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Understanding the barriers to digital connectivity in Cheshire and Warrington: Position Paper

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Chris Taylor, Sam Wood, Aude Schoentgen, Johnathan Charles
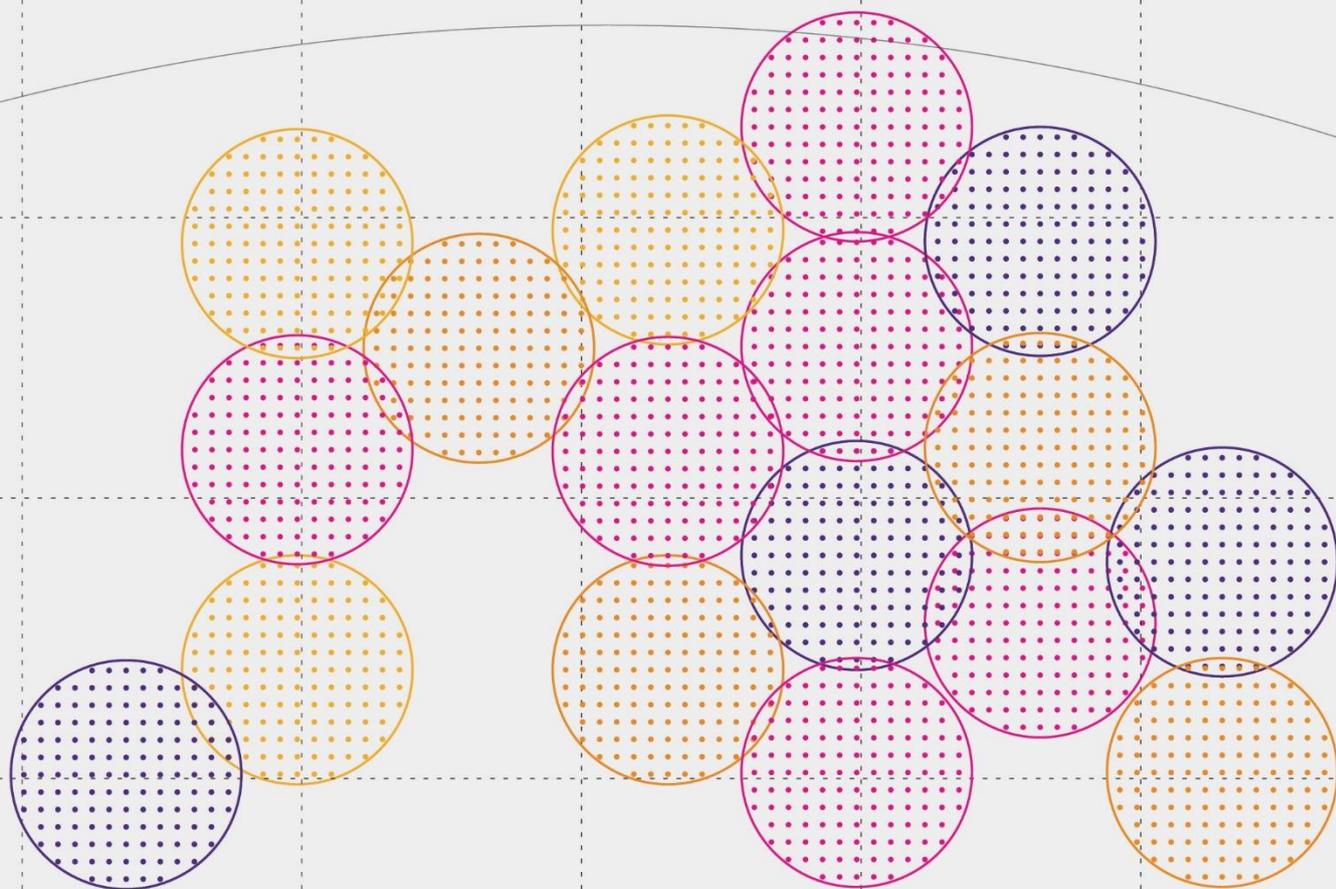
About Plum

Plum is a leading independent consulting firm, focused on the telecoms, media, technology, and adjacent sectors.

We apply consulting experience, industry knowledge, rigorous analysis, and our clients' perspective to address challenges and opportunities across regulatory, policy, commercial, and technology domains.

About i2 Media Research

i2 Media Research (i2) is a strategic research consultancy and R&D-focused SME, specialised in applying psychologically-rooted user research to inform the development and deployment of technology products, platforms, services, content, communications and information remedies.

About this study

This position paper, for Cheshire and Warrington LEP, provides a review of existing evidence around barriers to digital connectivity and adoption in Cheshire and Warrington. It also provides a review of the policy landscape and initial indications for future strategy for reducing barriers to digital connectivity.

Contents

Summary

In this Position Paper we present the findings of our study into barriers to digital connectivity in Cheshire and Warrington, and the data and evidence supporting our analysis. From these findings, we identify potential remedies to close or narrow digital connectivity and usage gaps, and we make suggestions for further work to refine the analysis and/or develop ideas for remedies.

Digital communications and the ability to get online are an everyday feature of nearly everyone's life, and digital technologies are an important driver of productivity and economic growth. Citizens, businesses and service suppliers need to adopt and use these services in order to benefit from the digital economy.

Conversely, individuals, households, businesses and service suppliers who are unable to get online, or are unable to engage with digital services for some other reason – for example, because services are unaffordable, or because of low digital skills, or attitudinal barriers like concerns about their personal data - face significant disadvantages, missing opportunities for economic success, educational fulfilment, positive health outcomes and civic engagement.

For this reason, policymakers across the world are working to encourage digital connectivity and usage to ensure that as many people as possible benefit from online services and facilities, and as few as possible suffer inequality as a result of digital exclusion.

For our study of digital connectivity and use in Cheshire and Warrington, we have considered:

- Connectivity gaps, i.e. barriers driven by lack of available infrastructure (supply side barriers); and

- Usage gaps, i.e. barriers driven by non-usage or low usage of available connections and technology (demand side barriers).

We found that good levels of connectivity are available in Cheshire and Warrington. There is widespread availability of superfast broadband (with download connectivity speed of 30 Mbps and above), and 4G mobile coverage. Comparable data on 5G coverage were not available for our study.

Infrastructure has also been deployed to provide ultrafast (100+ Mbps) connection speeds through direct to the premises fibre connectivity. Availability of direct fibre is above the national UK average in Cheshire West, but below that average in Cheshire East and Warrington. Fibre deployment across the sub-region has been supported by grants from the European Regional Development Fund (ERDF). There is potential for fibre deployment to reach unserved areas in the sub-region through the Project Gigabit and Gigabit Voucher schemes which Connecting Cheshire continues to pursue. The cable network also provides potential for ultrafast connectivity, and has a strong footprint in urban Warrington.

Our primary research found that the user experience of the quality of connectivity does not always match the reported data. This is worthy of further investigation. We understand that an infrastructure mapping exercise is underway, and this will provide useful further data on connectivity and coverage gaps.

Overall we found that the availability of connectivity is unlikely to be a significant barrier to digital connectivity and usage in Cheshire and Warrington.

We have also looked at possible demand side barriers. Here we found that there are likely to be barriers to digital connectivity and usage for some individuals, households, businesses and service suppliers.

For individuals and households, these barriers may arise from affordability of connectivity and/or devices, digital skills gaps, or attitudinal factors, e.g. lack of interest or trust, fears about security of personal data. Our analysis shows that Cheshire and Warrington has a demographic profile close to the UK national average, (though the population in Cheshire and Warrington skews older than average), suggesting the sub-region as a whole is likely to face a similar set of barriers to that of the wider UK. We carried out primary research through four focus groups with residents in the sub-region to explore demand-side barriers faced in the sub-region more closely.

In addition, we carried out an analysis of the demographic characteristics of neighbourhoods across the sub-region, and mapped these to the Internet User Classification[1] data for each neighbourhood. This gives us the ability to profile any neighbourhood or ward in Cheshire and Warrington and identify which barriers are most likely to be prevalent there.

Our analysis indicates that, of the neighbourhoods in the sub-region which exhibit relatively low levels of digital engagement, around half have high relatively levels of income or skills deprivation. This suggests that skills and affordability barriers are likely to be significant in these areas. In other neighbourhoods, the key barriers are likely to be attitudinal factors. This analysis is potentially helpful in developing targeted remedies to address barriers in each neighbourhood.

Our primary research identified a number of potential remedies to address demand side barriers, and these are discussed in this paper.

We analysed barriers to connectivity and usage for businesses and service suppliers mainly using national data and data for the North West from Ofcom. We found that businesses in the North West are more dissatisfied than average with some key aspects of service, including quality of connectivity. On the other hand, they are less likely to switch providers, possibly indicating relative inertia, or that that they do not expect benefits from switching. The experience of business users and barriers to digital engagement are worthy of further investigation. The LEP is undertaking further research through its Growth Hub survey. A sample of returns for this survey are analysed in this paper. The complete data once the survey finishes will provide further evidence on business and service supplier engagement.

A number of stakeholders are engaged in addressing barriers to digital connectivity and take-up in Cheshire and Warrington. Connecting Cheshire is key to this for connectivity work, and the LEP Digital Skills Partnership (DSP) has an important coordinating role on demand side initiatives. Some national programmes are relevant, including Project Gigabit, and the provision of social tariffs to eligible consumers by service providers. Clear communication and coordination between local stakeholders is key to getting the best out of opportunities for improved connectivity and engagement in the sub-region.

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[1] The Internet User Classification is a classification that describes how people living in different parts of Great Britain interact with the Internet. This resource draws upon demographic and economic data, infrastructure characteristics and transaction data from online retailers to assign neighbourhoods one of ten Internet user 'profiles'. Refer to https://data.cdrc.ac.uk/dataset/Internet-user-classification for further information.

1   Introduction

1.1   The importance of digital connectivity

Digital communications technologies are widely acknowledged to be an important driver of productivity and economic growth.[2] In order to unlock the full benefit of digital services, citizens, businesses and service suppliers need to adopt and use these services. Access to, and use of digital services is important to reap digital dividends and make the most of the opportunities it offers for workers, entrepreneurs, students, consumers, citizens, and other domains of life.

Digital inclusion is defined as "equitable, meaningful, and safe access to use, lead, and design digital technologies, services, and associated opportunities for everyone, everywhere"[3]. Without access and inclusion in the digital world, some citizens cannot benefit from opportunities for economic success, educational fulfilment, positive health outcomes or civic engagement, which leads to increasing inequalities. Therefore the United Nations has identified the access to the Internet as a human right for all citizens of the world.

In the UK, as in many other countries, steady progress has been made in terms of bringing people online (Figure 1.1). In this regard the UK is in a relatively strong position compared to other major European economies. However, Lloyds Banking Group has estimated that around half a million people in the UK (1%) had not used the Internet in the past three months.[4] According to Ofcom, 6% of households do not have home Internet access, while a further 5% rely solely on mobile Internet access.[5]

Figure 1.1: Internet use in the UK vs. major European economies
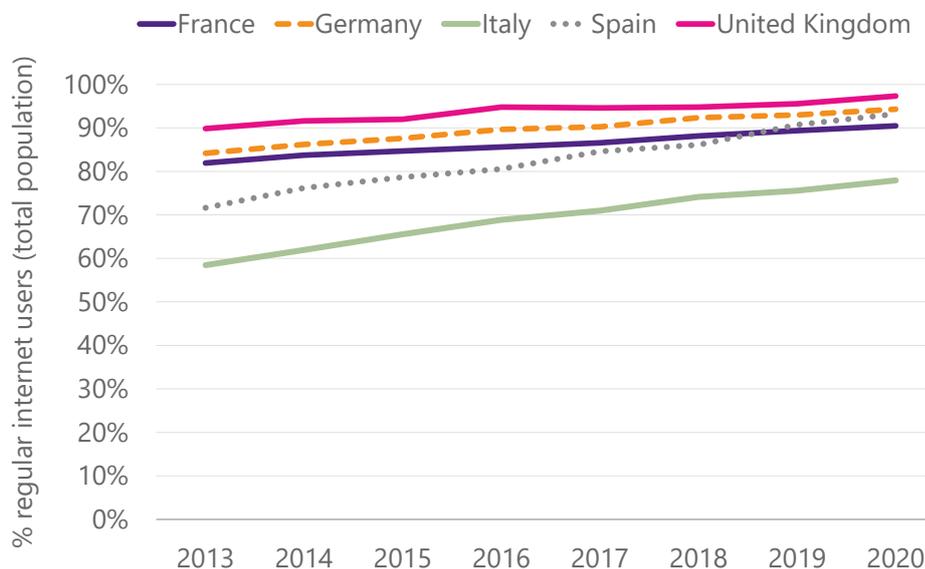
Source: Eurostat. Figures reflect those using the Internet within the past 3 months.

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[2] Various studies have linked broadband penetration to economic growth. See for example Ofcom (2018). The economic impact of broadband.
https://www.ofcom.org.uk/research-and-data/telecoms-research/broadband-research/economic-impact-broadband
[3] https://www.un.org/techenvoy/sites/www.un.org.techenvoy/files/general/Definition_Digital-Inclusion.pdf
[4] https://www.lloydsbank.com/assets/media/pdfs/banking_with_us/whats-happening/221103-lloyds-consumer-digital-index-2022-report.pdf
[5] https://www.ofcom.org.uk/__data/assets/pdf_file/0022/234364/digital-exclusion-review-2022.pdf

The exclusion from digital use may be due to two categories of factors:

- Connectivity gaps, i.e. barriers driven by lack of available infrastructure (supply side barriers); and

- Usage gaps, i.e. barriers driven by non-usage or low usage of available connections and technology (demand side barriers).

Connectivity gaps reflect the lack of access to Internet infrastructure, where people cannot obtain Internet access or can only access low-speed Internet services. This is the case in some rural areas in developed countries.

However focusing just on connectivity when analysing digital inclusion gives only a partial view of the issue, and usage gaps must also be considered. Among usage gaps, several main barriers to the adoption and use of digital services have been identified:[6]

- **Accessibility.** Using the Internet can be challenging for older people or those with disabilities. In the UK, those with disabilities are much less likely to be Internet users.[7]

- **Affordability.** The cost of getting online can present a significant barrier, and can result in those on a lower income being excluded. The cost includes both that of a digital device and an Internet connection.

- **Motivation.** Some non-users do not perceive any benefits from using digital technologies, stating that they hold no interest or relevance for them.

- **Trust/confidence:** A fear of online scams, loss of privacy or a lack of trust may deter people from getting online and using online services.

- **Skills.** Some non-users lack the necessary skills to realise the benefits of digital services. Some may be deterred by the perceived complexity of the technologies and the fear of doing something wrong. Some non-users may also face obstacles to learning digital skills, for example if they lack literacy skills. .

Existing programmes and policies in many countries – both at national and regional levels - are contributing to tackling those barriers and getting people online. Digital inclusion needs to evolve as technology advances, in order to overcome existing social, economic, historical and institutional barriers'

1.2   The scope of this project

Overcoming these barriers and bringing non-users online will help to grow the Cheshire and Warrington economy, improve productivity, and encourage social inclusion. A larger addressable market for digital services will spur the creation of more valuable services and apps tailored to local markets. And getting people online will allow public authorities to further digitise their services, improving the user experience and reducing costs.

The vision set out in the Cheshire and Warrington Digital Strategy and Delivery Plan aims at *"creating digitally empowered, connected communities to support, grow and future-proof the vibrant local economy through a digital revolution"*.[8] The present study aims to contribute to achieving this by providing the LEP with deeper insight into the barriers to digital adoption and use across the sub-region. To further develop the evidence base around

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[6] These barriers are discussed in the UK Government's Digital Strategy, available at: https://www.gov.uk/government/publications/uk-digital-strategy/2-digital-skills-and-inclusion-giving-everyone-access-to-the-digital-skills-they-need
[7] https://www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy
[8] Analysis and Plans - Cheshire and Warrington

barriers to digital inclusion, Plum partnered with i2 Media Research to carry out primary research in the sub-region.

This document presents the evidence base around the current state of digital connectivity in the sub-region. It discusses the evidence around digital use, skills and infrastructure in the sub-region and the barriers constraining digital use. It also provides a review of the policy landscape around improving digital inclusion.

1.3   The structure of this report

This report is structured as follows:

- Section 2 explores patterns of Internet use and the key correlating factors for digital exclusion across the UK;

- Section 3 compares the economic and demographic characteristics of Cheshire and Warrington to those of the UK;

- Section 4 reviews the available evidence on Internet engagement and digital skills in Cheshire and Warrington;

- Section 5 looks at data on the experience of digital communications services by businesses and service suppliers;

- Section 6 contains an assessment of fixed connectivity and mobile network coverage in Cheshire and Warrington;

- Section 7 describes policy initiatives and interventions in place at national and regional level to drive or promote digital inclusion, and also considers some projects overseas which provide relevant insight and

- Section 8 presents the conclusions of this study.

- Appendix A is a report of the primary research carried out by i2 Media Research as part of this study.

- Appendix B presents three neighbourhood case studies of demographic factors and demand side barriers.

2   Internet use in the UK

2.1   Patterns of Internet use in the UK

In the UK, age is a strong correlate for Internet use (Figure 2.1). According to ONS data, in 2020 over 98% of under 65s had used the Internet in the last three months, compared to 71% of over 65s.[9] Disability also presents a compounding factor: the gap in the level of Internet use between those with a disability and those without widens with age.

Figure 2.1: Internet users by age and disability status (2020)
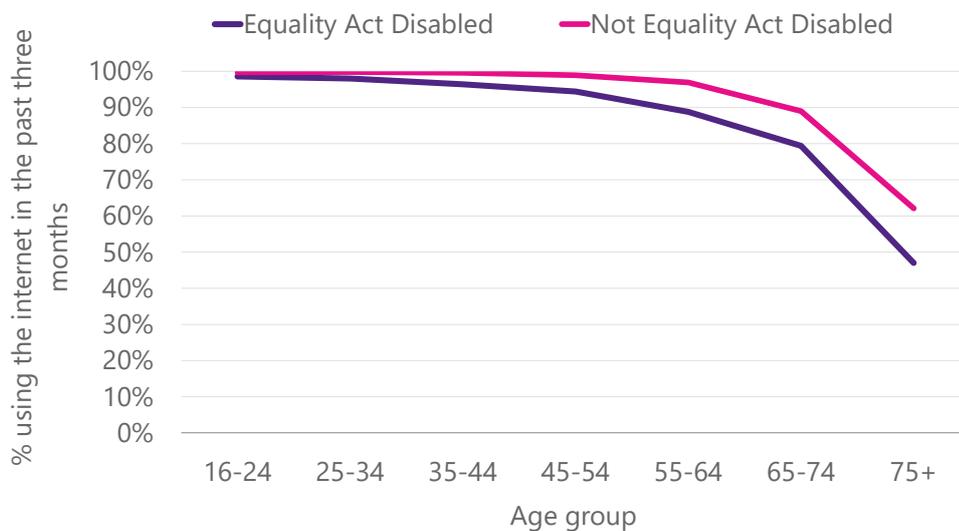
Source: ONS. 'Equality Act Disabled' refers to those who self-assess that they have a disability in line with the Equality Act definition of disability.

Age UK (2020) also found a similar pattern in data from the English Longitudinal Study of Ageing: while a large majority of 50-64 year-olds (88%) and 65-74 year-olds (75%) in England reported using the Internet every day or almost every day, only 46% of 75+ year-olds did. Among this group, over 40% do not use the Internet at all. Age UK found that there was little appetite for Internet use among this age group, with only 15% of over 75s saying they would like to use the Internet more.[10]

This pattern is reflected in the Internet access data. The data indicate that single adult households are, in general, less likely to have Internet access than households with multiple adults. However, this pattern is stronger for households with a single adult aged over 65; only 80% of such households have Internet access at home (Figure 2.2).

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[9] Based on Plum analysis of ONS data.
[10] https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/reports-and-briefings/active-communities/digital-inclusion-in-the-pandemic-final-march-2021.pdf

Figure 2.2: Internet access by household type (2020)
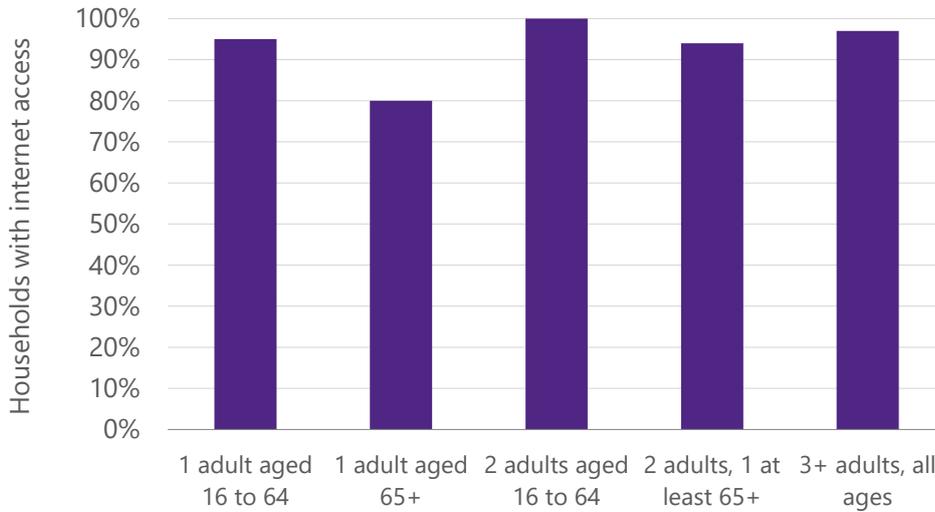
Source: ONS

Income also has an influence on whether households have access to the Internet. The data indicate that households in the lower income deciles are less likely to have Internet access, compared to similar household types in higher income deciles (Figure 2.3). The pattern is particularly pronounced for retired households.

Figure 2.3: Internet access by income decile (2019)
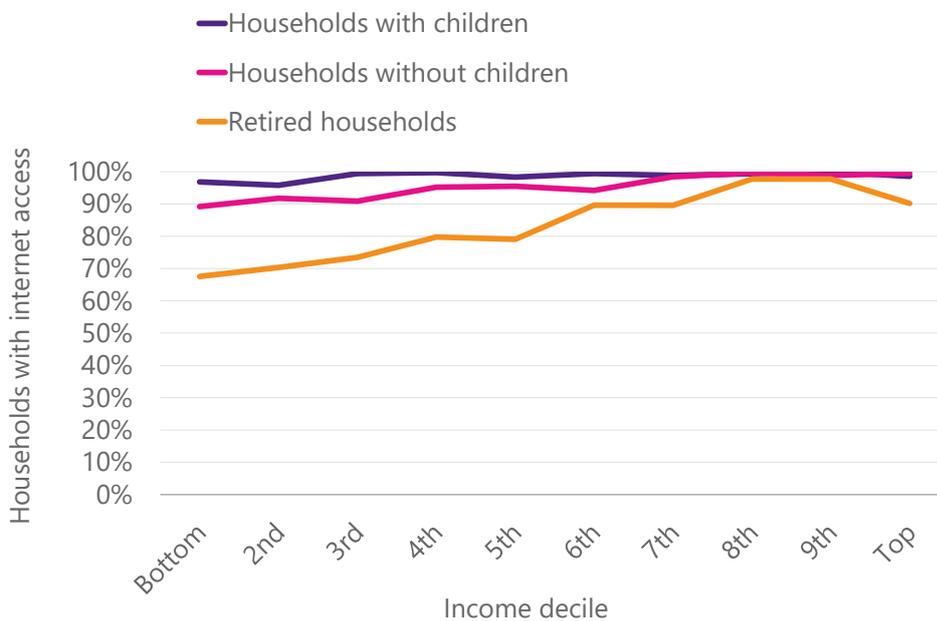
Source: ONS

The income relationship is also reflected in the Internet use data. The data indicate that those on a lower income use the Internet less frequently. This may reflect that not having Internet access at home is likely to make it harder to use the Internet regularly (for example, use of the Internet may require a trip to the local library).

Ofcom research indicates that, as of October 2022, 32% of UK households (9.1m) had difficulty affording a communications service – an increase from 17% in October 2020.[11] Ofcom link this increase to rising concerns

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[11] https://www.ofcom.org.uk/research-and-data/multi-sector-research/affordability-of-communications-services

about the cost of living and growing financial pressures faced by households. Some communications providers offer social tariffs (cheaper broadband and phone packages for people claiming Universal Credit, Pension Credit or various other benefits) which may help mitigate affordability issues. However, as of April 2022, Ofcom found that 69% of benefit claimants were not aware of social tariffs.

In addition, Ofcom's 2021 Technology Tracker estimated that 7% of UK adults are affected by 'device poverty': they do not own a PC, laptop, tablet or smartphone. This is more likely among those aged 65 and older, people on lower incomes, those not working, and those who live with a limiting condition. Ofcom's data also suggest that smartphone-only users are more likely to be 'narrow' Internet users, using the Internet for only a small number of tasks.

Figure 2.4: Frequency of Internet use by income (2018)

Source: ONS

Examining employment status, there is relatively little difference in Internet use between the employed and unemployed (Figure 2.5). However, Internet use is significantly lower among retired groups and the economically inactive.

Figure 2.5: Internet use by employment status (2020)
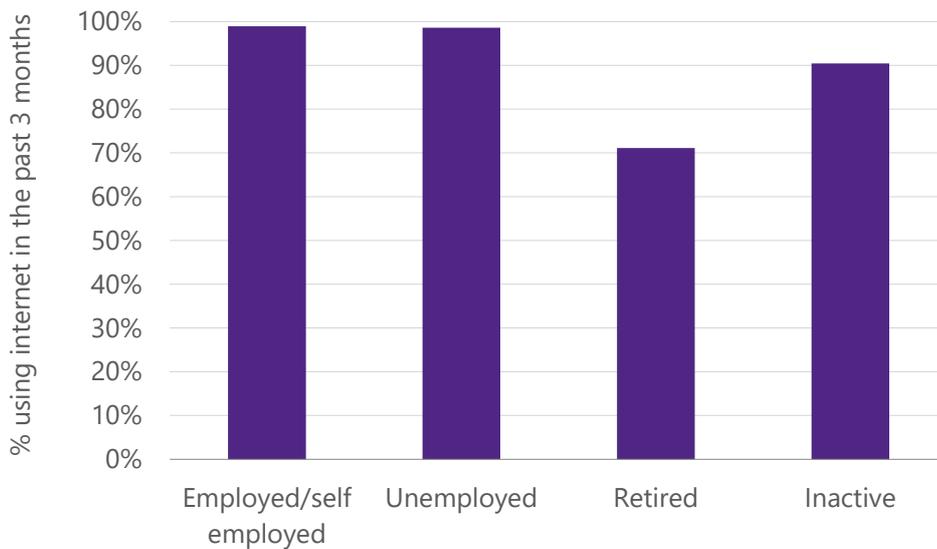
Source: ONS. Inactive refers to those of working age who are not actively job seeking, for example due to looking after family.

Internet users do not all use the Internet in the same way. Whilst around 90% of Internet users use the Internet to send and receive emails, only around half use it for video or voice calling. This raises a potential issue of digital under-utilisation: whether people are not deriving the full benefits of connectivity (possibly due to lack of skills, confidence, or trust).

Figure 2.6: Internet activities (2020)
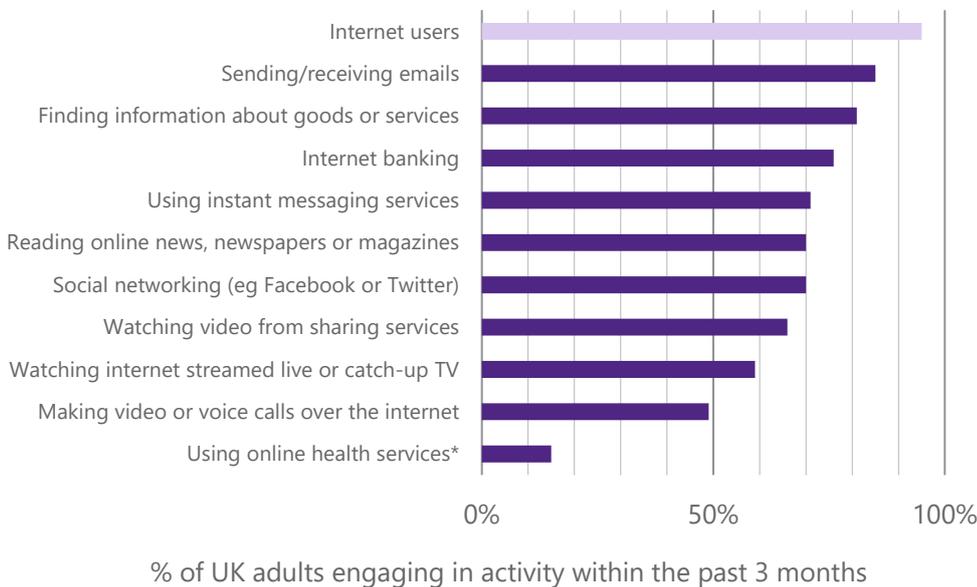
% of UK adults engaging in activity within the past 3 months

Source: ONS. * Online health services refers to using website or app instead of having to go to the hospital or visit a doctor, for example getting a prescription or a consultation online.

Engagement in many types of Internet activities is strongly correlated with age. For instance, while around 90% of under-45s engage in Internet banking, only 50% of over-65s do (Figure 2.7). A similar pattern holds for most Internet activities, with the exception of the use of online health services.

Figure 2.7: Selected Internet activities by age group (2020)
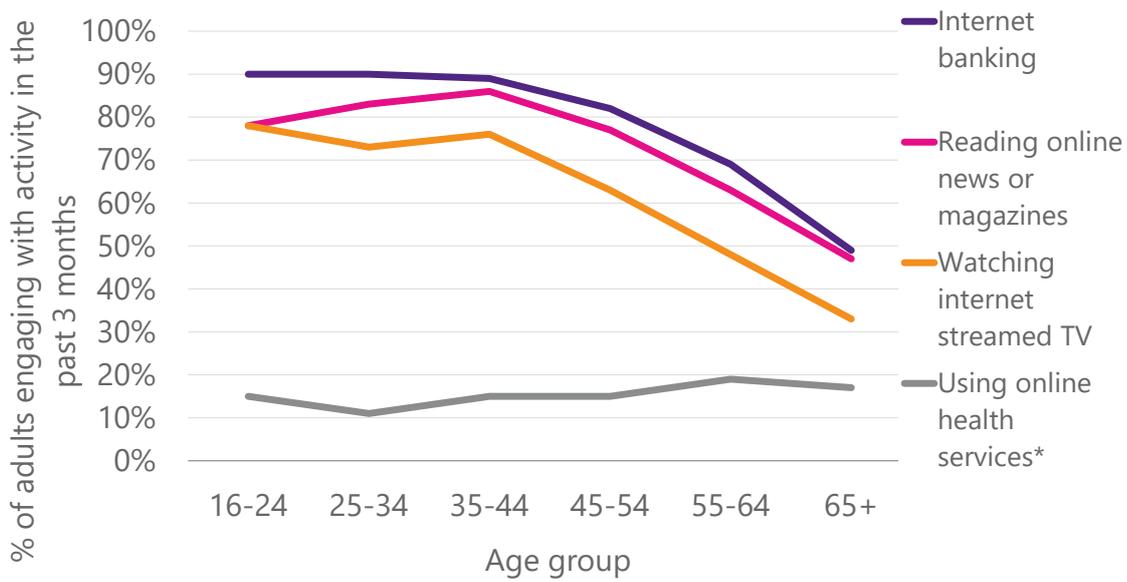
Source: ONS. * Online health services refers to using website or app instead of having to go to the hospital or visit a doctor, for example getting a prescription or a consultation online.

Key take-outs

- Age, income and household composition are key indicators of the risk of digital exclusion.

- There are affordability gaps for communications services among certain groups. Awareness of social tariffs for communications services is relatively low.

- Headline Internet use statistics may conceal underutilisation for certain Internet activities, which are likely to be driven by gaps in skills and trust.

2.2   Digital skills in the UK

A key measure of digital skills in the UK is the Essential Digital Skills (EDS) Framework, which is measured by Lloyds Banking Group on behalf of the Department for Education.[12] The Framework consists of three components: the Foundation Level, Essential Digital Skills for Life and Essential Digital Skills for Work.

The Foundation Level contains eight fundamental tasks needed to engage in online activities (Figure 2.8). A person must be able to complete all eight tasks independently in order to attain Foundation Level.

Figure 2.8: Essential Digital Skills Framework: Foundation Level tasks

Foundation Level tasks
1. You can turn on the device and enter any account login information as required
2. You can use the available controls on your device (e.g. mouse, keyboard, touchscreen, trackpad)
3. You can use the different settings on your device to make it easier to use (e.g. adjust font size, volume settings, brightness of screen, voice activation or screen readers)
4. You can find and open different applications/programmes/platforms on your devices (e.g. opening a web browser, messaging applications)
5. You can set up a connection to a Wi-Fi network on your devices (e.g. when at home, work, out in public or visiting family and friends)
6. You can open an Internet browser to find and use websites (e.g. Safari, Google Chrome, Mozilla Firefox, Microsoft Edge)
7. You can keep your login information and passwords for a device and any accounts secure (e.g. not shared with anyone or written down or left prominently near a device)
8. You can update and change your password when prompted to do so

Source: Lloyd's UK Consumer Digital Index 2022

According to the most recent estimate, around 10.2m UK adults (20%) lack Foundation Level skills. Of these, 2.4m (4%) are not able to do *any* of the eight tasks. However, 4.8m people are on the cusp of achieving Foundation level, and are able to do 6-7 of the Foundation Level tasks. The largest correlating factor for Foundation Level skills is age: only 31% of those aged 75+ have such skills (Figure 2.9). Other correlating factors for a lack of Foundation Level skills include being on a lower income, having no formal qualifications, having a disability, and living alone.

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[12] https://www.gov.uk/government/publications/essential-digital-skills-framework/essential-digital-skills-framework

Figure 2.9: Foundation Level skills, by age group (2022)
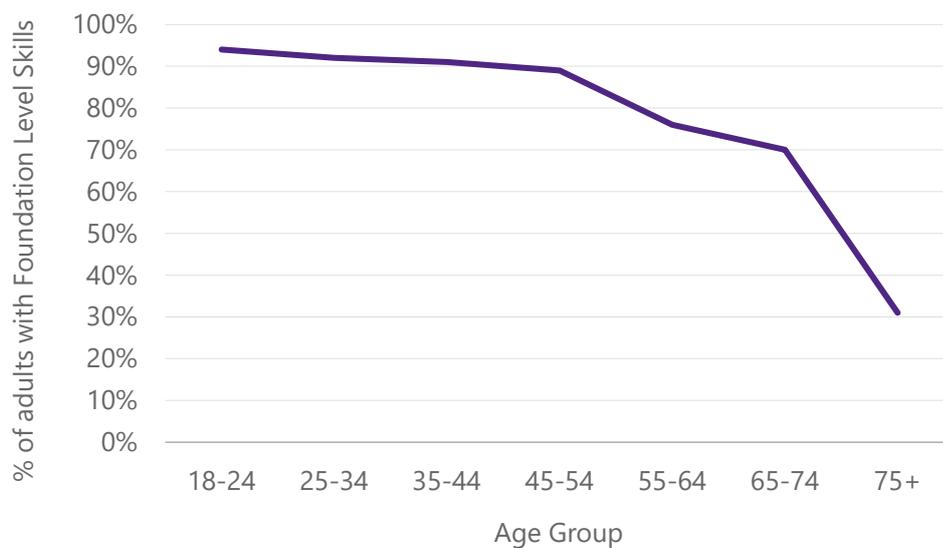
Source: Lloyd's UK Consumer Digital Index 2022

The EDS for Life and EDS for Work consist of a set of tasks grouped into five areas: Communicating, Handling Information and Content, Transacting, Problem Solving, and Being Safe and Legal Online. In order to be deemed to have either skillset, a person must be able to complete at least one of the tasks from each of the five areas.

The most recent evidence indicates that 88% of adults have Life EDS. Around 5% (2.7m) do not have any of the Life skills. The correlating factors are similar as for the Foundation Level: aged 75+, being retired, being on a lower income, having a disability and living alone.

In terms of workplace skills, 78% of labour force adults[13] have Work EDS, while 8% do not have any of the digital work skills. Among labour force adults there is a significant disparity between those in and out of employment: 82% of those in employment have Work EDS compared to 60% of those out of employment. This may present a barrier to employment: in 2019 Burning Glass reported that eight in ten online advertised job openings in the UK are for occupations that demand digital skills, and that baseline digital skills such as Microsoft Office are now "near-universal" requirements.[14]

In 2022, FutureDotNow reported that only 43% of those in employment could do all 20 Work EDS tasks, while 5% could not do any of them (FutureDotNow dubbed this group the "hidden middle" between digital exclusion and the advanced tech workforce).[15] According to a survey by Enginuity, 92% of businesses say having basic digital skills[16] is important for employees, yet 23% say their current workforce lacks the basic digital skills they need.[17]

There are also supply gaps when it comes to more advanced and/or specialist digital skills. According to Enginuity's survey, 27% of employers said that the majority of their workers required advanced digital skills.[18] However, members of TechUK, a technology trade association, identified access to talent and skilled workers as

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[13] Includes those in employment, those who are seeking work and those not in paid work for other reasons (such as disability).
[14] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/807830/No_Longer_Optional_Employer_Demand _for_Digital_Skills.pdf
[15] https://futuredotnow.uk/wp-content/uploads/2023/01/FutureDotNow-Annual-Review-2021-22-final-digital_.pdf
[16] Defined in this case as proficiency with common software, the ability to process digital information, the ability to communicate digitally, and the ability to learn new digital skills.
[17] https://enginuity.org/wp-content/uploads/2021/03/Disconnected-Report.pdf
[18] Defined in this case as a good knowledge of a range of digital skills and specialist knowledge in one or more areas, such as programming, CAD or specialist software.

the biggest challenge whey would face in 2023.[19] In a survey of businesses carried out by Opinium for DCMS, 48% of businesses surveyed were recruiting for data roles, and 46% said they had struggled to recruit for roles requiring data skills.[20] It is worth noting that the demand for advanced digital skills is not just confined to the tech sector: in all sectors there is demand for both basic and advanced digital skills.

Key take-outs

- 20% of UK adults do not have Foundation Level digital skills.

- Key correlating factors for the lack of digital skills are age, a lower income, having no formal qualifications, having a disability, and living alone.

- There is a large gap in workplace digital skills between those in employment and the unemployed.

2.3   Reasons given for lack of Internet use

Lloyds Banking Group has estimated that around half a million people in the UK (1%) had not used the Internet in the past three months. In a survey of this group, 86% said it was their personal choice not to use the Internet. Lloyds found that privacy and security concerns were strong barriers for 62% of them (Figure 2.10), that 59% worried about their identity being taken, and 57% worried about organisations using their personal data..

Figure 2.10: Reasons non-users give for not using the Internet

% of respondents (n=125)
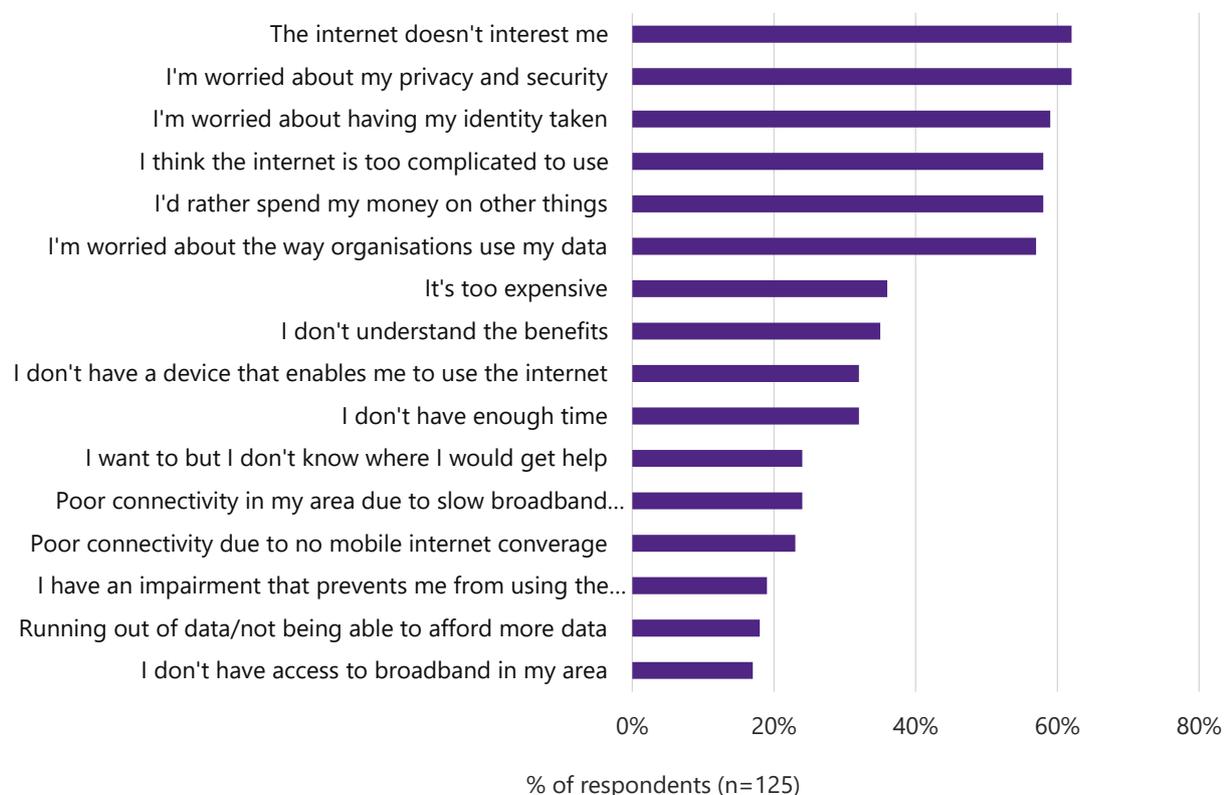
Source: Lloyds Consumer Digital Index 2022

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[19] https://www.techuk.org/resource/digital-economy-monitor-q3-2022-results.html
[20] https://www.gov.uk/government/publications/quantifying-the-uk-data-skills-gap/quantifying-the-uk-data-skills-gap-full-report#introduction

Other important barriers were lack of interest (62%), wanting to spend money on other things (58%), and a perception that the Internet is too complicated (58%).

Ofcom (2022) estimated that, as of December 2021, 6% of households did not have access to the Internet at home.[21] Ofcom's Adults' Media Literacy Tracker survey asked adults without Internet access at home why they weren't connected: 47% chose "not interested" as the main reason.[22] In addition, 31% chose factors relating to the Internet being too complicated, and 19% chose cost-related reasons. However, Ofcom also reported that almost half of those who did not use the Internet at home and who claimed to have no interest had asked someone to do something for them online in the past year.

This finding is corroborated by ONS data. In 2019 (the latest available year), "don't need Internet" was the reason most frequently given for not having the Internet at home (Figure 2.11). Lack of skills and privacy or security concerns were the next most frequent reasons, given by 34% and 33% of respondents respectively. Of note is the rapid rise in concern about privacy and security in 2019 – potentially reflecting growing societal awareness of online scams and identity theft – as well as issues around affordability.

Figure 2.11: Reasons given or households not having Internet access (Great Britain)

	2010	2011	2012	2013	2014	2015	2016	2017	2019
Don't need Internet (not useful, not interesting, etc)	39	50	54	59	52	53	59	64	61
Lack of skills	21	21	22	20	32	31	21	20	34
Privacy or security concerns	4	5	4	2	5	5	6	7	33
Access costs too high (telephone, broadband subscription)	15	13	14	12	12	12	9	8	29
Equipment costs too high	18	19	15	13	12	14	9	8	28
Other reason	13	18	15	13	12	14	15	10	25
Have access to the Internet elsewhere	8	8	8	7	8	7	8	12	16
Broadband Internet is not available in area	:	:	:	:	:	:	:	:	~0

Source: ONS. Questions were not asked in 2007, 2009 or 2018. : indicates data not available.

Research by Age UK again found that lack of interest was cited by most older non-users as the reason for not having Internet access, with lack of skills also being a key reason.[23] Age UK's research also found that 'lack of interest' could be a more nuanced position. In some cases it could be an informed choice and that such users may use family or friends for "proxy access" when they wanted to do something online. In other cases it could be given as a reason instead of admitting a lack of confidence, a lack of skills or concerns about the risks.

This suggests a degree of interrelationship between 'skills' and 'motivation' as barriers. Lack of interest may be a barrier to non-users developing digital skills. Conversely, lack of interest may be cited as a reason for not being online by users who lack digital skills and/or confidence. This interrelationship may present a particular problem in households composed only of non-users, where there is not someone who can demonstrate the benefits and help teach skills. The Lloyds Consumer Index found that two-thirds of those offline do not have anyone else in

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[21] https://www.ofcom.org.uk/__data/assets/pdf_file/0022/234364/digital-exclusion-review-2022.pdf
[22] https://www.ofcom.org.uk/research-and-data/media-literacy-research/adults/adults-media-use-and-attitudes/interactive-tool
[23] https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/age_uk_digital_inclusion_evidence_review_2018.pdf

their household that use the Internet. Age UK found that non-users selected "having someone beside you to help" as the foremost factor that would encourage Internet use.[24]

In terms of affordability, Ofcom's research indicates that, as of October 2022, 32% of UK households (9.1m) had difficulty affording a communications service.[25] However, Ofcom's research also found that households were reducing spend elsewhere so that they could continue to afford communications services, including prioritising spend on connectivity over discretionary spend on entertainment. Age UK's research found that, while cost was an issue for some older people, it was not generally seen as the main barrier. Age UK noted that *"for some people, it is not so much that they cannot afford it [...] but that it would not represent value for money"*.[26] In 2022, Citizens Advice reported that 1 in 10 have reduced the amount they spend on communication services because they could no longer afford them.[27]

Regarding infrastructure access, in a survey of those without Internet at home Ofcom found that 4% of those claimed not to have broadband where they lived.[28] A further 3% gave broadband being too slow as a reason for not having Internet access at home. However, in 2020 the Government reported that 98% of UK households had access to the physical infrastructure required to receive a 'decent' fixed broadband connection (defined as a connection allowing a download speed of 10 Mbit/s and an upload speed of 1 Mbit/s.[29] The status of connected infrastructure in Cheshire and Warrington is discussed in Section 6.

In some cases complaints about broadband speeds may relate to unreliable or patchy mobile broadband coverage (rather than fixed access) – according to Ofcom research 5% of UK households reportedly rely on mobile Internet access alone.[30] However, these complaints may also reflect that infrastructure coverage figures do not always reflect people's experience on the ground.

Key take-outs

- Lack of motivation and lack of digital skills are generally cited as the biggest barriers to getting online. These two barriers may be interrelated.

- Concerns about security and privacy form another key barrier. The data suggest that these concerns have been growing in recent years.

- Affordability will be a barrier for some, though it is not the main barrier for the majority of non-users.

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[24] https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/lapsed_users_report_march-2020.pdf
[25] https://www.ofcom.org.uk/research-and-data/multi-sector-research/affordability-of-communications-services
[26] https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/reports-and-briefings/active-communities/policy-briefing--living-in-a-digital-world-after-covid-19-the-experience-of-older-people-who-dont-live-their-lives-online.pdf
[27] https://www.citizensadvice.org.uk/Global/CitizensAdvice/Consumer%20publications/FINAL%20Social%20tariffs%20discussion%20paper%20-%20October%202022.pdf
[28] Ofcom (2021). Adults' Media Literacy Tracker 2021.
[29] https://post.parliament.uk/covid-19-and-the-digital-divide/
[30] https://www.ofcom.org.uk/__data/assets/pdf_file/0022/234364/digital-exclusion-review-2022.pdf

3   Demographic and economic characteristics of Cheshire and Warrington

It is important to take demographic and economic characteristics into account when thinking about digital inclusion. Individuals on lower income may have difficulty accessing digital activities such as smartphones and computers. Older individuals and those living in rural or deprived areas may have less access to high speed Internet, community resources and training and this can limit their ability to participate in online activities and access important services.

Figure 3.1 compares some summary demographic and economic statistics for Cheshire and Warrington with the UK average.

Figure 3.1: Summary indicators, Cheshire and Warrington vs. UK average

Indicator	UK average	Cheshire and Warrington (LEP)	Warrington (LA)	Cheshire East (LA)	Cheshire West and Chester (LA)
Median age	40.1 years old	44.4 years old	42.3 years old	46.4 years old	44.5 years old
Average income	£30,816	£31,032	£30,096	£31,790	£29,280
% employed or self-employed	84.9%	87.7%	85.2%	88.6%	88.2%
% unemployed [31]	3.7%	3.3%	3.5%	3.2%	3.4%
% retired	14.0%	27.5%	20.7%	31.7%	27.3%
% single person households	30%	30.3%	30.2%	30.4%	30.2%
Deprivation score	11.5%	10.0%	10.9%	8.3%	10.8%
Income disparity[32]		36.9%	36.7%	34.6%	39.5%

Source: ONS, Nomis, Plum analysis

3.1   Age

The median age in Cheshire and Warrington (and Cheshire East in particular) is higher than the average for the UK. In particular, there are more 70+ year olds compared to the UK as a whole (Figure 3.2). This is also reflected in the proportion of residents who are retired, which is significantly above the UK average. This suggests that strategies and approaches aimed to bring older citizens online are likely to have particular relevance in Cheshire and Warrington.

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[31] Model based projections.
[32] The gap in income deprivation between the most deprived and least deprived areas.

Figure 3.2: Age profile of Cheshire and Warrington compared with England (England = 1)

Area	Ages 0 – 16	Ages 16 – 35	Ages 35-55	Ages 55-65	Ages 65+
Cheshire East	18.6%	18.6%	28.1%	15.2%	22.2%
Cheshire West and Chester	19.4%	20.6%	29.3%	15.2%	22.2%
Warrington	18.6%	21.5%	28%	14.2%	19%
England and Wales	19.7%	23.8%	27.8%	12.4%	15.3%

Source; ONS 2021, Plum.

3.2   Deprivation

Figure 3.3 illustrates the distribution of neighbourhoods in Cheshire and Warrington according to their relative levels of deprivation, as measured by the Index of Multiple Deprivation (IMD). Neighbourhoods are scored according to deciles, with Decile 1 representing the most deprived neighbourhoods in England. The sub-region as a whole shows lower levels of deprivation, with many neighbourhoods in the 9th and 10th deciles. However, according to the IMD 2019, there are concentrations of deprivation in Warrington, Crewe and Ellesmere Port, with further pockets in Chester, Winsford, Northwich and Macclesfield.[33]

Figure 3.3: Neighbourhoods in Cheshire and Warrington, by Index of Multiple Deprivation Decile
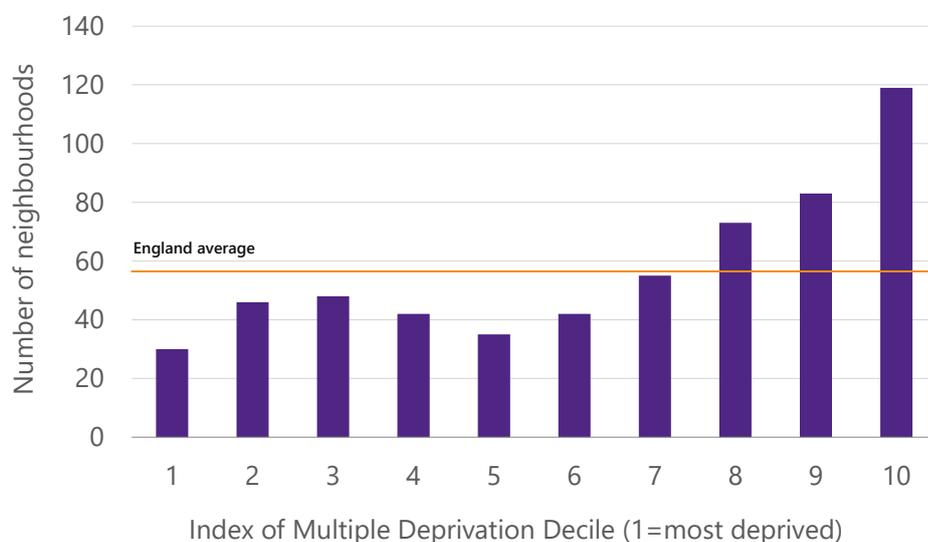
Source: IMD (2019). 'England average' represents the expected distribution of neighbourhoods if Cheshire and Warrington mirrored the national average.

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[33] https://cheshireandwarrington.com/media/2kadkil2/report-b-the-adult-workforce-and-skills-delivery-in-cheshire-and-warrington.pdf

Figure 3.4: Relative deprivation in neighbourhoods in Cheshire and Warrington subregions
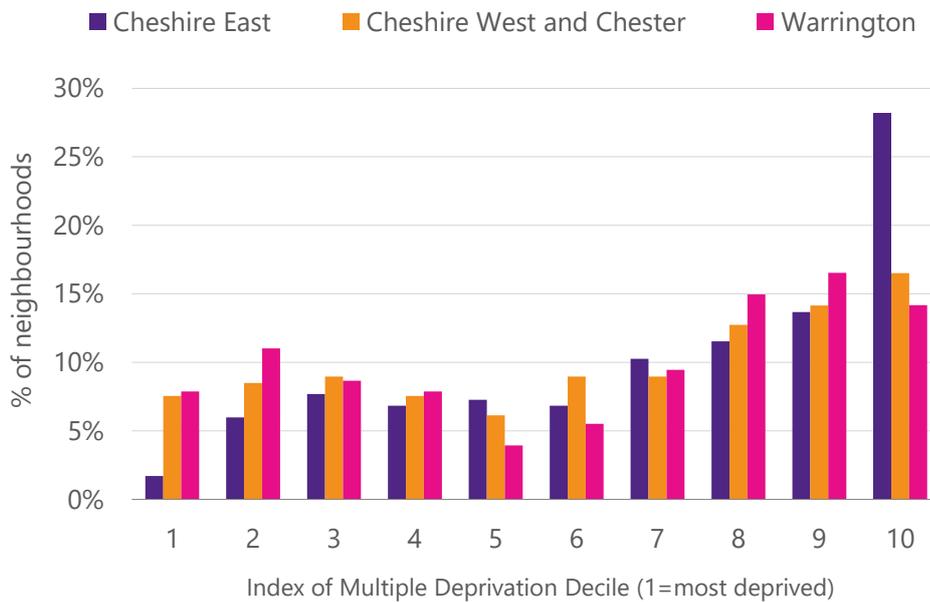
3.2.1   Cheshire East

Figure 3.5 below shows (in red), the areas of high income deprivation in Cheshire East. In this area, deprivation tends to be scattered around and in general is less pronounced, as shown by the distribution of the bar graph above the map. Among the 234 neighbourhoods in Cheshire East, 13 were among the most income deprived in England.

Figure 3.5: Map of relative deprivation, Cheshire East
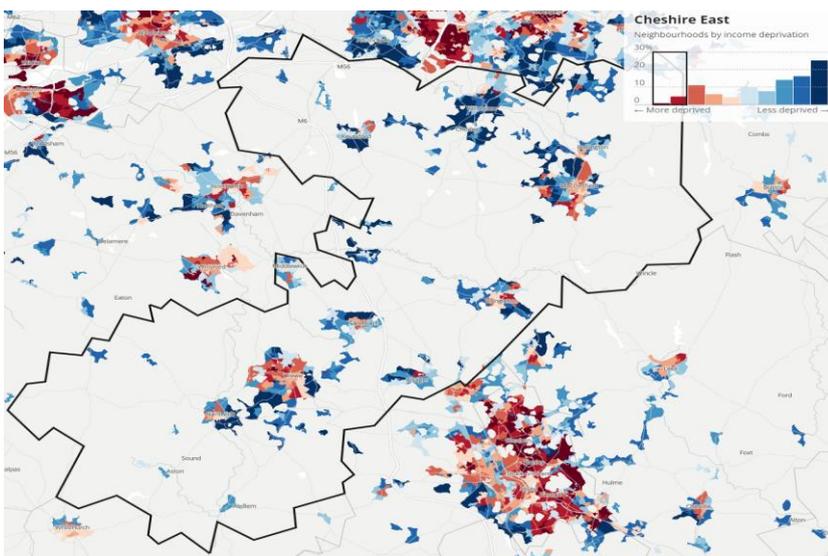
Source: ONS Local Income Deprivation; May 2021.

3.2.2 Cheshire West and Chester

Deprivation in Cheshire West and Chester is pronounced near the outskirts (to the Northwest, and Northeast) especially, and is somewhat clustered along those margins. As can be seen on the bar graph (Figure 3.4), the distribution is largely uniform but skews less deprived. This however conceals that, among the 212 neighbourhoods in Cheshire West and Chester, 37 were among the 20 percent most income deprived in England, which by proportion is higher than Cheshire East and Warrington. Consequently, Cheshire West and Chester has the highest internal disparity of the Local Authority areas, at 39%. Internal disparity is the difference (in percentage terms) between the least deprived area, where 1.5% of people are considered income deprived, and the most deprived area, where 41% of people are estimated to be income deprived. As such, this difference can be considered a measure of extreme inequality.

Figure 3.6: Map of relative deprivation, Cheshire West and Chester
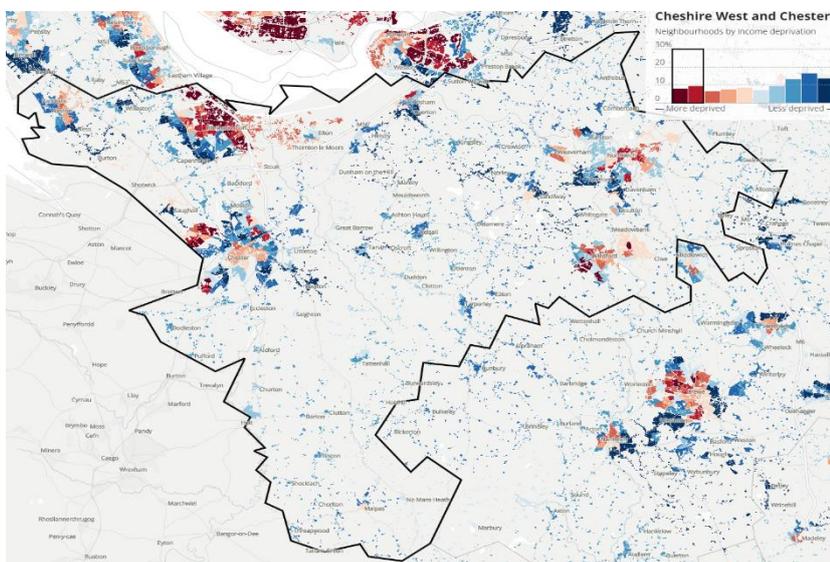
Source: ONS Local Income Deprivation; May 2021.

3.2.3 Warrington

Deprivation in Warrington is clustered centrally, and there is a more uniform distribution of deprived areas to less deprived areas, meaning the frequency of deprivation tends to be more spread out as opposed to concentrated in one area. Some 24,670 local people live in neighbourhoods ranked the most deprived 10 percent in England. Warrington has a Moran's I (spatial autocorrelation, or deprivation clustering) of 0.53, higher than both Cheshire East and Cheshire West and Chester.[34]

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[34] Moran's I is an alternative way of looking at inequality, it measures how intermixed the most deprived and least deprived areas are, Moran's I is measured from −1 to +1, where +1 is highly clustered and −1 is a completely uniform mix of high and low deprivation neighbourhoods. For example, Kensington and Chelsea has the highest Moran's I in England. Despite having one of the highest average household incomes in England.

Figure 3.7: Map of relative deprivation, Warrington
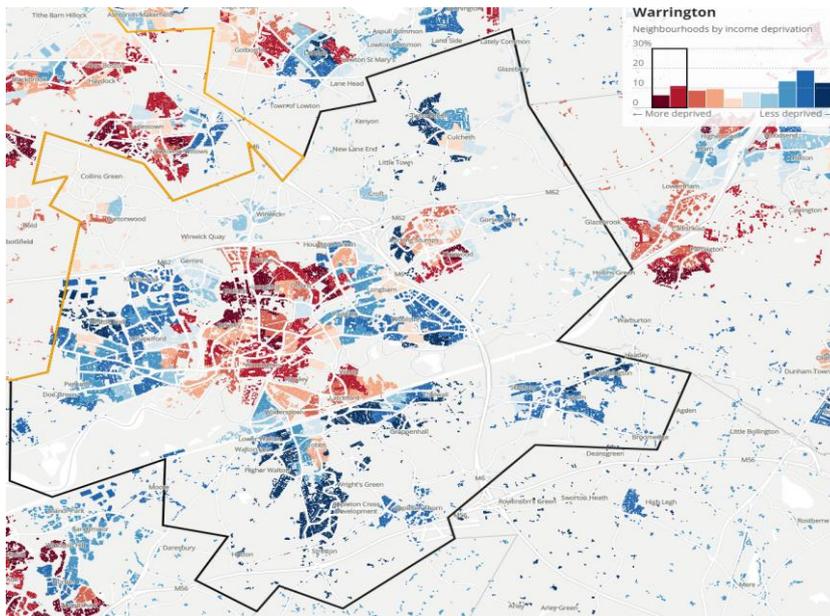
Source: ONS Local Income Deprivation; May 2021.

3.3   Education

Figure 3.8 shows 2021 data from ONS on adult education across the sub-region.

The number of people starting higher education in Cheshire West and Chester has fallen steadily from 35,153 to 21,382 YTD from 2017 to 2021. Cheshire West and Chester is simultaneously ranked the 2nd best performing within the North West region, with an attainment 8 – key stage 4 score of 49.2% vs the 46.7% UK average, but also has a 4 percentage point gap in performance between disadvantaged students in the region and their comparable group in the UK.[35] This means where students are disadvantaged, they tend to do worse here than disadvantaged students in other areas of the UK.

Figure 3.8: Adults' educational attainment

Educational level	England and Wales	Cheshire East	Cheshire West and Chester	Warrington
No qualifications	18.2%	20%	15.8%	16.5%
Level 1 and entry qualifications	9.6%	8.7%	9.3%	10.0%
Level 2 qualifications	13.4%	13.7%	13.7%	14.8%
Apprenticeships	5.3%	5.9%	5.4%	6%
Level 3 qualifications	16.9%	16.8%	17.8%	17.3%
Level 4 qualifications	33.8%	37.6%	35.7%	33.0%
Other	2.8%	2.3%	2.3%	2.6%

[35] https://www.cheshirewestandchester.gov.uk/your-council/key-statistics-and-data/state-of-the-borough/education

Educational level	England and Wales	Cheshire East	Cheshire West and Chester	Warrington
Qualification Index score	2.45	2.61	2.55	2.47

Source; ONS 2021 Census data. Adults include all over the age of 16. Note; The highest level of qualification index score is a summary measure that can be used to compare how highly qualified population groups are. It assigns every individual aged 16 years and over a value based on their highest level of qualification, excluding those whose highest level of qualification is unknown. The index score is then the average value of all individuals in in the selected area.

Key: Level 1 – First Certificate, Level 2 – GCSE, Level 3 – A level, advanced apprenticeship, higher education diploma, Level 4 – Certificate of higher education, level 4 diploma.

Key take-outs

- Cheshire and Warrington has an older demographic than the rest of the UK, notably the proportion of retired persons in Cheshire and Warrington is significantly higher than the UK average.

- Income and education levels in Cheshire and Warrington broadly mirror the UK average. Cheshire East has the highest proportion in the sub-region of individuals with no education but also the highest proportion with level 4 and above qualifications.

- Deprivation is somewhat more clustered in Warrington than Cheshire East, Cheshire West and Chester. Cheshire West and Chester has the highest internal income disparity in the LEP area.

4   Internet use in Cheshire and Warrington

4.1   Engagement with the Internet in Cheshire and Warrington

The analysis in Section 2.3 indicates that the demographic and economic characteristics of Cheshire and Warrington as a whole are broadly similar to the UK average. Headline Internet use data indicates that Internet use in Cheshire and Warrington is also similar to the UK average, with around 90% of adults using the Internet in the past three months (Figure 4.1). The proportion of Internet users has remained relatively steady over the measurement period.

Figure 4.1: % of adults using Internet in the past three months
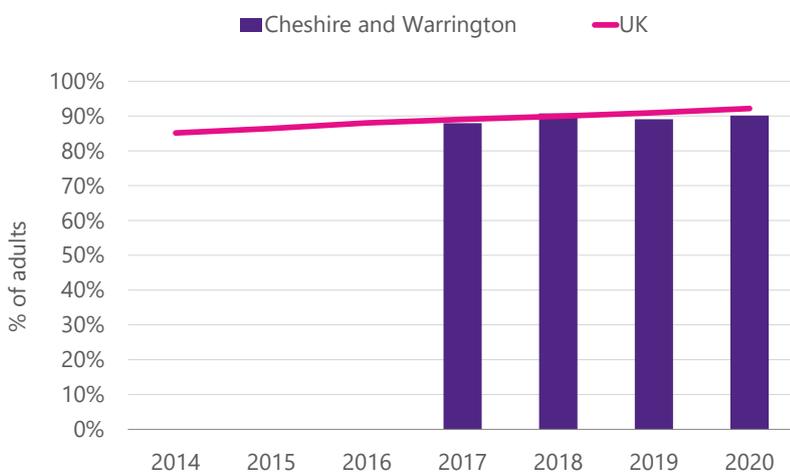
Source: ONS. Note: Pre-2017 data for Cheshire and Warrington sub-region are not comparable due to administrative boundary changes.

The data indicate an increase in the proportion of adult Internet users in Warrington and Cheshire West and Chester and Warrington from 2017 to 2020. (Figure 4.2). According to the most recent datapoint, Cheshire East is behind Warrington and Cheshire West and Chester in the proportion of Internet users.

Figure 4.2: % of adults using Internet in the past three months
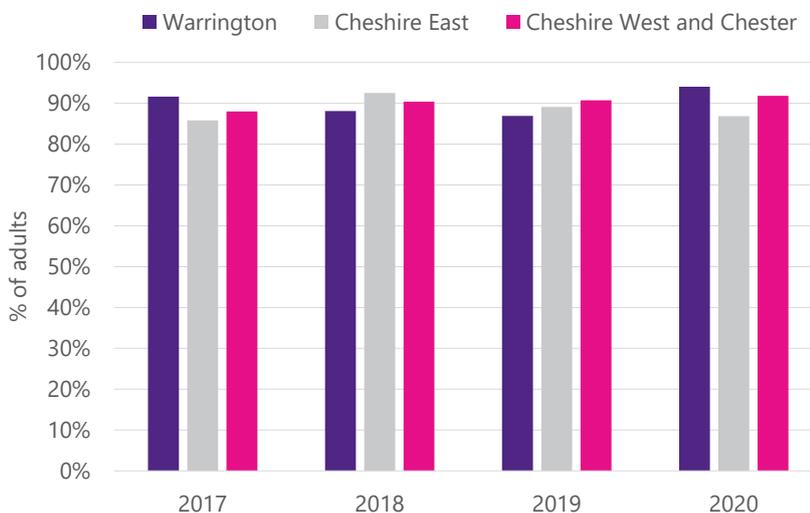
Source: ONS

For a closer examination of Internet use across the sub-region, we drew upon the Internet User Classification, a classification that describes how people living in different parts of Great Britain interact with the Internet.[36] This resource draws upon demographic and economic data, infrastructure characteristics and transaction data from online retailers to assign neighbourhoods one of ten Internet user 'profiles' (Figure 4.3). Data are available at the Lower Layer Super Output Area (LSOA) level for 2018 (the latest available year).

**Figure 4.3: Internet User Classification neighbourhood profiles**

Group Code	Group Name	Summary description
1	e-Cultural Creators	Typically young with high levels of Internet engagement
2	e-Professionals	Typically young populations of urban professionals with high levels of Internet engagement
3	e-Veterans	Represents affluent families, usually located within low-density suburbs, with populations of mainly middle-aged and highly qualified professionals. They are more likely to be frequent and experienced users of the Internet.
4	Youthful Urban Fringe	Typically young, with average levels of access and Internet engagement, with high levels of social media usage but low patronage of online retailing
5	e-Rational Utilitarians	Mainly comprising rural and semi-rural areas at the city fringe, this group has high demand for Internet constrained by poor infrastructure. Users tend to be late middle-aged or elderly.
6	e-Mainstream	A heterogenous group, representing mixed neighbourhoods. Their level of engagement is average across most attributes, characterising the typical user.
7	Passive and Uncommitted Users	This group consists of individuals with limited interaction with the Internet, commonly reporting using the Internet once per week or less. They tend to reside outside city centres and close to suburbs or semi-rural areas.
8	Digital Seniors	Members of this Group are ageing and predominantly White British, retired and relatively affluent. They make average use of the Internet, typically using a personal computer at home.
9	Settled Offline Communities	Most members of this Group are elderly, White British and retired, and tend to reside in semi-rural areas. They undertake only limited engagement with the Internet; they may have only rare access or indeed no access to it at all.
10	e-Withdrawn	This Group is mainly characterised by individuals who are the least engaged with the Internet. Their geography is expressed by areas that are associated with those more deprived neighbourhoods of urban regions

Source: Drawn from the Internet User Classification (IUC) user guide.

Across Cheshire and Warrington, 6.6% of LSOAs are assigned profiles 9 (Settled Offline Communities) or 10 (e-Withdrawn). These areas indicate communities with very low levels of engagement with the Internet and could be key areas in need of additional support. Additionally, 34.7% of LSOAs in Cheshire and Warrington are assigned profiles 7, 8, 9, or 10 – indicating only relatively limited engagement with the Internet across these communities. This compares relatively favourably to the UK as a whole (Figure 4.4) but still indicate a substantial proportion of disengaged or less engaged people across the sub-region.

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[36] Alexiou, A. and Singleton, A. (2018). The 2018 Internet User Classification. ESRC Consumer Data Research Centre.
https://data.cdrc.ac.uk/dataset/Internet-user-classification

Figure 4.4: Distribution of neighbourhoods according to IUC profile (Cheshire and Warrington vs. UK)
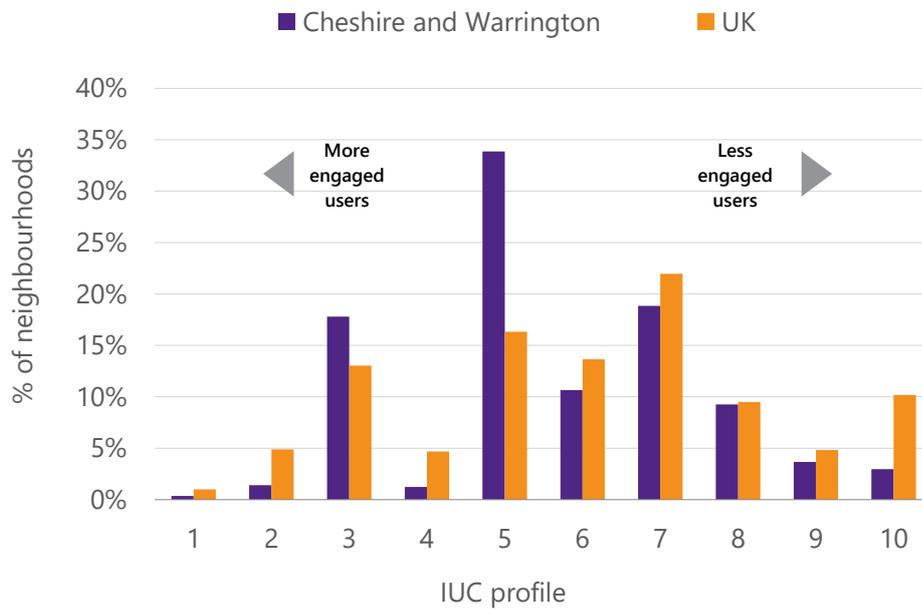
Source: Plum analysis of Internet User Classification (2018) data.

The figure below shows how the neighbourhood distribution varies across the Local Authority areas in Cheshire and Warrington.

Figure 4.5: Distribution of neighbourhoods in Cheshire and Warrington by IUC profile (Source: Internet User Classification 2018)
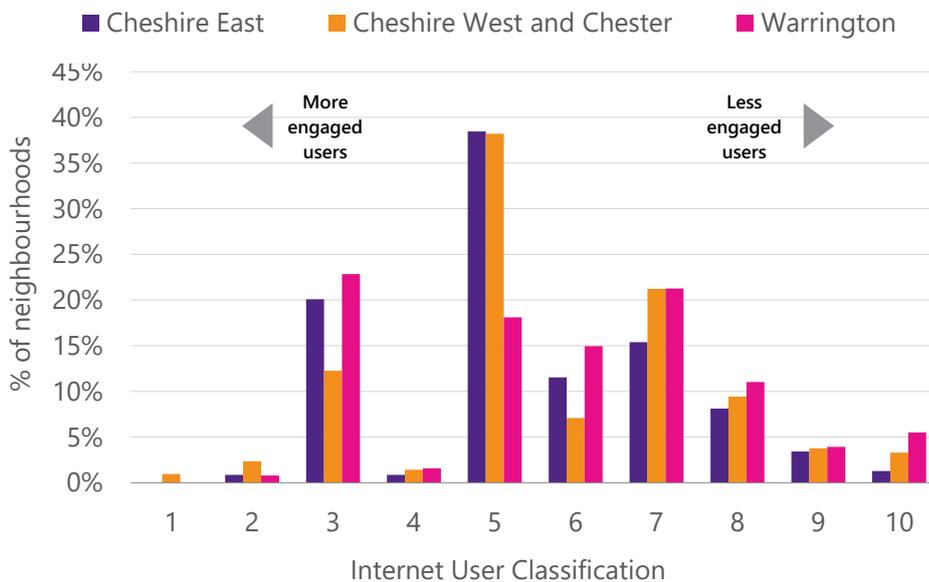
Source: Plum analysis of Internet User Classification (2018) data.

Figure 4.6: Proportion of neighbourhoods with low Internet engagement, by constituency

Constituency	% LSOAs with IUC profile 7, 8, 9 or 10	% LSOAs with IUC profile 9 or 10
City of Chester	25%	7%
Congleton	29%	7%
Crewe and Nantwich	47%	9%
Eddisbury	30%	7%
Ellesmere Port and Neston	59%	9%
Macclesfield	20%	2%
Tatton	17%	2%
Warrington North	49%	10%
Warrington South	33%	8%
Weaver Vale	35%	0%
Cheshire and Warrington total	**35%**	**7%**
England	**47%**	**15%**

Source: Plum analysis of Internet User Classification (2018) data.

Another potential datapoint for levels of Internet engagement across the sub-region is the method people used to respond to Census 2021, with online response indicating a degree of digital ability. Census 2021 was the first digital-first census: most households were sent a letter directing them to complete the census online; the remainder were sent a paper questionnaire (which included an access code to respond online if the recipient chose to).[37] The latter 'paper-first' approach was used in localities where the take-up of the online option was expected to be low. The 'paper-first' approach was used in 11 neighbourhoods across Cheshire and Warrington, including parts of Crewe, Blacon and Winsford.

Figure 4.7: Census response methods

	England	Warrington	Cheshire West and Chester	Cheshire East
% of paper first households	9.0%	0.9%	2.0%	2.1%
Online share for paper first areas	47.9%	48.7%	49%	48.3%
Online share for online first areas	94.2%	95.2%	94.1%	94.2%

Source: ONS (2021).

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[37] Households are more likely to respond on paper if sent a paper questionnaire and more likely to respond online if sent a letter with an access code. As such the method of first contact should be taken into account in any analysis of this data. Refer to: https://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeInternetandsocialmediausage/articles/designingadigitalfirstcensus/2021-10-04

The high-level analysis indicates that Cheshire and Warrington had a substantially lower proportion of paper-first households than the average for England. Of those paper-first households, the proportion that ended up responding online was slightly higher than the UK average. The share of online responses for 'online first' areas broadly matched the England average. Data are available at Lower Layer Super Output Area (LSOA) level. Analysis of these data shows correlations between the proportion of online census responses and age, income deprivation and skills deprivation in the sub-region (Figure 4.8, Figure 4.9, Figure 4.11).

Figure 4.8: Correlation between age and % online census response (each dot represents a neighbourhood in Cheshire and Warrington)
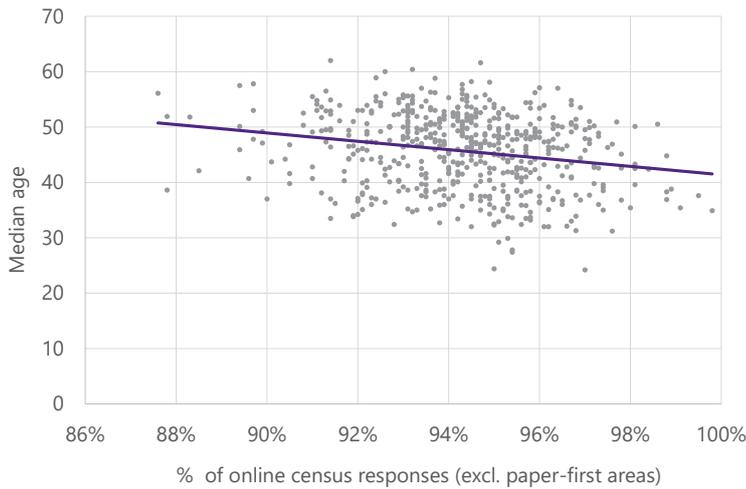
Figure 4.9: Correlation between income deprivation and online census response (each dot represents a neighbourhood in Cheshire and Warrington)
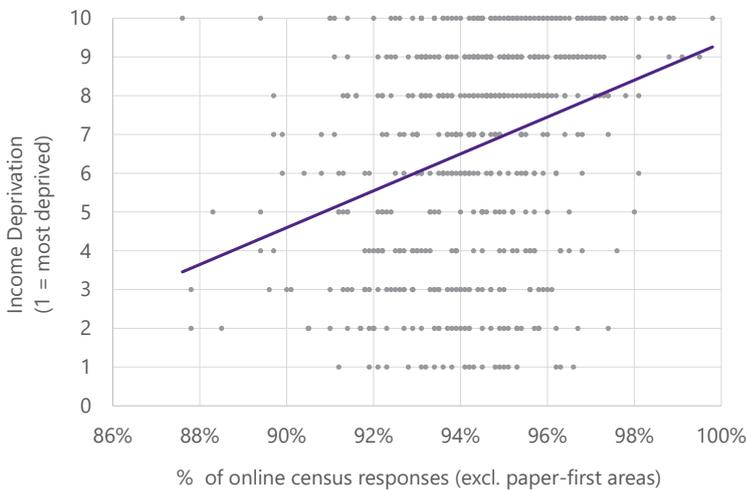
Key take-outs

- Headline Internet use figures indicate that Cheshire and Warrington lags slightly behind the UK average.
- The overall figures conceal some disparities. Other data sources suggest substantial variation in levels of Internet use and engagement across localities in the sub-region.
- Data on engagement with specific Internet activities are not available at sub-regional level, making it challenging to assess digital under-utilisation.

4.2   Digital skills in Cheshire and Warrington

In 2022, 78% of people in the North West region were estimated to have Foundation Level digital skills, compared to 80% for the UK as a whole.[38] However, the proportion of the working population with Work EDS was estimated to be slightly higher than the UK average (80% vs. 78%). Note, however, that these figures reflect the North West region as a whole, rather than Cheshire and Warrington (data are not available for Cheshire and Warrington specifically).

TechUK, a technology trade association, has produced a Local Digital Capital Index, ranking regions along six dimensions: skills, adoption, infrastructure, finance and investment, R&D, and trade.[39] Cheshire ranks 36th out of 41 UK regions in the index in terms of digital skills. However, this sub-index is heavily weighted towards Internet use statistics, which magnifies relatively small differences in Internet usage figures across regions.

Figure 4.10: Cheshire ranking in the Tech UK Local Digital Capital Index 2022

Dimension	Cheshire Rank (/41)
Skills	36
Adoption	14
Infrastructure	27
Finance and Investment	17
R&D	11
Trade	8
Overall rank	**20**

Source: Tech UK Local Digital Capital Index 2022

Data on digital skills are only available at the regional level. However, data on the general level of adult skills in Cheshire and Warrington (not specifically digital skills) are available from the Index of Multiple Deprivation's skills measure. The adult 'skills' sub-domain measures the lack of qualifications in the resident working-age adult population. Neighbourhoods in England are ranked into deciles, with 1 representing the highest areas of relative skills deprivation.

The data indicate that neighbourhoods with lower adult skills were less likely to use online methods to respond to the 2021 census. They also show correlation between neighbourhoods with lower adult skills and Internet User Classifications indicating lower Internet engagement (Figure 4.11). These data suggest that adult skills may serve as a partial proxy for the level of digital skills in the neighbourhood.

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[38] https://www.lloydsbank.com/assets/media/pdfs/banking_with_us/whats-happening/221103-lloyds-consumer-digital-index-2022-report.pdf
[39] https://www.techuk.org/shaping-policy/nations-and-regions/local-digital-capital-index-2022.html

Figure 4.11: Correlation between skills deprivation and online census response/IUC profile (each dot represents a neighbourhood in Cheshire and Warrington)
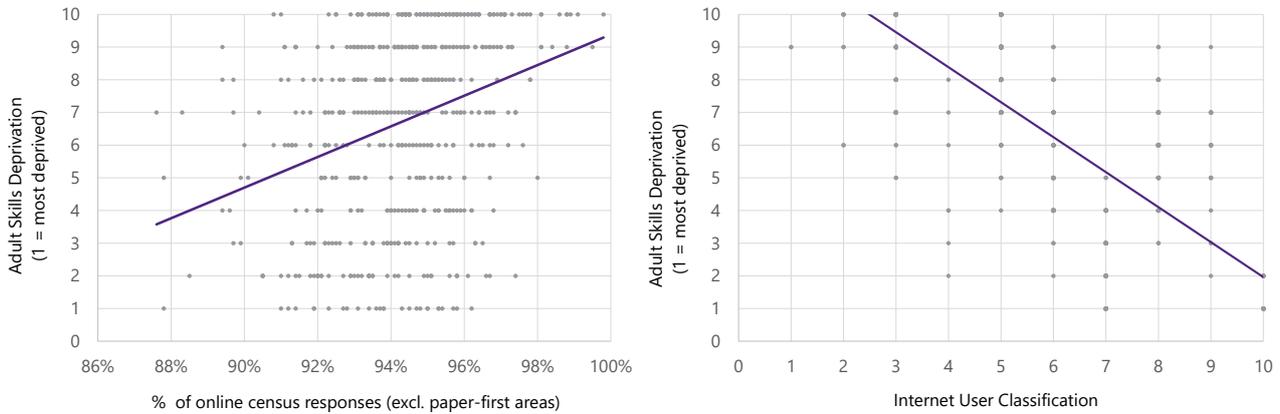
Overall, in terms of adult skills Cheshire and Warrington performs relatively favourably compared to the average for England, with comparatively more neighbourhoods in the top skills deciles (Figure 4.12).

Figure 4.12: Adult skills deprivation in Cheshire and Warrington
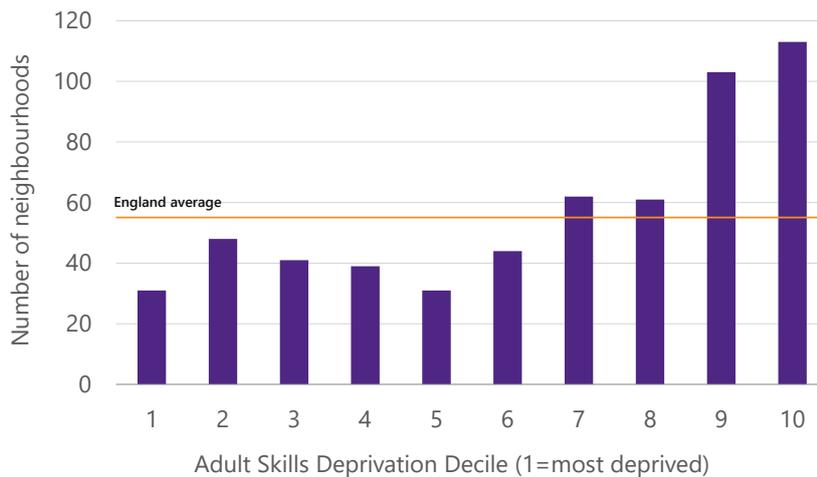
Source: IMD 2019. 'England average' represents the expected distribution of neighbourhoods if Cheshire and Warrington mirrored the national average.

However, the overall data for Cheshire and Warrington mask some variation across the three Local Authority areas. Cheshire West and Chester and Cheshire East exhibit a 'dumbbell' distribution, with areas of relatively high and low adult skills. Warrington shows a somewhat more even distribution of skills.

Figure 4.13: Skills deprivation in Warrington
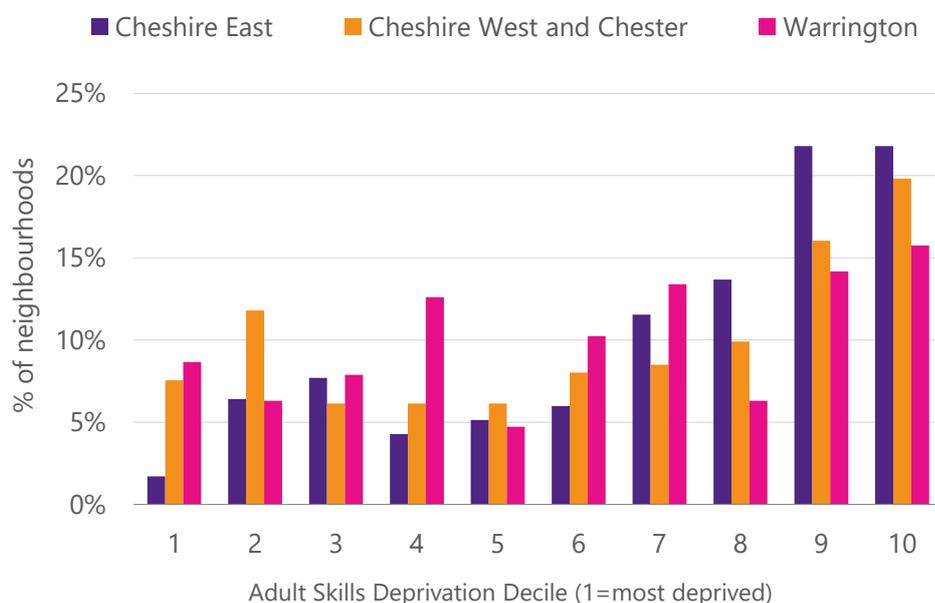
Source: IMD (2019)

In terms of adults' digital skills acquisition, enrolments on digital learning aims at Entry Level and Level 1 by Cheshire and Warrington adult residents fell by half between 2018/19 and 2020/21. The volume of digital Level 3 learning aims enrolled on by adults in in Cheshire and Warrington similarly halved, although it was already at a relatively low level. By contrast, the number of enrolments on digital level 2 learning aims remained stable over the same period.[40] In general, enrolments on digital learning programmes broadly accords with areas of high adult skills deprivation.

In terms of young people's digital skills learning, the number of young people enrolled in Level 2 digital learning[41] fell by 22% from 2018/19 to 2020/21. There was also a 7% decline in enrolments on Level 3 digital learning aims over the same period, in contrast to a growth of 8% for all Level 3 learning aims.[42] Across the same period, the number of C&W young people starting on a digital apprenticeship also dropped from 95 to 75. By contrast, however, adults' digital apprenticeships in the region grew by 81% between 2018/19 and 2020/21.

Cheshire and Warrington LEP has carried out research into workplace digital skills (and employers' demand for skills) across the sub-region. In 2020 there were 21,552 jobs in Digital Occupations[43] in Cheshire and Warrington, around 5% of total jobs in the sub-region. This proportion is a little lower than what would be expected if Cheshire and Warrington mirrored the national average. However, the number employed in digital occupations has experienced faster growth compared to the UK average, growing between 2020 and 2022 by 2.4% in Cheshire and Warrington (compared to 1% nationally).[44]

Digital occupations tends to be slightly under-represented in Cheshire West and Chester and slightly over-represented in Warrington. Warrington also experienced the fastest growth in digital occupations, at 5%

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[40] https://cheshireandwarrington.com/media/50elxaab/digital-skills-in-cheshire-and-warrington-october-2022-presentation.pdf

[41] Entry level and Level 1 digital learning aims support the acquisition of 'Essential Digital Skills' as described in the Lloyds Consumer Digital Skills Index. Level 2 learning aims tend to support 'Baseline Digital Skills' for employment, and Level 3 and above tends to provide, or provide a pathway to, Specific Digital Skills.

[42] https://cheshireandwarrington.com/media/ztcf5him/draft-digital-skills-in-cheshire-and-warrington-october-2022-report.pdf

[43] The definition of 'Digital Occupations' here is that used by DCMS. Refer to: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/503666/Digital_Sector_Economic_Estimates_-_January_2016_Revised.pdf

[44] https://cheshireandwarrington.com/media/ztcf5him/draft-digital-skills-in-cheshire-and-warrington-october-2022-report.pdf

between 2020 and 2022. As might be expected, the age profile of this group of occupations skews young. Nationally, two thirds (67.1%) of workers in digital occupations are aged 44 or below.

Key take-outs

- Data on digital skills specifically is not available at granular level. However, data on adult skills can be used as a partial proxy for digital skills.

- Cheshire and Warrington is an area of low relative skills deprivation.

- However, all three Local Authority areas have neighbourhoods with high levels of skills deprivation where digital skills are likely to be a barrier.

4.3   Demand-side barriers to Internet adoption in Cheshire and Warrington

The analysis of Internet use in Cheshire and Warrington (Section 4.1) indicate a greater level of engagement with the Internet than for the wider UK. However, the data still indicate a substantial proportion of disengaged or less digitally engaged people across the sub-region.

The analysis of digital inclusion research in the UK in Section 2.3 revealed four key demand-side barriers to the adoption and use of digital services in the wider UK:

- **Privacy and/or security concerns**

- **Lack of skills (Using the Internet is too complicated)**

- **Lack of interest in digital services (Internet is not needed, not useful, not interesting, etc)**

- **Affordability (e.g. access costs too high).**

We would expect the key underlying demand-side barriers in Cheshire and Warrington to be similar to those faced by the UK as a whole. To explore this, we draw upon the primary research carried out for this study by i2 Media Research. This involved four focus groups – two held online, and two held in person in the sub-region (in Northwich and Warrington). The research methodology is discussed in greater detail in Appendix A.

Privacy and/or security concerns

A key barrier that emerged from the primary research was concern over privacy and security, particularly around the use of personal data.

"I'm convinced my phone is spying on me." Female, 18

"I don't feel I have control of my own data" Female, 34

"I'm more suspicious of the companies themselves" Male, 57

"I keep getting sent these messages (about accessing my accounts) and it scares me to death." Male, 78

Lack of skills

In Section 4.2 discussed the evidence around digital skills in the sub-region. In general, the sub-region enjoys lower levels of deprivation in terms of adult skills. However, adult skills follow a 'dumbbell' distribution with some neighbourhoods having higher levels of skills deprivation. We would therefore expect digital skills to also be a key barrier in Cheshire and Warrington.

In the focus groups, some local participants raised concerns over a lack of confidence in engaging with digital services. Some participants noted that they had relied on others to do certain online activities for them.

> *"I'm not confident enough to try, I'll press the wrong buttons." Female, 73*
>
> *"I watch Sky Sports on my iPad, ... my friend set that up" Male, 78*
>
> *"We don't have a choice; everything forces you to the Internet. I worry for my husband... if I died, he'd be lost." Female, 77*
>
> *"I do the banking and everything for my mum." Male, 57*

Lack of interest in digital services

A key reason for not using the Internet given by non-users in the UK is that they see no need to use digital services (or digital services hold no interest for them). This is also likely to be a demand-side barrier to connectivity in Cheshire and Warrington. The low-level area data indicate that there are neighbourhoods that have low relative levels of income and skills deprivation, but nevertheless have relatively low levels of Internet engagement.

Participants in the focus groups did not state that they were uninterested in digital services per se. However, some participants (particularly older participants) expressed a degree of frustration with the movement of services to online delivery.

> *"You can't disconnect can you, it's like you're being manipulated to run your life online." Female, 65*
>
> *"These computers are really taking over; you can't do anything without them. You need a phone, especially when you go out on your own." Female, 74*
>
> *"I'll fight tooth and nail to keep my landline!" Female, 80*

Affordability

Cheshire and Warrington is a sub-region of lower relative deprivation compared to England as a whole. However, the sub-region contains neighbourhoods with greater levels of income deprivation, where affordability of communications services may be an issue.

Participants in the focus groups expressed differing opinions about the affordability of communications services. Some argued that prices were too high. Others commented that the price points for digital services (especially mobile contracts) seemed reasonable, particularly in the context of the cost of living crisis in which other prices are rising rapidly. Participants did not comment that services were unaffordable (though this does not mean that affordability barriers do not exist in the sub-region).

> *"I'm not happy, the price is too high at £39 per month. I want to switch my contract" Male, 39*
>
> *"I'm not concerned about my Internet costs, it's the gas prices I'm worried about." Male, 26*

To assess how prevalent these different barriers might be across the Cheshire and Warrington sub-region, we generated a neighbourhood-level dataset which combined Internet engagement data with demographic and economic characteristics. We analysed neighbourhoods with relatively low levels of digital engagement: those assigned profiles 7, 8, 9, or 10 according to the Internet User Classification (see Figure 4.3 for details). Such neighbourhoods account for around one-third of neighbourhoods across Cheshire and Warrington.

We analysed these neighbourhoods in terms of adult skills and income, as measured by the relevant sub-indices of Index of Multiple Deprivation (2019). If neighbourhoods ranked in the bottom two deciles nationally for either indicator, we flagged them as having (respectively) skills or income barriers to digital connectivity. If a neighbourhood was not particularly deprived in terms of either skills or income, it was flagged as having "no obvious barriers" (in other words; the data do not indicate particular skills or affordability barriers; the primary barriers in such areas are likely to be lack of interest or security concerns). This analysis is presented in Figure 4.14.

Figure 4.14: Analysis of demand-side barriers to digital connectivity in Cheshire and Warrington

	Cheshire East	Cheshire West and Chester	Warrington	Total Cheshire & Warrington
Total number of Lower layer Super Output Areas (LSOAs)	234	212	127	573
LSOAs with IUC profile 7, 8, 9 or 10†	66	80	53	199
% LSOAs with IUC profile 7, 8, 9 or 10	28.2%	37.7%	41.7%	34.7%
Of which:				
LSOAs with relative skills deprivation‡	17	41	19	77
LSOAs with relative income deprivation*	13	36	21	70
LSOAs with skills and/or income deprivation**	20	46	23	89
% with potential skills or affordability barriers	30.3%	57.5%	43.4%	44.7%
% without obvious barriers	69.7%	42.5%	56.6%	55.3%

Source: Plum analysis based on Internet User Classification (2018), Index of Multiple Deprivation (2019) and ONS data. † refer to Figure 4.3 for discussion of these profiles. ‡ neighbourhoods in the bottom two deciles nationally for adult skills. * neighbourhoods in the bottom two deciles nationally for income. ** neighbourhoods in the bottom two deciles nationally for adult skills and income.

To illustrate how areas may differ in terms of barriers, we developed case studies of three Wards (each comprising several LSOAs) within Cheshire and Warrington: Fairfield and Howley, Whitby Groves and Crewe North. These can be found in Appendix B.

Note that this analysis is likely to simplify the situation on the ground. Neighbourhoods will each face a mixture of barriers to digital connectivity, and even neighbourhoods with good skills levels may contain residents with lower skills. Nevertheless, it allows us to derive some general insights:

- Across the sub-region, there is a roughly even split between areas where the primary barriers are likely to be skills and/or affordability, and areas where the primary barriers are likely to be lack of interest or security concerns;

- Adult skills and income deprivation often go hand-in-hand; and

- Cheshire East exhibits lower levels of income and skills deprivation than the sub-region as a whole, indicating lack of interest/security concerns may be a more important barrier here.

A further piece of evidence regarding demand-side barriers in the sub-region comes from a survey of participants in the Restart scheme.[45] The survey, carried out between the 13th and 24th February 2023, asked longer-term unemployed people in the sub-region about barriers to digital connectivity. There were 206 responses to the survey. Analysis of the responses has found that:

- 83% of those surveyed said that being online "was important to them";

- 80% of those surveyed had a smartphone or tablet, and 47% had a PC or laptop. 7% had no connected device at all;

- When asked about barriers to greater use, 51% of respondents cited cost barriers, suggesting affordability is a much bigger barrier for this group than for the general population. Other barriers cited included confidence (20%), privacy concerns (19%), and a lack of understanding of technology (19%);

- Almost two-thirds of respondents were unaware of social tariffs for broadband.

Key take-outs

- Demand-side barriers to connectivity in Cheshire and Warrington are likely to mirror those at the national level: privacy and security concerns, lack of digital skills, lack of interest and affordability.

- The primary research corroborates that these are the main barriers in the sub-region. Although focus groups did not consider affordability a particular issue, the Restart survey indicates that cost is a key barrier among certain groups.

- Across the sub-region, there is a roughly even split between areas where the primary barriers are likely to be skills and/or affordability, and areas where the primary barriers are likely to be lack of interest or security concerns.

- The data suggest that areas with skills barriers may also face affordability barriers.

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[45] The Restart scheme was launched in 2021, and gives Universal Credit claimants who have been out of work for at least 9 months enhanced support to find jobs in their local area

5   Digital engagement by businesses and service suppliers

An important feature of the digital landscape is the ability for businesses and service suppliers to access and use services. Digital capabilities are increasingly essential to businesses and suppliers, and gaps in connectivity or usage, or digital skills deficits can be a barrier to success in business.

ONS data[46] for 2022 shows there are 42,025 businesses in the LEP area. Figure 5.1 shows these businesses distributed by size (employee numbers) alongside the distribution for England. We can see that the distribution by size is very close to the English national average.

Figure 5.1: Business sizes in Cheshire and Warrington, and England

	Micro (0-9)	Small (10-49)	Medium (50-249)	Large (250+)	Total
Number, Cheshire & Warrington	37,535	3,670	635	190	42,030
% Cheshire & Warrington	89.3	8.7	1.5	0.5	
% England	89.6	8.5	1.5	0.4	

Source: Ofcom

We do not have precise data on barriers to digital connectivity or use in the sub-region, but we can use some proxy data as a first step to analysis of this. We have used the Ofcom SME Consumer Communications Experience 2022 Report which contains data surveyed from micro, small and medium sized businesses nationally, and in some cases regionally. There are obvious limitations to this data for our purpose, but also mitigating factors which means that this data is relevant to our study, though further research will be helpful to develop the analysis. In addition, the LEP is conducting its own research into business use of digital technology and skills through a business survey, and data from early returns in this survey are included at the end of this section.

Figure 5.2: Mitigations for data limitations

Data limitation	Mitigating factor
The survey does not include large businesses	Larger businesses generally have better capability to address constraints on their digital engagement such as service quality or digital skills gaps. They are therefore less likely to need support from policy interventions
The survey does not capture data for the sub-region (though some data is available for the north-west region)	As shown in Figure 5.1, the distribution of businesses by size in the sub-region is close to the English national distribution, meaning that the data is a reasonable proxy
The data do not directly address digital skills	We cannot infer analysis of digital skills from this data, but the LEP is collecting local evidence through its Growth Hub business survey

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[46] Labour Market Profile - Nomis - Official Census and Labour Market Statistics (nomisweb.co.uk)

5.1 Importance of digital communications services to businesses and service suppliers

Digital communications services are very important to most businesses. This is reflected in the Ofcom data in which 3% of respondents said that fixed Internet, mobile phone and mobile Internet services respectively are not important to their business.

Figure 5.3: The importance of digital communications services to SMEs
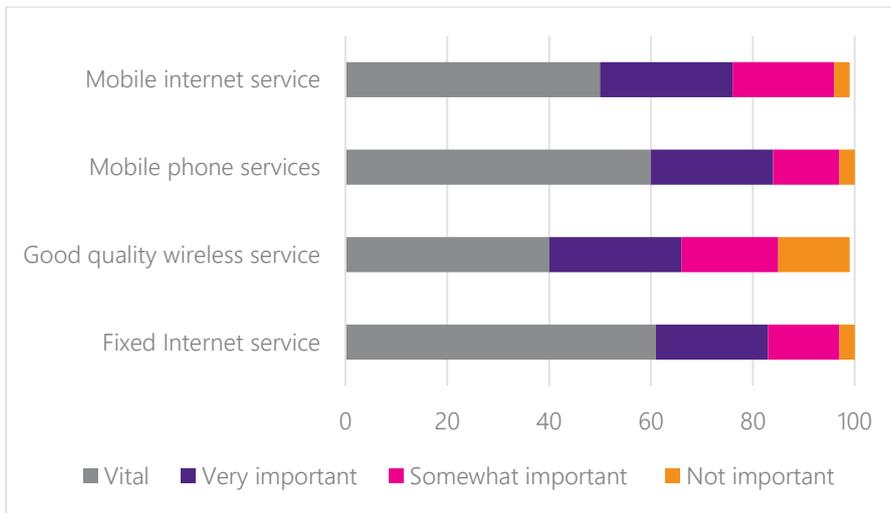
Source: Ofcom

The importance of these services has increased as a result of the pandemic with increased home and hybrid working. This has given rise to a greater need for reliable and high quality connectivity for home working. These changes in working habits are more pronounced for larger than smaller firms as shown in Figure 5.4.

Figure 5.4: SME working habits pre-covid and current
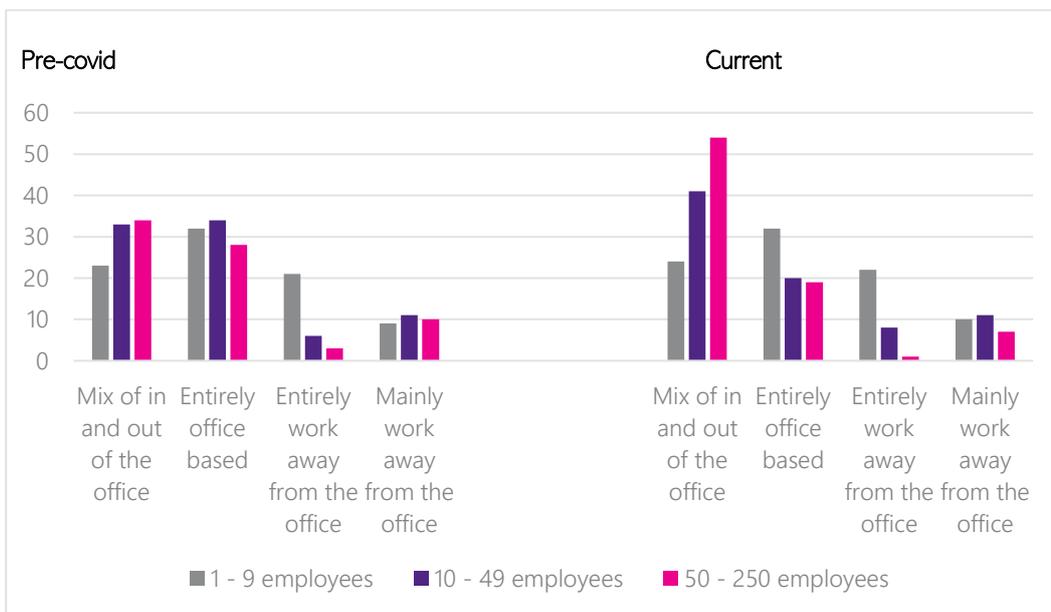
Source: Ofcom

5.2   Increasing business use of ICT technologies in the North West

The sub-region's traditional manufacturing sector is shifting towards digital, and so digital skills and capabilities are increasingly important. Digital assets in the North West include the 'Made Smarter' Pilot, which works with SMEs to support them to adopt digital technologies, and key R&D assets like the advanced manufacturing Research Centre North West (Preston), and the Manufacturing Technology Centre (Liverpool).

Local industrial strategies including and growth plans for the North West include digital health – building on the academic strengths at the region's universities, clinical trials expertise, a strong life sciences sector (Including Alderley park, home of the medicines discovery catapult), public sector health datasets, the devolved health and social care systems in greater Manchester.

The high performance computing, data analytics and artificial intelligence research capability at Hartree central in Cheshire remains a major asset and opportunity.[47]

5.3   Service satisfaction

Overall, SMEs are reasonably happy with their services. We have looked at Ofcom data[48] capturing satisfaction with connectivity and coverage at national level measured by:

- For Internet:

    – the speed of service when online; and

    – the reliability of the connection.

- For mobile services:

    – the geographic availability of the service; and

    – the reliability of the reception or signal strength.

These data are shown in Figures 5.5 and 5.6.

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[47] See
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1020407/Digital_Regional_Ecosystems_report_v9.1.pdf

[48] We report data from the Ofcom SME Consumer Communications Experience report https://www.ofcom.org.uk/research-and-data/multi-sector-research/general-communications/sme-research/sme-consumer-communications-experience-2022. The data reports the results of interviews conducted between 28 January and 4 April 2022.

Figure 5.5: Selected SME Internet service satisfaction data
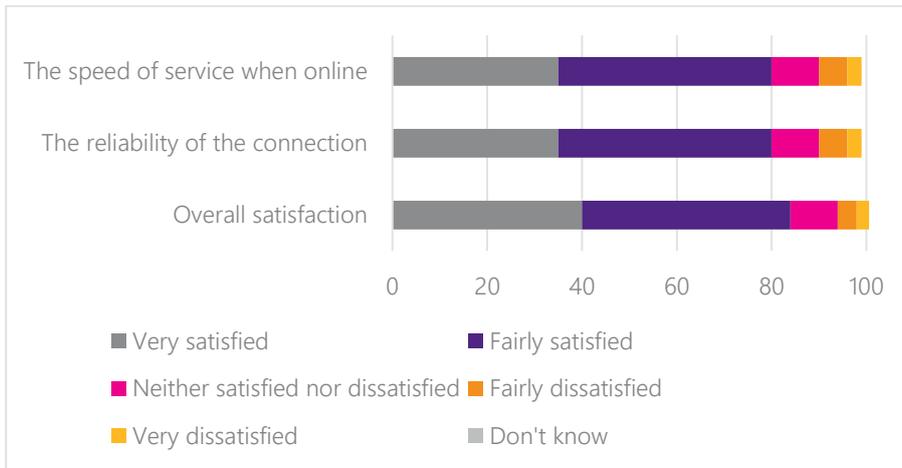
Source: Ofcom

Figure 5.6: Selected SME mobile service satisfaction data
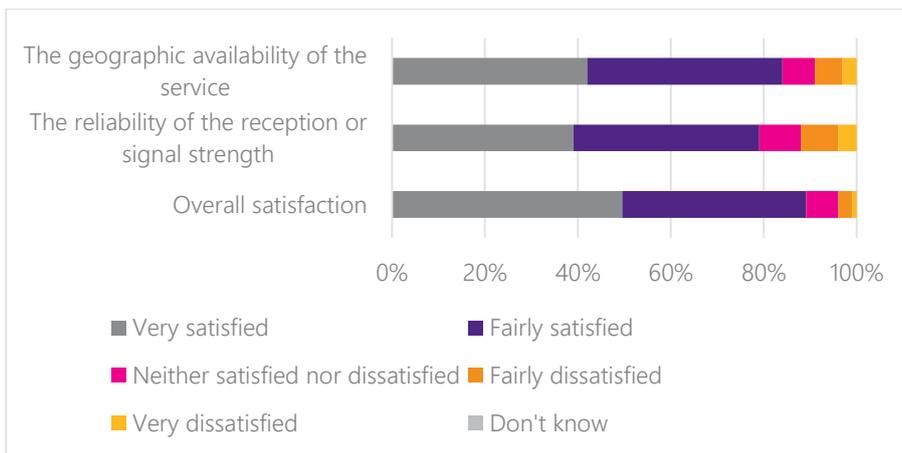
Source: Ofcom

However, data for the North West region suggest that there are some areas of dissatisfaction with broadband services relative to the national picture. For example, SMEs in the region are more dissatisfied than nationally with their ability to obtain services in their location, and with the speed and reliability of service. We cannot draw robust conclusions for Cheshire and Warrington from this data, but we note connectivity in some areas of the region (e.g. for ultrafast services in East Cheshire) is below national performance.

Figure 5.7: SME Internet satisfaction in the North West region

Region	SMEs dissatisfied or very dissatisfied with ability to obtain service where company is based	SMEs dissatisfied or very dissatisfied with speed of service when online
United Kingdom	9%	9%
North West	14%	11%

Source: Ofcom

SMEs in the North West also reported significantly more issues across a number of performance metrics than nationally, notably on key broadband performance features – download and upload speeds.

Figure 5.8: Issues reported by SMEs

Issue	United Kingdom	North West
Upload speeds	11%	35%
Download speeds	14%	40%
% of SMEs who experienced issues in the past 12 months	38%	31%

Source: Ofcom

Another indicator that businesses in the North West may be less satisfied with broadband speed is that more of them than average have used devices to augment signal strength

Figure 5.9: SMEs who have used a device to boost or extend signal strength

Region	SMEs who used devices to boost or extend WIFI signal strength in the last 18 months
United Kingdom	15%
North West	18%

Source: Ofcom

SMEs in the North West are also more dissatisfied than average with mobile signal strength and reliability.

Figure 5.10: Mobile satisfaction among SMEs

Region	SMEs dissatisfied or very dissatisfied with reliability and signal strength
United Kingdom	11%
North West	15%

Source: Ofcom

5.4   Switching behaviour

Despite relatively high levels of dissatisfaction and issues reported, SMEs in the North West are less likely to switch provider than the UK average. This may indicate higher inertia, or a perception that there are not alternatives to current providers.

Figure 5.11: SMEs attitudes on switching Internet and mobile services

Region	SMEs who have switched providers within the last 2 years	SMEs who switched providers > 2 years ago	SMEs who considered switching in the past two years but opted not to	SMEs who have never switched or considered switching
United Kingdom (Internet service)	28%	17%	13%	41%
North West (Internet Service)	24%	14%	6%	56%
United Kingdom (Mobile service)	30%	16%	9%	44%
North West (Mobile service)	20%	16%	6%	57%

Source: Ofcom

5.5   Digital skills

The Ofcom and ONS data do not enable us to infer robust conclusions on digital skills gaps which may drive lack of digital engagement by businesses. A previous study for Cheshire and Warrington LEP mapping digital skills included an analysis of job vacancies to identify demand for digital skills in the sub-region.[49] This interesting work does not address questions around connectivity and take-up of digital services; rather it provides information on the types of internal digital functions where companies have vacancies.

5.5.1   The LEP Growth Hub survey

The LEP is undertaking research into use of digital technologies by businesses in the sub-region, and this includes collecting data on digital skills gaps and training needs. This research is being carried out through a survey of businesses. The survey questionnaire was sent to 6604 businesses in the sub-region, and included four questions focussed on digital engagement and skills. At the time of writing this position paper, 180 responses to the questionnaire had been received, and the results are reported below.

The four questions the LEP asked are:

- **Question 1: What digital presence does your business have online (tick all that apply)?** (Options: none; email communications; social media accounts; website for information only; interactive website; website with assistive technologies, e.g. chatbots; automated workflow; marketing and advertising; software as a service; dealing with suppliers; other)

- **Question 2: Do you have plans to expand your online presence (tick all that apply)?** (Options: none; email communications; social media accounts; website for information only; interactive website; website with assistive technologies, e.g. chatbots; automated workflow; marketing and advertising; software as a service; dealing with suppliers; other)

- **Question 3: What challenges do you encounter for your business to work digitally (please tick all that apply)?** (Options: no broadband coverage; broadband too slow; no mobile coverage; weak mobile

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[49] digital-skills-in-cheshire-and-warrington-october-2022-report.pdf

signal; lack of awareness of digital systems/solutions; lack of skills; cost of digital services; fear of system failure, data loss, cyber fraud; not a priority; other)

- **Question 4: What skills or support if any would you benefit from to improve your digital presence as a business (please tick all that apply)?** (Options: understanding social media; understanding paid advertising; web design and coding skills; general IT skills; GDPR and data security; building your brand online; hiring to digital roles; developing an integrated digital strategy; understanding user experience; other)

The responses are shown in the following figures 5.12, 5.13, 5.14 and 5.15 below.

Figure 5.12: Responses to Question - what digital presence does your business have online?
(% of responses across 180 returned questionnaires)
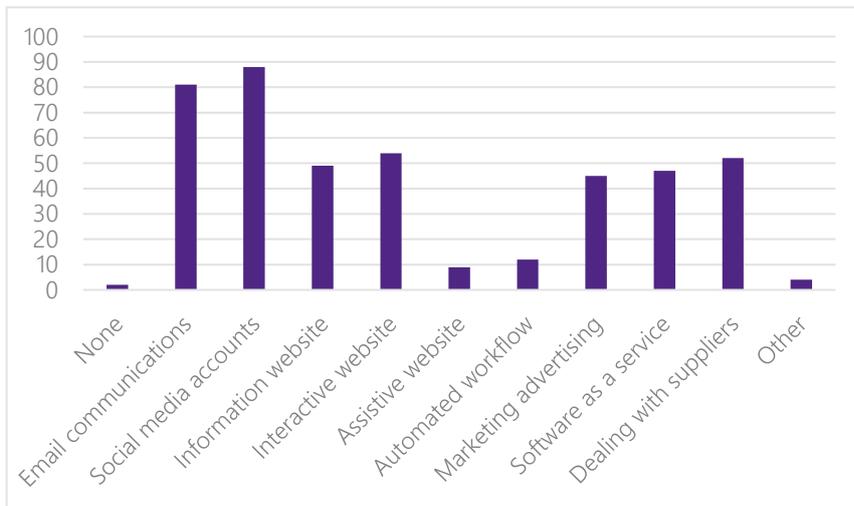
Figure 5.13: Responses to Question 2 - do you have plans to expand your online presence?
(% of responses across 180 returned questionnaires)
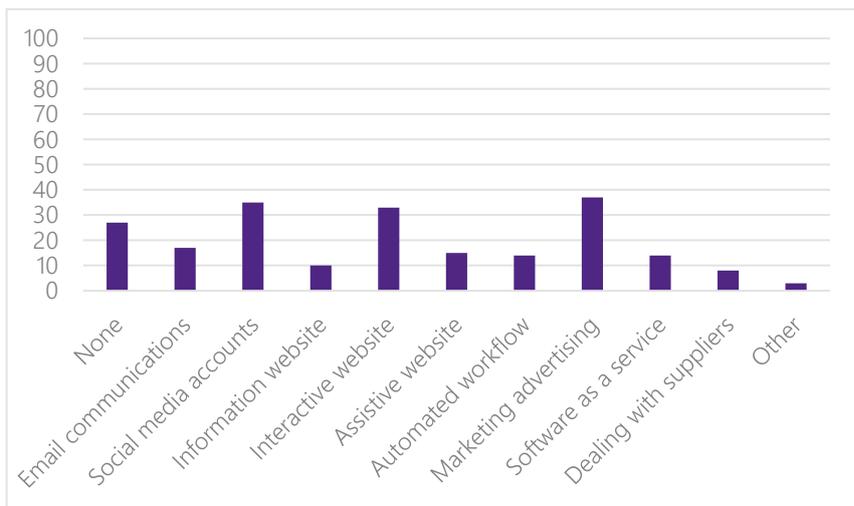
Figure 5.14: Responses to Question 3 - what challenges do you encounter for your business to work digitally?
(% of responses across 180 returned questionnaires)
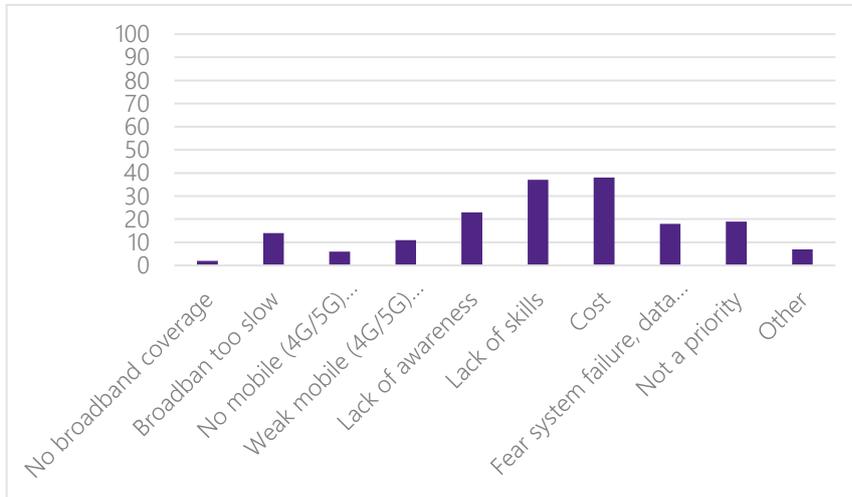
Figure 5.15: Responses to Question 4 - what skills or support if any would you benefit from to improve your digital presence as a business?
(% of responses across 180 returned questionnaires)
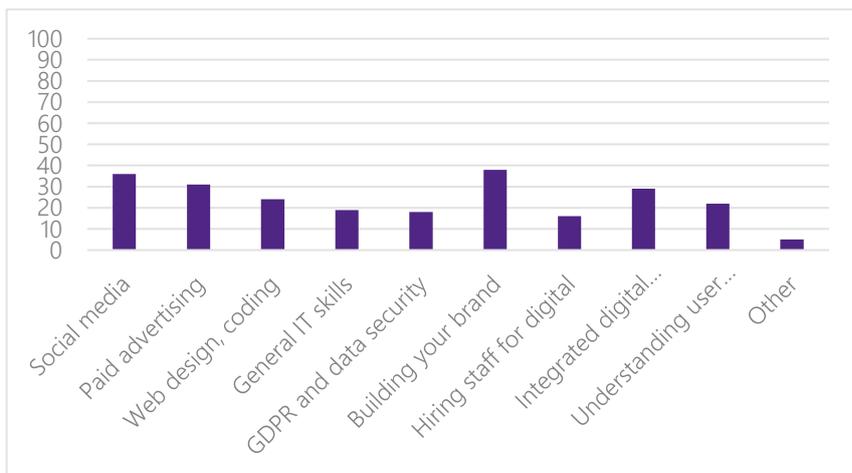
The data show that, for this small sample of businesses in the questionnaire responses received so far:

- Nearly all of the businesses use digital services, only 2% (4 respondents) said they don't.

- Broadband or mobile connectivity creates challenges for some; 2% and 6% reported no broadband connectivity or mobile coverage respectively.

- Business users employ a range of digital services, social media, email, websites and supplier management tools being the most cited by respondents.

- Respondents have a variety of plans for digital expansion, digital marketing, social media and interactive websites being the most cited.

- Respondents cited the cost of digital services, lack of skills, and lack of awareness the most when asked about challenges working digitally.

- When asked about skills which would benefit business digital presence, the skills most cited were building a brand online, social media, and understanding paid advertising.

We cannot regard this data as comprehensive evidence on digital engagement and skills in businesses and service suppliers across the sub-region. Nevertheless, it may provide some indicators of the areas in which the sub-region would benefits from provision of support. Some of these areas would be difficult for the LEP or other local stakeholders to address (e.g. cost of services). Others may be addressed through targeted initiatives to develop digital skills through training or masterclasses. As we discuss in Section 7, some initiatives are already in place and these may be well suited, or could be adapted, to address skills gaps.

Responses to this survey are a significant source of evidence for the LEP and other stakeholders in understanding digital engagement and skills in businesses and service providers in the sub-region. It will be appropriate to assess this again when the data from questionnaire responses are complete.

Key take-outs

- Access to and use of digital services are essential for businesses and service suppliers. Working habits have changed since the pandemic, meaning that reliable connectivity at home now more important for business as well as domestic use.

- We do not have granular data to assess take-up and skills gaps in Cheshire and Warrington, but national data can be used for analysis with caution.

- Data for the North West region indicates lower than average satisfaction with digital services, and significantly more issues reported. Conversely, businesses in the North West have lower propensity to switch provider which may indicate greater inertia and/or perception of less choice.

- Further research of businesses and service suppliers in Cheshire and Warrington will enable more precise targeting of policies to address usage and skills gaps. The LEP Growth Hub survey of 6604 businesses will provide significant evidence to inform strategies and approaches to addressing digital skills gaps.

6 Digital infrastructure in Cheshire and Warrington

In this section we provide an assessment of broadband connectivity and mobile coverage in the sub-region.

6.1 Connectivity and coverage in the sub-region

Methodology used

We used a number of data sources to identify the strength of electronic communications network coverage and connectivity in the sub-region. This includes data on

- Fixed connectivity, measured by broadband download speed performance.

- Mobile network coverage.

- Within these categories we have looked at the technology mix, i.e.

  - For our analysis of fixed connectivity, we disaggregate by digital subscriber line (DSL), fibre and cable connections.

  - For mobile coverage, we show 4G coverage.

Our principal data source is the Ofcom Connected Nations Report for 2022[50]. We have cross-referenced this to other data sources, and we also used some other sources to report performance metrics not included in the Ofcom data.

Initially we identify performance in each of these categories by local authority for the three local authorities in scope (i.e. Cheshire East, Cheshire West and Chester, Warrington), and present a comparison with the UK national average performance. In areas where a more granular analysis is needed, we can interrogate the data to postcode level.

Connectivity and coverage by Local Authority

The Digital Infrastructure Plan included a comprehensive mapping of digital infrastructure in the sub-region. This showed the levels of connectivity and coverage in the sub-region reported in the Ofcom Connected Nations Update for Spring 2020.

Below we present updated data on network coverage and connectivity in each of the local authority areas within scope of the project (Cheshire East, Cheshire West and Chester, Warrington) taken from the Ofcom Connected Nations Report 2022.

The Ofcom data for fixed network connectivity is based on maximum speeds available. For mobile (4G) coverage, Ofcom identified the minimum signal strength to deliver a 90 second telephone call successfully 98%

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[50] https://www.ofcom.org.uk/__data/assets/pdf_file/0031/249286/connected-nations-methodology.pdf

of times, and a 95% probability of achieving a data download speed of at least 2Mbit/s. Ofcom's methodology is published in full with the Connected Nations Report.[51]

Overview

The Ofcom data show connectivity across the sub-region for both fixed and mobile networks, summarized in Table 6.1, and supplemented with data from Think Broadband on cable coverage.

The performance data at Local Authority level is aggregated and therefore does not show local variances within each area. A more granular examination of the data is possible by investigation at parliamentary constituency or postcode level. Different quality or speeds criteria can also be applied to analysis of the Ofcom data.

We have selected the following criteria for our analysis of fixed connectivity.

- % premises covered by a gigabit capable network. This is the percentage of premises which have a gigabit capable connection available to them.

- % of premises covered by at least one full fibre network. This is the percentage of premises which have at least one full fibre to the premises network available for connection.

- Coverage by the cable network.

- % premises covered by at least 1 broadband network with download speed greater or equal to 30 Mbps. This is the percentage of premises with access to a broadband connection with minimum download speed of 30 Mbps, regarded as the minimum speed needed for good consumer experience for most households.

- % of premises unable to achieve a download speed above 10 Mbps. This is the percentage of premises which do not have access to a broadband connection with download speed greater than 10 Mbps, the speed specified in the Universal Service as being a "decent" connection.

We have selected the following criteria for our analysis of mobile connectivity.

- % premises with 4G coverage from at least one network. This is the percentage of premises covered by at least one network.

- % premises with 4G coverage by all networks. This is the percentage of premises with coverage by all four mobile networks (EE, O2, Three, Vodafone).

Performance against these metrics in each of the local authority areas in the sub-region, and across the UK nationally is shown in Figure 6.1 below. For fixed connectivity, the data is disaggregated where possible to show availability to both residential and commercial premises. For mobile coverage, we show both urban and rural connectivity data. Performance for each of the in-scope areas is measured against UK average performance data and evaluated simply using a traffic light system.

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[51] https://www.ofcom.org.uk/__data/assets/pdf_file/0031/249286/connected-nations-methodology.pdf

Figure 6.1: Summary of connectivity performance data for Cheshire East, Cheshire West and Chester, and Warrington

	Premises type	Cheshire East	Cheshire West and Chester	Warrington	UK
% premises covered by a gigabit capable network	All	54	60	84	69
	Residential	55	61	87	70
	Commercial	35	33	43	44
% premises covered by at least 1 full fibre network	All	32	56	22	41
	Residential	33	57	23	42
	Commercial	19	32	8	28
% premises covered by cable *	All	27	19	71	50
% premises covered by at least 1 broadband network with download speed greater or equal to 30 Mbps	All	95	96	98	96
	Residential	96	97	99	97
	Commercial	82	87	88	85
% premises unable to achieve a download speed above 10 Mbps	All	2	1	0	2
	Residential	1	1	0	1
	Commercial	9	5	4	6
% premises with 4G coverage from at least one network	All	99	100	100	92
	Urban	100			100
	Rural	99			91
% premises with 4G coverage by all networks	All	94	95	98	70
	Urban	99	99	98	97
	Rural	93	94	99	67

Source: Ofcom Connected Nations 2022 except * data for cable coverage from ThinkBroadband. Green cells indicate performance above the UK average, red cells indicate performance below UK average.

Changes in connectivity and coverage

Figure 6.1 is essentially a snapshot of data, and it is useful to look at a time series to gain an understanding of how infrastructure build is delivering better connectivity across the sub-region.

In Figure 6.2 we show the improvements in connectivity and coverage since the data recorded in the Digital Infrastructure Plan. The table shows data from the Ofcom Connected Nations Spring 2020 update, used for the Digital Infrastructure Plan, together with improvements in connectivity and coverage (shown in brackets) between then and the Ofcom Connected Nations 2022.

Figure 6.2: Changes in connectivity performance since 2020 (Digital Infrastructure Plan, Ofcom Connected Nations Spring 2020 and Ofcom Interactive Report, Ofcom Connected Nations 2022)

	Cheshire East	Cheshire West and Chester	Warrington
% premises covered by a gigabit capable network	12 (+42)	11 (+49)	64 (+20)
% premises covered by at least 1 full fibre network	4 (+28)	9 (+47)	1 (+21)
% premises covered by at least 1 broadband network with download speed greater or equal to 30 Mbps	93 (+2)	95 (+1)	97 (+1)
% premises unable to achieve a download speed above 10 Mbps	2 (=)	1 (=)	0 (=)
% premises with 4G coverage from at least one network	99 (=)	100 (=)	100 (=)
% premises with 4G coverage by all networks	91 (+3)	92 (+2)	97 (+1)

Unsurprisingly the biggest changes in performance are in the deployment of fibre and gigabit capable networks, reflecting investment in fibre across the sub-region. Figures 6.3 and 6.4 show infrastructure deployment in the sub-region compared to national (UK) performance.

Figure 6.3: Fibre to the Home (FTTH) availability

Figure 6.4: Gigabit availability
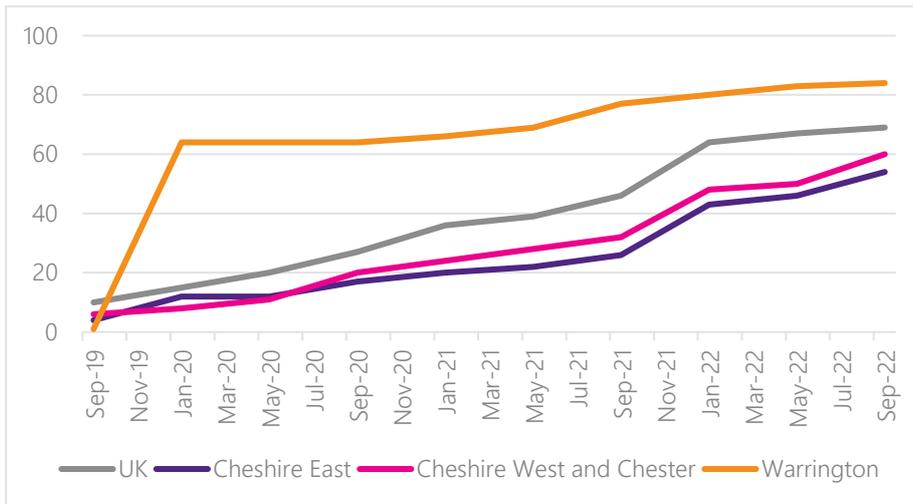
This time series data shows the impact of investment in the sub-region over the period, notably:

- for fibre and gigabit connectivity: Cheshire West and Chester outperforming the UK, and Cheshire East catching up the UK; and

- the pronounced impact of cable deployment in Warrington.

Urban and rural fixed coverage

We are also able to disaggregate data geographically by urban and rural locations. Figure 6.5 shows this together with the split of residential and commercial premises.

Figure 6.5: Urban and rural fixed coverage
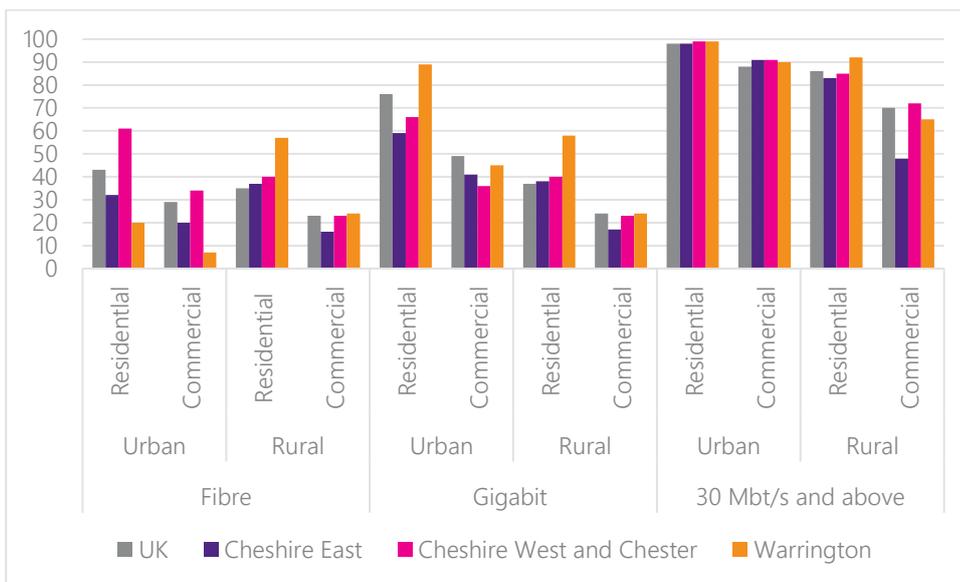
This breakdown again shows the potential significance of cable deployment in Warrington, and that Cheshire East still performs below the UK national average on fibre and gigabit connectivity.

In rural areas, the sub-region performs generally well against the national average on connectivity to residential premises. The data suggest that connectivity to rural commercial property in Cheshire East could be a focus for development.

6.2   Analysis

The data show reasonable connectivity across the sub-region. Where they indicate materially worse performance than the national UK average (e.g. fibre connectivity in Cheshire East), investment in the last two years is improving the outlook.

To understand gigabit connectivity, it is necessary to consider the footprints of both fibre and cable connectivity. This is illustrated by the situation in Warrington where fibre deployment is low, but there has been an established cable network since 2019. The Ofcom data do not capture cable connectivity as comprehensively as fibre, and this may have policy implications. A more precise mapping of the cable network may provide valuable data and insight to help with policies to drive connectivity and usage.

The available mobile coverage data show good coverage for 4G connectivity. There is no data available for the sub-region on 5G coverage where Ofcom reports data at national level. 5G coverage data is available through provider coverage checkers and this may be a source of further research. We understand that an infrastructure mapping initiative is in place for Cheshire and Warrington, and the results of this may provide valuable further data for analysis and on which to base policy development.

For both fixed and mobile connectivity, the reported data is not reflected in the experience of users who participated in our primary research. Many of these respondents reported bad experiences with fixed connectivity or mile coverage. Figure 6.6 illustrates this with some examples.

Figure 6.6: Examples of reported difficulties with connectivity and coverage from i2 primary research

> *"There's a difference from one side of the street to the other." Male, 45*
>
> *"Sometimes it goes to 4G, but it feels like 3G." Male, 36*
>
> *"We don't have broadband and the phone signal can just go to no coverage when I go into some buildings." Female, 18*
>
> *"There are times when we have to turn everything off, just to stream a video." Female 40*

It is likely that there are "not spots" and areas of poor availability in the sub-region which are not captured by the data from Ofcom and other national sources because that data are quite aggregated. Further research and analysis could be undertaken to map poor availability using locally sourced data.

Key take-outs

- The data show reasonable connectivity and coverage across the sub-region, but user experience captured in our primary research show that people using services in the sub-region do not experience good quality connectivity and coverage everywhere all the time. Further capture of data and analysis would help identify more granular local performance data to help target investment and other initiatives to improve service.

- Fibre and gigabit availability in the sub-region has lagged UK national performance and is catching up. Much emphasis has been put on fibre in national policy making and measurement of performance, but cable can be a significant deliverer of high speed connectivity to homes and businesses premises. Cable deployment urban Warrington has delivered high speed connectivity there which differentiates it from the rest of the sub-region.

7 Policy and regulatory initiatives to improve digital connectivity and take-up

In this section we describe policy interventions at national level, and local initiatives in the sub-region. to improve digital connectivity and take-up. We also look at some international examples of policies to promote take-up and improve digital skills.

7.1 UK central Government connectivity initiatives and their impact in the sub-region

The UK Government's national goal for digital connectivity is "to ensure that everyone, wherever they live or work in the UK, can access the connectivity and services they need for the ever-digitising world".[52] This policy is primarily executed through BDUK[53] which is a government agency sponsored by the Department for Science Innovation and Technology (DSIT).

The Government and BDUK have a number of initiatives in place to deliver their strategy, and these affect connectivity in the sub-region to varying degrees.

7.1.1 Future Telecoms Infrastructure Review

Much of Government's current strategy was established in the Future Telecommunications Infrastructure Review 2018 (FTIR).[54] Here the government set out its strategic objectives for:

- nationwide full fibre connectivity;

- the UK as a world leader in 5G; and

- convergence between full fibre and 5G

The FTIR also set out a package of policy measures and initiatives to support these objectives, including:

- addressing barriers to fibre deployment;

- supporting market entry and network expansion through regulatory measures to facilitate easier access to passive infrastructure (including Openreach ducts and poles);

- an "outside-in" approach to deployment of gigabit-capable networks to ensure they reach some of the hardest to serve areas; and

- a process for switchover from copper to full fibre services.

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[52] https://www.ofcom.org.uk/__data/assets/pdf_file/0031/249286/connected-nations-methodology.pdf
[53] https://www.gov.uk/government/organisations/building-digital-uk
[54] Future Telecoms Infrastructure Review (publishing.service.gov.uk)

7.1.2   Project Gigabit

Through Project Gigabit the government has committed £5 billion to provide connectivity in hard to reach locations.[55] Project Gigabit delivers public funding through BDUK for contracts with infrastructure companies to build connectivity. Currently, four Project Gigabit contracts have been awarded, and twelve are in the BDUK procurement pipeline. None of these contracts cover any area of the sub-region. Procurement for a Project Gigabit contract in Cheshire is scheduled for Spring 2023.[56]

7.1.3   Gigabit Vouchers

Communities which are not covered by current Project Gigabit contracts or included in the commercial rollout plans of infrastructure providers can apply for Gigabit Vouchers.[57] Gigabit vouchers can be used between communities and broadband providers. A provider may make a proposal for connectivity in an area, and then request vouchers from BDUK to fund this on behalf of local residents. In its Autumn 2022 Project Gigabit update, BDUK reported that 111,000 vouchers had been issued in schemes across the UK, of which 79,000 have been used to fund connections and the remaining 32,000 pending connectivity.[58]

Gigabit vouchers are in use in the sub-region. Connecting Cheshire,[59] a joint enterprise between the local authorities - Cheshire East, Cheshire West and Chester, Warrington, and Halton – is investing £2.9 million to top up gigabit vouchers to improve connectivity to homes and businesses.[60]

7.1.4   Broadband universal service obligation

Under the Universal Service Obligation (USO), every UK household and business has a right to a broadband connection with a download speed of at least 10 Mbps and upload speed of 1 Mbps. BT and KCOM are required to provide the USO under conditions and directions made by Ofcom.[61] BT is the USO provider in the sub-region, and hence any household or business which does not have a fixed broadband connection with a download speed of 10 Mbps and upload speed of 1 Mbps can request this from BT under the USO.

7.1.5   Shared Rural Network (SRN)

The SRN is a partnership between government and the four mobile network operators to improve mobile coverage to deliver reliable mobile broadband to 95% of the UK.[62]

Generally, the sub-region has good reported levels of mobile coverage, However, there are not spots and the SRN may address some of these, The SRN mapping tool (figure 7.1) indicates that the SRN is forecast to improve

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[55] https://projectgigabit.campaign.gov.uk/#:~:text=PROJECT%20GIGABIT%20Project%20Gigabit%20is%20the%20UK%20Government%E2%80%99s,up%20hard-to-reach%20premises%20and%20deliver%20next%20generation%20connectivity.

[56] See the Project Gigabit Update for Autumn 2022 https://www.gov.uk/government/publications/project-gigabit-delivery-plan-autumn-update-2022/project-gigabit-delivery-plan-autumn-update-2022

[57] https://gigabitvoucher.culture.gov.uk/

[58] https://www.gov.uk/government/publications/project-gigabit-delivery-plan-autumn-update-2022/project-gigabit-delivery-plan-autumn-update-2022

[59] https://digital-cheshire.co.uk/

[60] https://gigabitvoucher.culture.gov.uk/cheshire/#:~:text=Cheshire%20%E2%80%93%20Gigabit%20Vouchers%20Cheshire%20Rural%20homes%20and,gigabit-capable%20service%20as%20part%20of%20a%20group%20project. https://digital-cheshire.co.uk/broadband-connectivity/vouchers/

[61] https://www.ofcom.org.uk/__data/assets/pdf_file/0018/202383/universal-service-conditions-and-directions-unofficial-consolidated-version.pdf

[62] https://srn.org.uk/about/

coverage in the east of East Cheshire. Across the north-west, SRN coverage improvements are forecast to boost 4G coverage from all four networks from 73% to 88%, and from at least one network from 94% to 98%.[63]

Figure 7.1: SRN forecast coverage improvements in England
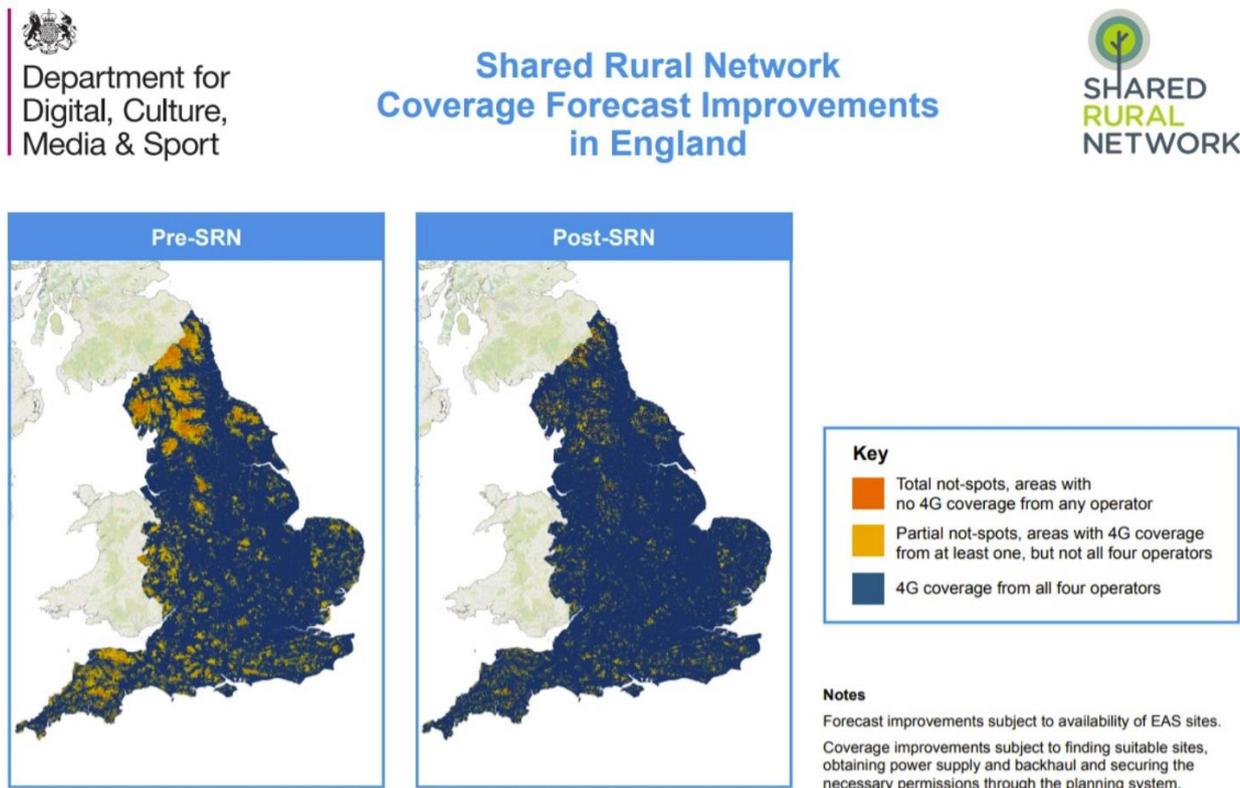
In Figure 7.2 we summarise the impact of national connectivity initiatives.[64]

Figure 7.2: National connectivity projects and their impact in the sub-region

Project	Impact in Cheshire and Warrington
Project Gigabit	High: Project Gigabit contract for Cheshire is in the pipeline for Spring 2023
Gigabit vouchers	High: Gigabit vouchers have been deployed in the sub-region
Broadband universal service obligation	Medium: USO support is available to households unable to achieve speeds of 10 Mbps or above (see Figure 5.1)
Shared rural network	Low: May address not spots in deep rural areas

7.2   UK central Government take-up and digital skills initiatives and their impact in the sub-region

National digital policy is more focussed on connectivity (see above) than initiatives to improve take-up, e.g. digital skills. Nevertheless there are live projects to encourage take-up by improving digital skills.

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[63] https://srn.org.uk/forecast-coverage-improvements/#England
[64] https://srn.org.uk/about/

7.2.1   Digital Skills Partnership

The Digital Skills Partnership (DSP)[65] aims to improve digital skills for people and organisations. This involves working with local authorities and LEPs including the Cheshire and Warrington LEP. The Cheshire and Warrington DSP, led by the LEP is key to the development and delivery of digital skills initiatives in the sub-region – see Section 7.4 below for information on this.

7.2.2   Digital skills qualifications

The Department for Education runs a programme to sponsor Essential Digital Skills Qualifications (EDSQs) for adults (over the age of 19) with low digital skills.[66]

7.2.3   The Help to Grow Scheme

Help to Grow is a government scheme providing training and support to businesses in the adoption and use of digital technology. It also included grants to subsidise business software, but this grant scheme closes in February 2023.[67]

7.2.4   Work coach scheme

The Department of Work and Pensions helps families and individuals achieve financial independence.[68] A scheme providing support on digital services was piloted in Cheshire and Warrington.

7.2.5   Ofcom media literacy work

Ofcom runs a programme of media literacy work. In its Work Programme for 2023/4, this includes production and publication of the Online Nations report.[69] Ofcom's work on media literacy comprises research and support to other agencies, and does not involve direct interventions to drive take-up or engagement. It has produced tools which may be helpful to the LEP, for example their toolkit for evaluating media literacy interventions.[70]

7.2.6   Social tariffs

Encouraged by government and Ofcom, many communications providers have introduced social tariffs to help disadvantaged people afford broadband connectivity.[71] Social tariffs were introduced voluntarily by providers. They are available to claimants of Universal Credit, Pension Credit and some other benefits. This may be helpful to the 51,970 benefits claimants in Cheshire and Warrington.[72] We do not have data on take-up in the sub-region. However, analysis at the national level from Citizens Advice suggests that take-up of social tariffs has thus far been limited.[73]

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[65] https://www.gov.uk/guidance/digital-skills-partnership
[66] https://www.gov.uk/guidance/free-qualifications-for-adults-with-low-digital-skills#further-information
[67] https://helptogrow.campaign.gov.uk/
[68] https://dwpjobs-workcoach-microsite.co.uk/home
[69] https://www.ofcom.org.uk/__data/assets/pdf_file/0019/234334/Statement-Plan-of-Work-2022_23.pdf
[70] https://www.ofcom.org.uk/research-and-data/media-literacy-research/approach/evaluate/toolkit
[71] https://www.ofcom.org.uk/phones-telecoms-and-internet/advice-for-consumers/costs-and-billing/social-tariffs
[72] ONS data https://www.nomisweb.co.uk/reports/lmp/la/1941962809/report.aspx#tabwab
[73] https://www.citizensadvice.org.uk/Global/CitizensAdvice/Consumer%20publications/FINAL%20Social%20tariffs%20discussion%20paper%20-%20October%202022.pdf

7.2.7 Potential impact of national initiatives in Cheshire and Warrington

In Figure 7.3 we summarise the potential impact of national take-up initiatives in the sub-region.

Figure 7.3: National take-up initiatives and their impact in the sub-region

Project	Impact in Cheshire and Warrington
Digital Skills Partnership	High: The DSP is central to and integrated with the LEP's work on digital skills
Digital skills qualifications	Medium: Sponsorship available to eligible citizens in the sub-region
Help to Grow scheme	Medium: Training and support is available to local businesses
Ofcom media literacy work	Low: Research and support tools
Social tariffs	Medium: Potential to support 52k benefits claimants with affordable broadband access

7.3 Other public, private and third sector initiatives

In this section we describe other relevant initiatives aimed at improving digital skills across the public, private and third sectors.

- The 'Good Things Foundation' is a charity providing services to digitally excluded people, including subsidised broadband, data sharing, Wi-Fi sharing, and the device database facilitating a network for provision of devices to disadvantaged citizens.[74]

- Get Online @ Home is a charity providing discounted refurbished computers and tablets.[75]

- Age UK provides tailored access, support, guidance and training, including drop-in centres to support digital skills for older people.[76].

7.4 Driving connectivity and take-up within the sub-region

7.4.1 Connectivity

The Cheshire and Warrington Digital Strategy, published by the LEP in 2019[77], established the overarching strategy and framework to realise digital opportunities in the sub-region.

The LEP's vision for digital infrastructure is set out in its Digital Infrastructure Plan 2020 - 2025.[78] In this document the LEP is clear that it sees digital infrastructure as being central to prosperity and economic success in the sub-region, and therefore also to future prospects. The Plan has four strategic objectives:

- **Objective 1**: Enable Gigabit Capable infrastructure across the C&W LEP sub-region, with particular focus on delivery to priority/gap areas, through leveraging commercial and government investment

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[74] https://www.goodthingsfoundation.org/
[75] https://www.choose.co.uk/guide/free-computer-schemes-on-benefits.html
[76] https://www.ageuk.org.uk/information-advice/work-learning/technology-internet/
[77] https://cheshireandwarrington.com/what-we-do/analysis-and-plans/
[78] https://cheshireandwarrington.com/what-we-do/analysis-and-plans/

programmes that promote services delivered at a fair price and through an open network infrastructure that attracts a wide variety of retail service providers.

- **Objective 2**: Address areas of coverage inconsistencies and speed/service inequalities in recognition of changing work patterns, a mobile workforce, reliance on connectivity and the convergence of fixed/mobile technologies.

- **Objective 3**: Adopt/strengthen a consistent barrier busting approach to digital policy.

- **Objective 4**: Drive adoption of digital connectivity by increasing participation/skills and take-up of services.

Connectivity initiatives in the sub-region support these objectives. Connecting Cheshire is at the centre of these initiatives.

Connecting Cheshire has sponsored roll-out of high speed and fibre broadband connectivity through a number of schemes. These schemes have been funded by grants from the European Regional Development Fund (ERDF) alongside local authority funding and gigabit vouchers, and been delivered through contracts in the past with Openreach, and currently Airband. In aggregate, these schemes are delivering connectivity to around 100,000 properties.[79]

7.4.2 Take-up and digital skills

There are a number of initiatives in place in the sub-region to promote digital engagement and improve digital skills. The LEP is at the centre of many of these initiatives coordinated by the Cheshire and Warrington Digital Skills Partnership (DSP), and supported with funding from the Local Growth Fund.[80]

Cheshire and Warrington Digital Skills Partnership

The DSP is therefore key to take-up and digital upskilling work across the LEP area. The Cheshire and Warrington DSP is one of eight DSPs working in different areas of the country.[81] DSPs represent a partnership between government, business and third sector to improve digital skills and capability. The DSP is run by a Regional Coordinator, match-funded by central government.

In Cheshire and Warrington, the DSP's programme of work is led by a Board comprising representatives of local employers, one representative across the three local authorities in the LEP area, a representative of skills training providers, and a representative of the voluntary sector.[82] The DSP Board has an advisory role in the LEP, and reports to the LEP Employer's Skills and Education Board.

The DSP is focused on improving digital skills across the sub-region with a particular emphasis on young people, the unemployed, and economically inactive citizens.

The DSP operates in a multi-stakeholder environment, managing its relationship with the Department of Science Innovation and Technology (DSIT), other central government departments with an interest in digital skills (e.g. the Department for Education, the Department for Work and Pensions), other DSPs, stakeholders within the LEP,

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[79] https://digital-cheshire.co.uk/broadband-connectivity/ and information provided in interviews with Connected Cheshire colleagues.
[80] Details are on the LEP website: https://cheshireandwarrington.com/growth-and-skills/skills-and-education/digital-skills/
[81] See https://www.gov.uk/guidance/digital-skills-partnership
[82] Note the DSP Board is not a formal Board or Committee of the LEP.

the three local authorities, and with others with an interest in digital take-up and digital skills across the sub-region.

Figure 7.4: Cheshire and Warrington DSP governance structure and high level stakeholder map
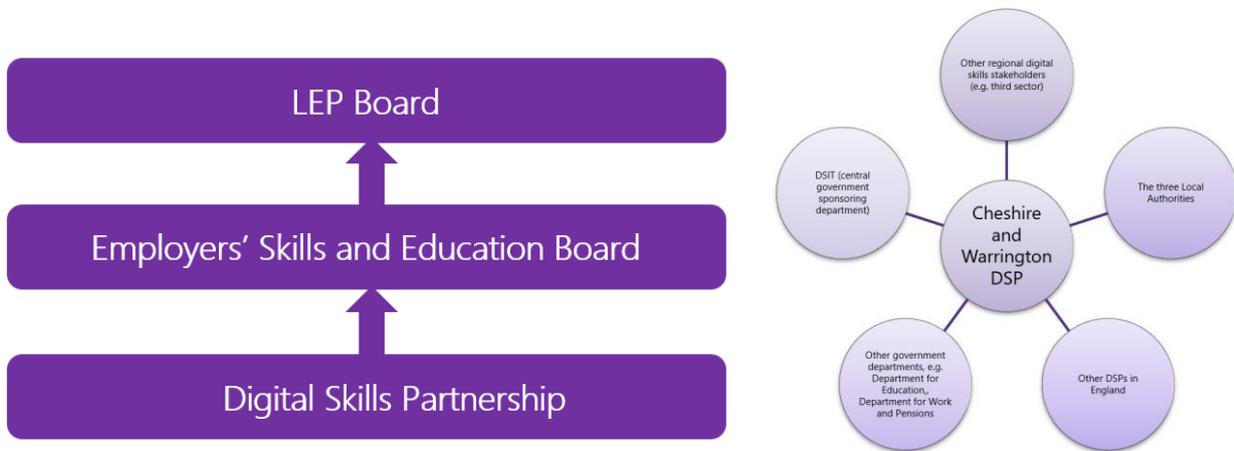
The coordinator role is central to managing this stakeholder landscape, and hence also to successful delivery of outcomes by the DSP. DSIT funding for the Cheshire and Warrington DSP Coordinator will expire on 1 August 2023.

Activities driving take-up and skills

The DSP and other stakeholders are delivering a number of initiatives to drive improvements in digital skills in the sub-region.

A significant part of the programme has been funded by funding of £5 million from the LEP Local Growth Fund which is granted to projects providing specialist equipment and training, and raising awareness of digital and new technologies. Seventeen projects have received funding from the programme, and fifteen of these are currently live. Some projects are focused on specialist areas of digital knowledge and skills (e.g. smart manufacturing, robotics, and cloud based systems). Others are more focused on developing basic IT skills in the community, and these include:

- **Community digital learning hubs** located in Northwich and Winsford, providing training for digital upskilling, and equipment to facilitate digital engagement for local businesses and adults.

- **The STREAM programme** is focused on raising awareness and providing support to neighbourhoods with low digital capabilities. The programme is managed by Cheshire College, Warrington Vale Royal College and Warrington University Technical College (UTC) working alongside local community organisations.

- **Macclesfield College Digital Skills Hub** provides digital skills development opportunities, including job related skills.

The DSP also contributes to delivery of the Cheshire and Warrington Pledge[83] where it is active inspiring and educating young people about digital technologies.

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[83] https://cheshireandwarrington.com/growth-and-skills/the-pledge/

The three local authorities (Cheshire East, Cheshire West and Chester, Warrington) have a role, and run programmes promoting digital take-up and digital skills. For example:

- Cheshire East has consulted on a Digital Inclusion Strategy.[84]

- Cheshire West and Cheshire runs a Digital Inclusion Programme.[85]

Connecting Cheshire are also active in the digital skills arena. They provide digital support facilities to businesses, including:

- Masterclasses to help navigate the digital environment.

- Business support providing up to 20 hours consultancy to businesses, including in masterclasses.

- Bespoke events for networking and focused on areas of digital expertise.[86]

There are initiatives targeted at take-up in the sub-region, leveraging national and local facilities. This work focuses on sourcing skills training and provision of devices to young people and vulnerable adults.[87] This includes:

- **Getting Students Online** which invites local businesses to make financial pledges to help with access and devices to disadvantaged students.

- **Everyone Connected Campaign**, coordinated by the Good Things Foundation coordinating provision of connectivity and devices to the most vulnerable in society.

Outcomes

Measuring the impacts of and outcomes from interventions on digital take-up and digital skills is important to their effectiveness. Outcomes across the first six DSPs nationally were reported by DCMS in an evaluation report in 2021.[88] The report found that centrally funded DSP areas performed better on digital skills outputs than areas without a centrally funded DSP.

The LEP has provided the following data on outcomes from its Local Growth Fund Skills projects.

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[84] https://cheshireandwarrington.com/growth-and-skills/the-pledge/
[85] https://www.cheshirewestandchester.gov.uk/residents/health-and-social-care/digital-inclusion
[86] https://digital-cheshire.co.uk/support-for-your-business/
[87] https://cheshireandwarrington.com/growth-and-skills/skills-and-education/digital-skills/digital-inclusion-work/
[88]
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1021163/Evaluation_of_LDSP_final_report_270921.pdf

Figure 7.5: Impact of Local Growth Fund funded digital skills projects (up to December 2022)

Metric	Impact
Number of learners benefitting	91,203
Number of learners benefiting and leading to a qualification	4,234
Number of online engagements	424,363
Number of businesses benefiting	993
Number of school and college engagements	846
Number of jobs created	212
Square metres of new learning space	1,886

Source: Cheshire and Warrington LEP

7.5   Some overseas initiatives aimed at promoting take-up

Here we describe some overseas initiatives to promote digital take-up and improve digital skills.

Policies designed to promote digital inclusion have been put in place in many countries. In most European countries we have looked at, there are social broadband tariffs that may be part of a formal universal service obligation, or just an encouragement on the part of government to include some form of social tariff in a ISP's product portfolio.

In addition, a number of countries have made targeted interventions on take-up and skills:

- **Spain.** The Government of Spain issued a detailed programme in The National Plan for Digital Skills.[89] This aims to narrow digital divides and ensure no Spanish citizen is left behind. Also, the Spanish "social connectivity vouchers for economically vulnerable categories of end-users[90] is targeted at low-income households and runs from May 2022 until the end of 2023. It was fed through the European Recovery and Resilience Facility Fund. With a total budget of €30 million, it was targeted at a maximum of 125,000 households, subsidising €240 over 12 months for broadband solutions of at least 30Mbps.

- **Italy.** At national level, the state launched a programme consisting of two streams of funding, one aimed at households and one at businesses. €1.2bn was set aside for these programs, targeted as follows:

  - The household program had an envelope of €200m and was targeted at families with income below €20k per year. Vouchers of €150 were awarded to either subsidise devices (mobile phones or computers primarily) or broadband access subscriptions above 30Mbps bandwidth. The program was put on hold after €103m had been awarded. Most households opted to spend the voucher on devices, and the remainder funded FTTC offers primarily. The program had very limited impact on broadband adoption overall and even less on VHCN adoption.

  - The business program had an envelope of €608m of which €106m were spent before the program was put on hold. The program subsidised businesses with €2000 provided they subscribed to offers above 1Gbps. Service providers were quick to launch offers just above that speed based on existing

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[89] Spain - National Plan for Digital Skills | Digital Skills and Jobs Platform (europa.eu)
[90] See: https://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_SA_100138

FTTH solutions, but the overall impact on adoption was very limited because of the excessively broad targeting.

- **Poland.** As part of its strategy to provide universal access to high-speed broadband, the Government of Poland says it will address digital competencies, including the following components:

  - the development of society's digital skills, mainly in rural areas and small towns. More active participation in social life and more frequent involvement in local communities and activities in non-governmental organizations;

  - educational and information campaigns that will promote the benefits of developing digital skills; and

  - strengthening and developing the potential of programmers, which can be used for the digital development of the country.

Key take-outs

- At national level there are a number of initiatives to boost both connectivity and take-up with the potential to do so in Cheshire and Warrington. These initiatives include some central funding. On connectivity, work on a Project Gigabit contract for Cheshire is in the pipeline, and gigabit vouchers have been deployed in the sub-region. On promotion of take-up and improving digital skills, there is less funding and coordinating activity from central government than there is on connectivity work.

- Connecting Cheshire has a role to coordinate work on connectivity, and also provides support to local businesses, e.g. through masterclasses.

- The Digital Skills Partnership (DSP) coordinates work on take-up and skills. There are a number of local initiatives aiming to improve digital skills. The DSP is central to effective coordination of many of these activities, but the DSP Coordinator role is not funded beyond 1 August 2023.

- Awareness of, and take-up of local initiatives is key to the success of local take-up and skills initiatives.

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8   Conclusions

This Position Paper sets out our research on barriers to digital connectivity in Cheshire and Warrington.

We have looked at both:

- Connectivity gaps, i.e. barriers driven by lack of available infrastructure (supply side barriers); and

- Usage gaps, i.e. barriers driven by non-usage or low usage of available connections and technology (demand side barriers).

These are considered in turn below.

8.1   Connectivity

We have been able to compile considerable data on connectivity barriers. Our principal source has been the Ofcom Connected Nations Report 2022. We present a summary of the connectivity data in Section 6. Key conclusions are:

- There are reasonable levels of coverage for fixed "superfast" broadband (with download speeds 30Mbps and above) across Cheshire and Warrington.

- There is above UK-average coverage of direct fibre (fibre to the premises – FTTP) connectivity in Cheshire West and Chester. By the same measure, Cheshire East lags behind the national average, but recent deployments have narrowed this gap.

- Urban Warrington has low FTTP penetration, but high penetration of cable capable of delivering gigabit speeds.

- There is good 4G mobile coverage across the sub-region, comparable data on 5G coverage are unavailable.

- Evidence from our primary research in the sub-region indicates that user experience of fixed connectivity and coverage does not always match the reported network performance data.

- There is evidence that small businesses in the North West (up to 250 employees) experience more difficulties with the quality of their broadband connections and mobile services than the national average.

Overall we found that, whilst improvements in connectivity and coverage can be made and there is work in place to do this, the availability of connectivity is unlikely to be a significant barrier to digital connectivity and usage in Cheshire and Warrington.

8.2   Usage

Evidence on usage barriers specific to Cheshire and Warrington is less comprehensive than the connectivity data. Therefore, for research, we used a combination of:

- Proxy data, using national or regional figures where we can identify that this data is likely to be relevant to usage gaps in Cheshire and Warrington; and

- primary research carried out by i2 Media Research in the sub-region.

We have considered evidence covering usage gaps which may arise from accessibility, affordability, motivation, trust and confidence, and digital skills. Some conclusions are:

- Demand-side barriers to connectivity in Cheshire and Warrington are likely to mirror those at the national level: lack of digital skills, affordability of connectivity and/or digital devices, and attitudinal barriers (e.g. lack of interest, fears about data security).

- Our primary research corroborates that these are the main barriers in the sub-region. Although focus groups did not consider affordability a particular issue, the Restart survey indicates that cost is a key barrier among certain groups.

- Areas with skills barriers are likely to also face affordability barriers.

Plum has carried out an analysis of neighbourhoods across the sub-region (known as Lower Layer Super Output Areas - LSOAs) by Internet User Classification (IUC). This shows that 34.7% of LSOAs across the sub-region have IUC profiles 7, 8, 9, or 10, the lowest levels of interaction with the Internet. We have mapped this to demographic data to identify in which of the LSOAs skills deprivation is likely to be a barriers to digital engagement, in which income deprivation is likely to be a barrier, and in which areas barriers are likely to be more attitudinal. Across the sub-region, there is a roughly even split between areas where the primary barriers are likely to be skills and/or affordability, and areas where the primary barriers are likely to be attitudinal.

8.2.1   Businesses and service suppliers

We have used proxy data to analyse factors which may affect take-up by businesses. We have also analysed returns from the LEP's survey of business users which is providing data on digital engagement and skills gaps in businesses and service suppliers.

Ofcom data on the experience of SMEs in the North West show:

- lower than average satisfaction with digital services, and significantly more issues reported; and

- lower propensity to switch provider.

Lower switching rates despite higher dissatisfaction with some aspects of service may indicate a level of disengagement and/or inertia in businesses and service suppliers in the North West relative to nationally.

The LEP survey will provide significant evidence to inform approaches by the LEP and other stakeholders to address business and service supplier connectivity, usage and skills gaps.

8.3   The policy response

There are a number of initiatives in place to address connectivity and usage barriers in Cheshire and Warrington.

Connectivity gaps are subject to national policy intervention through BDUK initiatives such as Project Gigabit and Gigabit Vouchers. These schemes are centrally funded, and so local stakeholders can apply for funding to

support local connectivity through these schemes. Initiatives for this in Cheshire and Warrington are in place and more are in plan, coordinated by Connecting Cheshire. Additionally, the sub-region has benefited from ERDF grants to fund connectivity.

Our research identified that reported coverage data does not always match user experience. Further research would help identify not-spots and areas where weak coverage is a problem for residents and businesses, and hence also help to target future investment. We understand that an infrastructure mapping project is underway, and the results of this should be helpful in identifying priority areas to address.

We also identified that there is strong coverage of the cable network in urban Warrington, potentially providing very high speed access there outside of fibre.

On the demand side, initiatives on take-up and skills are coordinated by the Digital Skills Partnership (DSP). The DSP is at the centre of a multi-stakeholder landscape with a range of initiatives addressing digital skills gaps. The DSP Coordinator has an important role linking stakeholders and activities across this landscape, for example setting up liaison between the LEP and the three local authorities. The Coordinator role is not funded beyond 1 August 2023. The LEP may wish to consider how to facilitate continuity of functions currently delivered by the Coordinator beyond the current tenure of the role.

In Figure 8.1 we summarise the barriers to digital connectivity and usage identified in our evidence review and identify initiatives in place and/or further work which can help refine our understanding of these barriers.

In some cases, initiatives are underway or in plan to address these barriers. This is evident in considering connectivity barriers where Connecting Cheshire has been able to leverage national funding to target infrastructure deployment through contracts with Openreach and Airband. Further work is in the pipeline to expand fibre connectivity in the sub-region.

Figure 8.1: Barriers to digital connectivity and usage identified, and potential responses

Barrier identified		Key evidence sources	Users affected	Potential response or next steps
Connectivity	Below national average direct fibre connectivity in Cheshire East	Ofcom data	Residential, businesses and service suppliers.	Project Gigabit contract for Cheshire (in plan for Spring 2023) Gigabit vouchers.
	Below national average direct fibre connectivity in Warrington	Ofcom data	Residential, businesses and service suppliers	Project Gigabit contract for Cheshire (in plan for Spring 2023) Gigabit vouchers The cable network has a strong footprint in Warrington, and provides potential opportunities for delivery of ultrafast connectivity
	Mobile coverage not-spots and areas of poor coverage	Primary research (aggregate Ofcom data does not capture this)	Residential, businesses and service suppliers	Gather further evidence through the infrastructure mapping project
	Lower satisfaction with broadband and mobile connectivity than national average by businesses in the north-west	Ofcom data	Businesses and service suppliers	Project Gigabit contract for Cheshire (in plan for Spring 2023) Gigabit vouchers Gather further evidence through the infrastructure mapping project Further investigation through the Growth Hub business survey
Usage	Attitudinal barriers, e.g. lack of interest, concerns about privacy and security	ONS data Lloyds Digital Index Primary research	Residential	Identify targeted remedies per LSOA or ward by extending IUC analysis
	Digital skills gaps in individuals and/or households	ONS data Lloyds Digital Index Primary research	Residential	Identify targeted remedies per LSOA or ward by extending IUC analysis
	Affordability of connectivity and/or digital devices	ONS data Lloyds Digital Index Primary research	Residential	Identify targeted remedies per LSOA or ward by extending IUC analysis
	Low satisfaction with digital services by businesses in the north-west	Ofcom data	Businesses and service suppliers	Complete the LEP Growth Hub business survey, analyse data to identify remedies
	Business digital skills gaps	LEP Growth Hub business survey	Businesses and service suppliers	Complete the LEP Growth Hub business survey, analyse data to identify remedies

8.3.1 Addressing demand side barriers

Our analysis suggests that barriers to digital connectivity and usage are more likely to be on the demand side (e.g. affordability, skills and attitudinal barriers) than the supply side. This is because, whilst there are some gaps in coverage, overall there is good broadband connectivity and mobile coverage in the sub-region. Also, through Connecting Cheshire, there are initiatives in place to address connectivity gaps, including plans for a Project Gigabit contract in Cheshire.

Through our primary research we have started to identify the types of remedies which people facing demand side digital barriers would find helpful. This is described comprehensively in the research report prepared by i2 Media Research (see Appendix A).

Potential interventions identified in this way include.

- Free (or discounted) data. This would be targeted at affordability barriers. It would be likely to be challenging to implement as it would require on broadband and mobile providers.

- Free (or discounted) digital devices. This would be targeted at affordability barriers. Some initiatives have already successfully taken this approach, e.g. Get Online @Home.[91] A flexible approach would be helpful to ensure devices provided are appropriate to the user, e.g. a mobile device may be suitable to access basic services, whereas a laptop or desktop computer is more appropriate for more complex functions and services.

- Offline support. This would be targeted at better engagement and overcoming attitudinal and confidence barriers. We found that people are frustrated by some automated online services like chatbots. Improving offline support would be challenging to implement across all services as it would require the provision of new facilities by businesses and service suppliers as well as public sector services.

- Integrated services. This could start with local services and making improvements based on the user experience of facilities and services provided in areas like health, education and leisure.

- Community support and training. We found that some individuals and households have access to support from individuals or local community hubs (e.g. Age UK). This is an invaluable facility which there may be opportunities to further harness and coordinate.

- Trusted voices. Our research demonstrates that individuals and households facing digital barriers react more favourably to information and advice from trusted sources (e.g. local authorities).

- Data security training. Concerns about security of personal data were prominent in our research. More information and training would be helpful to address this and could be provided locally.

These potential remedies are assessed at a high level in Figure 8.2, using a "harvey ball" analysis to indicate that likely level of effectiveness and challenge of each potential remedy.

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[91] https://www.getonlineathome.org/

Figure 8.2: Assessment of potential remedies

Potential remedy	Barriers addressed	Impact	Opportunities	Challenges
Free (or discounted) data	Connectivity Affordability	●	Would drive digital engagement by economically disadvantaged individuals and households	● Would depend on broadband and mobile providers
Free (or discounted) digital devices	Connectivity Affordability	◕	Would drive digital engagement by economically disadvantaged individuals and households There are precedent examples of successful schemes	◕ Matching devices and users
Offline support	Attitudinal barriers	◔	Would improve usability of services and hence confidence and engagement	● Difficult to achieve across all sectors
Integrated services	Convenience	◔	Would improve usability of services and hence confidence and engagement Could lead with local public services	◑ Requirement for identification and deployment of local resources
Community support and training	Affordability Attitudinal (confidence, trust etc)	◕	Low cost support directly targeted to those who need it	◑ Requirement for identification and deployment of local resources
Trusted voices	Attitudinal (confidence, trust etc)	◑	Opportunity to improve confidence through local information sources	◑ Requirement for identification and deployment of local resources
Data security training	Attitudinal (confidence, trust etc)	◑	Opportunity to improve confidence through local training and information sources	◑ Requirement for identification and deployment of local resources

Our LSOA analysis provides the opportunity to target remedies in neighbourhoods where usage barriers are highest. For example, in areas where the demographic data indicates that affordability and digital skills barriers are likely to be prominent, work should focus on initiatives targeted at these barriers.

Appendix A   Primary research report (i2 Media Research)

This section contains i2 Media Research's report of the findings from the primary research conducted in Cheshire in Warrington in January and February 2023.

A.1   Introduction

Section 2.3 discussed the barriers to digital connectivity across the UK. The analysis indicated that lack of skills, a lack of interest and negative perceptions of digital services are the key reasons keeping individuals from getting online and accessing a range of digital products and services. In addition, for some, the lack of adequate infrastructure or the affordability of connected services will be important barriers. The relative importance of these barriers may vary across different regions and local areas of the UK.

This chapter explores whether these barriers and predictors of digital disadvantage, which are well documented at a national level, are also prevalent in the Cheshire and Warrington population and whether there are other, less well documented, barriers for this group arising, for example, from demographic or location factors. This report also details ideas generated by participants which could help people in the area become more digitally connected.

The key findings from the primary research show, as expected, that financial, skills, connectivity and attitudinal barriers were among the primary causes for lower engagement in digital services. Whilst connectivity is a barrier to the UK overall, data and reports specific to Cheshire and Warrington suggest residents should have good coverage. Our research groups highlighted that the consumer experience does not match the purported service levels offered by providers. Additionally, the research highlighted other barriers such as digital fatigue, lack of offline safety nets and usability as significant barriers to Cheshire and Warrington residents becoming more digitally connected.

These barriers are not simple to overcome and there was acknowledgment from the groups that several of the barriers discussed would need multiple interventions to resolve. That said, multiple ideas and novel suggestions were generated by participants to aid residents in Cheshire and Warrington. We discuss the merits of these different solutions against the barriers they help to resolve.

A.2   Methodology

Focus groups were conducted with Cheshire and Warrington residents to explore the range of digital products and services used, motivations and barriers to using these products and services and consideration of interventions which would help more people in the area become more connected. Participants were asked about the different digital services they use, their likes and dislikes and what could be done to help them be more connected.

This report details the results of a total sample of 33 participants recruited for the focus groups. Online sessions held on the 25th of January 2023 involved 15 participants, and in person sessions on the 7th of February at AgeUK in Northwich, and the Pyramid Arts Centre in Warrington, involved 10 and 8 people respectively.

The characteristics of these groups were as follows:

- Of the online sample one group was made up of more digitally literate participants, and one group reported lower levels of digital literacy.

- The age range of the participants across all groups was 18-85 with a mean age of 48.

- The gender split was 9 males and 24 females.

- The participants were from across the Cheshire and Warrington sub-region, with 13 from Warrington, 12 from Cheshire West and Chester and 8 from Cheshire East.

A.3   Results and discussion

The focus groups brought to light how expected and unexpected barriers to digital adoption play out for Cheshire and Warrington residents. We discuss the complexity of factors which prohibit more digital uptake and suggest recommendations based on user generated solutions. Of the expected barriers the literature clearly suggests that **low digital skills, economic factors, and negative perceptions** are prevalent barriers to adoption. Whilst the focus groups provided additional evidence for these known barriers, they also brought to light how these factors relate to less understood barriers like the compulsion to move online in an increasingly digital world, lack of non-digital services and attentional fatigue brought about by digital saturation.

Whilst there are several barriers to overcome, there was appetite from the Cheshire and Warrington community (both older and younger generations) to engage more in digital services with participants noting the importance of digital infrastructure and skills for gaining employment opportunities, managing health and accessibility need and education, assisting relatives, keeping in touch, and accessing leisure and entertainment.

Our discussions highlighted the barriers to be aware of, which in turn, allows for productive deliberation over the most effective interventions for addressing these barriers.

A.3.1   Key barriers in brief

- Connectivity across the sub-region is an issue for most residents. Whilst industry reports indicate good coverage, the consumer experience does not match the high-level data, with participants reporting 'not spots' within their homes, workplaces and local shops / amenities. The connectivity issue affects both privileged and disadvantaged individuals with considerable frustration noted by all participants. Notably

whilst connectivity affects everyone, wealthier individuals and families are more likely to have the resources to overcome this (e.g., by switching provider).

- As well as connection issues, participants spoke of lack of service provision in the area with some people served by digital taxi services, takeaways or online delivery services (e.g., supermarket deliveries) and others less so. This unequal provision creates a divide with people feeling that popular and known services are 'not for them'.

- Understandably with the cost-of-living crisis respondents are sensitive to price of services with many noting they were not getting what they were paying for. Many reported they were on Internet service packages which they felt were unreasonably expensive. For those in lower income households' price was seen as a barrier to maintaining connectivity, particularly for those on pay as you go Internet options.

- Participants also spoke about the need to move online, whether for themselves or for older generations in their families (e.g., parents and grandparents). Whilst digital services were seen as essential, there were concerns that without non digital services to support the user experience (e.g., manned phone lines, or in person options) people are left without support and this fuels frustration, security fears and low levels of trust.

- Without this trust more barriers emerge, such as older generations' lower confidence to learn new digital skills and lower autonomy over managing their lives digitally (e.g., managing finances on banking apps, or managing TV subscriptions).

- Even for those who are more digitally literate and savvy, the number of online services felt overwhelming. Participants spoke about being bombarded with different apps and services. This information overload affect has the potential to reduce trust further in digital services, and in technology companies.

- When information overload is high, people spoke of a tendency to disengage and distrust digital to a greater degree.

- Finally, participant spoke about the lack of joined up digital services for basic services (e.g., education and health or local information). People's expectations for digital services tend to be set by the best in class products, therefore there was heightened frustration at poor UX and services which wasted time and effort. Again, this had the effect of users wanting to disengage from using digital.

A.3.2 Barriers and solutions in depth

Connectivity is king

Connectivity across the sub-region is an issue for most residents, affecting both privileged and disadvantaged individuals. Frustration at the lack of service was noted by all participants. Whilst connectivity affects everyone, wealthier individuals and families are more likely to be able to buy their way out of poor infrastructure.

> *"My neighbours and I had to club together to pay £120K to lay fibre to our properties to get coverage. Some of our street couldn't afford it and they're still without services." Female, 37*

A complete lack of service is not the norm for most residents, however, everyone we spoke to commented on the extreme variation in the services they received throughout their homes, workplaces or while out in their

communities. For those who can't afford to buy their way into better connection, it seems people make do with what they have, putting up with an experience which is both frustrating and inconvenient.

> *"There's a difference from one side of the street to the other." Male, 45*

> *"Sometimes it goes to 4G, but it feels like 3G." Male, 36*

> *"We don't have broadband and the phone signal can just go to no coverage when I go into some buildings." Female, 18*

Other people we spoke to suggested they adjust their usage to meet their immediate needs.

> *"There are times when we have to turn everything off, just to stream a video." Female, 40*

There is also variety in the types of digital services people can access, for example some people do not have access to delivery services which are common across other parts of the UK.

> *"ASDA won't deliver to us, and I don't know why." Female, 38*

> *"You can't get the offers you see; the area feels cut off." Female, 35*

> *"There are no Ubers in Warrington. I think there's a problem." Male, 57*

> *"Even though there's 5G in the area it doesn't work in our house." Female, 40*

This can lead to disengagement in digital services and a lack of awareness. Participants commented that the lack of services and disparity can make them feel that some services are not for them, there was a feeling that it can hold the area back.

You get what you pay for. Or do you?

Alongside this there was a sense that residents weren't always getting what they were paying for, or that prices remained unreasonably high given the service.

> *"It's annoying when you're paying for a service and not getting it." Male, 36*

> *"I'm not happy, the price is too high at £39 per month. I want to switch my contract" Male, 39*

This view was not unanimous however, with some participants commenting they were relatively happy with the price points for digital services (especially mobile contracts). For lower income individuals the flexibility offered by mobile operators on low-cost contracts enable them to budget accordingly and change their service depending on their income.

> *"'cos I've been with GiffGaff for a while, I can change whenever I want, or change my contract type – there's good flexibility." Male, 40*

Other people commented that in the context of the *cost-of-living crisis*, mobile costs seem reasonable.

> *"I'm not concerned about my Internet costs, it's the gas prices I'm worried about." Male, 26*

For older generations the concerns around costs were predominantly to do with the costs of keeping analogue services that they were familiar with.

"I have got a landline, but I won't use it, it's far too expensive." Female, 78

Price point and ongoing costs are clearly of concern for consumers, however the cost needs to be considered alongside factors like the quality of service, the flexibility of the contract and the provision of extras, like affordable landlines, additional mobile bundles, or roaming data provision. Furthermore, cost-of-living considerations means that people are budgeting more carefully and are sensitive to price increases across the board.

Providing a safety net

A definitive barrier to digital engagement was a lack of offline service provision for when digital fails, or as an alternative for people who prefer analogue services. There was a clear difference in opinion regarding the proliferation and rise of digital services. Whilst younger individuals viewed digital as necessary, convenient, and part of life – older individuals felt the world had changed, they voiced a lack of control over digital engagement, suggesting being forced to move online.

Younger individuals:

"I do everything on my mobile phone, it's really convenient" Female, 37

"I manage my life online, it saves time, it's easier" Female, 40

Older individuals:

"You can't disconnect can you, it's like you're being manipulated to run your life online." Female, 65

"These computers are really taking over; you can't do anything without them. You need a phone, especially when you go out on your own." Female, 74

Yet, regardless of age, there was agreement that without offline services (e.g., manned phone lines or in-branch provision or community centres offering support) digital services would fail. On the one hand, this failure would stem from consumer frustration at poor quality services, for example, not being able to access help over an online shopping order, or not knowing how to complete a financial process online. On the other hand, the failure would stem from people being locked out of services altogether.

"What happens if everything gets blown to smithereens? We'd be stuffed." Female, 85

"I'll fight tooth and nail to keep my landline!" Female, 80

"I'm concerned for people like refugees or people who are homeless they can't access things online. These communities need services like libraries (which are struggling and often not open) to complete forms online or access the Internet. Without actual in person services, many people are just going to be cut off altogether." Female, 23

Whatever the level of severity of impact to the individual, lack of offline safety nets was seen as a key driver to lowering confidence, reducing autonomy, and lowering trust in using digital services. Confidence, autonomy and trust were the major attitudinal barriers which lowered individuals' likelihood of engaging with digital services.

The importance of Confidence, Autonomy and Trust

Multiple factors appear to lower people's trust in digital. Respondents spoke about fears for their data, and the fear of being hacked or being spied on. These fears were born out of lack of trust in, technology companies, information sources and technology products themselves (notably Amazon Alexa).

> *"You can just see it (Alexa) listening in, especially when my wife is watching true crime dramas – it's got sensors which listen out for things like guns and murder."*
> *Male, 40*

> *"I go and hide from mine (Alexa), if I'm doing anything that I don't want her to hear." Female, 80*

> *"I'm convinced my phone is spying on me." Female, 18*

> *"I don't feel I have control of my own data" Female, 34*

> *"I'm more suspicious of the companies themselves" Male, 57*

> *"I keep getting sent these messages (about accessing my accounts) and it scares me to death." Male, 78*

Understandably with lower trust, people in turn have lower confidence in technology and its ability to meet their needs and improve their lives. Whilst the lower levels of confidence do not necessarily prohibit younger people from *actual* use, for older people, low confidence was a barrier to gaining new digital skills.

> *"I'm not confident enough to try, I'll press the wrong buttons." Female, 73*

> *"I watch Sky Sports on my iPad, ... my friend set that up" Male, 78*

Low confidence was also associated with lower autonomy this was particularly an issue for older generations in terms of ability to run practical elements of their lives.

> *"I do the banking and everything for my mum." Male, 57*

> *"We don't have a choice; everything forces you to the Internet. I worry for my husband... if I died, he'd be lost." Female, 77*

Yet loss of autonomy also factored into younger and more digitally literate respondents' comments. For these individuals digital overload led to loss of autonomy. People spoke about feeling overwhelmed with the amount of time and energy using digital services could take up.

> *"My children's school has 5 or 6 different platforms all to do the same thing. I'd rather just speak to the school directly; it's a waste of time and effort and I'm just not going to engage with it" Female, 37*

> *"I find myself shopping on my phone when my baby can't sleep, and when things arrive, I think "what have I bought?'" Female, 38*

There was also a fear from parents around how digital overload could negatively affect the lives of their children, especially given the ability to keep in contact 24/7.

> *"You used to go to school and leave your bullies at school, now you can be excluded*
> *24 hours a day – the scale of the problem is huge, there aren't enough police on the*
> *planet to deal with that." Female, 37*

This illustrates the range of negative impacts that lacking digital autonomy can bring, from child safety, to decision and attentional fatigue.

The results here highlight the interplay between attitudinal, economic, and structural barriers. Importantly interventions need to be considered through a range of 'lenses' to evaluate how they help combat the multitude of barriers highlighted. The following section presents the described user generated interventions along with a snapshot assessment of which barriers each intervention may solve. The user generated interventions presented are high level ideas generated by participants in the focus groups. To fully explore the detail of these ideas, their feasibility and the individuals/organisations who can action them, we recommend a design workshop to interrogate these questions.

A.4   Mapping Solutions

There are multiple potential solutions which can help support Cheshire and Warrington residents and workers to gain trust in digital, feel more connected, learn new skills, and as a result, lead more fulfilling lives. We present these solutions in grouped form and then map them to the barriers they address, and the segments of the population they can benefit the most.

A.4.3 Key solutions

- There were many suggestions for free digital services, e.g., free data for a minimum service between top ups for those on pay as you go service options, free refurbished digital devices (computers, laptops, phones) and free broadband

- Participants considered that joined up digital services would be welcomed, especially when it came to local services like health, education, and leisure. Improving the user experience of these services was seen as central to lowering digital frustration, fatigue and disengagement.

- Participants spoke about the role of councils and local news as trusted voices. For example, the Cheshire East website was seen as a good place to provide quality information on digital assistance (e.g., links to BBC guides, Martin Lewis website etc.) as well as providing information on local events and the Our Town newspaper was seen as a good source of information for getting assistance with technology.

- Enabling more support offline via manned phone services or in-person services could offer people a safety net. Manned chat services requiring text were also seen as a good option in replacement of chatbots or FAQs. It was also noted that without in person services like libraries or community centers to help people get online, the most disadvantaged people (e.g., refugees, those without permanent housing could be completely excluded).

- Participants wanted more information on the use of their data delivered in a manner which was understandable and digestible. Improving trust was seen as a key element in improving motivation and confidence to learn and gain new digital skills.

- Building community was seen as essential to supporting digital skills acquisition. Many people spoke about giving informal support and assistance to help people access digital and gain skills. This support

comes from community members, employers and family, friends, and peer networks. Investment in these informal networks could help offer more people support and keep support local and targeted.

Figure A.1: Barriers to digital connectivity and engagement, and potential remedies

A.4.4 How to prioritise barriers and interventions

To characterise the levels of digital literacy and digital engagement we use i2 media's digital attitudes and behaviours segmentation of UK consumers. This segmentation is shown below. The segmentation offers eight segments which range from higher digital literacy (Happy Highlife and Enthusiastic Explorers, colour coded green) to lower digital literacy (Getting By and Active Analogues, colour coded red).

**Figure A.2: Digital attitudes and behaviours segmentation**
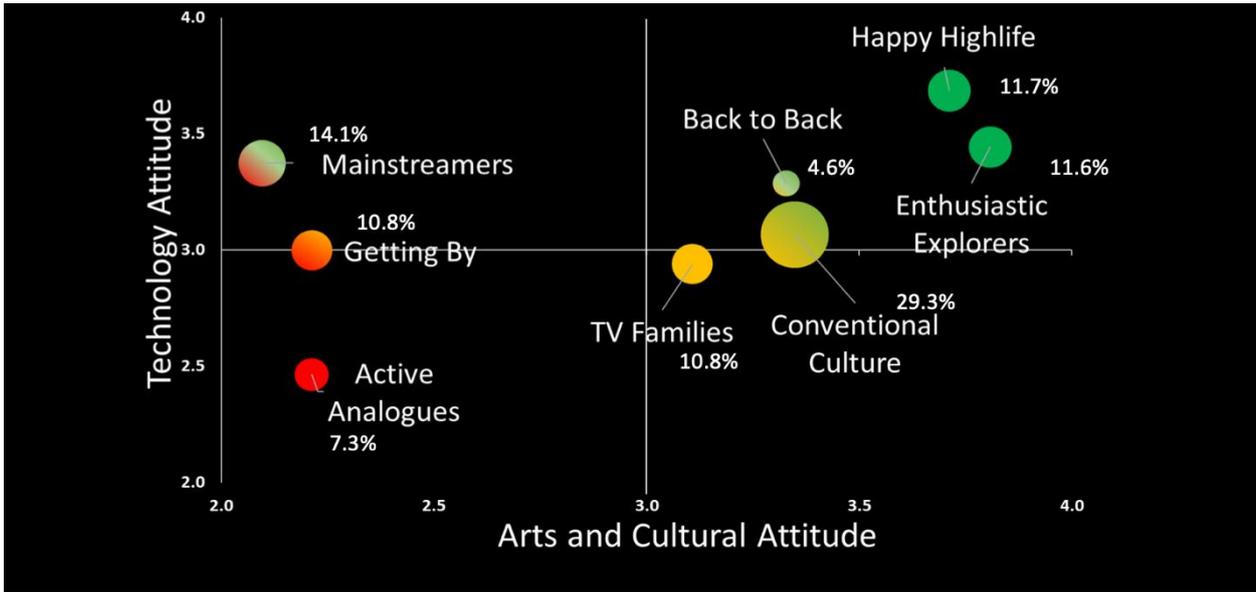
For simplicity we categorise our sample into 3 digital literacy levels; high 37% of the population, medium 45% of the population and low 18% of the population. This mapping allows us to consider which barriers affect the greatest number of people, and which interventions serve the greatest number of people. Considering the barriers and interventions above we present the following mapping to aid discussions for how to best solve problems of digital adoption among the Cheshire and Warrington population. The demographic and economic characteristics of the sub-region are not substantially different to those of the UK as a whole and hence the UK segmentation is used for this exercise.

Figure A.3: Barriers by segment
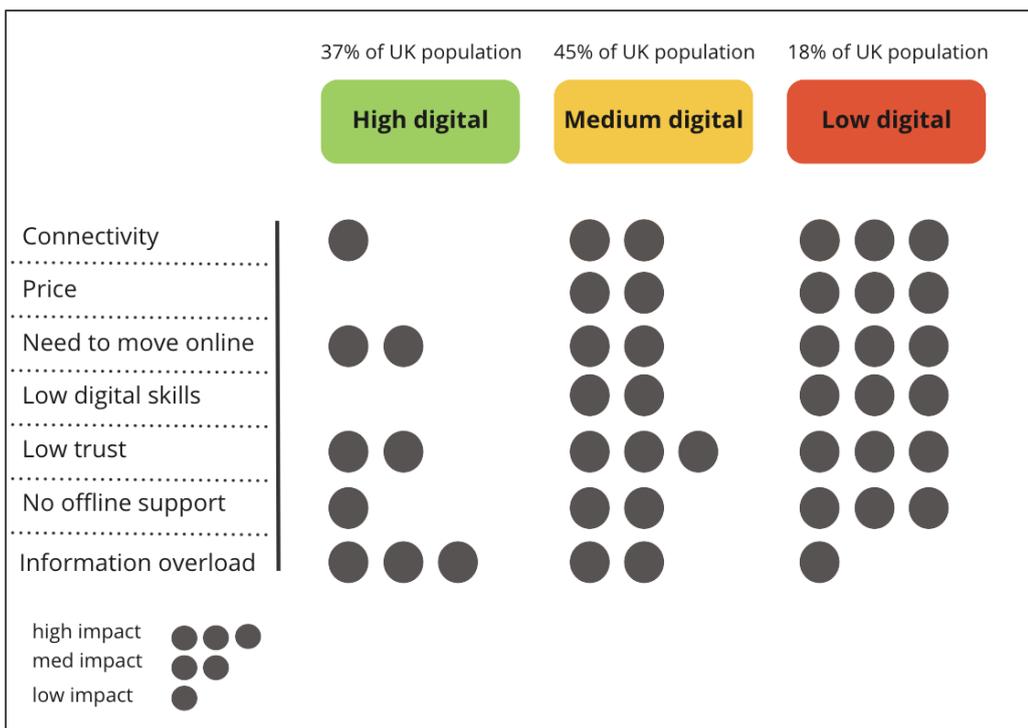
The diagram above shows conceptually how barriers disproportionately affect those with lower digital literacy and digital engagement, while connectivity and price are practical barriers, there are additive effects which lead to lower digital skills and lower trust. For those with higher digital engagement the risks are more related to digital exhaustion resulting from information overload and the frustration this entails.

Figure A.4: Interventions by segment
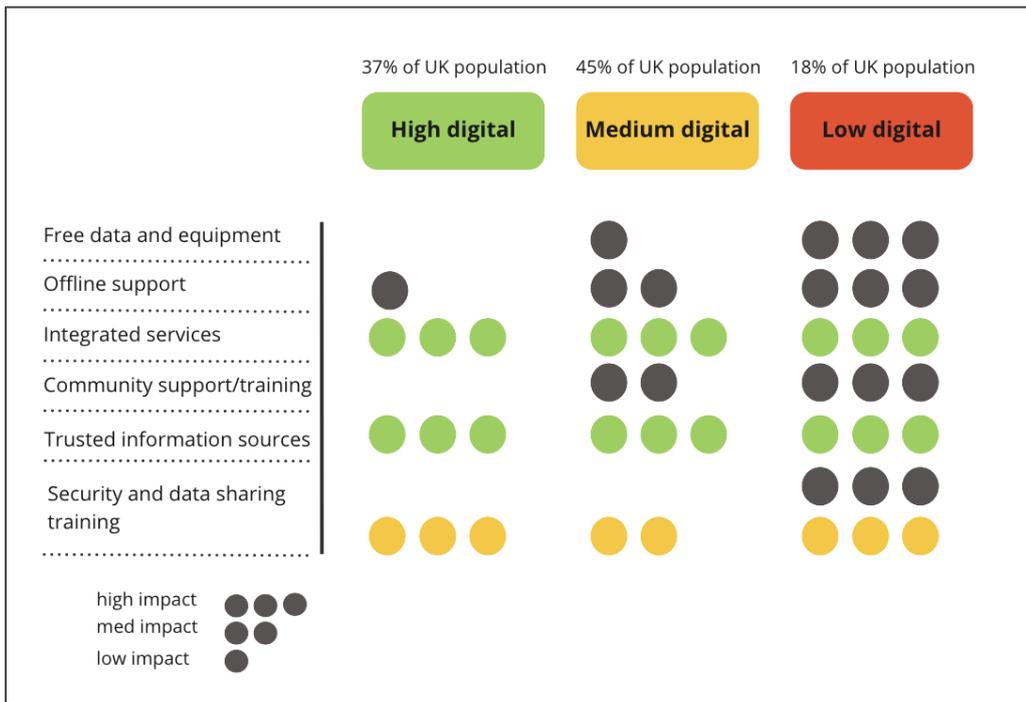
The interventions diagram suggests there are some quick wins which would help the most people, these are highlighted in green and yellow. Providing trusted information sources and more integrated digital services for the things people use the most is likely to help the most people, whilst targeted support across all suggested interventions for those who are less digitally literate can help bridge the digital divide.

A.5   Conclusions and recommendations

In summary the qualitative research highlights the problems citizens face for accessing digital services. There is a clearly an interplay of factors; issues of trust can lead to lower confidence and autonomy, which in turn affects willingness or confidence to learn new digital skills (especially for older generations). Connectivity issues affect everyone from lower and higher income groups, yet those on lower incomes are understandably less able to change their circumstances by buying their way out of connectivity problems. However, due to flexible contracts offered by most mobile operators, consumers can switch and flex their contracts to suit their income and connectivity needs. Barriers to do with price need to be assessed holistically considering the cost-of-living crisis, since consumers are more sensitive to price increases across the board and costs for digital are comparatively lower than other rising costs of living (e.g., energy and food prices).

The findings highlight several questions for consideration by the LEP and stakeholders. We present these questions to indicate possible next steps for the project which can help support Cheshire and Warrington residents most in need and help and those affected by multiple barriers.

- Given the difference in reporting for connectivity between industry reports and consumer experience, does C&W LEP need better mapping of coverage?

- Given the range of interventions suggested by citizens to help support those most in need, are current affordability interventions (devices and data) sufficient?

- Given the proliferation of digital apps and services by public services (schools, health, business), are there opportunities for more joined up service provision?

To address these questions, we recommend the following research and evaluation activities which will help pinpoint tangible actions for the Cheshire and Warrington LEP.

- Scale up the qualitative research e.g., additional 4-6 focus groups to test the assumptions in the intervention mapping

- Quantitative study exploring the themes of the focus groups to quantify the findings. We have 170+ registrants who could take part in the survey and can recruit more

- Conduct a Design Thinking and generative workshops with stakeholders to:

  – Interpret the research findings

  – Identify *So Whats*

  – Develop the interventions into testable prototypes and workable solutions

- Evaluate the feasibility of the different proposed interventions via

  – Focus groups / workshops (with citizens, experts, and stakeholders)

- Map who is responsible in actioning interventions

Appendix B   Neighbourhood case studies

B.1   Case study 1 – Fairfield and Howley

Fairfield and Howley is a ward in Warrington, within the parliamentary constituency of Warrington North. It comprises six Lower Layer Super Output Areas (LSOAs). With a median age of around 37 years, the area's population skews younger than the average for Warrington (and for the wider Cheshire and Warrington sub-region), with a larger proportion of people of working age than Warrington as a whole.[92]

The available data suggest that this is an area with relatively low engagement with digital services. Two of the six LSOAs in the ward have an Internet User Classification (IUC) of 10 (e-Withdrawn), and a further two have IUC of 7 (Passive and Uncommitted Users). The ward includes one paper-first census area, while the online response rate for the other LSOAs was lower than the rate for Warrington as a whole. According to Lloyds, the wider constituency ranks average among the sub-regional constituencies in terms of digital engagement, with 27% of the population described as having "very low" levels of digital engagement.

In terms of infrastructure, the data indicate good coverage of services. Ofcom's data indicate good coverage for mobile data from all four MNOs, as well as "very high" confidence of 5G coverage. For fixed services, full fibre (FTTP) is available to 15.4% of premises across the wider constituency – significantly behind the estimated UK average of 47% of premises.[93] However, the area enjoys a high level of gigabit availability (84.5% of premises) due to Virgin Media's presence in the area. The average fixed download speed is 127 Mbps.

According to the Index of Multiple Deprivation, the area has high relative levels of deprivation: four of the six LSOAs are in the bottom 20% of neighbourhoods nationally in terms of income deprivation. As of 2021, 24% of the working age population were claiming Universal Credit, compared to 13% for Warrington. In 2022, 32% of pupils in the area were eligible for free school meals. In terms of adults' general skills and qualifications, half of the LSOAs are in the bottom 20% nationally, while the others are mid-ranking.

The available data indicate good availability of connected infrastructure so the barriers to digital connectivity are likely to lie on the demand-side. The analysis suggests that, for this area, the key barriers are likely to be the affordability of services and devices, and peoples' digital skills.

B.2   Case study 2 – Whitby Groves

Whitby Groves is a ward in Cheshire West and Chester, in the Ellesmere Port and Neston constituency. It comprises three Lower Layer Super Output Areas (LSOAs).

With a median age of around 50, the area skews older than the wider sub-region. It is also an area of low relative deprivation, with most of the ward's population in the top quintile in terms of income and of overall deprivation.[94] It is also less deprived in terms of adult skills, with all three LSOAs ranking in the sixth decile or above.

However, the data indicate it is an area with relatively low engagement with digital services. Of the three LSOAs that make up the ward, one is designated IUC profile 9 ("Settled Offline Communities") and another is assigned

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[92] https://www.warrington.gov.uk/sites/default/files/2022-05/Fairfield%20and%20Howley%20-%202022%20ward%20profile.pdf
[93] Source: ThinkBroadband
[94] https://www.cheshirewestandchester.gov.uk/your-council/key-statistics-and-data/ward-profiles

profile 8 ("Digital Seniors"). According to Lloyds, 31% of the population of the wider constituency are described as having "very low" levels of digital engagement.

The wider Ellesmere Port and Neston constituency reports 90% availability of gigabit services, with 75% of premises reportedly able to access full fibre. The data indicate coverage of the ward itself with both FTTP and cable services. All MNOs report good coverage of the ward in terms of 4G data services, though 5G services are currently not available.

The ward does not appear deprived in terms of income or skills, suggesting these barriers to digital inclusion may be of lesser relative importance (though likely still relevant for some). Barriers here may be attitudinal, reflecting either a lack of relevance of digital services or concerns about security and privacy risks.

B.3   Case study 3 – Crewe North

Crewe North is a ward in Cheshire East, in the Crewe and Nantwich parliamentary constituency. It comprises four Lower Layer Super Output Areas (LSOAs).

Of these areas, two are assigned Internet User Classifications of 7 (Passive and Uncommitted Users) and one is assigned classification 9 ("Settled Offline Communities"). Two of the four areas were paper-first areas in the 2021 census; in the other two the online response rate lagged behind the average for Cheshire East and the wider sub-region. According to Lloyds, 26% of the population of the wider constituency of Crewe and Nantwich are described as having "very low" levels of digital engagement.

The ward's average age is around 43. The average income in the sub-region is lower than the average for Cheshire East (£22,000 versus £33,000).[95] However, at a national level, the ward ranks averagely, with two of the LSOAs in the sixth decile in terms of income deprivation (where 1 = the most deprived).

In the wider Crewe and Nantwich constituency, 68% of households were reportedly able to access full fibre connectivity (cable services are not available in the area). The data indicate good availability of FTTP services in west and north Crewe.[96] Mobile data coverage for the area is ranked 'Good' to 'OK' by Ofcom.[97] At present, only Three appears to offer 5G service coverage in the area.

A key challenge for the ward appears to be skills: in terms of adult skills, one of the LSOAs is in the bottom decile nationally, while two others are in the third decile. In terms of young people and children's skills, all of the LSOAs rank in the third decile or below nationally. In 2016 (the most recent available data) only 8.3% of pupils achieved Key Stage 4 (5+ A* to C grades at GCSE) compared to 26.6% for Cheshire East.

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[95] https://www.cheshireeast.gov.uk/pdf/council-and-democracy/council-information/ward-profiles/crewe-north-ward-profile-2016.pdf
[96] https://labs.thinkbroadband.com/local/broadband-map#13/53.1005/-2.4233/con/geafttp/virgin/
[97] https://checker.ofcom.org.uk/en-gb/mobile-coverage#pc=n88et&uprn=100021168364&vw=map