradictions are revealed. The analysis then takes a further step by bringing the three activity systems together to form a multilevel analysis to illustrate how linkages and mechanisms emerge at one level and activate or interact with mechanisms at other levels, revealing contradictions and tensions within the phenomenon of interest.

See section 4.9 outlining the data analysis process and chapter 5 for a thorough account of the findings and analysis of the study. Analysis of the findings are further scrutinised where alternative explanations are compared through ‘judgemental rationality’ as discussed in chapter 6.

4.4.3 Case study context and scope

This qualitative case study was undertaken at a point in time when the UK’s government’s digital strategy (Cabinet Office 2013; DCMS, 2017), specifically the UK government’s digital inclusion policy (Cabinet Office, 2014; DCMS, 2017) and digital-by-default agenda had received significant bolstering. These digital inclusion policies set out how government and partners from the public, private and voluntary sectors should come together to increase digital inclusion, and develop ideas for national initiatives, to help people become capable of using and benefiting from the internet (Cabinet Office, 2013). Importantly, although digital inclusion is part of the UK’s government’s digital strategy, digital inclusion is a devolved issue, and as such each nation of the UK has its own digital inclusion policy, resulting in an escalation of national, regional and local digital inclusion initiatives.

With a surge of digital inclusion initiative activity across the UK, against a backdrop of services being moved online, this study took the opportunity to investigate the provision of digital inclusion initiatives as a multilevel phenomenon, with a specific focus on UK rural communities at risk of digital exclusion. Drawing on existing quantitative data (Lloyds Bank Digital Index, 2017; Ofcom, 2017; Tech Partnership, 2017), the three rural locations selected for this study were chosen in relation to their rurality, isolation, level of multiple deprivation, and risk of likely digital exclusion, specifically LXXXXXXX in North West England, SXXXX in the Highlands of Scotland, and GXXXX in North Wales. It should be stipulated the study based its definition of ‘rural’ as any settlement with a resident population of less than 10,000 (DEFRA, 2017). The three rural locations were also selected on the basis of their level of digital inclusion initiative activities (past and present). For example, the locations in England and in Scotland were both changed in the initial stages of the study to locations that were more fruitful for providing examples of digital inclusion initiatives and recruiting research participants. The researcher acknowledges a limitation of this project is the exclusion of Northern Ireland.

This study was not about comparing digital inclusion initiative provision between three rural regions in England, Scotland and Wales. Indeed, it should be emphasised that inclusion of all digital inclusion initiatives affecting rural communities in the UK was beyond the scope of this study. Nor was this study about comparing digital inclusion initiative provision in urban areas with rural areas. This study was more about investigating the provision of digital inclusion initiatives as a multilevel phenomenon to provide a picture (although not comprehensive) of digital inclusion initiative provision that is currently happening within the context of UK rural communities. This in turn provided the researcher with the opportunity to analyse this situation of enquiry and gain a deeper understanding of the complexities of implementing digital inclusion solutions, particularly in UK rural communities.

Such a qualitative examination is vital to inform the current digital inclusion initiative evidence base which is largely focused on outcomes rather than on the spectrum of people and processes that can shape and influence digital inclusion policy and practice. Understanding and addressing these factors is particularly pressing, as digital policy and digitalisation agendas push ahead while sub-groups of society struggle with digital (Hepburn, 2018; Townsend et al., 2013).

4.4.4 Multilevel framework

The research design and strategy for this study is further expanded with a multilevel framework, developed as a conceptual guide that could be applied to provide a more comprehensive picture of the mechanisms, structures and stakeholder involvement in digital inclusion initiative provision in UK rural communities. From the literature review, in Chapter 2, it was ascertained that digital inclusion initiatives are multifaceted in that they are affected by socio-cultural factors such as policy, environment, and structure. Furthermore digital inclusion initiatives are carried out through a plethora of organisations and institutions that operate at multitude of levels, from national governments and organisations that operate at **national-level**, through to regional, local and hyper-local community organisations and actors that operate as intermediaries at **intermediary-level** that engage, implement and deliver digital inclusion initiatives for those that require digital inclusion support at **individual-level**. It can therefore be ascertained that digital inclusion initiatives are multileveled in nature. Therefore considering the aim of this research to investigate digital inclusion

initiative provision in the context of UK rural communities, a multilevel research approach is required from **national**, **intermediary** and **individual** levels, to understand the provision of UK digital inclusion initiatives, and how digital inclusion initiatives are driven, approached, implemented, delivered and received.

This resulted in the researcher developing a multilevel framework as a conceptual guide that could be applied to explore the provision of digital inclusion initiatives in UK rural communities across three levels of stakeholders - **national**, **intermediary**, and **individual** as illustrated in Figure 7

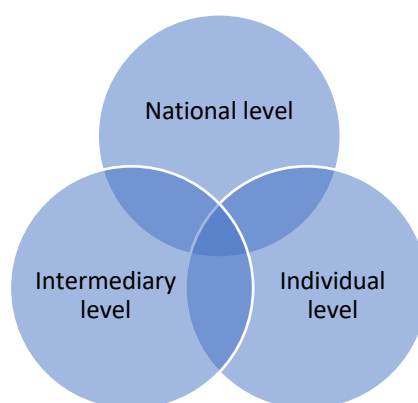


Figure 7 Multilevel framework for case study design

Therefore, to understand the 'real issues' and 'processes' as advocated by critical realists (Danermark et al., 2002), related to the phenomenon of digital inclusion initiatives in UK rural communities, the perspectives of stakeholders at multiple levels were sought to qualitatively explore the provision of digital inclusion initiatives, specifically the experiences of those implementing, and delivering digital inclusion initiatives and those in receipt of digital inclusion initiative support. Broadly, **national** stakeholders included those operating at national level in consultancy; government departments, and head offices of government funded bodies and national third sector organisations, who provided insights of the UK, English, Scottish and Welsh digital inclusion landscape and how digital inclusion initiatives are approached, implemented and delivered in rural communities from a national perspective. **Intermediary** stakeholders included those operating at intermediary level in three rural regions at increased risk of multiple deprivation and likely digital exclusion, specifically LXXXXXXX in North West England, SXXXX in the Highlands of Scotland, and GXXXXX in North Wales, who provided perspectives of how digital inclusion initiatives

are approached, implemented and delivered on the ground in rural communities within their specific locality. **Individual** stakeholders included those from the above-mentioned UK regions who have received digital inclusion training and support for life and workplace activities as illustrated in Table 9.

National	National digital inclusion stakeholders including those working in consultancy; government departments, and head offices of government funded bodies and national third sector organisations who have insights across the UK digital inclusion landscape from a national perspective.
Intermediary	Intermediary digital inclusion stakeholders from three selected rural regions in the UK included those working in regional organisations such as Local Authorities, housing associations, advice centres, and library services; regional branches of national government bodies and organisations, through to hyper-local organisations and actors, such as learning centres, sports associations, community centres, schools, churches, and digital champions.
Individual	Individual digital inclusion stakeholders from three selected rural regions in the UK, that have received digital inclusion training and support for everyday life and workplace activities

Table 9 Description of multilevel stakeholders in this study

Employing a multilevel framework (Kim and Love, 2014, Molina-Azorin et al., 2019) enabled the researcher to investigate the provision of UK digital inclusion initiatives from a national perspective across England, Scotland and Wales, and from an intermediary and individual perspective from three rural regions across those nations. More specifically, investigating UK digital inclusion initiatives through a multilevel lens enabled the researcher to gain a unique picture and snapshot in time of the current digital inclusion landscape in UK rural communities that brings together insight from digital inclusion policy, practice and recipients of digital inclusion training and support.

Therefore, utilising an exploratory qualitative case study design revealed the inherent issues and challenges involved in the provision of UK digital inclusion initiatives for UK rural communities, against a backdrop of progressive UK government digital policy. Indeed, this is the first known study that integrates the perspectives of **national**, **intermediary** and **individual**-level digital inclusion stakeholders from regions across the UK in this way and certainly the first that has done so using AT.

The researcher wishes to emphasise this case study was not designed to make comparisons of digital inclusion initiative provision between the three rural regions in England, Scotland and Wales selected. Equally nor did the researcher wish to focus the research on one particular initiative in one UK nation, as it was felt this would lose the depth of research required to get an understanding of the 'real' issues found within the implementation and delivery of digital inclusion initiative provision and the experiences of those receiving digital inclusion support, against a backdrop of UK government digital inclusion policy. Section 4.8 provides a detailed summary of the data collected at each level.

To implement this multilevel framework within the case study, a method was needed that can transcend a single level of analysis. As described in chapter 3, AT was deemed an appropriate method in which to analyse digital inclusion initiative provision as it offers a visual model that enables a holistic analysis of the context, and the multilevel phenomena influencing the activity process. Each level was analysed as an individual activity system and then brought together through third-generation AT to gain a multilevel perspective. See chapter 5 for the research findings.

4.5 Data Collection Methods

Considering the aims and objectives of the study, the researcher considered data collection commonly associated with qualitative research including interviews, focus groups, observations, document review, and questionnaires.

A questionnaire to investigate digital inclusion initiatives in UK rural communities was briefly considered, however this method was ultimately dismissed due to potential problems with participation levels (Bryman, 2012), the constrained nature of questionnaire responses, and lack of necessary rich in-depth data necessary to fulfil the research objectives. After careful consideration interviews, focus groups, observations and document review were deemed suitable for data collection for the study as outlined below.

4.5.1 Interviews

Interviews provide information about the participants' natural setting in their own words. There are three fundamental types of research interviews, structured, semi-structured, or open ended, that can be facilitated in individual or group formats

(Robson, 2011; King and Horrocks, 2010; Legard, 2003). Each vary in structure and conduct as outlined below:

- **Structured interviews** are characterised by predetermined questions and fixed wording delivered in a pre-set order with little scope for follow-up questions for added detail or depth (Robson, 2011).
- **Semi-structured interviews** have an interview guide or schedule of topics which have several key questions which help to define the areas to be explored, but also allow the researcher the flexibility to pursue an idea in a response in more detail (King and Horrocks, 2010).
- **Unstructured (open) interviews** – sometimes referred to as in-depth interviews, described by Legard et al. (2003) as ‘a conversation with a purpose’ (p.138). Such interviews lack predetermined questions where the interviewer instead has general areas of interest which serve as starting points for the conversation.

From an AT perspective, interviews help identify information about the subject, existing or lacking tools, and the subjects’ perspectives of the object. Participants may also share information regarding documents and artefacts that relate to existing rules and division of labour, and information about the communities in which their activities are situated (Yamagata-Lynch, 2010).

In this study, semi-structured interviews were conducted with digital inclusion stakeholders at national, intermediary and individual-level. In line with a critical realist approach, semi-structured interviews allow participants to describe their experiences, feelings and opinions openly in their own words and encourage rich descriptions (Kvale, 2008). Further details of the interviews conducted in the study are discussed in section 4.8.1 and 4.8.2.

4.5.2 Focus groups

Focus groups offer access to a wider range of voices in a similar timeframe of a one-to-one interview. Focus groups allow participants the opportunity to debate issues and express their opinions, ‘illuminating differences in perspective between groups of individuals’ (Rabiee, 2004, p.656). From an AT perspective, focus groups are useful for eliciting the multiple voices and dialogue within an activity system (Engeström,

2001). The use of focus groups in this study was deemed useful as they would support data collected through one-to-one interviews and observations, whilst at the same time providing the opportunity for group discussion on the interview questions. In this study two focus groups were conducted, one with intermediary-level digital inclusion stakeholders involved in the delivery of digital inclusion training and support within digital inclusion initiatives, the was with individual-level digital inclusion stakeholders who had received digital inclusion support. These are further discussed in section 4.8.1 and 4.8.2.

4.5.3 Observations

Observation is a commonly used technique in an ethnographic approach, although it is also appropriate to other approaches, such as phenomenological studies, and case studies. Silverman (2006, p.67) explains that observation is a method of gathering data that involves looking, listening and recording. From an AT perspective, observations should be conducted of situations in which participants are engaging in goal-directed actions and object-orientated activities relevant to the study (Yamagata-Lynch, 2010). Considering the stated aim and objectives of this study, observations were deemed useful in revealing rich data in relation to the delivery of digital inclusion training and support and the experiences of those involved. In this study, observations were overt, and the researcher predominantly took the stance of a 'non-participant observer'. This meant participants were aware that the digital inclusion session was being observed by the researcher who was visible to the participants. Emphasis was therefore placed on collecting data rather than participating in the activity being observed to limit the impact of the researcher on the training session. However, there were instances when the researcher took the stance of 'observer as participant' where the researcher engaged in participant activities to fit in with the tutor/trainer preferences delivering the session. Details of observations conducted are in section 4.8.3.

4.5.4 Document review

A review of relevant documents related to a study topic often provides new contextual information that explains and verifies what investigators learn from interviews and observations. Documents typically reviewed can be public records such as policies and mission statements; personal documents such as diaries; and artefacts such as

flyers, posters, training materials etc (Bowen, 2009). From an AT perspective such documents or artefacts help gain an understanding about the rules and division of labour, but also about the community within an activity system. Document review was therefore deemed appropriate for this study, with the view to review government digital inclusion policies, digital inclusion strategies of organisations involved in aspects of digital inclusion, and digital inclusion initiative training materials and resources.

4.6 Ethical considerations

As the research involves human participants, ethical issues were considered in relation to research participants but also that of the researcher. General principles of research ethics are that no harm should come to participants and that the research could potentially benefit the population which is being studied (Shamoo and Resnik, 2009). A Loughborough University ethical clearance checklist was completed prior to the commencement of data collection. However due to the potential inclusion of 16-18-year olds as research participants, further ethical clearance was required due to the potential 'vulnerable position' of individuals below the age of 18. This involved the researcher completing a full ethics application and risk assessment, which was approved in May 2018 by the Ethical Advisory Sub-committee of Loughborough University after one version of amendments, at which point data collection was allowed to commence. Unfortunately, no 16-18-year-olds were recruited as research participants, but doing the full ethical application enabled the researcher to have a deep ethical understanding of the overall study. Indeed, the ethical procedure illuminated to the researcher the need for more discussion on ethics in PhD forums. This resulted in the researcher presenting at two workshops at Loughborough University to talk about considerations for ethics in relation to the research participants but also in relation to the researcher.

Prior to commencing interviews, focus groups and observations with participants, the researcher explained the research aim and objectives, their level of participation, and the type of questions that would be asked (for interviews). Participants were also assured that participation was voluntary and that they had a choice not to participate or stop participating at any point without any negative consequences. Participants were also reassured that their participation was confidential and all conversations during interviews would remain anonymous. The participants Information Sheet (see

Appendix 1) containing all the information about their participation, privacy and confidentiality was given to all participants and for those who had difficulty reading, the researcher read the information sheet to them. For all participants who agreed to participate in the study, the consent form (see Appendix 2) was given for them to sign. All participants were asked for permission to record the interviews using the voice recorder. To ensure confidentiality and anonymity, interview transcripts and observation notes were given unique reference numbers, reference numbers indicating whether the participant was a national, intermediary or individual-level participant. Furthermore, the name of organisations, and the rural regions from which organisations covered were also anonymised.

4.7 Quality of research

The quality of the research design is essential when conducting academic research. Various criteria have been stipulated to ensure good quality, rigorous research namely reliability, validity, and objectivity. However, such criteria has been identified by scholars to be more suitable to quantitative, positivist methods and the challenge is to adapt them for qualitative research designs (Robson, 2002). However, scholars have often used differing terminology for the same type of criteria e.g. Lincoln and Guba, 1985; Miles and Huberman; 1994. Lincoln and Guba (1985) created criteria in qualitative research, known as credibility, dependability, confirmability and transferability. Adopting a critical realist position, Miles and Huberman (1994) recommended five criteria that attempt to address quality in qualitative research including utilisation/application/action orientation. Table 10 summarises the criteria and illustrates how the researcher has considered research quality throughout the study.

Criterion	Definition	Methods employed in this research
Objectivity/ confirmability	Freedom from bias or explicitness about bias	Being explicit in the theoretical assumptions underlying the research Describing the methodology in detail so the process of the research can be followed and is transparent Keeping a 'research diary' and using memos, so an 'audit trail' is created of thoughts and activities
Reliability/ dependability/ auditability	The degree to which the research process is consistent, clear and	Making clear the philosophical stance taken by the researcher

	stable across time and methods	<p>Applying 'triangulation' (multiple sources of data) enhances the reliability of the study</p> <p>Recording respondents' words verbatim</p> <p>Transcribing carefully to provide an accurate rendering of respondents' words</p> <p>Keeping records (as above) of activities</p> <p>Checking, and writing memos about, the codes and their meanings</p>
Internal validity/ credibility/ authenticity	Findings should make sense and be credible	<p>Presenting quotes in the report from respondents</p> <p>Use of credible methods during analysis namely Thematic Analysis and Activity Theory</p> <p>Using appropriate tabulations</p>
External validity/ generalisability/ transferability/ fittingness	The extent to which the results have a larger import, are transferable to other contexts and whether they 'fit'	<p>Provide comprehensive information on the context in which the research is carried out; provide a 'rich' description</p> <p>Careful and thoughtful sampling; being explicit as to method of sampling</p> <p>Being explicit about areas of uncertainty</p> <p>Presenting work for peer review through writing for publication</p>
Utilisation/application/action orientation	The usefulness of the research and who it may benefit	<p>Ethical concerns are clearly addressed</p> <p>Suggestions for further research</p>

Table 10 Criteria to ensure research quality

4.8 Method and data collection in study

This section will give an overview of the methods used to collect data in this study.

Data collection was undertaken between September 2018 to the end of June 2019.

Data collection techniques employed included:

- semi-structured interviews
- focus groups
- observations
- review of relevant documentary sources

Considering the research questions of this study, the first phase of data collection was in the form of semi-structured interviews with national stakeholders that aimed to elicit their views on how digital inclusion initiatives are approached, implemented and

delivered in UK rural communities. The second phase of data collection was in the form of semi-structured interviews, observations and a focus group with intermediary stakeholders to reveal the role digital inclusion intermediaries and actors play in the delivery of digital inclusion support in UK rural communities, specifically in a rural region with populations at increased risk of multiple deprivation and likely digital exclusion. The second phase of data collection also involved observations and a focus group to reveal the experiences of people living in rural communities who have received or are in need of digital inclusion support for everyday life and in the workplace. In line with the epistemology and the ontology described earlier, these interviews are also seen as a way of identifying the underlying mechanisms and structures inherent in the context in which the stakeholders operate, as interpreted, experienced and believed by them. Table 11 illustrates the data collection techniques used at each level of the study.

National	20 semi-structured interviews; document review of national digital inclusion policy.
Intermediary	28 semi-structured interviews, 1 focus group, 10 observations*, document review from digital inclusion training resources/artefacts *See Table 14 for a breakdown of participants observed
Individual	1 focus group and 10 observations* *See Table 14 for a breakdown of participants observed

Table 11 Data collection techniques for study

Focus groups and observations were not possible with national-level stakeholders as individuals were geographically dispersed. Whilst it may have been possible to gather the experts together at a conference or another such event, there was little likelihood of this happening within the timescale that was available for this work. Indeed, the researcher met several of the participants at digital inclusion events prior to data collection which aided participant recruitment and sampling.

The majority of the data collected at individual-level was through observation. Whilst it may have been possible to interview more participants at individual-level, it became apparent to the researcher early on in the data collection process that observing digital inclusion training sessions where individuals were already talking about their experiences of digital as part of their training session, without the interjection of the researcher, was a more fruitful way of gaining insights of the experiences of those in

need of digital inclusion support. The researcher in these situations predominantly took the stance of 'observer' but in some instances 'observer as participant' as discussed in section 4.4.8 where the researcher sporadically engaged in 'participant activities that are peripheral to the participants' object-orientated activities' (Yamagata-Lynch, 2010, p.66).

Using this range of data collection methods (interviews, focus groups, observation and document review), enabled 'triangulation' of the data sources in order to enhance the reliability and validity of the research. Triangulation is a well-discussed strategy for maintaining trustworthiness in qualitative research (Lincoln and Guba, 1985; Yin, 2009; Bryman, 2012). Achieving triangulation also has the ability to mitigate researcher bias, add depth to the data collected and support data saturation (Fusch and Ness, 2015). Indeed, the researcher strived to reach to what is called the 'Saturation Point' where the researcher gets to a point in data collection when no further new information is obtained.

A combination of purposeful and snowball sampling was used, to target, reach out and recruit research participants at national, intermediary and individual-level (Bryman, 2012; Miles et al., 2014). Purposive sampling is the process of the researcher choosing respondents deliberately in relation to the research questions or theoretical considerations (Robson 2011, p.275). This means careful selection of individuals who are likely to be information-rich (Savin-Baden and Major, 2012). Snowball sampling can be regarded as a type of purposive sampling where the researcher identifies a few individuals in the population of interest, and then these individuals identify or recommend further individuals that could be included in the study. Email templates were devised to request interviews and were used and adapted to each individual potential participant at national and intermediary-level. As referred to earlier, intermediary research participants were those specifically involved in delivering digital inclusion training and support in UK rural communities at risk of digital exclusion as outlined in section 4.4.3. Individual-level participants were recruited through purposive sampling, often in the instance where intermediary stakeholders delivering digital inclusion training and support (with whom the researcher had already made contact) had identified them as would approach attendees to seek their permission for the researcher to observe the session. This was often done at the very beginning of the

digital training session. These individuals resided in one of the rural regions where intermediary stakeholders were delivering digital inclusion initiative provision. Throughout the study there were no instances of attendees refusing to be observed, but they did wish to be anonymised. The researcher in all instances adhered to ethical considerations as described in section 4.6 and ensured participants remained anonymous.

4.8.1 Study semi-structured interviews and focus groups

Semi-structured interviews were conducted with digital inclusion stakeholders at national, intermediary, and individual level (individuals living in rural communities who had received digital inclusion support for everyday life and in the workplace).

National-level semi-structured interviews were conducted on a one-to-one basis either face-to-face or by telephone with 20 individuals from national-level organisations across England, Scotland and Wales. Participants included heads of service, policy leads, researchers and academics, from national stakeholders such as government departments, government funded bodies, and third sector organisations, and were selected on their ability and position to share insights and understandings of digital inclusion initiatives within the UK from a national perspective. Participants at national-level were very willing to be interviewed and understood the importance of the research. Most volunteered contact information for individuals at national and intermediary-level who they felt would make a valuable contribution to the data collection, highlighting the usefulness of snowball sampling discussed above.

Intermediary-level semi-structured interviews were conducted face-to-face or by telephone with 28 individuals from intermediary-level organisations from three selected rural regions from England, Scotland and Wales as identified in section 4.4.3. Participants included those working in regional organisations such as local authorities, housing associations, advice centres, and library services; regional branches of national government bodies and organisations, through to hyper-local organisations and actors, such as learning centres, sports associations, community centres, schools, churches, and digital champions. To enhance the data collection at intermediary-level, a focus group was also organised where participants had the opportunity to answer the same questions asked in the semi-structured one-to-one interviews, but with the opportunity of being able to discuss the questions as a group.

Participants at intermediary-level were selected on their ability and position to share insights and understandings of their involvement in delivering digital inclusion training and support at a local level from an intermediary perspective, within the context of specific three rural regions identified in section 4.4.3, and rural locations more broadly where individuals are at risk of digital exclusion. Intermediary-level interviews were conducted between November 2018 and June 2019 where interviews lasted between 30 and 60 minutes. The focus group interview was undertaken in February 2019 with an advice centre team of a rural branch in the highlands of Scotland who kindly gave their time. Aware of the difficulty in timetabling this time in a busy advice centre branch, the researcher completed the focus group interview within the maximum time allowed of 60 minutes.

Individual-level semi-structured interviews were conducted face-to-face via a focus group in the rural region of LXXXXXX in England. The focus group interview was undertaken in May 2019 following an observation of an informal drop-in digital inclusion training session in a church activity space where members of the public could bring along devices and ask for digital inclusion support while having tea and cake and socialising (as described in Table 14). The focus group included 5 participants at individual-level and one participant at intermediary-level. As the focus group followed a two-hour digital inclusion training session, the researcher limited the focus group to 60 minutes, following consultation with the session coordinator. The number of interviews and focus groups with timings at each level are illustrated in Table 12.

	Interviews/focus groups	Mins
National	20 (National)	Approx. 60-90 mins for each interview
Intermediary	28 (Regional) (8 Wales; 10 Scotland, 10 England) Plus 1 focus group with 5 participants in Scotland	Approx. 30-60 mins for each interview 1 hour for focus group
Individual	1 focus group with 6 participants in England	Approx. 1 hour for focus group

Table 12 Number of interviews/focus groups

4.8.2 Interview design (one-to-one and focus groups)

The interviews were semi-structured as this approach allows questions to be asked on particular topics but also gives interviewees flexibility in how they answer and

allows the interviewer to probe areas and follow up issues as necessary. This allows for consistency across the cases, ensuring appropriate information is collected regarding the research questions. However, they are flexible enough to allow the interviewer to probe any areas of particular interest, or to allow the interviewee to take the discussion in a direction most relevant to them. All the interviews began with an introduction by the researcher to themselves and the purpose of the interviews, allowing the researcher to make sure the respondents were still happy to continue with the interview. The shortest interview lasted thirty minutes and the longest an hour and thirty minutes, with the majority lasting about one hour. All interviews were audio recorded, transcribed and anonymised in preparation for data analysis.

The interview questions were informed from the findings of the literature review, mapped against AT elements and principles, and framed to get an understanding of digital inclusion initiatives within the UK and UK rural communities from a multi-level perspective. It should also be emphasized that the interview questions were informed by the researcher's previous experience of working in digital inclusion research for a third sector organisation within the UK. Interview schedules for one-to-one national and intermediary stakeholders can be referred to in Appendix 3 and 4. Interview topic guides for intermediary and individual-level focus groups can be referred to in Appendix 5 and 6.

For national-level interviews, interview questions were ordered in a manner that asked participants to describe their historical and current knowledge of digital inclusion policy and initiatives within the UK, their experience of working in this arena, and any insights into the societal barriers and benefits of using online services and information, specifically in relation to UK rural communities. Subsequent questions explored specific aspects of digital inclusion initiatives such as the impact to beneficiaries of digital inclusion initiatives and the role of intermediaries. Additional questions related to tools, rules, communities, and the division of labour, were also explored through the participants' experiences. National-level interviews were conducted at the start of the data collection period.

Intermediary-level interview questions were ordered in the same way as above but with additional questions in relation to their role in delivering digital inclusion initiative training and support within UK rural communities, specifically within their local rural

community. The focus group interview questions followed a topic guide (see Appendix 5) that followed the same themes as the national-level interview schedule, but allowed for more group discussion. The individual-level focus group interview questions followed a topic guide (see Appendix 6) which encouraged participants to talk about their experiences of digital whilst living in a rural community. Specific themes included their historical and current knowledge of using digital technology, their experience of attending digital inclusion training or support sessions, and their experiences of any societal barriers and benefits of using online services and information whilst living in a rural community.

Table 13 provides a list of all of the research participants interviewed, either one-on-one or as a focus group. Information included in the table includes an individual code for each participant relating to each participant together with their job title.

National-level	Intermediary-level	Individual-level
MA1 - UK Government official in digital	ME1 – Director	LMi1
MA2 - Head of service of government funded body	ME2 – (focus group)	LMi2
MA3 - Senior official in government funded organisation	ME3 – Project manager	LMi3
MA4 - Manager at third sector organisation	ME4 – Supervisor & outreach officer	
MA5 - Programme manager at third sector organisation	ME5 – Trainer	
MA6 – Head of service of trust organisation	ME6 – Digital champion	
MA7 - Government official in digital	ME7 – Community engagement officer	
MA8 - Programme director at third sector organisation	ME8 – IT school teacher	
MA9 – Independent consultant	ME9 – Project Manager	
MA10 – Evaluation Manager	ME10 - Digital transformation officer	
MA11 – Director of consultancy	ME11 - partnership and recruitment officer	
MA12 - Operations Director	ME12 – CEO of advice centres	
MA13 – Project manager	ME13 - Digital Officer	
MA14 - UK Government official in digital	ME14 - Digital training officer	
MA15 - Head of digital participation	ME15 - Manager	
MA16 - Learning Facilitator	ME16 - Digital Champion	
	ME17 – Development Manager	
	ME18 – Community engagement officer	
	ME19 - Director	
	ME20 - Manager	
	ME21 - Manager	

MA17 – Head of research MA18 – Team Leader MA19 - Academic MA20 - Academic	ME22 – Senior development manager ME23 – Education manager ME24 – Widening Participation Officer ME25 – Digital Leader ME26 – Information Development manager ME27 – Digital Skills coordinator ME28 – Strategic partnership manager	
---	--	--

Table 13 Research participants interviewed at multiple levels

4.8.3 Observations

A total ten observations were completed as part of this study. Activities observed were a mix of formal and informal digital inclusion training sessions and informal digital inclusion support. Observations conducted included 2 in England, 6 in Wales, and 2 in Scotland and lasted between 60-180 minutes each. Participants attending the session were informed verbally that the session was being observed by the researcher/and or by the session tutor/trainer. Each participant/tutor/trainer/volunteer was provided with an information sheet and consent form to sign. Individuals observed at the sessions included the trainer/tutor delivering the session, volunteers supporting delivery and participants attending the session. At each observation, the researcher made observation notes based on an observation guide (see Appendix 7). The researcher also made reflective notes of the observation after the session, often while travelling back from the rural location on public transport. Observation enabled the researcher to experience the training sessions, record information as it happened and notice any unusual or contradictory aspects (Creswell, 2009). All observations were written up and anonymised in preparation for data analysis. Table 14 provides brief details of the observations conducted including the number of participants, location, individual data collection code, and a brief description of each. Observations involved digital inclusion stakeholders at intermediary and individual-level.

Brief description of observation	Participants
[OB1] Digital Inclusion in care homes – an interactive session that introduced participants to digital devices and apps that could be used to support the well-being of care home residents. The observed session was part of a national digital inclusion initiative to train frontline-workers/managers within organisations as part of their professional development, The	1 tutor, 1 community engagement officer, 6 frontline workers/managers from a range of organisations concerned with digital inclusion for care home residents from across the region (Wales)

session was developed by the regional branch of a national organisation.	
[OB2] Digital inclusion housing association staff training – a formal training session to raise awareness of digital inclusion to housing association wardens and how it can be used to support housing association residents. The observed session was part of regional digital inclusion initiative to train frontline-workers/managers within housing associations organised by the regional branch of a national organisation.	1 tutor, 1 manager, 4 housing association wardens from across the region (Wales)
[OB3] Village kiosk volunteer training –a formal training session in a village hall with members from the local community to raise awareness of digital inclusion and how it can be used to support others in need. The observed session was part of a regional initiative to train local volunteers and was developed by the regional office of a national organisation.	1 tutor (regional), 4 volunteers (local) (Wales)
[OB4] Tea & Tech – an informal drop-in training session in a church activity space where members of the public could bring along devices and ask for digital inclusion support while having tea and cake and socialising. This was a local/community initiative which drew on support from the regional branch of a national organisation.	1 tutor (regional), 1 volunteer (regional), 1 community engagement officer (local), 3 members of the community (local) (England)
[OB5] Intergenerational digital outreach – an interactive intergenerational informal digital training session where students from a local school came together with residents from a local care home to share knowledge about digital. The observed session was part of an Intergenerational national initiative, organised by the regional office of a national organisation.	1 tutor (regional), 1 community engagement officer (regional), 1 staff member from care home (local), 2 teachers (local), 5 students (local), and 5 care home residents (local) (Wales)
[OB6] Computer maintenance – a formal training session on computer maintenance, this session was part of a six-week training course. The observed session was part of a regional initiative organised by a regional organisation to train members of the community on digital.	1 tutor (regional), six community members (local) (England)
[OB7] Drop-in library session – an informal drop-in session where members of the community can come in and ask questions and get digital support. The session observed was part of regional initiative developed by the regional branch of a national organisation to train members of the community.	1 tutor (regional), 2 community members (local) (Wales)

[OB8] [OB9] [OB10] One-to-one formal advice sessions – formal sessions that required individuals to book appointments for advice on welfare and benefits that involved adhoc digital inclusion support. The sessions observed were part of a national initiative that provided limited support on a case-by-case basis for members of the local community.	1 advisor (local), 1 member of community x 3 (local) (1 in Wales, 2 in Scotland)
--	---

Table 14 Study observations

4.8.4 Document review

Relevant documents for the study were collected and reviewed during the data collection process to provide additional insight to data gathered through observation and interviews. Specific documents reviewed included national digital inclusion policies for the UK and digital inclusion training materials and resources gathered (where possible) from the sites of the observed digital inclusion training sessions.

4.9 Data Analysis

As discussed in chapter 3, this study utilised third-generation Activity Theory (AT) as a theoretical and analytical framework to explore and analyse the interplay of the elements within a single activity system at national, intermediary, and individual-level, and then analysed together through a multilevel activity system to explore and answer the research questions posed.

However, before the generation of these activity systems could be made, the data collected from the various methods (interviews, focus groups, observations and document review) were brought together and analysed by employing Braun and Clarke's Thematic Analysis (2006). Thematic Analysis is a systematic approach of analysing data that involves an iterative, non-linear creative process (Braun and Clarke 2006). It enables the researcher to simplify the complex and large amount of qualitative information into themes and patterns which helps the researcher to interpret the phenomenon (Savin-Baden and Major, 2012).

Data analysis was theory driven guided by AT combined with the use of Thematic Analysis (Braun and Clarke, 2006) which allowed the data to 'speak'. Data analysis of this study therefore involved using Braun and Clarke's (2006) step-by-step approach of Thematic Analysis to generate codes and themes, and the employment of AT to make sense of these themes and used to provide the underlying theoretical elements

around which a thematic network was built (see Appendix 8 as an example). Data analysis did not move in a binary way from theory to data (deduction) or from data to theory (induction), but rather back and forth in an iterative manner, similar to abductive reasoning.

The process of generating codes and themes involved the six phases of Thematic Analysis (Braun and Clarke, 2006), consisting of 1) data familiarisation, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) refining and naming themes to build a thematic network, and 6) reporting. At phase 5 an AT framework was employed to make sense of these themes and used to provide the underlying theoretical elements around which the thematic network was built. Table 15 below tabulates the steps taken for data analysis.

Phase 1: Data familiarisation	Transcribing data, reading and rereading transcribed interviews and observation notes, repeatedly listening to recorded interviews, noting down initial ideas.
Phase 2: Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code
Phase 3: Searching for themes	Codes were collated and grouped together into potential themes across the multiple levels of analysis
Phase 4: Reviewing themes	Check to see if themes work in relation to the coded extracts generated in phase 2 and the entire data set from phase 3, to generate a thematic of the analysis maps for each activity system
Phase 5: Introduce AT refining and naming themes to build a thematic network	Themes refined & organised into a consistent account for all activity systems & thematic maps are generated (See Appendix 8, 9, & 10)
Phase 6: reporting	See findings (chapter 5) and discussion (chapter 6) which includes final analysis of selected extract relating back to the research questions and literature producing a scholarly report of the analysis

Table 15 The phases of analysis taken in study

When using AT as part of the analysis the following steps should be taken. Through the lens of AT, the **Subject**, **Object** and the **Outcome** should be identified. This is followed by the identification of the **Community**, the **Tools**, the **Rules**, and the **Division of labour**, to develop an activity system diagram and to identify inner contradictions within the developed activity system framework (Prenekert, 2006).

Following these steps, a thematic network was developed for each level of analysis, an example of which is presented in Appendix 8.

AT employed as an analytical framework helped make sense of these themes. Questions asked of the data outlined by Mwanza and Engeström (2005) and Engeström's five principles (as described in Chapter 3) are shown below in Table 16.

Activity	What sort of activity is it? (unit of analysis - first principle)
Object(ive)	Why is the activity taking place?
Subjects	Who is involved in carrying out the activity? (multi-voicedness - second principle)
Tools	By what means are the subjects performing the activity?
Rules	Are there any cultural norms, rules or regulations governing the performance of the activity?
Community	What is the environment in which this activity is being carried out?
Division of labour	Who is responsible for what, when carrying out the activity and how are those roles organised?
Outcomes	What is the desired outcome from carrying out this activity?
Historical	What is the historicity of the activity (third principle)
Contradictions	What contradictions exist within the activity and how do they affect the activity (fourth principle)
Expansive learning	As a result of the contradictions, has any expansive learning taken place (fifth principle)

Table 16 Questions asked of the data through the lens of AT

Although the process described above of using Thematic Analysis and AT appears linear, the analysis of the data was in fact an iterative and reflexive process (Fereday and Muir-cochrane, 2008).

4.10 Chapter summary

This chapter has described the underlying philosophy of this study which is based on critical realism. It then provides an overview of the research strategy and design including methods of collecting data, ethical considerations and research quality. The chapter concludes with a discussion on data analysis including the employment of Thematic Analysis (Braun and Clarke, 2005) supported by the use of AT as an analytical framework.

The next chapter describes the findings from the fieldwork of this study through the lens of AT at national, intermediary and individual-level, and then at multilevel.

Chapter 5: Findings

5.1 Introduction

This chapter outlines the detailed findings of **national** digital inclusion stakeholders that operate at a national level, **intermediary** stakeholders that operate in three specific rural regions of the UK, and **individual** stakeholders who have received digital inclusion support in those same rural regions, to reveal overall findings from a multi-level perspective. As outlined in chapter 3, the study utilised AT as a theoretical and analytical framework to explore the interplay of the elements within a single activity system at national-level (see Figure 9), intermediary-level (see Figure 10), and individual-level (see Figure 13) digital inclusion initiative provision, and then by bringing all the levels together at multilevel (see Figure 16) using third-generation AT to answer the research questions posed:

1. How are digital inclusion initiatives approached, implemented and delivered in UK rural communities?
2. What role and responsibilities do digital inclusion intermediaries and actors play in the delivery of digital inclusion support in UK rural communities?
3. What is the experience of people living in UK rural communities who have received or are in need of digital inclusion support?

Thematic Analysis (Braun and Clarke, 2006) was employed to analyse the data. The process of generating codes and themes involved the six phases of Thematic Analysis (Braun and Clarke, 2006), consisting of 1) data familiarisation, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) refining and naming themes to build a thematic network, and 6) reporting. At phase 5 an AT framework is employed to make sense of these themes and used to provide the underlying theoretical elements around which the thematic network is built. When using AT as part of the analysis the following steps should be taken. Through the lens of AT the **subject**, **object** and the **outcome** should be identified. This is followed by the identification of the **community**, the **tools**, the **rules and norms**, and the **division of labour**, to develop an activity system diagram and to identify inner contradictions within the developed activity system framework (Prenekert, 2006). Following these steps a thematic network is developed. An example is presented in Appendix 8.

5.2 National-level Findings

In this section findings from the 20 national-level stakeholder interviews and the document review are analysed based on the elements of the activity system. The national-level thematic network table (see Appendix 8) reveals the findings which have been transposed onto the national-level activity system presented in Figure 8 and are discussed through the lens of AT below.

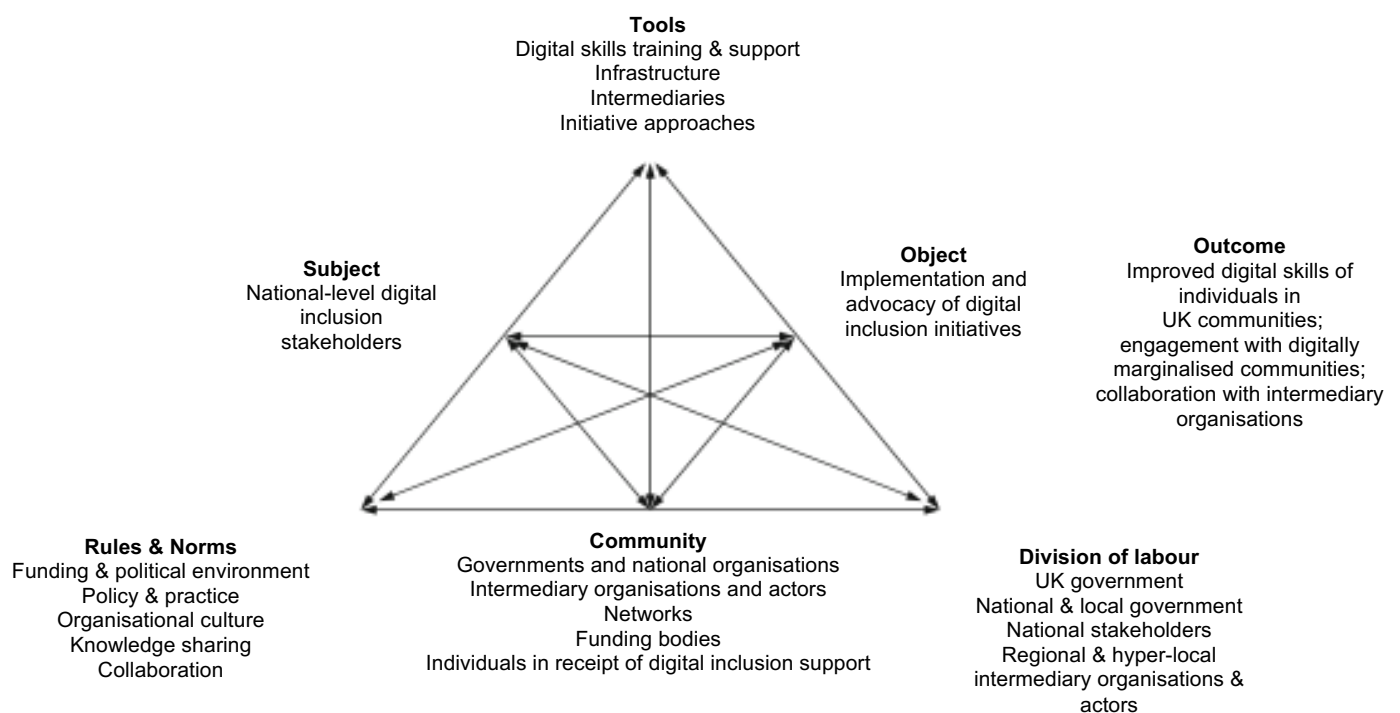


Figure 8 Activity system of national-level digital inclusion initiative provision

5.2.1 Overview of national-level activity system

The **activity system** illustrated in Figure 8 is national-level digital inclusion initiative provision within the context of UK rural communities. Through the lens of AT, the findings highlight relationships across the AT elements and mediating factors, and reveal contradictions which permeate the activity system that affect the provision of digital inclusion initiatives.

The **subject** of the activity system is collective in the form of national-level digital inclusion stakeholders (**subject**) who provided a **multi-voiced** perspective about digital inclusion initiative provision across the UK landscape and how digital inclusion initiatives are approached, implemented and delivered, specifically in rural communities. Key national-level stakeholders included research consultants, those working in government departments, and those working in the head office of

government funded bodies, and national third sector organisations. For most national-level stakeholders, the implementation and advocacy of digital inclusion initiatives is the **object** of this activity system, with the desired **outcome** of achieving improved digital skills of individuals in UK communities, engagement with digitally marginalised communities, and through collaboration and partnership work with intermediary organisations and actors. Intermediary organisations mentioned by national stakeholders include:

- regional organisations such as local authorities, district councils, housing associations, advice centres, and library services;
- regional offices of their own or other national organisations;
- hyper-local/ community organisations, such as learning centres, community centres, library branches, schools, and churches.

Specific intermediary actors (or human intermediaries) mentioned by stakeholders include:

- independent tutors and trainers;
- regional tutors and trainers from national organisations;
- digital champions;
- community connectors;
- local conduits;
- peer mentors.

National-level stakeholders revealed digital inclusion initiatives in the UK are driven through national digital inclusion policies and strategies. As a devolved issue, each nation within the UK has its own policy as shown in Table 17.

Nation	Strategy
England	<i>Government Digital Inclusion Strategy (2014, 2017)</i>
Scotland	<i>Realising Scotland's full potential in a digital world: a digital strategy for Scotland (2017)</i>
Wales	<i>Delivering Digital Inclusion Strategy (2016)</i>
Northern Ireland	<i>Making Lives Better - A Strategy for Digital Transformation of Public Services 2017-2021 (2017)</i>

Table 17 Digital inclusion strategies within the UK

These policies reflect the EU's Digital Agenda for Europe (European Commission, 2010) to develop digital literacy, skills and inclusion strategies, which the UK, as a member state (at the time of data collection), is encouraged to develop, to reduce poverty and exclusion, to improve the skills of citizens, and to create a more inclusive society. Each digital inclusion policy takes a slightly different stance. For example, the policy for England has a focus on skills and capabilities; the Welsh digital inclusion strategy focuses on social justice and social inclusion; whereas the Scottish strategy focuses on improving digital participation across communities and digital future proofing.

The Government Digital Inclusion Strategy (Cabinet Office, 2014) mentioned above was published as part of the UK government's wider Digital Strategy (Cabinet Office, 2013) which amongst other things set out how government services were to become 'digital-by-default'. As stated,

'Moving to digital-by-default means that, over time, government will provide digital services so straightforward and convenient that all those who can use them will choose to do so, whilst those who can't are not excluded' (Cabinet Office, 2013).

The Digital Strategy (Cabinet Office 2013; DCMS, 2017) goes on to state that those not online will be supported through 'Assisted Digital' as explained:

'To ensure that people who are offline can access digital-by-default services, we will offer them ways to access services offline, and we will provide additional ways for them to use the digital services. These services must be designed to meet user needs. We call this 'assisted digital'' (Cabinet Office, 2013).

However, to do this the strategy states that there will be a 'strong presumption towards procuring external resource to provide 'assisted digital' support, from the private sector, the voluntary sector, and other parts of the public sector'. Hence the need for the UK digital inclusion strategy outlined above.

How and if these policies change post-Brexit and post Covid-19 will be an interesting development to observe. More details of how these policies effect the **object** of this activity system and related contradictions are found in the **Rules and Norms** section.

National-level stakeholders (**subject**) revealed their organisations take on a number of roles when implementing digital inclusion initiatives:

- an advisory role in relation to policy;
- a managerial role in the design and delivery of digital inclusion initiatives;
- training role to digital inclusion intermediary organisations and actors who deliver digital inclusion support (at regional and hyper-local level);
- a funding role (often received from a funding body/government) distributed to digital inclusion intermediary organisations and actors (as above) on a competitive basis;
- a collaborative role working with intermediary organisations and actors within the digital inclusion arena and beyond;
- a knowledge sharing role through research, evaluation and advocacy of digital inclusion initiatives;
- convenor role between digital inclusion policy and practice.

The degree to which each national-level stakeholder takes on these roles varies. For example, the role of convenor between policy and practice is explained:

‘We provide the convening and galvanizing force behind the issue [digital inclusion]. That kind of soft power role of government is incredibly important to show that there is political will behind the issue’ [MA1].

‘Our role is to try to influence people/organisations to take digital inclusion more seriously and to try to implement digital inclusion within their own settings’ [MA3].

Most importantly national-level stakeholders revealed how intermediary organisations are often well-placed to reach digitally marginalised communities as they have local knowledge of the community and are in the position to be able to develop relationships or already have a trusted relationship with members of the community (see section 5.2.3 for more details).

Marginalised communities most likely to be digitally disadvantaged, revealed by stakeholders, include those with physical and learning disabilities, mental health issues, low literacy levels, low economic status, those living in isolated rural communities, and the elderly.

‘We first focused on older people then moved to everyone as digital inclusion is essential for everyone’ [MA5].

However, national-level stakeholders acknowledged and agreed that implementing sustainable digital inclusion solutions is challenging, due to the multiple factors which contribute to individuals and communities being digitally marginalised or excluded.

‘The problem with people being offline is there is not a one size fits all. People have often got other issues happening in their lives. They may have complex needs. There are reasons why they are not online. Most people who don’t have those complex needs and barriers are online’ [MA5].

Stakeholders also agreed that the digital inclusion landscape over the past ten years has changed significantly, and while the number of digitally excluded individuals has reduced year on year, more recently this number has stabilised, as the remaining digitally excluded communities are the hardest to reach as highlighted:

‘It’s more about trying to help people who are more reluctant [to get online and use digital technology] and that’s the latest challenge we’ve got’ [MA3].

As a result, national-level stakeholders have had to evolve and devise more innovative ways in how they approach digital inclusion initiatives and engage with digitally marginalized communities, moving away from the traditional top-down approach of digital inclusion programmes.

‘we have had to look at how we evolve programmes [initiatives] to reach the people..... The days of perhaps doing computer courses in the structure we had done them previously has definitely gone a long time ago’ [MA3].

For examples of how national-level stakeholders are approaching the implementation of digital inclusion initiatives see section 5.2.3.

5.2.2 Tools, rules and norms, community, division of labour overview

Tools mediate between the subject and the object. These **tools** consist of physical or tangible forms such as a technological artefact, and conceptual or intangible ideal forms such as, language, symbols, signs and psychological tools, that are created

and/or transformed in the course of an activity. Furthermore, tools embed and carry with them historical residue and specific cultural characteristics (Kuutti, 1996) which are simultaneously enabling and limiting. A variety of **tools** mediate this activity and include the use of technological **infrastructure** (mobile phone reception, broadband and WiFi), devices (e.g. access to mobile devices, PCs, and laptops) and local **infrastructure** such community assets; **digital skills training and support** (face-to-face and online); **intermediary organisations and actors** who reach out and engage with **individuals** in need of digital inclusion support; and specific **approaches to digital inclusion initiatives** (see section 5.2.3).

Rules and norms refer to the explicit and implicit support, regulations, norms, conventions and standards that support or constrain actions within this activity system. For example, specific rules identified in this activity relate to the **funding and political environment** and **policy and practice**. **Norms** identified (institutional and cultural) which mediate this activity include **organisational culture, knowledge sharing, and collaboration**. For example, national-level stakeholder knowledge of the **historicity** of policy documents related to digital inclusion, enabled the researcher to build a picture of how digital inclusion strategies have been developed upon over time, but also how they have provided challenges and contradictions (see section 5.2.3).

Community incorporates those who share a general or common objective in the activity. In the case of this activity system, community relates to national-level digital inclusion stakeholders in consultancy; government departments, and head offices of government funded bodies and national third sector organisations (**national**); regional intermediary organisations such as local authorities, through to hyper-local intermediary organisations such as community centres, and actors such as digital champions (**intermediaries**); recipients of digital inclusion support (**individuals**); **networks** such as strategic partnerships and steering groups, and networks of intermediary organisations such as online and advice centres; **funding bodies** and **corporate** organisations such as telecom and financial institutions. Through the lens of AT, the **community** element of this activity system therefore illustrates what the researcher defines as the 'ecosystem' of stakeholders involved in digital inclusion initiatives. Furthermore, in AT terms, trust and informal networks are considered as embedded characteristics of the **community** where these interactions take place.

The **division of labour** refers to the explicit and implicit organisation and hierarchical nature of the community involved in the activity. UK and national government advises and encourages national-level digital inclusion stakeholders at national, and intermediary level to work **collaboratively** and reach out and engage with communities and individuals in need of digital inclusion support in the workplace and in life.

5.2.3 Mediating factors

Through the lens of AT, what follows is a detailed account of the mediating factors related to each element of the activity system, in which contradictions are revealed.

Tools

The findings reveal various tools mediate this activity system and highlight the important role of digital inclusion **intermediary organisations and actors** (including digital champions); the delivery of **digital skills training and support**; the reliance on **infrastructure** in terms of technological infrastructure (mobile phone reception, broadband and WiFi) and devices (mobile devices, PCs, and laptops), but also in terms of local infrastructure such as local community assets; and specific **digital inclusion initiative approaches** taken by organisations, to reach the objective of this activity system.

Digital skills training and support

A key **tool** to enable the **object** and desired **outcome** of this activity system is digital skills training and support for those in need. National-level stakeholders revealed training was often delivered through blending face-to-face informal learning with online learning content, or purely online or face-to-face. Learning content and resources were either tailor-made resources or specific online digital skills content, often on a theme or information need, such as health information, relevant to the individuals' context.

'Digital inclusion is a journey that alters with the speed of changes of technology. You don't know what is going to hold someone's interest that may move them from exclusion into higher end skills, so we see this [digital skills] as a continuum from getting online to higher end skills and expertise' [MA2].

Digital devices used for digital skills training and support mentioned by stakeholders included:

- personal computers;
- laptops;
- mobile phones;
- tablets;
- VR headsets;
- Digital cameras.

Specific digital inclusion support highlighted ranged from setting up emails, understanding and using specific apps, to being shown how to access online health information and government digital services.

‘It [digital inclusion training] could be something like in a care home setting using VR headsets to engage people in a different way, or with mental health programmes, having a look at what apps are available to get people interested in digital’ [MA3].

Stakeholders highlighted the importance of the relevance and compelling nature of digital skills training to get people engaged and interested in using digital technology in the long-term.

‘People don’t learn digital skills in order to fill in their tax return or other online form, they learn them because they’ve been enticed in or interested in because they want to do important things in their lives, so if you get happy searching for information or skyping your family you might think perhaps I’ll do a bit of online shopping or access a government service. So, it’s quite a long process’ [MA13].

This raises a significant contradiction in relation to the UK government’s digital-by-default agenda and the reactionary approaches currently being taken by intermediary organisations and individuals responding to disintermediation and service provision being moved online. This is further discussed in the section on **initiative approaches** (p.127)

National-level stakeholders revealed their involvement in training digital champions and the important role of the digital champion in delivering digital inclusion training and

support in various capacities. Models of digital champions mentioned include: volunteers (often but not limited to students, the unemployed and the retired); professionals (such as paid, qualified tutors and inhouse staff); or embedded within organisations where they can up-skill staff within their own place of work and the public through their frontline or community building role.

‘A good example [of an embedded digital champion] could be a receptionist at a Citizen Advice Bureau who will come across people who will come in on a daily basis with problems such as Universal Credit. They can then use their digital champion skills to help signpost the individuals and help resolve their problems’ [MA8].

‘We have [digital] champions that volunteer at job centres and job clubs, but we also have champions who are just available in their community, and community areas. They [digital champions] could be people just helping their friends’ [MA5].

National stakeholders specially highlighted their involvement in training frontline workers (from now on referred to as established human intermediaries) from organisations who engage with digitally excluded communities as part of their everyday work as ‘embedded’ digital champions.

‘It’s about supporting organisations who are working with or most likely to be interacting with people who are offline’ [MA5].

This therefore raises questions regarding the digital skills of established human intermediaries engaging with digitally excluded communities not in receipt of digital champion training and their ability to offer digital inclusion support. As such this highlights a significant contradiction between the **division of labour** and **tools** elements of the activity system due to the assumption that established human intermediaries have sufficient digital and teaching skills themselves to support digitally excluded communities as highlighted by one government official:

‘It’s something that we trust providers [intermediaries] to make decisions on as professionals’ [MA18].

Yet as highlighted by several of the stakeholders if the necessary skills are not in place for such established human intermediaries, this hinders the effectiveness of their digital inclusion activities.

‘We see quite a lot of digital skills/digital inclusion gaps in the health service and in our care system, and if they [staff] don’t know how to use some of those [online] systems then they can’t necessarily pass that on and encourage that in other people’ [MA3].

‘Small scale initiatives that have been happening thus far have shown that digital skills of staff need to be looked at first before they get the confidence and ability to be able to impart that information to others’ [MA7].

Acknowledging this digital skills gap, national stakeholders highlight how human intermediaries need to have a relationship as well as be confident in their own digital skills in order to support others as explained:

‘We need to get a general level of professionalism in roles which are directly interfacing with people who are digitally excluded. They need to feel confident and enabled to pass on the right type of skills and knowledge. They have the relationship in place, but they are missing the other side [digital skills]’ [MA6].

See section on **initiative approaches** (p.127) for more details of digital skills training of established human intermediaries (frontline workers).

A contradiction identified between the **subject** and the *Digital skills training* factor within the **tools** element of the activity highlights that while stakeholders displayed in-depth knowledge of digital inclusion as a concept, and what it means to be digitally included, the clarity of this knowledge is undermined by the plethora of vocabulary used to describe digital skills and literacies required to be digitally included. Terms used included digital literacy, digital competency, information literacy etc.

‘Information literacy is a great example of how we need to move on from thinking on basic digital skills.....We need to support people to be more sophisticated with digital literacy/information literacy/ or health literacy in a digital environment, so they can use a level of critical appraisal to be able to distinguish good quality information from ‘fake news’. I think it’s very significant’ [MA9]

Some of the stakeholders referred to the newly introduced Essential Digital Skills Framework as a way forward for the use of a shared vocabulary in digital skills training.

‘The Essential digital skills framework is a policy stakeholder thing to make sure that we are all pointing in the same direction, so we understand one another when we are debating about prioritising resources for programmes’ [MA18].

However, the use of the framework appears inconsistent.

‘A lot of the digital champions said the framework just wasn’t useful. We need to have confidence and motivation in there. So rather than just focusing on the skills we need to be asking what have you learnt, what do you feel confident using, what do you think will be useful to you in your everyday life – need to include that graduation bit’ [MA16]

Intermediaries

National-level stakeholders stated that they are dependent on delivering digital inclusion activities through intermediary organisations and actors who are in the unique position of being able to reach out and engage with communities at grass-roots level through digital inclusion delivery and practice.

‘It’s been shown that people who are most in need of digital inclusion support are the hardest to reach and the ones who need long-term support the most. Government can never provide that alone, it has to be done by a local partner organisation [intermediary], that’s why that local know-how is so essential’ [MA1].

‘The lower down the skills ladder you go, the more likely it is that the individual is going to need support and motivation to get that, and having a trusted individual working for a trusted organisation [intermediary] provides that security and sense of commitment’ [MA18].

National-level stakeholders revealed they are working with intermediaries through existing social, cultural or support groups, and/or local trusted community assets in rural communities such as local schools, libraries, churches, community centres, in order to reach targeted subgroups of the population in need of digital inclusion support less willing to engage through traditional learning mechanisms.

‘The nature of the people who are not online are not going to get online through traditional approaches whereby people will cross the threshold of some kind of educational institution’ [MA2].

A breakdown of how national stakeholders engage through intermediaries to reach those in need of digital support is outlined below:

- working directly through a network of intermediary organisations who then reach individuals;
- working through regional offices of their organisations who then work with intermediary organisations;
- working through regional offices of their organisations who engage directly with communities in need of support using the buildings of local intermediary organisations;
- working through regional offices of their organisations to provide face-to-face digital champion training for frontline workers of established intermediary organisations.;
- providing online digital champion training for intermediary organisations.

The need for national organisations to work with intermediary organisations that have trusted relationships with digitally marginalised individuals is emphasised in the findings, especially human intermediaries working in organisations within the social, community and charity sectors as explained:

‘We work through intermediary organisations. We want to make sure that we are working closely with a host of organisations who have those relationships with individuals. It’s trusted people in local places who are going to help those who are not online’ [MA2].

‘You have to work through someone who has built a trusted relationship with that individual for it [digital inclusion] to have any kind of impact. That is what the social sector does best. It has those (relationships) to build on and they judge and work with an individual to build their confidence and motivation, but the relationship comes first, and the task comes second’ [MA6].

National-level stakeholders also revealed the use of intermediary organisations in digital inclusion initiatives is crucial to the process of engaging and delivering digital inclusion activities in rural communities, through the means of providing a shared space, access to technology, and digital inclusion support as explained:

‘Libraries are definitely a key actor, in terms of digital inclusion especially in rural communities. Others [intermediaries] would be places like housing associations, mental health programmes and disability organisations, who all play a part in helping people to develop some of these skills’ [MA3].

In some instances, national stakeholders referred to human intermediaries and digital champions as ‘community connectors’ or ‘local conduits’ due to their local knowledge and understanding of the rural community and assets, but also because of their ability to bring people together in the local community through the use of digital. Describing digital inclusion support in a specific rural UK county, one stakeholder explained:

‘Some villages had lots of community activity going on, which often included some kind of project to help people get online, run very locally, very informally, by people who were good community connectors. Community Connectors are vital to the functioning of those rural communities and often have multiple roles’ [MA16].

This ‘community connector’ intermediary role was also identified in a strategic capacity by one national-level stakeholder:

‘We realised fairly early on it was important to have a dedicated person whose responsibility was to have an oversight, and to drive the engagement at a local level too, and to do the work that we would like, like coming down to London say once a month and meet with the other coordinators to share best practice but also to connect with national partners too’ [MA14].

Section 5.3 provides findings from the perspectives of intermediary organisations and actors.

Infrastructure

Stakeholders frequently referred to technological **infrastructure** such as mobile phone reception, broadband and WiFi connectivity, and digital devices such as access

to mobile devices, computers and laptops, as crucial **tools** to access technology. Stakeholders discussed the historical development of technological infrastructure in the UK and the roles played by government, technology companies and providers in the development and distribution of these technologies.

National-level stakeholders acknowledged the improvement of digital connectivity in rural areas, yet despite this some communities still don't use it.

'There is a difference between 'access' and 'take-up'. So, people may have access to broadband but may decide not to take it up for whatever reason' [MA15].

'Providers are making fibre broadband and superfast available. The availability is there but why don't people sign up to it? It's because they are in poverty, they can't afford it, they don't know it's there, they fear it, so take-up is very different to the availability situation' [MA12].

However, stakeholders repeatedly referred to the poor quality of connectivity, and how this hampered digital inclusion delivery and the take-up of digital by communities and individuals.

'In most of mid Wales and North Wales in rural areas there is no [mobile] signal or its intermittent. And while that may not be a priority for the big companies, it does really affect digital inclusion. It affects businesses, and possibly affects attainment at school' [MA3].

'Access is still an issue. Perhaps less on not having devices, more about 'not spots', rural areas with poor broadband, data limits, and how the environment effects WIFI' [MA9].

However, stakeholders' also revealed examples of how rural communities had been let down by mobile and broadband providers, and having to take matters into their own hands to sort out their local digital connectivity as explained:

'A community gave up on broadband providers near them and so eventually dug the cable as a community' [MA9].

Others commented on the lack of or unequal distribution of local technological infrastructure in rural communities:

‘The amount of resource [in rural areas] is very patchy – some areas are getting kiosks while others are still struggling to get WiFi into village halls. It’s almost like there is more money in some areas than others’ [MA16].

National-level stakeholders also referred to the lack of local infrastructure in the form of community assets and human capacity to host and resource digital inclusion activities in rural communities.

‘The challenge is providing that one-to-one support. In rural areas there’s often not even the opportunity to have a group setting. We have to look at the intermediaries that work in those communities’ [MA3].

‘I think in a village in a rural location, if you can find a way to foster links between a digital champion and people in a locality, then it will work, but only if there is a space and a person with the capacity to do it....It is so much down to the ‘volunteer capital’ in a village’ [MA16].

These findings therefore highlight a contradiction between the **tools** and **object** elements of this activity system as inequality in terms of technological and local infrastructure in rural communities hampers digital inclusion support and provision, as summed up by one stakeholder:

‘We have hugely been aware for a long time of the inequalities gap in terms of [digital inclusion] provision particularly in rural areas. Obviously, you have the sparsity of the population but that doesn’t actually equal sparsity of need’ [MA17].

Contradictions in relation to infrastructure are also revealed within the **rules and norms** element of this activity system.

Initiative Approaches

National-level stakeholders revealed specific digital inclusion approaches used to implement digital inclusion initiatives.

Through a **community-based approach**, national-level stakeholders work collaboratively with intermediary organisations to be able to reach individuals in need of digital skills training and support. As mentioned above, these organisations include multiple agencies including local service providers, advice centres and public library services through to hyper-local organisations such as learning centres, community centres, and schools, where digital inclusion plays an important role to their mission. This approach is very much focussed on the ‘end-user’ or the individual receiving support through regional and local community organisations who have received funding from national-level stakeholders for a specific digital inclusion initiative or strategy. A more detailed account of community-based approaches is described in the intermediary-level findings in section 5.3.3.1.

Striving to find alternative methods to reach out and engage with digitally marginalised communities, some national-level stakeholders emphasised how they no longer focus on training digitally excluded individuals or end-users directly, and instead are working to up-skill established human intermediaries, such as frontline staff, who frequently interact with potential vulnerable and digitally marginalized communities as part of their job. As explained:

‘Our programme is designed to support organisations that help others. We work with all organisations that have or need support to help others like housing associations, libraries, DWP, unemployment programmes, and we deliver training to those. We also have a volunteer programme for adult volunteers and a programme called Digital Heroes which is about how younger people are helping others to get online’ [MA3].

This is a significant step change from digital inclusion approaches identified in the literature, which predominantly focused on digital skills training interventions for ‘end-users’ or at the individual level. Instead stakeholders are moving towards a capacity-building ‘**integrated approach**’ to digital inclusion support, as explained:

‘It [digital inclusion delivery] is beginning to be more and more delivered as part of an integrated service..... Initially organisations come to us because they want to do some organisational change and development.....It often becomes clear very quickly that they [organisations] have an opportunity to help their staff and volunteers to become digital champions. So, they add value to the people they are supporting,

upskilling staff enables them to be able to support people more effectively, and introduces new services [to their organisation], so it's a three-pronged approach' [MA2].

'We are working with local organisations in the community to try to embed digital champions into services, so the hope is that when the funding stops and the digital champions have been trained, they are up and running, that will continue' [MA13].

Other national-level organisations stipulated how they are adapting to taking a **'service design approach'** to implement digital inclusion initiatives due to the need to gain a greater understanding of how to reach and engage with digitally marginalised communities. As explained by one stakeholder:

'The XXXX programme [initiative] was born out of the frustration of seeing large organisations saying 'we're going to give 2 million free places on a digital inclusion course' and then wondering why no one comes through the door. There is a need to change the operating structure and operating model [of digital inclusion initiatives] to support these people. We need to listen to the organisations that do this best' [MA9].

Stakeholders described how introducing the perspectives of all of the actors involved in digital inclusion delivery is achievable through a service design approach as explained:

'If you want to be really user-centred, if you really want to understand lived experience and understand the reality of what is going on, then you need to involve the actors who are at the closest proximity to [digitally marginalised] people and have the ability to develop schemes with institutions' [MA9].

Stakeholders spoke passionately about how intermediary organisations they work through are having to take a **reactionary approach** to digital inclusion support due to the roll-out of Universal Credit (part of the UK government's digital-by-default agenda) and the disruptive effect this has had on their day to day digital inclusion operations, as explained by one stakeholder:

‘Before [Universal Credit] people were turning up to centres for the social contact, progression to further learning, the whole digital inclusion journey. Now demand has overtaken by people coming through the door saying ‘I just need to be on Universal Credit so I can feed my family so I know I have money at the end of the week and I don’t know how to do it’ [MA17].

This stakeholder feared that this **reactionary approach** to digital inclusion is changing the traditional community-based model of digital inclusion training and support within the community, as intermediary organisations, such as learning centres and public libraries, are having to respond to a surge in demand from individuals being sign-posted to them by job centre staff, and instead providing on-the-spot support with Universal Credit that is more transactional in nature and dominates their time. This therefore highlights a **contradiction** in terms of the pressure put on intermediaries to support users and whether such an experience has any benefit to individuals in terms of digital inclusion. Findings at intermediary and individual level provide more direct insight into this phenomenon in sections 5.3 and 5.4.

While stakeholders highlighted these approaches were applicable in both urban and rural locations, they emphasised they did not necessarily take a specific approach to digital inclusion in rural areas as explained:

‘How we tackle it [digital exclusion] in rural communities is a big issue and one that we are probably only just beginning to get to grips with’ [MA3].

‘It [digital inclusion work] is much more resource intensive to work in a rural area cos you have to build in the number of learners you can support. So, if you compared a day centre in a city to a rural community centre, the number of people you are going to be able to reach out to and the geographical distances are very different’ [MA16].

These approaches to digital inclusion initiatives highlight a significant contradiction between the **tools** and **object** and ultimately the **outcome** of this activity system, as digital inclusion approaches to initiatives have had to change due to the evolving nature of the digital inclusion landscape as stakeholders have come to realise how local human intermediaries are best-placed to reach out and engage with those in need of digital support, including those on the margins of society, but also those

established human intermediaries who are in regular contact with communities in need of support.

Details of approaches to specific digital inclusion initiatives is revealed in the intermediary and multilevel-level findings in sections 5.3 and 5.5 respectively in this chapter.

Rules and Norms

As mentioned above several **rules and norms** mediate this activity explicitly and implicitly, such as **funding and political environment; policy and practice; organisational culture; knowledge sharing; and collaboration** as described below.

Funding and political environment

Stakeholders repeatedly stipulated how funding and the political environment hindered, supported, and in some cases regulated how they approached, implemented and delivered digital inclusion initiatives. Stakeholders revealed funding comes from a number of sources and organisations, to fund digital inclusion activities such as pilot and innovation projects. In addition, some stakeholders distribute funding to community organisations.

‘We would like to do more in terms of being able to provide small grants to organisations to look at significant change through digital inclusion’ [MA3].

Stakeholders also revealed when bidding for funding they have to go into competition with the very organisations that that may otherwise collaborate with as explained:

‘Sometimes when there is call for funding partners go into a closed world [while applying for funding] as they can’t talk to each other about it for a limited period’ [MA16].

Stakeholders also revealed how bidding for funding can be difficult for smaller organisations, such as those in rural communities, who do not necessarily have the resources.

‘The organisations that tend to have the best ability to penetrate into hard to reach communities are small local charities, but they are also the ones with the least resource [MA1].

Stakeholders also expressed their frustration with the lack of funding provided for digital inclusion work and the impact this has on the sustainability of digital inclusion initiatives particularly in rural areas.

‘Not so many organisations are doing digital inclusion outreach work in rural areas largely due to the costs of travelling and the lack of funding. It’s difficult to get funding for rural areas as digital inclusion funding is often, but not always, target driven’ [ME1].

‘Government is very much reliant on the good will of organisations to do [digital inclusion work] that they are not so keen to spend money on. Digital inclusion is not suitably funded and there is a lack of commitment from government’ [MA5].

Funding cuts were repeatedly mentioned by stakeholders as barriers/hinderers to implementing sustainable digital inclusion activities, thus highlighting contradictions between the **rules** and **outcome** elements which ultimately impact the *Outcome* of the activity system.

‘We don’t do as much [digital inclusion work] now as we used to because of funding. We used to do a lot more’ [MA10]

So, while the findings identified a dependency on local intermediary organisations to reach out and deliver digital inclusion initiatives, these very organisations are limited by funding restrictions and resources.

National stakeholders also repeatedly referred to how poor quality or lack of digital infrastructure (broadband/mobile phone reception) and closure of local assets, where there are no other alternative venues for digital inclusion engagement and facilities, exemplified digital exclusion, particularly in rural communities.

‘Local community organisations have an understanding of what local assets are available, and can use those assets to build relationships such as using WIFI from another organisation. However, in a rural area they [local community organisations]

have fewer choices about those things [assets] because internet connection is more of an issue and assets are depleting in rural areas' [MA10].

Knowledge sharing

The notion of knowledge sharing was revealed to be an important mediating factor for the object of the activity system to be achieved. Although the term 'knowledge sharing' was not used explicitly by stakeholders, knowledge sharing activities clearly evidenced by stakeholders included the advocacy of digital inclusion research, evaluation and case studies at events and conferences through workshops and presentations, but also between networks and communities of practice.

The significance of knowledge sharing is specifically highlighted through the development of a digital inclusion community of practice that involved a selection of national-level stakeholders as explained:

'We wanted to find a way to improve that process of sharing learning and improving [digital inclusion] practice, for that reason we made the decision to create a community of practice..... By and large they [organisations within community of practice] were in agreement that they wanted an opportunity to share between themselves how their projects were developing and to have opportunities to do things like talking about arising issues/problems in terms of delivery.What we noticed was that there are two elements to the community of practice. One is that learning process and the sharing of learning between partners, and the second is sharing that knowledge externally' [MA16].

Another national stakeholder evidenced knowledge sharing through the development of a network of rural community organisations with whom they collaborate as explained:

'One thing that is really critical is the shared practice through upskilling between different community organisations in rural contexts. It creates this network to network in rural areas which is stronger than those businesses existing in isolation' [MA17].

However, a number of contradictions were identified in relation to **knowledge sharing**, and the **community** of the activity system.

To begin with, stakeholders revealed there is a need for more joined up thinking in relation to digital inclusion work.

‘One of our key recommendations from our case study work was to have a more joined up approach and a clear digital inclusion strategy and plan in place. I think it’s a mixed bag of how it actually happens’ [MA4].

‘The more we can create forums to come and discuss the better. I don’t think there has been enough of those spaces’ [MA1].

An example of this disconnect and lack of knowledge sharing was highlighted in relation to digital inclusion policy and digital health policy:

‘I looked at each of the digital health strategies of the health boards and only one of them said anything about digital inclusion..... It’s that kind of policy convergence that isn’t great’ [MA9].

The lack of joined-up thinking and knowledge sharing was also highlighted across the public sector as explained:

‘People who lack basic digital skills brush up against all sorts of public services and those public services need to be aware of the [digital inclusion] support available to those that they can signpost to, and there is probably something that needs to be done there’ [MA18].

Furthermore, stakeholders from the different nations interviewed repeatedly confirmed while they were interested in digital inclusion initiatives happening in other nations, they had limited knowledge of such activities, thus highlighting a division in practice and a lack of knowledge sharing. This division of practice between the nations relates to the **rules**, **community** and **division of labour** elements and thus the **object** and **outcome** of the activity.

Finally, stakeholders revealed opportunities for knowledge sharing through the evaluation process. For example, stakeholders revealed they are required to evaluate digital inclusion initiatives on which they have received funding, by reporting back to government or the specific funding body on performance, number of people reached,

and what worked well etc. However, while this evaluative process presents an opportunity for knowledge sharing, the findings revealed that there is a tendency of making these evaluations over positive:

‘There is a culture of reticence in sharing what doesn’t work. I think people are always worried about where their next grant, next donation is coming from, so they worry that might hinder their funding, but any funder worth their salt would much prefer to know ahead of time that the intervention won’t work and how can we change the model to reflect a more effective approach’ [MA1].

‘I think there is a bit of an issue with overclaiming in evaluations’ [MA9].

This apparent reluctance to share what doesn’t necessarily work on digital inclusion practice thus implicates the reliability of such evaluations and highlights a contradiction between the **community**, **norms**, and **object** of this activity system.

Policy and Practice

Stakeholders spoke in depth about digital inclusion **policy and practice**, specifically in relation to how the implementation and delivery of digital inclusion initiatives are governed, supported and constrained by policy and practice. As such the mediating factor of **policy and practice** finds its natural home within the **rules and norms** element of the activity system. For clarity, policy in this context relates to policy specific to digital inclusion, but also other policies identified by stakeholders that affect the implementation and delivery of the digital inclusion agenda. Practice in this context relates to the practice of digital inclusion delivery, such as the delivery of digital skills training and digital inclusion support.

Stakeholders evidenced their understanding of the UK digital inclusion agenda by repeatedly citing policy documents such as the UK Digital Strategy (Cabinet Office, 2013); individual digital inclusion strategies for Scotland and Wales; the Essential Digital Skills Framework; and the recently introduced Basic Digital Skills Entitlement. Stakeholders overwhelmingly presented digital inclusion policy in a positive light, highlighting the benefits individuals gain from digital inclusion support. Beneficial factors mentioned included cost and time savings, providing a more convenient experience to accessing services online.

'I think costs are the driver and I think we have to accept that. It's really about a better experience for citizens and saves money and time' [MA9].

However, stakeholders in some instances offered a more critical perspective of digital inclusion policy, revealing some downsides of services being moved online and digital inclusion support, particularly for those living in rural communities. For example:

'Being online is not always a universal benefit. People have talked to me quite a bit about being concerned about internet addiction and cyber-bullying.....On the one hand we want people to be online, but also on the other hand most gambling now is done online. So, by getting online they are exposed to another public health issue in gambling' [MA9].

'You can give people this training and open up this whole new world, to some people, yet that could be dangerous in the hands of some. So, it is definitely important that we do that' [MA3].

A contradiction identified between the **object** of the activity system and **policy and practice** relates to how specific policies have brought challenges to the digital inclusion arena. For example, the Government's commitment that universal high-speed broadband will be delivered by a regulatory Universal Service Obligation, giving everyone speed of at least 10Mbps by 2020. However, some of the stakeholders expressed skepticism about this obligation particularly in relation to rural areas and the difficulties with geography and infrastructure. As explained:

'Infrastructure is difficult in rural areas. It's more sustainable to have broadband where there is commercial pressure or investment in broadband' [MA2].

Furthermore a dominant contradiction identified is that despite the strategic intent of government policy to encourage digital inclusion activities through initiatives and partnership working, stakeholders repeatedly acknowledged increasing tensions in relation to the government's digital-by-default agenda, through the UK government's Digital Strategy (Cabinet Office, 2013) as government services are moved online, specifically Universal Credit, and the impact this has on digitally marginalised communities.

'I think the biggest impact and biggest challenge for digital inclusion on the ground at the moment is Universal Credit, I think it's really interesting as there's strategic goals which the government has but there are also policies which they are bringing in which disrupt moving towards those goals' [MA17].

Stakeholders highlighted how this contradiction is magnified in rural communities due to the reduction and closure of local face-to-face services.

'We can see UK Government have made big changes to their digital platform, but the danger there is so much has been removed from the analogue channel that people who are [digitally] excluded get a really poor service. So, I think that is a risk now as that can go too far. People may get frustrated, maybe left without support, or money, or health support in the future' [MA3].

The removal of analogue channel's as services move online is stated in the Digital Strategy:

'We must close existing alternative channels as the demand for non-digital services decreases. Where an alternative channel remains, it must be recalibrated to provide assisted digital support. There will be a strong presumption towards procuring external resource to provide assisted digital support, from the private sector, the voluntary sector, and other parts of the public sector' (Digital Strategy, 2013).

Yet clearly as highlighted by national-level stakeholders, this causes challenges in rural communities.

Organisational culture

Stakeholders revealed how they are influenced by specific norms in which they operate. For example, trusted institutional norms were revealed by stakeholders through the theme of organisational culture. More specifically, national stakeholders revealed the trusted processes and mechanisms involved in how funding bids, reports, indicators and evaluations are designed and prescribed by funder organisations areas, and reliant on the rules and norms to complete online applications, reports and evaluations. Indeed, some national stakeholders just bid for funding, while others bid but also distribute funding. Embedded in this process stakeholders indirectly

acknowledged the mutual trust between themselves and funders based on reputation, stability and reliability of funders and mutual expectations. Despite this, some stakeholders acknowledged that there is a need to change the funding model to fit the evolving nature of digital inclusion.

'Funding needs to change. Where funding needs to adapt and change is realizing it's a longer, harder game when you are working with people who are more vulnerable in society. If you think you can create a big easy scheme and scoop up lots of people, those years have gone' [MA6].

References were also made for the need to change digital inclusion rhetoric and organisational culture around that. For example, stakeholders, highlighted that:

'We need to recognise where the system is at and what is wrong with the system.....We talk about digital inclusion in transactional terms when its more about relationships. Government and Tech giants have been very good at putting infrastructure in place, but now we need more influence from the social sector and third sector' [MA6].

'We need to move from the technical/transactional to civic behavior. We need to be thinking more how we get people to use this utility [digital] to empower themselves and improve their lives' [MA11].

Stakeholders also highlighted the need to look at digital inclusion in rural areas and future approaches that could be taken to reach isolated communities.

'I think there needs to be a different approach in rural areas. We need to find a way of using the resources better. For example, one of the things most rural communities may still have is a school. We were talking about maybe using the school as more of a hub and trying to create hubs around the school setting and running sessions after school in the evening' [MA3].

'What I would really like to see is that in every community there is a community hub, whether it's a village hall, a library, a shop, where there is a room with free computers that people can use and learn, staffed by volunteers, people do their digital champion work so it's a self-sustaining, peer-to-peer community-led way of helping people to

understand the importance of digital. I think in small rural communities it's easier to do that kind of thing where everyone knows each other and trust each other' [MA11].

Collaboration

Finally, national-level stakeholders revealed that collaboration is crucial to the process of implementing, engaging and delivering digital inclusion initiatives. Indeed, collaborative practice was taken as a norm by most national-level stakeholders and entwined in this was an element of trust, specifically trust-building across the national-level digital inclusion community. This embedded 'institutional trust' within collaborative practice across the stakeholders in turn enables the organisations to connect national to local.

'We work quite closely in collaboration with national organisations in England and Wales. We are part of the [national initiative] programme, which supports people to get online and digital champions' [MA2].

National-level stakeholders also provided evidence of collaborating with intermediary organisations through specific digital inclusion approaches to implement digital inclusion initiatives and capacity-building as explained:

'Where we all learnt together, so we build on the capacity and insights of the third sector organisations in this space, give them a voice in this space where we thought it was absent before' [MA6].

Collaboration and partnership cross-sector working in relation to digital inclusion is also clearly encouraged in the UK government's digital strategy, through the development of the Digital Skills Partnership which brings together technology companies, local businesses, local government, charities and other organisations with an interest in digital inclusion. The extent to which collaboration and partnership cross-sector working happens on the ground is further discussed in the intermediary-level findings in section 5.3.3.2 and multilevel findings in section 5.5.2.

Summary of contradictions

Table 18 provides a summary of primary contradictions revealed from the national-level analysis.

Location of primary contradiction	Description of contradiction
Subject	Myriad of national organisations and agencies involved in digital inclusion initiatives with differing missions/agendas but with the same object
Community	Some great cross-sector work happening but apparent lack of joined-up thinking.
Community	Frustration with the lack of funding and investment for digital inclusion work
Division of labour	Dependency on intermediary organisations to deliver digital inclusion training and support

Table 18 Primary contradictions (national-level)

Table 19 provides a summary of secondary contradictions revealed from the national-level analysis.

Location of contradiction	Description of contradiction
Subject-tools	Reliance on intermediary organisations but with limited investment
Tools-Division of labour	Assumption that established human intermediaries have sufficient digital and teaching skills themselves to support digitally excluded communities
Subject-Tools	Inconsistency with use of terminology in relation to digital skills and use of Essential digital skills framework
Tools - Object	Inequality in terms of technological and local infrastructure in rural communities hampers digital inclusion support and provision
Tools - Object	Reactionary approaches to digital inclusion initiatives are forcing intermediaries to supply on-the-spot reactive support, while taking them away from more participative, capacity-building community-based approaches.
Tools - Object	Lack of consideration for rurality in approaches to digital inclusion initiatives
Rules - Community	More potential for knowledge sharing between organisations involved in digital inclusion provision
Rules - Object	Funding bids difficult for small community organisations such as those commonly found in rural communities, due to the lack of resource.
Rules - Object	Cuts to funding was repeatedly mentioned by stakeholders as barriers/hinderers to implementing sustainable digital inclusion initiatives.

Table 19 Secondary contradictions (national-level)

5.3 Intermediary-level findings

In this section findings from 28 intermediary-level stakeholder interviews, 10 observations of digital inclusion training and support, and training materials are analysed based on the elements of the activity system. The intermediary-level thematic network table (Appendix 9) reveals the findings which have been transposed onto the intermediary-level digital inclusion initiative provision activity system presented in Figure 9 and discussed through the lens of AT.

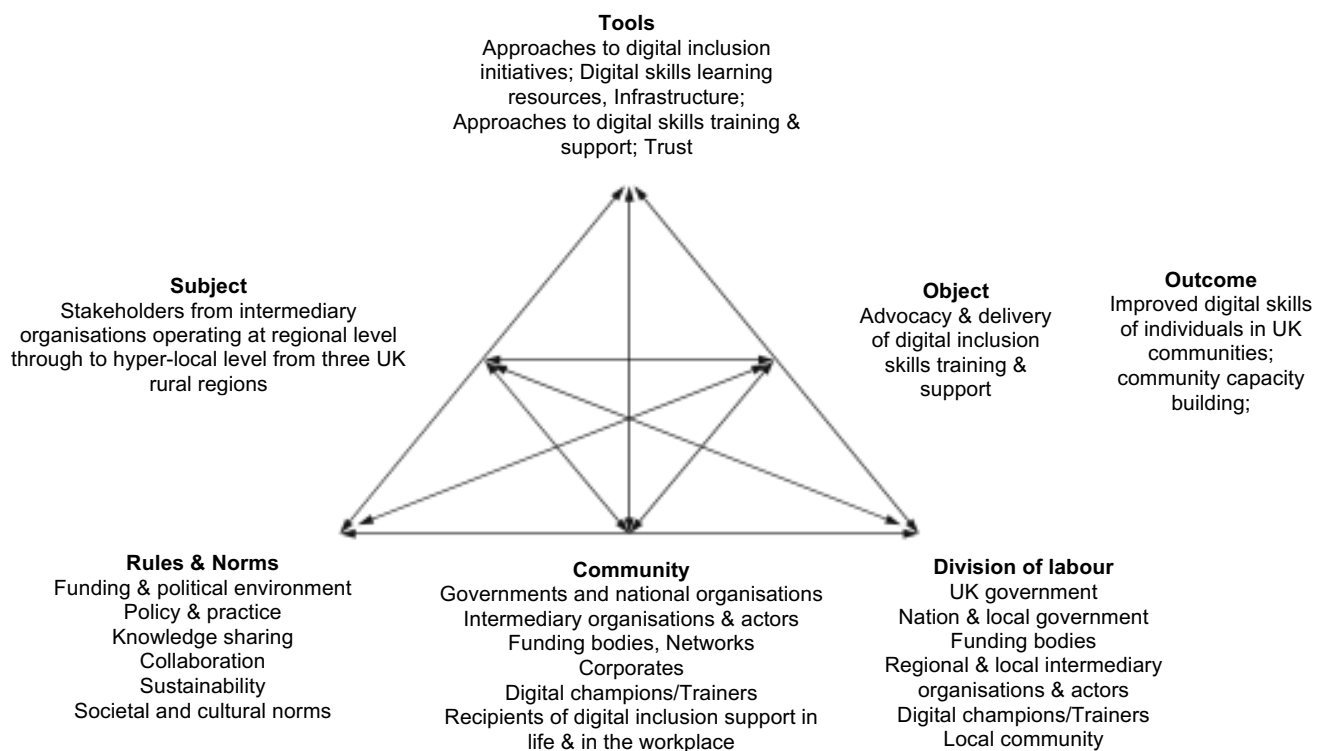


Figure 9 Activity system of intermediary-level digital inclusion initiative provision

5.3.1 Overview of intermediary-level activity system

The **activity system** illustrated in Figure 9 is intermediary-level digital inclusion initiative provision within the context of UK rural communities. Through the lens of AT, the findings highlight relationships across the AT elements and mediating factors, and reveal contradictions which permeate the activity system that affect the provision of digital inclusion initiatives.

The collective **subject** of the activity system are intermediary-level stakeholders from organisations operating at regional-level through to hyper-local community level, who provided a **multi-voiced** perspective about their involvement in digital inclusion

initiative provision, specifically the **delivery** of digital inclusion training and support in the context of UK rural communities, across England, Scotland and Wales. For most intermediary-level stakeholders (**subjects**), the delivery of digital inclusion training and support was the **object** of their activity system, with the desired **outcome** of seeing an improvement in the digital skills of the recipients of digital inclusion training and support, and community capacity-building. However, for some intermediary-level stakeholders, sustainable digital inclusion activities and community capacity building were additional desired **outcomes**.

Intermediary-level stakeholders (**subjects**), identified through the study fieldwork, worked for a variety of intermediary organisations and agencies as illustrated in Figure 10, whose roles ranged from directors of social enterprises, managers and project managers from third sector organisations, through to digital inclusion officers from local authorities, community engagement officers and digital skills coordinators from community organisations, and digital champions (volunteer or employed).

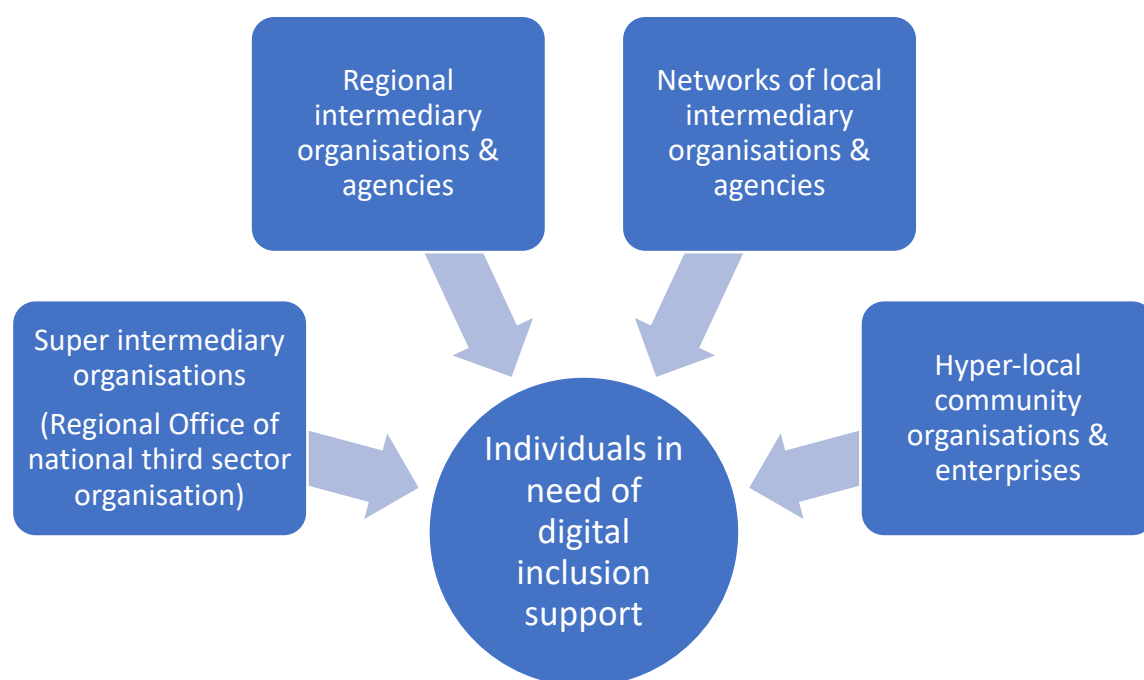


Figure 10 Typology of intermediary organisations

The typology illustrates the range of intermediary organisations, agencies and enterprises involved in the provision of digital inclusion initiatives, in which intermediary-level stakeholders operate to deliver digital inclusion training and support. Brief details of the intermediary organisations in which intermediary stakeholders operate captured in the study fieldwork include:

- **Regional intermediary organisations and agencies** - regional organisations and agencies, such as local authorities;
- **Networks of local intermediary organisations and agencies** - national or regional networks of local organisations and agencies such as learning and advice centres, library services, service providers and housing associations that cover specific regions;
- **Hyper-local community organisations and enterprises** – such as learning centres, a sports association, community centres, a school, and a church.
- **Super intermediary organisations** – such as regional branches of national government funded bodies and national charities;

Intermediary-level stakeholders revealed how some intermediary organisations include digital inclusion as a funded activity on top of their other social change objectives; others do digital inclusion as part of their day-to-day operation or organisational strategy; other organisations undertake digital inclusion activities, not because they are funded to do so, but because of the ethos of the organisation and in recognition of the moral, social and economic case for providing digital inclusion support whilst at the same time helping their organisation pursue its social mission. Importantly the degree to which digital inclusion was embedded within the organisational culture of intermediary organisations from a strategic perspective varied and is further discussed in section 5.3.2 on cultural norms.

The attributes of **super intermediary organisations** are specifically highlighted as digital inclusion and the reduction of digitally marginalised communities is their core mission or one of their main strategic goals; operate at national and regional level; and through cross-sector working, engage, collaborate and develop partnerships with regional agencies, charities and hyper-local community organisations, to reach those in need of digital inclusion support. Intermediary-level stakeholders operating within super intermediary organisations have an overview of the UK digital inclusion landscape at regional and local level, whilst also having important strategic insight from a national perspective. Such intermediary organisations were involved in digital inclusion initiatives at the time of the study fieldwork and operate across several regions in the UK including the regions included in this study. See Vignettes 1,2,3, and 4 for examples of their involvement in digital inclusion initiatives.

Intermediary-level stakeholders revealed how they took on a number of roles and required specific attributes during their involvement in the provision of digital inclusion initiative training and support as listed below.

- Digital skills trainer;
- Digital champion
- Facilitator of the development of digital skill sessions;
- Advocate of digital inclusion;
- Collaboration and partnership development;
- Relationship building and trusted support;
- Connecting rural communities;
- Asset mapping;
- Capacity building.

The degree to which each intermediary-level stakeholder took on these roles and attributes varied and demonstrates a granularity of the intermediary as illustrated in the typology of intermediaries in Figure 11.

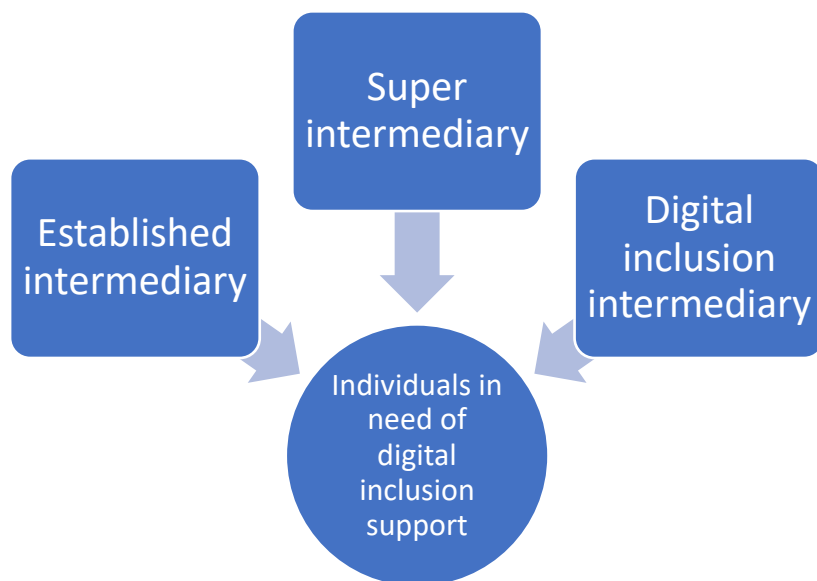


Figure 11 Typology of intermediaries

For example, some intermediaries purely delivered digital skills training and support for individuals (digital inclusion intermediary), others were established intermediaries who were witnessing a change in their role (such as front-line workers in housing associations) who were in a strategic position to help those in need of digital inclusion support (established intermediary). However, some intermediaries were more involved

at a strategic level, embedding digital inclusion activities across a region or for a specific community or organisation, playing a crucial brokering role, collaborating, connecting and bringing organisations and communities together through the process of delivering digital inclusion training and support (super intermediary)

The granularity of these specific '**super intermediaries**' is further illustrated as a typology in Figure 12 below.

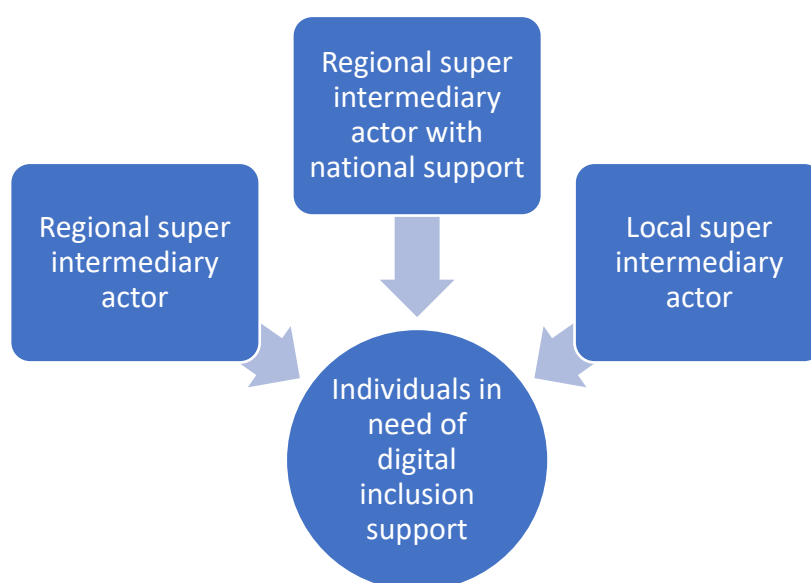


Figure 12 Typology of super intermediaries

The **local super intermediary actor** tended to display good knowledge and understanding of the local rural community and its assets, compared to the **regional super intermediary actor** who tended to have more knowledge from a regional perspective, but with some understanding of local issues. Finally, super intermediaries identified who had knowledge from a local and regional perspective who liaised with organisations at local, regional and national-level in relation to policy, funding, evaluation, and events can be defined as a **regional super intermediary actor with national support**. The **boundary spanning** behaviours (Williams, 2013; Brown, 2017) displayed by super intermediaries appears to be of key importance in the delivery of digital inclusion initiatives and reaching those in need for digital inclusion support and is further discussed in section 5.3.3.2.

As well as the specifics of their role, Intermediary-level stakeholders revealed they provide digital inclusion training and support for individuals in everyday life and in the workplace. Such individuals can be differentiated into three distinct categories:

- **Digitally excluded/marginalised** – individuals who received support with digital skills for a specific need, interest or transaction. Examples of individuals receiving support observed are discussed in the individual-level findings in section 5.4.
- **Front-line staff** – individuals whose role in the workplace puts them in a position where they directly interact with individuals who may be digitally excluded or marginalised in some way. Such front-line workers received support to improve their digital skills and build confidence in how they could support others as part of their job through the means of digital. Front-line workers observed in the study fieldwork included wardens from a housing association, and staff working in care homes. See section 5.3.3. for more details.
- **Rural business workers** – individuals who received support with digital skills for their rural business to learn to make the most of digital technology in the context of rural communities.

Stakeholders revealed how historically, digital inclusion training and support was offered predominantly to digitally excluded or digitally marginalised individuals.

‘About ten years ago it [digital inclusion support] was just about the old folk and getting older people online’ [ME19]

However, as discovered in the study fieldwork, there has been a shift to also supporting front-line staff and business workers in the context of rural communities, who can reach those hard to reach communities in need of digital inclusion support, while also aiming to embed digital inclusion at strategic level within organisations. This marks a significant step-change in the digital inclusion landscape, revealing a **significant finding** as discussed in section 5.3.3 and illustrated in vignette 3.

Intermediary-level stakeholders also provided their perspective of the drivers behind digital inclusion initiative provision; specific digital inclusion approaches used to

implement and deliver digital inclusion initiatives, and the challenges of delivering these within a rural context, as discussed in section 5.3.3.

The following section provides a brief overview describing the **tools, rules and norms, community, and division of labour** elements of the intermediary-level activity system which is followed by a more detailed account of the mediators of this activity system in section 5.3.3.

5.3.2 Tools, rules and norms, community, division of labour overview

Through the lens of AT, **Tools** which mediate this activity include **approaches to digital inclusion initiatives; infrastructure; digital skills learning resources** (online, offline and blended); **trust**, and **approaches to digital inclusion initiative training and support**.

Rules and norms refer to the explicit and implicit support, regulations, norms, conventions and standards that support or constrain actions within this activity system. Specific rules identified in this activity include **funding** and **political environment, policy** and **practice, knowledge sharing, collaboration, sustainability**, and **societal** and **cultural norms**.

Community incorporates those who share a general or common objective in the activity. In the case of this activity system, **community** relates to government and national organisations; regional and local intermediary organisations; funding bodies; networks, corporates, tutors and digital champions; and recipients of digital inclusion activities. As highlighted at national level, the community element of this activity system illustrates the 'ecosystem' of stakeholders involved in digital inclusion initiatives.

Division of labour for this activity is hierarchical in nature. Intermediary organisations deliver digital inclusion activities to individuals in need of digital inclusion support, through approaches (such as those described above), often in relation to a specific need. Intermediary organisations sometimes work directly with government departments, national organisations and funding bodies on national digital inclusion initiatives (see vignette 1 below). Others focus on regional and hyper-local-level

initiatives to reach out and support those in need (see vignette 2 below) working with digital champions, digital trainers and the local community.

5.3.3 Mediating factors

What follows is a more detailed account of the mediators of this activity system. This includes the **rules and norms** underpinning the digital inclusion activities carried out by intermediary-level stakeholders; the established **division of labour**; and the **tools** available to the **community**, where a number of contradictions that permeate this activity are revealed.

5.3.3.1 Tools

Tools mediate the subject's activities and can either enable or constrain these. Tools are considered concrete (e.g. technology) or abstract (e.g. language) and both actions and tools are influenced by the social, cultural context (Engeström, 1987). As mentioned above, **tools** which mediate this activity system include **approaches to digital inclusion initiatives; infrastructure; digital skills learning resources; trust; and approaches to digital inclusion initiative training and support** and are described as follows:

Approaches to digital inclusion initiative provision

Specific **approaches to digital inclusion initiative provision** captured through the study fieldwork involving intermediary-level stakeholders include:

- Community-based approaches;
- Integrated approaches;
- Reactionary approaches.

A brief description of these approaches is included in the national-level findings in section 5.2.3. Vignettes describing examples of these approaches captured in the study fieldwork through observations of digital inclusion sessions are provided below, combined with a summary of essential factors which contribute to the implementation of these rural digital inclusion initiatives. These specific examples were chosen because of their similar missions, but contrasting approaches. For purposes of confidentiality, names of the initiatives have been assigned pseudonyms and participating organisations have been anonymised.

Vignette 1 - National digital inclusion initiative with a community-based approach

This national digital inclusion initiative, delivered through the regional office of a national government funded intermediary organisation, is part of an intergenerational national digital inclusion initiative. The interactive digital training session observed involved students from a local rural school (trained as digital champions by said organisation) to visit residents at a local care home to share knowledge about using digital technology through the use of wi-fi enabled tablets. The session was chaired by a regional digital skills tutor from the national government funded intermediary organisation, and facilitated by a regional community engagement officer and care home staff member employed by a housing association.

Essential factors – This initiative provided digital inclusion training and support where individuals reside to engage with them face-to-face. Intermediaries played a crucial role in the upskilling of school students as digital champions and in collaborating with the school and housing association. This in turn enabled the initiative to develop capacity building for the local community. This together with the organisational culture of the housing association which understands the benefits digital inclusion can bring to their residents, and that of the school which promotes digital inclusion through this partnership and its community internet café, contributed to a potential sustainable digital inclusion model.

Vignette 2 - Hyper-local community-based approach

Tea & Tech (anonymised) is a hyper-local community-based initiative delivered in a rural church chaired by regional digital skills tutor from a national charity and facilitated by the church community coordinator and a digital champion. The initiative observed involved an informal drop-in training session held within a church activity space where members of the local rural community can bring in devices and ask for digital support while having tea and cake.

Essential factors – This initiative relied on individuals choosing to participate and walk through the door of the community organisation to receive face-to-face digital inclusion training and support. The church community coordinator, who instigated the Tea & Tech initiative by approaching the national charity at a local regional event, is a paid, permanent member of staff for the church. A supportive environment was provided

through a welcoming, community space, empathetic support, the opportunity to borrow a tablet, and the social context. Community capacity building was developed through the digital champion training of the church community coordinator who can continue to support others in the community once funding is withdrawn for the regional digital skills tutor, due to ongoing support through a digital champion online network. In this instance a short-term collaborative partnership was formed between a national charity and a rural church, which resulted in developing a potential sustainable digital inclusion initiative.

Vignette 3 - Integrated digital inclusion initiative approach

The collaboration between a rural-based housing association and the regional branch of a national third sector organisation (super intermediary organisation) is an example of an integrated digital inclusion initiative approach. The regional project manager of the national third sector organisation (regional super intermediary with national support) instigated the collaboration as part of a regional digital inclusion initiative by providing in-house digital champion training for wardens working in each of the housing associations residential homes and their manager. This training provided the wardens with confidence and knowledge to support their tenants with digital skills as embedded digital champions (as further explained in section 5.4.1 in individual-level findings). Previous to the training, wardens were providing a reactionary, less informed digital inclusion support as outlined in vignette 4.

Essential factors – Wardens play a crucial role as front-line workers whose role puts them in a position of trust to support vulnerable tenants with digital inclusion. Attendance of the manager at the training displayed management buy-in to the digital inclusion training, and reassurance for the wardens that management would support their training moving forward. The training session provided an opportunity to share knowledge about the challenges faced by tenants accessing and using digital technology and online service, living in a rural context. The training resulted in the housing association proposing to develop a digital inclusion policy for the wardens, and capacity building for the local community.

The three vignettes above provide examples of positive digital inclusion initiatives delivered within rural communities which have taken a strength-based approach (rather than a deficit-based approach) to digital inclusion. Although they have differing

approaches, they have the same mission of providing digital inclusion support, whilst working with the local community, developing capacity building and sustainability using the **tools** and **rules and norms** elements of the activity system. The following vignette provides an example of a contrasting approach to digital inclusion support observed during the study fieldwork.

Vignette 4 - Reactionary digital inclusion initiative approach

This approach as the name suggests becomes necessary due to people requiring on-the-spot support from human intermediaries often in public libraries or advice centres, who are unable to use online government services and need support through an intermediary organisation or actor to help them with a specific digital transaction. In turn intermediary organisations find themselves having to react to the complex needs of individuals (often those who are socially excluded or marginalised), resulting in a less-informed approach to digital inclusion support, that can leave the individual even less enticed to use digital technology and online services. An example of a reactionary approach observed involved a lady attending an advice centre to get support to access online government services. She was noticeably anxious. Although she had internet access at home, the connection was too slow to use the online verification system for the Universal Credit welfare benefit digital system. The intermediary at the advice centre played a crucial role in providing the client with support. Although digital inclusion from the client's perspective was not an obvious central need, from an intermediation point of view, digital inclusion support was essential to help the client with her online transaction and resolve her enquiry.

Essential factors – Intermediaries need to possess a calm persona, while providing empathetic support. Due to the urgent nature of the support, the intermediary may not always be in the position to advocate the benefits of digital inclusion, as in this case, which may result in the individual remaining digitally marginalised, due to the short-term nature of the intervention.

These approaches to digital inclusion initiatives highlight a significant **contradiction** between the **tools** and **object** and ultimately the **outcome** of this activity system, as approaches to digital inclusion initiative provision have had to change and innovate due to the evolving nature of the digital inclusion landscape, and the realisation of how local human intermediaries are best-placed to reach out and engage with those in

need of digital support, including those on the margins of society, but also those established human intermediaries who are in regular contact with communities in need of support. However, intermediaries have also found themselves having to provide digital inclusion support in a more reactive way, helping those in need of on-the-spot support for accessing and using online services, specifically Universal Credit, whilst taking intermediaries away from the preferred community/integrated-based digital inclusion initiative approaches.

Approaches to digital inclusion skills training and support

Through the study fieldwork, insight was gained into the approaches taken by intermediary-level stakeholders in delivering digital inclusion skills training and support within the region in which they were based. This includes details of how digital skills training and digital support was undertaken within a rural context, details of the format of specific digital inclusion sessions observed, and the inherent challenges in the process.

Stakeholders took the time to define what is meant by digital inclusion training and support as explained:

‘Digital inclusion projects are about getting residents digitally included and providing free courses and support for them’ [ME10]

‘Digital skills training has moved on from end-users to organisations. Our involvement would be time limited with an agency and we do a show and tell of how to work with hard to reach groups. It’s not about learning how to use MS Excel. Its more about helping them to know how to keep their family safe online and how to share that knowledge’ [ME18]

This therefore highlights how digital inclusion training and support is not just about the provision of access and digital skills training, it’s also about the development of peoples’ soft skills in a supportive environment. Importantly these insights show how training and support is provided not just to ‘end users’ but to front-line support workers.

For clarity the sessions captured through the study fieldwork are divided between training sessions and support sessions.

Training sessions observed and discussed were delivered in a classroom group format, with a trainer at the front of the class, in a classroom environment. Training sessions observed were delivered to targeted front-line workers and managers from housing associations, and to a group of volunteers from a rural village. However, stakeholders also mentioned training third sector organisations and staff from local authorities. The training sessions observed were interactive digital champion training sessions with the aim to advocate the benefits of digital inclusion and upskill participants in relation to how they can support others through digital technology as explained

'We run sessions through their [front-line workers] own fears of facing others and the need of not having to be a digital whizz. People worry that their ability is not good enough, and that they are doing something wrong. So, it's about building their confidence and touching on the main points they need to consider. Things like security, keeping things simple for people and watching geeky terminology, and being honest with people' [ME3].

Participants in the sessions observed seemed relatively engaged in the training as captured in his observation note:

The trainer encouraged participants to introduce one another and to discuss issues related to digital. Participants were clearly keen to take part in the training, but were also aware of limited time they had to take part due to work commitments. They were happy to talk about stories of experiences with tenants and willing to share knowledge about their own experiences [OB2].

However, through the interviews, intermediary stakeholders revealed not all front-line workers are so keen to be trained due to their lack of confidence in their own digital skills, but also the negative affects digital has on their clients. The following quote from a super intermediary captures the essence of these viewpoints as explained:

'Sometimes staff can be quite resistant to digital. It is definitely about their own digital skills, what they were nervous about and makes them hate it [digital]. It is up to us to turn that around.Sometimes I am working with staff from the third sector who are dead angry about digital because they see the terrible impact it is having on the most

vulnerable people [referring to those supporting individuals with online services]. So, during training with them, they will be saying 'it just makes me mad, it's just another example of things getting worse for the poorest people, people who are having the crappiest time, this is terrible for them'. I'll be in there trying to unpick some of that. For me it's understanding and empathising with their appropriate anger, and then saying what is going to happen if you don't support them, and how you can use digital to make their lives better' [ME19].

This emphasises the crucial role super intermediaries play in training up front-line workers and building capacity into communities, whilst raising the question if such capacity-building training did not exist, what would be happening to digitally excluded communities.

Support sessions observed in contrast were less formal often in the format of drop-in sessions where intermediaries held regular sessions in a fixed location in a rural public library or church where members of the public could drop-in between specific hours for one-one-one support or as a small group. Intermediaries also held support sessions in care homes, where residents of the home could drop-in without having to leave their building. Digital inclusion support referred to and observed included digital support for job seeking, accessing government services, online shopping and online banking, to searching for reliable health information. Intermediaries stressed the importance of making digital inclusion support compelling in nature so it would engage individuals, ease any fears and encourage them to want to learn more as explained:

'People who come along are quite afraid at first but overcome some of their fears after a bit of trial and error. I always do training linked to a hobby' [OB7].

The importance of making digital inclusion training and support person-centred and relevant was also highlighted as explained:

'Adults are internally motivated and self-directed. Adults bring life experiences and knowledge to learning experiences. Adults are goal-orientated. Adults are relevancy orientated. It needs to be relevant to them otherwise they switch off. Adults are practical. They need to practice what they do, and adults like to be respected' [ME14].

This particular stakeholder referred to Blooms Taxonomy and Knowles Learning Theory of Relevancy, the only interviewee to do so during data collection.

The need to practice and do things for themselves was particularly evident in observations where participants of the sessions were encouraged to use devices themselves rather than having someone do it for them and show them. However, stakeholders also emphasised that not everyone is motivated to get digital inclusion support as explained:

‘People who don’t want to attend won’t come to an advertised IT class. The only way to motivate them is by trying to get to groups that they attend such as the local walking group, or bowls etc. They are not forced into it [digital inclusion support]. You get chatting to people about the benefits of technology. It’s very rare these days to come across someone who doesn’t have some of sort of technology in a drawer at home. But you do come across people who have no interest and wish to carry on as they are, and you have to respect that’ [ME3].

Other support sessions observed were in advice centres where intermediaries were providing social support which included an element of on-the-spot, reactionary digital inclusion support. See Vignette 4 for an example of a reactionary session. The sessions observed were on a one-on-one basis, and were generally stressful in nature as captured in the observation note below:

The client comes into the interview room with lots of folders and letters. The room is very small with three chairs and a desk and one small window, with barely any room to fully open the door. The client is clearly uncomfortable in this environment, looks agitated, is visibly shaking with tears in her eyes. The client asks for help with housing benefit and using the online system as she is going through a divorce. The intermediary took on a trusted, caring role, whilst working in an efficient manner [OB10].

This again emphasises the crucial role of the intermediary in providing support not just with digital skills but in a caring capacity and in a position of trust. The motivation of individuals receiving digital inclusion support is further discussed in the individual-level findings in section 5.4.1.

How digital inclusion skills training and support session were instigated was also discussed by intermediary-level stakeholders. In relation to **training sessions** observed, participants were either invited to attend a one-off training event either through their organisation or directly through an intermediary organisation. For example, the volunteers from OB3 and the church community coordinator from OB4 approached the intermediary organisation directly for training, displaying a bottom-up **community-based approach** to digital inclusion. In contrast, through a more strategic, **integrated approach**, frontline workers participating in OB1 and OB2 were approached directly by intermediary organisations in the effort to build-capacity and advocate digital inclusion.

To achieve this more targeted, integrated approach, super intermediaries working from a more strategic point of view highlighted the importance of asset-mapping across their region to ascertain opportunities and gaps for digital inclusion provision and potential partners as explained:

‘We work with parish councils and identify what the need is in a certain areas, and then work with the learning provider to set up a course’ [ME10]

‘We do monitor where we do deliver across the county already..... really it’s about us getting to know as many of the local partners as possible and figuring out what their learners need’ [ME11]

Some unintended consequences of digital inclusion training and support were also observed in the study fieldwork as explained:

‘An unintended consequence of the digital inclusion training session became apparent when the trainer stated ‘I have created a monster’ referring to a resident who had made a politically motivated comment after viewing a news item about Brexit. The trainer’s comment appears to imply that on the one hand he enabled a resident to use video-conferencing for the first time and see her family in New Zealand, whilst at the same time exposing the resident to the Internet and the inherent challenges that brings with accessing reliable information. The trainer appeared visibly upset.’ [OB5 note].

Infrastructure

Infrastructure in relation to technological, local and social infrastructures were frequently referred to as key factors in the delivery of digital inclusion initiative provision by stakeholders and thus an essential **tool** in this activity system.

Technological **infrastructure** such as mobile phone reception, broadband and WiFi connectivity, and digital devices such as access to mobile devices (phones and tablets) and laptops, were repeatedly cited as crucial technological **tools** for providing digital inclusion training and support.

For example, as mentioned in vignette 1 and 2, tablets and mobile phones were most commonly used in digital inclusion sessions which were either owned by those attending the session or provided by the intermediary organisation to enable individuals to try them out.

Mobile devices were also used in compelling ways in digital inclusion training sessions in the effort to advocate digital inclusion to front-line workers and management of service providers and encourage them to consider digital inclusion as an important consideration for their clients. For example, the use of language and cultural heritage combined with the use of digital technology as a way to engage elderly residents in care homes was demonstrated to staff employed by care home providers in Wales.

The trainer handed out VR headsets with pre-loaded film content to those participating in the workshop. Through the VR headset participants watched content from film archives showing footage of life in 'the olden days', music, and local scenery of the Welsh coastline and mountains. The trainer highlighted how enabling residents in care homes to view such content in this way would stimulate their senses and evoke memories that would be of benefit to their well-being, particularly those suffering from Alzheimer's and Dementia [OB1].

However, poor connectivity (broadband and mobile) was highlighted as a key barrier to providing digital inclusion support, where intermediaries had to think of 'out of the box' ways of improving connectivity.

‘The WiFi in venues can be unreliable and so I have to use multiple devices and a MiFi device at times to enable sessions to happen’ [ME16]

‘It is difficult to find venues in rural areas. Home visits or a mobile van would be cheaper as while some venues are free others charge’ [OB7]

Some intermediaries noted that connectivity is improving, but individuals are unaware of this as explained:

‘People get stuck in their head that there is poor connectivity to my village, and they don’t realise that this changes over time as there is a drive for better connection, better speeds. They don’t realise that things move on’ [ME3].

Local and social infrastructures such as community assets, transport provision, and the number of people available and willing to volunteer as digital champions were frequently referred to be stakeholders as crucial factors in enabling the delivery of digital inclusion training and support in rural communities. However, in many instances, stakeholders referred to the depleted nature of such resource and how this hampered digital inclusion training and support. The following quote sums up the essence of this:

‘Rurally we have a lack of transport and venues. We have libraries dotted around but you don’t have transport to access the library and not everyone drives. There is not a train station everywhere and therefore have been lots of cuts in buses going through villages every week. So rather than having buses running twice a day as in ten years ago, now it could be just twice a week, which stops you from accessing bigger towns and cities where you can go to a library or community centre etc. It seems massively unfair just because of where you live’ [ME13].

The researcher attempted to use public transport while carrying out fieldwork as a way of experiencing first-hand the issues with public transport, and despite best intentions, the researcher had to resort to hiring a car or getting lifts from research participants.

Similar to that evidenced in the national-level findings, finding volunteers to support others with digital due to the sparsity of the population but also the need to travel as explained:

‘some of the volunteers don’t drive, they could be student volunteers, elderly volunteers that don’t drive which then makes it difficult to get to those rural areas’ [ME10].

The lack of infrastructure in terms of technological infrastructure, but also in terms of local/social infrastructure captured in the study fieldwork highlights a significant **contradiction** between the **tools** element and the **object** of the activity system as the lack of infrastructure hinders the provision of digital inclusion initiatives and the delivery of digital inclusion skills training and support as further discussed in section 5.3.3.2

Digital skills learning resources

Similar to the national-level activity system findings, a key **tool** to enable the **object** and desired **outcome** of this activity system is digital skills training and support for those in need. Intermediary-level stakeholders interviewed and observed evidenced training is often delivered through blending face-to-face informal learning with online learning content, or purely online or face-to-face. Learning content and resources were either tailor-made resources or specific online digital skills content, often on a theme or information need, such as health information, relevant to the individuals’ context.

Trust

In terms of AT the issue of **trust** as a psychological **tool** was deeply embedded in the intermediary-level activity system and was displayed in a variety of ways, specifically through **trusted relationships**, **trust in technology**, **trust in ones own ability** (self-efficacy), and **institutional trust**. Indeed, underpinning the issue of trust in this activity system is the need for a **trusted, supportive environment**.

Intermediary-level stakeholders observed delivering digital inclusion training and support often appeared to be in positions of trust, who had knowledge of the local rural context and a thorough understanding of the challenges faced by rural communities. Intermediaries effectively were in the position to give technology a human face by building **trust in the technology** and relieving individuals from having to interact with unfathomable digital interfaces. Furthermore, the development of **trusted relationships** between intermediaries and those attending digital inclusion support sessions appeared to be an essential factor in providing digital inclusion support particularly for those living in rural isolated communities as explained:

‘The community coordinator’s role appears particularly important for the rural community as she herself has gained confidence from the digital champion training, so she can now help with the technology in the church, and people attending weekly digital inclusion sessions and the wider community. She is local to the community and has built up a trusted relationship with the community’ [OB4]

Trusted supportive environment

The issue of trust is also important to intermediaries in relation to the level of trust (or self-belief) in themselves to be able to support others (self-efficacy). For example, not only do they need digital skills, more importantly they need to be able to impart their knowledge with empathy. However, intermediaries are only best able to do this if there is adequate, local resource and infrastructure, and technology that works for them to draw on in the local rural community from which they feel supported and in which they can trust.

However, intermediaries evidenced failings in the notion of the trusted, supportive environment when dealing with enquiries for online government services. For example, intermediaries were observed trying to do their best in offering social and digital support to individuals in relation to Universal Credit. However, intermediaries expressed anger and resentment towards the lack of support (in terms of funding and resource) provided from the UK Government, funding bodies, and DWP, to enable them to support individuals adequately. Indeed, intermediaries expressed how they found themselves repeatedly struggling to meet demand, but also dealing with difficult situations leaving them feeling ignored, and undervalued resulting in a breakdown in **institutional trust**, as explained by focus group participants interviewed:

‘They [DWP] are looking at it [the situation] very factually, saying people aren’t claiming [benefits] because they don’t need to. In my personal cynical view, it’s not in their [DWP] interest to make it [Universal Credit online system] any easier for people to claim’ [ME2]

‘Many people aren’t claiming benefits that need to claim benefits, and are living off no money. People are putting themselves in horrendous situations, homeless, foodbanks etc’ [ME2].

‘People who designed it [Universal Credit] are from government agencies in urban areas that have technical information about what happens in rural areas but don’t have the experience of rural areas’ [ME2].

This clearly highlights a significant **contradiction** within the **tools** element of the activity system and between the **tools** and **object** of the activity system, due to the lack of apparent institutional trust that could effectively dismantle the activity system.

5.3.3.2 Rules and norms

Funding & political environment

The funding of digital inclusion initiatives was repeatedly referred to by intermediary-level stakeholders. From an AT perspective, the constraining and enabling feature of funding meant this factor finds its natural home in the **rules and norms** element of this activity system.

Intermediaries in the form of learning providers deliver funded qualification-based basic digital training, which is free to the end-user. However, a minimum number of participants is required for the training to go ahead, which as highlighted by stakeholders can be a problem in rural areas due to population sparsity.

‘In some sessions I only have one person come in as not everyone can or wants to travel in a rural area’ [OB7].

Stakeholders repeatedly talked about the acquirement of short-term funding to support digital inclusion initiatives and the additional costs of delivering in rural areas as explained:

‘We are aware there were a lot of projects in digital inclusion but are always with short-term funding, but very few in the rural context’ [ME19]

‘Not so many organisations are doing digital inclusion outreach work in rural areas largely due to the costs of travelling and the lack of funding. It’s difficult to get funding for rural areas as digital inclusion funding is often, but not always, target driven’ [ME1].

This highlights a **contradiction** between the **tools** element and the **object** of the activity system as the lack of funding hinders the provision of digital inclusion initiatives and the delivery of digital inclusion skills training and support.

Funding cuts and closure of local assets also were repeatedly mentioned by intermediary stakeholders as barriers/hinderers to implementing digital inclusion activities, particularly in rural areas, thus affecting the successful delivery or indeed sustainability of digital inclusion activities.

A lack of local and social infrastructures in rural communities were frequently discussed by intermediary-level stakeholders, who expressed much frustration.

‘Closure of job centres, but also closure of banks is a real issue. There is now only one bank in XXXXX [region in Scottish Highlands]. The impact this is having on small businesses is really quite substantial.There’s just this stripping back of provision with no thought of what happens, and seeing digital as something that will fix all that. So, banks are keen for online banking, but if you have a cash register full of money, digital doesn’t help with that. It’s making it very difficult for people living in an economy where living in rural areas where there is still a lot of cash kicking about rather than digital’ [ME19].

Indeed, stakeholders expressed concern of the closure of job centres in the highlands of Scotland, emphasising how such closures had caused great anxiety of those trying to travel to a job centre to verify their identity as part of the Universal Credit welfare benefit process as explained:

‘The nearest job centre from here is either a 120-mile round trip north or an 80-mile round trip south. We have to support people with travel costs’ [ME2].

Policy & practice

Similar to the national-level activity system findings, the mediating factor of **policy and practice** was a dominant issue in relation to the provision of digital inclusion initiatives in UK rural communities, specifically in relation to how the implementation and delivery of digital inclusion initiatives are governed, supported and constrained. As such the

mediating factor of **policy and practice** finds its natural home within the **rules and norms** element of the activity system.

Stakeholders evidenced their understanding of the UK digital inclusion agenda by repeatedly citing policy documents such as those listed in Table 17 in section 5.2.1. Intermediary-level stakeholders also elaborated on how digital inclusion initiative provision is driven through a growth of digital inclusion policy and strategy at regional and local-level. For example, stakeholders reported how at a regional level, a growing number of local authorities/district councils have developed or are in the process of developing their own digital inclusion strategies which set out a range of activities to help increase digital inclusion rates within the region. These strategies are often part of the larger policy priority or strategic plan, driven by devolution and the UK government's Digital Strategy (Cabinet Office 2013; DCMS, 2017) and digital-by-default agenda (as referred to in the national-level findings in 5.2).

Intermediary-level stakeholders also provided examples of how agencies and service providers are beginning to embed digital inclusion into their organisation by employing someone to take on that specific role but didn't necessarily know of other people doing similar work as explained:

'My role is very new. You won't find that many people that cover the digital inclusion and digital transformation in an organisation' [ME13]

'My role as digital transformation officer was implemented 18 months ago. It's part of the district council's digital strategy, in which digital inclusion plays a big part' [ME10]

However, a significant contradiction is evident between the **rules and norm** element and **object** of this activity system in relation to digital inclusion policy and practice as alluded to in the national-level findings. Intermediaries repeatedly highlighted the struggles of digital inclusion provision in rural communities particularly in relation to Universal Credit. This contradicts the story from the UK Digital Strategy and its digital-by-default agenda which clearly states that:

'We call this 'assisted digital'. This is an integral part of providing digital-by-default services. Departments will consider how they will provide this assistance at the same

time as they are digitally transforming their services. Government Digital Service worked with departments to develop a cross-government approach to this issue. This is to ensure those users who need this help receive a consistent service across the multiple services they use' (Digital Strategy, 2014).

Intermediary stakeholder repeatedly mentioned the 'assisted digital' offer is limited, and government instead leans on and relies on third sector and voluntary organisations to do this work with little resource or funding.

Knowledge sharing

Very similar to the findings at national-level, the notion of 'knowledge sharing' was an important mediating factor for the object of the activity system to be achieved. Although the term 'knowledge sharing' was not used explicitly by intermediary stakeholders, knowledge sharing activities were clearly evidenced, the extent to which depended on their strategic involvement in the delivery of digital inclusion initiative provision. For example, super intermediaries, demonstrated essential boundary spanning behaviours by sharing insights to policy makers and national organisations, through steering groups, round tables, policy events and conferences of their experiences of delivering digital inclusion initiative provision in rural communities. Indeed the researcher was invited to such an event through the research.

Knowledge sharing was also evidenced by intermediary stakeholders when providing digital skills training and support for individuals, where there would impart knowledge of how to use digital devices, but also how the use of such technology can provide wider benefits, as further revealed in the individual-level findings in section 5.4.

Collaboration

Partnership working and collaboration with other organisations working in the digital inclusion arena and beyond is actively encouraged through the UK Digital Strategy (Cabinet Office, 2013) and was something that was revealed repeatedly through the study fieldwork.

'When I look at the challenge ahead of me there is no way that I can reach all of these housing tenants by myself, so working in partnership is really important to me and connecting with lots of people' [ME13]

For example, a digital inclusion officer employed by a local authority had created a network of contacts, so they had a picture of all the digital inclusion activities happening in the area, highlighting where there were gaps in provision in certain localities. Such gaps could be closed by collaborating with parish councils or nearby societal organisations and charities.

However, intermediaries also provided incidences of where this collaborative approach to digital inclusion delivery broke-down or indeed prevented the continuation of digital inclusion initiative provision. This quote provides an example:

'The digital inclusion project had too many delivery partners, the process in place was just wrong and the objective and target audience was difficult to achieve. The project resulted in delivery partners pulling out and in the end as targets weren't met the initiative was cancelled.A number of partners pulled out due to a lack of funding.It could have been done so much better. Culturally a lot of these small organisations were just not ready to take on such a project' [ME9].

Also, collaboration between specific organisations could be short-lived due to the narrow nature of some digital inclusion initiatives and short-term funding, resulting in the undoing all the work that had been developed during the digital inclusion initiative.

Sustainability

Stakeholders frequently talked about how digital inclusion initiatives were notoriously short-lived due to the provision of short-term funding. However, examples of potentially sustainable digital inclusion initiatives were captured through the study fieldwork as described in vignettes 1 and 2 above. Specifically, both initiatives had an element of capacity building, built into their approach. Crucially both initiatives had a local (paid) intermediary who could continue digital inclusion activities once funding ceased, and national support was withdrawn. In the case of the intergenerational digital inclusion initiative this was the regional community engagement officer within the regional housing association in vignette 1, and the church community coordinator in the Tea & Tech initiative in vignette 2.

Societal and cultural norms

Through the use of AT, findings emerged in relation to societal and cultural norms. Indeed, the issue of digital norms in relation to the digitalisations of services and support services, and the consequences this brings to those unable to use digital technological was often inferred through the dialogue of intermediary stakeholders. Some saw digitalisation as a norm that everyone should adjust to while other saw digitalisation digital-by-default strategies as an inherent challenge that could effectively digitally exclude individuals.

Some organisations stated that they were not culturally ‘ready’ for digital inclusion delivery, where they had been put in the position of having to support individuals with digital support for Universal Credit.

Other organisations proactively reached out and engaged with communities through culture, for example, by using Welsh language and cultural heritage, as explained by a super intermediary:

‘I’m a Welsh speaker and both of my digital champions are Welsh speakers. It does have a big effect on how we give digital inclusion support to people’ [ME3].

Some intermediaries talked about using music, the arts, and history as cultural hooks to motivation individuals to use technology for the first time as a way to gain their interest and want to learn more.

Community

Intermediary stakeholders naturally discussed the involvement and interactions of the **community** in this activity system, in relation to the **rules** and **norms**, and **tools** outlined above, while also highlighting specific **contradictions** within and between the elements of the activity system. For example, funders were specifically discussed by intermediary stakeholders who revealed how digital inclusion intermediary organisations depend on funding to sustain digital inclusion activities. In return intermediaries have to meet specific measurement targets and write an evaluation of the digital inclusion activities carried out so funders can distinguish the relative success of a specific digital inclusion initiative. This highlights a significant primary **contradiction** within the community element of this activity system due to the

misalignment between the expectations of funders who took a more targeted/business approach to digital inclusion compared to some intermediary organisations who refused to turn anyone away due to their social, inclusive mission.

In AT terms, trust, networks and collaboration are considered as embedded characteristics of the community where these interactions take place. Indeed, stakeholders repeatedly revealed the necessity of working collaboratively with other organisations, whilst also questioning the extent to which this was really happening on the ground, highlighting another **contradiction**.

Networks of local intermediary organisations and agencies permeate the **community** of this activity system such as national or regional networks of local organisations and agencies such as learning and advice centres, library services, service providers and housing associations, who all play a part in digital inclusion initiative provision. However informal networks, such as those attending the local church or village hall art class, also play an important role for intermediaries as a means to engage with the local rural community. The permeation of these networks and other stakeholders in the **community** element of this activity system illustrates what the researcher describes as the 'ecosystem' of stakeholders involved in digital inclusion initiatives.

Division of labour

A significant finding within the division of labour element of this activity system is the apparent shift in operations by some intermediary organisations from working exclusively with digitally excluded communities directly, to also concentrating their efforts on training up front-line staff who come into daily contact with such communities taking a more integrated approach as explained:

'We try to work on projects [initiatives] on two fronts. Firstly, it's having digital champions employed going out into the county delivering to communities and running drop in sessions/ training sessions. The second part is that we also run training events and encourage people to get training on helping others. That is having digital champions embedded in organisations, such as the council, their front-line staff, and housing association staff' [ME3].

This shift is in response to needing to find alternative ways in which to engage with hard to reach individuals who fail to see the advantages of digital technology or attend digital support sessions. Intermediary organisations have also found themselves having to provide digital inclusion support in a more reactive sense (see vignette 4), highlighting a significant **contradiction** between the **division of labour** and the **object** of the activity system as intermediaries struggle to provide adequate support and resent the need to support individuals in such a way as evidenced in section 5.3.3.1.

Summary of contradictions

Table 20 and Table 21 provide a summary of primary and secondary contradictions revealed from the intermediary-level analysis.

Location of contradiction	Description of contradiction
Community	Becomes much more evident at intermediary-level the differing approaches of organisations, while working towards the same mission/agenda, highlighting differing organizational cultures and how this can cause conflict in digital inclusion initiative provision. For example, community organisations reluctant to turn people away who don't fit criteria of digital inclusion funding, yet governing organisations have to reach specific targets often to meet funding requirements. Lots of talk within community organisations, but are things really happening on the ground. Everyone thinks someone else is doing the work. Lack of joined-up thinking. If cross-sector working not happening affects object and outcome of DI initiative.
Division of labour	Anger, resentment and frustration of some intermediaries having to deal with issues related to Universal Credit, while taking them away from other capacity building digital inclusion initiative work.
Tools	While the issue of trust is embedded throughout the activity system, low levels of institutional trust were evidenced in relation to intermediaries dealing with enquiries in relation to Universal Credit

Table 20 Primary contradictions at intermediary-level

Location of contradiction	Description of contradiction
Tools vs subjects	Intermediaries not having enough skills to support others
Rules vs Tools	Asset-mapping highlights gaps in provision of DI support but also gaps and depletion of local infrastructure in rural communities.
Tools vs object	Lack of infrastructure (technological and local/social) hinders provision of digital inclusion initiatives, training and support in rural communities
Tools vs object	Short-lived funding and the lack of adequate funding for rural digital inclusion provision hinders provision of digital inclusion initiatives, training and support, and displays a lack of understanding of the rural context.
Rules vs object	Policy & practice – Significant contradiction between what is written in policy and what is actually happening on the ground.

Table 21 Secondary contradictions at intermediary-level

5.4 Individual-level Findings

The individual-level thematic network table (Appendix 10) reveals the findings from fieldwork observations and focus groups which have then been transposed onto the individual-level digital inclusion initiative provision activity system presented in Figure 13.

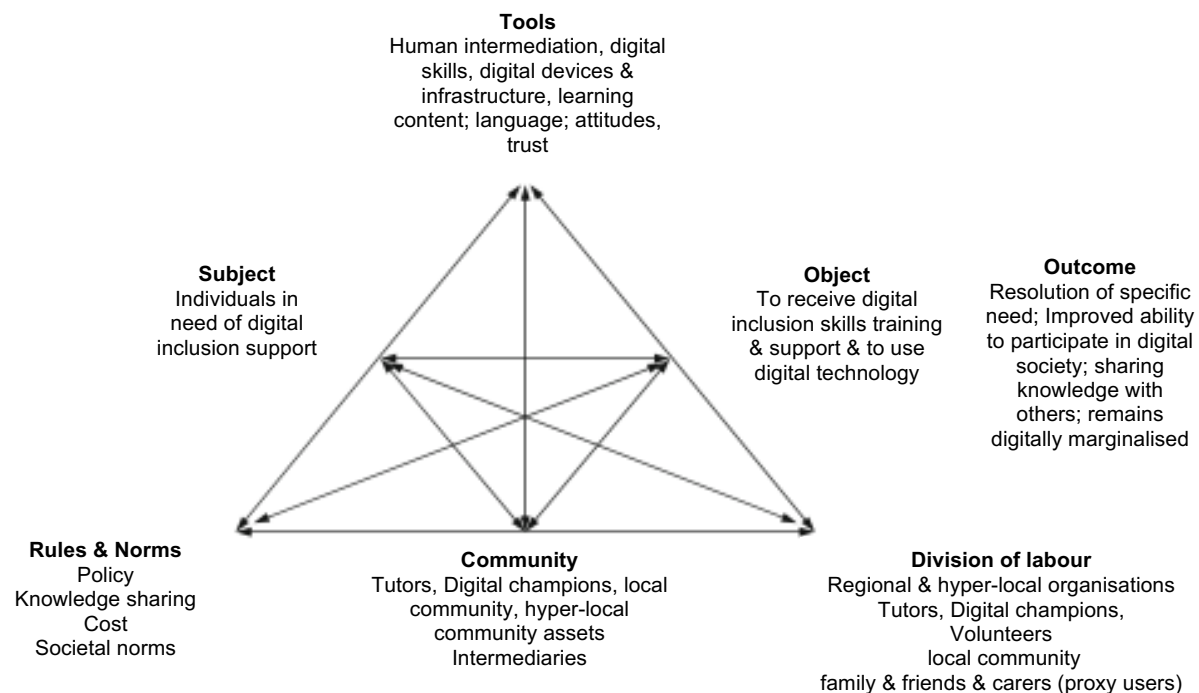


Figure 13 Activity system of individual-level digital inclusion initiative provision

5.4.1 Overview of individual-level AT system

The **central activity system** under investigation is individual-level digital inclusion initiative provision within the context of UK rural communities. Individual-level stakeholders in need of digital inclusion support (**subject**) provided a **multi-voiced** perspective (through focus groups and observations) about their experiences of receiving digital inclusion support in relation to a specific need (**object**) through digital inclusion initiatives in the context of UK rural communities, across England, Scotland and Wales. The desired **outcome** for these individuals varied, but in general terms resulted in recipients resolving a specific issue or problem through the means of digital. Some experienced an improvement in the ability to use digital and participate in the digital society and share knowledge with others, while others remained digitally marginalised.

These findings specifically relate to the digital inclusion support observed in fieldwork in which a number of contradictions were revealed that permeate this activity. Such contradictions are important as they play a central role in the change and development of an activity over the lifetime of the activity itself (Karanasios and Allen, 2013).

Individual-level stakeholders identified **(subject)** were individuals and communities seeking digital inclusion support for a specific need, such as for a specific transaction or interest; as part of a social activity; or for personal development either in the workplace or as a volunteer to help others in need of digital support. Table 22 illustrates the variety of motivations behind why individual-level stakeholders received digital inclusion support **(object)**.

Needs	Examples of digital inclusion support observed
for volunteering as a digital champion	One-off formal digital champion training with members of a rural community who had recently installed a kiosk (computer and private seating area) in their village hall to enable them to be able to provide digital support for the local community. (digital champion training)
as part of a social activity	Residents in a care home shown how to use mobile digital devices by students from local school (intergenerational digital inclusion initiative). Members of local community attended church social activity that blended the opportunity to meet, chat and have tea and cake with learning about digital technology (community-led digital inclusion initiative).
in the workplace	One-off formal digital champion training session for housing association wardens to raise awareness of why and how they can support their digitally marginalised housing tenants. One-off formal digital Inclusion advocacy and training session introducing staff working in care homes to interactive digital technology such as VR headsets and mobile apps that can be used to support the well-being of care home residents.
for a specific transaction	Booked appointment at advice centre for digital inclusion support in accessing online government services and applying for welfare benefits through Universal Credit.
for a specific interest	Formal training session, part of a 20-week course, learning how to maintain a computer. Library informal drop-in sessions where individuals received support to access information or online tutorial about a specific interest of hobby.

Table 22 Variety of motivations for digital inclusion support

The variety of motivations for the need of digital inclusion support across the individual-level stakeholders highlights a contradiction between the **subject** and **object** elements of the activity system, as it reveals a wide variety of motivations (also termed as poly-motivation) among subjects in achieving the **object** of the activity system, with different degrees of urgency. For example, the motivation behind choosing to get digital inclusion support for a hobby could be said to be less urgent than the need to get digital inclusion support to access welfare benefits. This therefore reflects the assortment and complexity of needs across individual stakeholders and thus the driver and need for digital inclusion initiatives to embed specific digital inclusion support and capacity to help achieve their objective.

Table 22 reveals a further contradiction in that while some of the recipients of digital inclusion support in this study were digitally excluded or marginalised, others already had some knowledge and skills of using digital technology and access to a device; were not always specifically vulnerable; and in some cases, received support so they could impart their knowledge onto others. This highlights that recipients of digital inclusion support in this study are from **all walks of life** and not just ‘disadvantaged communities’ or ‘non users’ as historically reported in academic literature and through policy. This therefore highlights a need to change the rhetoric across the digital inclusion landscape as it is not only those marginalised from society that benefit from digital inclusion support.

5.4.2 Tools, rules, community, division of labour overview

Through the lens of AT, the mediators of this activity include the **rules and norms** (explicit and implicit) underpinning the individual stakeholders’ digital inclusion support through various initiatives; the established **division of labour**; and the **tools** (physical and psychological) available to the **community**.

Tools used to mediate this activity include **physical tools** such as **human intermediaries** (digital tutors, digital champions, front-line workers), **digital devices and infrastructure**, and **learning content**, and psychological tools such as **language, trust**, and the **attitudes** of individuals in receipt of digital inclusion support (see section 5.4.3.1).

Several **rules and norms** in this activity system regulate the subject's actions toward the object, (explicitly or implicitly), as well as other actors involved in the activity, including the tools employed and how they are used. **Rules** highlighted **included: knowledge sharing, policy, and cost**, together with **societal norms** (see section 5.4.3.2).

Community incorporates those who share a general or common objective in the activity. As highlighted at national and intermediary level, the community element of this activity system illustrates the 'ecosystem' of stakeholders involved in digital inclusion initiative provision. In the case of this activity system, community relates to the tutors, digital champions and intermediaries providing digital inclusion training and support, often provided in local community venues owned by hyper-local intermediary organisations such as community centres, churches, libraries and other community assets.

The **division of labour** for this activity is hierarchical in nature. Regional and hyper-local organisations work **collaboratively** and reach out and engage with communities and individuals in need of digital inclusion support in the workplace and in life, through the use of tutors, digital champions, and volunteers. Evidence of family and friends and carers was also apparent in this activity system.

5.4.3 Mediating factors

5.4.3.1 Tools

Tools used to mediate this activity include **human intermediaries** (digital tutors, digital champions, front-line workers), **digital devices and infrastructure, learning content, language, trust**, but also the **attitudes** of individuals and are described as follows:

Attitudes

Attitudes towards digital technology were an important psychological **tool** in individual-level stakeholders achieving the objective of their activity. The attitudes of individuals displayed in observations can be graded across four layers:

- Digital support by **choice** – those who **chose** to get digital inclusion support for everyday life activities or in the workplace;

- Digital support by **compulsion** – those who through digital inclusion initiative engagement strategies feel **compelled** to get digital inclusion support for everyday life activities or in the workplace;
- Digital support by **conformity** – those who initially resisted aspects of digital technology **conformed** as they saw the benefits of technology through digital inclusion support;
- Digital support by **coercion** – those that felt **coerced** or **forced** to use digital for a specific online transaction due to the online systems in place and the lack or limited offline options to fulfil this transaction.

Table 23 illustrates examples of how these attitudes were displayed in fieldwork observations by individuals in relation to a specific digital inclusion activity.

Attitude	Digital Inclusion activity
Choice	Individuals chose to participant in digital inclusion drop-in digital inclusion session as they were motivated to do so, for example, to improve their existing knowledge of digital technology and build confidence.
Compulsion	As a result of digital inclusion initiative engagement strategies such as demonstrations of how digital technology can be used to support hobbies and interests or how specific technologies such as VR headsets operate, individuals feel compelled to develop their knowledge of digital for everyday life and in the workplace.
Conformity	Individuals initially resistant to using government online services conformed to using them by building confidence in digital skills more generally first through digital inclusion support.
Coercion	Individuals feel forced or coerced to seek digital support to access government services online, such as Universal Credit, due to the lack of an offline alternative, the urgent need to resolve a problem, and the financial consequences and implications.

Table 23 Examples of attitudes for specific digital inclusion support

These four psychological attitudes incurred across individuals when receiving digital inclusion support highlight contradictions between the **object** and **tool** elements of the activity systems as the attitudes of individuals facilitate or inhibit the object of the activity, which ultimately impacts the **outcome** of the activity. For example, those observed that received digital inclusion support by **choice** tended to have a positive attitude towards technology and appeared to be well on their journey of becoming

digitally included due to their motivation of wanting to obtain ongoing digital inclusion support, learn more about how to make the most of digital technology, thus enabling and empowering them to participate in society as a digital citizen.

Those observed that received digital inclusion support by **conformity** or through **compulsion**, displayed a more wary attitude towards technology initially. However, with the support provided through the digital inclusion initiative, showed signs of overcoming their fears and anxieties and becoming more willing to consider further engagement and learning with digital technologies. While the outcome of this would enable them to experience an improvement in their ability to participate in society through digital, and empowered to share knowledge with others, they could be considered less along their digital inclusion journey than those who **chose** to receive digital inclusion support at the outset.

In contrast to the above, those observed who felt **coerced** to seek digital inclusion support for a specific transaction, such as for claiming benefits through Universal Credit, displayed a negative attitude towards technology and as such may remain digitally excluded or marginalised. For example, for some individuals observed, this intervention was a stressful, anxious experience, and one of their first interactions with technology, ultimately and not surprisingly dissuading them from using digital technology again. The digital inclusion support observed was often a single intervention with little or no on-going digital inclusion support offered, in relation to a specific transaction, which if unresolved would result in financial hardship (due to the lack of benefits being received), or the possibility of benefit sanctions being imposed. Individuals were therefore provided with limited opportunity to engage further with digital. While these individuals received digital inclusion support to resolve a specific need, it did not necessarily result in them becoming more digitally included. In fact almost the opposite. Such an experience has the potential to further discourage individuals to use digital technology, thus highlighting the contradictory nature of digital inclusion support when accessing and using specific government online services.

A visual model of the four C's of psychological attitudes (choice, compulsion, conformity, and coercion) described above in Table 23, illustrated in Figure 14 depicts the experiences and attitudinal journey of individuals who received digital inclusion support in the study.

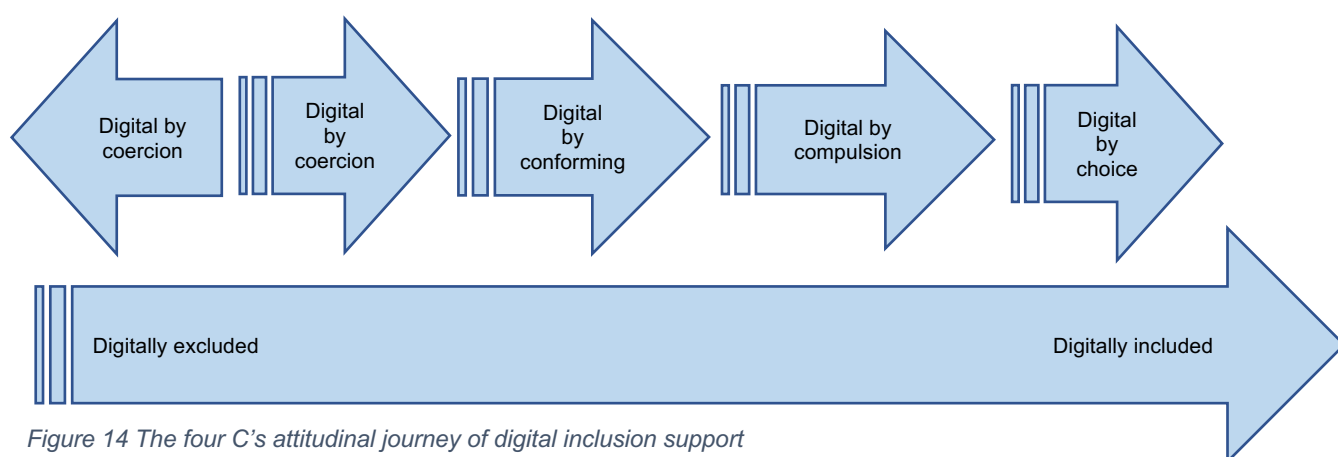


Figure 14 The four C's attitudinal journey of digital inclusion support

Table 24 below provides vignettes of the attitudinal journey of digital inclusion support collected in fieldwork observations.

Attitude	Vignettes
Choice	<i>A community coordinator of the local rural church chose to receive digital champion training to enable her to confidently use technology as part of her paid role but also so she could share her knowledge with other members of the community, through weekly community engagement sessions. 'It's [the training] given me a huge amount of confidence and I can resolve things now on my own' [OB4].</i>
Compulsion	<i>A lady came into the library with her iPad. The tutor advised the researcher she had been coming to the library for books and this was how she found out about this digital inclusion drop-in session. She has been coming for a few months now. She has asked for help with things like sending and receiving emails, banking, buying things online, and today she wanted to learn about music composition apps as she has an interest in music and plays the harp [OB7]</i>
Conformity	<i>'My generation tends to think we don't need technology. Why do we? But more and more we have to do things online. Such as the process of applying for a blue [disability] badge – you can't do it any other way but online, and it's really difficult. I really enjoy these sessions. As I have disabilities it's been a real help. I now do most of my shopping online and it's led me to getting a better tablet, a better phone, but I still have a lot to learn.' [OB4]</i>
Coercion	<i>Individual demonstrated he had no mobile phone or email, so even if he has support to set up an email, he still doesn't have a mobile phone or means of accessing email. He has to find a family member or friend who is able to provide a mobile phone number for him otherwise he can't claim Universal Credit. He has a phobia about mobile phones [OB8]</i>

Table 24 Vignettes of attitudinal journey of digital inclusion support

Trust

Trust as a psychological **tool** was observed in several ways in the individual-level activity system through **trusted people, trusted places, trusted relationships, trusted information** and **trust in technology**.

For example, digital inclusion support sessions observed were largely held in buildings associated with trusted, safe places such as public libraries, community centres, advice centres and a church. For example, one of the venues used for digital inclusion support sessions was in a new rural church extension designed with the goal to help people overcome isolation and loneliness in the rural community.

With limited options where digital inclusion sessions could be held, due to the lack of available local venues, despite the sometimes, poor condition or lack of resource in these buildings, they were still viewed by individuals attending sessions as welcoming, social places.

The layout and environment of the room for the workshop was on first impression uninviting. The small room had no windows and the seating was facing towards the walls. The computers were old, there was no WiFi and the walls had peeling paint. Yet the individuals attending the workshop clearly didn't mind the condition of the space. To them it was a place to meet, socialise, and learn. The accessibility of the building located in the heart of the village was more important to those attending than the condition and level of amenities [OB6].

Individuals attending sessions appeared very trusting with intermediaries who supported them (such as tutors, trainers, digital champions, frontline workers) as they divulged information about their personal circumstances and their passwords. For example, during a digital support session, participants were talking about managing their passwords.

'Some of the websites, they are not easy. They want passwords, they give you a pile of numbers, so in my case I have to copy all the numbers'. The participant then showed the tutor her book of passwords. He explained to her and the rest of the group the importance of password security and keeping passwords safe. He then went on to help her with her passwords for job searching and applying for jobs [OB4].

A **contradiction** manifested here is that those in need of digital inclusion support, in some instances, could be considered too trusting with their personal information and passwords and should be more cautious with such information. A further **contradiction** highlighted was whether individuals trusted the intermediaries due to their role or due to their association with a particular reputable organisation, such as a church or public library.

This level of trust in providing digital inclusion support was observed in the digital champion training session with housing association wardens.

The wardens discussed issues of security and how residents often asked them to withdraw money and do online banking on their behalf. Wardens expressed how this level of trust made them feel uncomfortable and how it potentially put the residents at risk, but also the wardens' themselves as they may be accused of stealing or fraud [OB2].

In contrast, observation of the digital champion training of the volunteers in a rural village raised questions of how likely it would be for individuals to be willing to trust a volunteer they may know from their local community.

Volunteers for the village hall are part of a tight-knit rural community. Therefore, will individuals wanting to use the kiosk be reluctant to speak with volunteers because they don't want everyone to know their business in the village, something that can be particularly difficult in a small rural community [OB3].

Individual-level stakeholders who had attended digital inclusion sessions over a period of time were observed to have developed a trusted relationship with the tutor or digital champion supporting them. This was demonstrated by them speaking openly and freely about a number of issues associated and beyond the digital realm between themselves and with the tutor.

The participants of the session while nervous using certain aspects of technology were clearly comfortable speaking with the tutor [Observation note OB4].

Comments in relation to distrust of technology by individuals attending digital inclusion support sessions were also observed including:

'I think my generation are a bit frightened of it (technology)' and 'why does he want to be my [social media] friend? He doesn't even know me!' [OB4].

'I have my own WiFi in own room [in care home] but I worry about using the public WiFi here in the social space [of the care home]' [OB5].

Distrust of technology was clearly displayed by one individual seeking urgent help at an advice centre.

The advisor needed a mobile phone number to help a client complete his Universal Credit application. The client's first language was Welsh. The Advisor first asked in English and then repeated in Welsh. The client appeared agitated and after some discussion the Advisor was able to ascertain that he had a phobia about mobile phones. He pointed to the sky and mimed being struck by lightning, showing his fear and distrust of technology [OB8].

Example comments on how digital inclusion support sessions had helped build trust in technology and empower participants to make informed decisions included:

'I was never on social media, but by coming here I learnt how to use social media safely. I started to question things [online]' [OB4].

'This course has given me a lot of confidence using technology. It's been good' [OB4].

Human intermediation

Individuals received digital inclusion training and digital inclusion support through human **intermediaries**. Human intermediaries observed were in the form of tutors, trainers, digital champions and frontline workers who provided digital skills training and support for the community, either directly related to a specific digital inclusion initiative, or indirectly as part of the wider social support being provided.

This training and support were provided through technological infrastructure, such as broadband or mobile connectivity. For example, a digital inclusion community-led session provided training as explained:

Digital inclusion training was provided via the church's WiFi and inhouse technology; digital devices through tablets supplied by the tutor and mobile devices owned by those attending the sessions; and digital skills learning content often provided through the tutor's own knowledge (offline) and through a digital skills training online learning platform [OB4].

Fieldwork observations also revealed how individuals received digital inclusion support either directly as part of a planned digital inclusion initiative, or indirectly as part of social support as outlined in 'approaches to digital inclusion skills training and support' in the intermediary findings in section 5.3.3.1.

Language

Language is another mediating factor in the tools element observed in this activity system, in the form of cultural heritage and vocabulary, that influenced how individuals engaged with digital inclusion support. For example, individuals observed in Wales, received bi-lingual training in Welsh and English due to the Welsh government's bi-lingual policy, where the trainer/tutor would speak, use presentation slides and information in both Welsh and English. Some individuals clearly preferred the training in Welsh, highlighting the dominance of Welsh speakers in this region of North Wales as observed in the volunteer digital champion training session in North Wales:

The trainer asked the village hall representative if the training could be done in English as well as Welsh as the session was being observed by the researcher who only understood English. However, the village hall representative refused and so all the training to the group of volunteers was in Welsh only, despite participants clear ability to be able to speak and understand both languages. [OB3].

An individual observed seeking urgent help at an advice centre was also supported through use of the Welsh language:

The gentleman appeared confused and reluctant to engage when the advisor spoke in English, explaining to him that he would need to use the Internet. However, when she switched to Welsh he complied and began to engage more with the advisor, enabling her to partially resolve his enquiry [OB3].

Another example includes:

Participants attending the digital inclusion session were from a mix of ethnic backgrounds. While the session was predominantly delivered in English by the trainer, he could speak other languages and would occasionally dip into their respective language when necessary to support them which ultimately helped with their learning [OB6].

5.4.3.2 Rules and norms

Several **rules and norms** in this activity system regulate the subject's actions toward the object, (explicitly or implicitly), as well as other actors involved in the activity, including the tools employed and how they are used. **Rules and norms** highlighted included: **knowledge sharing, policy, and cost**, together with **societal norms**.

Knowledge sharing

Knowledge sharing was observed formally and informally between the individuals themselves receiving digital inclusion support, and between the individuals and the tutors delivering the digital inclusion support. Formal knowledge sharing was particularly evident in observed digital inclusion training sessions in the workplace during the study fieldwork. These sessions tended to involve a tutor sharing knowledge on matters related to digital exclusion and marginalised communities, and advocating how digital can be used to help resolve such issues. The tutor then facilitated knowledge sharing between those attending the session by encouraging them to discuss their experiences of digital exclusion issues specific to their context. This knowledge was then formally fed back to the group and to the tutor. For example, formal knowledge sharing was observed during the housing association digital training session:

Wardens expressed how they were uncomfortable when asked by tenants to withdraw cash on their behalf or supporting tenants with online banking. With a member of the management team present at the digital training session this useful knowledge sharing highlighted to the management the need to develop a formal policy to be put in place that would protect the tenants and wardens [OB4].

Similarly, formal knowledge sharing was observed during a digital training workshop for employees working in and managing care homes across a rural region in North Wales:

Participants shared their experiences of using digital devices, specific apps and the internet in their respective settings, the challenges involved, and what worked and didn't work. This discussion promoted knowledge exchange between the participants as it was evident that some individuals had more knowledge than others. The usefulness of this knowledge sharing for the participants from across the region was clear in their common goal to support their residents through digital. Furthermore, while some of the participants knew each other, it was observed that the knowledge sharing in the workshop facilitated participants in wanting to stay in touch with each other to continue knowledge sharing beyond the workshop [OB1 note].

It could be said that the knowledge sharing experienced in this workshop provided the participants with the opportunity to develop a formal network or community of practice for their region.

Examples of informal knowledge sharing was observed between participants attending digital inclusion sessions during an intergenerational digital inclusion initiative and a community-led initiative. For example:

Residents were asked by the Community development officer 'who uses social media to stay in touch with family and friends?' This began conversations between residents about friends and family, but also between residents and students [digital champions]. Students suggested using specific social media to keep in touch with family and friends. Some residents displayed informal knowledge sharing behaviour such as 'I know how to Skype' and 'I didn't know he had family in Australia' [OB5].

Policy

Digital strategy policies regulate and affect this activity system, influencing how individuals engage and experience digital inclusion support. Individuals mentioned very little about policy explicitly, yet policy influenced individuals' experience and behaviour with digital inclusion support implicitly, and highlighted a significant contradiction in terms of digital inclusion. Specifically, the UK government's strategic

intent of pursuing its digital-by-default agenda by transferring government services online (as described earlier), has failed to consider those living in rural communities, with limited or poor-quality internet connectivity.

As one participant commented observed at a digital training workshop:

‘There is a disconnect with policy’ [OB1]

This disconnect results in those needing to get online to find jobs and claim benefits in rural communities being disadvantaged. This was evident in observations of an individuals seeking digital support to access Universal Credit. For example, as evidenced in an advice centre in the highlands of Scotland:

A client enters the interview room visibly shaking after having driven thirty miles to get to the centre. Talking to the advisor she said, ‘I just need help, the online system keeps coming up with errors. I don’t know what to do now. It’s all too much.’ The client has clearly had problems accessing the online system from home and is showing physical signs of stress and anxiety [OB10].

This results in those effectively failed by the digital by default system having to seek digital inclusion support, yet as revealed in section 5.4.3.1, such support through an ‘reactionary approach’ to digital inclusion, as outlined vignette 4 in section 5.3.3.1, does not necessary result in individuals becoming digitally included. Indeed, on the contrary, as evidenced above this can led to individuals remaining digitally excluded.

Cost

The cost of digital devices was repeatedly referred to by recipients of digital inclusion training and support. Some referred to the cost of buying smart phones, tablets and laptops, however most of the conversations observed in the fieldwork referred to the cost of mobile phone packages, comparing ‘pay as you go’ with contracts. Similarly, there was discussions on the cost of broadband installation and provision, and monthly fees. Other references to costs in observations were largely about the cost of travelling, the cost of taxis and public transport used to get to specific venues that had WiFi or digital inclusion support sessions.

Societal norms

Individuals observed in the fieldwork indicated they were affected by societal norms to a varying extent as illustrated in Figure 14 in the ‘attitudinal journey of digital inclusion support’. This could be argued was largely due to societal pressure and stigma associated with not being able to use digital technology or go online. However, situation combined with the rurality of where they live and the norm of online services appears to magnify attitudinal concerns with technology as indicated in section 5.3.3.1.

Digital Champion activity system

The individual-level activity system analysed also highlights a ‘blurring’ between the individual and intermediary-levels of digital inclusion. This blurring of the intermediary and individual-levels is best illustrated through the activities of digital champions as presented in Figure 15 and is explained briefly explained below.

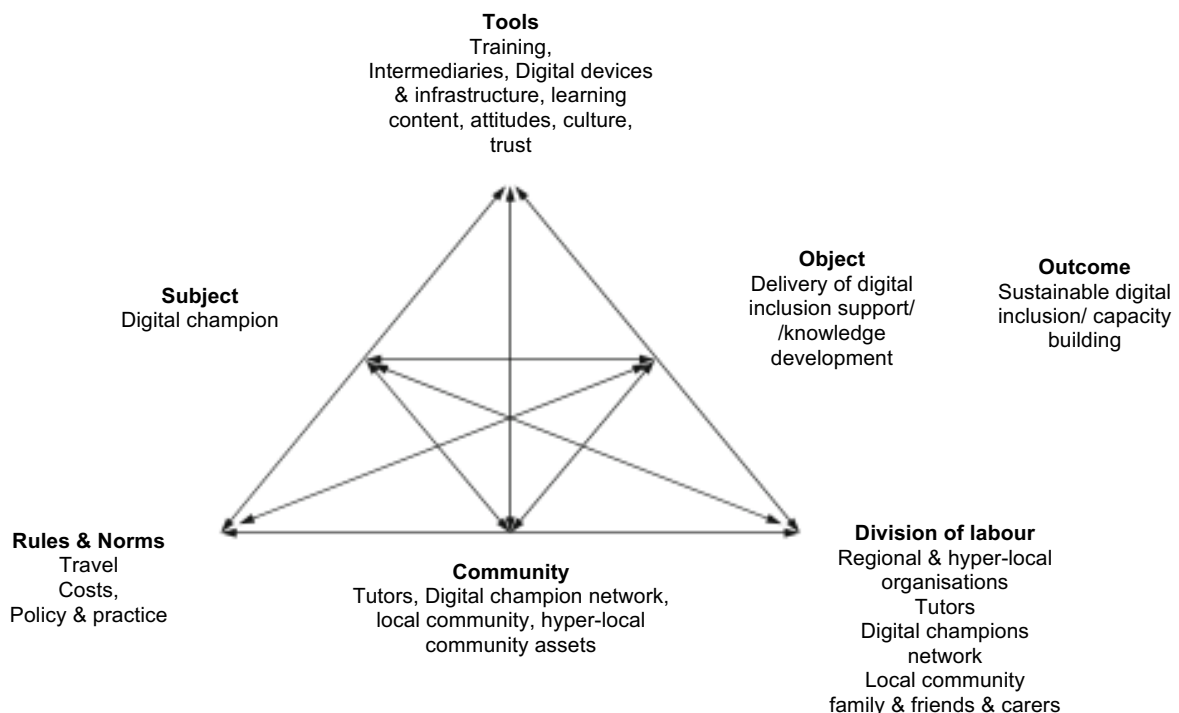


Figure 15 Intermediary/Individual-level digital inclusion activity system

This happens when individuals who have received digital champion training take the extra step by sharing their knowledge with others in need of digital support (voluntarily as a digital champion or in their workplace), thus becoming a digital inclusion intermediary. Through the lens of AT, recipients of digital skills training feel empowered to share their knowledge of digital skills by becoming a digital champion

(**subject**) with the intention to support other people with digital skills (either in the workplace or in the community) who may be digitally marginalised or require more digital knowledge (**object**), to achieve sustainable digital inclusion and capacity building (**outcome**). These examples highlight the gradations of digital inclusion between individual-level stakeholders.

A typical digital inclusion journey of a digital champion is as follows:

- 1) An individual needs digital inclusion support and so attends some digital training sessions. This realization may have come from family and friends.
- 2) They become so empowered by the skills that they have developed that they want to impart this knowledge onto others (either in the community i.e. in a library as a volunteer, or in the workplace to support fellow employees or their customers/clients with their digital skills
- 3) They put themselves forward for digital champion training through a digital inclusion intermediary organisation.
- 4) Once they have received their training they become part of a network of other digital champions around the country and access to resources to help deliver digital inclusion training.
- 5) The digital champion delivers digital training (in the local community or in the workplace) with the intention that recipients will gain new knowledge and skills that will benefit their everyday life or in the workplace and their local community.
- 6) Recipients of the training may then go on to impart newly acquired digital knowledge to others.
- 7) This process leads to sustainable digital inclusion and illustrates what the researcher describes as the capacity building 'ripple effect' of digital inclusion.

Trust

Those attending digital champion training appreciate they are in a position of trust. Housing association wardens during their digital champion training were observed making comments such as:

'We are in the position of being able to talk a lot with our tenants. We are trusted. We know their wants and needs' [OB2].

Housing association wardens were put forward for digital champion training as a need had been identified that tenants required digital support for applying for Universal Credit and for accessing WiFi in communal areas of the residence. It was established that the wardens would be best placed to help with this support, but they needed upskilling to be able to support the tenants effectively [Observation note OB2].

Summary of contradictions

Table 25 and Table 26 provide a summary of primary and secondary contradictions revealed from the individual-level analysis.

Location of contradiction	Description of contradiction
Subject	Wide variety of motivations of individuals who received digital inclusion training and support
Subject	Assumption that recipients of digital inclusion training and support are those who are digitally excluded, where in practice it also includes narrow users and those from everyday life as part of their work.
Rules & Norms	The issue of balancing digital-by-default policy with digital inclusion strategies appear to be at odds

Table 25 Primary contradictions for individual-level

Location of contradiction	Description of contradiction
Tool vs object	Attitudes of individuals facilitate or inhibit achieving the object of the activity system
Subject vs object	Poly-motivation of individuals results in some achieving the objective of the activity system while others do not
Tool vs subject	Trust was crucial in the relationship between individual and intermediaries providing digital inclusion training and support. Yet there were instances when individuals could be considered almost too trusting with their personal information, and processes need to be put in place, where other incidences, such as receiving support for universal credit where there was limited trust.
Rule vs object	Digital-by-default policy and the growth of 'reactionary approaches' can destabilise the 'digital inclusion ecosystem' and effectively marginalise individuals.
Subject vs community	Limited interaction between individual and policy makers

Table 26 Secondary contradictions for individual-level

5.5 Multilevel findings

As highlighted in chapter 4, the use of third-generation AT provides a useful framework for investigating two or more interacting activity systems as the unit of analysis (Engeström's, 2001). Following the examination of the three individual activity systems at national, intermediary, individual-level in sections 5.2, 5.3, 5.4 and the identification of tensions and contradictions integral to each of these activity systems, this section examines how these activity systems interact when brought together as illustrated in Figure 16, highlighting tensions and contradictions between the activity systems.

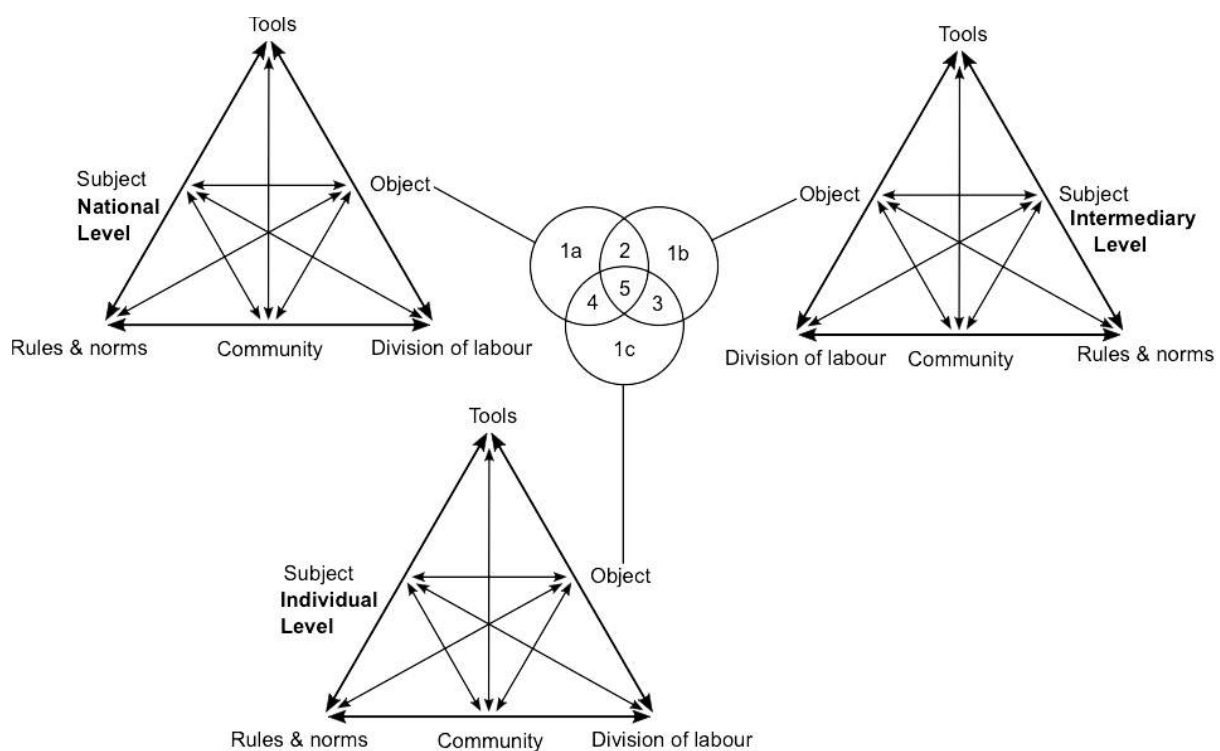


Figure 16 Multilevel interacting activity systems

Key

- 1a –implementation & advocacy of the provision of digital inclusion initiatives
- 1b – advocacy & delivery of digital skills training and support
- 1c – receipt of digital inclusion training and support
- 2 – intersection of national and intermediary-level activity systems
- 3 – intersection of intermediary and individual-level activity systems
- 4 – intersection of individual and national-level activity systems
- 5 – intersection of national, intermediary, individual-level objects illustrating shared object of digital inclusion initiative provision

The factors identified related to each element in each activity system (omitted from Figure 16 above), drawn from sections 5.2, 5.3, 5.4, are tabulated below in Table 27 for ease of reference.

Level AT Elements	National-level activity system	Intermediary-level activity system	Individual-level activity system
Subject	National digital inclusion stakeholders	Intermediary digital inclusion stakeholders	Individual-level digital inclusion stakeholders
Object	Implementation & advocacy of digital inclusion initiatives	Advocacy & delivery of digital inclusion skills training & support	To receive digital inclusion skills training & support & to use digital technology
Outcome	Improved digital skills of individuals in UK communities; engagement with digitally marginalised communities; collaboration with intermediary organisations	Improved digital skills of individuals in UK communities; community capacity building	Resolution of specific need; improved ability to participate in digital society; sharing knowledge with others
Tools	Digital skills training & support; infrastructure; intermediaries; initiative approaches	Approaches to digital inclusion training & support; digital skills learning resources; infrastructure; digital devices; trust;	Human intermediation; digital skills; digital devices; infrastructure learning content; culture; attitudes, trust
Rules/ Norms	Funding & political environment; policy & practice; organisational culture; knowledge sharing; collaboration	Funding & political environment; policy & practice; knowledge sharing; collaboration; sustainability; societal & cultural norms	Policy; knowledge sharing; cost; societal norms;
Community	Governments & national organisations; intermediary organisations & actors; networks; funding bodies; individuals in receipt of digital inclusion support	Governments & national organisations; intermediary organisations & actors; funding bodies; corporates; networks; digital champions/trainers; recipients of digital inclusion support in life & the workplace	Tutors; digital champions; local community; hyper-local community assets; Intermediaries
Division of Labour	UK government; National & local government; national stakeholders; regional & hyper-local intermediary organisations & actors	UK government; national & local government; regional & local intermediary organisations & actors; digital champions/trainers	Regional & hyper-local organisations; tutors, digital champions; volunteers; local community; family & friends & carers (proxy users)

Table 27 AT elements/factors across interacting digital inclusion activity systems

5.5.1 Overview of interacting activity systems

It is only when the three activity systems are brought together (national, intermediary, and individual-level) using third-generation AT, that a multilevel perspective of digital inclusion initiative provision in UK rural communities is captured. More specifically

through the lens of third-generation AT, bringing these separate activity systems together emphasises how collective action is inherently object-orientated (Nicolini et al., 2012) and helps ‘to understand dialogue, multiple perspectives and networks of interacting activity systems’ (Engeström’s, 2001, p.135). This in turn helps reveal any tensions and contradictions in the intersecting or ‘boundary spaces’ between the activity systems that are working towards the shared object (Nicolini et al., 2012). Indeed, it is the intersections and overlaps between the separate activity systems and the notion of the shared object that is of significance in the multilevel findings. Figure 16 illustrates the interacting national, intermediary, and individual-level activity systems as explained:

- The object for each activity system is labelled 1a, 1b, 1c respectively. These objects are not identical but have a common interest, otherwise known as the *shared object* labelled 5.
- Labels 2,3, and 4 illustrate the overlaps and intersections between the three activity systems while working towards the *shared object*.
- Label 2 represents the blurring of roles, and cross-sector/partnership working between national and intermediary digital inclusion stakeholders in the delivery of digital inclusion initiative provision.
- Label 3 represents the joint involvement of intermediary and individual-level digital inclusion stakeholders, predominantly involving intermediary organisations and actors providing digital inclusion training and support for individuals. The blurring of intermediary and individual-level stakeholders is also illustrated in this intersection where some individuals who received digital inclusion training go on to become intermediaries in the form of digital champions either in their workplace or in the community to support others with digital. This intersection is strengthened when knowledge sharing activities are undertaken between digital inclusion intermediaries and individuals who received digital inclusion support.
- Label 4 represents a more tenuous intersection between national and individual-level digital inclusion stakeholders. For example, the implementation and evaluation of digital inclusion initiatives designed for individual-level stakeholders, is a key intersection. This intersection is strengthened when national-level stakeholders work either directly with individual-level

stakeholders, through their regional office, or through collaborating with intermediary organisations who liaise with national stakeholders, defined as super-intermediary organisation or actors. This intersection becomes stronger when such super-intermediaries share knowledge and insight of regional digital inclusion activities back to the national organisation, thus revealing boundary spanning behaviours as explained in section 5.3. The extent to which this happens is open to question.

- Label 5 represents the ‘shared object’ of the interacting activities systems of *digital inclusion initiative provision*. However, due its collective origin, the object of the activity is, by definition, emergent, fragmented and contradictory (Nicolini et al., 2012). Indeed, each activity system is governed by independent rules/norms, thus leading to conflict in working toward the shared object (Allen et al., 2013; Karanasios, 2014).

The intersections of the interacting activity systems in relation to tensions and contradictions are listed below in Table 28 below and are discussed in section 5.5.2.

Location of contradiction	Description of contradiction
National vs Individual vs Intermediary (1)	Inadequate technological infrastructure leaves UK rural communities at a comparative disadvantage to their urban counterparts who are unable to exploit the full potential of digital technology and develop their skills, and hampers the delivery of digital inclusion initiatives.
National vs Intermediary (2)	Need buy-in from management to embed digital inclusion with strategic intent into organisational culture.
National vs Intermediary (3)	Digital strategy promotes digital inclusion yet exacerbates digital exclusion through digital-by-default agenda.
National vs Individual vs Intermediary (4)	Misalignment of digital connectivity policy aspirations and the realities of broadband and mobile reach in rural communities
National vs Intermediary (5)	Organisations work toward digital inclusion with the same overall object but approach it in differing ways.
National vs Intermediary (6)	Misalignment between expectations of policy makers and expectations of intermediary and grass-root organisations delivering digital inclusion training and support through collaborative, cross-sector-working and partnerships.
National vs individual vs intermediary (7)	Dependence on intermediaries to deliver digital inclusion training & support, with limited consideration of individual-level rural context

National vs Intermediary (8)	Misalignment between digital policy disintermediation agenda and the reality of growing human intermediation involvement
National vs Intermediary (9)	Assumptions that intermediaries have the necessary skills and resources to deliver digital inclusion.
National vs individual vs intermediary (10)	Lack of institutional trust due to lack of consideration and understanding of social and rural context.
National vs Individual vs Intermediary (11)	Expectation of recipients of digital inclusion training and support – some go on to be digitally included while others remain digitally marginalised or disengaged.

Table 28 Contradictions of multilevel contradictions

5.5.2 Introduction to multilevel findings

Synthesising the findings discussed at national, intermediary, and individual-level in sections 5.2, 5.3, 5.4 and using the notion of interacting activity systems in third-generation AT, an overview of significant findings from a multilevel perspective is now provided through the use of three key overarching themes, supported by related sub-themes. The overarching themes include:

- Multifaceted nature of digital inclusion initiatives;
- Crucial role of human intermediation;
- Experience of receiving digital inclusion initiative training and support.

These themes are described in context of this study in which key relationships and contractions between the activity systems are revealed in sections 5.5.3, 5.5.4 and 5.5.5. Contradictions identified are numbered in relation to those listed in Table 28.

Concluding the multilevel findings, a list of essential components needed to enable successful digital inclusion initiative provision in UK rural communities is provided in section 5.5.6.

5.5.3 Multifaceted nature of digital inclusion initiatives

The first significant finding revealed the multifaceted nature of digital inclusion initiatives as described through the following three sub themes:

- Drivers of digital inclusion initiative provision,
- Approaches to the implementation of digital inclusion initiatives,
- Delivery of digital inclusion initiative provision.

5.5.3.1 Drivers of digital inclusion initiative provision

National and intermediary-level stakeholders discussed at length the drivers behind the provision of digital inclusion initiatives in sections 5.2 and 5.3; a deeper understanding of which was evidenced through observations of digital inclusion initiative delivery as outlined in section 5.3 and 5.4. The drivers discussed can be divided broadly into two themes: 1) barriers to digital inclusion; and 2) digital policy and strategies and are discussed below:

Barriers to digital inclusion

Stakeholders revealed how despite the ubiquity of digital technologies in almost every aspect of life, and the improvement of broadband and mobile connectivity, including in UK rural communities, inequalities in the access and use of digital technology continue to exist, particularly in rural communities. Stakeholders drew parallels between individuals who are socially excluded and those who are digital excluded or make limited use of digital technologies, frequently using phrases such as ‘missing out’, ‘being left behind’, or ‘unfair’ when describing the consequence of individuals unable to or not wanting to use digital technology. Specific social, cultural economic and technological barriers to digital inclusion in UK rural communities identified through the fieldwork study included:

- **Access** – due to restricted or lack of technological infrastructure such as broadband or mobile connectivity and suitable digital devices in people’s homes (individual access), but also in UK rural communities more generally (community access) such as poor quality or non-existent connectivity in housing association accommodation, community venues and local eateries;
- **Motivation to use digital** – due to lack of perceived relevancy or value; not wanting to; worried, anxious or scared to; lack of confidence and self-efficacy; and lack of trust in digital;
- **Digital skills** – due to a lack of opportunity to try and use digital technologies, a lack of awareness of how digital technologies in relevant to peoples everyday life, and a lack of motivation or trust in using technologies;
- **Cost** – such as cost of devices, subscriptions, and data for individuals, but also the additional costs required when delivering digital inclusion support in UK

rural communities, such as travelling to venues, which can restrict or prevent delivery;

- **Resource** - due to limited availability of social infrastructure and community assets where people might otherwise have the opportunity to access, try out or use digital technology such as community venues and public libraries; limited opening hours or closure of local assets such as local banks, public libraries, pharmacies, and advice centre service points; sparsity of population resulting in limited social capital for local volunteers and digital champions.

These findings highlight how the impact of social, cultural, economic and technological barriers to digital inclusion restrict peoples' access, use and motivation to be engaged with digital technology. It is the recognition of such barriers that drives organisations and policy makers to implement digital inclusion initiatives and digital inclusion support. However, barriers faced by UK rural communities, identified in the study fieldwork, also hampers the delivery of digital inclusion initiatives, such as the lack of social and technological infrastructure and community assets, thus highlighting a contradiction (1) in relation to achieving the 'shared object' of the interacting activity systems, as further discussed in section 5.5.3.3.

Digital policy and strategies

Digital policy and strategies were identified as key drivers to the provision of digital inclusion initiatives. National and intermediary-level stakeholders spoke positively about national digital inclusion policy, (listed in Table 17 in section 5.2.1), and the need to embed digital inclusion strategies in regional and local service provision, such as housing associations, health and social care services, adult learning and employment services. Indeed, the findings reveal an emerging shift of local government authorities, service providers and community organisations implementing digital inclusion strategies within their own organisations, as they begin to understand the relevancy of digital inclusion for their own organisation, community development and lifelong learning.

Intermediary-level stakeholders interviewed included examples of digital inclusion officers employed by local authorities, whose specific role included the strategic intent to implement digital inclusion initiatives across the region. Another example included

a digital inclusion, digital transformation officer from a housing association whose new role was specifically developed to implement digital inclusion from a strategic perspective within the organisation and more broadly to support its tenants. However, a contradiction (2) identified between national and intermediary-level stakeholders is that while there was acknowledgement of the need to embed digital inclusion strategies within organisations such as local authorities and service providers, for this to happen required buy-in from management and a shift in organisational culture. As revealed in the intermediary-level findings, not all organisations were ready for this shift or prepared to operate within the digital inclusion realm. This highlights the crucial role super intermediary organisations play in advocating the importance of digital inclusion for organisations, community development, and lifelong learning, but also a worry in how digital inclusion is not prioritised by some organisations, who see digital inclusion purely as a short-term digital skills issue, not relevant to them, or beyond their resource, rather than a longer-term cross-sector collaboration.

Another significant driver for digital inclusion initiative provision is what can be described as the '*fall-out*' from the UK government's digital-by-default agenda and channel shift, with the movement of services going online, specifically the UK benefits welfare online system, Universal Credit. National and intermediary-level stakeholders while acknowledging the benefits of online government services and how they have improved the provision and efficiency of services, repeatedly highlighted the downside to the digital-by-default agenda and negative consequences for digitally excluded communities and those with limited skills and access. Fieldwork observations at intermediary and individual-level, such as that discussed in Vignette 4 in section 5.3.3.1, provides an example of the struggles rural communities endure attempting to use the online benefits system, due to limited technological infrastructure, and community assets, and the need to travel long distances by car. This highlights a significant contradiction (3) in achieving the 'shared object' of the interacting activity systems in relation to the UK Digital Strategy (2014, 2017), which on the one hand promotes digital inclusion, but on the other hand promotes digital-by-default, which despite the strategy's best intention is excluding those most in need of government support, as evidenced by those attempting to use the Universal Credit online system.

Finally, another key driver to digital inclusion initiative provision, again relating to digital policy is the Government's commitment through its Universal Service Obligation that universal high-speed broadband, giving everyone speed of at least 10Mbps, will be delivered by 2020. Yet as revealed through the study fieldwork, connectivity and technological infrastructure in rural communities remains inadequate. This highlights a significant contradiction (4) in relation to the misalignment of digital connectivity policy aspirations and the realities of broadband and mobile reach in rural communities. Whilst this finding brings challenges to the digital inclusion arena, the inadequate technological infrastructure in rural communities also drives the need for digital inclusion initiative provision in such areas.

5.5.3.2 Approaches to the implementation of digital inclusion initiatives

Both national and intermediary-level findings revealed specific approaches to the implementation of digital inclusion initiatives which have been differentiated into four separate approaches:

- Community-based approach;
- Integrated approach;
- Reactionary approach;
- Service-design approach.

Community-based, integrated, and reactionary approaches to the implementation of digital inclusion initiatives were all captured directly through fieldwork observations and interviews and are discussed in sections 5.2, 5.3, and 5.4. A relatively new approach to digital inclusion initiative provision - service-design - was captured at national-level from one organisation through interview (see section 5.2). While, this approach was not captured through observations and interviews at intermediary and individual-level through the study fieldwork, it does not necessarily imply that this approach was not taking place in UK rural communities. It just implies that this approach was not happening within the scope of the study at the time of data collection. Indeed, due to the rapidly changing nature of the digital inclusion landscape, there may be other approaches not captured, thus providing an opportunity to investigate this further in future research beyond this study.

The four approaches, listed above, identified in the study fieldwork, highlights a contradiction (5) in terms of how organisations with the same overall **object** of implementing digital inclusion initiative provision, approach digital inclusion in differing ways. Often through the necessity of seeking alternative methods to reach out and engage with digitally marginalised communities, some national-level stakeholders emphasised how they no longer focus on training digitally excluded individuals or end-users directly, and instead are working to up-skill established human intermediaries, such as front-line staff, who frequently interact with potential vulnerable and digitally marginalized communities as part of their job. This is a significant step change from traditional digital inclusion approaches which have predominantly focused on digital skills training interventions for 'end-users' at individual-level. Instead stakeholders are moving towards a capacity-building 'integrated' approach' to digital inclusion support, which feeds into what the researcher describes as the 'ripple effect' of digital inclusion initiative provision, as described in section 5.4. However, the findings also revealed a worrying shift in relation to the growth of organisations having to resort to taking a reactionary approach to digital inclusion support, due to individuals struggling to access and use online services as discussed in section 5.5.3.1, taking them away from the preferred more positive capacity-building, community-based approaches to digital inclusion initiative provision.

5.5.3.3 Delivery of digital inclusion initiative provision

Findings in relation to the delivery of digital inclusion initiative provision were revealed across the three activity systems in which contradictions were identified. To begin with the findings revealed that digital inclusion initiative provision is delivered by a plethora of national and intermediary-level digital inclusion stakeholders, often through multi-agency, cross-sector working and collaboration. Indeed, the **community** element of all three activity systems illustrates what the researcher describes as the digital inclusion initiative 'ecosystem', or put in other words, the web of stakeholders involved in the implementation and delivery of digital inclusion initiative provision. However, the underpinning assumption that digital inclusion stakeholders will collaborate in partnership to deliver digital inclusion initiatives (as indicated in the UK digital strategy 2014) highlights a significant misalignment between the expectations of policy-makers and the expectation of intermediary and grass-root organisations delivering digital inclusion training and support. While this contradiction (6) was discussed to some

extent at national-level, the disconnect between policy and practice was more pronounced from the findings at intermediary-level where there is evidence of tensions between organisations with differing social agendas and priorities, and limited resource, and the ability to continue collaboration beyond the life of the digital inclusion initiative. For example, collaboration between organisations tends to be short-lived e.g. just for the duration of a specific digital inclusion initiative, beyond which collaborating organisations may find themselves in competition with one another when seeking and applying for funding opportunities. Importantly, the cessation of digital inclusion initiatives, potentially results in a gap of digital inclusion provision, and a break in communication and knowledge sharing between collaborating organisations, resulting in organisations assuming someone will ‘*eventually*’ fill the gap in digital inclusion delivery, unless a sustainable, collaborative approach is taken. Through the lens of AT, this contradiction illustrates Engeström’s concept of ‘knotworking’ (Engeström, 2008), where different organisations come together to work on a specific task, or shared object, in the case of this study digital inclusion initiative provision, forming a temporary ‘knot’. This knot then becomes untied when the task changes or is finished. The concept of ‘knotworking’ is further discussed in chapter 6.

A further contradiction (7) revealed by national and intermediary-level stakeholders is the dependence on local intermediary and grass-root organisations delivering digital inclusion training and support in UK rural communities, but without taking a specific approach to delivering in the rural context. Yet as identified in the study fieldwork, barriers presented in UK rural communities such as limited community assets and infrastructure (social and technological), and travel costs, hampers the delivery of digital inclusion training and support, which ultimately affects the achievement of the ‘shared object’ of the interacting activity systems. Apart from super intermediary organisations who have a perspective of digital inclusion delivery at both national and local-level, the findings revealed a lack of consideration at national-level and in policy of the rural context and how this can impact digital inclusion initiative delivery.

While these contradictions highlight sources of tensions in the delivery of digital inclusion initiative provision, their very discovery provides an important opportunity for innovation and change in digital inclusion initiative provision for UK rural communities.

5.5.4 Crucial role of human intermediation

The second significant finding revealed the crucial role of human intermediation in digital inclusion provision as described through the following three sub themes:

- Evolving nature of human intermediation in digital inclusion delivery;
- Capabilities and skills of intermediaries;
- Delivering in a trusted supportive environment.

5.5.4.1 Evolving nature of human intermediation in digital inclusion delivery

Findings drawn from national, intermediary and individual-level stakeholders revealed the crucial role and evolving nature of human intermediation in digital inclusion delivery, specifically in how intermediaries advocate, engage and reach out to communities in need of digital inclusion support. Human intermediaries observed in the fieldwork were in the form of tutors, trainers, digital champions and frontline workers who provided digital skills training and support for the community, either directly as part of a specific digital inclusion initiative, such as described in Vignette 1 in section 5.3, in relation to the national intergenerational digital inclusion initiative; or indirectly embedded in service provision and wider social support, such as described in Vignette 3 and the training up of front-line workers, such as housing association wardens.

As discussed earlier, the training up of front-line workers as digital champions, highlights how human intermediation in digital inclusion delivery has evolved from purely tutor-led intermediation to a more integrated, capacity-building approach to intermediation. Furthermore, human intermediation in digital inclusion delivery has evolved from predominantly classroom-based sessions which individuals were expected to travel to, to more outreach situations where digital inclusion sessions are hosted in community settings such as care homes and churches, or provided by frontline workers in advice centres, as evidenced by the study fieldwork.

Attributes of human intermediaries that enabled their evolving role in digital inclusion delivery were also revealed across the three activity systems. Specifically, their boundary spanning and relationship building behaviours were highlighted in their digital inclusion activities that enabled knowledge sharing, collaboration, and capacity-

building development within the rural communities they served, and the stakeholders involved in what the researcher defines as the digital inclusion initiative 'ecosystem'.

In addition, the evolving nature of human intermediation is illustrated through a typology of intermediary organisations and super intermediaries. Developed through the intermediary-level findings, these typologies provide a visual representation of the roles that intermediaries take on to carry out their duties within the digital inclusion realm, as illustrated in Figure 10, 11 and 12, and discussed in section 5.3. The typologies illustrate the embedded role of human intermediation in digital inclusion delivery highlighting not only their crucial role in digital inclusion initiatives, but also a significant contradiction (8) in terms of digital policy which rather than encouraging human intermediation, is actually encouraging disintermediation through the digital-by-default agenda.

5.5.4.2 Capabilities and skills of intermediaries

The dependence on intermediary organisations and actors in delivering digital inclusion training and support was evident across all three activity systems. This was particularly emphasised in the national-level finding who appreciated that intermediary organisations and actors are in the unique position of being able to reach out and engage with communities at grass-roots level through digital inclusion delivery and practice and offer social support.

Indeed, observations in the study fieldwork provided examples of intermediaries in the form of tutors and digital inclusion officers demonstrating not only their digital knowledge and capabilities, but also their ability to support others. However, the findings revealed worrying assumptions that all intermediaries have the necessary skills, attributes and resource, to engage and deliver digital inclusion training and support, when in fact as evidenced through the study fieldwork, this is not always the case, highlighting a significant contradiction (9).

Indeed, observations revealed the frustrations of some intermediaries who felt under-resourced in providing adequate digital inclusion support in rural communities. Other established intermediaries, such as housing association wardens, questioned their ability to provide digital inclusion support without digital champion training. This raises concern in relation to the self-efficacy of intermediaries who have not received any

form of digital champion training or digital inclusion support themselves, and indeed their buy-in in actually wanting to provide digital inclusion within their role, and the consequences this has on individuals requiring support. This is a significant finding due to the clear dependency revealed at national-level on intermediary organisations and actors to deliver digital inclusion training and support.

5.5.4.3 Delivering in a trusted supportive environment

While trust was referred to across all three activity systems, the idea of delivering in a trusted, supportive environment was only revealed specifically in the intermediary-level findings, highlighting the importance of taking a multileveled approach to this study to enable this finding to emerge. More specifically, this is not just about the space in which intermediaries deliver, this relates to intermediaries needing to feel supported in their delivery by having adequate knowledge and skills themselves (as referred to above in 5.5.4.2), adequate resource (social and technological infrastructure) as well as funding, so they feel capable enough (self-efficacy) to be able to support others and embed digital inclusion in a professional way. Otherwise as evidenced in the intermediary-level findings, intermediaries feel resentful and coerced into the support process, rather than feeling valued and professional in what they do and highlights a potential imbalance in the *Division of Labour*. This highlights a significant contradiction (10) between national and intermediary-level activity systems in relation to institutional trust. For example, at national-level institutional trust was referred to in relation to collaborative practice and cross-sector working and how it was taken as a norm across the national-level digital inclusion community. However, at intermediary-level, while institutional trust is evident, in collaborative practice, instances of low levels of institutional trust were displayed. For example, intermediaries reacting to enquiries in relation to Universal Credit, as discussed in section 5.3.3.1.

In the intermediary findings, intermediaries expressed cynical opinions of the Universal Credit online system and disbelief such a system is continuing to be rolled out while their clients struggle to make claims. The apparent lack of understanding from national government and policy makers on the lack of social and technological infrastructure in rural areas (in terms of public transport, local assets, internet access), and the lack of funding provided to intermediaries to support such individuals, made intermediaries not only demonstrate distrust towards the Universal Credit online

system, but also the institutions involved in its instigation, notably the UK government and Department of Work & Pensions. It could be argued that this lack of trust is significant, and if ignored has the potential to dismantle the overall digital inclusion initiative activity system due to intermediaries feeling unsupported and distrusting. This therefore highlights how a trusted, supportive environment is crucial when delivering digital inclusion initiatives training and support, and thus an essential component in digital inclusion initiative design.

5.5.5 Experience of receiving digital inclusion initiative training and support

The third significant finding relates to the experience of receiving digital inclusion initiative training and support as described through the following four sub themes:

- Recipients of digital inclusion initiative training and support;
- Motivations for digital inclusion training and support;
- Attitudinal experience of digital inclusion initiative recipients;
- Trusted supportive environment for digital inclusion support.

5.5.5.1 Recipients of digital inclusion initiative training and support

Findings across the three activity systems agreed that digital inclusion initiative training and support is provided for everyday life and in the workplace. Recipients included those who are digitally marginalised or excluded; those who use digital technology in a limited way; and those who have some knowledge of digital technology but require training to build confidence to support others in need of digital inclusion support through their front-line role in the workplace. This third category of individuals were upskilled through digital champion training as illustrated in Figure 15 and as argued in section 5.5.3.2 is a significant step change in approaches to digital inclusion initiative provision.

Recipients of digital inclusion initiative training and support were not limited to receiving training in digital skills in isolation. The support offered also often focussed on building confidence and self-efficacy, helping people to understand how the internet can benefit them, and providing support for those choosing new devices or experiencing problems with ones they already own.

5.5.5.2 Motivations for digital inclusion training and support

Stakeholders across the three activity systems agreed that individuals have a variety of motivations (otherwise termed as poly-motivation) for receiving digital inclusion training and support. Identified motivations included for a specific need, such as for a specific transaction or interest; as part of a social activity; or for personal development either in the workplace or as a volunteer (as a digital champion) to help others in need of digital support. However, the degree of urgency related to the motivation highlights a contradiction between the **subject** and **object** elements of the individual-level activity system, as the urgency of the support affects individuals' attitude towards technology and the ultimate likelihood of achieving the **object** of the activity system as discussed in 5.5.5.3 below.

5.5.5.3 Attitudinal experience of digital inclusion initiative recipients

While stakeholders at national and intermediary-level had some understanding of the experiences of recipients of digital inclusion support, it is only when the three activity systems are brought together, that their gap in understanding and the contrasting attitudinal experiences of receiving digital inclusion support are realised. As highlighted from the individual-level findings, experiences ranged from '*nice to have*' in relation to choosing to seek digital inclusion support for a specific purpose, interest or transaction, to '*forced to have*' in relation to the coercion and urgency and limited options of achieving that need. For example, the findings revealed that historically, digital inclusion support was provided at grass-roots level, through advocacy and encouragement to use digital, where individuals had a choice of whether to participate or not. However, the digital-by-default agenda and introduction of Universal Credit has disrupted this norm, where individuals have to adjust to the fact that they have to use technology to use online services. This highlights a significant contradiction (11) in relation to the experience individuals are subjected to when receiving digital inclusion support. So often portrayed in an overly positive light, digital inclusion support does not always result in the individual having a positive experience or becoming digitally included. On the contrary, digital inclusion support in some instances leaves the individual digitally marginalised or disengaged, reinforcing their fears of digital as illustrated in Figure 14 in the 'attitudinal journey of digital inclusion support model' in section 5.4.3. Worst case scenario, digital inclusion can leave individuals vulnerable to negative aspects of digital such as internet addiction, cyber-bullying, online

gambling and fake news as they have some understanding of getting online but less understanding of the pitfalls.

This therefore draws attention to the concept of the 'shared object' in AT. While the object in Figure 16 appears shared or relatively aligned across all three activity systems, this alignment breakdowns to some extent within the individual-level activity system, where the object is less-aligned. More specifically the granularity of the object or what the researcher terms as the 'hierarchical nature of the object' becomes more evident at individual-level when the three activity systems interact. For example, for some individual-level stakeholders they were not motivated to become digitally included, but instead were motivated to gain support for a single digital transaction. Indeed, in the eyes of the recipient of the digital inclusion training and support, digital inclusion was incidental and not a specific objective, as they needed on-the-spot digital inclusion support for one particular digital transactional activity such as help with using Universal Credit. Indeed, once they have received this one-off support, they may need on-going digital inclusion support. However, if such support is not provided or available, such individuals will remain digitally marginalised. Further still, such an individual having experienced one round of support may not want to engage with digital again unless they have to, and thus are not motivated to be digitally included.

5.5.5.4 Trusted supportive environment for digital inclusion support

The issue of having a trusted supportive environment for recipients of digital inclusion training and support was recognised across the three activity systems, and was discussed in terms of trusted people, trusted places, trusted relationships, trusted information and trust in technology. Indeed, stakeholders agreed that without due consideration of creating such an environment, engagement with individuals in need of digital inclusion support, especially those individuals who are digitally excluded or wary of digital technology, would be hampered and is relevant for both urban and rural areas. This highlights for digital inclusion support to be achieved, a trusted, supportive environment is required, and thus an essential component for digital inclusion initiatives.

5.5.6 Essential components of digital inclusion initiative provision in UK rural communities

Concluding the multilevel findings, a list of essential components needed to be considered to enable successful digital inclusion initiative provision in UK rural communities is provided. Drawn from the findings revealed at national, intermediary, and individual-level, and using the notion of interacting activity systems in third-generation AT, the list of essential components was only finalised once the significant multilevel findings presented above in sections 5.3, 5.4 and 5.5 had been revealed. While these significant findings revealed tensions and contradictions from a multilevel perspective, further synthesis of these findings helped finalise the identification of ten essential components that need to be considered when implementing and delivering digital inclusion initiative provision in the UK rural context, and serve as a further significant finding to the study. These components include:

- Digital inclusion policy and initiatives should be situated within the realms of community development and recognised as lifelong learning/capacity-building strategies rather than short-term digital skills training initiatives;
- The need to evolve the approach of digital inclusion initiatives to meet the needs and demands of the local community should be recognised;
- Consideration of the rural context, including the social, transport and technological infrastructure and the , is essential;
- Digital inclusion initiatives should be designed to capacity-build others to deliver digital inclusion training and support through an integrated approach, rather than just focussing directly at intended beneficiaries;
- Digital inclusion training and support that is person-centred is essential to upskill individuals' digital capabilities, and over-riding the myth that 'access alone is enough' to be digitally included;
- The evolving role of human intermediation within digital inclusion initiatives and the need for them to have sufficient digital skills should be recognised;
- A trusted supportive environment is essential for both human intermediaries and individuals in digital inclusion delivery, if institutional trust is to be established and maintained;

- Understanding social, cultural, economic and technological factors which influence how individuals use digital is essential for successful digital inclusion delivery.
- The boundary spanning and relationship building behaviours presented by super intermediaries in digital inclusion delivery that encourage knowledge sharing and collaboration, are crucial for advocating the need for digital inclusion initiative provision and bringing together national, intermediary and individual-level digital inclusion stakeholders through what the researcher defines as the digital inclusion initiative 'ecosystem'.
- The nuanced hierarchical nature of individual's digital inclusion motivation and objectives, replacing one-size-fits-all digital inclusion approaches, needs consideration.

5.6 Chapter summary

This chapter revealed the findings of this study through the examination of AT systems at national, intermediary, and individual-levels, as described in sections 5.2, 5.3, 5.4, and the tensions and contradictions internal to each of these activity systems. This chapter then went on to examine the activity systems from a multilevel perspective in section 5.5, synthesising the findings discussed at national, intermediary, and individual-level in sections 5.2, 5.3, 5.4, through the notion of interacting activity systems in third-generation AT. Figure 16 (supported by Table 27) illustrates how these activity systems interact, to enable the visualisation of key relationships between national, intermediary and individual-level digital inclusion stakeholders. Section 5.5.1 describes how the activity systems interact and overlap, and lists the tensions and contradictions across these activity systems in Table 28. An overview of significant findings from a multilevel perspective is then provided in section 5.5 through three overarching themes. The chapter concluded with a list of essential components for digital inclusion initiative provision in UK rural communities, drawn from the multilevel findings.

The following chapter synthesises and discusses the findings presented in this chapter relative to previously published literature presented in the literature review in Chapter 2.

Chapter 6: Discussion

6.1. Introduction

The previous chapter provided a detailed report of the empirical findings of this study. The aim of this chapter is to present a discussion of the significant findings of the study. This chapter synthesises, contextualises and interprets the findings presented in Chapter 5, in light of previous published literature, and explores alternative viewpoints. The discussion addresses the study's aim to investigate the provision of digital inclusion initiatives in the context of UK rural communities, and explicitly answers the research questions outlined in chapter 1 and listed below:

4. How is digital inclusion initiative provision driven, approached, and delivered in UK rural communities?
5. What role do digital inclusion intermediaries and actors play in the delivery of digital inclusion initiative training and support in UK rural communities?
6. What is the experience of people living in UK rural communities who have received or are in need of digital inclusion training or support?

This chapter highlights key issues and concepts derived from the empirical data, and advances the understanding of digital inclusion initiative provision in UK rural communities, specifically how they are implemented, delivered and experienced and the inherent challenges in that process.

6.2 Overview of the research

This study set out to investigate the provision of digital inclusion initiatives in the context of UK rural communities at risk of digital exclusion, through the perspectives of national digital inclusion stakeholders that operate nationally, intermediary stakeholders operating in three specific rural regions in England, Scotland and Wales where populations are at increased risk of digital exclusion, and individual stakeholders who have received digital inclusion support within those rural locations. Through the utilisation of a multilevel research design and AT, and taking the philosophical position of critical realism, this study offers a deeper understanding of the day-to-day realities of digital inclusion initiative provision in UK rural areas. Through the lens of AT, this study illustrates the multi-actor involvement of stakeholders involved in the provision of digital inclusion initiatives. Stakeholders were

drawn from disparate organisations, including government departments, and national third sector and government funded organisations, through to hyper-local community organisations and agencies, who had contrasting organisational cultures, operational practices and social agendas. Stakeholders provided multiple perspectives of the digital inclusion landscape, not just because they were different entities, but also because they were from disparate organisations, and different UK nations (England, Scotland and Wales).

More specifically the findings show how AT can be applied to illustrate the interactions between digital inclusion stakeholders and mediating factors in working towards the shared *object* of digital inclusion initiative provision in UK rural communities, and contradictions which permeate within the activity system. Through the process of theoretical understanding and developing multiple activity systems (as illustrated in Figures 5.1, 5.2, 5.6 and 5.9) this study reveals key drivers and approaches and delivery considerations in digital inclusion initiative provision. It provides insights into the role digital inclusion intermediaries play in the delivery of digital inclusion initiative training and support, and the experience of those who have received digital inclusion training or support. This study shows that the provision of digital inclusion initiatives is a non-binary process fraught with challenges and contradictions, and brings much needed granularity and criticality to the field of digital inclusion research.

6.3 (RQ1) Digital inclusion initiative drivers, approaches, & delivery in UK rural communities

6.3.1 Introduction

Findings related to RQ1 are discussed in this section and framed within the wider scholarly discussion of digital inclusion and digital inclusion initiatives. The analysis presented here highlights the evolving, multifaceted nature of digital inclusion initiative provision in UK rural communities, specifically in relation to how digital inclusion initiatives are driven and approached and the inherent challenges in this process. The analysis is presented in three subsections: 6.3.2 examines the drivers to digital inclusion initiative provision; 6.3.3 discusses approaches to digital inclusion initiative provision; and 6.3.4 examines insights into the delivery of digital inclusion initiatives in UK rural communities.

6.3.2 Drivers of digital inclusion initiative provision

In order to understand the implementation and delivery of digital inclusion initiatives in UK rural communities, this study sought to reveal the drivers behind digital inclusion initiative provision. Findings from this study confirm insights from previous research that the implementation of digital inclusion initiative provision is driven through the involvement of stakeholders (in the form of organisations, agencies and actors) operating at multiple levels, from international and national organisations to regional, local, and grassroot and civil society organisations with the joint aim of addressing digital inequalities and barriers to digital inclusion (Robinson et al, 2020a; Richardson, 2018; Ragnedda, 2018; Olphert and Damodaran, 2013). The interconnected stakeholder involvement illustrates what the researcher has come to define in simple terms as the 'ecosystem' of multi-stakeholder involvement in digital inclusion initiative provision, a notion allowed to emerge through the use of AT and the process of applying theoretical understanding to guide multiple perspectives.

More specifically, this study affirms findings from previous research that shows that drivers behind digital inclusion initiative provision are in the form of social, cultural, economic and technological barriers to digital inclusion, which influence and hinder an individual's ability or motivation to be able to access and use digital technology and the Internet (Hosman and Comisso, 2020). In addition, this study builds on the limited body of literature that identifies local and national digital policy and strategies as other key drivers behind the need for digital inclusion initiative provision (McGillivray et al., 2017)

Digital inclusion barriers

Consistent with previous research, key barriers to digital inclusion identified in this study include the cost of purchasing and subscribing to digital devices and paying for online services such as broadband and mobile phone subscriptions and mobile data (Van Deursen and Van Dijk, 2019; Yates, et al., 2020); a lack of motivation or insufficient digital skills (Reisdorf and Groselj, 2017; Scheerder et al., 2017); limited resources and opportunities for training and support (Helsper 2012; Mariën and Van Audenhove 2011; Borg et al., 2018; Tsatsou, 2019; El-Haddadeh et al., 2019; Mahmood et al., 2018) and issues in relation to a lack of access (Park and Kim, 2015; Reisdorf and Groselj, 2017; van Deursen and Van Dijk, 2019). While such barriers are

just as relevant in urban areas as they are in rural areas, in line with previous research (Williams et al., 2016; Salemink et al., 2017; Robinson et al., 2020a), this study importantly indicates how rurality adds an extra dimension to the barriers of digital inclusion, due to the additional challenges faced by local communities in terms of the sparsity of population, lack of resources and community assets, and inadequate broadband bandwidth and mobile infrastructure and connectivity, creating what Philip and Williams (2019a) refer to as a 'territorial digital divide' that underpins and further compounds digital inequalities in many remote rural areas.

As highlighted by digital inclusion scholars, (Salemink et al., 2017; Townsend et al., 2013; Farrington, 2015), rurality continues to play a role in digital exclusion, where elements of infrastructure, connectivity, and digital engagement limit digital participation and entrench digital inequalities in rural communities (Townsend et al., 2013; Farrington, 2015; Park et al., 2015; Salemink et al., 2017; Philip and Williams, 2019), leaving rural communities unable to exploit the full potential of the Internet and digital technology, where restricted access to online services, limits the ability of rural locations to grow economically, socially and culturally on their own terms (Philip, et al. 2017; Roberts, 2017). Limited access at home also prevents individuals having the ability to explore the internet or get comfortable with a computer or device and thus improve their digital skills (McGillivray et al., 2017), as further discussed in section 6.4. Indeed, this notion contravenes assumptions of ubiquitous access to digital technology and the Internet (Robinson et al., 2020a), where 'nearly every household in advanced western societies is connected through a telephone line and therefore has the possibility of a fixed Internet connection' (Salemink et al., 2017, p.362), highlighting instead an implicit urban bias in 'pervasive' and 'ubiquitous' technologies discourse (Roberts, 2017).

In line with previous research (Williams et al., 2016, Philip et al, 2017), this study evidences that the issue is not so much on the traditional 'have' and 'have not' argument in relation to access, but rather on the issue of 'take-up' and 'quality' of access to digital technology, whether that be the quality of access through connectivity or devices, or the availability of digital technology in relation to cost or distances travelled to reach places that have digital connectivity in rural communities. More specifically, as 'next generation' broadband is rolled out supporting higher speeds and

reliable connections, as stated by Philip and Williams (2019) ‘the issue is less about a broadband penetration gap and more about the implications of a broadband quality divide’ (p.307), a situation enhanced by infrastructure upgrades being predominantly prioritised in more urban densely populated areas, due to reluctance of Internet Service Providers (ISPs) to invest in remote areas where a small potential consumer base makes commercial roll out of upgraded infrastructure unprofitable (Park, 2017; Philip and Williams 2019a). This lack of prioritisation in some rural areas is a problem shared across many developed countries (Hodge et al., 2017; Park et al., 2019; Saleminck and Strijker, 2016; McMahon, 2020) leaving rural communities at a comparative disadvantage to their urban counterparts. Through the lens of AT, this unequal distribution of digital infrastructure, that emphasises an urban bias, highlights a significant contradiction, as discussed in the study findings, where limited access or exposure to digital technologies, due to ‘unfit-for-purpose’ mobile and broadband infrastructure in rural communities, hampers individuals potential capacity to use digital technologies and develop their digital skills. It could therefore be argued that if government and ISPs are to continue with market-driven, uneven distribution approaches of digital and technological infrastructure, then more support is required for digital inclusion initiative provision in rural communities to put them on an even keel with their urban counterparts and fill the gap where market-driven approaches have failed.

Digital policy and strategies

This study builds on the literature that identifies local and national digital policy and strategies as key drivers behind digital inclusion initiative provision (Philip et al., 2017; Pawluczuk et al., 2019; Wagg et al., 2019), specifically in relation to the influence and society’s reaction to, such policy and strategies.

Scholars refer to national digital inclusion policy and local organisational strategies as key drivers to the ‘digital inclusion movement’ (Micklewaite, 2018), which advocate and push the need for digital inclusion initiative provision to help digitally marginalised communities engage and use digital technologies (Mervyn et al., 2014; Taylor and Packham, 2016; Gann, 2019). This supports findings from this study which evidenced an emerging shift of local government authorities, service providers, agencies and community organisations implementing digital inclusion strategies within their own

organisations, as they begin to understand the relevancy of digital inclusion for their own organisation and the communities they serve, but also through the influence of devolution of authority and service provision from centralised, government departments to local public and private sector agencies.

However, an unanticipated finding from this study was that not all organisations were ready for this cultural shift or prepared to embed digital inclusion strategically within their organisation. This revelation was brought to the fore through the process of using the elements of AT, and identifying specifically how organisational culture permeates the *rules and norm* element of the activity systems, and associated contradictions related to this within and between the activity systems being analysed. This finding highlights the strength of AT and the principle of contradictions in drawing out critical insights and bringing meaning and sense to the complexities of a phenomenon (Karanasios, 2018), such as digital inclusion. This 'lack of readiness' for digital inclusion organisational culture, debunks the current 'utopian' discourse identified by scholars often found surrounding the digital inclusion agenda, displayed in existing literature and policies (Gangadharan, 2017; Mori, 2011).

From a rural digital inclusion perspective, Philips and Williams (2019b) state how 'paradoxically ICTs continue to be championed in policy and regional development as ways in which the relative disadvantages of rurality can be overcome' (p.620). Yet as clearly evidenced in this study and in previous research if digital technologies are in some way going to help overcome the disadvantages of rurality, adequate, fit-for-purpose, technological infrastructure in the form of broadband and mobile phone connectivity needs to be in place, at the very least. However, despite the UK government's Universal Service Obligation to ensure everyone has full fibre broadband by 2025, findings from this study indicate that unequal distribution of good quality digital infrastructure persists in some rural areas, which during an era when access to online resources or information is normative and taken for granted, leaves rural communities disadvantaged as they are unable to effectively participate in a digital society.

As evidenced through this study, the lack of adequate access to digital infrastructure, brings significant complications for rural communities when it comes to them accessing and using online services - an issue magnified by the UK government's

digital-by-default policy to enhance disintermediation and the movement of services going online, specifically the UK's Universal Credit benefits welfare online system. Indeed, the findings from this study confirms fears raised in previous research of how the consequences of digital-by-default reinforces the exclusion of already socially and digitally marginalised communities, as individuals struggle to access and use online services while face-to-face options are withdrawn (Helpser, 2012; Mervyn et al, 2014; Yates et al., 2015b; Williams et al., 2016; Hepburn, 2018). This finding highlights what the researcher has come to describe as the '*fall-out*' from the digital-by-default agenda, and remains a key driver for the need for digital inclusion initiative provision through what could be considered as a *compensatory* intervention i.e. to compensate for the failings of digital-by-default to help those in need of digital support. Indeed, this aligns with research by Yates et al. (2015b) which identified that the digital-by-default approach to online services underestimated issues of usability across a varied population, resulting in individuals unable to use such systems and having to rely on support from intermediary organisations in order to avoid benefit cuts and fines. As revealed in the findings, this adds demands onto the existing digital inclusion work of support organisations, a finding which appears to be at odds with digital inclusion policies being implemented. This highlights a significant flaw in the UK Digital Strategy (2014, 2017), which on the one hand promotes digital inclusion, but on the other hand promotes digital-by-default, which despite the strategy's best intention is excluding those most in need of government support, as evidenced by those attempting to use the Universal Credit online system. Indeed, this contradiction in digital inclusion policy, as revealed through AT, is a significant finding for this study and contributes to the scholarly debate on digital inclusion and digital-by-default.

6.3.3 Approaches to digital inclusion initiative provision

The findings from this study align with existing research that digital inclusion is not a simple phenomenon, but requires many organisational, individual, environmental or global conditions to be taken into account. (Ragnedda and Mutsvairo, 2018; Tomczyk et al., 2020). As such, this study argues that approaches to digital inclusion initiative provision need to be multifaceted, due to the social, cultural, economic and technological context of where such initiatives take place, and the impact such context has on individuals. This finding is consistent with studies that explore the problematic nature of both the process and impact of digital inclusion initiatives (Madon, 2009;

Bach et al., 2017; Pavez et al., 2017; Serrano-Santoyo and Rojas-Mendizabal, 2017), in which research highlights how the complexity of digital inclusion needs to be acknowledged and acted on when implementing and delivering digital inclusion initiative provision, rather than focussing on one-dimensional technological infrastructure solutions.

More specifically, this study reinforces previous research that argues that access-driven (Armenta et al., 2012), supply-side approaches to digital inclusion initiatives (Salemink and Strijker, 2018) that focus on the installation, implementation and supply of digital broadband and telecommunication infrastructure alone is not enough to ensure digital inclusion (Warchauer, 2002; Smith, 2015; Pavez et al., 2017; Bach et al., 2017; Gallardo et al., 2020), and results in incidences of failed digital inclusion initiatives (Davies et al., 2017; Madon et al., 2009; Tapia and Ortiz, 2010). Indeed, this study confirms findings from previous research that there is a need to take a broader view of digital inclusion beyond infrastructure (Gallardo et al., 2020) with demand-side, person-centred driven digital inclusion initiatives that are multifaceted in approach that aim to enhance digital participation through the advocacy, encouragement and provision of digital skills training and support that considers the social, economic and cultural context (Salemink, et al., 2017; Manlove and Whitacre, 2019; McMahon, 2020). For example, Aires (2014) through the use of AT as an analytical tool argued digital inclusion should be articulated 'beyond mere technical access, presence, or mastery of technological resources' by advocating a more 'social and cultural view of digital inclusion that emphasises the development of know-how and skills to the extent that they mediate participation in collective life' (p.339).

Indeed, as findings of this study indicate, digital inclusion initiatives should be recognised beyond short-term digital skills training initiatives, situated instead, within the realms of community development, lifelong learning and capacity-building. This finding aligns with existing research (Ragnedda and Mutsvairo, 2018; Reisdorf and Rhinesmith, 2018). Gallardo et al. (2020) specifically emphasise the need to take a multifaceted approach to digital inclusion initiative provision to achieve equitable digital transformation by encouraging community stakeholders to work in partnership to implement and connect digital inclusion with community development initiatives, that consider 'leadership, capacity-building and workforce development' (p.14). This

finding also agrees with Palmeiro et al. (2019) whose research concludes that digital inclusion needs to be ‘addressed both in adult education and in active job search programmes from a lifelong learning perspective’ (p.85).

Specific approaches to demand-side digital inclusion initiatives revealed in the study’s fieldwork in sections 5.2.3 and 5.3.3.1, build on the categories of digital inclusion initiative approaches identified by the researcher in the literature review of this study in Chapter 2, and are combined and briefly described below in Table 29.

Digital Inclusion Initiative Approach	Description
Community-based approach	Based within a community setting, often driven by local community/grass-root organisations supporting the local community with access to technology and digital devices, (formal and informal) through creative and collaborative solutions with local and sometimes national partners.
Integrated approach	Capacity building approach that involves digital champion training, often working with community-assets and the training up of front-line support workers
Reactionary approach	A response to the disintermediation and digitalisation of public, government and corporate services, taking intermediaries away from traditional community-based approach for digital inclusion
Top-down approach	Managed by government or national organisations but delivered through intermediary organisations and actors for a set period of time until the funding ends or is withdrawn
Service-design approach	User-centred, participatory approach to designing and implementing digital inclusion initiatives, where organisations listen and learn from recipients of digital inclusion support.

Table 29 Approaches to demand-side digital inclusion initiative provision

This list provides a snapshot in time of approaches to digital inclusion initiative provision currently being undertaken. Apart from for a few exceptions (e.g. Madon, et al., 2009; Robinson et al., 2020a), existing research on digital inclusion initiatives has traditionally focussed on one specific initiative, in a single country. As far as the researcher is aware, this is the first time that such a categorisation of digital inclusion initiative approaches in this context has been attempted in academic research and as such equates to a significant contribution to digital inclusion academic research.

However, it should be acknowledged that due to the evolving nature of the digital inclusion landscape (caused by technological innovations); the isolated sometimes unreported pockets of digital inclusion work that exist, and the lack of joined-up thinking between stakeholders (as evidenced in this study); and the fragmented nature of digital inclusion research, other approaches may well exist. Furthermore, there are clear overlaps between these approaches. For example, community-based approaches, as evidenced in this study, having to switch to a reactionary approach, and top-down approaches incorporating service design.

Indeed, what this range of approaches does show and confirm is that there is no unified way of realising digital inclusion initiative provision. Indeed, through the use of AT, it emerged through this study that organisations with contrasting organisational cultures and operational practices, translate digital policy and digital inclusion strategies through a range of approaches and different ways. Furthermore, through the use of AT, this study shows that achieving the *object* of the provision of digital inclusion initiatives is far from straightforward and is fraught with difficulties and contradictions, which not only hamper the realisation of the *object* of the activity system, but also in achieving the beneficial outcomes, that dominate digital inclusion rhetoric (Ragnedda, 2018). While the lack of unison in digital inclusion initiative provision could be construed as a weakness within the digital inclusion realm, it could also be argued that the 'ecosystem' of multi-stakeholder involvement in digital inclusion initiative provision has the potential to be a strength and an opportunity for change, if knowledge sharing, collaboration and trust takes place between stakeholders as further explained in 6.4. Furthermore, the range of approaches identified supports aspirations of digital inclusion scholars who stress the necessity of having flexible approaches to digital inclusion initiatives, rather than a fixed, one-size-fits-all approach (Roberts et al., 2017; Saleminck et al., 2017).

6.3.4 Delivery of digital inclusion initiative provision

The findings of this study support existing research in that the delivery of digital inclusion initiative provision is conducted by a plethora of intermediary organisations (public, private, charities and social enterprises) and actors, such as public libraries, local government agencies, advice centres, service providers, adult education organisations, housing associations and learning centres, as well as banks and

telecommunication corporations (Mariën and Van Audenhove, 2012; Al-Muwil et al., 2019; Yates et al., 2015a; Hodge et al., 2017; Reisdorf and Rhinesmith, 2020), who engage with communities and individuals in need of digital skills training and support (Robinson et al., 2020a; Richardson, 2018; Damodaran et al., 2015; Sweeney and Rhinesmith, 2017). Consistent with previous research, the training and support provided leads to many beneficial outcomes for the recipients, however an unexpected finding was that not everyone experienced a better digital inclusion outcome. Through the lens of AT, such unexpected or unintended outcomes signal the presence of contradictions within the activity systems as further discussed in section 6.5.

As evidenced from the study fieldwork, digital inclusion initiative provision is delivered in the form of short or long-term funded programmes, as discussed in previous research (Ragnedda and Mutsvairo, 2018; Gann, 2019; Pawluczuk, 2020; Mariën, and Van Audenhove, 2012; Carmi et al., 2020), often through multi-agency, cross-sector working and collaboration (Gann, 2019; Mervyn et al., 2014; Asmar et al., 2020). Stakeholders involved in the delivery of digital inclusion initiative provision, take on an intermediary role, as outlined in the next section in 6.4, in providing digital inclusion training and support to help individuals access and use digital technology and participate in the 'digital economy', but also as highlighted above in 6.3.3, in working in partnership and collaboration, with other intermediary organisations to share knowledge and resources and complete the task (or shared object) of delivering digital inclusion initiative provision. Indeed, knowledge sharing between organisations delivering digital inclusion initiative provision was evident in the findings when organisations worked in partnership and appeared to be an important part of collaboration and cross-sector working. The issue of knowledge sharing emerged through the identification of the rules and norms element of the activity systems analysed, yet interestingly the mention of knowledge sharing in the digital inclusion literature appears scant as further discussed in section 6.4.

However, this idealised portrayal of digital inclusion initiative provision delivery described above is rarely straight-forward. Indeed, in reality, the delivery of digital inclusion initiative provision is a complex, nuanced process, and as evidenced in this study and as acknowledged in previous research, can lead to failed initiatives (Armenta et al., 2012; Davies et al., 2017; Tapia and Ortiz, 2010) or unexpected

consequences or negative experiences (Gangadharan, 2017; Lutz and Hoffmann, 2017). Indeed, the overly positive bias of policy makers and some advocates of digital inclusion surrounding the benefits of digital inclusion delivery, as identified by some scholars (Eubanks, 2011; Mori, 2011; Ragnedda, 2018), and as evidenced in this study, means negative experiences related to digital inclusion solutions are seldom written about. For example, this study evidences that local intermediary and grass-root organisations delivering digital initiative provision are frequently under resourced and financially constrained, due to government funding cuts. Indeed, Brexit and the UK leaving the European Union (EU), brings a degree of uncertainty in relation to future funding for such organisations, particularly those involved in digital inclusion initiatives funded through the Building Better Opportunities EU Structural Fund, and raises questions whether funding will be redistributed through the newly introduced UK Shared Prosperity Fund.

Yet, paradoxically, despite the lack of funding, policy makers are dependent on such intermediary organisations delivering digital inclusion training and support. This finding is consistent with previous research (Eubanks, 2011; Gordo, 2015; Real et al., 2014), and while not surprising, also highlights a paradox between digital inclusion policy and practice, as on the one hand policy makers rely on the assumption that intermediary organisations will collaborate in partnership to deliver digital inclusion initiatives, as encouraged through the UK digital strategy 2017 (DCMS, 2017), yet continue to fall short in providing adequate financial investment for intermediary organisations to carry out a sustainable supportive role in practice.

Indeed, Mariën and Van Audenhove (2012) argue in their research on the digital inclusion initiative *Digitaal.Talent@Ghent* that the sustainability of initiatives and collaboration between the various stakeholders was key to the delivery of the initiative. Yet as evidenced in the current study, collaboration between organisations should not be assumed due to the differing social agendas, priorities, cultures and levels of resource of intermediary organisations, which can hamper collaboration. Previous research provides examples of where collaboration was hampered or unable to take place, despite the best intentions of the intermediary organisations. For example, research by Gordo (2015) found that potential partner institutions of the California Connect digital inclusion initiative in the US declined to collaborate in some instances

due to economic factors and the worry that such additional activity 'would be a drain on scarce staff time and facility availability' (p.250).

Furthermore, this study found even when collaborative partnerships are formed as part of digital inclusion delivery, such collaboration can be short lived due to the short-term funding cycle of the digital inclusion initiative. This illustrates the AT concept known as 'knotworking' (Engeström, 2008), as introduced in the multilevel findings in section 5.5.3.3, where different organisations come together to work on a specific task, or shared object, in the case of this study, digital inclusion initiative provision, forming a temporary 'knot'. This knot then becomes untied when the task changes or is finished. However, as discussed above in section 6.3.3, when capacity-building is embedded within digital inclusion initiative provision, there is then the potential of ongoing collaboration and possible sustainable digital inclusion initiative delivery as experienced by the Digitaal.Talent@Ghent digital inclusion initiative (Mariën and Van Audenhove, 2012).

Findings from this study also indicate how the rural context further complicates digital inclusion initiative delivery, largely due to the digital inclusion barriers listed above in section 6.3.2. Other scholars emphasise the need to make digital inclusion training relevant to those living in rural communities, highlighting how much online content is aligned to those living in urban areas (Warburton et al., 2014; Park and Kim, 2015; Correa and Pavez, 2016; McMahon, 2020). An important finding and contradiction in this study is how the provision of digital inclusion initiatives in rural areas is hampered by the lack of local resources, reduced or poor-quality connectivity and lack of funding. Philip and Williams (2019) research on remote rural home-based businesses, supports this finding, which identified how 'territorial digital exclusion', referring to unequal distribution of broadband and mobile connectivity, impairs informal ICT advice and training opportunities in home-based businesses. Another issue identified through the study, supported in the literature is the complicated process of applying for funding (Mariën and Prodnik, 2014) which is particularly difficult for smaller organisations who do not necessarily have the resources, such as those operating in rural areas (Real et al., 2014).

Despite the obvious disadvantages placed on organisations delivering in rural communities discussed here and in section 6.3.2, there is a lack of specific

approaches for digital inclusion initiative provision in UK rural communities, which arguably struggle with urban-centric market-driven approaches. Indeed, scholars highlight how the UK digital strategy includes no specific rural digital inclusion initiatives for reducing barriers of skills, motivation or trust, but focuses instead on access (Philip and Williams, 2019). Yet as identified in the study fieldwork, barriers presented in UK rural communities such as limited community assets and infrastructure (social and technological), and travel costs, hampers the delivery of digital inclusion training and support, which ultimately affects the achievement of the 'shared object' of the interacting activity systems.

6.4 (RQ2) Role of digital inclusion intermediaries and actors in the delivery of digital inclusion training and support in UK rural communities

6.4.1 Introduction

The findings related to RQ2 are discussed in the following section. These relate to the role digital inclusion intermediaries play in the delivery of digital inclusion training and support in UK rural communities. Three primary themes emerged relating to this question and are discussed in turn:

1. Evolving role of human intermediation in digital inclusion delivery
2. Capabilities and skills of intermediaries
3. Delivering in a trusted supportive environment

6.4.2 Evolving role of human intermediation in digital inclusion delivery

On the surface, one could assume the role of the intermediary is relatively binary in that they engage with individuals, and provide digital training or support. However, as is the world of digital inclusion, the involvement and role of the intermediary is much more nuanced. This study revealed the crucial and evolving nature of human intermediation in digital inclusion initiative delivery in the UK and more specifically in UK rural communities. As outlined above in 6.3.4 policy makers are dependent on intermediaries reaching out and providing digital inclusion support to communities. This finding aligns with existing literature which recognises the important role intermediaries play in supporting those who have barriers to digital literacy, and engaging with digital technology (Bleumers et al., 2012; Damodaran et al., 2015; Torrecillas et al., 2014) and provide digital skills training and support to negotiate the digital realm and online services (Jaeger et al., 2014; Real et al., 2014; Mervyn et al.,

2014; Mariën and Van Audenhove, 2012; Al-Muwil et al., 2019; Yates et al., 2015a). Indeed, through the lens of AT, Mervyn et al. (2014) revealed in their digital inclusion study that, 'without human intermediaries, a layer of complexity is added to the process of accessing and exploiting public sector information and services' (p.1100).

However, where this study departs from the existing literature, is the way in which AT has enabled the researcher to problematise the role of intermediaries, to reveal their evolving, strategic nature and nuances. To begin with, AT provided a mechanism and process through which to reveal a more detailed picture of the involvement of intermediaries in digital inclusion initiative provision as illustrated in the typology of intermediary organisations in Figure 10. The granularity of this involvement is further illustrated through the typology of intermediary actors, in Figure 11, which distinguishes between, digital inclusion intermediaries, established intermediaries and super intermediaries; and Figure 12 which illustrates the granularity of super intermediaries.

Secondly, as discussed in section 6.3.3 above, intermediaries in this study broadly found themselves involved in one of three dominant approaches to digital inclusion initiative provision in the form of either community-based; integrated; or reactionary approaches. These three approaches overlap to a certain degree with approaches identified in the study's literature review. For example, it could be argued that integrated approaches align with the work of Reisdorf and Rhinesmith (2018) who recommend the need for digital inclusion solutions to embed asset-based strategies that draw on the expertise of existing community assets. However, it is the significant movement towards predominantly integrated and reactionary approaches to digital inclusion initiative provision that was an unexpected finding for this study and not evident from analysing the existing literature.

The integrated approach, for example, where front-line support workers who frequently engage with digitally marginalised individuals (such as housing association staff) are trained up as digital champions, appears to be a strategic move by digital inclusion intermediaries as a way to reach harder to reach communities. This highlights how human intermediation in digital inclusion delivery has evolved to a more integrated, capacity-building approach, which feeds into what the researcher describes as the 'ripple effect' of digital inclusion initiative provision. However, what

sets these front-line support workers apart from traditional digital inclusion intermediaries such as libraries, and other civil society organisations is that their role historically did not have a digital inclusion aspect to it and have only recently joined the realms of digital inclusion intermediaries. However, as such organisations have come to realise the importance of embedding digital inclusion into their operational strategies, prompted by the digital-by-default agenda and the roll-out of universal credit, but also through the advocacy work of national and super intermediary organisations, so they have signed up to digital skills training with super intermediaries. This is a fundamental step change in the digital inclusion landscape where intermediaries have traditionally focused on supporting digitally marginalised ‘end-users’ rather than front-line support workers who already have a degree of digital skills capabilities.

Of equal importance is the evolving movement towards intermediaries having to take reactionary approaches to digital inclusion support, due to individuals struggling to access and use online services. Indeed, without the support of intermediaries, it could be argued that such individuals would find themselves digitally excluded. Such an outcome would confirm fears raised in previous research in how digital-by-default policy reinforces the exclusion of already socially and digitally marginalised communities (Mervyn et al, 2014; Yates et al., 2015b; Williams et al., 2016; Hepburn, 2018). Indeed, Chaudhuri’s (2019) study on digital infrastructure and intermediation emphasises how paradoxically intermediaries often *bear the brunt* of failed automated systems introduced to ‘cover human inadequacies’ (p.576), as more pressure is placed on them to provide a reactionary approach to digital inclusion initiatives for those in need of support accessing such services. Although Chaudhuri’s research was undertaken in the Asian context, the notion of intermediaries having to *bear the brunt* of system failures supports what intermediaries in this study experienced, referred to by the researcher earlier as the ‘*fall-out*’ from the digital-by-default agenda, where intermediaries end up having to react and provide on-the-spot support for those in need of urgent support (reactionary approach to digital inclusion). This supports research by Mervyn et al. (2014) who stated that ‘contrary to public policy that advocates disintermediation of public services, service access is often problematic without the active role of intermediaries’ (p.1099).

This argument could be further extended in relation to the role intermediaries play in working through cross-sector, multi-agency partnerships and collaboration to engage and deliver digital inclusion training and support. For example, while one could argue that collaboration and partnership working, encouraged through digital inclusion policy, could be seen to represent new forms of social governance, some scholars see the rise of a discourse of collaboration and partnership as an example of a 'compensatory mechanism to address some of the constraints arising from neoliberal market-orientated approaches' (Bloomfield and Nguyen, 2015, p.24). Taking this view into consideration, it could therefore be argued that the collaborative/partnership role of intermediaries brings a '*compensatory*' dimension to digital inclusion initiative provision delivery due to system failures. This therefore brings to light the nuances of human intermediation within the digital inclusion realm. For example, not only is the role of intermediaries crucial for digital inclusion training and support, as frequently cited in the literature, this study also agrees with previous research that intermediaries take on an important brokering role (Mervyn et al., 2014; Ramírez et al., 2013), between policy and individuals which as identified by Mervyn et al. (2017) can lead to 'emergent forms of government-to-citizen interaction' (p.7). Yet this important attribute of intermediaries is seldom mentioned in digital inclusion literature, where more focus is given to their training and capacity-building role (Madon et al., 2009; Garrido et al., 2012; Roberts et al., 2017; Guenther et al., 2020).

This study has therefore taken the opportunity to theorise the role of intermediaries through the process of utilising AT, as illustrated in Figure 16 to enable a theoretical understanding to emerge of the relationship dynamics within the intersecting or 'boundary spaces' between the activity systems (Nicolini et al., 2012), through Engeström's concept of boundary crossing (Mervyn and Allen, 2012). This revealed the dynamic, cross-sector/partnership 's' work between national and intermediary digital inclusion stakeholders in the delivery of digital inclusion initiative provision, but also the dynamics between intermediary and individual stakeholders. More specifically, the use of AT enabled the boundary spanning, relationship building behaviours of intermediaries to emerge, demonstrated through knowledge sharing and collaboration between stakeholders and capacity-building within the rural communities observed in the study fieldwork. These specific attributes of intermediaries are further discussed in the next section in 6.4.3. Furthermore, through

the strength of AT to bridge digital inclusion dualisms in this study, the dynamics of the interrelationships between stakeholders and the gradations of intermediary involvement within digital inclusion initiative provision were revealed, as illustrated in the Typology of super intermediaries in Figure 12. This illustrates the multilevel interaction of super intermediaries, from those who operate at a hyper-local level, those that operate regionally, to those who operate regionally that have support from a national organisation, and helps us understand the breadth of involvement from intermediaries in digital inclusion initiative provision.

6.4.3 Capabilities and skills of intermediaries

For intermediaries to cope with the evolving demands placed on them to deliver digital inclusion initiative provision in UK rural communities, requires them to have an essential skill-set to provide holistic digital skills training and support. For example, the findings of this study support existing literature in the skill intermediaries have in taking on a community capacity-building role, where those who have received training or support are then encouraged themselves by intermediaries to cascade knowledge gained on digital tools and skills to their local communities (Mariën and Van Audenhove, 2012; Casselden et al., 2019) stimulated through knowledge exchange or knowledge sharing. Indeed, as indicated in this study, knowledge sharing and capacity-building come hand-in-hand, yet very little reference is made to knowledge sharing in digital inclusion literature. Exceptions include Mariën and Van Audenhove (2012) who used the UK digital champion model as an example of capacity-building based on the idea that 'every individual within a community, within society, has some kind of ICT-knowledge and just needs to be incited to share that knowledge within his own social networks, the community or society at large' (p.4). More specifically, Roberts et al. (2017a) in their review on rural digital policy agenda, highlighted the importance of knowledge sharing within the DAE, the Gdansk Roadmap for Digital Inclusion initiative developed in 2011. The scholars identified how knowledge sharing and development of common tools to make the task of digital inclusion training by volunteers and third sector via partnerships easier. Guenther et al. (2020) in their research on the evaluation of the inDigiMOB project in Australia also mention knowledge sharing as one of the most commonly identified outcomes emerging from their thematic analysis, however no explanations or examples of knowledge sharing are provided. Therefore, while knowledge sharing in digital inclusion policy and

academic literature remains scarce, the findings of this study clearly highlight how knowledge sharing is embedded within digital inclusion initiative provision, especially within the role of intermediaries.

Another skill employed by intermediaries is evidenced through their boundary spanning behaviours. This specifically relates to super intermediaries who display boundary spanning behaviours when positioning themselves in the community to actively bring together distinct networks such as governments, community members and organisations (Williams, 2013; Brown, 2017). For example, as evidenced from the study fieldwork, intermediaries sought to bring organisations together in a specific region, in order to encourage them to share resources and knowledge, and strategies for engaging with rural communities in need of digital inclusion training and support. O'Sullivan and Walker (2018) in their study of online government services, evidenced boundary spanning when agencies shared data 'to generate a more complete picture of service utilisation and whole of client needs' (p.496).

Yet the concept of boundary spanning remains scarce in the digital inclusion literature. This may be due to boundary spanning emerging as a concept in the business and organisational management literature where scholars sought to identify organisational characteristics that facilitate knowledge exchange between two or more organizations. It may also be attributed to the fact that this study utilised AT, multilevel analysis and the philosophical position of critical realism, which allowed this finding, previously not discussed, to emerge. What is clear is that the boundary spanning behaviours of intermediaries are critical in current digital inclusion initiative provision, and as argued by Brown (2017) remain firmly located within the skill and capability set of intermediaries. Indeed, through the study fieldwork the significance increasingly became apparent to the researcher of the super intermediary, and the need to have an individual with some form of authority at local and regional level to consistently drive the importance of digital inclusion onto national, regional and local government agendas to push for transformative programmes and policies.

Crucially as discussed earlier, key skills employed by intermediaries are their ability to provide digital skills training and support to digitally marginalised communities and those wanting support, to provide training in a person-centred way, that doesn't make

individuals feel 'inadequate' or reinforce the feeling of 'digital just isn't for me, turning personal interests into a motivation to use digital.

Findings from this study reveal that assumptions are made that established human intermediaries, in the form of front-line support workers, possess the necessary skills and attributes, to engage and deliver digital inclusion training and support. However, as evidenced in this study this is not always the case. Indeed, the findings highlight there is a level of dependency on front-line support workers to provide digital inclusion support who in some instances may not have the necessary skills. This inhibits their ability to realise the potential benefits of using digital technology, or as described in AT informed research by Sweeny (2010), failing to '*break through*' integrating digital inclusion support with clients. This lack of '*breaking through*' as defined by Sweeny (2010) supports this study's findings in which intermediaries' own lack of digital skills and capabilities or their lack of knowledge to include digital inclusion as part of their role, hampers their ability to provide digital inclusion support.

The lack of digital skills of intermediaries also raises questions about the vulnerability to negative aspects of the online world individuals are put in should they receive insufficient digital training and support (Gangadharan, 2017; Vartanova and Gladkova, 2019; Scheerder et al., 2019). Exposure to cyber-bullying, fake-news and online scams, but also the ability to navigate the overwhelming amount of online information. Indeed scholars argue the use of digital has a complicating effect on the issue of information poverty through information overload as individuals feel unable to cope seeking information (Goulding, 2001). This feeds into the debate on information poverty and the 'information rich' and 'information poor' (Chatman, 1996, Haider and Bawden, 2007) where some scholars argue technology and the digital agenda has the potential to exacerbate information poverty and exclude individuals who cannot access information online or interpret the information available, thus restricting their ability to seek information and make informed decisions based on that information (McKeown, 2016; Marcella and Chowdhury, 2020).

This is a significant finding due to the clear dependency revealed at national-level of intermediary organisations and actors delivering digital inclusion training and support, especially as intermediaries take on more on-the-spot support for those struggling to access online services and information.

6.4.4 Delivering in a trusted supportive environment

The importance of delivering digital inclusion support in a trusted supportive environment emerged strongly in the study findings across all levels of stakeholders in terms of trusted relationships, trust in technology, trust in one's own ability (self-efficacy), and institutional trust, or specifically trust in public institutions and government websites. Indeed, it was through the use of AT, that 'trust' emerged as a mediating factor, revealing how trust is fundamental to the realisation of the *object* and outcome of the activity system, enabling a deeper understanding of the activity system.

The findings reveal trust is a vital element to the activity system that help make the components collaborate and work together, and without it or with an emergence of mistrust, creates tensions which could ultimately see the activity system collapse. AT scholars have emphasised how AT helped them expose issues of trust in their research through AT's concept of contradictions, to bring a greater understanding of the context of the activity system (Mervyn and Allen, 2012; Hasan and Allen, 2012).

As referred to in section 6.5.4, the issue of trust related to users of the internet and technology is discussed at length in the digital inclusion literature, yet literature in relation to trust and intermediaries operating in the digital inclusion realm in comparison appears scarce. This study agrees and builds on this aspect of the digital inclusion literature. For example, the importance of developing trusted relationships with individuals they are supporting is a significant aspect of their role (Haché and Centeno, 2011; Mervyn and Allen, 2012; Mariën, and Van Audenhove, 2012; Damodaran et al., 2015; Micklewaite, 2018; Guenther et al., 2020). Indeed, Asmar et al. (2020) highlight how the quality as well as the strength of the relationship, and the level of intimacy between those providing and receiving support is important, as is the need for them to be embedded within the local community so they can act as a trusted gatekeeper (Ramírez et al., 2013). Scholars highlight how devoting time to building trust helps maintain learners' perceived value of digital, and increase their self-efficacy (Damodaran and Sandhu 2016; Richardson, 2018). Indeed, from the findings of this study, some stakeholders saw the development of a trusted relationship between intermediaries as more important than delivering digital inclusion, particularly in rural communities, where there is perhaps less choice of intermediaries to call on due to the sparsity of the population. This emphasises the heightened need to include an

element of capacity-building in digital inclusion initiative provision in rural areas, to help develop the skills of those already living and working in the community, who will then cascade their knowledge onto others, bringing what Reisdorf and Rhinesmith (2018) describe as an asset-based view to digital inclusion, or more specifically an integrated approach through the use of digital champions (Ashmore et al., 2015; Casselden et al., 2019) as described in section 6.3.3.

This feeds into what the researcher has described as the digital inclusion ‘ripple effect’ as evidenced in the literature where people who benefit from digital support pass on their confidence and skills, whether by helping family and friends or by volunteering in a local community-based organisation (Micklewaite, 2018, p.197), or as evidenced in this study, to support their role as a frontline worker to support those who have been marginalised by digital. Indeed, it is this last scenario that highlighted to the researcher the need for intermediaries to deliver in a trusted, supportive environment. It was through the contradictions observed in the findings that it became apparent how despite their best intentions, some intermediaries struggled, not only with their skill levels as discussed above in section 6.4.3, but also due to the environment in which they had to deliver digital inclusion support. As discussed in section 6.4.2 intermediaries have had to evolve their role due to the demands of digitalisation and the increased shift towards reactionary approaches to digital inclusion, which as evidenced in the literature is against a backdrop of under resource and lack of funding (Gordo, 2015; Yates et al. 2020). As evidenced in the findings this not only results in stress for the individual receiving digital inclusion support, but also makes intermediaries resentful of the digital-by-default system, distrustful of the institutions behind the implementation of the system and feel undervalued. This raises the issue of a loss of institutional trust within the activity system, coupled with intermediaries feeling undervalued. This lack of appreciation of the role of intermediaries also appears mirrored in the literature, where the importance of their role is understated and warrants further attention. The findings of this study emphasise how intermediaries need to be recognised for the support they provide and their essential digital inclusion role in policy, practice and academia. This recognition could be in the form of more funding and resource, training and accreditation. Indeed, during the write-up process of this thesis at least one of the super intermediaries has since lost their job due to a lack of funding and another has changed roles.

6.5 (RQ3) Experience of people living in UK rural communities who have received or are in need of digital inclusion training or support

6.5.1 Introduction

The findings related to RQ3 are discussed in the following section. These relate to the experience of people living in UK rural communities who have received or are in need of digital inclusion training and support. Three primary themes emerged relating to this question and are discussed in turn:

1. Recipients of digital inclusion initiative training and support
2. Attitudinal experience of digital inclusion initiative recipients
3. Trusted supportive environment for digital inclusion support

6.5.2 Recipients of digital inclusion initiative training and support

Findings from this study broadly supports existing literature that some demographic groups, benefit more from using digital technology while others struggle (van Deursen and Helsper, 2018). Indeed, it is important to highlight here that while the findings from this study are in reference to rural populations, it does not imply that urban populations are not digitally excluded or digitally marginalised. On the contrary, such an assumption about the nature of a digital divide between urban and rural populations would be problematic. Research exists on the barriers faced by those living in both urban and rural areas accessing and using digital technologies, who would benefit from digital inclusion training and support. Poorer, older, and less educated groups, for example, compared to richer, younger, and more educated individuals, are often cited in the literature as ‘digitally excluded’ or ‘non-users’ of digital technology. For example, studies frequently refer to non-users as individuals who are older, less educated, more likely to be unemployed, on a low income, disabled, a refugee, socially isolated, and possibly living in an area of multiple deprivation or a rural location (Helsper and Reisdorf, 2016; Borg et al., 2018; Alam and Imran, 2015; Townsend et al., 2013; Farrington, 2015; Correa and Pavez, 2016). Such demographics are often the focus of digital inclusion initiatives highlighting the historic rhetoric in digital inclusion policy and research of the need to support non-users of technology (Ragnedda, 2018).

More recently, studies have begun to move away from the binary digitally included/excluded, users/non-users debate, by unpicking the nuances within ‘non-

users'. For example, Díaz Andrade and Techatassanasoontorn (2021), in their study identified 'former users' - those who have decided to stop using digital technology, 'indirect users' – those who rely on someone else (proxy user) to use digital technology for them, 'unaware users' – those who use social media and are not aware that they are also using the internet, as well as 'non-users'. Similarly, Yates et al. (2020) in their study drew attention to 'limited' or 'narrow' users where individuals use digital systems and technologies, such as social and entertainment media, social media, and apps in a limited way. Scholars argue that policy approaches to digital inclusion need to look more closely at these nuances of users so as to not miss anyone out, yet government and third sector digital inclusion policy remains focussed on 'non-users' or those who are 'offline' (Yates et al., 2020). This agrees with findings from this study which highlight the nuances and differences in the abilities of those receiving digital inclusion training and support where clear distinctions exist between those who chose to engage with digital technology and digital inclusion support, resulting in them becoming digitally engaged and confident using devices relatively quickly, and those whose journey was more complex, and perhaps forced due to the acute information need and urgency of the activity, or worries about using a devices or computer for the first time.

A significant finding revealed from this study aligns with recommendations by Yates et al. (2020) and Díaz Andrade and Techatassanasoontorn (2021) that digital inclusion policy needs to move away from the idea of only supporting 'non-users' through digital inclusion initiatives to those with some degree of experience with digital technologies as digitalisation has tangible implications for the whole of society (Díaz Andrade and Techatassanasoontorn, 2021). Through the use of AT, this study identified recipients of digital inclusion initiative support as those who were digitally marginalised or excluded, and those who use digital technology in a limited way. However, this study also evidences that digital inclusion initiative training and support is being offered to those that could be classed as 'digitally included' to enable them to impart their knowledge confidently onto others as embedded digital champions.

As discussed earlier, these recipients were in jobs where their role involved them interacting with more vulnerable members of society and so were in a strategic position to be able to engage and support such individuals through an 'integrated approach' to digital inclusion. It should be emphasised that this approach was not a one-off

captured by this study, but an approach which digital inclusion stakeholders are continuing to pursue as digital technologies are increasingly embedded in daily life and work, but also where organisations such as housing associations are seeing the importance of embedding digital inclusion into their operational strategies and signing up to digital inclusion training with national digital inclusion organisations. This highlights that recipients of digital inclusion support in this study are from ‘all walks of life’ and not just ‘disadvantaged communities’ or ‘non-users’ as historically reported in academic literature and through policy. This was a surprising finding for the researcher who having worked within digital inclusion practice was unaware of this shift in digital inclusion training and support.

This finding therefore extends the notion that digital inclusion policy should look beyond ‘non-users’ of digital systems and technology, and solutions that go beyond the provision of access and digital skills, and instead consider an ‘integrated approach’ to digital inclusion initiative provision that incorporates capacity-building and knowledge sharing, and as such has implications for policy and research.

6.5.3 Attitudinal experience of digital inclusion initiative recipients

Findings from this study revealed that those in receipt of digital inclusion initiative training and support had a range of attitudinal experiences from positive to negative, from those who choose to seek digital inclusion support to those who felt they had been coerced or forced to seek help, as illustrated in Chapter 5 in Figure 14 in the ‘four C’s attitudinal journey of digital inclusion support’ model, which is further articulated in Table 24. The extremes of this journey show those who become digitally included and see digital in a positive light and those who remain or become further disengaged as a result of negative experiences and feelings of being forced to use digital. Findings from this study also indicate the real worry for those who have received some digital inclusion support but attitudes that leave them vulnerable to negative aspects of digital such as internet addiction, cyber-bullying, online gambling and fake news as they have some understanding of getting online but less understanding of the pitfalls.

It should be emphasised that this attitudinal journey is not linear, and aligns to some extent with discussions found in the literature in how individuals’ motivation and attitude affect their use and engagement with technology. For example, where

individuals, previously using technology to some degree, may disengage with technology due to negative experiences, and consequences (Gangadharan, 2017; Lutz and Hoffmann, 2017; Vartanova and Gladkova, 2019; Scheerder et al., 2019), changes in personal circumstances (Olphert and Damodaran, 2013; Damodaran and Sandhu, 2016), or other societal or cultural pressures (Dutton and Reisdorf, 2019; Reisdorf and Groselj 2017).

Where the findings depart from the literature is how these attitudes were observed specifically as a result of receiving digital inclusion training and support. As highlighted by Díaz Andrade and Techatassanasoontorn (2021) little research has been undertaken that reveals the potential negative effect of digital inclusion solutions, revealing again the overly-optimistic rhetoric in digital inclusion research and policy. As such the development of the ‘four C’s attitudinal journey of digital inclusion support’ model makes a unique contribution to digital inclusion research during a time when arguably digital inclusion policies and corporate practices are offering technological opportunities, but at the same time depriving individuals of offline choices. It also reveals potential negative consequences of digital inclusion solutions, an aspect currently lacking in the literature.

The range of attitudes of those receiving digital inclusion training and support evidenced in the findings, emerged through the process of using AT, and the identification of psychological tools in the form of attitudes which facilitate or inhibit achieving the object of the activity system (Kaptelinin and Nardi, 2009; Yamagata-Lynch, 2010). The incorporation of psychological tools in the activity system helped to demonstrate how achieving the *object* of the provision of digital inclusion initiatives through human activity is far from straightforward and is laden with contradictions, which not only hamper the realisation of the *object* of the activity system, but also in achieving the desired outcome. This highlights that while the activity system has a shared *object*, it is clear there is tension in achieving that shared *object*, revealing the granularity or ‘hierarchical nature of the object’ and a tension within the *subjects* of the activity system. This aligns with thoughts by Nuttal et al. (2007) who found in their AT informed study that the ‘assumption of a common object is highly unstable, or at least more complex than first thought’ (p.50).

The granularity of the object, as described above, could be argued is largely due to the poly-motivation (Kaptelinin, 2005, p.6) of the subjects and how their motivations influence how they act upon an object (Allen et al., 2011; Foot, 2014) specifically in relation to the context of their attitudes and choices as found in this study. For example, whether recipients of digital inclusion training and support are choosing to seek support, or feel they are being forced to seek help due to the urgency and systems in place framing their enquiry, such as accessing government digital-by-default services and the lack of technological infrastructure. This is a far cry from the 'utopian' discourse and associated beneficial outcomes so often portrayed in digital inclusion policy and literature (Mori, 2011; Mariën and Prodnik, 2014; Gangadharan, 2017), where ubiquitous connectivity is assumed as desirable and an enabling/empowering force for all. The identification of the 'hierarchical nature of the object' revealed in this study signifies how the application in AT enabled the development of the 'four C's attitudinal journey of digital inclusion support' model (Figure 14), offering a unique contribution to digital inclusion research.

The issue of choice with digital is something which is discussed in the literature and remains a contentious subject. The continued focus of government and corporations pushing on with digitalisation and digital-by-default while reducing face-to-face and offline options is increasingly seen as the norm (Díaz Andrade and Techatassanasoontorn, 2021), yet as evidenced in this study and in the literature, is reinforcing or creating mechanisms of exclusion, arguably creating non-users by force (Mariën et al., 2016; Mervyn et al., 2014; Yates et al., 2015b). Indeed, Mariën et al. (2016) in their research revealed how some individuals rather than acknowledging their inability to adapt to the overall digital norm of society prefer to claim they are 'non-users by choice' instead of the reality, which the scholars refer to as 'non-users by force' bringing to light what scholars have identified as the 'stigmatisation of Internet non-users' (Díaz Andrade and Techatassanasoontorn, 2021, p.185). Moreover, with so much information online and in some instances the only medium to get specific information, non-use of digital arguably could exacerbate information poverty, as people are unable or restricted in accessing information (McKeown, 2016; Marcella and Chowdhury, 2020).

Scholars argue that individuals should be allowed to make an informed choice concerning participating or declining to join the digital society (Klecun, 2008; Mariën et al., 2016) or having the 'right to choose' (p.194) (Díaz Andrade and Techatassanasoontorn, 2021). However, this highlights a contradiction within the literature where on the one hand digital inclusion is advocated for enabling choice, while on the other hand digital inclusion is required due to the lack of offline choices. For example, Selwyn and Facer (2007) stated that the focus of digital inclusion is to 'enable all individuals to make informed and empowered choices about the use of ICT whilst ensuring these individuals have ready access to the resources required to enable them to act on these choices,' (p.6), or taking one step further as stated by Damodaran and Olphert (2006) 'where citizens move beyond being 'users and choosers' of technology to become 'makers and shapers' of the technologies available to them and the rest of society' (p.51). However some scholars portray a more cynical view highlighting while individuals might believe they are making a free 'digital choice', in reality their engagement with technology is determined by contextual circumstances (Mariën and Prodnik, 2014) such as the available infrastructure, pricing schemes, policies within a region, or cultural and social influences (Helsper 2008; Townsend et al., 2013; Mariën et al., 2016). Then there are those individuals who despite having the capabilities choose not to use digital (Helsper, 2008).

The debate surrounding 'digital choice' illuminated by scholars continues to evolve, as technological innovations continue at a fast pace against a backdrop of unequal distribution of digital infrastructure (Mariën and Prodnik, 2014), unequal opportunities to engage and use technologies and digital-by-default processes (Philip and Williams (2019). For example, Díaz Andrade and Techatassanasoontorn, (2021) recent research on the 'digital choice' debate, argue how 'people's choice should matter' yet due to the pressures of government and corporate digital services are faced with what the scholars refer to as 'digital enforcement' where individuals feel they are being forced to go online. Indeed, their study reveals people feel 'forced' to go online for specific services, putting them in an environment not conducive to learning or wanting to learn, making them feel demotivated and stressed. This aligns with the evidence provided in this study in relation to the significance digitalisation of services and digital-by-default has on individuals' attitudes towards digital and the importance of receiving

digital inclusion support in a trusted supportive environment as discussed in the next section in 6.4.4.

Indeed, Díaz Andrade and Techatassanasoontorn, (2021) raise questions about whether there should be limits to the ongoing process of digitalisation at every level of daily interaction, and how to guarantee offline alternatives for those who choose interpersonal exchange or a physical place over the digital. Such questions highlight the contradictory objectives of digital-by-default which as discussed earlier is primarily to cut costs rather than to empower people. Essentially what these findings reveal is the lack of consideration in the process of digitalisation for people's attitudes and the contextual factors that influence attitudes, and the consequences this has on their choices and experiences of receiving digital inclusion training and support. This feeds into concerns raised by Helsper (2017) in how too much focus is placed on digital skills within the rhetoric of digital inclusion initiatives, emphasising instead a need to focus more on the understanding of individuals motivation and attitudes and how they see the relevancy of digital to their lives. This study therefore highlights how individuals' attitudes and the contextual factors that influence their attitudes, need to be considered when designing digital inclusion initiative provision and when providing training and support.

6.5.4 Trusted supportive environment for digital inclusion support for individuals

The importance of receiving digital inclusion support in a trusted supportive environment emerged strongly in the study findings across all levels of stakeholders in terms of trusted people, trusted places, trusted relationships, trusted information and trust in technology. Without the inclusion of such elements the risk is run of individuals not engaging with digital inclusion support being offered, or worse disengaging with the use of digital completely. Indeed, it was through the use of AT, that 'trust' emerged as a mediating factor, without consideration of which, it could be argued, would hamper the realisation of the object of and ultimately the outcome of the activity system, resulting in a failed digital inclusion initiative or intervention. Indeed, Mervyn and Allen (2012) in their study of the behaviours of government online service 'end-users' noted how AT helped to extrapolate critical instances of trust.

The issue of trust related to individuals or 'end users' has been discussed at length in the literature in terms of using technology and the internet, government online services

and initiatives, understanding of personal data, cyber security, and misinformation and disinformation (Tapia and Ortiz, 2010; Gomez and Gould, 2010; Al-Muwil et al., 2019; Pangrazio and Selwyn, 2019; Carmi et al., 2020), but also in terms of developing trusted relationships with intermediaries and the places in which training and support takes place (Haché and Centeno, 2011; Mariën, and Van Audenhove, 2012; Damodaran et al., 2015). 'Trust' is also highlighted in digital inclusion policy (Department for Digital, Culture, Media & Sport, 2017; Cabinet Office, 2014). However, it is the combination of the different elements or granularities of trust identified in the study through the use of AT, that the importance of having a trusted supportive environment for digital inclusion support emerged. Indeed, such granularity is often absent from policy documents. For example, the 2017 Digital Strategy while mentioning trust as one of the factors to 'navigate confidently online and access opportunities with technology and on the Internet' (Department for Digital, Culture, Media & Sport, 2017, n.p), neglects to offer what is meant by 'trust', which leaves its meaning open to interpretation.

Indeed, the literature emphasises the need for training opportunities and social support as part of digital inclusion initiative provision (Hargittai, 2008; Mariën and Prodnik, 2014) to reap the benefits of digital technology. But this study argues providing support alone is not necessarily enough to reach out and engage with individuals in need of digital inclusion training and support. It is the trusted supportive environment in which such digital inclusion and support takes place, as evidenced in this study that makes the difference. It is the trusted relationship (Mervyn and Allen, 2012) developed with face-to-face human intermediation (Asmar et al. 2020), in a trusted space (Damodaran et al., 2015), through the use of trusted resources and information, disseminated in a way that is person-centred and relevant to their everyday life, with due care and empathy (Sweeney and Rhinesmith, 2017), either one-to-one or in a group setting (depending on the circumstances), that creates an environment conducive to learning and for receiving support. It can therefore be argued, and is not surprising when individuals are put in the position of feeling forced or coerced to receive digital inclusion support to access online services, as discussed above in 6.5.3, that a contradiction is revealed and the notion of having a trusted, supportive environment breaks down, due to the lack of institutional trust (as explained

above in 6.4.4) potentially leaving the individual disengaged with digital and the intermediary unsatisfied with the outcome.

It can therefore be ascertained for digital inclusion support to be achieved, a trusted, supportive environment is required, and is an essential component for digital inclusion initiatives. However, as evidenced in the study, this is an 'idealised' form of digital inclusion support, and intermediaries often have to compromise, be flexible and make adjustments in their support to accommodate the requirements of those in need of digital inclusion support.

6.6 Chapter summary

This chapter discusses the findings presented in Chapter 5, in light of previous published literature, and explores alternative viewpoints. The discussion addresses the study's aim to investigate the provision of digital inclusion initiatives in the context of UK rural communities, and explicitly answers the research questions posed in Chapter 1:

The final next chapter concludes the thesis. It reviews the aims and objectives of the study and draws out contributions to knowledge from the study, including contributions to empirical research, methodology, theory, policy and practice. It then offers a list of recommendations for research, policy and practice, limitations of the study, considerations for future research, and then a final reflection of the study.

CHAPTER 7 CONCLUSION

7.1. Introduction

The findings of this study have illuminated the complexities and multi-faceted nature of digital inclusion initiative provision, in the UK and UK rural communities. This final chapter reviews the original aims and objectives in relation to the findings from the study and draws out implications and contributions for research, theory, policy and practice. Suggestions for future work are provided, together with a reflection on the research process and considerations of the limitations of the study.

7.2 Research objectives and main findings

7.2.1 Overview

The overall aim of this study was to investigate digital inclusion initiative provision in the context of UK rural communities. The study was based on the observation that digital inclusion initiative provision is a multilevel phenomenon that requires a critical discussion. Yet such a discussion had not been explored in the literature, except through examples of individual initiatives, through single level analysis, providing a suitable research gap for this study.

The objectives which contribute to the fulfilment of this study's aim and answering the research questions posed, were achieved firstly through a critical review of the literature, which provided an overview of digital inclusion research that included the problematisation of the concept of digital inclusion, and barriers to digital inclusion experienced by communities and individuals. This was followed by an exploration of the literature on digital inclusion initiatives, revealing the drivers, approaches, and multilevel involvement of stakeholders in digital inclusion initiative provision, and essential factors and components required to implement and deliver digital inclusion initiative provision. The literature review then moved on to explore the involvement of intermediary organisations and actors that deliver digital skills training and support in the context of UK rural communities. The review revealed limited research on digital inclusion initiative provision, the role of intermediaries in digital inclusion delivery, particularly in UK rural communities, and a lack of underpinning theory. The literature therefore concluded a need for research that investigates digital inclusion initiative provision as a multilevel phenomenon, in the context of UK rural communities through

a theoretical lens, that considered the perspectives of stakeholders operating at multiple levels.

This led the researcher to develop a multilevel framework (see chapter 4, section 4.4.3) as a conceptual guide to enable a multi-stakeholder perspective of digital inclusion initiative provision in UK rural communities across three level - national, intermediary, and individual level. The researcher also sought a suitable underpinning theory that could be used with the multilevel framework. This resulted in the decision to use AT as an analytical framework to guide data collection through to empirical data analysis, as it could transcend a single level of analysis whilst enabling a holistic analysis of the multilevel phenomena. Indeed, what sets AT apart from other theories is its ability to 'dialectically link the individual and social structure' Engeström (1999, p. 19).

A qualitative case study approach, underpinned by critical realism, that incorporated the multilevel framework and AT, was successfully used to achieve this study's research objectives that brought together insight from digital inclusion policy, national and intermediary stakeholders, and recipients of digital inclusion training and support. Building on the issues found in the literature review, this involved two phases of data collection. It's important to say here that data collection was carried out pre-COVID-19. The first phase involved a set of semi-structured interviews with national stakeholders to gain a broad view on how digital inclusion initiative provision is approached and delivered in the UK and in UK rural communities. Interview questions were informed from the findings of the literature review, mapped against AT elements and principles, and framed to get an understanding of digital inclusion initiative provision within the UK and UK rural communities. Building on this first phase, a second phase of data collection involved semi-structured interviews, observations and a focus group with intermediary stakeholders to reveal the involvement of intermediary organisations and actors in the delivery of digital inclusion support in three specific rural regions in the UK. This second phase of data collection also involved observations and a focus group to capture the experiences of people living in rural communities who have received digital inclusion support for everyday life and in the workplace, again in three specific rural regions in the UK. Data collection was complemented by a review of digital inclusion policy documents.

Data collection and analysis of interviews, focus groups, policy documents and observations were theory driven guided by AT and supported by Thematic Analysis (Braun and Clarke, 2006) to allow the data to 'speak'. This was an iterative process where retroductive/abductive reasoning embedded within critical realism was considered. This was achieved through the lens of AT which played an important role in integrating different sources of data and examining emerging themes.

AT was usefully applied to this study to enable the researcher to critically analyse the data gathered to reveal key challenges that hamper the delivery of digital inclusion initiative provision in UK rural communities, but also identify essential considerations and recommendations or future digital inclusion initiative solutions. Using AT influenced the findings revealed in this study as explained. Drawing upon the work of Engeström (1987), this study utilised the third-generation of AT and the notion of interacting activity systems which share a common object as the unit of analysis, and the AT principles and elements as outlined in chapter 3. AT specifically was used as an analytical framework, to analyse data collected through interviews, focus groups, policy documents and observations, to explore the interplay and dynamics of the AT elements and mediating factors within a single activity system at national-level, intermediary-level, and individual-level digital inclusion stakeholders and then at multilevel. Through the lens of AT and Engeström's five principles (as described in chapter 3), the elements of each activity system (subject, object and the outcome, and the community, tools, rules & norms, and division of labour), were identified to develop an activity system diagram, and inner contradictions permeating the activity system were revealed. This was done by asking questions of the data as listed in Table 16 in chapter 4. It is important to highlight how each subject could have had its own activity system, or grouped into several activity systems. A level of abstraction was therefore considered from which it was decided to create three activity systems (national-level, intermediary-level, and individual-level) which were then brought together through a multilevel analysis as illustrated in Figure 16 in chapter 5. It is also important to highlight how AT provided a mechanism and process through which to reveal a more detailed picture of the subject of each activity system. For example, AT enabled the researcher to problematise the role and involvement of intermediaries in digital inclusion initiative provision of intermediaries, revealing their evolving, strategic nature

but importantly boundary spanning, relationship building behaviours demonstrated through knowledge sharing and collaboration between stakeholders.

Bringing the three activity systems together helped to understand dialogue and multiple perspectives across the interacting activity systems and reveal contradictions in the intersecting or 'boundary spaces' between the activity systems. Ultimately identifying contradictions in and across the activity systems were integral to answering this study's research questions, and highlighting opportunities for change and development. The application of AT in this study, strengthened ontologically by critical realism, therefore influenced the findings by enabling a thorough, critical investigation that revealed many contradictions and mechanisms that influence and hamper the digital inclusion process, and crucial activities and behaviours of those delivering and receiving digital inclusion training and support.

However, it is important to acknowledge that AT also comes with its limitations. Some researchers argue that using a collective group of participants (*subjects*) in order to create a single activity system dismisses the role of the individual within the system (Leadbetter, 2008). This study has attempted to overcome this by acknowledging the granularity contained within the subject element of an activity system. Other critics highlight the issues of translation particularly in the term 'object' and 'activity' this leaving it open to interpretation or misunderstood (Kaptelinin and Nardi, 2009; Karanasios, 2018). AT has also been criticised for not having one unified, clearly defined research method and procedure (Murphy and Rodriguez-Manzanares, 2008) meaning it could be interpreted in multiple perspectives. This study has attempted to address this critique by using the definitions provided by Engeström, and through explicit clarification of the components of the theory. Indeed, Yamagata-Lynch (2010) identifies realms of critique that argue the belief that the application of the triangle model cannot capture all relevant aspects of an activity, is too 'simplistic' and not comprehensive enough thus limiting the representation and understanding of complex human interaction. Some critics contribute this to how Vygotsky's broad cultural-historical viewpoint of AT has been narrowed and forgotten over time (Wiser et al., 2019). The researcher acknowledges this viewpoint, as at times during the analysis identifying specific elements of an activity was difficult. However, as emphasised by

AT scholars, the framework should be used to ‘guide’ data analysis and not used with some sort of a ‘tunnel vision’ (Wiser et al., 2019).

Importantly, this study is underpinned by the philosophical position of critical realism (as outlined in chapter 4, section 4.3). Critical realism supports interdisciplinary research that examines complex phenomena and as such has influenced the findings of this study. Specifically, this study applied the critical realist concept of a stratified ontology as it investigates analytically the relation between different levels of reality (real, actual and empirical), without collapsing one into the other. This nuanced ontology is a specific characteristic of this study, as it pays attention not only to observable events in the world, but also seeks to understand the deeper structures, mechanisms and processes that generated those events. The nuanced ontology of critical realism therefore influenced this study to not only investigate, understand and document, but to provide a critical analysis by questioning and criticising the practices, assumptions and understandings within digital inclusion initiative provision at different levels and expose the problems associated with the underlying structures and mechanisms present in the digitalisation of society. Such ontological depth helped the researcher develop a granular study that exposes nuanced research findings that reveal what is ‘*really* happening on the ground’ or the ‘*real* issues’ and processes in digital inclusion initiative provision, challenging the current ‘utopian’ discourse in digital inclusion rhetoric.

What follows is a review of the extent each research objective has been achieved:

7.2.2 To explore how digital inclusion initiatives are approached, driven and delivered in UK rural communities

This objective was achieved firstly as outlined above, through a critical literature review found in chapter 2, which provided an overview of the digital inclusion landscape with an emphasis on digital inclusion initiative provision and how they are implemented. This involved extrapolating from the literature how digital inclusion initiatives are driven, approached, and delivered around the world, with a specific focus on the UK and UK rural communities. This objective was further achieved through the use of AT as an analytical framework, to analyse data collected through interviews, focus groups, policy documents and observations with stakeholders at national, intermediary

and individual-level. Single level analysis was conducted at each level followed by a multilevel analysis connecting the levels together through the use of AT.

Findings of this study, emerged through AT, indicate digital inclusion initiative provision is approached in a number of ways, (community-based, integrated, reactionary, top-down, and service design – see Table 29) by a plethora of organisations with contrasting organisational cultures and operational practices. Such approaches are driven by technological advancements, the impact of digitisation and digital-by-default policies, unequal distribution of technological infrastructure and resource, and barriers to digital inclusion. The analysis provides evidence of the multi-stakeholder involvement in the delivery of digital inclusion initiative provision from national government through to hyper-local organisations and actors, that relies on collaboration and the essential role of human intermediation within this process. The study evidences that approaches to digital inclusion initiative provision are evolving as organisations make strategic decisions in how to reach and engage with individuals in need of digital training and support, and consider integrated, community-based, and service design approaches that incorporate capacity-building and knowledge sharing. However as evidenced in this study there has also been a shift in organisations having to take reactionary approaches to digital inclusion in response to individuals struggling with the digitisation of services and lack of face-to-face options. The categorisation of approaches to digital inclusion initiative provision summarised in this study, evidences the granularity and variety of the activities happening in the digital inclusion realm and the evolving nature of digital inclusion initiative provision.

7.2.3 To explore the role digital inclusion intermediaries and actors play in reaching and engaging with UK rural communities in need of digital inclusion training and support

Similar as above, this objective was achieved firstly through a critical literature review found in chapter 2, which provided insights into the role intermediaries play in digital inclusion initiative provision. This involved the researcher extrapolating from the literature the involvement of intermediaries in delivering digital inclusion initiative provision and providing digital inclusion training and support around the world, with a specific focus on the UK and in UK rural communities. This objective was further achieved through the use of AT as an analytical framework, to analyse data collected

through interviews, focus groups, policy documents and observations with stakeholders at national, intermediary and individual level. Analysis took place as described above in 7.2.1 providing a comprehensive picture of the role and involvement of intermediaries reaching and engaging with UK rural communities in need of digital inclusion training and support.

Significant themes that emerged from the data through AT were the evolving role of human intermediation in digital inclusion initiative delivery; the capabilities and skills of intermediaries; and the need to deliver digital inclusion training and support in a trusted supportive environment. The evolving role of intermediaries was particularly evident as intermediaries moved from what could be described as providing 'nice to have' digital skills training and support, to providing 'essential' training and support in response to digitisation, digital-by-default and lack of face-to-face options. On top of this the study evidenced increased pressure on intermediaries to undertake this evolving role against a backdrop of limited resource and funding cuts. Through the use of AT, this study was also able to unpick the level of involvement intermediaries play in digital inclusion initiative provision and the significant bridging role of intermediary organisations and actors, displayed through knowledge sharing and boundary spanning behaviour to help align thinking between digital inclusion policy and practice.

This study also reveals the assumptions that intermediaries have the required skills and capabilities to undertake their role, when in fact this is not always the case. The pressure of undertaking this role together with the assumptions that intermediaries have the required skills revealed how having a trusted supportive environment was essential for intermediaries to be able to carry out their role in a satisfactory manner, a situation some intermediaries found lacking when taking a 'reactionary approach' to providing on-the-spot support particularly for accessing government online services.

7.2.4 To investigate the experiences of people living in UK rural communities, who receive digital inclusion training and support

As above, this objective was achieved firstly through a critical literature review found in chapter 2, which provided insights into the digital inclusion barriers faced by individuals. This objective was further achieved through the use of AT as an analytical framework, to analyse data collected through interviews, focus groups, policy documents and observations. Analysis took place as described above in 7.2.1

providing a comprehensive picture of how individuals' living in UK rural communities at risk of digital exclusion received and experienced digital inclusion training and support.

Significant themes that emerged through the use of AT from the data were: the recipients of digital inclusion initiative training and support; attitudinal experience of digital inclusion initiative recipients; and the need to have a trusted supportive environment for digital inclusion support.

The findings revealed clear distinctions between those who chose to engage with digital technology and digital inclusion support, resulting in them becoming digitally engaged and confident using devices relatively quickly, and those whose journey was more complex, and perhaps forced due to the acute information need and urgency of the activity, or nervousness or worries about using a devices or computer for the first time. Such findings highlight the differences and variations in the abilities of the rural populations observed accessing and using digital technology and the internet, whilst receiving some level of digital inclusion training and support.

A number of surprising findings emerged within these themes of the study. First in the context of this study, there emerged a shift of recipients of digital inclusion training and support being from 'all walks of life' as opposed to just those who are digitally excluded as historically reported in the literature. This study therefore evidences how digital inclusion initiative provision is evolving by taking a flexible approach to ensure no one is left behind, rather than taking a binary view of only supporting 'non-users'.

Surprising findings were also revealed through the findings of the attitudinal experience of recipients of digital inclusion training and support in which not all experiences were beneficial or positive, undermining the positive rhetoric so often portrayed in the digital inclusion literature. Indeed, this study evidenced experiences ranged from positive to negative, from those who choose to seek digital inclusion support to those who felt they had been coerced or forced to seek help. The notion that recipients felt coerced into receiving support is one that looks set to remain in place in UK rural communities as more services go online while individuals struggled to gain access and use reliable digital technology. This feeds into how having a trusted supportive environment to receive digital inclusion training and support was essential

for individuals to become more digitally included, without which as suggested by this study, hampers individual's digital capabilities while remaining digitally disengaged, or worst case scenario digital inclusion can leave individuals vulnerable to negative aspects of digital such as internet addiction, cyber-bullying, online gambling and fake news as they have some understanding of getting online but less understanding of the pitfalls.

7.2.5 To investigate the essential components of digital inclusion initiative provision in the context of UK rural communities

Similar as above, this objective was achieved firstly through a critical literature review found in chapter 2, which provided insights into the essential components of digital inclusion initiative provision. This involved the researcher extrapolating from the literature, essential components in digital inclusion initiative provision recommended by scholars. This objective was further achieved through the use of AT as an analytical framework, to analyse data collected through interviews, focus groups, policy documents and observations. Analysis took place as described above in 7.2.1. However, it was only once multilevel analysis had been achieved that a list of ten essential components to digital inclusion initiative provision was completed as summarised in section 5.5.6. Combining this list with significant findings discussed in chapter 6, provided the researcher with the opportunity to present a list of recommended components of digital inclusion initiative provision for future research and for policymakers, digital inclusion stakeholders and intermediary organisations as listed below in 7.5.

7.2.6 To use Activity Theory to explore digital inclusion initiative provision as a multilevel phenomenon through a theoretical lens

This objective was achieved through the application and use of third-generation AT as a theoretical and analytical framework for this study. AT was used to explore and analyse the interplay and relationships within and across the elements within a single activity system for digital inclusion stakeholders at national, intermediary, and individual-level, and then analysed together through a multilevel activity system to explore and answer the research questions posed. Illustrations of the activity systems are in chapter 5, where the national-level digital inclusion initiative provision activity system is illustrated in Figure 8, intermediary-level activity system in Figure 9, and

individual-level activity system in Figure 13. The multilevel overall activity system that brings all three activity systems together is illustrated in Figure 16. Bringing the three activity systems together helps ‘to understand dialogue, multiple perspectives and networks of interacting activity systems’ (Engeström’s, 2001, p.135). This in turn helps reveal any tensions and contradictions in the intersecting or ‘boundary spaces’ between the activity systems that are working towards the shared *object* (Nicolini et al., 2012).

The motivation to use AT was the need to go beyond how people use technology and uncover motivations and attitudes towards digital inclusion initiative provision. Indeed, what sets AT apart from other theories is its ability to ‘dialectically link the individual and social structure’ Engeström (1999, p.19). This study demonstrates how AT provides a robust and holistic framework to study and gain a better understanding of digital inclusion initiative provision as a multilevel phenomenon. AT provides the flexibility of looking at the different aspects of a phenomenon such as the context of where the technology is being used, the technology itself, the activity that was being supported and the users. Through the use of AT, several issues in relation to digital inclusion initiative provision were identified which the researcher argues might not have been visible if other analytical methods were used. Using the concepts of AT, the researcher explicates how AT can be applied to digital inclusion research, a field of research where its use remains relatively unexplored. Importantly

7.3 Contributions

7.3.1. Contribution to knowledge

The findings from this study make several contributions to knowledge on digital inclusion initiative provision in UK rural communities and are listed below:

- 1 A large body of work examines digital inclusion and the digital divide. However, there has been limited literature focusing on digital inclusion initiative provision particularly in the context of UK rural communities. One of the key contributions of this study is that it provides a summary and analysis of literature related to digital inclusion initiative provision, pulling together a body of work that historically was fragmented in nature.

- 2 Previous studies have examined approaches to digital inclusion initiative provision to a specific initiative(s). Where this study makes a significant contribution to the empirical literature is its categorisation of approaches to demand-side digital inclusion initiative provision as summarised in Table 29. These findings were drawn from the literature review in chapter 2 and from the data analysis in chapter 5, and highlights how in the context of this study there has been a shift to 'integrated' and 'reactionary' approaches to digital inclusion initiative provision.
- 3 There is limited research discussing intermediaries in relation to specific digital inclusion initiatives. While some studies explore the bridging role of intermediaries, there are limited insights into the level of involvement intermediaries play in digital inclusion initiative provision. This study's contribution effectively unpicks the role of the intermediary and reveals the granularity of intermediary involvement in digital inclusion delivery as illustrated through three typologies in Figures 5.3, 5.4, and 5.5, highlighting the significance of the role of the super intermediary, and their boundary spanning, knowledge sharing, collaborative behaviours essential for the smooth running of the digital inclusion initiative eco system.
- 4 While there is a wealth of studies on the experiences of individuals facing barriers to digital inclusion, there is comparatively little in-depth research on the experiences of individuals receiving digital inclusion training and support. This study makes a significant contribution through the development of the 'four C's attitudinal journey of digital inclusion support' model, as illustrated in Chapter 5 in Figure 14 and further articulated in Table 24. This model emphasises the range of experiences of those receiving digital inclusion support in the study, from those who choose to seek digital inclusion support to those who felt coerced or forced to seek help, and the consequences this has on their level of digital inclusion and perceptions of digital.
- 5 Historically, studies have reported on 'digitally excluded' or 'non-users' of digital. While there is recent literature on what could be termed as 'narrow users' – those who have some knowledge of digital - this move away from reporting purely on the digitally excluded in the literature is limited. This study's contribution is the revelation that digital inclusion training and support is provided to individuals from 'all walks of life', from 'non-users', to narrow users'

and those who need to confidence to impart their knowledge onto others as embedded digital champions.

- 6 The issue of trust is regularly discussed in existing digital inclusion literature particularly in relation to 'end-users'. This study's contribution is the revelation that a 'trusted supportive environment' is not only required for 'end users' to become digitally engaged, but it's also required for intermediaries when delivering digital training and support. The study indicates having a lack of a 'trusted supportive environment' leads to the potential collapse of the digital inclusion initiative eco-system.

7.3.2 Methodological contribution

This study used a qualitative exploratory case study approach, underpinned by the philosophical orientation of critical realism and the use of AT that incorporated a multilevel framework. Despite digital inclusion initiative provision being identified as a multilevel phenomenon (as revealed from the literature review), research conducted within the digital inclusion sphere from a multilevel perspective remains scarce. Indeed, scholars argue there is a general lack of multilevel studies in research, i.e., studies that connect different levels of analysis (Steinbach et al., 2019). This study makes a significant contribution from a methodological point of view, through the use of a multilevel framework, as described in section 4.4.3, as part of the case study design. Supported by the philosophical orientation of critical realism, AT played an important role in guiding the data collection and empirical analysis across different levels, to reveal the hidden complexity of digital inclusion initiative provision, together with the dynamics and interrelationships between stakeholders and components of the activity system. From a novelty point of view, this is the first known study that has taken a multilevel approach by integrating the perspectives of national, intermediary and individual-level digital inclusion initiative stakeholders from rural regions across the UK, and certainly the first that has done so using AT and as such presents a significant contribution.

7.3.3 Contribution to theory

This study offers four major contributions to theory in digital inclusion research using AT:

- The first contribution is the role played by AT to explore the multilevel phenomenon of digital inclusion initiative provision within UK rural communities. Through the development of three activity systems - national, intermediary and individual - AT was used to bring together the perspectives of stakeholders (*subjects*) operating at multiple levels (national, intermediary and individual) whilst identifying the *tools, rules and norms, community, and division of labour* to achieve an *object* within a coherent framework of an activity system. Doing this captured the cultural-historical context (Allen et al., 2011), the role of digital technology in human activity, and a multilevel critical perspective of digital inclusion initiative provision, whilst emphasising issues related to digital policy, specifically digitisation and the UK government's digital-by-default agenda; unequal distribution of technological and local infrastructure and funding; and the reliance on intermediaries. Importantly, bringing the concepts of technology and the social together into one coherent framework (a key strength of AT), as argued by scholars, counters the concern raised by scholars surrounding the absence of the role of technology in organisational life, or prioritising the social over the material (Orlikowski, 2005).
- The second contribution is how the AT concept of contradictions as an analytical lens offers significant insights on change and development within an activity – a concept arguably, as stated by Karanasios and Allen (2013), 'unavailable, underemphasised or separate from the notion of activity in other theoretical approaches' (p.301). While digital divide studies often problematise ICT/digital interventions, the activity system lens coupled with an examination of contradictions provides a systematic method of highlighting change and development in context, whilst bringing much needed granularity and criticality to the field of digital inclusion research. It was the process of explicating contradictions as part of the analysis that provided insight in how digital inclusion initiative provision is a non-binary process fraught with challenges, but also opportunities for change.
- The third contribution importantly signifies an extension of AT, which builds on how AT is able to demonstrate the granularity of the *subject* element of the activity system, thus providing richer insights. This relates specifically to a criticism of how AT does not put enough emphasis on the role of the individual

(subject) within the collective nature of work (Leadbetter, 2008). Learnings from this study indicate when utilising AT, scholars should not be too dictatorial when identifying and defining the *subject* of the activity system, which to a certain extent maybe unknown to the researcher or indeed change over time. This is particularly applicable for situations such as digital inclusion which is complex and experiencing rapid change. For example, when doing research in digital inclusion, it is very tempting just to focus on one aspect of digital inclusion initiative provision, such as those who are digitally excluded who have received digital inclusion training and support, as historically reported in the literature. This results in scholars recruiting such individuals as *subjects* of the AT, providing a rather narrow perspective. However, as demonstrated through this study, a richer data set can be appropriated by considering other individuals who receive digital inclusion training and support who are perhaps limited users, or unconfident in their ability to share their knowledge of digital. For example, *subjects* at individual level in this study, as illustrated in Figure 13 included front-line support workers getting trained as digital champions, who, as illustrated in Label 3 in Figure 16, bridge with intermediary level. Indeed, if the researcher had restricted to just having digitally excluded individuals as *subjects* at individual level, the significant step change of training front-line support workers, and their boundary spanning behaviours, as found in this study may never have been realised. Another example of the granularity of the *subject* was illustrated at intermediary level, where the granularity of intermediaries was illustrated in Figures, 5.3, 5.4 and 5.5, and the boundary spanning/blurred role of the super intermediary between national and individual level activity systems is illustrated in Labels 2 and 3 in Figure 16. Therefore, while each individual that forms the *subject* could have their own activity system, or be grouped into several overlapping activity systems, it is the level of abstraction that makes the difference, and hence the level of granularity within the *subject* is exposed.

- Building on the notion of granularity found within the elements of the activity system above, a fourth contribution, also signifying an extension of AT, refers to how AT was able to demonstrate the granularity and unstableness of the *object* of the activity system in this study. Described in sections 5.5.5.3 and 6.4.3 as what the researcher has come to describe as the 'hierarchical nature

of the *object*', through the application of AT, this study emphasised the nuanced hierarchical nature of individual's digital inclusion motivation and objectives. While this was evident at individual level (see Figure 13), it was only at multilevel (see Figure 16) where the implications of this 'hierarchical nature of the object', or shared *object* of receiving digital inclusion training and support and how it influenced the outcome of the activity system became clear. This highlights that while the overall activity system has a shared *object*, (see Figure 16) it is clear there is tension in achieving that shared *object*, and the overall outcome of the activity system. Revealing the 'hierarchical nature of the object' not only helped guide the researcher to develop the 'four C's attitudinal journey of digital inclusion support' model, as described in section 7.3.1 above, it also confirms the multi-faceted nature of digital inclusion and the need for improvement in digital inclusion initiative provision in UK rural communities.

7.4 Importance of research findings

The above findings and contributions are important for research and have implications for digital inclusion policy and practice for several reasons:

Through the development of a granular study that identifies digital inclusion initiative provision as a multilevel phenomenon, this study captures a snapshot of digital inclusion initiative provision taking place in UK rural communities at risk of digital exclusion, while revealing challenges and contradictions inherent in that process. This study provides new insights, identifies multiple levels of stakeholder involvement, and illustrates the granular behaviours and sophisticated dynamics in digital inclusion practice.

Using the AT principle of contradictions, this study shows that the provision of digital inclusion initiatives, as a multilevel phenomenon, is fraught with challenges and contradictions that not only hampers the realisation of the digital inclusion agenda, but also challenges the current 'utopian' discourse advocated by policy makers and some digital inclusion stakeholders.

This study reveals the evolving nature of the digital inclusion landscape and brings together an important body of academic literature on digital inclusion initiative provision that was previously fragmented in nature. This will be important for academic

research moving forward on this topic, but also for stakeholders and policymakers seeking digital equity solutions through digital inclusion initiative provision, particularly those working in the context of the UK digital strategy and national and regional digital inclusion policy.

This study provides evidence of different approaches to digital inclusion initiative provision currently being undertaken in UK rural communities, and specifically reveals a shift towards 'integrated' and 'reactionary' approaches, as outlined above. The drivers behind the need for such initiative provision in UK rural communities are also revealed, emphasising much work still needs to be done in 'levelling-up' rural communities with their urban counterparts regarding the distribution of technological infrastructure and resource. More specifically, this study reveals a significant contradiction in the UK Digital Strategy (2014, 2017), which on the one hand promotes digital inclusion, but on the other hand promotes digital-by-default, which despite the strategy's best intention is driving the digital exclusion of those most in need of support, particularly those living in UK rural communities.

This study also provides evidence of the multi-stakeholder involvement in the delivery of digital inclusion initiative provision from government through to hyper-local organisations and actors, and the essential role of human intermediation. Indeed, this study draws attention to the increased reliance of human intermediation in digital inclusion initiative provision, and the significant bridging role of intermediary organisations and actors, displayed through knowledge sharing and boundary spanning behaviour to help align thinking between digital inclusion policy and practice. More specifically the study evidences contradictions within the role of intermediaries based on assumptions that intermediaries have the right skill set to provide digital training and support, and are willing to collaborate as part of the digital inclusion process. Importantly despite the reliance on intermediaries in the digital inclusion realm, this study finds the significance of their role in both policy and academic literature is understated, and warrants more attention.

This study reveals the varying experiences of those who have received digital inclusion training and support, and the revelation that not all experiences are positive. Specifically, this study reveals how digital inclusion training and support is shifting from just focussing on digitally excluded individuals to incorporate 'narrow users' and

individuals from 'all walks of life'. However, as evidenced in this study, this shift brings with it a broad variety of motivations of those receiving digital inclusion training and support and together with a wide range of experiences, from positive to negative, from those choosing to get support to those being coerced into getting support.

Importantly while this study provides insights focused on digital inclusion initiative provision in UK rural communities, it would be problematic to assume that such findings are not applicable and relevant to urban areas. Indeed, the focus of the study was specifically on rural communities on the 'wrong side' of the digital divide, who struggle to gain access and use digital technologies, who in some instances had acute information needs. As discussed earlier, while rurality can contribute to peoples' risk to digital exclusion, rural areas do not always equate to digital marginalisation. Rurality adds an extra dimension to the barriers of digital inclusion. Demographic factors such as age, education and occupation, context, personal circumstances and power structures also play a big role in digital exclusion and are just as relevant for those living in urban areas. Indeed, the distinction between those who become digitally enabled with no or little digital inclusion training and support, and those whose journey to digital inclusion is more complex, is not limited to rural areas. This is something that exists in urban areas too and is therefore acknowledged as such.

Crucially the application of AT as an underpinning theory, combined with the multilevel framework brought an important novel contribution to this study and enabled the findings summarised above to emerge. The use of AT in this study provided guidance from data collection through to empirical data analysis to help investigate digital inclusion initiative provision as a multilevel phenomenon. The application of AT, enabled a granular, critical investigation that drew on the perspectives of stakeholders operating at multiple levels, revealing many contradictions and mechanisms that influenced the digital inclusion process, crucial behaviours of those delivering and receiving digital inclusion training and support, and the interplay and relationships of stakeholders within and across the elements the activity systems.

Finally, an important aspect of this study not to be overlooked is the significant role played by critical realism as the underpinning philosophy of the study, and how its nuanced, stratified ontology influenced the work undertaken in the thesis. The stratified ontology specifically enabled a 'healthy scepticism' regarding the structures,

mechanisms and cultures in digital inclusion initiative provision that may be entrenched and taken for granted and as such adds a critically important factor to digital inclusion research as it offers the means to think about digital inclusion initiative provision across multi-layered contexts, expose the problems associated with the underlying structures and mechanisms present in the digitalisation of society, and challenge the current 'utopian' discourse in digital inclusion rhetoric.

However, the importance and relevance of this study was significantly heightened during the writing up process of the PhD, due to the COVID-19 global pandemic which effectively pushed everyone to work and live increasingly online. This has significant implications for those living in rural communities such as those studied in this research for future research as emphasised in section 7.6 below.

7.5 Recommendations for policymakers, digital inclusion stakeholders, and intermediary organisations

- More joined-up thinking is required at policy level on the provision of digital inclusion initiatives so as to not reinforce the exclusion of any already marginalised communities;
- Digital inclusion initiative provision should be situated within the realms of community development and existing social support organisations, and recognised as lifelong learning/capacity-building strategies rather than short-term digital skills training initiatives;
- The need for flexible approaches to digital inclusion initiative provision to meet the needs and demands of the local community should be recognised;
- Consideration needs to be given to rural populations who struggle with reliable Internet connectivity and reduced local resource; and the rural context in terms of the social, transport and technological infrastructure;
- Digital inclusion initiatives should be designed to capacity-build others to deliver digital inclusion training and support through an integrated approach, rather than just focussing directly on intended beneficiaries;
- Digital inclusion training and support that is person-centred is essential to upskill individuals' digital capabilities, over-riding the myth that 'access alone is enough' to be digitally included;

- The evolving role of human intermediation within digital inclusion initiative provision and the reliance on intermediaries to have sufficient digital skills and resource to support people with their digital capabilities needs to be recognised;
- A trusted supportive environment is essential for both human intermediaries and individuals in digital inclusion delivery, if institutional trust is to be maintained and digital inclusion achieved;
- Understanding social, cultural, economic and technological factors which influence how individuals use digital is essential for successful digital inclusion delivery;
- The boundary spanning and relationship building behaviours presented by super intermediaries in digital inclusion delivery that encourage knowledge sharing and collaboration, are crucial for driving the digital inclusion agenda and bringing together national, intermediary and individual-level digital inclusion stakeholders through what the researcher defines as the digital inclusion initiative 'ecosystem';
- Increased knowledge sharing between the UK nations is recommended through a shared space/forum to discuss how policy tackles digital inclusion initiative provision particularly in rural areas to improve stakeholders shared understanding of the application of digital inclusion policy;
- The nuanced hierarchical nature of individual's motivation and contextual factors that influence their attitudes, need to be considered when designing digital inclusion initiative training and support, replacing 'one-size-fits-all', reactionary digital inclusion approaches that lead to potential negative experiences and consequences.
- Scholars argue that policy approaches to digital inclusion need to look more closely at these nuances of users so as to not miss anyone out, yet government and third sector digital inclusion policy remains focussed on 'non-users' or those who are 'offline'

7.6 Recommendations for future research

- First, this study is set in the context of the UK with a focus on rural communities who received digital training and support. While research was conducted in England, Scotland and Wales, as acknowledged in the methodology of the

thesis in chapter 4, due to time constraints and practicalities, the researcher was unable to include Northern Ireland. Basing the research to the UK could be seen as a limitation and so broadening research by including other global contexts, that include both urban and rural populations could provide a fruitful avenue for future research.

- Second, applied as an underpinning theory, AT was used in this study as an analytical framework to guide data collection through to empirical data analysis, that enabled a holistic analysis of the multilevel phenomena. The use of AT brought granularity and criticality to the research process of this study, which enabled hidden and contradictory findings to emerge, providing opportunities for future change and development. The researcher found the use of AT in unpicking what is a complex situation of enquiry, not only very useful, but also a very insightful introduction to practice theories. It is therefore recommended future research within the digital inclusion realm should consider the use of AT and its role as an underpinning theory as an analytical framework to help guide future studies. Inclusion of AT not only brings much criticality to the research process, but also answers to the call for further research with underpinning theory.
- Third, a novelty of this study was how a multilevel research design was used in combination with AT to overcome the limitations of single level research, to explore key phenomena from a multilevel point of view that integrates the perspectives of digital inclusion stakeholders to gain an in depth understanding of the provision of digital inclusion initiatives. This study argues there is demand for multilevel qualitative research within the digital inclusion realm and recommends scholars consider this approach for future studies, in order to gain more comprehensive insights into the situation of enquiry and overcome some of the limitations of single level qualitative analysis.
- Fourth, digital inclusion scholars suggest longitudinal research is particularly appropriate for research on digital inclusion projects as opposed to a specific point in time approach such as taken in this study. For example, in their study investigating three digital inclusion initiatives in developing countries Madon et al. (2009) note there was a major change over time in all three of the initiatives. This supports the more general argument by Walsham and Sahay (2006) that

more longitudinal research is needed on issues such as the scalability and sustainability of ICT projects in developing countries. While this may be seen as a limitation of this study, the aim of this research was to gain an understanding of the multilevel phenomenon of digital inclusion initiative provision in the context of UK rural communities, in terms of approaches, drivers, delivery and support and the challenges inherent in that process. Such an approach was deemed necessary as the first step towards revealing the variety of ways in which digital inclusion initiative provision has been utilised to lessen the impact of digital exclusion and marginalisation. Future research could be to go back to those same stakeholders to establish a longitudinal piece of work.

- Fifth - While there is a wealth of studies on the experiences of individuals facing barriers to digital inclusion, there is comparatively little in-depth research on the experiences of individuals receiving digital inclusion training and support. This study makes a significant contribution through the development of the 'four C's attitudinal journey of digital inclusion support' model, as illustrated in Chapter 5 in Figure 14 and as further articulated in Table 24. This model emphasises the range of experiences of those receiving digital inclusion support in the study, from those who choose to seek digital inclusion support to those who felt coerced or forced to seek help, and the consequences this has on their level of digital inclusion and perceptions of digital. The 'four C's' model links to debates on power structures, 'digital choice', the unequal distribution of digital infrastructure and the seldom mentioned negative consequences of digital inclusion support and as such introduces scope as a fruitful area of enquiry for future research.
- Sixth, and most importantly, the world has significantly changed since the start of this study, due to the impact of COVID-19 and the escalation of what the researcher describes to as a dramatic shift to 'digital by necessity' as the global pandemic has taken away the option of having a 'choice' to use digital technology and online services. Indeed, services, shopping, learning, work, entertainment, and other aspects of life have all seen a rapid shift to the online sphere, effectively marginalising a significant proportion of society who are unable to use or access digital technology, such as those living in rural

communities. At the same time a plethora of digital inclusion initiatives have been put into action in the UK, to support those without suitable devices and digital connectivity. Indeed, support is being offered to people who find themselves having to share devices or cope with inadequate broadband speeds. This movement of digital inclusion initiative provision supports findings from this study that digital inclusion initiative provision should be provided for people from 'all walks of life'. This therefore offers future research opportunities to explore the approaches and drivers of digital inclusion initiative provision during the times of COVID-19 and the implications this has on intermediaries providing digital inclusion support and those receiving such support.

7.7 Limitations

This study also comes with a number of limitations:

- It could be viewed not focusing on one particular initiative, as often done in the literature, is a limitation of this study, as the approach of looking at digital inclusion initiative provision as a multilevel phenomenon could be argued lacks depth, compared to focussing on a specific initiative(s). However, in-line with the researcher's critical realist worldview, the researcher focusing on a specific initiative(s) would in fact lose the depth of research required to get an understanding of the 'real' issues found within the implementation and delivery of digital inclusion initiative provision and the experiences of those receiving digital inclusion support, against a backdrop of UK government digital inclusion policy, digitisation and digital-by-default.
- Telecommunication, technology and other corporate organisations play a part in the digital inclusion 'ecosystem' defined by the researcher, specifically in relation to technological innovation and resources they offer to the digital inclusion realm. Therefore, to fully understand the multilevel phenomenon of digital inclusion initiative provision, it would have been beneficial to gather their views. Consequently, the absence of their voices as part of the data collection could be seen as a limitation of this study.
- While the researcher has attempted to demonstrate the usefulness of AT to digital inclusion research, as with any approach it comes attached with limitations. One of the strengths of AT as briefly outlined in section 3.5, is the capacity to be used as a tool for organisational development (Leadbetter,

2008), as illustrated in Engeström's (1999) cycle of expansive learning. This study moved through the first two stages of this cycle through questioning and highlighting contradictions within digital inclusion initiative provision. A limitation of this study could be viewed in not moving onto the next stages of the cycle and onto the development of a new solution as outlined in Engeström's (1999) developmental work research or through a Change Laboratory (Karanasios, 2018) which could draw on emerging approaches of digital inclusion initiative provision such as service design.

7.8 Reflections on study

Using critical realism as an underpinning research philosophy focused the researcher on the underlying processes, mechanisms and structures of digital inclusion initiative provision, revealing not only the activities involved in implementing and delivering initiatives but also the drivers and challenges in that process. This critical stance, coupled with the use of AT was a particular strength of this study, as it enabled the development of a granular study that revealed the sophisticated dynamics in digital inclusion work. The study was able to reveal complex picture of digital inclusion initiative provision in UK rural communities to emerge, including drivers and barriers to digital inclusion, and hidden tensions, influences and contradictions, resulting in a study that brings much needed granularity and criticality to the field of digital inclusion research.

The researcher found the literature review of the study particularly challenging due a surge in publications related to digital inclusion, emphasising its importance as a research topic, its evolving nature, but also opportunities for research. Despite this recent growth of digital inclusion literature, the research gap identified at the beginning of the study remained in tack.

The data collection process involved interviews with digital inclusion stakeholders from a plethora of organisations. The researcher was particularly proud to gain access to government officials as research participants, during a busy time pf party politics and Brexit negotiations. Indeed, most research participants interviewed were keen to be involved in the research, and were helpful and forthcoming in their responses. Indeed, some participants commented how the interview helped them reflect on their current role and put into practice new ideas. In some instances, this led to the researcher

being invited to present early findings of the study at digital inclusion research and policy events, illustrating the potential impact of this research study.

Taking a multilevel approach to this study, really brought to light the complexity and challenges of digital inclusion initiative provision in the UK and specifically in UK rural communities, gaining the perspectives of stakeholders operating at multiple levels. The use of AT provided a useful framework for the researcher to connect and analyse these levels. Without using such a framework, the researcher believes would have brought much complexity.

Finally, the relevance of this study at the time of conducting data collection (pre-COVID-19) was seen as essential by many of the stakeholders interviewed, due to the increasing impact of digitalisation and the *fallout* of the digital-by-default agenda, and the consequences that has for those living in rural communities with poor connectivity, limited digital skills, and other barriers to digital inclusion. However, one could never have known what was about to happen in the global sphere, and the dramatic shift and dependency to online working and learning, and digital connectivity, due to the COVID-19 global pandemic. This event made the writing up process particularly challenging for the researcher during a turbulent, uncertain time. However, the shock of COVID-19 also brought with it the realisation of the crucial relevancy of this study and opportunities for future research as outlined above, as social restrictions make access and capable use of digital technologies ever more urgent. This therefore highlights the importance of having an understanding of UK digital inclusion initiative provision and how it needs to be adapted for a post-COVID-19 digital world.

[End]

References

- Adam, A. and Kreps, D. (2006). Enabling or disabling technologies? A critical approach to web accessibility, *Information Technology & People*, 19(3), 203-218.
- Adhikari, J., Mathrani, A. and Scogings, C (2016). Bring Your Own Devices classroom: Exploring the issue of digital divide in the teaching and learning contexts, *Interactive Technology and Smart Education*, 13(4), 323-343.
- Ahmed, A. (2019). DAVe: A Systematic Approach to Manage a Social Impact Project. In proceedings of *Twenty-Third Pacific Asia Conference on Information Systems, China*.
- Aires, L. (2014). From dissemination to the domestication of digital technologies in rural communities: Narratives of parents and teachers, *Mind, Culture, and Activity*, 21(4), 337–352.
- Aires, L., Santos, R., Guardia, J.R.D., Lima, C. and Correia, J. (2018). Mediating towards digital inclusion: the monitors of internet access places, *Observatorio*, 12(2), 1-14.
- Alam, K. and Imran, S. (2015). The digital divide and social inclusion among refugee migrants: A case in regional Australia, *Information Technology & People*, 28(2), 344-365.
- Aleixo, C., Nunes, M. and Isaias, P. (2012.) Usability and Digital Inclusion: Standards and Guidelines, *International Journal of Public Administration*, 35(3), 221-239.
- Allen, D., Karanasios, S. and Slavova, M. (2011). Working with activity theory: context, technology, and information behaviour, *American Society for Information Science and Technology*, 62(4), 776–788.
- Al-Muwil, A., Weerakkody, V., El-haddadeh, R. and Dwivdei, Y. (2019). Balancing Digital-By-Default with Inclusion: A Study of the Factors Influencing E-Inclusion in the UK, *Information Systems Frontiers*, 21(3), 635-659.

Anderson, A. and Johnston, B. (2016). From Information Literacy to Social Epistemology: Insights from Psychology. Cambridge, MA: Chandos Publishing.

Arroyo, L. (2020). Implications of digital inclusion: Digitalization in terms of time use from a gender perspective, *Social Inclusion*, 8(2), 180–189.

Ash, (2014). Positioning Informal Learning Research in Museums within Activity Theory: From Theory to Practice and Back Again, *The Museum Journal*, 57(1), 107-118.

Ashmore, F. H., Farrington, J. H. and Skerratt, S. (2015). Superfast Broadband and Rural Community Resilience: Examining the Rural Need for Speed, *Scottish Geographical Journal*, 131(3-4), 265-278.

Asmar, A., van Audenhove, L and Mariën, Ilse. (2020). Social Support for Digital Inclusion: Towards a Typology of Social Support Patterns, *Social Inclusion*, 8(2), 138–150.

Ayyagari, R., Grover, V. and Purvis, R. L. (2011). Technostress: Technological antecedents and implications, *Management Information Systems Quarterly*, 35(4), 831–858.

Bach, A., Shaffer, G. and Wolfson, T. (2013). Digital human capital: Developing a framework for understanding the economic impact of digital exclusion in low-income communities, *Journal of Information Policy*, 3, 247-266.

Beattie-Smith, S. (2013). *Offline and left behind: Digital exclusion amongst Scotland's CAB clients*, Citizens Advice Scotland, Edinburgh, available at: <http://bit.ly/2oIKtF9> (accessed 15 January 2020).

Blackler, F., Crump, N. and McDonald, S. (2000). Organizing processes in complex activity networks, *Organization*, 7(2), 277-300.

Blank, G., Graham., M. and Calvino, C. (2018). Local Geographies and Digital Inequality, *Social Science Computer Review*, 36(1), 82-102.

Blank, G., Dutton, W. and Lefkowitz, J. (2020). OxIS 2019: Digital Divides in Britain are Narrowing but Deepening, *Oxford Internet Institute*, University of Oxford. Available at SSRN: <https://ssrn.com/abstract=3522083>.

Bleumers, L., All, A., Mariën, I., Schurmans, D., Van Looy, J., Jacobs, A., Willaert, K. and de Grove, F. (2012). *State of Play of Digital Games for Empowerment and Inclusion: A Review of the Literature and Empirical Cases*. European Commission Joint Research Centre.

Borg, K., Boulet, M., Smith, L. and Bragge, P. (2018). Digital Inclusion & Health Communication: A Rapid Review of Literature, *Health Communication*, 34(11), 1320-1328.

Borkert, M., Fisher, K.E. and Yafi, E. (2018). The best, the worst, and the hardest to find: How people, mobiles, and social media connect migrants in (to) Europe, *Social Media & Society*, 4(1), 1-11.

Bowen, G.A. (2009). Document Analysis as a Qualitative Research Method, *Qualitative Research Journal*, 9(2), 27-40.

Bradbrook, G. and Fisher, J. (2004). *Digital Equality: Reviewing digital inclusion activity and mapping the way forwards*. London: CitizensOnline, available at: http://www.citizensonline.org.uk/site/media/documents/939_DigitalEquality1.pdf (accessed 15 January 2020).

Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology, *Qualitative research in psychology*, 3(2), 77–101.

Brewer, J. (2003). Positivism. In Miller, R.L. and Brewer, J. (Eds.), *The A-Z of social research*. Thousand Oaks: SAGE Publications, Inc.

Brown, P. R. (2017). Attempting to Cultivate Mindsets for Boundary Spanning in Remote Indigenous Policy, *Australian Journal of Public Administration*, 76(4), 412–425.

Bryman, A. (2012). *Social research methods*. Oxford: Oxford University Press.

Buchanan, S., Jardine, C. and Ruthven, I. (2018). Information behaviours in disadvantaged and dependent circumstances and the role of information intermediaries, *Journal of the Association for Information Science and Technology*, 70(2), 117-129.

Buré, C. (2006). Digital Inclusion without Social Inclusion: The Consumption of Information and Communication Technologies (ICTs) in Homeless Subculture in Central Scotland, *The Journal of Community Informatics*, 2(2), 116-133.

Cabinet Office (2013). *Government Digital Strategy*. Available at <https://www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy> (accessed 15 January 2020).

Cabinet Office (2014). *Government Digital Inclusion Strategy*. Available at <https://www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy> (accessed 15 January 2020).

Callon, M. (1986). Some elements of a sociology of translation: Domestication of the scallops and fisherman of St. Brieuc Bay. In J. Law (Ed.), *Power, action and belief: A new sociology of knowledge?* 196–233. London: Routledge.

Campos-Castillo, C. (2015). Revisiting the first-level digital divide in the United States: Gender and race/ethnicity patterns, 2007–2012, *Social Science Computer Review*, 33, 423–439.

Carmi, E. and Yates, S. J. (2020). What do digital inclusion and data literacy mean today? *Internet Policy Review*, 9(2).

Casselden, B. and Dawson, L. (2019). Feeling connected: qualitative analysis of social and digital inclusion experienced by digital champion volunteers at Newcastle City Library, *Voluntary Sector Review*, 10(3), 371-385.

Chatman, E.A., (1996). The impoverished life-world of outsiders, *Journal of the American Society for information science*, 47(3), 193-206.

Chaudhuri, B. (2019). Paradoxes of Intermediation in Aadhaar: Human Making of a Digital Infrastructure, *Journal of South Asian Studies*, 42(3), 572-587.

Chetty, K., Liu, Q., Nozibele, G., Jaya, J., Li, W., and Chen, F. (2018). Bridging the digital divide: Measuring digital literacy Economics, *Economics*, 12, 1-20.

Clarida, B.C., Bobeva, M., Hutchings, M. and Taylor, J. (2016). Strategies for Digital Inclusion: Towards a Pedagogy for Embracing and Sustaining Student Diversity and Engagement with Online Learning, *The IAFOR Journal of Education*, 86-106.

Clayton, J. and MacDonald, S. (2013). The limits of technology: social class, occupation and digital inclusion in the city of Sunderland, England, *Information Communication and Society*, 16(6), 945-966.

Clemmensen, T., Kaptelinin, V. and Nardi, B. (2016). Making HCI theory work. An analysis of the use of activity theory in HCI research, *Behaviour & Information Technology*, 35(8), 608-627.

Correa, T. and Pavez, I. (2016). Digital inclusion in rural areas: A qualitative exploration of challenges faced by people from isolated communities, *Journal of Computer-Mediated Communication*, 21(3), 247–263.

Courtois, C. and Verdegem, P. (2016). With a little help from my friends: An analysis of the role of social support in digital inequalities, *New Media & Society*, 18(8), 1508–1527.

Cowie, P., Townsend, L. and Saleminck, K. (2020). Smart rural futures: Will rural areas be left behind in the 4th industrial revolution? *Journal of Rural Studies*, 79, 169–176.

Creswell, J.W. (2009). *Research design: qualitative, quantitative, and mixed methods approaches*. 3rd ed. Thousand Oaks, CA.; London: Sage Publications.

Creswell, J.W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches*. 4th ed. Thousand Oaks, CA.; London: Sage Publications.

Crotty, M. (1998). *The foundations of social research*. London: Sage.

Cushman, M. and McLean, R. (2008). Exclusion, inclusion and changing the face of information systems research, *Information Technology & People*, 21(3), 213-221.

Damodaran, L. Gilbertson, T. Olphert, W. and Sandhu, J. (2015). Digital Inclusion - The Vision, the Challenges and the Way Forward, *International Journal on Advances in Internet Technology*, 8(3-4), 78-92.

Damodaran, L. and Sandhu, J. (2016). The role of a social context for ICT learning and support in reducing digital inequalities for older ICT users, *International Journal of Learning Technology*. 11(2), 156-175.

Daniels, H., Edwards, A., Engestrom, Y. and Gallagher, T. (2010). *Activity Theory in Practice*. Oxford: Routledge.

Danermark, B., Ekstrom, M., Jakobsen, L. and Karlsson, J.C. (2002). *Explaining society: Critical realism in the social sciences*, Routledge.

Danermark, B. (2019). Applied interdisciplinary research: a critical realist perspective, *Journal of Critical Realism*, 18(4), 368-382.

Davies, H.C., Eynon, R. and Wilkin, S. (2017). Neoliberal gremlins? How a scheme to help disadvantaged young people thrive online fell short of its ambitions, *Information, Communication & Society*, 20(6), 860-875.

DCMS (2017). Digital Skills & Inclusion policy, Department for Digital, Culture, Media & Sport (DCMS). Available at <https://www.gov.uk/government/publications/digital-inclusion-and-skills-policy/digital-skills-and-inclusion-policy> (Accessed January 2020).

DCMS (2017). UK Digital Strategy, Department for Digital, Culture, Media & Sport (DCMS). Available at <https://www.gov.uk/government/publications/uk-digital-strategy/uk-digital-strategy> (Accessed January 2020).

DEFRA (2017). 2011 Rural Urban Classification (Available at <https://www.gov.uk/government/statistics/2011-rural-urban-classification> (Accessed January 2020).

Deng, X., Joshi, K. D., and Galliers, R. D. (2016). The Duality of Empowerment and Marginalization in Microtask Crowdsourcing: Giving Voice to the Less Powerful through Value Sensitive Design, *MIS Quarterly*, 40(2), 279-302.

Denzin, N.K. and Lincoln, Y.S. (2000). *Handbook of qualitative research*, Sage, London. Sage.

Denzin N.K and Lincoln, Y.S (2011). *The Sage handbook of qualitative research* (4th ed., pp.1-20). Thousand Oaks, CA: Sage.

Detlor, B., Hupfer, M. E., and Smith, D. H. (2016). Digital storytelling and memory institutions: a case study using activity theory. ASIST.

Díaz Andrade, A. and Doolin, B. (2016). Information and Communication Technology and the Social Inclusion of Refugees, *MIS Quarterly*, 40(2), 405-416.

Díaz Andrade, A. D. and Doolin, B. (2019). Temporal enactment of resettled refugees' ICT-mediated information practices, *Information Systems Journal*, 29(1), 145-174.

Díaz Andrade, A. and Techatassanasoonorn, A.A. (2021). Digital enforcement: Rethinking the pursuit of a digitally-enabled society, *Information Systems Journal*, 31(1), 184–197.

DiMaggio P, Hargittai E, Celeste C, and Shafer, S. (2004). Digital inequality: from unequal access to differentiated use. In: Neckerman KM (ed.) *Social Inequality*. New York: Russell Sage Foundation, 355–400.

Ditsa, G. E., and Davis, J. (2000). Activity theory as a theoretical foundation for information systems research. In proceedings of the *Information Resources Management Association International Conference*, 240-244.

Dutton W.H. and Shepherd, A (2006). Trust in the Internet as an experience technology, *Information, Communication & Society*, 9(4), 433-451.

Dutton, W.H. and Reisdorf, B.C. (2019). Cultural divides and digital inequalities: attitudes shaping Internet and social media divides, *Information, Communication & Society* 22(1), 18–38.

Easton, G. (2010). Critical realism in case study research. *Industrial Marketing Management*, 39, 118-128.

El-Haddadeh, R., Weerakkody, V., Osmani, M., Thakker, D. and Kapoor, K. (2019). Examining citizens' perceived value of Internet of things Technologies in Facilitating Public Sector Services Engagement, *Government Information Quarterly*, 36(2), 310–320.

Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*, Orienta-Konsultit: Helsinki.

Engeström, Y. (1999). Innovative learning in work teams: analysing cycles of knowledge creation in practice, in: Engeström, Y. Miettinen, R. and Punamäki, R. (Eds.) *Perspectives on Activity Theory*. Cambridge University Press.

Engeström, Y. and Sannino, A. (2010). Studies of expansive learning: Foundation, findings and future challenges, *Educational Research Review*, 5(1), 1-24.

Engeström, Y. (2009). *Learning by expanding: An activity-theoretical approach to developmental research*. New York, NY: Cambridge University Press.

Eubanks, V. (2011). *Digital Dead End: Fighting for Social Justice in the Information Age*. Cambridge, MA: MIT Press.

Fang, M L., Canham, S.L., Battersby, L., Sixsmith, J., Wada, M. and Sixsmith, A. (2019). Exploring privilege in the Digital Divide: Implications for Theory, Policy and Practice, *The Gerontologist*, 59(1), 1-15.

Farrington, J., Philip, L., Abbot, P., Blank, G., Dutton, W. (2015). *Two-speed Britain: Rural Internet Use*. Aberdeen University Press, Aberdeen.

Faulkner, W. and Kleif, T. (2005). One size does not fit all! Gender in/exclusion in a rural community-based ICT initiative, *Journal of Adult and Continuing Education*, 11(1), 43-61.

Fereday, J. and Muir-cochrane, E. (2008). Demonstrating rigour using thematic analysis. A hybrid approach of inductive and deductive coding and theme development, *International Journal of Qualitative Methods*, 5, 80-92.

Firmstone, J. and Coleman, S. (2015). Public engagement in local government: the voice and influence of citizens in online communicative spaces. *Information, Communication & Society*, 18(6), 680–695.

Fisher, K. E. (2018). Information worlds of refugees. In C. M. Maitland (Ed.), *ICTs for refugees and displaced persons*. Cambridge, MA: The MIT Press.

Foot, K. A., (2014). Cultural-historical activity theory: Exploring a theory to inform practice and research, *Journal of Human Behaviour in the Social Environment*, 24(3), 329-347.

Fusch, P. and Ness, L. (2015). Are we there yet? Data saturation in qualitative research, *The Qualitative Report*, 20, 1408–1416.

Gallardo, R., Beaulieu, L. B., and Geideman, C. (2020). Digital inclusion and parity: Implications for community development, *Community Development*, 1-18.

Gallistl, V., Rohner, R., Seifert, A. and Wanka, A. (2020). Configuring the Older Non-User: Between Research, Policy and Practice of Digital Exclusion, *Social Inclusion* 8(2), 233–243.

Gangadharan, S.P. (2017). The downside of digital inclusion: Expectations and experiences of privacy and surveillance among marginal Internet users, *New Media and Society*, 19(4), 597–615.

Gann, B. (2019). Digital Inclusion and Health in Wales, *Journal of Consumer Health on the Internet*, 23(2), 146-160.

Garrido, M., Sey, A., Hart, T.B., and Santana, L. (2012). Exploratory study on explanations and theories of how Telecentres and other community-based e-Inclusion actors operate and have an impact on digital and social inclusion policy goals, *Institute for Prospective Technological Studies*, 1-150.

Gerli, P., Wainwright, D. and Whalley, J. (2017). Infrastructure investment on the margins of the market: The role of niche infrastructure providers in the UK, *Telecommunications Policy*, 41(9), 743-756.

Gerli, P. and Whalley, J. (2018). Fiber to the Countryside: A Comparison of Public and Community Initiatives in the UK TPRC 46: *The 46th Research Conference on Communication, Information and Internet Policy* (March 9, 2018). Available at <http://dx.doi.org/10.2139/ssrn.3137164>.

Gerli, P., Matteucci, N and Whalley, J. (2020). Infrastructure Provision on the Margins: An Assessment of Broadband Delivery UK, *International Journal of Public Administration*, 43(6), 540-551.

Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*, Berkeley: University of California Press

Gladkova, A. and Ragnedda, M. (2020). Exploring digital inequalities in Russia: an interregional comparative analysis, *Online Information Review*, 44(4), 767-786.

Gomez, R. and Gould, E. (2010). The “cool factor” of public access to ICT: Users’ perceptions of trust in libraries, telecentres and cybercafés in developing countries, *Information Technology & People*, 23(3), 247–264.

Gomez, R. and Fawcett, P. and Turner, J. (2012). Lending a visible hand: an analysis of infomediary behaviour in Columbian public access computing venues, *Information Development*, 28(2) 117–131.

Goulding, A. (2001). Information poverty, *Journal of Librarianship & Information Science*, 33 (3), 109-111.

GOV.UK (2013). *Universal Credit*. Available at <https://www.gov.uk/universal-credit>

Greenhalgh, T. and Stone, R. (2010). Theorising big IT programmes in healthcare: Strong structuration theory meets actor-network theory, *Social Science & Medicine*, 70, 1285–1294.

Gripenberg, P. (2011). Computer self-efficacy in the information society, *Information Technology & People*, 24(3), 303–331.

Guba, E. G. and Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In Denzin, N.K. & Lincoln, Y.S. *Handbook of qualitative research*, 3rd Edn. 105 – 117. California: Sage.

Guenther, J., Smede B. and Young, M. (2020). Digital inclusion in central Australia: what is it and what makes it different? *Rural Society*, 29(3), 154-170.

Gurstein, M. (2012). Toward a conceptual framework for a community informatics. In A. Clement, M. Gurstein, G. Longford, M. Moll, and L.R. Shade (Eds.), *Connecting Canadians: Investigations in community informatics*, 35–60. Edmonton: AU Press.

Hache, A. and Cullen, J. (2009). *ICT and Youth at Risk: How ICT-driven initiatives can contribute to their socio-economic inclusion and how to measure it*. European Commission, JRC Scientific and Technical Reports, RC58427.

Haché, A. and Centeno, C. (2011). *Under the radar: The contribution of civil society and third sector organisations to eInclusion*. Sevilla, Spain: European Commission, Joint Research Center, Institute for Prospective Technological Studies.

Haider, J., and Bawden, D. (2007). Conceptions of “information poverty” in LIS: a discourse analysis, *Journal of Documentation*, 63(4), 534-557.

Hamburg, I. and Lütgen, G. (2019). Digital Divide, Digital Inclusion and Inclusive Education, *Advances in Social Sciences Research Journal*, 6(4), 193-206.

Hargittai, E. (2002). Second-Level Digital Divide: Differences in People’s Online Skills, *First Monday*, 7(4).

Hargittai, E. and Hinnant, A. (2008). Digital inequality differences in young adults’ use of the internet, *Communication Research*, 35(5), 602–621.

Hashim, N. and Jones, M.L (2007). Activity theory: a framework for qualitative analysis, in 4th International Qualitative Research Convention (QRC), 3-5, September, Malaysia.

Hassan, I and Allen, D. (2012). Information sharing and trust during major incidents: findings from the oil industry, *Journal of the American Society for Information Science and Technology*, 63(10), 1916–1928.

Helle, M. (2000). Disturbances and contradictions as tools for understanding work in the newsroom, *Scandinavian Journal of Information Systems*, 12, 81-113.

Helsper, E (2008). *Digital Inclusion: An analysis of social disadvantage and the information society*. Department for Communities and Local Government, London, UK.

Helsper, E. (2012). A corresponding fields model for the links between social and digital exclusion, *Communication Theory*, 22(4), 403-426.

Helsper, E. (2014). *Harnessing ICT for social action: a digital volunteering programme - Digital inclusion in Europe: evaluating policy and practice*. Discussion Paper. European Commission, Directorate-General for Employment, Social Affairs and Inclusion, Brussels, Belgium. Available at: <https://ec.europa.eu/digital-single-market/en/news/harnessing-ict-social-action-digital-volunteering-programme-peer-review>

Helsper, E. and Reisdorf, B. (2016). The emergence of a 'digital underclass' in Great Britain and Sweden: changing reasons for digital exclusion, *New Media & Society*, 19(8), 1253-1270.

Helsper, E. (2017). The social relativity of digital exclusion: applying relative deprivation theory to digital inequalities, *Communication Theory*, 27(3), 223-242.

Helsper, E.J. and van Deursen, A.J. (2017). Do the rich get digitally richer? Quantity and quality of support for digital engagement, *Information, Communication & Society*, 20(5), 700-714.

Hepburn, P. (2018). A New Governance Model for Delivering Digital Policy Agendas: A Case Study of Digital Inclusion Amongst Elderly People in the UK, *International Journal of E-Planning Research*, 7(3), 36-49.

Hill, R., Beynon-Davies, P. and Williams, M. D. (2008). Older people and internet engagement, *Information Technology & People*, 21(3), 244–266.

Hodge, H., Carson, D., Carson, D., Newman, L., and Garrett, J. (2017). Using Internet technologies in rural communities to access services: The views of older people and service providers, *Journal of Rural Studies*, 54, 469-478.

Hosman, L and Comisso, M.A.P. (2020). How do we understand “meaningful use” of the internet? Of divides, skills and socio-technical awareness, *Journal of Information, Communication and Ethics in Society*, 18(3), 461-479.

Huggins, R. and Izushi, H. (2002). The Digital Divide and ICT Learning in Rural Communities: Examples of Good Practice Service Delivery, *Local Economy*, 17(2) 111–122.

Iordache, C., Mariën, I. and Baelden, D. (2017). Developing Digital Skills and Competences: A Quick- Scan Analysis of 13 Digital Literacy Models, *Italian Journal of Sociology of Education*, 9(1), 6-30.

Jaeger, P. T., Bertot, J. C., Thompson, K. M., Katz, S. M., and DeCoster, E. J. (2012). The intersection of public policy and public access: Digital divides, digital literacy, digital inclusion, and public libraries, *Public Library Quarterly*, 31(1), 1–20.

Jaeger, P.T., Gorham, U., Bertot, J.C., Taylor, N.G., Larson, E., Lincoln, R., Lazar, J. and Wentz, B. (2014). Connecting government, libraries and communities: information behaviour theory and information intermediaries in the design of LibEGov.org, *First Monday*, 19(11).

Kaptelinin, V. (2005). The object of activity: making sense of the sense-maker, *Mind, Culture and Activity*, 12, 4–18.

Kaptelinin, V., and Nardi, B. A. (2009). Acting with technology: Activity theory and interaction design. Cambridge, MA: MIT Press.

Karanasios, S. and Allen, D. (2013). ICT for development in the context of the closure of Chernobyl nuclear power plant: an activity theory perspective, *Information Systems Journal*, 23(4), 287-306.

Karanasios, S (2014). Framing ICT4D Research Using Activity Theory: A Match Between the ICT4D Field and Theory? *Information Technologies & International Development*. 10(2).

Karanasios, S. and Allen, D. (2014). Mobile technology in mobile work: contradictions and congruencies in activity systems, *European Journal of Information Systems*, 23, 529–542.

Karanasios, S. and Allen, D. (2018). Activity theory in Information Systems Research, *Information systems Journal*, 28, 439-441.

Karanasios, S. (2018). Toward a unified view of technology and activity: The contribution of activity theory to information systems research, *Information Technology & People*, 31(1), 134–155.

King, N. and Horrocks, C. (2010). *Interviews in qualitative research*, London: SAGE Publications Limited.

Kivunja, C. and Kuyini. A.B. (2017). Understanding and Applying Research Paradigms in Educational Contexts, *International Journal of Higher Education*, 6(5), 26-41.

Klecun, E. (2008). Bringing lost sheep into the fold: Questioning the discourse of the digital divide, *Information Technology & People*, 21(3), 267–282.

Kuutti, K. (1996). Activity Theory as a Potential Framework for Human-Computer Interaction Research, in B. Nardi (Ed.). *Context and Consciousness: Activity Theory and Human Computer Interaction* Cambridge: MIT Press.

Kvale, S. (2008). *Doing interviews*. Thousand Oaks, CA: Sage

Latour, B. (1992). *Reassembling the social: An introduction to actor-network-theory*. Oxford: Oxford University Press.

Legard, R., Keegan, J. and Ward, K. (2003). In-depth interviews. In J. Ritchie & J. Lewis, eds. *Qualitative research practice: A guide for social science students and researchers*. 138–169.

Leontev, A.N. (1978). *Activity, Consciousness, and Personality*, Prentice-Hall, Englewood Cliffs, NJ.

Letch, N. and Carroll, J. (2008). Excluded again: implications of integrated e-government systems for those at the margins, *Information Technology & People*, 21(3), 283-299.

Litt, E. (2013). Measuring users' internet skills: A review of past assessments and a look toward the future, *New Media & Society*, 15, 612– 630.

López, J.J.S., Castañeda, L.A.R. and Reyes, J.I.P. (2018). Models with a social perspective for the management of digital inclusion processes, *International Journal of Latest Research in Humanities and Social Science*, 1(3), 73-83.

Lutz, C. and Hoffmann, C. P. (2017). The dark side of online participation: exploring non-, passive and negative participation, *Information, Communication & Society*, 20(6), 876-897.

Macpherson, A. (2006). *Learning to grow: the evolution of business knowledge in small manufacturing firms*. PhD, Manchester Metropolitan University.

Madon, S., Reinhard, N., Roode, D. and Walsham, G. (2009). Digital inclusion projects in developing countries: Processes of institutionalization, *Information Technology for Development*, 15(2), 95–107.

Mahmood, M., Weerakkody, V. and Chen, W. (2018). The influence of transformed government on citizen trust: Insights from Bahrain, *Information Technology for Development*, 25(2), 275-303.

Majchrzak, A., Markus, M.L. and Wareham, J. (2016). Designing for Digital Transformation: Lessons for Information Systems Research from the Study of ICT and Societal Challenges, *MIS Quarterly*, 40(2), 267-277.

Manlove, J. and Whitacre, B. (2019) An evaluation of the Connected Nation broadband adoption program, *Telecommunications Policy*, 43, 1-11.

Marcella, R. and Chowdhury, G. (2020). Eradicating information poverty: An agenda for research, *Journal of Librarianship and Information Science*, 52(2), 366–381.

Mariën, I. and Van Audenhove, L. (2012). Towards a multi-stakeholders approach for digital inclusion: A case study of Ghent's 'Digitaal.Talent' policy program, *IAMCR2012 Conference, Durban, South Africa*.

Mariën, I. and Prodnik, J. (2014). Digital inclusion and user (dis) empowerment: a critical perspective, *Info*, 16(6), 35-47.

Mariën, I. (2016). *The dichotomy of the digital divide breaks through: A study of the causes of digital exclusion and strategies for a sustainable e-inclusion policy*. Unpublished dissertation, obtained Vrije Universiteit Brussel.

Mariën I., Heyman R., Saleminck K. and Van Audenhove L. (2016). Digital by Default: Consequences, Casualties and Coping Strategies. In Servaes, J. and Oyedemi, T. *Social Inequalities, Media and Communication: Theory and Roots*, Lexington Books

Martínez-Cantos, J. L. (2017). Digital skills gaps: A pending subject for gender digital inclusion in the European Union, *European Journal of Communication*, 32(5), 419–438.

Mason, J. (2002). *Qualitative researching* (2nd ed.). Thousand Oaks, CA: Sage Publications Ltd.

McMahon, R. (2020). Co-developing digital inclusion policy and programming with Indigenous partners: interventions from Canada, *Internet Policy Review*, 9(2).

McGillivray, D., Jenkins, N., and Mamattah, S. (2017). *Rapid Review of Evidence for Basic Digital Skills*, University of the West of Scotland.

Mervyn, K., and Allen, D. (2012). Sociospatial context and information behavior: Social exclusion and the influence of mobile information technology, *Journal of the American Society for Information Science and Technology*, 63(6), 1125–1141.

Mervyn, K., Simon, A. and Allen, D. K. (2014). Digital inclusion and social inclusion: a tale of two cities, *Information, Communication & Society*, 17(9), 1086–1104.

Mervyn, K., Allen, D. K. and Brown, A. (2017). Technology and the socially excluded: the significance of human information intermediaries, *2017 SIGUSE Symposium*. Available at: <https://siguse.wordpress.com/2017/10/26/2017-siguse-symposium-abstracts/>

Micklewaite, A. (2018). Onwards! Why the movement for digital inclusion has never been more important. In Reedy, K. and Parker, J. (Eds.), *Digital literacy unpacked*. London, UK: Facet Publishing.

Miettinen, R. (1999). The riddle of things: Activity Theory and Actor-Network Theory as approaches to studying innovations, *Mind, Culture and Activity*, 6, 170-195.

Miles, M.B. and Huberman, A.M. (1994). *Qualitative Data Analysis*, 2nd edition. Thousand Oaks, CA: Sage Publications.

Miles, M. B., Huberman, A. M. and Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook*. Thousand Oaks, California: SAGE Publications.

Mishra, J.L., Allen, D.K. and Pearman, A.D. (2011). Activity Theory as a Methodological and Analytical Framework for Information Practices in Emergency Management. In the *proceedings of the 8th International ISCRAM Conference, Lisbon, Portugal, May 2011*.

Molina-Azorín, J.F., Pereira-Moliner, J., López-Gamero, M.D., Pertusa-Ortega, E.M. and Tarí, J. J. (2019). Multilevel research: Foundations and opportunities in management, *Business Research Quarterly*, 1-13.

Mori, C. K. (2011). Digital Inclusion: Are We All Talking about the Same Thing? In Steyn, J. and Johanson, G. (Eds.), *ICTs and Sustainable Solutions for the Digital Divide: Theory and Perspectives*, 45-64. Hershey, PA: IGI Global.

Mubarak, F. (2015). Towards a renewed understanding of the complex nerves of the digital divide, *Journal of Social Inclusion*, 6, 71–102.

Mubarak, F., Suomi, R. and Kantola, S-P. (2020). Confirming the links between socio-economic variables and digitalization worldwide: the unsettled debate on digital divide, *Journal of Information, Communication and Ethics in Society*, 18(3), 415-430.

Murphy, E. and Manzanares, M.A.R. (2008). Contradictions between the virtual and physical high school classroom: a third-generation activity theory perspective, *British Journal of Educational Technology*, 39(6), 1061-1072.

Myers, M.D. (2009) *Qualitative Research in Business Management*, London, SAGE

Newman, L., Browne Yung, K., Raghavendra, P., Wood, D. and Grace, E. (2017). Applying a critical approach to investigate barriers to digital inclusion and online social networking among young people with disabilities, *Information Systems Journal*, 27(5), 559-588.

Norris, P. (2001). *Digital Divide*, in: *Digital Divide, Civic Engagement, Information Poverty, and the Internet Worldwide*. Cambridge University Press, 3–25.

Notley, T. (2009). Young people, online networks, and social inclusion, *Journal of Computer-Mediated Communication*, 14(4), 1208-1227.

Nuttall, J., Doecke, B., Berry, A., Illesca, B. and Mitchell, J. (2007). Fieldwork Supervision: A Space for Professional Learning. *Changing perspectives on professional learning: Professionalism, identities and practice*, 37-52, Sense Publishers.

Olphert, W. and Damodaran, L. (2013). Older people and digital disengagement: a fourth digital divide? *Gerontology*, 59, 564 - 570.

Oreglia, E., and Srinivasan, J. (2016). ICT, Intermediaries, and the Transformation of Gendered Power Structures, *MIS Quarterly*, 40(2), 501-510.

O'reilly, K (2012). *Ethnographic methods* (second edition). Abingdon: Routledge.

Orlikowski, W.J. and Baroudi, J.J. (1991). Studying information technology in organisations: Research approaches and assumptions, *Information Systems Research*, 2, 1-28.

Orlikowski, W.J. (2005). Material works: exploring the situated entanglement of technological performativity and human agency. *Scandinavian Journal of Information Systems*, 17(1), 183–186.

O'Sullivan, S and Walker, C. (2018). From the interpersonal to the internet: social service digitisation and the implications for vulnerable individuals and communities, *Australian Journal of Political Science*, 53:4, 490-507.

Pangrazio, L., and Selwyn, N. (2019). 'Personal data literacies': A critical literacies approach to enhancing understandings of personal digital data, *New Media & Society*, 21(2), 419–437.

Palmeiro, R., Pereda, V. and Aires, L. (2019). Digital inclusion programs: the case of the Basque Country, *Revista Lusófona de Educação*, 45, 73-88.

Park, S., and Kim, G. (2015). Same access, different uses, and the persistent digital divide between urban and rural internet users. *TPRC43: The 43rd Research Conference on Communication, Information and Internet Policy Paper*, 1–21.

Park, S. (2016). Digital inequalities in rural Australia: A double jeopardy of remoteness and social exclusion, *Journal of Rural Studies*, 54, 399–407.

Park, S., Freeman, J. and Middleton, C. (2019). Intersections between connectivity and digital inclusion in rural communities, *Communication Research and Practice*, 5(2), 139-155.

Park, S and Humphry, J. (2019). Exclusion by design: intersections of social, digital and data exclusion, *Information, Communication & Society*, 22:7, 934-953.

Pavez, I., Correa, T. and Contreras, J. (2017). Meanings of (dis)connection: Exploring non-users in isolated rural communities with internet access infrastructure, *Poetics*, 63, 11–21.

Pawluczuk, A., Webster, G., Smith, C. and Hall, H (2019). The Social Impact of Digital Youth Work: What Are We Looking For? *Media and Communication*, 7(2), 59–68.

Pawluczuk, A. (2020). Digital youth inclusion and the big data divide: examining the Scottish perspective, *Internet Policy Review*, 9(2).

Pearce, K. E., and Rice, R. E. (2013). Digital divides from access to activities: Comparing mobile and personal computer Internet users, *Journal of Communication*, 63, 721–744.

Philip, L., Cottrill, C., Farrington, J., Williams, F. and Ashmore, F. (2017). The digital divide: patterns, policy and scenarios for connecting the ‘final few’ in rural communities across Great Britain, *Journal of Rural Studies*, 54, 386-398.

Philip, L. and Williams, F. (2019a). Remote rural home-based businesses and digital inequalities: Understanding needs and expectations in a digitally underserved community, *Journal of Rural Studies*, 68, 306-318.

Philip, L. and Williams, F. (2019b). Healthy ageing in smart villages? Observations from the field, *European Countryside*, 11(4), 616–633.

Potnis, D. D. (2015). Beyond Access to Information: Understanding the Use of Information by Poor Female Mobile Users in Rural India, *The Information Society*, 31(1), 83-93.

Prencert, F. (2006). A theory of organizing informed by activity theory: the locus of paradox, sources of change, and challenge to management, *Journal of Organizational Change Management*, 19(4), 471-490.

Price, L., Shutt, J. and Sellick, J. (2018). Supporting rural Small and Medium sized Enterprises to take up broadband-enabled technology: What works? *Local Economy*, 33(5), 515-536.

Ragnedda, M. (2017). *The Third Digital Divide: A Weberian approach to digital inequalities*. Routledge.

Ragnedda, M. (2018). Reducing and preventing digital discrimination - Digital inclusion strategies in Europe, in Ragnedda, M. and Mutsvairo, B. (Eds.), *Digital Inclusion: an international comparative analysis*. Lanham, MD: Rowman & Littlefield.

Ragnedda, M. and Mutsvairo, B. (2018). Digital inclusion: Empowering People through Information and Communication Technologies. In Ragnedda, M. and Mutsvairo, B. (Eds.), *Digital Inclusion: an international comparative analysis*. Lanham, MD: Rowman & Littlefield.

Ramírez, R., Parthasarathy, B., and Gordon, A. (2013). Infomediaries: Brokers of public access: Final Report. Global Impact Study Research. Report Series. Seattle, WA: TASCHA.

Rashid, A. T. (2016). Digital inclusion and social inequality: Gender differences in ICT access and use in five developing countries, *Gender, Technology and Development*, 20(3), 306–332.

Real, B., Bertot, J. C. and Jaeger, P. T. (2014). Rural public libraries and digital inclusion: Issues and challenges, *Information Technology and Libraries*, 33(1), 6–24.

Rebollo, A. M, and Vico, A. (2014). Perceived social support as a factor of rural women's digital inclusion in online social networks, *Comunicar*, 22, 173–180. doi:10.3916/C43-2014-17

Reisdorf, B.C. and Groselj, D. (2017). Internet (non-) use types and motivational access: implications for digital inequalities research, *New Media & Society* 19(8), 1157–1176.

Reisdorf, B.C. and Rhinesmith, C. (2018). Digital Inclusion in International Perspective—An Asset-Based Approach to Digital Inclusion Research in the US Context, in Ragnedda, M. and Mutsvairo, B. (Eds.), *Digital Inclusion an international comparative analysis*. Lanham, MD: Rowman & Littlefield.

Reisdorf, B.C. and Rhinesmith, C. (2020). Digital Inclusion as a Core Component of Social Inclusion, *Social Inclusion*, 8(2), 132–137.

Rennie, E., Crouch, A., Wright, A. and Thomas, J. (2013). At home on the outstation: barriers to home internet in remote indigenous communities, *Telecommunication Policy*, 37(6–7), 583-593.

Rhinesmith, C. (2016). *Digital inclusion and meaningful broadband adoption initiatives*. Evanston, IL: Benton Foundation.

Richardson, J. (2018). Community-Level Perspective on Digitally and Socially Including Older People. In the *proceedings of the 32nd International BCS Human Computer Interaction Conference, 2018. Belfast, UK, (1-4)*.

Roberts, E., Anderson, B. A., Skerratt, S. and Farrington, J. (2016). A review of the rural-digital policy agenda from a community resilience perspective, *Journal of Rural Studies*, 54, 372-385.

Roberts, E., Beel, D., Philip, L. and Townsend, L. (2017). Rural resilience in a digital society: Editorial, *Journal of Rural Studies*, 54, 355-359.

Roberts, T. and Hernandez, K. (2019). Digital Access is not Binary: The 5'A's of Technology Access in the Philippines, *Journal of Information Systems Developing Countries*, 85(4), 1-14.

Robinson, L., Chen, W., Schulz, J., and Khilnani, A. (2018). Digital inequality across major life realms, *American Behavioral Scientist*, 62(9) 1159–1166.

Robinson, L., Schulz, J., Dodel, M., Correa, T., Villanueva-Mansilla, E., Leal, S., Magallanes-Blanco, C., Rodriguez-Medina, L., Dunn, H.S., Levine, L., McMahon, R. and Khilnani, A. (2020a). Digital Inclusion Across the Americas and the Caribbean. *Social Inclusion*, 8(2), 244–259.

Robinson, L., Schulz, J., Blank, G., Ragnedda, M., Ono, H., Hogan, B., Mesch, G., Cotton, S.R., Kretchmer, S.B., Hale, T.M., Drabowicz, T., Yan, P., Wellman, B., Harper, M.G., Quan-Haase, A., Dunn, H.S., Casilli, A.A., Tubaro, P., Carveth, R., Chen, W., Wiest, J.B., Dodel, M., Stern, M.J., Ball, C., Huang, K.T. and Khilnani, A. (2020b). Digital inequalities 2.0: Legacy inequalities in the information age, *First Monday*, 25(7).

Robinson, L., Schulz, J., Dunn, H.S., Casilli, A.A., Tubaro, P., Carveth, R., Chen, W., Wiest, J.B., Dodel, M., Stern, M.J., Ball, C., Huang, K.T., Blank, G., Ragnedda, M., Ono, H., Hogan, B., Mesch, G., Cotten, S.R., Kretchmer, S.B., Hale, T.M., Drabowicz,

T., Yan,P., Wellman, B., Harper, M.G., Quan-Haase, A. and Khilnani. A. (2020c). Digital inequalities 3.0: Emergent inequalities in the information age, *First Monday*, 25(7).

Robson, C (2002). *Real World Research*, 2nd ed. Oxford: Blackwell.

Roth, W.M. (2004). Activity theory and education: an introduction, *Mind, Culture and Activity*, 15, 115-140.

Salemink, K. (2016). *Digital Margins: How spatially and socially marginalized communities deal with digital exclusion*. PhD thesis, University of Groningen.

Salemink, K. and Strijker, D. (2016). Rural broadband initiatives in the Netherlands as a training ground for neo-endogenous development, *Local Economy*, 31(7), 778–794.

Salemink, K., Strijker, D. and Bosworth, G. (2017). Rural development on the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas, *Journal of Rural Studies*, 54, 360-371.

Salemink, K. and Strijker, D. (2018). The participation society and its inability to correct the failure of market players to deliver adequate service levels in rural areas, *Telecommunications Policy*, 42, 757-765.

Sannino, A., Daniels, H. and Gutierrez, K. D. (2009). Activity Theory Between Historical Engagement and Future-Making Practice. *Learning and expanding with activity theory*. Cambridge: Cambridge University Press.

Savin-Baden, M. and Major, C.H. (2012). *Qualitative research. The essential guide to theory and practice*. Milton Park, Abingdon, Oxon: Routledge.

Scheerder, A, van Deursen, A.J.A.M, van Dijk, J.A.G.M (2017). Determinants of Internet skills, uses and outcomes. A systematic review of the second- and third-level digital divide, *Telematics and Informatics* 34(8), 1607–1624.

Scheerder, A, van Deursen, A.J.A.M, and van Dijk, J.A.G.M (2019). Negative outcomes of Internet use: A qualitative analysis in the homes of families with different educational backgrounds, *The Information Society*, 35(5), 286-298.

Schou, J. and Pors, A.S. (2019). Digital by default? A qualitative study of exclusion in digitalised welfare. *Social Policy Administration*, 53(3), 464–477.

Schwalb, P., and Klecun, E. (2019). The role of contradictions and norms in the design and use of telemedicine: healthcare professionals' perspective. *AIS Transactions on Human-Computer Interaction*, 11(3), 117-135.

Schwandt, T. A. (Ed.). (2007). Positivism. In *The SAGE dictionary of qualitative inquiry*. Thousand Oaks: SAGE Publications, Inc.

Seale, J., Draffan, E.A. and Wald, M. (2010). Digital agility and digital decision-making: conceptualising digital inclusion in the context of disabled learners in higher education, *Studies in Higher Education*, 35(4), 445-461.

Seale, J. and Dutton, W. (2012). Empowering the digitally excluded: learning initiatives for (in)visible Groups, *Research in Learning Technology*, 20, 313-321.

Sein, M.K., Thapa, D., Hatakka, M. and Sæbø, Ø. (2019). A holistic perspective on the theoretical foundations for ICT4D research, *Information Technology for Development*, 25(1), 7-25,

Serrano-Santoyo, A. and Rojas-Mendizabal, V. (2017). Exploring a Complexity Framework for Digital Inclusion Interventions, *Procedia Computer Science*, 121, 212-217.

Simeonova, B. (2014). *Knowledge Sharing and Knowledge Interaction Processes within Bulgarian Firms*. PhD, University of London.

Simeonova, B. (2018). Transactive memory systems and Web 2.0 in knowledge sharing: A conceptual model based on activity theory and critical realism, *Information System Journal*, 28(4), 592–611.

Smith, M. L. (2011). Limitations to building institutional trustworthiness through e-government: A comparative study of two e-services in Chile, *Journal of Information Technology*, 26, 78 –93.

Smith, C. (2015). An analysis of digital inclusion projects: Three crucial factors and four key components, *Journal of Information Technology Education: Research*, 14, 179-188.

Sorrentino, M., and Niehaves, B. (2010). Intermediaries in E-Inclusion: A Literature Review. In the *proceedings of the 43rd Hawaii International Conference on System Sciences, Hawaii*.

Spinuzzi, C. (2008). *Network: Theorizing Knowledge Work in Telecommunications*, Cambridge, Cambridge University Press.

Spante, M., Sofkova, S., Lundsén, M. and Algers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use, *Information & Communications Technology in Education*, 5.

Steinbach, M., Sieweke, J. and Süß, S. (2019). The diffusion of e- participation in public administrations: A systematic literature review, *Journal of Organizational Computing and Electronic Commerce*, 29(2), 61-95 .

Strover, S., Whitacre, B., Rhinesmith, C. and Schrubbe, A. (2020). The digital inclusion role of rural libraries: social inequalities through space and place, *Media, Culture & Society*, 42(2), 242-259.

Sweeney, M. E. and Rhinesmith, C. (2017). Creating caring institutions for community informatics, *Information, Communication & Society*, 20(10), 1482-1497.

Sylvester, A., Toland, J. and Parore, P. (2017). Is the Digital Divide Still relevant in 2017? Two Cases from Marginalised Communities in Aotearoa-New Zealand, 21st PACIS (Pacific Asia Conference on Information Systems 2017 Proceedings, Langkawi, 1-11, <http://aisel.aisnet.org/pacis2017/123>.

Tapia, A., and Ortiz, J. (2010). Network hopes: Municipalities Deploying Wireless Internet to Increase Civic engagement, *Social Science Computer Review*, 28, 93–117.

Tavory, I. and S. Timmermans (2014). *Abductive Analysis: Theorizing Qualitative Research*, Chicago, IL: University of Chicago Press.

Taylor, D. and Packham, G. (2016). Social Inclusion through ICT: Identifying and Overcoming Barriers to ICT Use, *Strategic Change*, 25(1), 45–60.

Teles, A. and Joia, L.A. (2011). Assessment of digital inclusion via the actor-network theory: The case of the Brazilian municipality of Pirai. *Telematics and Informatics*, 28, 191–203.

Thompson, K., Jaeger, P., Taylor, N., Subramaniam, M., and Bertot, J. (2014). *Digital Literacy and Digital Inclusion: Information Policy and the Public Library*. Lanham, United States: Rowman & Little Publishers.

Thompson, K. M. (2016). Multiple layers of digital inclusion, *Online Currents*, 30(1), 38-40.

Tomczyk, T., Mróz, A., Potyrała, K. and Wnęk-Gozdek, J. (2020). Digital inclusion from the perspective of teachers of older adults - expectations, experiences, challenges and supporting measures, *Gerontology & Geriatrics Education*, 24, 1-16.

Townsend, L., Sathiaselalan, A., Fairhurst, G. and Wallace, C. (2013). Enhanced broadband access as a solution to the social and economic problems of the rural digital divide, *Local Economy*, 28(6), 580-595.

Torrecillas, C., Centeno, C. and Misuraca, G. (2014). *Measuring the impact of eInclusion intermediary actors: Characterisation and mapping of eInclusion intermediary Actors in the EU27*, European Commission, JRC-IPTS Scientific and Political Report.

Tsang, E. W. K. (2013). Case Studies and Generalization in Information Systems Research: A Critical Realist Perspective, *The Journal of Strategic Information Systems*, 23, 174–186.

Tsatsou, P. (2019). Digital inclusion of people with disabilities: a qualitative study of intra-disability diversity in the digital realm, *Behaviour & Information Technology*, 39(9), 995-1010.

van Deursen, A., Courtois, C. and van Dijk, J. (2014). Internet skills, sources of support and benefits of internet use, *International Journal of Human–Computer Interaction*, 30(4), 278–290.

van Deursen, A. J., van Dijk, J. A. and Peter, M. (2015). Increasing inequalities in what we do online: A longitudinal cross-sectional analysis of Internet activities among the Dutch population (2010 to 2013) over gender, age, education, and income, *Telematics and Informatics*, 32, 259–272.

van Deursen, A.J. and Helsper, E.J. (2018). Collateral benefits of internet use: Explaining the diverse outcomes of engaging with the Internet, *New Media & Society*, 20(7), 2333–2351.

van Deursen, A.J.A.M. and van Dijk, J.A.G.M. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access, *New Media & Society*, 21(2), 354–375.

van Dijk, J. A. G. M. (2005). *The Deepening Divide: Inequality in the Information Society*. London: SAGE.

van Dijk, J. (2017). *Digital Divide: Impact of Access*. *The International Encyclopedia of Media Effects*. Twente: University of Twente.

van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M. and de Haan, J. (2017). The relation between 21st-century skills and digital skills: A systematic literature review, *Computers in human behavior*, 72, 577-588.

Vartanova, E., and Gladkova, A. (2019). New forms of the digital divide. In J. Trappel (Ed.), *Digital media inequalities: Policies against divides, distrust and discrimination*, 193–213. Nordicom.

Vassilakopoulou, P. and Hustad, E. (2021). Bridging Digital Divides: a Literature Review and Research Agenda for Information Systems Research. *Information Systems Frontiers*, January 2021, 6, 1-15.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological functions*. Harvard, MA: Harvard University Press.

Wagg, S., Simeonova, B. and Cooke, L. (2018). Exploring digital inclusion initiatives through the lens of Activity Theory. *European Conference of Information Systems*.

Wagg, S., Simeonova, B. and Cooke, L. (2020). Digital inclusion and Women's Health and Well-Being in Rural Communities, in: Yates, S and Rice, R (Eds.), *The Oxford Handbook of Digital Technology and Society*, Oxford University Press, UK.

Warburton, J., Cowan, S., Winterton, R. and Hodgkins, S. (2014). Building Social Inclusion for Rural Older People Using Information and Communication Technologies: Perspectives of Rural Practitioners, *Australian Social Work*, 67(4), 479-494.

Warren, M. (2007). The digital vicious cycle: Links between social disadvantage and digital exclusion in rural areas, *Telecommunications Policy*, 31(6-7), 374–388.

Warschauer, M. (2003). Demystifying the digital divide - The simple binary notion of technology haves and have-nots doesn't quite-compute, *Scientific American*, 289(2), 42–47.

Warschauer, M. (2004). *Technology and Social Inclusion: Rethinking the Digital Divide*. Cambridge, MA: The MIT Press.

Whitworth, A., Garnett F. and Pearson, D. (2012). Aggregate-then-Curate: how digital learning champions help communities nurture online content, *Research in Learning Technology*, 20, 399-415.

Wihlborg, E. and Engstrom, J. (2017). Bridging digital divides through digital media buses: An action research study on digital inclusion in Sweden, in *proceedings of the 2017 Conference for E-Democracy and Open Government (CeDEM)*, Krems, 2017, 260-270.

Williams, P. (2013). We are all boundary spanners now? *International Journal of Public Sector Management*, 26(1), 17-32.

Williams, F., Philip, L., Farrington, J. and Fairhurst, G. (2016). Digital-by-Default' and the 'hard to reach': Exploring solutions to digital exclusion in remote rural areas, *Local Economy*, 31(7), 757–777.

Wilson, T. (1997). Information behaviour: An interdisciplinary perspective, *Information Processing and Management*, 33, 551–72.

Wilson, T. (2006). A re-examination of information seeking behaviour in the context of activity theory, *Information Research*, 11(4) paper 260 [Available at <http://InformationR.net/ir/11-4/paper260.html>]

Wiser, F., Durst, C. and Wickramasinghe, N. (2019). Using Activity Theory Successfully in Healthcare: A Systematic Review of the Theory's Key Challenges to Date. In the proceedings of the 52nd Hawaii International Conference on System Sciences 2019, 882-891.

Wright, D. and Wadhwa, K. (2010). Mainstreaming the e-excluded in Europe: strategies, good practices and some ethical issues, *Ethics Information Technology*, 12, 139-156.

Wynn, D. and Williams, C. K. (2012). Principles for conducting critical realist case study research in information systems, *MIS Quarterly*, 36, 787-810.

Wynn, D. and Williams, C.K. (2020). Recent Advances and Opportunities for Improving Critical Realism-Based Case Study Research in IS, *Journal of the Association for Information Systems*, 21(1), 50-89.

Yamagata-Lynch, L.C., (2010). *Activity Systems Analysis Methods: Understanding Complex Learning Environments*, New York: Springer.

Yates, S.J., Kirby, J. and Lockley, E. (2015a). 'Digital-by-Default': Reinforcing exclusion through technology, *In Defence of Welfare*, 2, 158-161.

Yates, S., Kirby, J., and Lockley, E. (2015b). Digital media use: Differences and inequalities in relation to class and age, *Sociological research online*, 20(4), 71–91.

Yates, S.J., Carmi, E., Lockley, E., Pawluczuk, A., French, T. and Vincent, S. (2020).

Who are the limited users of digital systems and media? An examination of U.K. evidence, *First Monday*, 25(7), 1-40.

Yu L (2006). Understanding information inequality: Making sense of the literature of the information and digital divides, *Journal of Librarianship and Information Science*, 38(4), 229–252.

Yu L, Zhou W, Yu B, et al. (2016). Towards a comprehensive measurement of the information rich and poor: Based on the conceptualization of individuals as information agents, *Journal of Documentation*, 72(4): 614–635.

Zheng, Y. and Walsham, G. (2008). Inequality of what? Social exclusion in the e-society as capability deprivation, *Information Technology & People*, 21(3), 222-243.

Appendixes

Appendix 1



Adult Participant Information Sheet (national level)

An investigation of digital inclusion in UK rural communities

We would like to invite you to take part in our study. Before you decide we would like you to understand *why* the research is being done and *what* it would involve for you. One of our team will go through this information sheet with you and answer any questions you have. Talk to others about the study before making a decision if you wish.

Lead Investigator:

Sharon Wagg, Email: S.WAGG@LBORO.AC.UK

School of Business & Economics, Loughborough University, Tel: 01509 223393

Supervisors:

Professor Louise Cooke: Email: L.COOKIE@LBORO.AC.UK

Dr Boyka Simeonova: Email: B.SIMEONOVA@LBORO.AC.UK

School of Business & Economics, Loughborough University, Tel: 01509 223393

What is the purpose of the study?

The purpose of this study is to explore digital inclusion in rural communities within the UK. To do this we will investigate:

- the role and responsibilities digital inclusion intermediaries and actors play in reaching and engaging with digitally excluded and limited users of the internet in rural communities
- the mechanisms and processes in place in the delivery of basic digital skills training within digital inclusion initiatives
- the experiences and capabilities of people living in rural communities, who have been digitally excluded or limited users of the internet, who have received support from digital inclusion initiatives/practice.

The research will take place in three regions, one in England, one in Scotland and one in Wales, with participants at national and regional organisations with an interest in digital inclusion; and individuals who have had support from digital inclusion initiatives who live in rural communities.

Who is doing this research and why?

Sharon Wagg, is the lead investigator undertaking this study as part of her PhD. Professor Louise Cooke and Dr Boyka Simeonova (academic staff within the Centre of Information Management at Loughborough University) are supervising her in conducting this research. This study is part of a PhD student research project supported by Loughborough University.

We are undertaking this study to help us better understand digital inclusion initiatives and practice and the effects on rural communities. We will use this knowledge to make a contribution to digital inclusion research and inform and influence national policy and practice.

Why you have been chosen for this project

We are asking you to be part of this study due to your knowledge of digital inclusion initiatives and policy within the UK and issues that affect digital exclusion or limited use of the internet.

Are there any exclusion criteria?

Participants must be aged 16 or over. Children under the age of 16 cannot participate.

What will I be asked to do?

We will invite you to take part in two interviews that will each last for about one hour – one interview at the beginning of the study and one towards the end. The interview will take place either in your place of work or as a telephone interview. The time and date of the interview will be agreed between you and the lead investigator, Sharon Wagg.

Before the interview, we will send you a list of the main questions we would like to ask you so you can prepare for the interview. On the day of the interview we will go through this information sheet to ensure you understand *why* the research is being done and *what* it would involve for you. If you are happy to proceed we will invite you to complete and sign the Informed Consent Form and then commence the interview. Your interview will (with your consent) be digitally recorded and transcribed.

Once I take part, can I change my mind?

Yes. After you have read this information and asked any questions you may have if you are happy to participate we will ask you to complete an Informed Consent Form, however if at any time, before, during or after the interview you wish to withdraw from the study please just contact the main investigator. You can withdraw at any time, for any reason and you will not be asked to explain your reasons for withdrawing. However, once this study has been completed and submitted as part of a PhD thesis (expected to be by April 2020), it will not be possible to withdraw your individual data from the research.

How long will it take?

You will need to spend a short time preparing for the interview with the help of the list of main interviews questions sent prior to the interview. Each interview will take approximately an hour.

What personal information will be required from me?

We will only require basic demographic information i.e. age range, job title and ethnic background.

Are there any disadvantages or risks in participating?

There are no risks or disadvantages associated with this study, although some people feel emotional when they talk about their experiences. If you are affected in this way, the investigator will handle the discussion sensitively and give you an opportunity to have a break or to end the interview if you wish.

Will my taking part in this study be kept confidential?

All names of participants will be coded for anonymity. The recordings and transcripts of your interview will be stored using an identification number, and not under your name or job title. All data will be treated in confidence and held securely in line with University guidance on collection and storage of data and the Data Protection Act 1998. All data will be held in an electronic encrypted format for six years.

I have some more questions; who should I contact?

The lead investigator, Sharon Wagg (details above).

What will happen to the results of the study?

The results will be submitted to Loughborough University as part of a PhD thesis and published in academic journals (no identifying details will be in any communication).

What if I am not happy with how the research was conducted?

If you are not happy with how the research was conducted, please contact the Secretary of the Ethics Approvals (Human Participants) Sub-Committee, Research Office, Hazlerigg Building, Loughborough University, Epinal Way, Loughborough, LE11 3TU. Tel: 01509 222423. Email: researchpolicy@lboro.ac.uk

The University also has policies relating to Research Misconduct and Whistle Blowing which are available online at <http://www.lboro.ac.uk/committees/ethics-approvals-human-participants/additionalinformation/codesofpractice/> .

Thank you for taking time to read this information sheet.

Appendix 2



An investigation of digital inclusion in UK rural communities INFORMED CONSENT FORM

Please initial box

The purpose and details of this study have been explained to me. I understand that this study is designed to further scientific knowledge and that all procedures have been approved by the Loughborough University Ethics Approvals (Human Participants) Sub-Committee.

☐

I have read and understood the information sheet and this consent form*. I understand that taking part in the project will include being interviewed and audio recorded.

☐

I have had an opportunity to ask questions about participation.

☐

I understand that I am under no obligation to take part in the study, have the right to withdraw from this study at any stage for any reason, and will not be required to explain my reasons for withdrawing.

☐

I agree to take part in this study.

☐

Use of Information

I understand that all the personal information I provide will be treated in strict confidence and will be kept anonymous and confidential to the researchers unless (under the statutory obligations of the agencies which the researchers are working with), it is judged that confidentiality will have to be breached for the safety of the participant or others or for audit by regulatory authorities.

☐

I understand that anonymised data/quotes may be used in publications, reports, web pages, and other research outputs.

☐

Name of participant [printed] Signature Date

Researcher [printed] Signature Date

*Two copies required. One copy of the Informed Consent Form to be retained by participant, and one copy to be retained by the investigator.

Appendix 3

National level interview schedule

Background about the interviewee and organisation

Name, age range, job title

What is your experience of working in digital inclusion?

What is your role within the organisation and how does this relate to digital inclusion?

Can you tell me the aims and objectives of your organisation and how these relate to digital inclusion?

Can you tell me a bit about the reach of your organisation in rural areas?

Digital Inclusion policy and practice

What are the objectives of digital inclusion policy within the UK?

Are there national differences (e.g. between England, Scotland and Wales) and regional differences in relation to digital inclusion and if so why?

How do you view current digital inclusion policy within the UK and its key objectives?

Are there geographical differences in relation to digital inclusion activities, e.g. rural and urban, and if so why?

Can you describe any specific digital inclusion initiatives that support rural communities within the UK and internationally?

Who are the main recipients of digital inclusion initiatives, particularly in rural communities and how do they benefit?

Are there any downsides to digital inclusion activities?

Implementation of digital inclusion

How is digital inclusion being promoted within the UK?

What type of organisations deliver digital inclusion initiatives and activities and how are they funded?

Is there a difference with how digital inclusion initiatives are implemented in rural areas compared to urban areas?

In your opinion how do digital inclusion initiatives impact rural communities?

How effective is the current approach to digital inclusion within the UK and how could it be improved?

What are the key challenges/constraints of implementing digital inclusion policy and practice?

Digital Inclusion delivery models

What role and responsibilities do digital inclusion intermediaries and actors play in reaching and engaging with digitally excluded and limited users of the internet in rural communities?

What engagement strategies do digital inclusion intermediaries and actors use to reach digitally excluded or limited users of the internet, particularly those living in rural communities?

Training

What funding streams are there for the provision of digital skills training?

What challenges/constraints do you think digital inclusion intermediaries face delivering digital inclusion initiatives/and or basic digital skills training?

Evaluation and Outcomes

How do national/local stakeholders evaluate digital inclusion initiatives particularly those in rural areas?

What are the intended outcomes of digital inclusion initiatives for individuals, small businesses and communities?

Is there anything else they would like to add?

Appendix 4

Intermediary level interview schedule

Background about the interviewee and organisation

Name, age range, job title

What is your experience of working in digital inclusion?

What is your role within the organisation and how does this relate to digital inclusion?

Can you tell me the aims and objectives of your organisation?

In what ways does the rural location of your organisation affect its activities?

Implementation of digital inclusion

What initiatives take place across your region to promote digital inclusion?

In your opinion how effective is the current approach to digital inclusion within the UK and within your region and what are the challenges?

In your opinion how do digital inclusion initiatives impact rural communities?

Are there geographical differences in digital inclusion activities, e.g. rural & urban, if so why?

What organisations deliver digital inclusion initiatives/activities in this region & how are they funded?

Digital Inclusion delivery models

What role and responsibilities does your organisation play in reaching and engaging with digitally excluded and limited users of the internet in rural communities?

What engagement strategies does your organisation use to reach digitally marginalised people?

How does your organisation deliver digital inclusion activities e.g. face-to-face sessions (group or one-to-one) or online?

How are digital skills sessions resourced e.g. paid tutors, volunteers etc?

What devices are used and how to deliver digital skills to enable people to get online?

What are the challenges/constraints your organisation face delivering digital inclusion activities?

Evaluation and Outcomes

How does your organisation evaluate its digital inclusion activities?

Can you describe some of the outcomes (positive and negative) about those who have received digital inclusion support through your organisation?

Digital Inclusion policy and practice

How do you view current digital inclusion policy within the UK and its key objectives?

In your opinion, are there national differences (e.g. between England, Scotland and Wales) and regional differences in relation to digital inclusion?

Can you describe any specific digital inclusion initiatives that support rural areas within the UK?

Who are the main beneficiaries of digital inclusion initiatives, particularly in rural areas and how do they benefit?

Is there anything else they would like to add?

Appendix 5

Intermediary focus group topic guide

Background about the interviewees and organisation

Name, age range, job title

What is your experience of working in digital inclusion?

What is your role within the organisation and how does this relate to digital inclusion?

Can you tell me the aims and objectives of your organisation?

In what ways does the rural location of your organisation affect its activities?

Implementation of digital inclusion

What initiatives take place across your region to promote digital inclusion?

In your opinion how effective is the current approach to digital inclusion within the UK and within your region and what are the challenges?

In your opinion how do digital inclusion initiatives impact rural communities?

Are there geographical differences in digital inclusion activities, e.g. rural & urban, if so why?

What organisations deliver digital inclusion initiatives/activities in this region & how are they funded?

Digital Inclusion delivery models

What role and responsibilities does your organisation play in reaching and engaging with digitally excluded and limited users of the internet in rural communities?

What engagement strategies does your organisation use to reach digitally marginalised people?

How does your organisation deliver digital inclusion activities e.g. face-to-face sessions (group or one-to-one) or online?

What are the challenges/constraints your organisation face delivering digital inclusion activities?

Evaluation and Outcomes

How does your organisation evaluate its digital inclusion activities?

Can you describe some of the outcomes (positive and negative) about those who have received digital inclusion support through your organisation?

Digital Inclusion policy and practice

How do you view current digital inclusion policy within the UK and its key objectives?

Who are the main beneficiaries of digital inclusion initiatives, particularly in rural areas and how do they benefit?

Is there anything else they would like to add?

Appendix 6

Individual level Focus group topic guide

Background about interviewees

Name, age

How long have you lived in this area?

Do you have any family living nearby?

Are you currently in work?

Local area

Can you tell me about the local area?

Does the area where you live affect how you connect to the internet and if so how?

Describe the venue where you receive digital skills training/support

Technology ownership

Can you access the internet from home if so how? What devices do you use/own?

Where else can you get internet access in your local area?

Motivation

Have you received any digital skills training and if so where?

Why did you decide to do digital skills training and how was the experience?

Attitudes towards digital

What influenced your decision to do digital skills training?

How did you feel about the internet and digital technology before doing the digital skills training and how do you feel now?

Do you have any concerns with using digital?

Is access to the internet important for your everyday life and work and if so how?

Digital inclusion experiences

Can you tell me about your experience of using digital living in a rural area?

Digital skills training/support

Could you tell me about your experience of digital skills training?

Has the digital skills training/support enabled you to do other things in your life such as further learning, get a job, online transactions, etc.

In your opinion, in what ways could digital skills training be improved in rural areas?

Is there anything else they would like to add?

Appendix 7

Observation Guide for digital inclusion support activity

(make observation notes, drawings, sketches etc to record the following)

Name of the training session, if any

How is the activity implemented? e.g.

Who is taking part?

Number of participants

Nature of the activity and teaching approach

Timing and location of the activity

How the activity is organised

How time is used during the activity

Roles and responsibilities of participants

Decisions being made by whom and for whom

Resources made available to participants e.g. special equipment, learning resources, software, virtual learning environments etc

Help available to learners

How are the participants behaving? e.g.

How are they undertaking the activity?

How are learners using help and resources?

How are participants interacting with the environment?

Do learners appear motivated, engaged, prepared?

How are the participants interacting? e.g. is there dialogue?

Is the dialogue constructive for learning?

Who is talking/listening?

What is their body language/non-verbal information?

Is there evidence in the dialogue that learners are learning?

Is there evidence in the dialogue that staff/volunteers are responding to learner needs?

What is the evidence that learning has achieved expected learning outcomes?

What do they seem to find helpful?

What do they have difficulty with?

Appendix 8

National thematic network

Activity Theory Element	Second level/codes	Examples of first level short quotes
Subject	Government departments, government funded bodies, national and third sector organisations Convenor of practice Influencers of policy, funding, research, practice	1) <i>Our role is to try to influence people/organisations to take digital inclusion more seriously and to try to implement digital inclusion within their own settings</i> 2) <i>We provide the convening and galvanizing force</i>
Object	The reduction of digitally excluded individuals and communities Measurement of digital inclusion activities through targets, KPIs, and strategy	1) <i>Inverse Care Law - people who most need help/care are the least likely to get good access to it</i> 2) <i>We have developed a more nuanced view of DI over the last few years.</i> 3) <i>Case studies, evidence-based evaluation, deep-dive research</i>
Outcome	Successful/failed implementation of digital inclusion initiatives Granularity of digital inclusion achieved	1) <i>Small-scale initiatives/dynamism</i> 2) <i>Intergenerational mentoring/Digital Heroes</i>
Rules	Collaboration Policy & strategy Knowledge sharing Lack of critical rhetoric (too much 'policy speak') Understanding what it means and takes to be digitally included Structures and inequalities	1) <i>The Essential digital skills framework is a policy stakeholder thing to make sure that we are all pointing in the same direction, so we understand one another when we are debating about prioritising resources for programmes</i> 2) <i>Joined-up thinking (or lack of)</i> 3) <i>One of the benefits of the network is that they have an understanding of what the local assets are, and can use those assets to build relationships in order to use those assets i.e use WIFI from another organisation</i> 3) <i>The more we can create forums to come and discuss the better. I don't think there has been enough of those spaces</i> 4) <i>Being online is not always a universal benefit. People have talked to me quite a bit about people being concerned about internet addiction, cyber-bullying</i> 4) <i>I think there is a bit of an issue with overclaiming in evaluations</i> 5) <i>When is someone digitally included?</i> 5) <i>Libraries are a key actor, in terms of digital inclusion especially in rural communities</i> 6) <i>Most people who don't have those complex needs and barriers are online</i>
Rules	Policy & frameworks Funding models Evaluation Investment in infrastructure Funding cuts/austerity Societal and organisational culture	1) <i>Political will behind the issue</i> 1) <i>Problems such as Universal Credit</i> 2) <i>Digital inclusion funding driven by targets per head and the number of people supported.</i> 3) <i>What works and what doesn't work</i> 3) <i>Most evaluation that I have seen in DI has been quite home-made</i> 4) <i>Not so many organisations are doing digital inclusion outreach work in rural areas largely due to the costs of travelling and the lack of funding</i> 5) <i>The organisations that tend to have the best ability to penetrate into hard to reach communities are small local charities, but they are also the ones with the least resource</i> 5) <i>Digital inclusion is not suitably funded and there is a lack of commitment from government</i> 5) <i>Assets are depleting in rural areas</i> 6) <i>There is a culture of reticence</i> 6) <i>A lot of older people are worried about scams</i>
Tools	Policy Intermediaries Trusted people, trusted places Informal learning Digital tools/devices Connectivity Digital skills learning content Digital understanding/competency/literacies Approaches to digital skills training Boundary Spanners	1) <i>So much has been removed from the analogue channel that people who are [digitally] excluded get a really poor service</i> 2) <i>We work through intermediary organisations.</i> 3) <i>Digital champions</i> 3) <i>It's trusted people in local places who are going to help those who are not online</i> 4) <i>It's been shown that people who are most in need of digital inclusion support and are the hardest to reach are the ones who need that long-term support</i> 5) <i>Touch-screen tablets, VR-headsets, mobile phones</i> 6) <i>Infrastructure is difficult in rural areas</i> 7) <i>Online or offline or blended learning content</i> 8) <i>Information literacy, digital literacy, computer skills</i> 8) <i>I think we have developed a more nuanced view of DI over the last few years</i> 9) <i>Could be something like in a care home setting using VR headsets to engage people in a different way, or with mental health programmes, having a look at what apps are available to get people interested in digital</i>
Tools	Broadband, mobile service Quality of connectivity	1 & 2) <i>Access is still an issue. Perhaps less on not having devices, more about 'not spots' rural areas with poor broadband, WIFI or data limits</i>

Community	National policy influencers (macro); regional and local digital inclusion intermediary organisations, tutors and digital champions (meso); and beneficiaries of digital inclusion activities (micro) Funding bodies/government IT corporations, banks,	1) <i>Community assets/Community hubs</i> 2) <i>Government, local authorities, trust organisations</i> 3) <i>I think where commerce and industry have a shared objective in getting people online</i>
Division of Labour	UK government, National and local government; National stakeholders; Regional and local organisations	<i>Hierarchical/Power relations</i> <i>Reliance on intermediaries</i> <i>Public health services, libraries, networks, local assets</i> <i>It's the assets that we are drawing on by delivering through the network</i>

Appendix 9

Intermediary thematic network

Activity Theory Element	Second level/codes	Examples of first level short quotes/observations
Subject	Intermediaries at practice level Regional community partners, local authorities, housing associations, advice centres, public libraries; hyper-local/grass-root organisations Super intermediaries, established intermediaries	<i>Hyper-local organisations, community centres, public libraries, churches, schools,</i> <i>Local authorities, networks, learning centres, advice centres, housing associations</i> <i>Social change organisations</i> <i>Granularity of involvement of intermediaries</i>
Object	Delivery of digital inclusion support/ /knowledge development	<i>"It [digital inclusion sessions] brings people together, and they talk. It triggers an interest. Its not just about the technology, its what you do with it".</i> <i>"we find out what people want to do. We don't come with a course, we ask what do they want"</i> <i>"It [technology] can be a wonderful friend for someone on their own"</i>
Outcome	Successful/failed delivery of digital inclusion initiatives Sustainable digital inclusion	<i>Small-scale initiatives/dynamism</i> <i>Models of digital inclusion - Intergenerational mentoring/Digital Heroes</i> <i>Front-line workers</i> <i>"disadvantaged communities"</i> <i>"A lot of people will say not for me"</i> <i>"community development"</i> <i>"capacity building"</i> <i>Unreported digital inclusion activities</i> <i>"It [digital inclusion] tends to work better where there is a warden, or a community coordinator, where you have got a contact"</i> <i>"This is a good example of a sustainable group. It's not a technical job, it's not techy, it's about getting people talking and bringing them together"</i>
Rules	Collaboration Policy & strategy Knowledge sharing Structures and inequalities Policy & frameworks Funding models Investment in infrastructure Funding cuts/austerity Societal and organisational culture	<i>Partnership working, Local Digital Skills Partnerships</i> <i>Digital strategy policies/digital participation/digital regulations</i> <i>Digital Skills frameworks</i> <i>Rural penalty</i> <i>Universal credit</i> <i>Funder measurements and targets</i> <i>"Funding cuts"</i> <i>"There's quite a lot of places around here that don't have WiFi"</i> <i>"It's sad the government says you have to do this online and that online, but they are not helping the older generation to do it"</i> <i>Not everyone wants to go online</i>
Tools	Policy Intermediaries Trusted people, trusted places Informal learning Digital tools/devices Connectivity Digital skills learning content Digital understanding/competency/literacies Approaches to digital skills training Boundary Spanners	<i>Intermediary organisations</i> <i>Community connectors/local conduits</i> <i>Formal/informal/drop-in community-based sessions</i> <i>"Getting digital further up the agenda for organisations"</i> <i>"One of the most common things we do is helping with passwords, and people getting locked out of their account"</i> <i>"need to have patience"</i> <i>"we don't all have the skills"</i> <i>Worries, concerns, anger</i> <i>Rural policy</i>
Community	Digital inclusion stakeholders (macro, meso & micro) Corporates Funders Collaboration Institutional trust	<i>"community settings"</i> <i>"one of our objectives here was to seek out people who are socially isolated and try and connect"</i> <i>"Funding stops in September"</i> <i>Resentment of universal credit</i>
Division of Labour	UK government (gov) Nation & local government regional & local organisations Digital champions Local community	<i>Hierarchical/Power relations</i> <i>Reliance on intermediaries</i> <i>Public health services, libraries, networks, local assets</i> <i>Digital champion networks</i> <i>Volunteering</i>

Appendix 10

Individual thematic network

Activity Theory Element	Second level/codes	Examples of first level short quotes/observations
Subject	Individuals in need of digital support for: everyday life a specific need; workplace digital champion	<i>Digitally excluded communities,</i> <i>"digital skills in the workplace are lacking"</i> <i>"Need to get onto universal credit – I can't do it"</i> <i>"I need help"</i>
Object	Digitally included by choice, compulsion, conformity, coercion/force, /knowledge acquisition & utilisation	<i>"Coming here I learnt how to use Facebook safely"</i> <i>"You also get lots of rubbish emails"</i> <i>Some job websites send you off on a wild goose chase</i> <i>"we have pooled our knowledge which has been really good, it's empowering"</i>
Outcome	Digitally included, partially included, or remains digitally excluded Granularity of digital inclusion	<i>"It's given me a lot of confidence"</i> <i>"I don't know what I have to do"</i> <i>"disadvantaged communities"</i> <i>"she has learnt to Skype a friend in Mexico and her Grand son in Devon"</i>
Rules	Travel Costs Structures and inequalities Policy & practice Funding cuts/austerity Digital-by-default Societal and organisational culture Knowledge sharing	<i>"I think my generation are a bit frightened of it (technology)"</i> <i>"I've always had an interest in computers but not always known much about it"</i> <i>"What if I press that button and do something wrong"</i> <i>"My generation tends to think we don't need technology"</i> <i>"You can't do it another way but online and its really difficult"</i> <i>"I have Parkinsons so I find it difficult sometimes"</i> <i>"Some people get better broadband than others"</i>
Tools	Intermediaries, Digital tutors/champions Informal learning Digital tools/devices Connectivity/infrastructure Digital skills learning content Digital understanding/competency/literacies Approaches to digital skills training Motivation Trust Security	<i>"Digital champions need to be over 18"</i> <i>I go to the library to send things as I don't know how to do it and the lady shows me</i> <i>"By coming on this course, I have become more security minded"</i> <i>"I have a magic phone"</i> <i>"I have learnt lots of things"</i> <i>"it's difficult to explain to someone who hasn't got the knowledge to take that in, but we're getting there"</i> <i>"social media has a bad side sometimes but it does have its good points"</i> <i>"It's [technology] got such a bad image such as young children being groomed etc"</i>
Community	Tutors, Digital champions, local community, hyper-local community assets	<i>"we've had quite a lot of village interest"</i> <i>"The church is more engaged with the community now"</i> <i>"Put things in place where people start supporting each other"</i>
Division of Labour	Regional & hyper-local organisations Tutors, Digital champions, Volunteers Local community Family & friends & carers (proxy users)	<i>"My son helped me"</i> <i>"me and my daughter were trained to be digital champions"</i> <i>"we help a lot of people in need"</i>