Understanding digital poverty and inequality in the UK

A summary of insights from our evidence reports

The British Academy
Digital Society

Contents

Executive summary

In 2022, the British Academy commissioned six projects that examined different aspects of digital poverty in the UK, to draw upon the vital insights from the SHAPE disciplines (social sciences, humanities, and the arts for people and the economy) to inform policy thinking around the crucial challenge of addressing inequality – and specifically, the relationship between digital technology and inequality – across the UK.

As digital technology has become increasingly integrated with modern life, the ability to digitally engage has become more and more essential to interacting fully with society and the economy. Systems and services in both public and private contexts are shifting their focus to online forms of delivery, and while this brings new opportunities for social impact and benefit, it also risks creating new challenges and exacerbating inequalities for those who lack the capacity to digitally engage, whether due to insufficient access, skills, resources, or motivation.

Disparities in levels and types of digital access, digital skills, usage, and outcomes exist across the UK, aligning with the 'three levels' of the digital divide: poor access to digital technologies (first level), poor digital literacy and skills (second level), and a reduced ability to exploit digital resources and transform them into tangible social benefits (third level). We note the Digital Poverty Alliance's definition of 'digital poverty' as "the inability to interact with the online world fully, when, where, and how an individual needs to." As we discuss in this report, inequalities and technologies are both subject to change over time, so it is important to have a flexible definition – the shape of digital poverty may look different from place to place and time to time.

We recognise that a variety of contested terms exist in this space, such as digital exclusion and inclusion, digital inequality, digital poverty, and the digital divide. We see the lessons in this report as relevant to understanding how to support those people who are most marginalised and at need in the UK (especially in relation to digital engagement), irrespective of the terms and definitions one may choose to adopt.

This report highlights the central themes and findings that emerge across the evidence base of outputs produced by the commissioned projects and uses these findings to identify six policy lessons, summarised below, to shape policy thinking on how to effectively address digital poverty and its impacts across the UK. More detailed versions of these lessons can be found in Chapter 4 of the report.

Policy lesson 1: Addressing digital poverty involves more than improving access - interventions must empower people and places to benefit from digital access.

Efforts to improve and invest in digital infrastructure (access, connectivity and devices) should take into account the physical and social context of place and locality. Moreover, while developing digital infrastructure to improve access is crucial, to be effective it needs to be supplemented with initiatives that build digital literacy and skills and improve people's ability to make full use of digital resources and transform them into tangible social benefits in their everyday, local contexts.

- Digital poverty emerges in different ways in urban and rural contexts, and is shaped by physical (landscape, housing, technologies) and social elements

(demographic inequalities, changing populations).

- Local authorities are likely to have a deeper understanding of their local contexts and needs (e.g. the local socio-economic and demographic profile of the area, local infrastructure and housing stock) than central government, which can inform policy to tackle digital exclusion at the local level.

Policy lesson 2: Local resources and intermediaries can be valuable assets in tackling place-based digital poverty, and the public sector has a crucial role to play in enabling them.

Local organisations, who often have built trust with local communities through existing relationships, are often best placed to reach digitally excluded populations. However, many such organisations are financially stretched and may struggle to provide people with wrap-around digital skills support or relevant referrals. People on low incomes or who lack internet at home often rely on public places for internet use. The public sector can play a vital role enabling and supporting local resources and infrastructure through co-ordination, knowledge sharing, and funding (both in terms of provision and enabling access to funding channels).

- Partnerships with local charities, business and civil society organisations can help to better position local authorities to address local digital needs and can provide more social value return on investment. Policy should ensure that partner organisations have the appropriate funding and digital skill sets to adequately support others.
- Community anchor institutions (such as libraries, churches, gyms, banks, pubs) offer valuable spaces and networks within which different digital services can be provided, particularly when coupled with adequately resourced intermediaries (e.g. community champions).
- Digital technologies should be adapted to the personal and cultural activities and needs of a community.

Policy lesson 3: Strategies to tackle digital poverty are important components of broader policies of tackling inequality.

Digital poverty is associated with deprivation and social inequalities more broadly. This association points to the existence of a 'double loop' of inequalities, where offline inequalities reinforce digital inequalities, which in turn reinforce further social inequalities. Identifying and addressing digital poverty and its effects is therefore an important consideration for policies aimed at tackling broader social inequalities, such as the provision of Universal Credit.

- Life can be more expensive for the digitally disadvantaged, further compounding existing social inequalities as well as the unequal effects of crises. Policy should consider how different levels of support can be provided across demographics - including to the digitally excluded on relatively higher incomes, to ensure that they do not fall into a cycle of worsening inequality.
- Policies that address other issues related to inequalities, such as overcrowding, precarious living circumstances, and household energy efficiency, can have beneficial knock-on effects by reducing the likelihood of people falling into digital poverty.
- Not everyone will be able to – or want to – get online. Service providers (including housing providers, GP surgeries and banks) should ensure that people are given a choice as to whether they would like to use the internet to access their services.

Policy lesson 4: Policies should consider how and why intersecting inequalities are likely to exacerbate digital poverty, and design interventions that can benefit those most at risk of digital poverty.

When inequalities intersect, they compound to create intensified impacts on certain groups and demographics. Tackling these complex dynamics of inequality requires connected and scaled approaches at local, regional, and national levels.

- Social value outcomes should be emphasised in investments in large-scale connectivity partnerships.
- Tailored initiatives can be implemented for those groups most at risk of digital poverty. These can be formulated at both local and national scales.

Policy lesson 5: People can move in and out of digital poverty over time.

Policy should avoid binary assumptions that digital poverty is something that a person either does or does not experience or that once someone has been 'lifted out' of digital poverty they will remain digitally included for life. Crucially, digital poverty hinders people's opportunities over time, so that it becomes harder for someone to move out of digital poverty the longer they remain digitally excluded.

- It is more useful to consider digital poverty as a continuum that people can experience to different degrees at different times. The rising cost of living will create financial pressures for those people 'on the edge' of digital poverty, which may push them into digital poverty. Policies can aim to provide safety nets to prevent this happening.
- Digital inclusion is best seen as a lifelong process rather than a singular event. Policies that include sets of interventions to address short-, medium- and long-term experiences of digital poverty will be better positioned to tackle digital poverty as a lifelong process.

Policy lesson 6: Consider policy interventions that can adapt to demographic and economic changes, through consistent and long-term investment.

The social demographics and economies of the UK – within localities, regions, and as a whole – are changing over time, and under the influence of broader policy agendas. An ongoing understanding of the changing populations and needs of a place is required to formulate policies around digital poverty (and poverty generally) that are attuned to both present and future needs.

- Local and regional authorities, when working with civil organisations, charities, and businesses, will be best placed to understand local and regional needs and adjust to situations on the ground, including changing economies and demographics. Consistent investment in and support for decentralised interventions over medium to long term timescales can help address digital poverty.
- Investment in digital infrastructure is often needed over longer timescales, so it is important for policy to consider how the needs of people in a place or region may change more rapidly than new infrastructure can be deployed. Interim policies may be required to address these needs whilst infrastructure is still being developed.

1.0   Introduction

The UK is widely recognised as being one of the most geographically unequal economies among the OECD.[1] Related to this landscape of regional economic inequality is a similarly uneven landscape of digital inequality across the UK, and there are correlations between digital exclusion, social exclusion, poverty, and health inequalities.[2]

In the Government's 2022 Levelling Up Strategy, digital connectivity – in the form of nationwide gigabit-capable broadband and 4G coverage by 2030, with 5G coverage for the majority of the population – figures as one of the key mechanisms to boost productivity, pay, jobs and living standards by growing the private sector, especially in those places where they are lagging.[3] Whilst improving the distribution of digital connectivity through devices, access, and infrastructure is an important aspect of tackling digital inequality, there are a number of other equally crucial aspects to technological access, uptake and investment that will require similar attention if efforts to remedy the UK's digital landscape are to be successful.

We use the term 'digital inequality' to refer to the disparities in levels and types of digital access, digital skills, usage, and outcomes. These aspects align with what scholars have termed the 'three levels' of the digital divide: "poor access to digital technologies (first level), poor digital literacy and skills (second level) and a reduced ability to exploit digital resources and transform it into tangible social benefits (third level)."[4] Meanwhile, 'digital exclusion' is often used to refer to those people in a population who are excluded in some way across the three levels of the digital divide, while 'digital inclusion' is generally used to refer to initiatives that aim to create digital equity and give everyone the opportunity to use digital technologies to enhance their lives.[5]

1   HM Government (2022). *Levelling Up the United Kingdom*, White Paper, p20; Bounds, A. 'UK's regional inequality one of worst in developed world', *FT.com*, Nov 27 2019.
2   Watts, G. (2020) 'COVID-19 and the digital divide in the UK', Lancet Digital Health 2(8), E395-396.
3   HM Government, *Levelling Up the United Kingdom*, p6.
4   Ragnedda, M., Ruiu, M.L., Addeo, F., Ruiu, G., Pellegrino, D., Posner, M. (2022), *Living on the edge of digital poverty*, Northumbria University, p. 3; Ragnedda, M. (2017), The Third Digital Divide: A Weberian Approach to Digital Inequalities. Oxford: Routledge.
5   OFCOM (2022), *Digital exclusion: A review of Ofcom's research on digital exclusion among adults in the UK*; Ragnedda et al., *Living on the edge of digital poverty*, p. 2.

As digital technology has become increasingly integrated with modern life, the ability to digitally engage has become more and more essential to benefitting from systems and services in both public and private contexts. The notion of digital poverty is sometimes used synonymously with the notion of digital exclusion and the digital divide.[6] However, having digital access does not always mean that a person can meaningfully participate in the digital world. Likewise, the concept of 'digital poverty' can encompass both those people "who do not have access to digital services (but are not otherwise impoverished), as well as those who are impoverished whose access to digital services is directly impacted by their socio-economic conditions.[7] Following the evidence produced by the commissioned projects, we note the Digital Poverty Alliance's definition of 'digital poverty' as "the inability to interact with the online world fully, when, where, and how an individual needs to."[8] In other words, digital poverty excludes people from meaningfully participating in the digital world to the extent that they need to.

However, as the evidence in this report shows, it is important that discussions around digital poverty do not "take the focus away from the broader digitised structures which might be keeping people in poverty."[9] In other words, too narrow a conceptualisation of digital poverty risks placing too much focus on policy interventions "that only target those who are currently poor and digitally connected while ignoring the experiences of other at-risk populations who might not be poor today but whose subpar experiences with digital technology may contribute to them becoming poor or experiencing further disadvantage in the future."[10]

Furthermore, technologies and their uses are not fixed, rather developing with both technological research and innovation and social demands and interests (or, by contrast, sometimes becoming obsolescent). With this in mind, digital poverty can be thought of as a condition that people can fall into throughout their life which can be prevented or addressed through maintaining appropriate mechanisms and support networks (which, crucially, also benefit other policy aims relating to health, housing, education, and so on), rather than as a problem to be fixed at a certain point in time. We expand upon the importance of considering dimensions of time as part of the three cross-cutting dimensions of place, scale and time that structure the policy insights in chapter four of this report.

The issue of digital poverty is especially pressing in the context of the current cost of living crisis, because digital poverty can be an amplifier of economic poverty. Poorer households often face a 'Poverty Premium', where they pay more than higher income households for the same essential goods and services, and citizens experiencing digital poverty can experience higher costs than their digitally included counterparts due to an inability to make use of cost-saving opportunities offered online.

In early 2022, the British Academy commissioned six projects that examined different aspects of the landscape of digital poverty in the UK, to draw upon the vital insights from the SHAPE disciplines (social sciences, humanities, and the arts for people and the economy) to inform policy thinking around the crucial challenge of addressing inequality – and specifically, digital inequality – across the UK. This report draws

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6   Mason, K., Wagg, S., Bingbing, G., Harrison, B., Hayes, N., Perez., D., Walker, T., Wilkes, M. (2022), *Digital Poverty Transformation: Accessing Digital Services in Rural Communities*, Lancaster University, p. 5. We note also that our report is not intended to be a review of the various (and often contested) definitional concepts in this space, though we recognise the importance for policy of broadening the conception of digital poverty beyond simply issues of lack of access and infrastructure (see Section 2.4). The lessons in this report are intended as relevant to understanding how to support those people who are most marginalised and at need (especially in relation to digital engagement), irrespective of the terms and definitions one may choose to adopt.

7   Barrantes, R. (2010). 'Digital poverty: An analytical framework', 17th Biennial Conference of the International Telecommunications Society, Montreal.

8   Allmann, K. (2022), *UK Digital Poverty Evidence Review 2022*, Digital Poverty Alliance, p. 14.

9   Faith, B., Hernandez, K., Beecher, J. (2022), *Digital poverty in the UK*, Institute of Development Studies and Citizens Online, p. 4.

10   Faith *et al.*, *Digital poverty in the UK*, p. 4.

upon the insights and findings from an evidence base comprising the various outputs produced by those projects, to provide a synthesised overview of the range of drivers of digital poverty across the UK and identify potential mechanisms and routes through which policymakers can effectively address digital poverty and its impacts across the UK.

This work also feeds into a project that the British Academy is conducting for the Government Office for Science on the topic of technology and inequality, to improve our understanding of how government can play a key role in supporting access to, uptake of, and investment in technologies that can be critical to delivering broad public objectives, in a way that ensures inequalities do not become entrenched[11].

The outputs produced by the commissioned six projects, which form the basis for the summary of findings, insights and lessons in this report, can be found in our Technology & Inequality project online evidence hub. More detailed information about the evidence hub can be found in the annex to this report.

This next chapter of this report takes a high-level view of the landscape of digital poverty in the UK, setting out some of the key broad trends that make the issue highly pertinent to understanding and addressing inequality across the UK now and in the coming years. It sets the issue of digital poverty in the context of the intensifying digitisation of society and services, the effects of the impact of the COVID-19 pandemic, and the pressures faced in the growing cost of living crisis. These various developments also highlight the importance of thinking about digital poverty in terms that go beyond solely access and infrastructure.

The third chapter draws from the evidence base to provide a more nuanced examination of the drivers and impacts of digital poverty in the UK. It identifies six factors that influence the access and use of technology: digital infrastructure, social demographics, skills and intermediary support, place and local assets, purpose, and citizen responses to digital poverty. It summarises the central insights from the evidence base on the factors shaping digital poverty, and how digital poverty has knock-on impacts on inequality more generally.

The fourth and final chapter draws out six lessons for policy that emerge across the evidence base. These lessons cut across three dimensions: (1) place – by highlighting the relevance for physical and social contexts and localities, (2) scale – by identifying relevance at local, regional, and/or national scales) and (3) time – by recognising the need to situate learning in the past, present, future, and identifying relevance for short-, medium- and long-term thinking).

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11   See the annex to this report for further information on this project.

2.0 Putting digital poverty in the UK in context

The current landscape of digital poverty in the UK exists in the context of a range of broad trends affecting the UK overall, including the intensifying digitisation of society and services, and the various effects of the impact of the COVID-19 pandemic. This landscape illustrates that there is an urgent need to address digital poverty in the UK given the societal pressures faced in the aftermath of COVID-19 and the current cost of living crisis. The evidence reports commissioned for this project show that we need to have a more nuanced conceptualisation of digital poverty that goes beyond solely thinking about access. In this chapter we bring together this wider context and this leads into chapter two, which identify how specific contexts of digital poverty need to be taken into consideration alongside the broader insights if policymakers are to tackle digital poverty effectively.

2.1   The digitisation of society and services

Daily life has been transformed by the widespread integration of digital technologies and online services, and how pervasive 'digitisation' has made digital inclusion an essential prerequisite of engaging fully with society and the economy. This section examines how increasingly 'digital by default' public services, using the example of Universal Credit, can exclude those who lack the access and/or skills to use them and add further financial burdens on those experiencing digital poverty.

Over the past three decades, digitisation has had a transformative effect on societies and economies across the world. Digital technologies and the internet have become essential to almost all aspects of our daily lives, with the lines between our offline and online worlds increasingly blurred. Even those who are not actively online are digital citizens, according to the Digital Poverty Alliance, given some of their data and information will be held in digital systems whether they have ever used the internet

or not.[12] The pace of this change has been rapid - less than 10% of British households had home internet access in 1998, and by 2002 this figure had risen to 40%.[13] By 2020, this had increased to 96% of households, and UK adults currently spend an average of four hours each day online.[14] Digital is fully embedded into the world of work, with 92% of businesses requiring at least a basic level of digital skills from their employees and 38% of workers reporting that they work partly or entirely hybrid.[15] Even healthcare is becoming increasingly digitised, with patients able to receive online consultations or access their health records through the NHS App, while the 2019 NHS Long Term Plan stated the aim for digitally-enabled care to go mainstream across the NHS by 2029.[16] From working, accessing healthcare and paying bills, to finding news and information, shopping and socialising, so many of these daily activities are now performed online that access to the online world has become a requisite for fully participating in society and benefitting from services.

The past decade has also seen the increased digitisation of public services, with the launch of the Government Digital Service in 2011 and the GOV.UK website in 2012. This formed part of an overarching government strategy, particularly in the 2010-15 coalition government to complement its policy of austerity, of promoting 'digital by default' public services, which were viewed as more cost-effective for government and more efficient for users (see Box 1 for the example of social security). According to the Government Digital Strategy published in 2012, 'digital by default' means "digital services that are so straightforward and convenient that all those who can use them will choose to do so whilst those who can't are not excluded."[17] While the strategy rightly sought to ensure that those who could not access these services online would not be at a disadvantage, this has not always been the case in practice, and the policy of 'digital by default' has compounded existing digital and socioeconomic inequalities.[18] For example, Wagg notes that the impact of the digital divide has been worsened particularly for those living in rural areas, 40% of which have poor internet connectivity.[19]

Despite these challenges, the journey towards a fully digital society continues to accelerate. As the next section will explore, the COVID-19 pandemic expedited further the digitisation of society and exacerbated significant digital disparities in the UK as the digital world became more essential than ever in day-to-day life.

12   Allmann, *UK Digital Poverty Evidence Review* , p. 22.
13   BBC (2000), 'UK Tidal Wave of Web Users', 10 July 2000.
14   Allmann, *UK Digital Poverty Evidence Review*, p. 9.; OFCOM (2022), *Online Nation 2022*, p. 4.
15   Catch22 and Nominet (2021), *Insights Paper 1: Opportunities and Barriers*, p. 7; Office for National Statistics (2022), 'Is Hybrid Working Here to Stay?' [accessed 6 October 2022].
16   NHS (2019), *The NHS Long Term Plan*, p. 91.
17   Cabinet Office (2012), *Government Digital Strategy*, p. 2.
18   Allmann, *UK Digital Poverty Evidence Review*, p. 13.
19   Wagg, S. (2021), *An Investigation of Digital Inclusion in UK Rural Communities* [Doctoral dissertation, Loughborough University], p. 15.

Box 1. Case study: The digitisation of social security

The social security system, which has become largely digitised in recent years with the rollout of Universal Credit, is an example of a 'digital by default' service that in practice can exclude those in digital poverty. Designed to be used largely as a digital service, 5.6m people were on Universal Credit at the start of 2022, with most claimants applying online and managing their payments through an online account. As Faith *et al*'s report finds, proving eligibility, and maintaining a claim over time as personal circumstances change, can be a complex online process, particularly for those lacking connectivity or digital skills.[20] A Universal Credit helpline does exist, and Citizens Advice do state that claimants "might be eligible" to apply over the phone or have a DWP officer visit their home if they lack regular internet access, the skills to use a computer or smartphone, or have a long-term disability or health condition. However, despite these exemptions, few of those who are eligible are aware that this support exists.[21] This reflects the findings of a study by the Centre for Ageing Better, which found that most of those surveyed were unable to name any organisation that could support them with their digital skills.[22]

A primarily digital social security system can, in practice, create a "digital barrier" that makes it harder for the digitally excluded to receive the social security payments that they are entitled to.[23] It can shift additional administrative burdens and stress to the individual claimant and put further strain on the resources of voluntary organisations that support people with their claims. It can also intensify the financial pressure on Universal Credit claimants by making it even more important for them to pay for internet services and digital devices so they can get online to access their social security payments. For the unemployed and those on low incomes, this can already cost up to 8% of their monthly disposable income. Survey data from Faith *et al*'s report meanwhile found that 9% of lower income adults who use the internet have reduced their spending on food or clothes so that they can continue to afford phone or broadband payments, highlighting the difficult choices that those on lower incomes are faced with when vital public services are primarily delivered online rather than the traditional methods of in-person engagement, telephone or paper-based interactions.[24] This example demonstrates how such a policy of 'digital by default', particularly when there are few (or poorly-publicised) exemptions for the digitally excluded, can exacerbate socioeconomic inequalities for the most disadvantaged groups, which can in turn worsen digital poverty and the digital divide.

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20   Faith *et al., Digital Poverty in the UK*, p. 12.
21   Faith *et al., Digital Poverty in the UK*, p. 11.
22   Centre for Ageing Better (2021), COVID-19 and the Digital Divide, p. 7.
23   See also Allmann, K., Radu, R. (2022). 'Digital footprints as barriers to accessing e-government services.' *Global Policy*, 00, pp. 1– 11.
24   Faith *et al., Digital Poverty in the UK*, pp. 10-11.

2.2   The impact of the COVID-19 pandemic

The effects of the COVID-19 pandemic have further accelerated the digitisation of society and the economy, and the negative impacts this shift has had on those living in, or on the edge of, digital poverty. The lockdowns during the pandemic made using the internet even more essential to daily life, with millions of employees forced to work from home and education across the country being delivered through online classes. While overall levels of internet access in the UK increased during the pandemic (with some citizens, particularly those from older age groups, using the internet for the first time), the crisis also exposed and exacerbated significant digital inequalities relating to suitable device access, reliable connectivity and online skills. Groups that were already disadvantaged prior to the pandemic, particularly those from lower socioeconomic backgrounds, people with disabilities, and those with lower housing tenure, suffered disproportionately more from digital poverty than their fellow citizens during the pandemic.[25]

During the COVID-19 pandemic, governments across the world required or advised citizens to stay at home. Digital technologies were central to how many governments responded to the crisis, both in how they sought to prevent the spread of the disease and how they attempted to maintain public services in a mostly online capacity. For citizens, having access to the internet and digital devices, as well as having the skills to use them, became vitally important in adapting to life in lockdown as more and more everyday activities moved online. In the UK, nearly half of people in employment worked at least partly from home by April 2020, while by June, 87% of parents said they had a child in their household who was remote learning[26] (see Box 2 for more on digital poverty and online education during the pandemic). The NHS also had to pivot rapidly to new models of online delivery, adopting new digital technologies in the process, to allow for remote appointments.[27]

As the reports outline, one outcome of this rapid shift towards digitisation was that more people started going online, with 1.5 million people in the UK using the internet for the first time in the 12 months up to May 2021 and older age groups in particular making the digital transition.[28] Digital skills also improved for many; for example, 56% of consumers reported doing online shopping or paying bills online for the first time during the pandemic.[29] By 2021, 60% of the UK had high digital capability: a percentage which, the year before, predictive modelling had indicated would not be achieved until 2025, representing five years of progress in just one year.[30]

However, the improvement in digital skills has been uneven across society. While 93% of office workers are now confident internet users, this falls to 85% for manual workers, who are also considerably less likely to use the internet to improve their future work prospects. A far higher proportion of the unemployed (31%) have low or very low digital capability, compared to 19% of the employed.[31] There were millions of offline adults and children in the UK at the start of the first lockdown in March 2020, and millions more lacking the digital skills, reliable connectivity and suitable devices to adapt effectively to the 'new normal'.[32] These groups already experiencing

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25   Dafoulas, G., Ueno, A., Dennis, C. (2022), *Digital Poverty in the UK: Analysis of Secondary Data*, Middlesex University, p. 8.; Ragnedda *et al.*, *Living on the Edge of Digital Poverty*, pp .3, 31-32; The British Academy (2021), *The COVID Decade: understanding the long-term societal impacts of COVID-19*, pp. 8, 9, 60, 80, 95, 129.

26   Office for National Statistics (2020), 'Coronavirus and Homeworking in the UK: April 2020', Release date: 8 July 2020; Office for National Statistics (2020), 'Coronavirus and Homeschooling in Great Britain: April to June 2020' Release date: 22 July 2020.

27   Hutchings, R. (2020), *The Impact of COVID-19 on the use of Digital Technology in the NHS*, Nuffield Trust; The British Academy, *The COVID Decade*, pp. 57-61.

28   Lloyds Bank (2021), *UK Consumer Digital Index 2021*, p. 4; Dafoulas *et al.*, *Digital Poverty in the UK: Analysis of Secondary Data*, p. 8.

29   Lloyds Bank (2021), *UK Consumer Digital Index 2021*, p. 15.

30   *Ibid*, pp. 4, 100.

31   *Ibid.*

32   Allmann, *UK Digital Poverty Evidence Review*, p. 37.

digital poverty were at a considerable disadvantage when the pandemic hit – they found it harder to work and study remotely and were less able to socialise, remain informed and access vital public services.[33] Findings from Middlesex University also show that the move towards digital during the pandemic disproportionately affected disabled people and those from lower socioeconomic backgrounds, with these groups suffering from more digital poverty during the pandemic than they had before.[34] For those that relied on public spaces such as libraries or internet cafes for free Wi-Fi (21% of internet users earning under £25,000 reported using such spaces either 'always', 'often' or 'sometimes'), the closure of these spaces during the national lockdowns would for many have led to further digital exclusion.[35]

Box 2. Case study: Digital poverty and online education during COVID-19

Children and young people from digitally excluded households fared particularly badly during the pandemic. As the British Academy's report on 'The COVID Decade' found, when schools were shut and pivoted to online home learning, students who lacked reliable internet access or appropriate devices found themselves less able or unable to participate.[36] Ofcom estimated prior to the pandemic that 9% of all households with children did not have access to a laptop, tablet or desktop, not even taking into account households where children had to share devices with siblings or parents.[37] This represents a huge proportion of students unable to take part in or benefit fully from remote learning.

Many of these digitally excluded children already came from disadvantaged backgrounds, and faced what is described as a "double loop of inequalities" – a cycle in which the 'offline' socioeconomic inequalities they experienced pre-pandemic heightened their digital exclusion, which in turn prevented their full participation in education during the pandemic, further exacerbating their socioeconomic disadvantage.[38] In this way, the pandemic entrenched educational inequalities even further in society – research from the Sutton Trust found that 15% of teachers in schools with the most deprived intakes claimed that "over a third of their students would not have access to a device for online learning, compared to just 2% in the most affluent."[39]

Children from digitally included households were also more likely to have parents with higher levels of digital skills and could benefit from their support navigating the digital world. Although the Department for Education claims it provided more than 800,000 laptops and tablets for disadvantaged students, it took several months for many of these to reach pupils, representing a significant number of lost learning hours.[40] As a result of these cumulative effects, it is predicted that the attainment gap for students eligible for free school meals will increase, which will likely have long-term knock-on effects on their educational progression and labour market prospects.[41]

The rapid digital transition brought about by the pandemic did not just negatively impact the already digitally excluded. As demonstrated by research from Northumbria University, some citizens who were previously classified as digitally

33   The British Academy, *The COVID Decade*.
34   Dafoulas *et al.*, *Digital Poverty in the UK: Analysis of Secondary Data*, p. 8.
35   Faith *et al.*, *Digital Poverty in the UK*, p. 16. See also Allmann, K., Blank, G., Wong, A. (2021). *Libraries on the Front Lines of the Digital Divide: The Oxfordshire Digital Inclusion Project Report.* Centre for Socio-Legal Studies. University of Oxford.
36   The British Academy, *The COVID Decade*, pp. 93-96.
37   Holt-White, E. (2021), 'Different Lockdown, Same Problems?', The Sutton Trust [accessed 6 October 2022]; The British Academy, *The COVID Decade*, pp. 94-96.
38   Ragnedda, M., Ruiu, M.L. (2020), *Digital Capital: A Bourdieusian Perspective on the Digital Divide.* Emerald Publishing: Bingley.
39   Holt-White, 'Different Lockdown, Same Problems?'
40   *Ibid.*
41   The British Academy, *The COVID Decade*, p. 96.

included, who had internet access and some basic digital skills, were brought to "the edge" of digital poverty by the pandemic.[42] According to their findings, lower income families, single parent households, and families with three or more children were particularly affected in this way. Many of them may have had poor internet experiences for the first time as a result of barriers that had not particularly impacted their lives prior to the pandemic but which had more of an acutely negative effect during the national lockdowns. Affordability, the need to share devices, and cramped living spaces are examples of the kinds of barriers that may have prevented some citizens from being able to interact with the online world fully during the pandemic. As chapter four of this report will examine further, this highlights the need for policymakers to rethink outdated conceptions of digital poverty given some of these households may have been considered digitally included before the pandemic.

2.3   Economic pressures and the rising cost of living

Affordability is increasingly becoming a barrier to digital inclusion as citizens continue to recover from the economic shock of the COVID-19 pandemic and attempt to navigate the current cost of living crisis. While income alone does not determine one's ability to interact fully with the online world (anyone lacking sufficient digital access or skills can be considered digitally poor and there are many living on higher incomes who remain digitally excluded), it remains the case that the financially poor are more likely to be digitally poor.[43] In the face of double-digit inflation, many households risk falling into digital poverty as connectivity becomes unaffordable.

While the pandemic exposed significant digital disparities and exacerbated wider inequalities in the UK, the current cost of living crisis threatens to eclipse the pandemic in its financial impact on British households. Inflation has already reached a 40-year high, which has led to the fastest fall in real pay on record, and could rise even further in 2023.[44] In particular, the prices of mobile and broadband packages have dramatically increased this year, as many of the largest Internet Service Providers link their annual price increases to the January rate of the CPI (Consumer Prices Index) or RPI (Retail Price Index). Additionally, many companies add a further flat percentage increase on top of annual price increases, meaning that some customers have faced total rises of up to 9.3% for broadband and 11.4% on their mobile contracts this year.[45] Given that many households were struggling to pay for communications services even prior to the current cost of living crisis, with approximately 2 million households reporting to have an affordability issue with broadband and/or smartphone services in July 2021, these spiralling prices risk making connectivity unaffordable for the already digitally excluded and threatens to bring many more households into or close to digital poverty.[46]

As was the case during the pandemic, the most disadvantaged are at risk of being the worst affected by the economic crisis. The poorest UK households spend a greater proportion of their budgets on gas and electricity and, as a result, are being hit harder than wealthier households by rising energy costs.[47] The prices of 'basic' food ranges in supermarkets have also risen to new highs, and below-inflation increases to Universal Credit payments have led to more financial pressure on those living on lower incomes. Mobile and broadband price increases will also have a

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42   Ragnedda *et al., Living on the Edge of Digital Poverty,* p. 3.

43   Faith *et al., Digital Poverty in the UK*, p. 4.

44   BBC (2022), 'UK inflation could hit 18% next year on rising energy bills, experts warn', 22 August 2022.

45   Faith *et al., Digital Poverty in the UK*, p. 10; Beckett, M. (2022), 'Why have my broadband and mobile prices increased mid-contract?', USWITCH [accessed 6 October 2022].

46   Ofcom (2021), *Pricing Trends for Communication Services in the UK,* p. 7.

47   Karjalainen, H., Levell, P. (2022), 'Inflation hits 9% with poorest households facing even higher rates', The Institute for Fiscal Studies [accessed 6 October 2022].

disproportionate impact on those living on the lowest incomes, as households on Universal Credit were found to be nine times more likely to be behind on broadband bills.[48] Additionally, 3.3 million of the poorest households in the UK spend on average over 4% of their disposable incomes on fixed broadband, which is four times the proportion for an average income household.[49] The Institute of Development Studies and Citizens Online found that 9% of lower income adults who use the internet reduced their spending on food or clothes so that they can continue to afford phone or broadband payments.[50] As the cost of living crisis worsens, those on lower incomes will be presented with even harder spending decisions and existing inequalities will become even more acute.

As the reports make clear, the issue of digital poverty is even more pressing during this cost-of-living crisis because digital poverty can be an amplifier of economic poverty. The concept of the 'Poverty Premium', whereby poorer households pay more than higher income households for the same essential goods and services, is already well-established.[51] Similarly, citizens experiencing digital poverty can experience higher costs than their digitally included counterparts, as they miss out on potential savings from price comparison websites, discounts only available to online users, and apps and services such as *Too Good To Go* and *Olio* that can save people money on food and household items.[52] One study has estimated that the savings from being recently digitally included could be as high as £444 a year, showing both the benefits of digital inclusion and the potential for digital poverty to exacerbate existing economic inequalities.[53] This illustrates how the cost-of-living crisis has made the need to address digital poverty more urgent than ever in order to avoid a cycle of worsening inequalities for the most vulnerable in society.

2.4   Re-evaluating notions of digital poverty

Government policy on digital poverty over the past 25 years has focused considerably on getting as many citizens online as possible.[54] While progress has been made on this indicator, digital inclusion can no longer be understood only in terms of increasing the number of internet users as it becomes increasingly important for citizens to be able to engage effectively with the digital world. Factors such as consistent access, the quality of the connectivity, the types of devices being used, digital skills, safety, privacy, motivation and agency need to be considered when evaluating whether people are fully able to participate in our increasingly digital society.

The past two decades have seen varying levels of government engagement on digital inclusion, with much of the policymaking focus coming in the earlier years of the millennium as the internet and the digital world grew in societal and economic significance and hardware such as smartphones and laptops became more widely accessible. Many of these early government initiatives focused on improving public access to the internet and digital devices, what is often now referred to as the 'first level' of the digital divide, in order to avoid a society of digital 'haves and have nots'.[55] The number of internet users in the UK has dramatically increased over this

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48   Allmann, *UK Digital Poverty Evidence Review*, p. 40.
49   Ofcom (2021), *Pricing Trends for Communication Services in the UK*, p. 7.
50   Faith *et al.*, *Digital Poverty in the UK*, pp. 10-11.
51   Although not a focus in our commissioned reports, this point also applies to decisions arising from algorithmic processes and automated systems, which in some cases have been found to discriminate against on already disadvantaged groups. It is important that such systems do not exacerbate existing forms of disadvantage or create new ones. See Allmann, *UK Digital Poverty Evidence Review*.
52   Faith *et al.*, *Digital Poverty in the UK*, p. 8.
53   Centre for Economics and Business Research (2018), *The Economic Impact of Digital Inclusion in the UK*, p. 42.
54   Ragnedda *et al.*, *Living on the Edge of Digital Poverty*, pp. 6-11.
55   Ragnedda *et al.*, *Living on the Edge of Digital Poverty*, p. 6.

period, from around 27% in 2000 to just over 90% in 2020.[56] In 1998, 10% of British households had home internet access compared to 94% in 2021 which, when viewed from the narrow perspective of access alone, can give the false impression that the issue of digital exclusion has largely been fixed.[57]

This idea is now increasingly being challenged. As the previous section examines, despite this impression of near universal internet use, the reality of the UK landscape of digital access is more complicated, with older age groups, those on the lowest incomes, and people with disabilities much more likely to be offline.[58] In 2020, 99% of people aged 16-44 were recent internet users, compared to 54% of those aged 75 and over. Only 60% of those earning under £12,000 per year were found to be internet users, and 36% of those with no formal educational qualifications reported to use the internet, compared to 95% of people with higher educational qualifications.[59]

Disabled people are among the most digitally excluded groups in the country, owing in large part to flawed digital design that does not take into account the needs of those with disabilities. For instance, in 2017, it was found that 56% of adults who did not use the internet were disabled which is considerably higher than the proportion of disabled adults in the UK at the time (around 22%).[60] Digital poverty is therefore strongly linked to wider socioeconomic inequalities and disproportionately experienced by already marginalised groups. As the Digital Poverty Alliance have argued, it should be treated "as a social as much as a technological issue."[61]

Additionally, further research into the second and third levels of the digital divide (people's digital capabilities and the positive outcomes they can benefit from by being online, respectively) have shown that it is no longer appropriate for policymakers to view digital poverty through a narrow conceptualisation of digital access as, ultimately, this does not take into account the barriers and disadvantages people face once they are online. Their access to the internet may be slow, unreliable or inconsistent, or they may lack the essential digital skills to use the internet safely and effectively. Studies have found that 10 million people in the UK lack the most basic digital skills, while 36% of the workforce lack essential digital skills for work.[62] Many are also using devices that are unsuitable for what they are trying to achieve online; for example, although 87% of young people have smartphones, 15% have a smartphone but no access to a laptop or desktop. This represents over 2 million young people who may be reliant on a smartphone to undertake more complex digital activities such as completing schoolwork, and this report has already examined the impact this had on digitally disadvantaged young people during the pandemic.[63] As chapter three will explore in more detail, digital 'access' can and should therefore be conceptualised in more meaningful terms to reflect how people actually interact with the digital world in their daily lives.

The evidence compiled and synthesised in the reports we commissioned and published on our hub, and more broadly, suggests the need for a broadening out of how policymakers perceive the issue of digital poverty. An initial focus from government on improving internet and device access was a useful starting point in the early years of the millennium when a large proportion of the population was offline and when online citizens still had relatively simple relationships with the

56   The World Bank, 'Individuals using the Internet (% of population) – United Kingdom', The World Bank Data [accessed 6 October 2022]; Office For National Statistics (2021), 'Internet users, UK: 2020', Release date: 6 April 2021.
57   BBC (2000), 'UK Tidal Wave of Web Users'; OFCOM (2022), *Online Nation 2022*, p. 10.
58   Faith *et al., Digital Poverty in the UK*, p. 2.
59   Allmann, *UK Digital Poverty Evidence Review*, p. 18.
60   Allmann, *UK Digital Poverty Evidence Review*, p. 51.
61   Allmann, *UK Digital Poverty Evidence Review*, p. 48.
62   Lloyds Bank (2021), *Essential Digital Skills Report 2021*, pp. 3-4.
63   Ragnedda *et al., Living on the Edge of Digital Poverty*, p. 14.

digital world. Despite some thinking that the issue has been largely 'fixed', there remains a considerable number of people who are not digitally engaged at all, most of whom come from already socioeconomically disadvantaged groups. Moreover, ongoing technological innovations can render skills outdated or technologies obsolescent and coming out of digital poverty does not make a person digitally included for life. Addressing and preventing digital poverty in the medium or long term requires building adaptive capabilities and sustainable networks between stakeholders in specific contexts more than it involves a single 'fix'.

Due to the close association between digital poverty and deprivation more generally, if digital poverty is not substantively considered and addressed in policy development and delivery, it may further worsen existing inequalities (such as health, educational, economic, or regional inequality) and create challenges for economic growth that could hinder strategies (such as Levelling Up) to address regional disparities across the UK. These issues are even more concerning in the context of the potential threat of increased deprivation posed by the current cost of living crisis.

As our society has become increasingly digitised, the number and complexity of our online interactions have increased significantly and it is more essential than ever to be able to engage with the digital world, whether it be for working, studying, socialising or accessing public services. Traditional government conceptions of digital poverty must therefore be updated to reflect the changing nature of our relationships with the digital world.
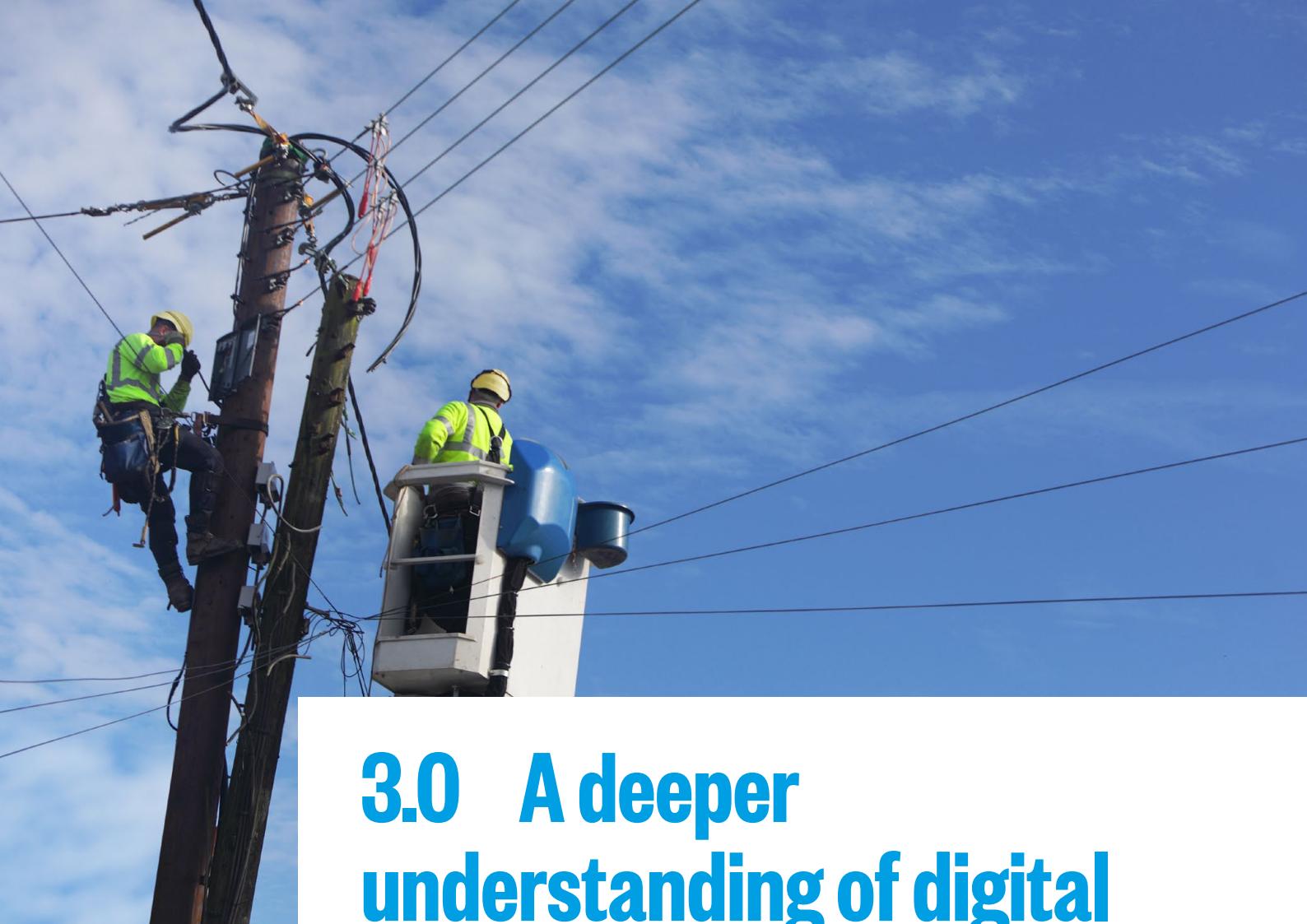
3.0 A deeper understanding of digital poverty in the UK

In this chapter we present a synthesised summary of insights from the commissioned evidence base on digital poverty in the UK in relation to a range of specific contexts and factors. The changing landscape and pressures discussed in Chapter One have indicated that addressing the landscape of digital poverty in the UK requires a move beyond seeing the issue only in terms of access to the internet and digital devices, towards engagement with a broader range of aspects (such as skills, social intermediaries, place, and practices) that are involved in perpetuating what Ragnedda and Ruiu term the 'double loop of inequality'.[64]

It is therefore crucial that those working to address inequality (including digital inequality) understand how and why the nature and effects of digital poverty can exist differently from place to place and person to person. Each section in this chapter explores a different set of factors that influence the access and use of technology: digital infrastructure, social demographics, skills and intermediary support, place and local assets, purpose, and citizen responses to digital poverty. These factors also need to be understood in relation to how they interact with one another: social demographics, for instance, can shape the ways in which community assets and motivation factors affect digital poverty and vice versa. Throughout the chapter, we also draw from case examples in the work that we commissioned, which can be found on the evidence hub.

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64   Ragnedda *et al., Living on the Edge of Digital Poverty*, p. 2.

3.1 Digital infrastructure

The notion of digital infrastructure can be wide-ranging. In the projects we commissioned and synthesise here, digital infrastructure is taken to encompass issues of access, for instance the **access** to an active broadband connection, the type of **connectivity** including quality and speed, and the types of **digital technologies** that people have available to them that enable them to be online such as smartphones, laptops and tablets. The commissioned evidence highlights the importance of understanding geographical inequalities in digital infrastructure across the UK (e.g. in rural vs urban contexts), and how physical infrastructure (e.g. housing typologies) can affect digital inclusion.

Access to digital infrastructure is not universal despite rollout efforts

Access to the digital world either by individuals, households or businesses is contingent on the availability of an effective digital infrastructure that can be maintained and delivered either by the public or private sector.[65] Across the UK, efforts to put in place an inclusive digital infrastructure have been approached using a combination of state and market action.[66] In 2021, Ofcom published its Connected Nations 2021 report outlining the significant improvements to digital infrastructure, including:[67]

- **Full-fibre broadband is available to 8.2 million homes** (**28%** - up from 18% the previous year).

- **Gigabit-capable broadband is available to 13.7 million homes (47%).** This includes full-fibre and upgraded cable networks that are capable of delivering download speeds of 1 Gbit/s or higher.

- **Around 123,000 homes and businesses (0.4%) are still without access to a decent broadband connection** (including both fixed and fixed-wireless networks). These properties may be eligible for a connection under the government's universal service obligation.[68]

- **5G rollout** has continued at pace, with the number of mobile base stations providing 5G services more than doubling over the last year, to **over 6,500 sites across the UK. 87% of these are in England**, 8% in Scotland, 3% in Wales and 2% in Northern Ireland. We estimate that 5G is available from at least one mobile network operator (MNO) outside 42-57% of premises.

- **Mobile connectivity covers around 79% to 86% of UK landmass** and is not growing. The four Mobile Network Operators (MNOs) – EE, O2, Three and Vodafone – each estimate they provide 4G outdoor coverage to c.99% of premises.

- **Average monthly data usage on fixed networks has increased to 453GB from 429GB last year, and from 315GB in 2019.**

However, despite some significant improvements noted above, evidence in our hub points out that rural SMEs are significantly more affected by lower levels of digital connectivity than SMEs in urban areas, and that small rural businesses depend more on reliable digital connectivity to support basic business activities than their

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65   Philip, L., Cottrill, C., Farrington, J., Williams, F., 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, p. 387.

66   Mason *et al., Digital Poverty Transformation,* p. 7

67   Ofcom (2021), *Connected Nations Report,* detailed in Mason *et al., Digital Poverty Transformation*, p. 8.

68   Ofcom (2022), 'Your right to request a decent broadband service: What you need to know', *Ofcom.org.uk* [accessed 8 September 2022].

urban equivalents.[69] Additionally, the evidence suggests that sustainable and economically viable digital connectivity infrastructure and service requires more than the traditional provisions of the large mobile network operators. Markets for such services need to be developed and fostered in new and hard-to-reach places, for communities that do not have – and find it difficult to imagine having – digital access as part of their everyday lives.

The type of connectivity available to people can contribute to digital poverty

The type of connectivity available to people also plays a role in digital poverty. For instance, evidence from Faith *et al* found that a quarter of people living on low incomes do not use video call services due to the data allowance limits within their plans, whilst one in five adults with a mobile phone living on a lower income had changed their plan to make it more affordable since March 2020.[70] Currently, six broadband providers in the UK offer 'social tariffs', which are more affordable broadband packages for people on Universal Credit and other benefits. Faith *et al* note that while social tariffs can offer a 'lifeline' for some households, they provide slower connection speeds than regular tariffs and can be inadequate for households of more than one person or for video calling and streaming purposes.[71]

Physical infrastructural barriers have an impact on access and connectivity in both rural and urban contexts. Holmes *et al* highlight that connectivity can be greatly impacted by construction materials in certain housing types. For example, those living in concrete blocks of flats can face issues with internet connectivity, as building construction materials act as a physical barrier and can either block or limit the strength of an overall connection.[72] Box 3 lists some barriers to digital access and connectivity related to housing circumstances.

Box 3. Barriers to access and connectivity related to housing typologies, compiled from Holmes *et al*[73]

Infrastructural barriers and housing typology

- Failure to comply with regulations (such as those relating to fire safety) can be a barrier to installing connectivity in large blocks of flats.

- Housing associations can often find it difficult to persuade internet providers to install necessary digital infrastructure to homes with smaller potential customer bases.

- Construction materials can act as barriers to internet connectivity – e.g. in concrete blocks of flats. The location of an individual flat within a block can negatively affect a person's opportunities to engage online.

- Hazardous materials (such as asbestos) create challenges to retrofitting older buildings with internet connections, necessitating potentially expensive remediation work.

69 Mason *et al., Digital Poverty Transformation*; Morris, J., Morris, W. and Bowen, R. (2022), 'Implications of the digital divide on rural SME resilience.' *Journal of Rural Studies*, 89, pp. 369-377.
70 Faith *et al., Digital Poverty in the UK*, p. 10.
71 Faith *et al., Digital Poverty in the UK*, pp. 13-14.
72 Holmes *et al., Digital Poverty and Housing Inequality*, p. 12
73 Table adapted from information in Holmes *et al., Digital Poverty and Housing Inequality*.

Living arrangements

- Houses with multiple occupants may experience poor quality connectivity if several people need to use the same home wi-fi connection simultaneously – an inequality that was highlighted during the COVID-19 pandemic.[74]

- Moreover, residents in these circumstances may not have enough space to work or learn at home and may not be able to access the internet at sufficient speeds and may experience issues related to the noise generated by audio or video content.

Limited choice

- In some new build housing contexts, residents have a limited choice of broadband options as developers have agreed deals with certain providers. Residents may be forced to accept unfavourable terms and unaffordable prices of the providers available or go without home broadband.

- Those living in temporary accommodation may be uncertain about how long they will be living in a place, making them less likely to be able to sign broadband contracts. The cost of installing a broadband connection may be unfeasible when facing such uncertainty.

Mason *et al* notes that recent literature on digital exclusion has emphasised that rural areas often increasingly fall "on the wrong end of the digital divide", as poor connectivity can drive digital poverty in rural contexts.[75] It is often difficult and expensive to install optical fibre in rural locations, leading to digital infrastructures being different to those in urban places, whilst hilly terrain and poor weather conditions can impact the signal transmission between masts and homes and businesses.[76] Such limitations affect the tangible outcomes people living in these areas receive from using digital technologies (contributing to the 'third level' of the digital divide) and potentially undermine the social and economic health of rural areas. Recent data gathered by the Digital Poverty Alliance also shows that even when there is a certain level of digital connectivity in rural areas, there are stark variations between the quality of connectivity within those communities. Over half of properties in England unable to get a 10Mbps connection are in rural areas, with only 83% of rural premises receiving superfast internet (over 30Mbps) compared with 96% of premises in the UK overall.[77]

A recent Ofcom report suggests that the lower population density in rural areas makes internet infrastructure more expensive to build per capita.[78] This makes it economically unattractive for the private sector to carry out major upgrades to rural digital infrastructure. The market dependency of the landscape of digital connectivity has resulted in many rural communities having outdated digital infrastructure which can put limitations on digital connectivity.[79] The absence of sufficient rural digital infrastructure has been highlighted as a large threat to rural

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74   The British Academy, *The COVID Decade*, p. 63.
75   Salemink, K., Strijker, D., Bosworth, G (2017), 'Rural Development in the Digital Age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas', *Journal of Rural Studies*, 54, p. 361.
76   Mason *et al.*, *Digital Poverty Transformation*, p. 21.
77   Allmann, *UK Digital Poverty Evidence Review*, pp. 38-39. A 10mbps speed is sufficient for doing e-mails and loading most static websites. However, for live streaming or making video calls a much faster connection is needed.
78   Borrett, A and Scott, P. (2021), 'Millions of Vulnerable people in the UK live in digital poverty', *Tech Monitor*, [Accessed 4 September 2022].
79   Williams, F., Philip, L., Fairhurst, G., (2016), 'Digital By Default and the hard to reach: Exploring solutions to digital exclusion in remote rural areas', *The Journal of the Local Economy Policy Unit*, 31(7), p. 758.

communities, threatening the hollowing out of younger, economically active people, who leave for jobs in larger, more digitally equipped towns and cities.[80]

The type of digital devices available to people affect their digital experience

Digital devices, including smartphones, laptops, tablets and PCs are all referred to as 'first order' infrastructure elements, acting as the key interfacing devices with the internet.[81] Ownership and non-ownership of these devices, along with their frequency of use, are crucial factors related to digital inclusion.[82] Ofcom's 2022 Adults' Media Use and Attitudes report noted that a growing number of online users who have been accessing the internet do so exclusively via smartphones, with an average of 21% across England, Wales, Scotland and Northern Ireland.[83] There are great benefits associated with this rise: the increased ease of use, the broadening of digital accessibility (particularly for older citizens) and more affordable opportunities for internet access. It also helps to overcome infrastructural differences between more and less developed regions (or urban and rural regions), as wireless connectivity requires less heavy-duty infrastructure.[84] However, this shift prompts important questions regarding the type of device that users have access to and the effects of different forms of access on digital experiences – "different devices do not lead to the same Internet experience" and "while mobile-based internet use reduces the access divide, it may produce new inequalities in terms of usage patterns and skills."[85]

Ofcom data reports that 10% of internet users in the UK are only able to get online via a mobile phone, which can create difficulties in what type of internet content these people are able to access and what functions they can perform online.[86] In their evidence report, Holmes *et al* use the example of how the use of mobile devices imposes limitations on people's ability to access good quality housing:

- Viewings of properties for prospective tenants have increasingly moved online since the beginning of the COVID-19 pandemic. Those who have no, or limited, internet access may miss out on the most in-demand properties if these are secured more quickly by people who can take part in online viewings.[87]

- Many councils and housing associations use online systems for social housing allocations. Prospective tenants must apply for specific properties via 'bidding', a highly competitive process. Those without good online access are at risk of missing out on opportunities in online bidding. Online bidding websites usually operate on a time limit basis and are often difficult to navigate via a small mobile screen.

- The type of devices someone has access to affects how easy it is for them to navigate processes such as bidding. Smartphones, for example, can be disadvantageous compared to laptops or desktop computers, with certain tasks being harder to perform on a smartphone and certain content or platforms being difficult to access.[88]

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80   Mason *et al., Digital Poverty Transformation*, p. 8.
81   Mason *et al., Digital Poverty Transformation*, p. 11.
82   Allmann, *UK Digital Poverty Evidence Review*, p. 44.
83   Ofcom (2022), *Adults' Media Use and Attitudes Report*, p. 1.
84   Mason *et al., Digital Poverty Transformation*, p. 12.
85   Mascheroni, G., Ólafsson, K. (2016), 'The mobile Internet: Access, use, opportunities and divides among European children', *New Media Soc*, 18, 1658, Mason *et al., Digital Poverty Transformation*, p. 11.
86   Holmes, H., Karampour, K., Burgess, G (2022), *Digital Poverty in the UK: A review of literature*, Cambridge Centre for Housing and Planning Research, p. 7.
87   Holmes, H., Karampour, K., Burgess, G (2022), *Digital Poverty and Housing Inequality*, Cambridge Centre for Housing and Planning Research, p. 18.
88   Holmes *et al., Digital Poverty and Housing Inequality*, p. 19. See also OFCOM, *Adults' Media Use and Attitudes report 2020/21*.

Lack of access to digital devices also has an impact on people's educational opportunities. Stuart *et al* highlight the impacts of digital poverty on education with the example of people from the Roma community in Margate who have tried to pursue higher education. They report people's experiences of having to navigate education without a laptop and instead complete most of their learning through a mobile device, including writing essays for their university degree using the microphone function on the keypad.[89] Furthermore, the rapid development of digital technologies and planned obsolescence of hardware can lead to devices becoming incompatible with new software or platforms, excluding those who are unable to afford the latest digital devices from being able to make full use of the digital world.[90]

Furthermore, the COVID-19 pandemic exacerbated existing educational inequalities and strengthened concerns over educational attainment for young people.[91] Lockdowns imposed during the pandemic led to a large-scale shift to online learning that created difficulties for those with poor access to the internet or without suitable devices to access online learning and virtual classes and diminished their educational experience. The impact of COVID-19 on experiences of education and educational attainment more broadly is further discussed in our *Shaping the COVID Decade* report.

Finally, the extent, type and reliability of digital infrastructure varies at a national, regional, and local level and such variations have a profound effect on experiences of the digitally connected, and those who would like to become digital users, and on where, when, and how people move in and out of digital poverty.[92] As the British Academy noted in our *Shaping the COVID Decade* report, the pandemic has highlighted the need for policy makers to *"prioritise investment in digital infrastructure as a critical public service to eliminate the digital divide."*[93]

3.2 Social demographics

In addition to the infrastructure related barriers associated with digital poverty mentioned above it is important that we consider how digital poverty exists across different social demographics, to understand how digital infrastructure and technologies exist in everyday social contexts, and the impacts this might have.

Notably, Dafoulas, Ueno and Dennis's report analysed datasets from two OFCOM surveys and two UK Labour Force Survey and found that the following demographic factors were associated with digital poverty in the UK: age, lack of confidence in reading and writing, lower socio-economic classification, disability, lower housing tenure, lack of qualifications, households with more than one person, urban locations and ethnic minority background.[94] They found that digital poverty increases exponentially with age: people over 65 are significantly more likely to suffer from digital poverty than younger groups, and that digital poverty rises steeply for those over 70. Meanwhile, for young people aged between 16 and 24, they found that lack of reading and writing skills is a major predictor of digital poverty. More detailed findings for the various demographic categories can be found in the report on our evidence hub.

In this section, we draw from the evidence across our hub to examine demographics related to income, family composition, education, disability, and age. The factors

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89   Stuart, R., Braganza, A., Charitsis, V., Jones, M. (2022) *Digital Poverty in Margate: A study of two hyperlocal communities, Brunel University London*, p. 20.

90   Allmann, K. (2022) *UK Digital Poverty Evidence Review*, p. 37

91   The British Academy, *The COVID Decade*.

92   Philip *et al.*, 'The Digital Divide', p. 387.

93   The British Academy, *The COVID Decade*.

94   Dafoulas *et al., Digital Poverty in the UK: Analysis of Secondary Data*. As a basic measure of digital poverty, the analysis considers Internet non-users who have never used the Internet or have not used the Internet for more than three months.

covered are not exhaustive (we focus on these demographics here because they receive attention across the reports). Nevertheless, they offer a more nuanced understanding of digital poverty, by highlighting how it intersects with other forms of inequalities related to social demographics.

Income and affordability

*   ONS data analysed by Holmes *et al* highlights that only 51% of households earning between £6,000-10,000 a year had home internet access compared with 99% of households with an annual income of over £40,001.[95]

*   Survey data reported by Faith *et al*, showed that one in five adults on a household income under £25,000 never use the internet, a rate that is much higher than the broader population. ONS estimate that there are around 2.4 million people living on household incomes under £25,000 who do not use the internet.[96]

*   The cost of purchasing a smartphone, tablet, laptop or desktop computer can be prohibitive.[97] In their survey, Faith *et al* found that around a third of people who were not using the internet indicated that this was because they could not afford it (29% said could not afford home internet, and 30% said they could not afford devices to get online).[98] This is important to note, as with the rapid development of digital technologies and planned obsolescence of hardware, devices can quickly become incompatible with other software or devices, which risks leaving those who are unable to afford the latest digital devices from being able to become digitally connected.[99]

*   According to findings provided by Ofcom, nearly one in five households (19%) – an estimated 4.7 million homes – struggled to afford their telecoms services in 2020. 6% had difficulties paying either for their fixed home broadband, whilst 5% struggled with their mobile bill.[100]

*   Evidence shows that pay-as-you-go (PAYG) or prepay packages are most commonly used by those on low incomes. Given the higher and more changeable prices of these packages, low -income users have to be cautious with how they use their data.[101]

*   Evidence also shows that 31% of those surveyed who were on low incomes, were found to ration their data (either by not using video calls or streaming services) or in some instances turned off their data completely to avoid incurring further costs. This causes challenges for a large portion of those on low incomes who lose access to the internet for at least a few days on a regular basis.[102]

Family composition

*   Single parent families are most at risk of being digitally poor. Evidence from Ragnedda *et al* classified 32% of single parent families as 'digitally disadvantaged'

95   Holmes, H and Burgess, G. (n.d.), 'Pay the wi-fi or feed the children, coronavirus has intensified the UK's Digital Divide', cam.ac.uk [accessed 22 August 2022].
96   Faith *et al.*, *Digital Poverty in the UK*, p. 8.
97   Holmes *et al.*, *Digital Poverty in the UK: a review of Literature*, p. 7
98   Faith *et al.*, *Digital Poverty in the UK*, p. 7
99   Allmann, *UK Digital Poverty Evidence Review*, p. 37
100   Ofcom (2020), '4.7 million UK homes have struggled to afford their telecoms bills this year', ofcom.org.uk [accessed 6 October 2022].
101   Faith *et al.*, *Digital Poverty in the UK*, p. 10.
102   Faith *et al.*, *Digital Poverty in the UK*, p. 10.

and 27% 'on the edge of digital poverty'.[103]

- Families with more children were found to be living 'on the edge' of digital poverty or be considered 'digitally disadvantaged', and faced acute problems during the pandemic.[104]

- 84% of families surveyed by Ragnedda *et al* said that each member had a digital device to access the internet. This means that in 16% of the families, household members can only access the internet via a shared device.[105] The transition to home working and online learning during the COVID-19 pandemic also intensified challenges related to device sharing.

- The increasing cost of living continues to worsen these economic challenges; families that are on low wage income, state benefits or other types of financial allowances are struggling, causing them to make difficult choices between paying for Wi-Fi or buying other essential goods.[106]

- Family can provide a vital role as a social resource of digital access and skills. For instance, some older residents depend on family networks to provide support accessing the online world and navigating digital devices. Absence of familial networks as such has been associated with digital poverty particularly with levels of access and skills.[107] We draw out further insights on the role of family as a form of support and intermediaries in section 3.3.

Education

- Evidence suggests that individuals who have higher levels of formal education are more likely to be online, to have a good awareness of the internet, and have better digital skills than individuals with lower levels of educational attainment.[108]

- Educational levels are also important in shaping the kinds of opportunities people have access to online. In research conducted by Stuart *et al* members of the Roma community expressed that their very basic educational background had a negative impact on the ways they can navigate the online world. Roma respondents emphasized feelings that they had missed out on having a basic digital understanding because of their lack of qualifications.[109]

Disability

- People with disabilities are less likely to be online than those who do not have a disability. According to ONS data, in 2018, over 23% of disabled adults were internet non-users, compared with 6% of people without a disability.[110]

- The lack of accessibility and poor design of online resources can actively exclude or disadvantage disabled users. Websites that have not been designed to Web Content Accessibility Guidelines (WCAG) exclude assistive technology users and other disabled individuals.[111] Disabled individuals may have to buy additional adaptive technologies to gain access to online resources, making digital

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103   Ragnedda *et al., Living on the Edge of Digital Poverty*, p. 30.
104   Ragnedda *et al, Living on the Edge of Digital Poverty*, p. 30. 'Digitally Disadvantaged' is characterised by low digital capabilities and low motivation in using digital technologies.
105   Ragnedda *et al., Living on the Edge of Digital Poverty*, p. 24.
106   Allmann, *UK Digital Poverty Evidence Review*, p. 40.
107   Mason *et al., Digital Poverty Transformation*, p. 16.
108   Holmes *et al., Digital Poverty and Housing Inequality*, p. 10.
109   Braganza *et al., Digital Poverty in Margate*, p. 20.
110   Holmes *et al., Digital Poverty in the UK: a review of literature*, p. 11.
111   Allmann, *UK Digital Poverty Evidence Review*, p. 22.

engagement more expensive for them.[112]

- Disability also places individuals at greater risk of poverty in general.[113] Given that the section above highlighted income as an important factor related to digital poverty, this means that disabled people are proportionally more vulnerable to digital exclusion and its effects.

Age

- According to ONS data, since 2011, adults over the age of 65 years have consistently made up the largest proportion of adult non-users, and in 2018 over half of all adult internet non-users were over the age of 75 years.[114]

- There are several reasons for why older people may not be digitally connected: fears around online safety, health issues affecting the ability to interact with digital devices, education levels, and income levels, are all considered to be contributing factors.[115]

- Though it is the case that people over the age of 65 are more likely to be offline, it has given rise to the myth that young people do not struggle with digital exclusion because they are considered 'digital natives', having grown up with technology, and they are equipped with the necessary digital capabilities and knowledge because of high exposure.[116]

- Recent data from the Nominet Digital Youth Index found that 32% of young people do not have access to home broadband, with 57% saying it is because it is too expensive.[117] Further to this, 15% of young people have a smartphone but no access to a laptop or desktop computer, and 30% of those living in households with a combined income below £20,000 do not have access to a laptop or computer.[118]

- The Lloyd's Essential Digital Skills 2021 framework found that 97% of 18 to 24-year-olds have 'Foundation Level' digital skills, but 20% of young people (around 1.3m) did not have the basic 'Digital Skills for Work', meaning that they might be locked out of employment opportunities where these skills are required.[119]

An important theme that emerges across the commissioned reports in our hub is that digital poverty is very much embedded in other forms of social and economic inequalities. Understanding digital poverty therefore requires an understanding of the ways in which these inequalities intersect and overlap with each other. For example, there are distinct associations across demographic categories. Dafoulas, Ueno and Dennis identify several ways in which some demographic categories intersect with others:[120]

- Lack of qualifications is associated with digital poverty more in the North than in the South of the UK;

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112   Holmes *et al., Digital Poverty in the UK: a review of literature*, p. 11.

113   Joseph Rowntree Foundation (2020), *UK Poverty 2019/20: Social Security*, p. 55. Between 2017/18, 31% of the 13 million disabled adults and children in the UK lived in poverty, around four million people, compared with the poverty rate among non-disabled citizens of 20% in 2017/18.

114   Office for National Statistics (2019) 'Exploring the UK's digital divide', release date: 4 March 2019, point 6.

115   Gallistl, V., Rohner, R., Seifert, A., Wanka, A. (2020), 'Configuring the Older Non-User: Between Research, Policy and Practice of Digital Exclusion', Social Inclusion, 8(2), pp. 233-243 cited in Holmes *et al., Digital Poverty in the UK: a review of literature*, p. 9.

116   Allmann, *UK Digital Poverty Evidence Review*, p. 21.

117   Faith *et al., Digital Poverty in the UK*, p. 9.

118   Allmann, *Digital Poverty Evidence Review*, p. 45.

119   Ragnedda *et al., Living on the edge of Digital Poverty*, p. 19.

120   Dafoulas *et al., Digital Poverty in the UK: Analysis of Secondary Data*, pp. 2, 17.

- Age is much more strongly associated with digital poverty for those living in rented accommodation rather than owned;

- Lack of qualifications is more strongly associated with digital poverty for rural rather than urban residents;

- Age is more strongly associated with digital poverty for females than males; urban contexts are slightly more associated with digital poverty for females than males; [121]

- For ethnic minorities, disability is much more strongly associated with digital poverty than for the white majority.

These intersections can create additional barriers that create a cycle in which offline inequalities reinforce digital inequalities, and together form the 'double loop' of inequalities mentioned in chapter two.[122] If an individual falls within more than one of the demographics above, the likelihood of their being digitally excluded increases even further, and this exclusion can further exacerbate inequality within these demographics.

3.3   Skills and intermediary support

Digital skills are an essential part of how individuals are able to make the most of being digitally connected - simply owning a device or having access to the internet is not enough to be considered digitally included; citizens need to be able to apply their knowledge and skills in order to be able to do things in the online world that accomplish their goals.[123] Digital skills may include simple and basic tasks from turning on a computer, connecting to Wi Fi, and changing passwords to more complex functions such as making online transactions, online communication, finding and organising information, and being safe online.

The reports in our hub emphasise the importance of support systems and intermediaries in developing digital skills and addressing digital poverty. Communities across the UK require support to be able to benefit from the digitisation of society and the skills needed to tackle today's pervasive and complex digital world are more than technical competencies. Digital literacy must treat digital as part of civic life, encompassing critical thinking and awareness of data rights, privacy, and consent.[124] This section will discuss the types of intermediary support systems available to communities, which have become crucial pillars to providing individuals with the capability, training and the knowledge to navigate and benefit from digital technologies and the digital world more broadly.

As mentioned previously, one in ten people in the UK are only able to access the online world through a mobile phone, and there is a risk that new divides could form based on what the Digital Poverty Alliance Evidence Review has termed 'device-limited literacy' where users become more proficient in their ability to use one device over another. Their evidence points to an emerging skills gap, in which the capabilities of device limited individuals become constrained to the use of only specific hardware, software or services, which may consequently limit their ability to benefit from the digital world.[125] Our evidence suggests that, given the importance

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121   Stuart *et al.* also note research that has shown the gender dimension of digital poverty in international contexts. See *Digital Poverty in Margate*, p. 17.
122   Ragnedda *et al.*, *Living on the edge of Digital Poverty*, p. 3
123   Allmann, *UK Digital Poverty Evidence Review*, p. 58.
124   'Ibid', p. 27. See also Yates, S.J., Carmi, E., Lockley, E., Wessels, B., Pawluczuk, A. (2021) *Understanding Citizens Data Literacies Research Report*. Me and My Big Data.
125   Allmann, *UK Digital Poverty Evidence Review*, p. 63.

of social support in developing digital skills, individuals experiencing digital poverty benefit from initiatives where skills and competencies are developed through trusted intermediaries and a community-minded approach.[126]

Intermediaries play a crucial role in digital inclusion

Intermediaries can take several forms, both formal and informal, and assist people in a variety of ways. Formal intermediaries often include digital trainers, tutors, frontline staff, and digital champions.[127] Whether it be on a voluntary basis or as part of their job role, these individuals are central to achieving digital inclusion initiatives, helping people identify benefits to being online and supporting community members with various online tasks such as accessing government service portals, online health services, job seeking, banking, social media and setting up email accounts.[128] These initiatives have been set up and delivered by a range of organisations, including public libraries, local government, advice centres, service providers, adult education organisations, housing associations and learning centres, as well as banks and telecommunication corporations.[129] This kind of support is often delivered via drop-in sessions or by supporting individuals over a period of weeks (either face-to-face, by phone or online).[130]

Alongside formal intermediaries, more informal intermediaries also play a vital role in tackling digital poverty. Informal intermediaries can take the form of family members, friends, neighbours, or colleagues who can offer support to those who are struggling to get online. In this way, networks of kinship and friendship can provide policymakers a valuable basis upon which to build local and hyperlocal skills, support and training. Moreover, Ragnedda *et al* found that families tended to strongly agree that they supported their children's online education during the pandemic more than schools did – indicating the importance of families in supporting the development of digital competencies and skills required for daily activities.[131] As we point out in chapter four, interventions that recognise the importance of personal and cultural activities and practices can enable digital inclusion initiatives to integrate better into community life.[132]

The COVID-19 pandemic created a pause in many formal types of support services, with a range of broader public services also closed during lockdown periods, leaving many community members to rely all the more heavily on the support of people in their local areas or family networks to help with online food shopping, digital banking, and video calling to friends and relatives.[133] Evidence shows that people prefer to receive support from trusted individuals and organisations that they already know or are already part of.[134] For those to whom digital spaces feel unfamiliar, providing support in familiar daily spaces such as cafes, pubs, churches, community centres, or schools can build confidence in interacting with the digital world. Notably, intermediaries do not have to solely provide digital support, but can rather offer digital assistance as part of broader services (such as community support groups, health services, banking services).

126   Holmes *et al.*, *Digital Poverty in the UK: A review of literature*, p. 7.
127   Mason *et al.*, *Digital Poverty Transformation*, p. 19.
128   Citizens Online (2022), 'Digital Champions' [Accessed 07 September 2022].
129   Mason *et al.*, *Digital Poverty Transformation*, p. 19.
130   *Ibid.*
131   Ragnedda *et al.*, *Living on the edge of digital poverty*, p. 26.
132   Moreover, some people may not wish to undertake formal skills tutoring due to not wanting to go through long qualification processes or having had negative experiences with formal education in the past. See Allmann, *UK Digital Poverty Evidence Review*, pp. 81-82.
133   Ofcom (2021), 'Digital divide narrowed by pandemic, but around 1.5m homes remain offline', ofcom.org.uk [accessed 6 October 2022]; The British Academy, *The COVID Decade.*
134   Allmann, *UK Digital Poverty Evidence Review*, p. 78.

However, many intermediaries and support organisations face challenges sustaining their ability to offer these services. Faith *et al* point out that small, local organisations and community-led groups are now assuming more of the role of the traditional welfare state, as they are often best placed to reach digitally excluded populations through existing relationships built upon trust. However, these organisations are often financially stretched (particularly since the pandemic – a 2022 NCVO report found that 41% of VCSE organisations reported a weakening financial position) and have to decide between providing devices, data or support.[135] In some cases, the intermediaries themselves may not have adequate levels of digital skills, access, or connectivity, often due to lack of resources.[136] Consequently, levels of support can be variable and unequally distributed, often following existing patterns of inequality and digital poverty.

3.4   Place and local assets

Community assets and local resources and institutions play an important role in shaping the nature and landscape of digital poverty across the UK. The evidence reports published on our hub indicate that the variety of assets, resources, and physical institutions that exist in a given place play an important role in digital poverty, particularly when understood in relation to the other factors we have noted, such as how the social demographics of a given place might be changing over time.

Three themes emerge from the evidence we commissioned: that assets and resources related to digital poverty differ from urban to rural to 'very rural' places; that the places that people live affect people's opportunities for digital access and engagement, both in terms of the locations where people live and work; and that the broader local resources and community assets available to them play a role.

Urban and rural places differ in relation to digital poverty

The evidence in our hub shows that digital poverty is felt differently across rural and urban places, facing unique sets of drivers in each context. For instance, Ragnedda *et al* found that, despite perceptions of cities as places that provide more access to digital infrastructures and to more advanced technologies, families living in urban areas were more likely to be digitally disadvantaged, suggesting that this may be due to the higher cost of living in towns and cities than rural areas.[137] On the other hand, digital exclusion in rural areas is often due to the variability in access to and distribution of technological infrastructure, and barriers to digital inclusion related to the physical landscape of the place, as discussed in section 3.1.[138]

One of the more significant concerns the evidence raises for rural areas is related to the pace at which shifts toward 'digital-by-default' strategies (see section 2.1) are occurring, something that poses serious issues for poorly connected rural areas if public services traditionally delivered through in-person engagement and telephone, or paper-based interactions are replaced with online delivery services.[139] Moreover, some citizens may choose not to use digital means to access public services even if they have the access or capabilities, preferring to instead engage via in-person or telephone interactions. In these contexts, it is important that online delivery of public services is designed to complement rather than replace more traditional

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135   Faith *et al., Digital Poverty in the UK*, p. 15.
136   Mason *et al., Digital Poverty Transformation*, p. 20.
137   Ragnedda *et al., Living on the edge of digital poverty*, p. 32; Dafoulas *et al., Digital Poverty in the UK: Analysis of Secondary Data*, p. 2.
138   Mason *et al., Digital Poverty Transformation*.
139   'Ibid', p. 22.

means of delivery. Otherwise, 'digital-by-default' strategies can exacerbate existing inequality of access to digital services and worsen digital divides, especially when issues of poor connectivity are unresolved.[140]

In their report, Ragnedda *et al* develop a 'Risk of Digital Poverty Index' that consists of five digital poverty determinants (device and connectivity, access, capabilities, motivation and support) identified by the Digital Poverty Alliance. Alongside the index, they offer a 'Digital poverty typology' that groups families "according to different and combined levels of connectivity, access, motivation, capabilities, support, barriers and COVID-19 related obstacles," and identify three clusters of people: the "digitally empowered", those "on the edge" of digital poverty, and the "digitally disadvantaged."[141] Table 1 below shows the shares of families falling into each of these three clusters in urban, small town, suburban and rural contexts, as well as in England and London as a whole.

Table 1. Place-based findings from Ragnedda *et al*'s Risk of Digital Poverty Index[142]

Family cluster	Characteristics	Proportion of total respondents	Urban / small towns / suburban / rural share	England / London share
Digitally empowered	High motivation; high capabilities; no digital barriers; did not need digital support; did not experience Covid-relation problems with respect to online education or work.	48.7% (968)	25% / 25% / 35% / 15%	49% / 38%
On the edge of digital poverty	Share some traits with digitally empowered (motivation, capabilities, autonomy), but experienced many Covid-related issues that affected daily digital activities.	21.1% (420)	26% / 25% / 36% / 13%	21% / 16%
Digitally disadvantaged	Low digital capabilities; low motivation to use digital technologies	30.2% (600)	40% / 20% / 27% / 13%	30% / 46%

The differences in digital poverty across rural and urban contexts have implications for regional inequality.[143] In their report on our hub, Dafoulas, Ueno, and Dennis develop an index that ranks local authorities in the UK by digital poverty during and before the COVID-19 pandemic, alongside the Index of Multiple Deprivation.[144] The full results of their index can be found in the Appendix of their report. Additionally, the type of digital engagement differs from place to place, with people living in cities more likely to be 'next-generation users' who use multiple devices (laptops, smartphones, tablets, and so on) compared to rural households.[145]

140   Wagg, S., *An Investigation of Digital Inclusion in UK Rural Communities*.
141   Ragnedda *et al.*, *Living on the edge of digital poverty*, p. 29.
142   Ragnedda *et al.*, *Living on the edge of digital poverty*, pp. 29-31.
143   See also Lloyds Bank (2021). *Lloyds Bank UK Consumer Digital Index 2021*.
144   In their index, digital poverty is measured according to the proportion of respondents that had used the internet in the past three months.
145   Blank, G., Dutton, W. and Lefkowitz, J. (2020), *OxIS 2019: Digital Divides in Britain are Narrowing but Deepening*, Oxford Internet Institute, University of Oxford; Mason *et al.*, *Digital Poverty Transformation*, p. 22.

Finally, changing demographics of rural and urban places also shape the local impacts of digital poverty. In their report, Stuart *et al* use the case study of Margate to highlight how changing demographics in a given place alter the digital infrastructure needs of the population. They describe Margate as a place that has seen a recent influx of creatives, who are often perceived as coming from urban centres such as London, and have become drawn to the new cultural opportunities that Margate has to offer.[146] They suggest that this demographic shift aligns with others occurring within British seaside towns, where there have been influxes of people with low levels of economic capital but high levels of social and cultural capital who are attracted to coastal locations as sites with notable architecture, landscape, and diversity.[147] Box 4 below discusses Stuart *et al*'s case study of the Margate Renewal Partnership in more detail.

Box 4. Case study: The Margate Renewal Partnership (MRP)

Margate is a coastal town that faces poverty-based polarisation, with high levels of inequality between its different resident demographics and districts, some of which are subject to significant deprivation. Cliftonville West, for example, was the fifth most deprived district in the country in the IMD 2019 indicator measuring children and young people's education, skills, and training.[148]

The area has experienced a rapid regeneration since the development of the Margate Renewal Partnership (MRP), a collaboration involving Thanet District Council, Kent County Council and the South-East Development Agency aimed at elevating Margate's 'brand' through combining seaside heritage with an emerging status as a creative epicentre. However, there is evidence to suggest that the benefits of this regeneration have not been felt equally across Margate's population, with areas adjacent to the Old Town remaining relatively deprived.[149] Some communities have faced challenges benefitting from this regeneration due to challenges related to digital poverty, including:

Skills and education

- Lack of or limited access to and engagement in online learning

- Lack of or limited opportunities to train in technical skills relevant to their career, and inability to keep skills up to date

- Particularly for those with low social capital, feelings of fear and lack of confidence around using digital technology

Productivity

- Poor signal posed a serious issue for those working or attempting to work in service industries, often disproportionately affecting the migrant communities

- Difficulties pursuing work opportunities, which are often time-sensitive (especially for the self-employed)

- For some professions, an inability to generate income without digital hardware or software, but an inability to purchase this equipment due to lack of income

146   Stuart *et al.*, *Digital Poverty in Margate*, p. 10.
147   Stuart *et al.*, *Digital Poverty in Margate*, p. 11.
148   Kent Analytics, Kent County Council (April 2022). 'Children in Poverty'.
149   Stuart *et al.*, *Digital Poverty in Margate*; Hubbard, P. (2017) *The battle for the high street: Retail gentrification, class, and disgust*. London: Palgrave Macmillan.

- Experiences of poor medical care resulting from lack of or limited digital connectivity, which then has knock-on consequences for productivity

- Feelings of disconnection with the wider world and an inability to benefit from a 'hybrid' life

Infrastructure

- The population influx has resulted in a fast growth in demand for local digital infrastructure, which does not currently meet the needs of the growing community

- Sub-par broadband connection is often incorrectly attributed to physical features relating to the coast rather than issues to do with internet service provision, leading people to assume poor connectivity cannot be overcome

- The time associated with installing broadband in new locations

The MRP's strategy for regeneration and renewal aimed to redevelop Margate through investing in both physical, cultural, and social infrastructure.[150] The challenges above suggest that establishing and enhancing digital infrastructure and initiatives that support specific needs of both existing communities and new communities coming to an area are important components of broader strategies of regeneration and renewal.

Proximity and quality of local resources impact on digital inclusion

People's experience of digital inclusion or exclusion is closely intertwined with the broader contexts of their lives and where they live. Community assets and local resources contribute to how the places people live affect opportunities for online access, the types of online activities they engage in, and the online services they use.

In addition to the infrastructural challenges that can be created by housing arrangements (discussed in section 3.1), housing circumstances can determine whether there is suitable space for someone to have a home computer.[151] Internal living arrangements (such as the number of occupants within a home) affect digital engagement, as overcrowded living environments pose a variety of barriers – noise generated from audio and video content can create distractions and make it difficult for people to fully engage online, and too many devices connected to one broadband router can lead to generally poor connectivity and broadband speeds.[152] These issues make working and studying from home very difficult, and led to vast differences in people's experiences in work and education during the COVID-19 pandemic, differences that often place additional burdens on those already disadvantaged in other ways.[153] Consequently, those who cannot use the internet at home often have to resort to using computers in public spaces such as libraries and job centres, and the cost of physical getting to these places carries an additional burden for people who are already at a disadvantage.

The proximity of people's homes to public institutions with computer access (such as libraries and job centres), and to transport networks that enable them to reach these locations, affect people's opportunities to get online and to develop digital skills, especially those on lower incomes who rely more on public places for internet

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150   Margate Renewal Partnership, 10 A Cultural Vision for Margate: Creative Margate, Ten Year Delivery Plan.
151   Holmes *et al., Digital Poverty and Housing Inequality.*
152   Holmes *et al., Digital Poverty and Housing Inequality.*
153   The British Academy, *The COVID Decade.*

use.[154] Faith *et al*'s study found that 21% of internet users earning under £25,000 used libraries or internet cafes to access the internet (15% sometimes, 5% often, 1% always).[155] However, access in these spaces can be inconsistent (users are limited by opening hours, and how busy these places are), and certain public spaces may be inappropriate for specific types of internet use (e.g. video calls).[156] Internet use in public contexts pose privacy-related challenges, including those related to the security of online financial transactions, using online banking, or sharing sensitive information over the internet.[157] Furthermore, the numbers of libraries in England have declined by nearly 17% since 2009/10, meaning that fewer people in the UK have a library close by.[158] Meanwhile, within some supported housing schemes, wi-fi is not provided in people's individual rooms, and broadband access may only be provided in communal areas (which poses privacy issues as noted above).[159]

3.5   Purpose

The final theme that emerges across the evidence reports is related to how people's motivations and perceptions of purpose affect the landscape of digital poverty. The evidence suggests that it is vital to understand the various purposes for which people engage digitally in different contexts, and how people's motivations for engaging or not engaging online differ and change. According to OFCOM 2021 Adult's Media Use and Attitudes Report, 42% of adults who did not use the internet said they did not do so because the internet is *"not for people like me, I don't see the need, or I'm not interested."*[160] Motivation, meaning, and purpose are tied to people's personal values, their perspectives and feelings about the digital world and the benefit it can bring to their personal lives. Often, these facets of digital poverty can be difficult to understand and provide solutions for, but the reports in our hub suggests that it is an essential aspect for policy to consider.

People seek digital engagement that has meaning for them

The Digital Poverty Alliance identify motivation as one of five intertwined 'determinants' of digital poverty that need to be addressed simultaneously to end digital poverty.[161] Motivation "refers to people's level of interest in and commitment to getting online and improving their skills and outcomes as a result" and is "among the most difficult determinants to understand empirically and tackle in terms of policy because it is rooted in personal opinions, lived experiences and social context."[162] The Good Things Foundation has identified four main motivational barriers among non-users of the internet in the UK:[163]

- Some non-users think the internet is 'not for them', do not recognise the benefits of being online, and see no need to use the internet (3.88 million people)

- Some non-users feel they lack the necessary support to get online or to acquire an internet-enabled device (1.62 million people)

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154   Holmes *et al., Digital Poverty and Housing Inequality*; Faith *et al., Digital Poverty in the UK*.
155   Faith *et al., Digital Poverty in the UK*, pp. 16-17.
156   Faith *et al., Digital Poverty in the UK*, pp. 16-17.
157   Holmes *et al., Digital Poverty and Housing Inequality*. Privacy can also be an issue within the home, particularly for multiple occupant or overcrowded households. When people do not feel able to use the internet for certain functions due to privacy concerns, it limits the ways in which they can benefit from digitally engagement.
158   Faith *et al., Digital Poverty in the UK*, pp. 17-18.
159   Holmes *et al., Digital Poverty and Housing Inequality*.
160   OFCOM (April 2021). *Adults' Media Use and Attitudes report 2020/21*.
161   Allmann, *UK Digital Poverty Evidence Review*, p. 9.
162   Allmann, *UK Digital Poverty Evidence Review*, p. 68.
163   French, T., Quinn, L. and Yates, S. (2019), *Motivational barriers of non-users of the internet,* Good Things Foundation; Holmes *et al., Digital Poverty in the UK: A Review of Literature,* p. 8.

- Some non-users find the internet too 'complicated', often because they have low levels of digital literacy (1.41 million people)
- Some non-users find the internet too expensive (943,000 people)

In their literature review, Holmes *et al* point out that "a lack of motivation to use the internet cannot be reduced to a simple decision to stay offline."[164] Rather, the choices people make about whether to use the internet must be understood in relation to the context of broader social structures they are situated in (including the situation of the people around them), which may change over time.[165] Moreover, as Mason *et al* discuss, in some instances personal values may mean that people choose not to digitally engage.[166]

The evidence reports also emphasise that the meaning that people attribute to their digital engagement is crucial to if, when and how they use digital technology – people "seek out internet access with purpose" and want technologies to improve their lives in a discernible way.[167] With this in mind, it is important for digital inclusion initiatives to be 'fit for purpose' in the context of situated communities.[168] Effective access is that which fulfils the needs and goals of individuals and communities, and is context-specific (what works in one place may not work in another).[169] The form that interventions to improve access and inclusion take benefit from being formulated with a community's purposes for engaging with digital technology in mind.

Box 5. Situating digital inclusion interventions in South Lakeland, adapted from Hayes *et al* and Knowles *et al*[170]

Mobile Age was a digital inclusion project in the South Lakeland, a rural district of Cumbria in Northwest England, which aimed at producing a mobile app to help older adults' living in rural areas access public services and events to promote independent living and address loneliness and social isolation.

The app was developed through co-creation by working with participants from rural communities. The project identified the importance of situating the digital app in the everyday practices of the local communities co-creating and using it, to enable it to be meaningful and relevant in the context of the daily lives of local adults.

For example, limited public transport availability in the rural area of South Lakeland risked making the new app irrelevant in the eyes of older adults who did not have their own means of transport. Place-based characteristics need to be considered in the development of technological interventions and the promotions or services being provided through them.

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164   Holmes *et al., Digital Poverty in the UK: A Review of the Literature*, p. 8.
165   Eynon, R., Helsper, E. (2011), 'Adults learning online: Digital choice and/or digital exclusion?' *New Media & Society*, 13(4), pp. 534-551; Helsper, E.J. (2017), 'The Social Relativity of Digital Exclusion: Applying Relative Deprivation Theory to Digital Inequalities', *Communication Theory*, 27(3), pp. 223–242.
166   Mason *et al., Digital Poverty Transformation*, p. 27.
167   Mason *et al., Digital Poverty Transformation*, pp. 24-25.
168   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), pp. 461-479; 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), pp. 1-40.
169   Gurstein, M. (2003), 'Effective use: A community informatics strategy beyond the Digital Divide.' *First Monday*, 8; Mason *et al., Digital Poverty Transformation*, p. 24.
170   Hayes, N., Introna, L. and Smith, M.T. (2019), 'Ensembles of practice: Older adults, technology, and loneliness & social isolation in rural settings.' *Proceedings of the 52nd Hawaii International Conference on System Sciences*, pp. 4287-4296; Knowles, B., Bull, C. N., Davies, N., Simm, W., Bates, O. and Hayes, N. (2019), 'Examining Interdependencies and Constraints in Co-Creation.' DIS '19: *Proceedings of the 2019 Designing Interactive Systems Conference*, pp. 291–302.

In their report, Mason *et al* refer to the case study of digital inclusion projects in South Lakeland, a rural district of Cumbria in Northwest England (Box 5), to highlight the importance of situating digital interventions aimed at addressing local needs within the meaningful context of people's everyday lives.[171]

Fear and confidence play a role in people's motivation to get online

Feelings of fear and confidence can also have a significant effect on people's motivation to engage digitally. Mason *et al*'s evidence discusses how fear of digital technologies, which is more prevalent in older citizens, can derive from a variety of concerns, including:[172]

- Concerns that they might accidentally break or harm expensive equipment
- Concerns about the security and vulnerability of both the technology and themselves (e.g. fraud, identity theft, scams, viruses, dis- and misinformation)
- Fear about being overwhelmed by saturation of data when joining platforms such as social media networks
- Fear of not belonging in online spaces
- Concerns that upgrading to new software or hardware might risk losing or jeopardizing their existing set-up

On the other hand, Stuart *et al* note that people with higher levels of social capital generally have more confidence to digitally engage, as they may have more time and resources to experiment with digital technology even when things stop working.[173] This can enable them to access positive social connections through digital engagement, for example via WhatsApp groups that provide support or neighbourliness, which in turn enhances feelings of social inclusion and confidence. Similarly, digital technology can cement stronger connections with family and friends. Stuart *et al* found that some people in these situations view digital technologies as integral for their mental and physical wellbeing.[174] Similarly, digital engagement can also provide people with greater confidence, capacity, and opportunities in the workplace (Stuart *et al* draw from their Margate case study to highlight the examples of those working in delivery, transportation, and taxi services, who rely on digital technologies to both find clients and provide their services, and of creative designers who are able to distribute their products globally through digital opportunities).

Responses to digital poverty can highlight different levels of the issue

Finally, citizen's responses to digital poverty and exclusion are themselves important to understand when designing strategies to address these issues. In their report, Mason *et al* propose a typology for identifying the types of practices that people adopt when they face disruptions to digital connectivity. They define two broad categories of practices: calculative practices (where people are working out how to engage with digital worlds) and remedial practices (where people are seeking to take corrective action when something has disrupted digital connectivity), which can either be enabling or disabling practices depending on the digital connectivity outcome. Examples of these can be found in Table 2.

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171   Mason *et al., Digital Poverty Transformation*, p. 26-27.
172   Mason *et al., Digital Poverty Transformation*, p. 26.
173   Stuart *et al., Digital Poverty in Margate*, p. 22.
174   Stuart *et al., Digital Poverty in Margate*, p. 24.

Table 2. Enabling and disabling connectivity practices

	Enabling practices	**Disabling practices**
Calculative practices	When individuals calculate that engaging with the digital world brings benefits *(e.g., getting support from family/friends to help with video calls during lockdown).*	When individuals calculate that engaging with the digital world is too risky *(e.g., deciding not to do online banking due to worries of online fraud/security).*
Remedial practices	When individuals calculate trade-offs and take remedial action (plan B) to compensate for unreliable/unaffordable digital connectivity *(e.g., shopping around mobile phone/ broadband providers that offer cheaper products, &/or more reliable connectivity).*	When individuals take no remedial action to compensate for poor digital access *(e.g., carrying out everyday activities living with limited digital skills, unreliable digital connectivity, &/or unaffordable mobile phone/broadband products).*

Source: Mason *et al.* (2022), *Digital Poverty Transformation*, p. 61

Their findings suggest that moments of digital exclusion or inclusion can lead to critical junctures which either exacerbate or ameliorate people's experiences of digital poverty, where people without all the resources necessary for full inclusion all the time adopt practices that can enable or further disable digital engagement. For instance, the report notes that some people were able to work with friends and family, seek out social tariffs or second-hand devices, or reposition themselves in situations or places with more connectivity. On the other hand, the most disadvantaged often suffered from intersectional inequalities that made moving themselves out of digital exclusion extremely difficult (for example, someone with a learning difficulty, out of work, living in an area with no connectivity infrastructure).

Moreover, as Stuart *et al* point out, people who might be classified as digitally poor from a statistical viewpoint do not always recognise themselves as being digitally poor, which can pose a challenge for policy.[175] People in this situation may not feel the need to reach out for support and may find other ways to meet their needs (for example, via the practices noted above). In this way, the different practices people adopt when facing digital poverty might also provide a lens into potential starting points for digital inclusion initiatives.

175   Stuart *et al.*, *Digital Poverty in Margate*, p. 2.

4.0   Six policy lessons from our evidence reports

In this chapter, we summarise the policy lessons identified throughout the reports in our evidence hub. These lessons build upon the findings and insights related to digital poverty discussed in chapters two and three. Following conversations with the commissioned project teams, we decided to organise these lessons according to three dimensions: place, scale and time. The British Academy previously used these dimensions within its report Shaping the COVID Decade, looking at the possible responses to the long-term societal impact of the COVID-19 pandemic, to account for the fact that policy challenges look different from place to place, often must be tackled across multiple levels of government, and need to be considered over a variety of timescales including historically to consider learnings from the past.[176] As in that report, we understand these dimensions as follows:

Place (locality, physical and social context) is an essential part of grounding the policy response in crucial knowledge from citizens, communities and cultures, to improve the sensitivity of decision-making to the distinct challenges and opportunities for different places.

Scale (individual, community, regional, national) features in our analysis of the complex interconnections between the levels of decision-making – from individual choices and behaviours right up to international and global relations – and the relations of power and influence within and between them.

Time (past, present, future; short-, medium-, long-term) is embedded in our commentary on how we acknowledge and learn from history, and how we consider the length and stages of recovery and when and over what timescale different interventions should be made.

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176   The British Academy, *The COVID Decade*, p. 18.

While the lessons below are a summary of some of the policy insights that cut across the reports in our hub, the reports also provide individual policy recommendations specific to their findings, and we would recommend supplementing the lessons listed here with those additional insights. The commissioned project team from Lancaster University and the Work Foundation have also produced national and regional policy briefings specific to their project, which can be found in the evidence hub.[177]

4.1   Place

Here we summarise two high-level policy lessons related to the dimension of place that emerge across the evidence reports in our hub.

Policy lesson 1: Addressing digital poverty involves more than improving access – interventions must empower people and places to benefit from digital access.

Efforts to improve and invest in digital infrastructure (access, connectivity and devices) should take into account the physical and social context of place and locality; for instance, development of digital infrastructure in new build housing estates should be responsive to local contexts including how people live and work, and the choice of services required. Moreover, while developing digital infrastructure to improve access is crucial, to be effective it needs to be supplemented with initiatives that build digital literacy and skills and improve people's ability to make full use of digital resources and transform them into tangible social benefits in their everyday, local contexts.

- Digital poverty emerges in different ways in urban and rural contexts, and is shaped by physical (landscape, housing, technologies) and social elements (demographic inequalities, changing populations). Consideration should be given to how digital infrastructure functions in the context of existing and emerging local systems of physical and social infrastructure.

- Local authorities are likely to have a deeper understanding of their local contexts and needs than central government. They are familiar with aspects such as the local socio-economic and demographic profile of the area, and the nature of the local infrastructure, housing stock and tenure, which can inform policy to tackle digital exclusion at the local level.[178]

Policy lesson 2: Local resources and intermediaries can be valuable assets in tackling place-based digital poverty, and the public sector has a crucial role to play in enabling them.

Local organisations, who often have built trust with local communities through existing relationships, are often best placed to reach digitally excluded populations.[179] However, many such organisations are financially stretched and may struggle to provide people with wrap-around digital skills support or relevant referrals. People on low incomes or who lack internet at home often rely on public places for internet use. The public sector can play a vital role enabling and supporting local resources and infrastructure through co-ordination, knowledge sharing, and funding

177   Lancaster University and the Work Foundation (2022). 'Digital Poverty Transformation: Accessing Digital Services in Rural Northwest Communities. Regional Policy Briefing'; Lancaster University and the Work Foundation (2022). 'Digital Poverty Transformation: Accessing Digital Services in Rural Northwest Communities. National Policy Briefing'.
178   Holmes *et al., Digital Poverty and Housing Inequality,* p. 20.
179   Faith *et al., Digital Poverty in the UK,* p. 16.

(both in terms of provision and enabling access to funding channels).

- Policy initiatives that support and invest in partnerships with local charities, business and civil society organisations will be better positioned to address local digital needs and provide more social value return on investment than those that do not – policy should ensure that these organisations have the appropriate funding and digital skill sets to adequately support others.

- The efficacy of intermediary support varies with people's digital needs and contexts of use. Citizens may hesitate to make use of public spaces and services due to safety concerns (e.g. related to privacy, or health – particularly during the pandemic), and public spaces cannot be used for some types of internet use (such as video calls with health practitioners or those providing mental health support). Community anchor institutions (such as libraries, churches, gyms, banks, pubs) offer valuable spaces and networks within which different digital services can be provided, particularly when coupled with adequately resourced intermediaries (e.g. community champions).

- Digital technologies should be adapted to the personal and cultural activities and needs of a community. Digital technologies can be integrated into activities within existing local practices and social infrastructure, placing fewer economic and social burdens on citizens to change their own practices. For example, schools could involve both children and parents in programmes designed to enhance the acquisition of digital competencies.[180] Mason *et al* suggest undertaking peer-to-peer outreach to boost people's confidence in accessing digital services, and incentivising job platforms and recruiters to conduct outreach to assist residents with online job searches and applications.[181]

4.2   Scale

Here we summarise two high-level policy lessons related to the dimension of scale that emerge across the evidence reports in our hub.

Policy lesson 3: Strategies to tackle digital poverty are important components of broader policies of tackling inequality.

Digital poverty is associated with deprivation and social inequalities more broadly. As discussed in this report, this association points to the existence of a 'double loop' of inequalities, where offline inequalities reinforce digital inequalities, which in turn reinforce further social inequalities. Identifying and addressing digital poverty and its effects is therefore an important consideration for policies aimed at tackling broader social inequalities, such as the provision of Universal Credit.

- Life can be more expensive for the digitally disadvantaged, further compounding existing social inequalities as well as the unequal effects of crises such as the rising cost of living, or the COVID-19 pandemic. As prices rise and more households become unable to afford digital connectivity, they will experience other additional costs and inconveniences as a result, entrenching economic and digital disadvantage and creating a cycle of worsening inequalities. As these effects will not just be limited to the poorest in society, policy should consider how different levels of support can be provided across demographics - including

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180   Ragnedda *et al., Living on the edge of digital poverty*, p. 35.
181   Mason *et al., Digital Poverty Transformation*, p. 3.

to the digitally excluded on relatively higher incomes, to ensure that they do not fall into a cycle of worsening inequality.[182] Ragnedda *et al* suggest central government support to local authorities to identify local needs and provide differentiated programmes based on different levels of digital poverty.[183] Holmes *et al* suggest making obligatory the provision of social tariffs by internet service providers, along with initiatives to ensure that those eligible are aware of them (e.g. Universal Credit claimants).[184]

- Policies that address issues such as overcrowding, precarious living circumstances, and household energy efficiency, can have beneficial knock-on effects by reducing the likelihood of people falling into digital poverty. Digital poverty and other forms of inequality (e.g. housing inequality) need to be tackled across government departments and not in policy silos. Similarly, evidence from Dafoulas *et al* suggests that digital poverty amongst 16 to 24-year-olds could be alleviated by addressing lack of reading and writing skills in this age group.[185]

- Not everyone will be able to – or want to – get online. Service providers (including housing providers, GP surgeries and banks) should ensure that people are given a choice as to whether they would like to use the internet to access their services. Efforts should be made to ensure that for those not using online services, the quality of service and ease of access to it remains high.[186]

Policy lesson 4: Policies should consider how and why intersecting inequalities are likely to exacerbate digital poverty and design interventions that can benefit those most at risk of digital poverty.

When inequalities intersect, they compound to create intensified impacts on certain groups and demographics. For example, for ethnic minorities, disability is much more strongly associated with digital poverty than for the white majority. Lack of qualifications is more strongly associated with digital poverty for rural rather than urban residents whereas age is more strongly associated with digital poverty for those living in urban locations.[187] Tackling these dynamics of inequality may require connected and scaled approaches at local, regional, and national levels.

- Social value outcomes should be emphasised in investments in large-scale connectivity partnerships (e.g. the UK's Project Gigabit), to tackle the complex overlap of digital and social inequality.[188]

- Tailored initiatives can be implemented for those groups most at risk of digital poverty, for instance: targeted educational outreach to the rural residents at the greatest risk of digital poverty; NHS programmes that provide training and support to enable vulnerable people to use technologies for health-related needs; reviewing social housing bidding processed to ensure that the digital excluded are not placed at further disadvantage.[189]

- Faith *et al* note that the provision of free Wi-Fi in temporary and sheltered accommodation are key policy ideas that could be explored and funded nationally, for example through 'Zero rating' government websites (meaning that

182   Faith *et al., Digital Poverty in the UK*, p. 4.
183   Ragnedda *et al., Living on the edge of digital poverty,* p. 35.
184   Holmes *et al., Digital Poverty and Housing Inequality,* pp. 21-22. See also Mason *et al., Digital Poverty Transformation*, p. 3.
185   Dafoulas *et al., Digital Poverty in the UK: Analysis of Secondary Data.*
186   Holmes *et al., Digital Poverty and Housing Inequality,* p. 23.
187   Dafoulas *et al., Digital Poverty in the UK: Analysis of Secondary Data,* p. 15.
188   Lancaster University and the Work Foundation. 'Digital Poverty Transformation: Accessing Digital Services in Rural Northwest Communities. Regional Policy Briefing', p. 13.
189   Mason *et al., Digital Poverty Transformation*, pp. 3-4; Ragnedda *et al., Living on the edge of digital poverty*, p. 35; Holmes *et al., Digital Poverty and Housing Inequality*, p. 22.

accessing these sites would not diminish a person's data allowance), something that has already been introduced by some mobile network operators to some NHS websites, victims of crime and other support websites.[190]

4.3   Time

Here we summarise two high-level policy lessons related to the dimension of time that emerge across the evidence reports in our hub.

Policy lesson 5: People can move in and out of digital poverty over time

Our evidence suggests that policy should avoid binary assumptions that digital poverty is something that a person either does or does not experience, or that once someone has been 'lifted out' of digital poverty they will remain digitally included for life. Crucially, digital poverty hinders people's opportunities over time, so that it becomes harder for someone to move out of digital poverty (and poverty more generally) the longer that they remain digitally excluded.

*   It is more useful to consider digital poverty as a continuum that people can experience to different degrees at different times. As Ragnedda *et al* show, many people live 'on the edge' of digital poverty – these people have some internet access and digital skills but are at risk of falling into digital poverty with changing circumstances and pressures at different points in time. The rising cost of living will create financial pressures for those people 'on the edge' of digital poverty, which may push them into digital poverty. Policies can aim to provide safety nets to prevent this happening – Ragnedda *et al* note that single parents are among those at risk of becoming digitally excluded and suggest the creation of measures to provide affordable broadband internet service and specific digital skills training and device support targeted toward single parents.[191]

*   Digital inclusion is best seen as a lifelong process rather than a singular event. As people age, gain experience in work or education, move from place to place, and as the places they live in change, they may move in and out of digital poverty in different ways. This can occur over short (someone may have no internet access at home, despite having access at work), medium (someone may experience digital poverty due to ongoing precarious housing circumstances) and long timescales (digital poverty may persist over time, particularly in the most deprived areas). Policies that include sets of interventions to address short-, medium- and long-term experiences of digital poverty will be better positioned to tackle digital poverty as a lifelong process.

*   Socio-economic inequalities often persist across family generations and in particular places. This means that children in economically poorer families are more likely to experience digital poverty throughout their lifetime (a risk that increases for families with more children). Ragnedda *et al* suggest the implementation of educational paths in the use of the internet and technologies at all educational levels, including the provision of suitable tools, valid technical support, and training in digital competencies for capital enhancing activities.[192]

190   Faith *et al., Digital Poverty in the UK*, p. 15.
191   Ragnedda *et al., Living on the edge of digital poverty,* p. 34.
192   Ragnedda *et al., Living on the edge of digital poverty*, p. 34.

Policy lesson 6: Consider policy interventions that can adapt to regional demographic and economic changes, through consistent and long-term investment.

The social demographics and economies of the UK – within localities, regions, and as a whole – are changing over time and under the influence of broader policy agendas. Stuart *et al*'s case of the Margate Renewal Partnership emphasises the importance of initiatives that support specific needs of both existing communities and new communities coming into a place.[193] Meanwhile, new challenges may emerge as the UK's population ages, given the association between digital poverty and age. Even if more digital skills are common in older populations in the future, the evidence suggests that this alone will not address digital poverty amongst these groups.

- An ongoing understanding of the changing populations and needs of a place is required to formulate policies that are attuned to both present and future needs. To this end, Mason *et al* propose the establishment of a What Works Centre for digital skills to marshal the evidence on approaches to improving confidence and to support a range of bodies engaged in delivering digital skills interventions.[194] A centre such as this could provide an institutional form of connectedness across places and scales over time.

- As noted in policy lessons 1 and 2, local and regional authorities, when working with civil organisations, charities, and businesses, will be best placed to understand local and regional needs and adjust to situations on the ground, including changing economies and demographics. In this way, consistent investment in and support for decentralised interventions over medium to long term timescales can help address digital poverty.

- Interventions should account for periods of transition. Mason *et al* point call for interventions that focus on distinct needs experienced through life stage transitions such as retirement or entering the world of work for the first time.[195] Investment in digital infrastructure is often needed over longer timescales, so it is important for policy to consider how the needs of people in a place or region may change more rapidly than new infrastructure can be deployed. Interim policies may be required to address these needs whilst infrastructure is still being developed as well as ones to prepare people to transitioning into using new forms of infrastructure.

193   Stuart *et al., Digital Poverty in Margate.*
194   Lancaster University and the Work Foundation. 'Digital Poverty Transformation: Accessing Digital Services in Rural Northwest Communities. National Policy Briefing', p. 14.
195   Lancaster University and the Work Foundation. 'Digital Poverty Transformation: Accessing Digital Services in Rural Northwest Communities. Regional Policy Briefing', p. 4.

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About the Academy

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Annex: Background and evidence collection

Background

In 2022, the British Academy began a programme of work orientated around the theme of Digital Society. This will draw upon expertise in the SHAPE disciplines – through our fellowship, and networks across research, policy, and practice – to inform our understanding of 'What makes a good digital society?'

The British Academy's 2021 COVID Decade report examined the long-term societal impacts of COVID-19. It touched upon how existing digital inequalities have impacted communities during the pandemic, for instance through shaping access to information (and misinformation) about COVID-19, changing the delivery and experience of education, and affecting (and in some cases exacerbating) issues related to digital exclusion and digital surveillance. It also highlighted the value of digital infrastructure for local and hyper-local community responses to COVID-19, and the ways in which digital technologies can be harnessed for the benefit of specific communities during times of hardship. The findings of the COVID Decade report therefore led us to identify digital inequality and digital poverty as a crucial starting point for our work on Digital Society.

Alongside this, in early 2022, the Government Office for Science asked the British Academy to conduct a project on the topic of technology and inequality to improve our understanding of how government can play a key role in supporting access to, uptake of, and investment in technologies that can be critical to delivering broad public objectives, in a way that ensures inequalities do not become entrenched.

On the basis of both drivers, we focused the first set of major activities in the Digital Society Programme on digital technology and inequality.

Evidence collection

In order to inform the first phase of this wider programme, we commissioned six evidence reviews to explore the effects of digital poverty on productivity, including aspects of digital skills, access, and infrastructure. We asked project teams to consider some of the questions below as a minimum, encouraging projects to adopt multidisciplinary approaches and recognising that the questions should not be seen an unduly restrictive as there would be others that emerged as thinking progresses:

- What are the main drivers of digital poverty in (areas/regions of) the UK? How have these changed, or not, with the COVID-19 pandemic?

- What are the impacts of digital poverty upon (a) productivity and skills, and/or (b) community and social infrastructure?

- What communities are most severely affected by digital poverty, and how do impacts vary across and within communities?

- What are the challenges associated with tackling digital poverty in the UK? What

are the social, economic, and cultural barriers to addressing digital poverty and how can they be effectively and equitably overcome?

- How can understandings of digital poverty and inequality from SHAPE disciplines inform approaches to recovery from the pandemic over the coming decade?

- How can (a) policymakers and/or (b) communities better harness digital technologies to address local needs, inequalities and recovery from hardship or crisis (local/global, economic, social, political)?

- How can public-private collaboration on digital technology be used to tackle issues of digital poverty and inequality?

- What connections need to be made across levels of governance (e.g. at national, regional and local scales) to most effectively address issues related to digital poverty and inequality?

In the spring, we held two policy workshops for the ongoing projects. At these workshops we brought together project teams with members of the policy, practice and research communities working to understand and address digital inequality. The teams presented their ongoing work and received feedback from one another and participants, and attendees discussed connections and contrasts across the commissioned projects. Insights from these workshops were used to inform the write-up of this report. We also shared our emerging thinking with policy stakeholders (in both local authorities and central government) throughout the duration of the project and used insights from these conversations to feed into our work here.

We shared the draft outputs from the commissioned projects with all the project teams, so that the teams were able to provide us with feedback on one another's work and identify important common insights or gaps in thinking. Our Technology and Inequality Working Group also reviewed drafts of the project outputs and our summary report and provided feedback accordingly.

Project teams

The research groups are listed below. All of these are referenced throughout the evidence report and full versions of their outputs are provided on our evidence hub.

Brunel University London – 'Digital Poverty in Margate: A Study of Two Hyperlocal Communities'

Project lead: Dr Rachel Stuart, Brunel University London

Cambridge Centre for Housing & Planning Research – 'Digital Poverty and Housing Inequality'

Project lead: Dr Gemma Burgess, University of Cambridge

Institute of Development Studies/Digital Futures at Work Research Centre, University of Sussex – 'Digital poverty in the UK'

Project lead: Dr Becky Faith, Institute of Development Studies

Lancaster University Management School, Work Foundation – 'Digital Poverty Transformation: Accessing Digital Services in Rural Northwest Communities'

Project lead: Professor Katy Mason, Lancaster University

Middlesex University London – 'Digital Poverty in the UK: Analysis of Secondary Data'

Project lead: Professor George Dafoulas, Middlesex University

Northumbria University – 'Living on the edge of digital poverty'

Project lead: Dr Massimo Ragnedda, Northumbria University

Evidence hub

All the outputs produced by the commissioned project groups above can be found in our online Technology & Inequality project evidence hub. Additional documents will be added to the hub over time as the project progresses and further outputs are generated through the variety of activities we are undertaking as part of the work.

Our project for the Government Office for Science

As it is related to the ongoing programme, a short overview of our project for Government Office for Science is worth sharing. This project focuses on understanding the relationship between digital inequality and existing social inequalities. It will examine how advances in digital technology can mitigate or exacerbate existing inequalities, as well as how existing inequalities pose challenges for access and skills related to digital technology. Three high-level questions guide the project:

1. In what ways does the landscape of digital technological provision currently shape social inequality in the UK, and vice versa?

2. What mechanisms are available for government to support access, uptake, and investment in digital technology in a way that doesn't entrench or exacerbate inequality?

3. How can digital technologies be harnessed to improve policies that tackle inequality, their design, and the equitable delivery of public services?

The project is led by a Working Group that includes Professor Helen Margetts FBA (Alan Turing Institute; Oxford Internet Institute), Professor David Hand FBA (Imperial College London), Professor James Nazroo FBA (University of Manchester), and Dr Carrie Heitmeyer (Government Office for Science).

Acknowledgements

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