Ipsos MORI
Social Research Institute

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Annex D

Public Value

Ipsos MORI

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1 Executive summary

This annex summarises research exploring public value and social impacts undertaken as part of the Superfast Broadband Programme evaluation, carried out by Ipsos MORI on behalf of Broadband Delivery UK, part of the UK Government Department for Digital, Culture, Media and Sport (DCMS). This aspect of the evaluation aimed to investigate the potential social impacts of superfast broadband, to provide further evidence about the public value of the programme.

This involved a series of research stages, including a rapid evidence assessment and workshop with experts and consumer advocates in this area. From this, a theory of change was developed, mapping the potential social outcomes and impacts that might be expected from the introduction of this technology. Refinement and prioritisation of the theory of change produced five areas of focus for subsequent phases: subjective wellbeing overall; keeping in touch with friends and family; accessing entertainment content; managing day-to-day life; and strengthening local communities.

These five areas were investigated through qualitative and quantitative primary research: 36 depth interviews were conducted between November 2017 and January 2018 with participants living in areas covered by the programme ("upgraded areas"), and those living in areas with slower internet connections ("non-upgraded areas" – note that these are referred to as "locked out" in the research materials). The findings informed the design of a postal survey of the two areas, which was carried out between March and April 2018. Propensity Score Matching was used to investigate differences in wellbeing, internet behaviours and attitudes between upgraded and non-upgraded samples. The main findings are detailed below:

- While behaviours for keeping in touch with friends and family do not differ between the samples, there is evidence that those in upgraded areas use social networks more frequently and consider the internet to have a more important role in this aspect of their lives. However, participants across both samples make relatively little use of the communication methods that are most reliant on faster internet speeds, such as video chats.

- Both non-upgraded and upgraded participants show a similar pattern of internet use in accessing entertainment content, although the latter are more likely to consider the internet to be essential to this area. Most survey participants are only occasional users of content streaming and downloading services. This was reflected in the qualitative interviews, with participants not seeming to require the fastest speeds and few experiencing problems streaming as much as they want (although there were a small number of exceptions to this).

- The role of the internet in accessing educational content emerged as an area of growing importance among parents interviewed in the qualitative research. Some parents who had upgraded to superfast considered having fast, reliable internet as increasingly important for their children's education. Similarly, those in non-upgraded areas raised concerns about the impact of a slow connection on their children's education.

- The internet plays a similar role in the organisation of day-to-day life for both upgraded and non-upgraded participants. Upgraded participants rate the importance of the internet to grocery shopping slightly higher than non-upgraded, but there is no difference in its importance for non-food shopping.

- The internet has the least important role in strengthening local communities, with no evidence that superfast connections encourage community engagement when compared to standard internet. While internet use (through Facebook and other social networks) is widespread across both samples, face-to-face and other offline methods for community involvement are used more often and was also considered more important by qualitative participants.

- There were no significant differences across upgraded and non-upgraded samples on agreement with a range of attitudinal statements about the internet. However, positive views are slightly higher for those living in upgraded areas – suggesting that further research to explore potential attitudinal differences may be worthwhile.

- There were no statistically significant differences in subjective wellbeing between those living in upgraded and non-upgraded areas. Participants in households with superfast connection speeds also had similar wellbeing on three of the four ONS measures when compared to those with slower speeds (<10 Mbps). This group of superfast adopters reported significantly lower wellbeing than those with slower speeds on one measure: how worthwhile they consider their lives to be.

An important wider finding from this research is that while both speed and reliability were important to consumers, in both qualitative and quantitative research reliability was seen as more important than speed. The qualitative research suggested that reliability issues are easier for consumers to spot, although there may be some who do not distinguish between issues with speed and reliability. Reliability was also more important for those with faster connections: Upgraded area participants were significantly more likely to consider the reliability of their connection to be essential than those who were non-upgraded, and this gap widened further when those with superfast speeds were compared to those with slower speeds.

Overall, there is evidence for the internet having slightly greater importance for those living in upgraded areas, but behaviours for both groups remain broadly the same. The research has shown some evidence of outcomes identified in the theory of change as the precursors to more substantive impacts, meaning that these may be felt in the future as use of superfast connections develops. However, at this stage, the survey and qualitative depth interviews produced no evidence that the provision of superfast internet has had a significant impact on the subjective wellbeing of those living in the upgraded areas at an aggregate level. The qualitative interviews suggest that positive and negative impacts are being felt by particular subgroups of the wider population in different ways, in line with evidence from other aspects of the evaluation.

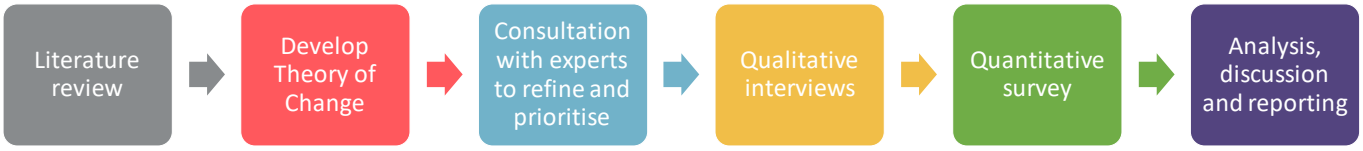
More broadly, there have been few investigations into the impact of faster internet speeds specifically, and this research project adds to the evidence base of an emerging area of study. It has allowed further exploration of the social outcomes of faster internet speeds and demonstrated the feasibility of using internet service provider speed information in analysis.

2 Methodology

The research conducted and presented in this technical annex was carried out alongside the other strands of the evaluation to assess the public value of the provision of superfast broadband under the Superfast Broadband Programme. The concept of public value is non-economic, related to factors such as quality of life and wellbeing, and the objective of this element of the project has been to identify ways by which public value might be measured, and to make an estimation of the impact the programme has had in this area to partner the economic assessment of wellbeing carried out elsewhere in the evaluation.

The research was carried out in several stages, designed to build up a better understanding of this emerging subject area. An initial literature review evaluated existing academic work into the outcomes and impacts of superfast broadband. Findings from this review were used to generate a theory of change to map the potential social outcomes and impacts of the programme. This model was discussed with relevant experts and advocacy groups to refine the proposed impact pathways and identify areas that could be explored through primary research. The stages of the programme are discussed in further detail below.

Figure 2.1: Project flow



2.2 Evidence Assessment

2.2.1 Parameters

The first stage of the research programme was a rapid literature review to understand existing research into the social impacts of superfast broadband and allow the development of hypotheses that could be tested through further research. The search strategy employed three main approaches:

1. Recommendations from DCMS and partners: An initial list of potential sources was provided by DCMS and Simetrica.
2. Web searches: Standard web searches were carried out using JSTOR and Google Scholar. The key search terms were "superfast broadband" and "high speed broadband" (used without quotation marks), followed by each of the following terms: social benefits; individual benefits; household benefits; UK; rural; wellbeing; quality of life.
3. Snowballing: The bibliography of each article was reviewed to identify other relevant sources.

Reflecting the fast-moving nature of this topic area, a date cut-off of 2011 was used; earlier sources tended to focus exclusively on internet/no internet comparisons due to limited availability of broadband internet.

The evidence assessment included sources based on both qualitative and quantitative data. In total, 19 potential sources were identified, with 16 assessed as containing at least some evidence relevant to the research question and included in the full review.[1] These sources included both UK and international studies. Overall, there was only a limited number of sources of evidence identified using the search strategy.

The strength and usefulness of evidence provided by each source was evaluated on a four-point scale:

1. Counterfactual: Statistical comparison to a counterfactual, with sophisticated controls for underlying differences between the groups.
2. Robust comparison: Evidence of scheme impact through a rigorous qualitative or quantitative comparison in time, a separate group (but with limited controls of differences between the groups), or to alternative theories of change.
3. One-sided research: Evidence of impact is from well-executed but one-sided studies. For example, a well-run survey with grant recipients, which does not survey non-recipients/counterfactuals.
4. Easily dismissed: Evidence that is anecdotal or comes from a small number of potentially biased interviews or returns.

A framework outlining different uses of the internet was developed using data from the Ipsos MORI Tech Tracker survey and applied throughout to shape the analysis.[2] This grouped typical internet behaviours into five categories based around the most common online behaviours:

1. Communications: Use of email, voice and video chat services, and social networking platforms
2. Entertainment: Downloading and streaming media, online gaming
3. Consumption – convenience: Use of the internet to make things more convenient for consumers – e.g. online banking, shopping and browsing, allowing customers to make gains in the amount of leisure time they have
4. Consumption – value: Use of the internet to make things cheaper for consumers – through provision of choice and increased competition, as well as easier access to information that can generate savings or add value
5. Civic/participatory: Enabling consumers to interact more frequently or deeply with others and their local communities

2.2.2 Results

The main research question – what are the potential outcomes and impacts superfast broadband could provide to individuals and households who do not currently have access to it? – was divided into five sub-questions:

a. What is the full range of outcomes that superfast broadband access could provide? How might provision of superfast broadband produce impacts for users (and non-users) of the technology, particularly in terms of quality of life and wellbeing?

[1] A full list of the evidence review sources is included in the appendices to this report.

[2] https://www.ipsos.com/ipsos-mori/en-uk/tech-tracker

b. What do individuals, households and society perceive as the most important impacts of superfast broadband? What do different audiences consider to be the most valuable impacts of superfast broadband, and how do these views differ between audiences and contrast with data from economic analyses?

c. Who stands to benefit the most (and the least/not at all) from superfast broadband? Are there particular demographic/attitudinal groups who will benefit more strongly than others from access to superfast broadband?

d. How do the impacts of superfast broadband differ from those of standard broadband – if at all? Does superfast broadband notably enhance the existing impacts provided by standard broadband, or is any improvement marginal? Does it provide new impacts that standard broadband does not provide?

e. How can potential social impacts be evaluated? What are the ways to operationalise and measure the non-economic impacts that superfast broadband might bring?

The table below highlights the evidence for each of these five sub-questions, measured across the five principal internet usages specified above:

Table 2.1: Evidence Assessment: Framework of impacts and outcomes

	Outcomes of superfast access	Perceived impacts of superfast	Key (dis)beneficiaries of superfast	Regular versus superfast broadband	Evaluating impacts of superfast
Communications	▪ Increased use of high bandwidth communications platforms to talk to friends and family increases wellbeing ▪ Some at risk of isolation and addiction	▪ More use of video chat programmes	▪ Older and more isolated people can keep in touch more easily	x	▪ Reduced social isolation ▪ Wellbeing
Entertainment	▪ Ability to stream more content (on multiple devices)	▪ More use of video on demand (e.g. iPlayer)	▪ Increasing bandwidth requirements mean non-users lose entertainment options	x	▪ Greater entertainment availability ▪ Wellbeing
Consumption – convenience	▪ Faster/easier transactions in online shopping, and with government/banks ▪ Wider options for eHealth and distance learning	x	▪ Vulnerable households when in difficult circumstances (job/house hunting) ▪ Physically isolated	▪ Teleworking reduces stress and costs by cutting travel times ▪ Enhanced potential for telemedicine	▪ Increases in personal/free time ▪ Wellbeing ▪ Wider educational options
Consumption - value	▪ Travel costs can be saved ▪ Online shopping creates better value	x	▪ Superfast could reduce the costs of physical isolation	x	▪ Consumer savings
Civic - participatory	▪ Strengthening of local communities	▪ Feeling of control/ keeping up	▪ Some may become isolated/ addicted	▪ Potential for deepening the "digital divide"	▪ Community resilience ▪ Wellbeing

In summary, the evidence review suggested **a wide range of potential social outcomes associated with the introduction of superfast broadband, with the balance of likely impacts identified as being strongly positive**. These included: increased free time through reductions in the need to travel for shopping and work; greater access to goods through online shopping; potential improvements to health through a greater role for telemedicine; wider access to adult education from improved distance learning; an impact on homeowners from higher house prices; and greater community resilience.

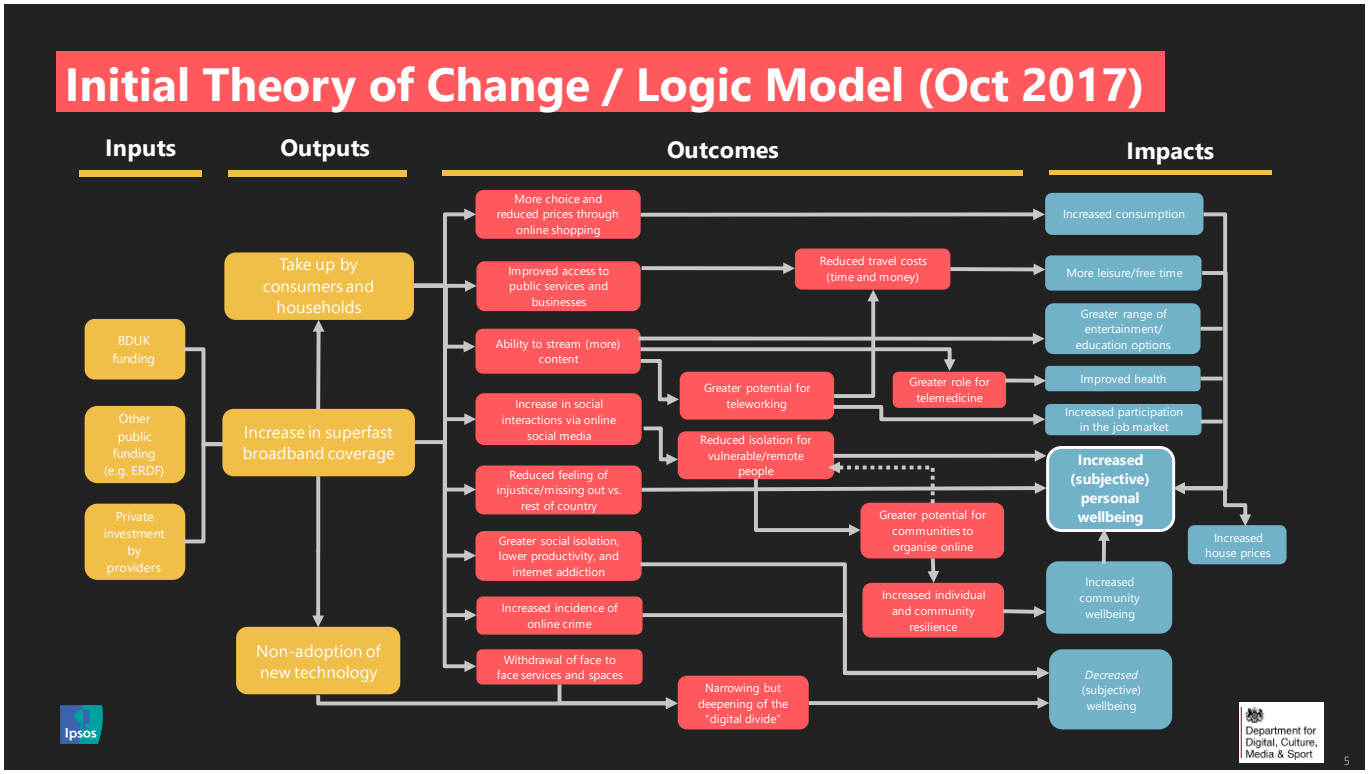
However, there was also evidence pointing towards potential negative impacts, divided between those that arise from the nature of internet access and use generally (such as increased isolation and internet addiction), and others that could emerge as a result of the introduction of superfast broadband specifically (a widening digital divide in access to services).

Overall, the evidence review found that there is relatively little robust existing evidence of the impacts of superfast broadband specifically – the literature that did address this tended to assume that faster internet would simply strengthen the positive (or negative) impacts identified. In part this reflects the fast-moving nature of technology in this area but also a lack of consensus on what consumers' future bandwidth requirements will be. This echoes other work in this area; most recently a review by Deloitte conducted on behalf of DCMS that found little evidence on the potential social impacts mobile broadband and 5G connectivity have for the general public.[3]

2.3 Draft logic model

The findings of the evidence assessment were used to generate a draft theory of change, which detailed the potential outcomes and impacts of the provision of superfast broadband envisioned in the literature.

Figure 2.2: Initial Theory of Change



[3] https://www.gov.uk/government/publications/the-impacts-of-mobile-broadband-and-5g

This model was discussed through an expert workshop held in October 2017. In addition to participants from DCMS, DWP, and the Office for National Statistics, the consumer view was included through representatives from Which, the What Works Centre for Wellbeing and the Community Council for Berkshire, among others. The aim was to understand the extent to which experts thought the specified outcomes and impacts were already felt, and the expected period over which impacts that are not currently felt might be realised. In turn, this would be used to help define the scope of the primary research phase.

Some impacts were considered too far in the future for inclusion in the research. The most important of these was telemedicine. The general view was that more advanced applications that could be enabled by superfast broadband – for example, consultations or examinations carried out using video conferencing – could be a significant positive outcome for the public, but that the technology infrastructure of the NHS is not currently ready to provide these services to large numbers of people.

Generally, the proposed impact pathways (positive and negative) were considered realistic, with some questions about the strength of different impacts and outcomes. The discussion also confirmed that there were no significant potential outcomes and impacts expected by experts that were thought to be missing from the initial model proposed.

The workshop discussion was also used to prioritise a smaller number of areas for research, and to gather evidence on previous practice and examples of primary research into the internet. As a result of this discussion, five areas were proposed for generating research questions. These are detailed below:

1. Overall subjective wellbeing: Already identified as the key metric by which the impact of superfast broadband might be measured, subjective wellbeing is also an area of growing academic interest. The Office for National Statistics has defined four dimensions that constitute wellbeing and provides standardised questions for measuring them, meaning that results are comparable across a wide range of Government statistics. This metric was also used in the wellbeing analysis outlined in Appendix D, meaning that it can be used to compare results from different methodologies.

2. Communication with friends and family: The use of video chat applications and internet calls to communicate with family and friends was covered in the most depth by existing academic research, and in the expert workshop it was commonly cited as a key frustration among those with slow connections.

3. Accessing entertainment (and educational) content: Quantitative research among the general public identifies streaming and downloading entertainment content as among the most frequent internet behaviours in Britain.[4]

4. Managing everyday life: Being able to use the internet to run a household (for instance through online banking, online shopping and utility billing) was an important proposed outcome of upgrading to superfast as it frees up more time for leisure or other interests, which may help improve wellbeing.

5. Strengthening local communities: More recent literature suggested that superfast could be positive for dispersed communities and older people by making it easier for them to communicate through Facebook, video messaging,

[4] More recent qualitative studies have also highlighted the growing importance of a good home internet connection for learning. See: Ashmore, F., J Farrington & S. Skerratt (2015): "Superfast Broadband and Rural Community Resilience: Examining the rural need for speed" in Scottish Geographical Journal (131: 3-4) pp265-278. This is an important topic, and was explored in the qualitative research. It was not possible to include questions on education in the quantitative research as they would have not been relevant to most people answering the survey.

and other online platforms. The concept of "community resilience"[5] covers the potential for superfast connectivity to generate positive outcomes for the cohesion and strength of local (especially rural) communities. This could be by making it easier for remote or disparate communities to communicate with each other, or by allowing older people to participate more fully in their neighbourhoods online.

2.4 Primary research methodologies

The primary research conducted for this project comprised two elements: a qualitative research phase of 36 interviews with members of the public, followed by a postal survey of households in treated and untreated areas. Brief outlines of both methodologies are included below:

2.4.1 Qualitative depth interviews

This stage of the project involved 36 telephone interviews with members of the public, divided between those living in areas upgraded under the programme ("upgraded"), and those living in areas not covered by the programme who also experience slow internet connections ("non-upgraded"). Each interview lasted around 30 minutes, and interviews were carried out by a small team of Ipsos MORI researchers. Fieldwork occurred between 9th November 2017 and 12th January 2018.

Participants were recruited purposively, using quotas to ensure that a wide range of people were interviewed. The minimum quotas for different participant and household types are included below:

Table 2.2: Qualitative research – interviews carried out

	Non-upgraded	Upgraded	
	9 interviews	Opted for slower (x13)	Superfast adopters (x14)
Urban-rural Classification	2x rural, 4x suburban, 3x urban	4x rural, 4x suburban, 5x urban	4x rural, 5x suburban, 5x urban
Household type	1x single person household 4x with children 2x with teenagers	3x with children 1x with teenagers 1x multiple unrelated adults	2x single person household 2x with children 2x with teenagers
Demographics	3x male, 6x female 2x 18-34 6x35-54 1x 55+	5x male, 8x female 4x 18-34 4x35-54 3x 55-64 2x 65+	8x male, 6x female 2x 18-34 6x35-54 5x 55+
Superfast adoption	N/A	Have chosen a slower connection	6x early adopters, 8x late adopters

The discussion guide was structured around the four key areas of life identified through the theory of change as being potential outcome areas for superfast broadband, as well as overall subjective wellbeing. The four areas were communicating with friends and family, viewing entertainment and educational content, managing day-to-day life, and participating or keeping up with the local community. Participants were first asked about their typical activities in each of

[5] Ashmore, F., J Farrington & S. Skerratt (2015): "Superfast Broadband and Rural Community Resilience: Examining the rural need for speed" in Scottish Geographical Journal (131: 3-4) pp265-278.

the areas more generally (without mentioning their internet connection), before being asked about the role and importance of the internet for each.

The full discussion guide is available as an appendix to this report.

2.4.2 Quantitative postal survey

The final stage of research involved a postal survey designed to test for the existence of differences in social outcome measures between households in areas upgraded under the Superfast Broadband Programme and households not in those areas. This method was chosen as it was not possible to conduct pre- and post- surveys because the upgrade programme had closed prior to the research.

The postal questionnaire covered similar areas to the qualitative research phase, focussing on the four outcome areas and subjective wellbeing. The questionnaire is included as an appendix to this report.

Survey methodology

The survey was conducted as a single mail-out survey to two types of household: upgraded households were those in postcode areas that had been upgraded by the programme; non-upgraded households were those households that were not in areas covered by the programme and in postcodes identified as having slower internet connections (<10 Mbps) in the latest Ofcom Connected Nations dataset.

The survey was designed to be conducted in partnership with superfast broadband providers. This approach offered the potential for additional, anonymised information on household internet speeds for use in analysis. It also allowed specific, named customers to be targeted, helping to increase the response rate. Sky, BT and TalkTalk were all approached and asked to participate in the survey. Sky agreed to do so, while BT and TalkTalk were unable to assist within the time available for the study, and a decision was made to go ahead without their involvement.

Ipsos MORI provided Sky with a list of upgraded and non-upgraded postcodes, asking them to randomly select 20,000 customers from the provided postcodes. Sky were also given 20,000 questionnaires to mail out with a personalised cover letter. Letters were addressed to the person in the household responsible for paying for the Sky subscription. Sky printed the covering letter and surveys on Ipsos MORI's behalf. This means that no personal information about Sky customers was shared with Ipsos MORI, guaranteeing anonymity for participants.

The survey was conducted between 19 March and 9 April 2018, and 1,314 responses were received over that time – 714 in non-upgraded areas, and 600 in upgraded areas[6].

Analysis methodology

Comparison between the two samples was carried out using propensity score matching (PSM). This is a statistical technique that creates "matched pairs" between two samples; characteristics in each pair are controlled aside from the variable under investigation (the treatment variable). Any differences in response observed between the matched pair can then be more closely correlated with the treatment variable.

[6] It should be noted that there was no information available on the demographic profile of bill payers so it is not possible to assess the how far respondents were representative of the relevant populations.

Two PSM analyses were used in analysis.

- The first is the primary method of analysis, intended to measure any subjective wellbeing outcomes between those who had their internet upgraded under the programme and those who did not. It is an area-based analysis, with the treatment variable being whether or not the participant lives in a household located in an area that has been upgraded to superfast broadband. It is important to note that not all households living in upgraded areas have adopted superfast broadband.
- The second is a speed-based analysis, utilising household-level speed information from Sky. This allows those households with connections speeds over 24 Mbps (adopters) to be identified and compared with a group with much slower speeds (<10 Mbps). Those with middle speeds were not included this comparison because there was no pattern of significant differences among this group.

Table 2.3: Quantitative research – sample sizes

	Group and sample size	Average internet speed (Mbps)
PSM 1 – upgraded vs non-upgraded areas	Upgraded (n=600)	27.9
	Non-upgraded (n=714)	10.6
PSM 2 – adopter vs slower internet speed (<10 Mbps)	Adopters (n=299)	42.0
	Slower (n=449)	5.5

The analysis approach focused on creating matched samples for comparison. As such, and because of the relatively small sample sizes overall, it was not possible to explore demographic or other subgroup differences.

2.4.3 Interpreting quantitative findings

As a survey of randomly selected addresses from two purposively selected areas of the country – areas upgraded through the programme and areas in the 5% of the UK without superfast broadband infrastructure – the results of the survey do not represent the views of the wider British population. Data has not been weighted as the profile of the populations in the selected areas are unknown.

Some results are reported as "statistically significant". As the data is based on a sample of the upgraded and non-upgraded populations, it is possible that differences exist between the answers given by the sample and the "true" value for the entire population. Statistical significance means that the difference observed is large enough that it would be expected that the difference also exists among the overall populations. Any figures cited as statistically significant are significant to a 95% confidence level, meaning that the difference would be expected to be observed 19 times out of 20 in the wider population. Significant figures in this report are underlined for emphasis.

When an asterisk (*) appears in charts, this indicates a percentage of less than half of one per cent, but greater than zero. Where percentages do not add up to 100% this can be due to a variety of factors – such as the exclusion of 'Don't know' or 'Other' responses, multiple responses or computer rounding.

3 Review of social outcomes

This chapter presents the main findings in the five key social outcome areas described above, combining insight from the qualitative and quantitative stages of the research:

- **While behaviours for keeping in touch with friends and family do not differ between the samples, there is evidence that participants in upgraded areas use social networks more frequently and consider the internet to have a more important role.** However, all participants make less frequent use of the communication methods that are most reliant on faster internet speeds, such as video chats.

- **Both non-upgraded and upgraded participants show a similar pattern of internet use in accessing entertainment content, although the latter are more likely to consider the internet to be essential to this area.** Most participants are occasional users of content streaming and downloading services. As a result, their bandwidth requirements are less and few experience problems streaming as much as they want in both non-upgraded and upgraded samples.

- **The internet plays a similar-sized role in the organisation of day-to-day life for both upgraded and non-upgraded participants**. Upgraded participants rate the importance of the internet to grocery shopping slightly higher than non-upgraded, but there is no difference in its importance for non-food shopping.

- **The internet has the least important role in strengthening local communities, with no evidence that superfast connections encourage community engagement when compared to standard internet**. While internet use (through Facebook and other social networks) is widespread across both samples, face-to-face methods are used more often and considered more important.

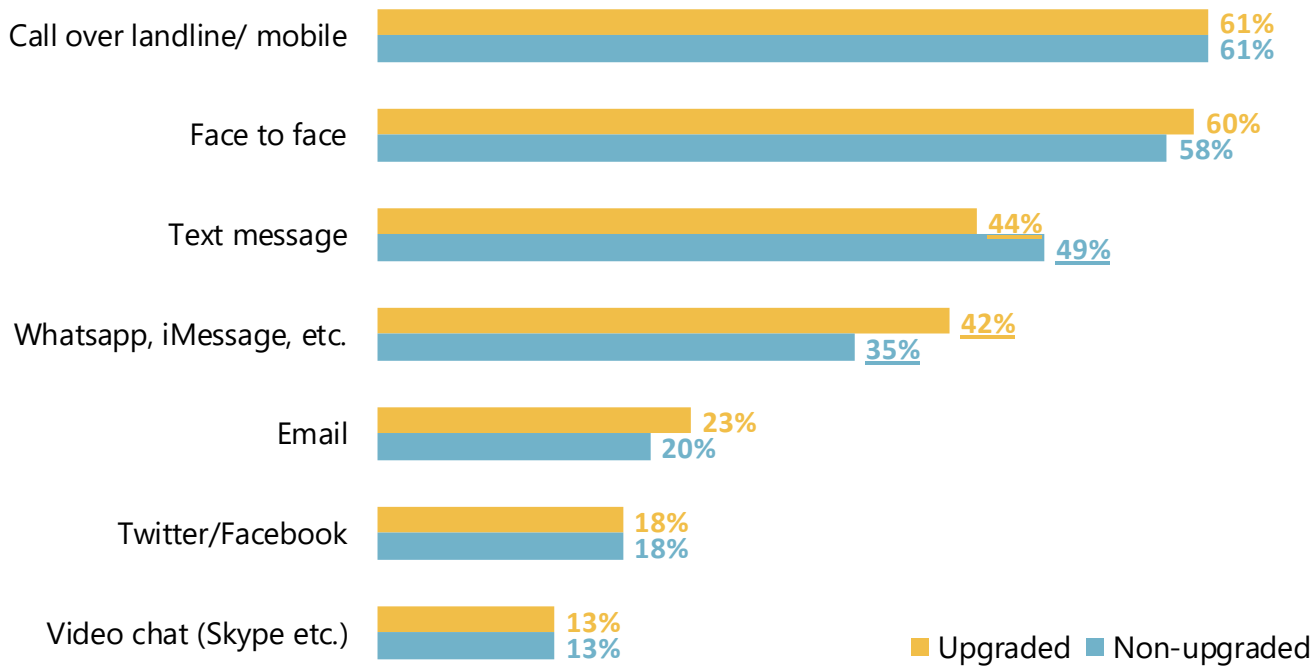
- **There were no statistically significant differences in subjective wellbeing between those living in upgraded and non-upgraded areas**. Participants in households with superfast connection speeds also had similar wellbeing on three of the four ONS measures when compared to those with slower speeds (<10 Mbps). This group of superfast adopters reported significantly lower wellbeing on one measure than those with slower speeds: how worthwhile they consider their lives to be.

3.1 Keeping in touch with friends/family

Overall, how participants keep in touch with their friends and family did not differ dramatically between the two survey samples. Face to face conversations and calls over mobile or landline telephones were the most popular methods, highlighting the ongoing importance of non-internet-based communication methods for this aspect of day-to-day life.

There was a significant difference in the use of messaging platforms, with internet-based messaging services such as WhatsApp and Facebook Messenger significantly more used by upgraded participants. For text messaging the picture is reversed, with those in non-upgraded areas significantly more likely to say this is an important way to keep in touch.

Figure 3.1: Most common methods for keeping in touch



The use of methods that require greater bandwidth – in particular, video chat – was much more limited. This reflects the findings from the qualitative research that video chat programmes were generally used infrequently and often for special occasions such as birthdays, rather than as a more spontaneous, day-to-day way of communicating.

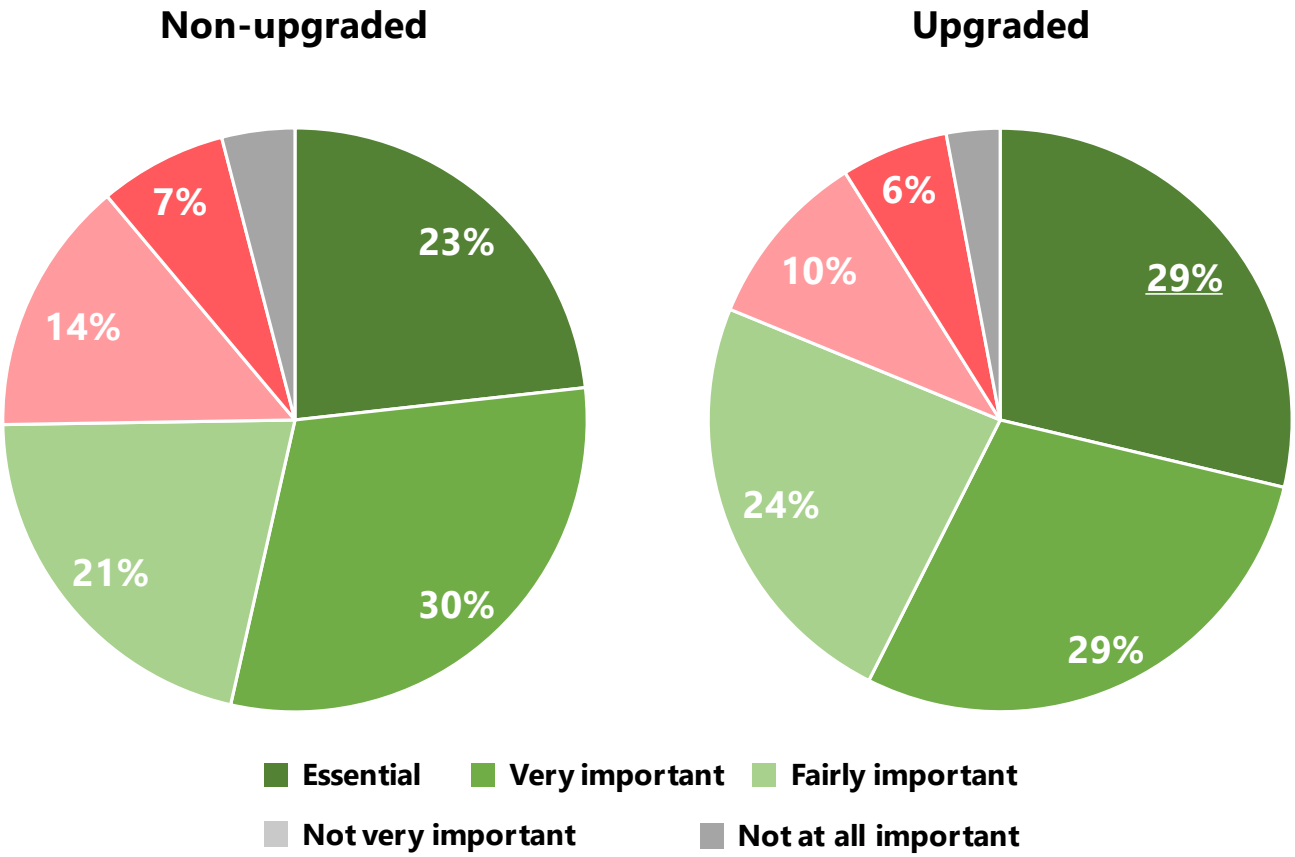
Participants in both samples were equally likely to have accounts on a wide range of social networks (and this broadly reflects the national picture). However, there was a difference in frequency of use, with upgraded participants significantly more likely to say that they use social networks several times a day or more often than their non-upgraded counterparts (four in ten of the former and one third of the latter). In the second PSM analysis this relationship becomes stronger still, with 45 per cent of superfast adopters using social networks several times a day or more often.

Table 3.1: Frequency of use of social networks

	Non-upgraded / upgraded area PSM		**Superfast / slower PSM**	
	Non-upgraded	*Upgraded*	*Slower internet*	*Superfast adopter*
Use social networks "several times a day or more"	34%	40%	36%	45%

There were also differences on how important the internet is perceived to be for keeping in touch with family and friends. The survey results reflected the findings in the qualitative stage – broadly speaking, the internet is important for keeping in touch – but upgraded participants are significantly more likely to considered it *essential* for keeping in touch.

Figure 3.2: Importance of the internet for keeping in touch



3.2 Accessing entertainment content

Participants' internet usage for accessing entertainment content was also similar across upgraded and non-upgraded areas. This was the case for downloading or streaming TV shows as well as films and playing games online.

Table 3.2: Frequency of use of the internet for accessing entertainment

% ever...	Downloading/streaming TV programmes	Downloading/streaming films	Playing games online
Upgraded	70%	56%	30%
Non-upgraded	71%	57%	27%

This reinforces the qualitative findings that showed limited use of streaming in the sampled areas meant that all participants, except those with the very slowest internet speeds (one such participant in the qualitative research measured her speed at 0.3 Mbps), were able to download or stream content from the internet as much as they felt they wanted to. The infrequency of streaming or downloading was reflected in the survey results as well (19% of upgraded and 16% of non-upgraded participants said they download/stream TV content once a day or more). This limited reliance on the

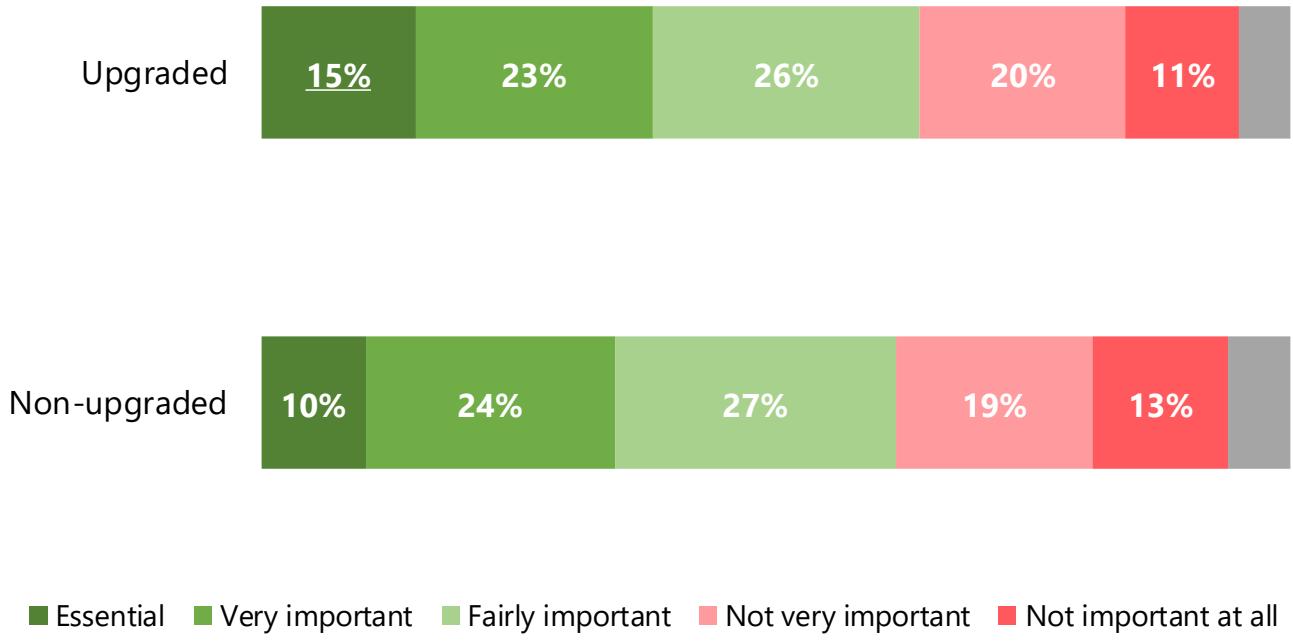
internet for entertainment may help explain why differences in broadband speeds have not significantly changed behaviour in this area.

"It is fine for what we need it for, so yes it is good. We use emails, but we don't download or stream stuff. It does what I need it to do." *Upgraded non-adopter*

Differences again emerged between those in non-upgraded and upgraded areas on how *essential* the internet is for accessing entertainment content. Participants in upgraded areas are significantly more likely to consider the internet essential than those in non-upgraded areas (15% to 10%). However, the proportion in both samples who consider it important overall (either essential, very or fairly important) is very similar, at 64% for upgraded and 61% for non-upgraded participants.

There are greater differences between superfast adopters and those with slower connections. Almost three quarters of adopters said the internet is important (72%), including almost one in five who considered it essential (17%), compared with six in ten of those on slower connections (61% overall, with 14% considering it essential).

Figure 3.3: Importance of the internet to accessing entertainment content



The role of the internet in accessing educational content was not explored in the survey because it would only have been applicable to a subset of respondents. However, this emerged as an area of growing importance among parents interviewed in the qualitative research. With the increasingly widespread use of educational platforms such as FireFly for completing homework, some parents in upgraded areas who took up superfast broadband considered the faster and more reliable connection as having a positive impact on their children's education. Their children were able to watch videos online and access school work platforms more quickly, while those in non-upgraded areas raised concerns about the impact of a slow connection on their children's education.

"It's not a massive thing for us because at our stage in life we're not massive users of the internet, but fast forward 10 years when my boys are older, then it will be much more of a significant issue." *Non-upgraded*

3.3 Managing day-to-day life

Managing day-to-day life – including paying bills, banking, buying groceries and non-food items – was frequently mentioned by depth interview participants as an area where internet access has made a significant difference. Many described making use of online banking, online accounts for utilities, as well as online shopping. This was the case for many older participants as well as younger ones, with those with experience of managing a household before the internet highlighting the greater convenience of the internet; for instance, comparing the ease of making online payments against using cheques.

However, as was the case with accessing entertainment content, the internet speed required to use many of these services is well below the superfast threshold. This means that participants in all but the slowest non-upgraded areas had few problems in accessing these services – making their online behaviours similar to upgraded participants.

The survey showed a similar picture, with no significant differences between the upgraded and non-upgraded samples in terms of managing their day-to-day lives. Around a quarter in both samples say they prefer to handle as much as they can online. Among superfast adopters however, this proportion rises to 32%, as might be expected among a sample of people who have sought out a superfast connection.

Table 3.3: Role of the internet in managing day to day life

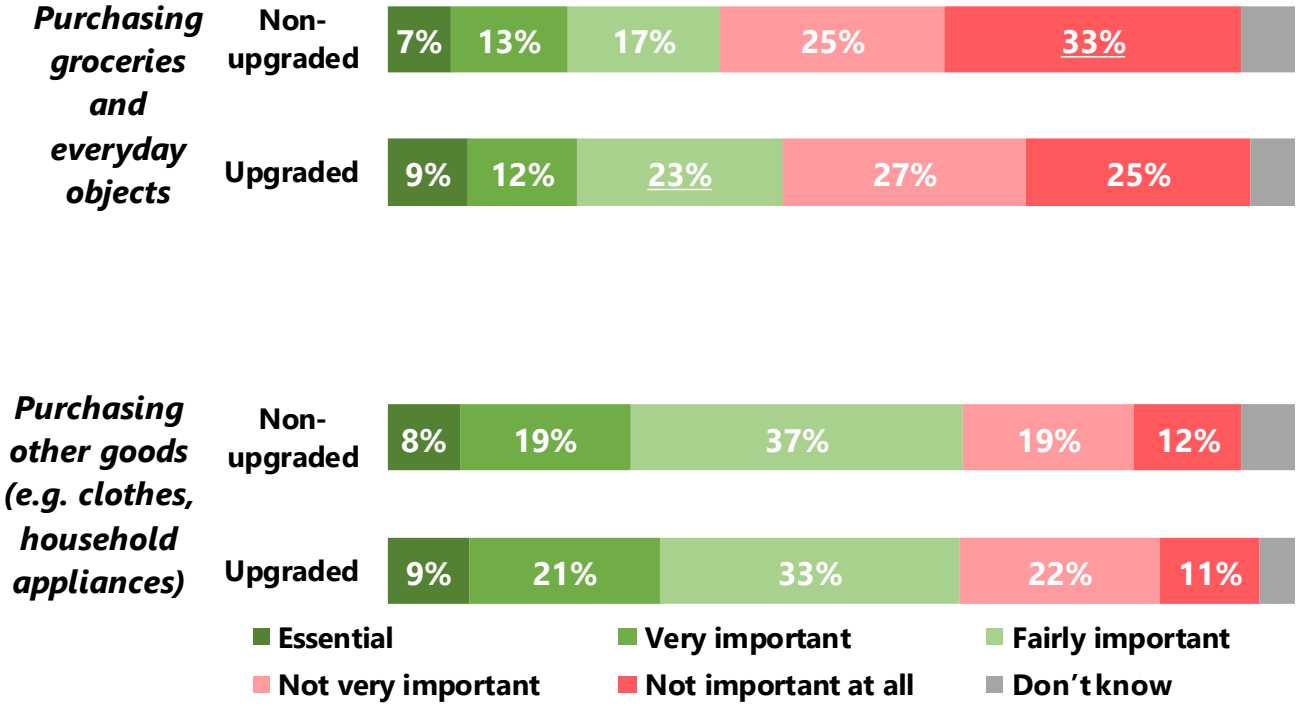
	Non-upgraded / upgraded area PSM		**Superfast / slower PSM**	
	Non-upgraded	*Upgraded*	*Slower internet*	*Superfast adopter*
"I manage as much of I can of my day-to-day life online" *% agree*	24%	26%	21%	32%

This pattern of limited differences also applies when considering the importance of the internet to specific day-to-day behaviours, such as shopping:

- Shopping for groceries and food: Upgraded participants are significantly more likely than those in non-upgraded areas to say that the internet is "fairly important" to food shopping. This suggests that upgraded participants consider it a marginal change, reflected in that there are no significant differences when looking at whether the internet is "very important" or "essential" for shopping. Conversely, a third of those living in non-upgraded areas consider the internet to be "not at all important" to grocery shopping – significantly more than the quarter of upgraded participants who say the same.

- Shopping for clothes, household appliances, etc.: Here there are no differences between the two samples; few consider the internet especially important to shopping for clothes and "big ticket" items such as household appliances. Even among the superfast upgraders, just 12% consider the internet essential for this purpose.

Figure 3.4: The importance of the internet to shopping



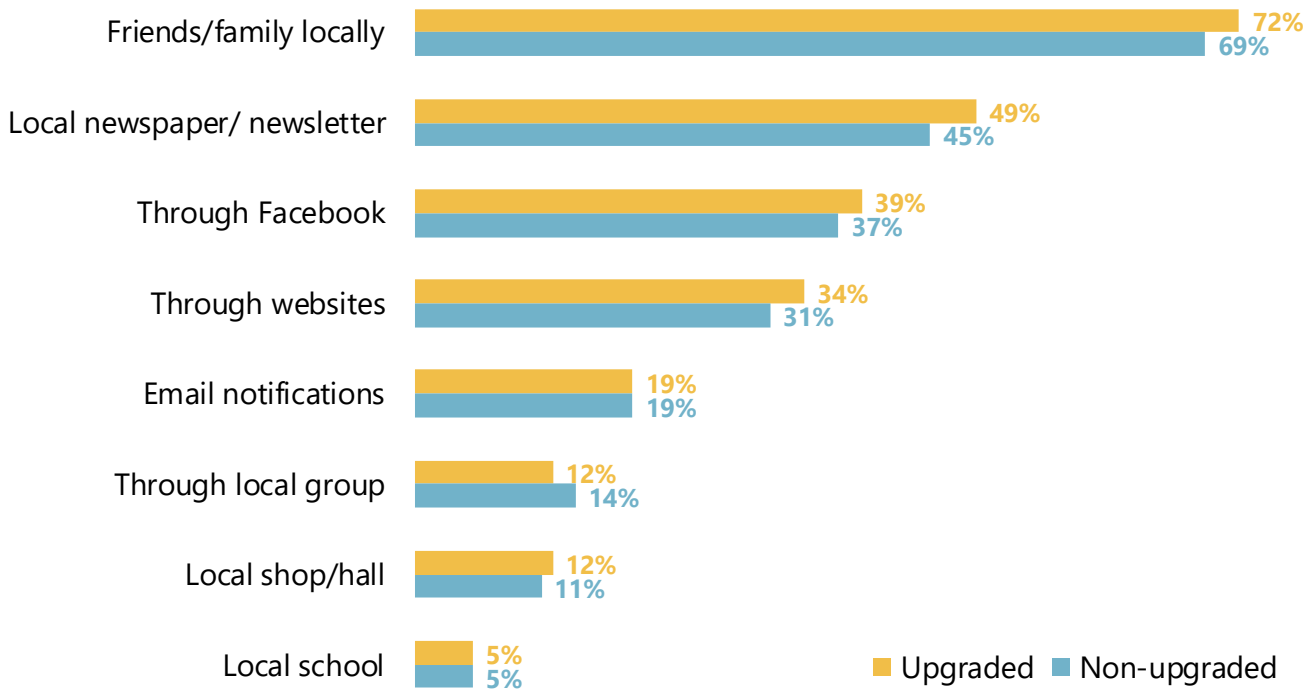
3.4 Strengthening local communities

Both the qualitative and quantitative research suggests that the importance of the internet in this area is low, generally, and participants did not see a need for superfast connections in this area. In the qualitative research, while participants made frequent use of Facebook as a source of local information, they received more information from face-to-face discussions with friends and neighbours, local groups, or in local shops. While email was used by many local organisations (and some had websites), this again was seen as an addition to the core functions of these groups rather than a replacement. As discussed elsewhere, the bandwidth requirements of email and Facebook are low – and well within what many non-upgraded participants could manage - so participants were unsure why they would need a superfast connection,

"[The internet] is important here, but only for emails and organising meetings, which is not a high bandwidth activity" *Upgraded non-adopter*

The survey data reflected these findings, with no significant differences between the upgraded and non-upgraded samples in the most common methods used for finding out what is going on locally:

Figure 3.5: Most common sources for local information



These similarities extended to how important the internet was considered to be for community activities. Six in ten of both samples felt that the internet was important for finding out what is going on locally but just one in twenty felt it was essential. The importance for the internet in accessing local services such as libraries and GPs was lower still, with only half of both samples saying the internet had an important role here.

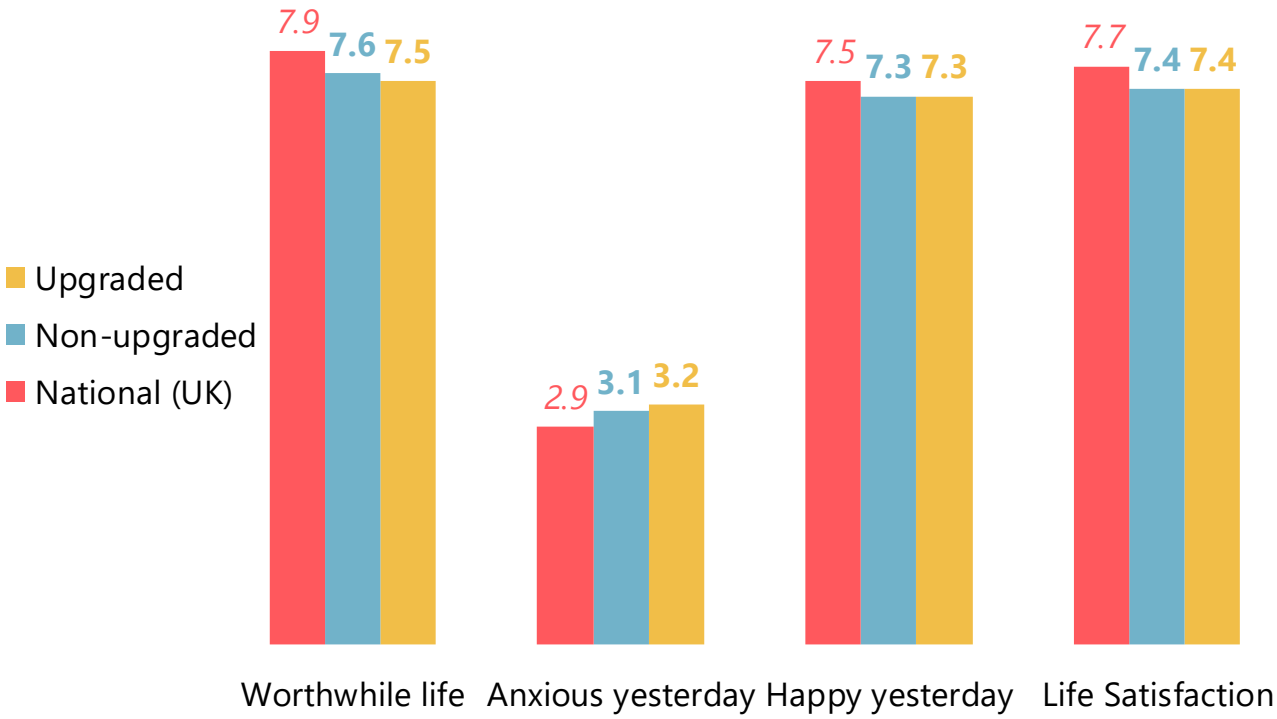
Table 3.4: Importance of the internet to local community activity and services

	Finding out what is happening in your local area		**Using local services such as libraries and GP surgeries**	
	Non-upgraded	*Upgraded*	*Non-upgraded*	*Upgraded*
% important *(essential, very or fairly important)*	58%	59%	49%	51%
% essential	5%	6%	5%	7%

3.5 Overall subjective wellbeing

When considering the four ONS-recommended measures of subjective wellbeing[7], **there were no statistically significant differences between those living in areas upgraded with superfast broadband and in non-upgraded areas**. Compared against the most recent national average published by ONS[8], residents of both areas showed slightly lower levels of wellbeing than the overall, but this was not significant.

Figure 3.6: Subjective wellbeing: upgraded and non-upgraded areas



The second PSM analysis based on speed showed a significant difference between those with faster internet connections and those with slower connections when they were asked to rate how worthwhile they felt the things they do in life are. Those with connection speeds greater than 24 Mbps rated their lives as less worthwhile than those with connections under 10 Mbps – although there were no significant differences on any other ONS wellbeing measures.

[7] The four measures ask participants to rate their well-being on a scale of 0-10 for four questions – see the survey appendix D for more detail

[8] ONS well-being estimates for Oct 2016 – Sept 2017 – N.B. as the survey occurred in March/April there may be seasonal effects at work that influence the comparison with the ONS all-year average

Figure 3.7: Speed-based PSM: Wellbeing scores by population

	Worthwhile life	Anxious yesterday	Happy yesterday	Life satisfaction
Faster connections (>24 Mbps)	7.3	3.2	7.2	7.4
Slower connections (<10 Mbps)	7.8	3.1	7.5	7.6

Although there was a significant difference only on the "worthwhile life" measure, a similar relationship can be observed in the other three dimensions, with the superfast sample recording lower (although not statistically significant) wellbeing scores for all three.

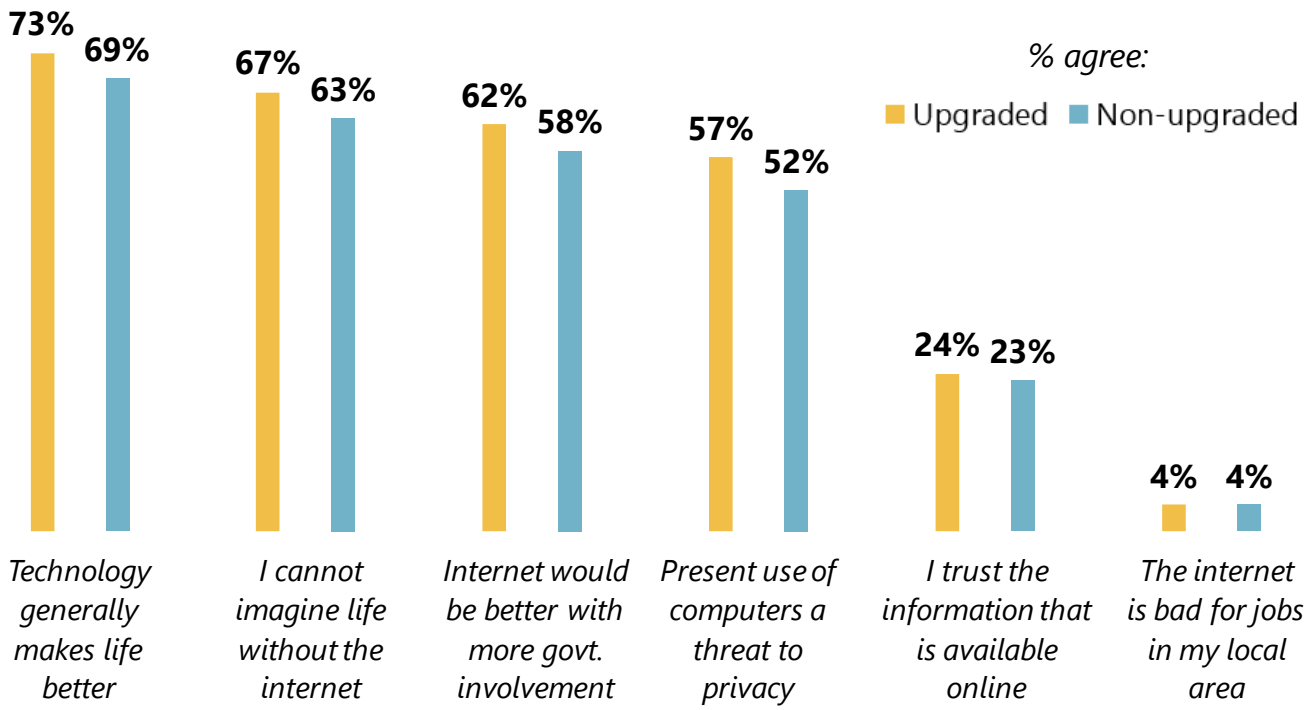
The reasons for this relationship likely lie outside the areas under investigation in this survey and have not been fully explored. For example, one explanation might be the role of sorting effects, whereby those with other characteristics associated with lower wellbeing (for instance, having children, or commuting for work) already live in areas more likely to be upgraded under the programme, while those with higher scores (older and retired people) are already living in areas that remain non-upgraded.

3.6 Wider contextual findings

Attitudes towards the internet

The research also considered participants' attitudes towards the internet more broadly (and not superfast specifically), to understand whether these differed between the two samples. Across both samples they held very similar views; nine in ten non-upgraded and upgraded participants considered themselves to be confident in using the internet (both 89%), and there were no significant differences in the proportion agreeing with a wide range of attitudinal statements about the internet. However, it is worth noting that agreement on positive statements about the internet was slightly higher for those living in upgraded areas – suggesting that further research in this area might be worthwhile to explore these attitudinal differences.

Figure 3.8: Views on the internet and technology – upgraded and non-upgraded samples



Speed and reliability

Another key finding is the relative importance of the speed and reliability of internet connections. While both are clearly important to consumers, the language used in the qualitative research to describe their connection focussed on reliability more than speed. Issues with reliability (such as dropped connections) were much easier to notice than all but the slowest internet speeds and were therefore recalled by participants more readily. It is likely that there is overlap between these two concepts in participants' minds too: a connection that is so slow that webpages do not load could be equally be considered the result of a dropped or slow connection.

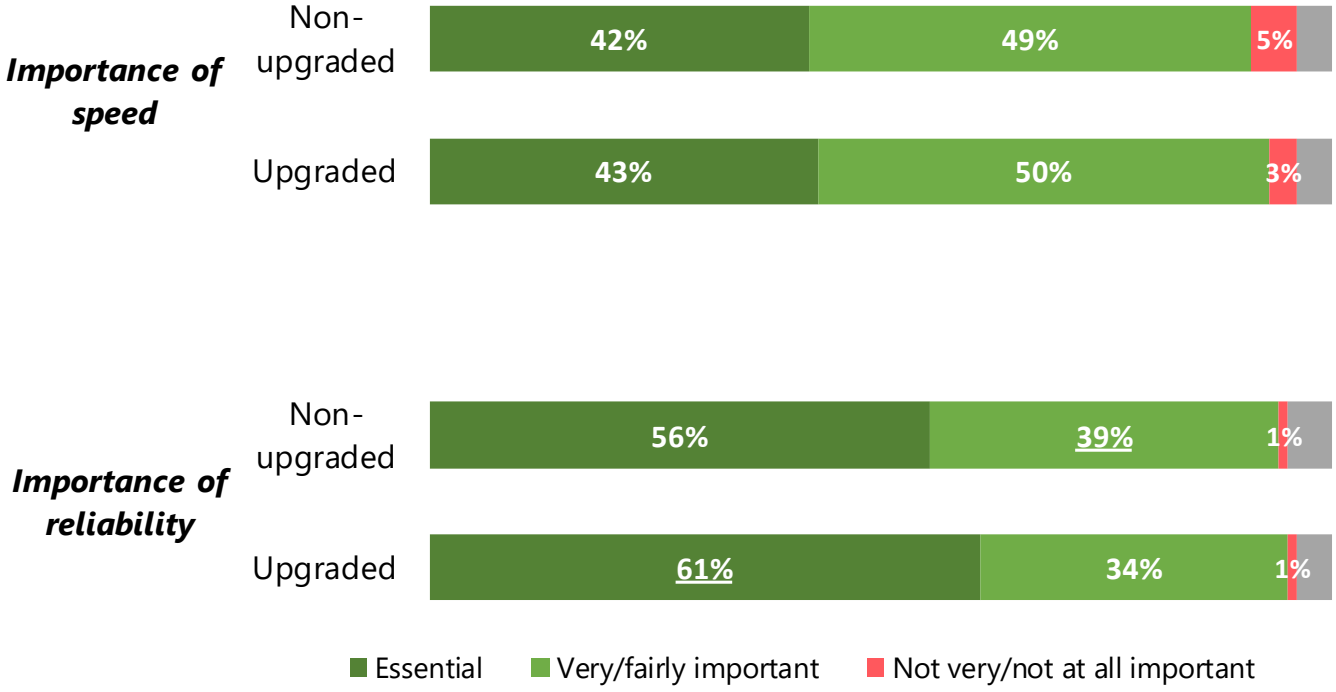
"Not very good at all - it is slow, and unreliable - sometimes it just shuts off and you lose what you were doing" *Non-upgraded*

Greater concerns about reliability are also likely to reflect the internet requirements of many participants living in the sampled areas. The geography of the Superfast Broadband Programme and the non-upgraded areas – with a focus on rural and more remote areas – means that the population covered is older than the general public. Many of those covered in the research mainly use the internet for basic activities such as reading the news, checking emails, and occasionally streaming content. This means that slower internet speeds are much less likely to be noticed as an issue. Finally, even those who required faster connections worked around their slower connections through finding alternatives, either at work or a friend/relative's house, or through mobile connectivity.

"I do a lot of organising for my family so [dropped connections] are a relatively big issue… my husband and daughter both work, so they often use their work internet connection instead of their home connection" *Upgraded non-adopter*

The survey results reinforce this: while both speed and reliability are considered very important, greater priority is assigned to reliability over speed. In both samples, just over four in ten considered the speed of their connection to be essential, compared with around six in ten who said the same about reliability. Those living in upgraded areas were significantly more likely than those in non-upgraded areas to consider reliability to be essential. The gap grows wider still among superfast adopters; 69% of those with superfast speeds consider reliability to be essential, compared with 60% of those with connections under 10 Mbps.

Figure 3.9: Importance of speed and reliability of connection



4 Conclusions

While use of the internet is broadly similar across upgraded and non-upgraded areas, there is some evidence of greater reliance on the internet among those in upgraded areas. Survey participants in upgraded areas use social networks more frequently and consider the internet to have a more important role in connecting them to others in this way. Similarly, those in upgraded areas are more likely to consider the internet to be essential to accessing entertainment content. The role of the internet in accessing educational content emerged as an area of growing importance among parents interviewed in the qualitative research.

The survey provided no clear evidence that the availability of superfast internet has had an impact on the subjective wellbeing of those living in upgraded areas, with no significant differences at the aggregate level. Participants in households which had taken up superfast connection speeds also had similar wellbeing on three of the four ONS measures when compared to those with slower speeds (<10 Mbps). This group of superfast adopters reported significantly lower wellbeing on one measure than those with slower speeds: how worthwhile they consider their lives to be. However, the quantitative findings outlined in Appendix D and the data from the depth interviews suggest that impacts are being felt in different ways by sub-groups of the wider population.

Overall, the research found some evidence of impacts identified in the theory of change as the likely precursors of wider social outcomes. These may be felt in the future as public use of this technology develops.

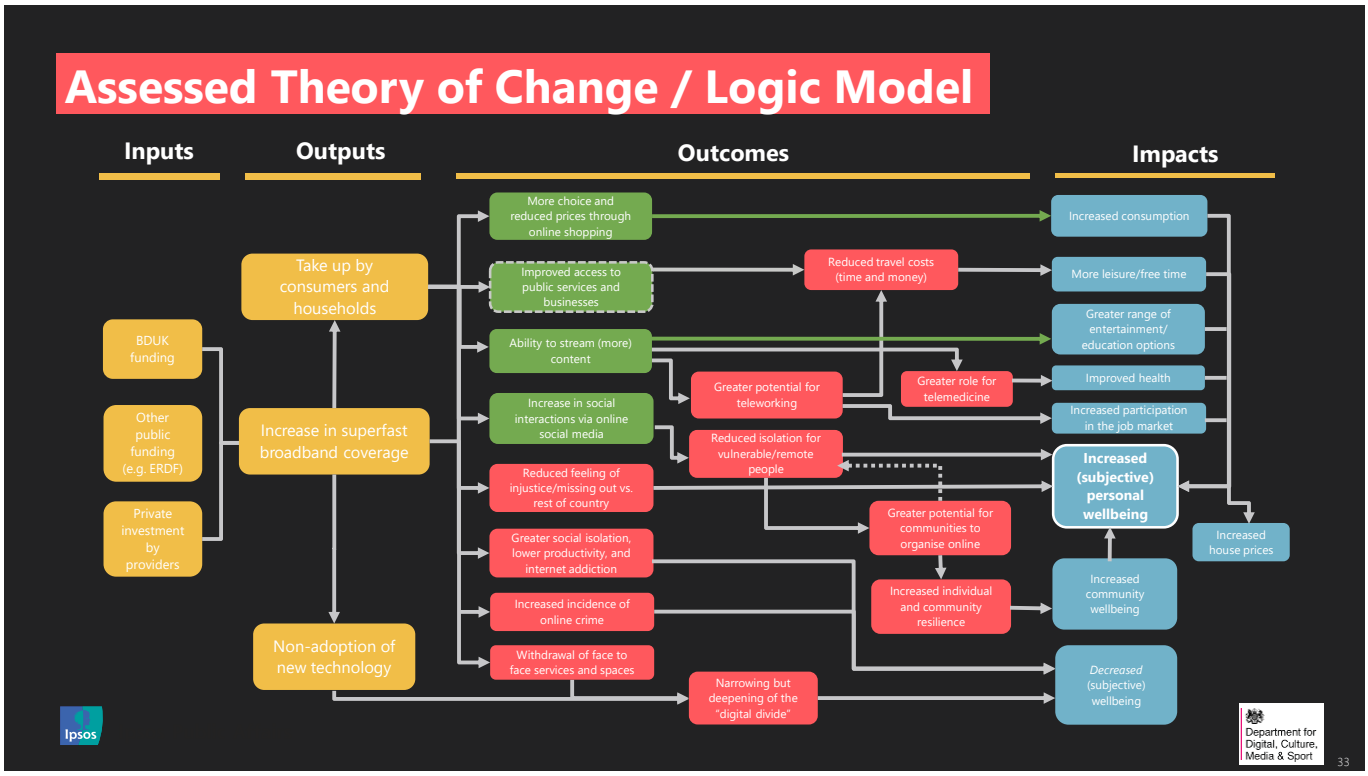
There have been few investigations into the impact that faster internet speeds have on individual behaviour and wellbeing both in the UK and internationally. As such, this research project adds to the evidence base of an emerging area of study, especially in demonstrating the feasibility of using internet service provider speed information in analysis.

Implications for the Theory of Change

Overall the theory of change was found to map the potential outcomes and impacts of superfast broadband comprehensively – the qualitative research did not identify alternative pathways or outcomes that had not been anticipated. The existing available evidence supporting the theory of change was considered a likely outcome at the opening phases of the research – the literature review and discussion with experts both highlighted the forward-looking nature of many of the potential impacts. The qualitative research suggests that this is due to at least two factors – firstly that many in upgraded areas have not chosen to take up superfast broadband, and secondly that the internet behaviours of superfast adopters have not yet changed as a result of their upgrade.

At this stage, the theory of change does not therefore need to be amended as further evidence about social outcomes would be required before doing so. However, it is possible to identify where we did find some evidence of potential outcomes being realised, and these are highlighted in green below.

Figure 4.1: Key social outcomes from the Theory of Change



Evaluation of the survey

The postal survey approach used for this project was the most appropriate method to ensure good coverage of the geographically-dispersed areas of interest. However, the response rate (7%) was at the lower end of expected range for a postal survey. We have listed some suggestions below that would improve the response rate for any similar surveys carried out in future:

- Reminder mail-outs would help drive response rate higher and these would be recommended for future surveys. This version of the survey was set up without a reminder scheduled owing to participant confidentiality and project timing considerations.
- Adding government branding to the envelopes would help the survey to appear more "official". This is likely to prompt more participants to open the letter, which is one of the most important barriers to postal survey completion.
- Using "push-to-web" methods. This methodology uses a postal platform to send links to participants for them to complete the survey online, rather than completing and returning a completed paper questionnaire. In large-scale postal surveys using push to web is proven to improve postal survey response rates, especially among younger participants who are less likely to complete paper surveys.

Recommendations for further research

This research suggests the relationship between superfast internet speeds and social outcomes is not straightforward. The evidence from across the evaluation suggests that upgrading may have positive impacts for some specific groups – especially younger people and households with children – but for many the impacts are less clear-cut.

The findings from this primary research exploring social outcomes finds validation in the similar results that were obtained from the econometric wellbeing analysis carried out through other aspects of the programme evaluation. This used a Wellbeing Valuation analysis to assign monetary values to the estimated differences in subjective wellbeing brought about by the programme. As the table below shows, this found a net positive impact, but this figure masks an uneven picture, with a negative impact for those in middle age outweighed by a substantial positive impact for younger people:

Table 4.1: Monetised subjective wellbeing impact of superfast broadband

	Wellbeing value
Per targeted premise of people aged 16-35	£273.38 per month
Per targeted premise of people aged 36-64	-£111.12 per month
Per targeted premise of people aged 65+	£2.48 per month
Per targeted premise overall	£17.60 per month

These monetary values equate to small shifts in subjective wellbeing on the ONS wellbeing questions. The size of the shifts in wellbeing found in large population surveys means we would expect that a similar survey is unlikely to be able to detect these differences, even if the sample size was scaled up substantially and other improvements (government branding, reminder mail outs) made to improve data quality further.

Possible areas for further research in this area include broader research to explore the impacts of superfast broadband, as well as investigations into public attitudes around the take-up of faster speeds:

- Wider research into the impacts of superfast broadband: The unique analytical feature of the survey has been access to premise-level internet speed data from Sky – other research exploring the social outcomes of standard and superfast internet access has not had this level of granularity of information on participants. Expanding a similar survey to a wider sample of the country would represent a significant contribution to literature in this area, although we might anticipate that the findings would be similar.

- Research into drivers and barriers of superfast adoption: Another potential area for further research would be understanding the factors that either inhibit or promote upgrading to faster broadband speeds among the public, given that this is a necessary precursor to experiencing potential positive and negative social outcomes and impacts.

Appendices

Appendix A – Literature Review

This appendix highlights the findings from an evidence review conducted in October 2017 to underpin Workstream C of the Superfast Broadband evaluation. A wide range of academic sources on the topic from the past six years have been reviewed. They show those areas where there is evidence that non-economic and social outcomes associated with superfast broadband might be expected to arise.

Analytical approach

The core question this literature review seeks to answer is **"What potential outcomes and impacts could superfast broadband provide to individuals and households who do not currently have access to it?"**. This central question was broken down into five analytical sub-questions:

1. What is the full range of outcomes that superfast broadband access could provide?
2. What do individuals, households and society perceive as the most important impacts of superfast broadband?
3. Who stands to benefit the most (and the least/not at all) from superfast broadband?
4. How do the outcomes and impacts of superfast broadband differ from those of standard broadband – if at all?
5. How can the potential social impacts be evaluated?

In seeking to answer these questions, we identified a typology of common internet uses, derived from the Ipsos MORI "Tech Tracker" survey.[9] These are:

- Communications;
- entertainment;
- consumption – convenience;
- consumption – value, and;
- civic-participatory.

The impact of superfast broadband, analysed through these five categories, formed the basis of the rapid evidence review. Below is an introductory table highlighting the evidence that was found for each question, across the typology of common internet uses. The rest of the document provides further detail of the evidence summarised in the table:

[9] https://www.ipsos.com/ipsos-mori/en-uk/tech-tracker

	Outcomes of superfast access	Perceived outcomes of superfast	Recipients of negative impacts	Regular versus superfast broadband	Evaluating outcomes/ impacts of superfast
Communications	▪ Increased use of high bandwidth communications platforms to talk to friends and family increases wellbeing ▪ Some at risk of isolation and addiction	▪ More use of video chat programmes	▪ Older and more isolated people can keep in touch more easily	x	▪ Reduced social isolation ▪ Wellbeing
Entertainment	▪ Ability to stream more content (on multiple devices)	▪ More use of video on demand (e.g. iPlayer)	▪ Increasing bandwidth requirements mean non-users lose entertainment options	x	▪ Greater entertainment availability ▪ Wellbeing
Consumption – convenience	▪ Faster/easier transactions in online shopping, and with government/banks ▪ Wider options for eHealth and distance learning	x	▪ Vulnerable households when in difficult circumstances (job/house hunting) ▪ Physically isolated	▪ Teleworking reduces stress and costs by cutting travel times ▪ Enhanced potential for telemedicine	▪ Increases in personal/free time ▪ Wellbeing ▪ Wider educational options
Consumption - value	▪ Travel costs can be saved ▪ Online shopping creates better value	x	▪ Superfast could reduce the costs of physical isolation	x	▪ Consumer savings
Civic - participatory	▪ Strengthening of local communities	▪ Feeling of control/ keeping up	▪ Some may become isolated/ addicted	▪ Potential for deepening the "digital divide"	▪ Community resilience ▪ Wellbeing

Key findings

Outcomes associated with superfast broadband

The existing literature points to a wide range of potential social outcomes associated with the introduction of superfast broadband. The balance of the impacts identified in the literature is strongly positive. However, there is evidence of some negative impacts, divided between those that arise from the nature of internet access and use more generally, and others that arise as a result of the introduction of superfast broadband.

A further negative impact may arise over time: as the average speed of internet connections rise, the level of bandwidth assumed by public and commercial services may also rise to a level that those without superfast broadband may not be able to access basic services. Coupled with a withdrawal of face-to-face and other offline services as businesses and government seek to become more efficient, there is a risk of a new dimension in the digital divide emerging, with those without superfast broadband finding it harder to participate in society. It will be important to consider the role of the programme in mitigating these negative impacts.

The main outcomes described in the literature are listed below:

- Reductions in travel

A number of sources highlight the positives for many (especially those in rural/remote areas) through a reduction in the need to travel. Examples given include areas such as e-government (filing taxes and transacting other business with local and national governments (Van der Wee et al., 2012), online shopping and employment (Philip et al., 2015). The rise of teleworking (working from home) is highlighted in a number of sources as one of the key outcomes of increased availability of superfast broadband, as without sufficiently high bandwidth home workers cannot be as productive as they are in the office due to problems with accessing files and video conferencing (Commonwealth of Australia, 2013). While this latter outcome has strong economic impacts (the Van der Wee paper estimates over 80% of the economic benefits derived in their two case studies came from teleworking-related savings), it also has social impacts related to freeing up more time for leisure or other activities.

The positive impact of avoiding travel is measured in two ways – firstly through the monetary savings that can be made by not travelling (e.g. on petrol, parking, other costs), and secondly through being able to use the time that would have been spent travelling on leisure or another purpose entirely. Ashmore, Farrington and Skerratt (2015), note that the ability to get banking and other shopping activities organised online meant that the participants they spoke to were afforded "*greater control over how they planned their physical shopping excursions*".

- Consumer access improvements

Another similar outcome relates to savings more generally through increased availability of online shopping. This operates at both ends; consumers will be better able to use online shopping platforms to shop around and find cheaper goods and services, saving money that can be used elsewhere, while rural-based businesses may be able to offer more competitive prices through a reduction in the business costs of physical isolation (Philip, Cottrill & Farrington, 2015).

More broadly, those without superfast broadband are unable to access some public services that others take for granted; this is particularly the case for those with children, as use of the internet becomes increasingly central to education: "*Glow*

[online platform used by schools as a teaching resource] – she can't get onto all of it…she sits there for hours and waits for it and that's pretty sad" (Townsend et al., 2017).

- E health

Another focus of social impacts is on the possibilities that telemedicine can offer to members of the public. A European Commission paper on the impact of fibre (or superfast) broadband from 2013 highlights that with sufficient bandwidth the potential uses of "eHealth" or telemedicine become wide:

"Fibre makes it possible to home-monitor patients or the elderly, but also provides the opportunity to better provide health information to the public and training and support by health professionals, especially in rural areas. Healthcare demands ultra-high quality of service and reliability and these services can therefore only exist where there is fibre deployment."

There are challenges associated with fully realising the potential of telemedicine. As discussed below, more vulnerable people who might benefit most from telemedicine may be least likely to have interest in using the internet or taking up superfast broadband should it become available. Additionally, an analysis from 2013 by SQW also notes that this sort of positive impact relies on local health services being structured to provide telemedicine, which was not the case at the time of writing. There is a lack of more recent literature exploring whether or not this remains the case, and this is something worth investigating further in other Workstream C activities.

- Wellbeing

Superfast broadband brings both positive and negative impacts for personal and community wellbeing.

The negative impacts outlined in the literature relate to increased isolation and loneliness among internet users through reducing personal contact and internet addiction. In a paper reviewing literature on the internet and social isolation, O. Lelkes (2013), notes that "*Internet can be addictive and can bring about an uncontrollable compulsive urge. One of the dangerous effects of internet addiction is that it can take the form of replacing face-to-face interaction time with emails and social media websites which may amounts individuals losing their self-identity*". However, the paper concludes that overall the net impact of internet connectivity is positive, providing more opportunities for connection than isolation, especially for older people.

The literature also suggests that non-users of the internet are likely to suffer further negative impacts to their wellbeing in the future. It is expected that the existing digital divide will deepen as government services increasingly move online and become unavailable in physical locations. Similarly, the UK government policy of "digital by default" means that many government benefits (for instance, Universal Credit) channel users to create an online account (Philip, Cottrill & Farrington, 2015). Should the bandwidth requirements of government websites increase (in line with the general growth in size of websites detailed below), then superfast broadband may become necessary for those in receipt of government benefits, who tend to be more vulnerable (and hence less well-connect) people.

However, improved mental wellbeing is also seen as a key impact of superfast broadband, whether through enhanced contact with distant family members using video conferencing (Townsend, Wallace & Fairhurst, 2015), reduction in the need to travel for work (Commonwealth of Australia, 2013), or a more general feeling of control over one's affairs – as Ashmore, Farrington and Skerratt (2015) suggest, the "*contribution to household life can be linked to a sense of personal*

wellbeing and empowerment, and enablement of personal skill building and self-sufficiency, thereby increasing perceived resilience despite being in a geographic location that may lack access to physical services."

The same paper also suggests that superfast broadband allows people to become more active in their local community by making it easier to communicate with each other and be involved with local groups. The continuous (and improved) connectivity that superfast broadband can provide means that people in rural communities can talk to each other and keep on top of community news throughout the day more efficiently and easily. They report that superfast broadband can support "*the communication of local initiatives, and generate a higher level of local activity*."

- Distance learning

The use of distance learning is another impact that can draw economic and social outcomes. The economic impacts are typically related to people upskilling to seek better paid employment. Higher earnings have a direct impact on wellbeing, and additionally there are social impacts for education related to people seeking education for enjoyment, or to learn skills or attain knowledge that can enhance their mental and personal wellbeing.

The introduction of superfast broadband is seen as making the provision of education and remote training more successful. Citing the increasing availability of the option to gain formal qualifications entirely remotely through the use of video conferencing for lectures and tutorials, J Meador (2016) notes that the provision of superfast broadband to those areas in Dumfries and Galloway currently without it would allow residents to participate in formal and informal distance education, raising educational attainment in an area of Scotland where the proportion with tertiary education is lower than the national (Scottish) average.

- House prices

House prices are another predominantly economic impact which can have social impacts. From an economic perspective, the impact of superfast broadband on house prices is mentioned as an outcome – the SQW paper on the impacts of superfast broadband (2013) cite a paper by Ahlfeldt, Koutroumpis, Valetti et al. that attributes a 3% increase in house prices to those who live in areas that are enabled with superfast broadband. This has the potential to create social outcomes related to higher earnings, but can also generate negative impacts for users and non-users of the technology alike: private renters may find their rents rising with house prices, and may be forced to move out of their communities, and those looking to buy homes may not be able to leave their current accommodation, or be similarly forced out of their home area.

- Community resilience

A number of academic sources use the framework of "enhancing resilience" as a measure of the impacts of superfast broadband. In this literature this operates mostly within a rural context, where community resilience is highlighted as particular issue. Ashmore, Farrington & Skerratt (2015) describe resilience as:

Social–ecological resilience builds upon this understanding to represent the ability of a community to withstand shocks due to external, ecological factors (Adger 2000). In relation to rural areas, shocks, or changes, can include depopulation, a loss of, or a disinclination to develop, public services for small populations and demographic ageing (see Delfmann et al. 2014), which require individuals and communities to be able to adapt and adopt new practices (i.e. be resilient) to address such changes to their community structure and livelihood

Recent papers define a framework for evaluating the impact of superfast broadband on individual and community resilience. Heesen, Farrington & Skerratt (2013) identify the impact on technological engagement (for instance through improving unreliable internet connections), the ability to live and work in a rural setting (the use of superfast in maintaining a rural life), and the capability for the local community to act together (in this case, in forming a community-led broadband organisation) as key parts of community resilience that could be affected by superfast broadband.

Perceived impacts of superfast broadband among the public

Few academic sources focus on the outcomes of superfast broadband from the perspective of the public. The limited evidence that has been gathered on public perceptions suggests that they see two potential impacts, which are also the two most common uses of the internet more generally among the British population. These are improvements in the ability to use communications technology such as Skype and FaceTime, and in the use of Video on Demand media such as BBC iPlayer and Netflix. Writing for the Scottish Geographical Journal, Ashmore, Farrington and Skerratt (2015) recount the findings from a series of qualitative interviews with people living in rural and remote areas:

"In terms of future superfast access, most respondents reflected on two areas of marked increased usage: media and entertainment services (e.g. accessing BBC iPlayer) and video services, including video chat and uplink for working remotely" (p270)

This suggests that the public assessment of the impacts of superfast focus on being more efficient online, rather than trying new services that are dependent on a faster connection (Heesen et al., 2013). Van der Wee et al. (2012) reported similar findings in their study of the impact of superfast broadband in Eindhoven and Ghent. Reporting findings from a 2010 paper by Howell & Grimes, they suggest that those with superfast broadband use the internet in much the same way as those without it do: "*service trends illustrate that consumers currently use [fibre broadband] for information and communication services and online gaming and entertainment, but no new speed-reliant applications*". Ipsos MORI data on how people use the internet suggests that this remains the case, although there is evidence (discussed below) that this assumption will not hold indefinitely.

Superfast broadband – who benefits?

The literature reviewed contains some suggestions that more vulnerable groups may have the most to gain from the rollout of superfast broadband; a report by Deloitte Access Economics and the Australian Government from 2013 outlines that "*there is some evidence that these greater impacts [of superfast] are where households face difficult circumstances, such as needing to find employment, move residence or where additional education is of significant benefit*". Another example cited earlier relates to telemedicine, with elderly and vulnerable residents able to take advantage of more sophisticated remote medical services that require little to no "lag time" in connections to be effective.

However, these groups are perhaps those who are also least likely to have access to the internet, or to take up superfast broadband once it is available in their areas – for instance, our most recent data suggests that just over half (54%) of women aged 65 and over have any internet access at all.[10] This points to a wider discussion in the literature, relating to a deepening of the digital divide. In a report based on Ofcom data, Philip et al. (2017) find evidence that the digital divide in the UK is entrenched:

[10] https://www.ipsos.com/sites/default/files/ct/publication/documents/2017-08/Ipsos-Tech_Tracker_Q2_2017.pdf

"In the context of digital infrastructure, improvements the already 'faster' areas are 'getting faster, faster' whilst many rural areas are continually trying to 'catch up'"

Non-users of the technology will, overall, find the greatest negative impacts; in addition to increases in house prices (which may or may not be positive for this group, dependent on their tenure status), a number of articles cite a longer-term concern that the withdrawal of services by the government and other organisations from physical locations to being solely available online will be particularly damaging, with the suggestion that an inability to access online services may "generate a new dimension of social exclusion that transcends conventional 'causes' of disadvantage such as low income" (Ibidem).

Differentiating the impacts of superfast from "standard" broadband

There are few sources in the literature that fully differentiate the impacts of superfast broadband from the impacts of standard broadband – typically analysis compares those with faster internet access to those with little to no broadband at all. In part this is due to the relative novelty of high speed internet – for any analyses more than a few years old, or which look at internet access on a global scale, the low availability of high speed connections makes the distinction between regular internet, broadband, and superfast broadband less important that the distinction between those with and without internet.

For instance, Graham and Nikolova (2012), who use a global dataset from Gallup gathered in 2009-2011, find that access to the internet in general has a positive impact on personal wellbeing but do not consider the type of internet access respondents have. Their analysis, which also considered the impact of mobile phone and television ownership, also suggests that the "internet/no internet" division may remain more salient for social outcomes: "*Our basic findings are that technology access is positive for wellbeing around the world in general, but with diminishing marginal returns for those respondents who already have a great deal of access to those technologies.*"

More recent sources that explore the impacts of superfast specifically tend to suggest that it will increase the existing impacts that come from a slower internet connection, rather than providing novel outcomes (SQW b 2013). Through interviews with people in rural broadband case studies, Ashmore, Farrington and Skerratt (2015) find that principal perceived advantages of superfast broadband in rural areas are *increased use* of high-capacity services (i.e. those that are already being used) rather than an increase in the use of previously less-feasible services such as cloud computing. This would suggest, as Graham and Nikolova asserted above, that the outcomes provided by superfast broadband over standard broadband are reasonably marginal. A paper by Nesta (2015) provides further evidence by noting that the impacts from increased connection speed will be limited by current capacity and consumer behaviour, and therefore will not increase directly in line with speed:

"The benefits of increasing available speed very much depend on current capacity: doubling speed from, say, 1 Mbps to 2 Mbps might bring substantial benefits, but this may be a poor indicator of the benefits from doubling from 100 Mbps to 200 Mbps"

Although there is relatively little evidence, it has been suggested that while the provision of standard broadband may lead to job losses as companies become more efficient and do away with a variety of human roles, provision of superfast broadband may have the opposite effect (SQW b 2013).

A commonly-made argument anticipating a greater level of impact from superfast broadband relies on future expectations of the development of the internet. For instance, SQW (2013 a) cite figures on the increasing size of an

average web page raising the floor of bandwidth required to simply surf the internet. The average size of a web page rose from 1.3 to 1.6MB between 2012 and 2013 alone, and HTTP archive data shows that it has recently topped 3MB.[11]

A Nesta paper from 2015 cites a 2013 forecast predicting that by 2023 the average household requirement will be 19Mbps – while this is below the superfast threshold of 24Mbps, it is the most conservative estimate, and the forecast does not take into account the demands that any as yet unknown applications might make of bandwidth. Should a future application, service or household device requiring significantly higher broadband speeds become popular then this may push the average bandwidth requirement beyond 24Mbps, meaning that many of the social impacts described in this paper will become difficult to obtain without superfast broadband.

Measurement of outcomes and impacts

Given the complexities evident in the literature, understanding and measuring the social impacts of superfast broadband will involve both qualitative and quantitative approaches. The key outcomes outlined – improved wellbeing through increased contact with family, increases in personal time from broadband-related efficiencies, and an incremental increase in entertainment opportunities – are challenging to evaluate as the underlying concepts are not easily quantifiable.

Core measures

From the literature review we have identified four areas which present opportunities for the development of a mixed-methodology approach to measure the potential impacts of superfast broadband:

- Wellbeing

Measuring wellbeing is a challenging subject; SQW (2013 a) do not attempt to predict the impact of faster broadband on the wellbeing of the UK population in their report. This is, in part, because there exist a wide variety of potential measures of wellbeing – but more importantly, wellbeing in this context is subjective and can be swayed by a plethora of external factors. For instance, Lelkes (2013) notes the parabolic relationship between subjective wellbeing and age (with the youngest and eldest most satisfied) which operates independently of individual circumstances.

Within the literature reviewed in this project, Graham and Nikolova (2012) provide the most systematic approach to measuring wellbeing, using behavioural cues: variables included whether or not participants had "smiled yesterday", "experienced stress yesterday" or "experienced anger yesterday". A similar measure is the frequency of face-to-face contact with friends and family (Lelkes 2013). Other more qualitative measures of wellbeing include a feeling of usefulness or empowerment in relation to other people (Ashmore, Farrington & Skerratt 2015).

- Leisure and free time savings

Increases in free time, to be spent as people wish, are proposed as another key impact of broadband and superfast broadband (Van der Wee et al., 2012). Van der Wee et al. also propose some of the key metrics by which free time might be measured; in addition to objective measures such as time gain and time cost savings, they highlight the subjective measure of stress.

- Entertainment options

[11] https://speedcurve.com/blog/web-performance-page-bloat/

As well as greater use of communications technology, increased use of Video on Demand services (BBC iPlayer, etc.) is a key area of growth in internet use among those with superfast broadband by both academics and members of the public (Ashmore, Farrington & Skerratt 2015). The ability to stream a video or music without buffering is a sign of a higher speed – if not superfast – internet connection (Philip et al. 2017), and may offer a simple and way to measure the impact of superfast broadband.

- Community and individual resilience

A number of sources suggest that the impact of faster broadband can be measured through the effect (positive or negative) it has on community resilience (Ashmore, Farrington & Skerratt 2015; Ashmore 2015; Heesen, Farrington & Skerratt, 2013). This framework is designed for application to remote and rural communities in the UK and examines the extent to which communities are able to adapt to change. This framework combines a number of separate measures; the authors cite impacts on wellbeing, patterns and behaviours of life, greater control over one's affairs (both objective and perceived), and opportunities for personal development (Ashmore, Farrington & Skerratt 2015).

Additional measures

While the four categories above are the best developed in the literature in terms of providing measures of social impacts, this document has identified a wider group of potential avenues worth exploring through the evaluation. The following will also be considered in through other aspects of Workstream C to identify whether they can be used to understand and measure impact.

- Healthcare outcomes

Telemedicine is a potential area that could experience strong growth with increased provision of superfast broadband, although the readiness of health services to provide this and the attitudes of those who could benefit most from telemedicine (older and rural people) remain impediments. There are a range of well-established measures of perceived health that could be employed to understand if superfast broadband is having an impact.

- Educational outcomes

The literature suggests that superfast broadband can provide positive impacts here through improved distance learning options, and due to the increasingly central role of internet technology to school education. The key outcomes, through improved educational levels leading to higher income, will be analysed in detail through other workstreams of this project, however the impact of broadband on education will also be considered here.

- Economic outcomes

As has been discussed throughout this report, many of the impacts explored in this workstream have an economic aspect, and there is a great deal of crossover between economic and social impacts (indeed, the two tend to go together). Therefore, a full exploration of the social impacts of superfast broadband will need to consider economic measures – although the focus for this workstream will be on perceived economic impacts, and the difference they make to individuals and households.

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Appendix B – Qualitative interview discussion guide

Introduction – ALL (5 minutes)

Thank participant for taking part.

Introduce self, Ipsos MORI – independent research organisation; gather all opinions; all opinions valid. Interview should last up to 45 minutes.

Confidentiality – reassure all responses anonymous and that information about individuals will not be passed on to anyone, including back to DCMS. Feedback may be included in a report that is being published next year, but this will not identify anyone.

Role of Ipsos MORI – independent research organisation (i.e. independent of government), we adhere to MRS code of conduct, we gather a range of opinions from a range of people: reiterate all opinions valid.

Withdrawal from the research – Remind participant that they can stop the interview at any time, and are free to withdraw from the research without any consequences.

Ask for **permission to digitally record** – these may be transcribed to help with our analysis and then securely deleted after the research project is completed.

Check this all makes sense to participant.

Any questions before we begin?

Everyday life – ALL (20 minutes)

To start with, I'd like to ask about the ways that you (and your family) do some everyday things. For each, I'd like to know what you normally do, and any ways this might have changed over the past few years…

ROTATE ORDER OF 1-2 FOR EACH INTERVIEW. ASK 3 LAST EACH TIME:

1. **Keeping in touch with friends and family who do not live with you**
2. **Watching entertainment/education programmes at home**
3. **Managing your day-to-day life generally, for instance shopping, running your household/family, and keeping up with what is going on in your local area**
4. **Taking part in activities locally/volunteering in your community**

PROBES FOR EACH BELOW – FOLLOW UP ON MENTIONS OF THE INTERNET THROUGHOUT, WITHOUT MAKING IT OBVIOUS THAT'S WHAT WE'RE MOST INTERESTED IN

1 – Keeping in touch

- How do you keep in touch with your friends and family who do not live with you these days?
- Has this changed at all over recent years?
- What (if anything) makes doing this easy?
- What (if anything) makes doing this difficult? PROBE: does anything get in the way?

2 – Entertainment and education at home

- How do you watch entertainment programmes these days?
- What about other people you live with? IF A PARENT: How do your children watch entertainment and educational programmes these days?
- What (if anything) makes doing this easy?
- What (if anything) makes doing this difficult? PROBE: does anything get in the way?

3 – Managing your day-to-day life

- What parts of managing your family/household do you find the most difficult/easy? Why is that?
- How has this changed over the past few years?
- To what extent do you feel in control of managing your household family? What helps you keep control/what makes this difficult?

4 – Community participation

- How do you find out about local groups and take part in events in your local community these days?
- IF INVOLVED: Tell me about your involvement: how do you manage and organise things?
- What (if anything) makes doing this easy?
- What (if anything) makes doing this difficult? PROBE: does anything get in the way?

Impact of speed and reliability – ADOPTERS ONLY (15 minutes)

I'd now like to speak to you about your use of the internet in everyday life in more detail.

Firstly, how happy are you with your internet connection? How fast/reliable is it?

PROBES:

- Overall, how fast and reliable would you say your broadband connection is?
- How has this changed over recent years?
- Do you know the typical speed of your broadband connection? What is it? How did you find this out?
- IF ANY PROBLEMS: How much of a problem is this for you/your family? What is the biggest issue?

In which areas of your life are the speed and reliability of your broadband connection most/least important?

- How has this changed over time – and why?
- Is there anything you're not able to do that you would like to?
- Do you expect anything to change in the next year or so?

When did you upgrade to (super)fast broadband? What impacts (if any) did you notice after you upgraded? (PROBE ON SPEED AND RELIABILITY)

Thinking now about the different areas of life we spoke about earlier – keeping in touch with friends, entertainment and education, and managing your day-to-day life – what role (if any) does the internet play for you in each?

PROBES FOR EACH BELOW – ENSURE YOU ARE CLEAR WHEN THEY ARE TALKING ABOUT THEIR HOME BROADBAND VS. OTHER CONNECTION TYPES (E.G. VIA MOBILE NETWORKS)

COVER MOST IMPORTANT TO THEM FIRST

1 – Keeping in touch:

- What differences (if any) have you noticed in your ability keep in touch with friends and family using your broadband connection as a result of upgrading to faster broadband?
- Is there anything that is still stopping you from doing this as much as you want?
- What is more important here – speed or reliability – and why?

2 – Entertainment/education:

- What differences (if any) have you noticed in your ability to access entertainment/educational programmes as a result of upgrading to faster broadband?
- IF PARENT: Has this influenced your child(ren)'s entertainment habits or behaviours?
- Is there anything that is still stopping you from doing this as much as you want?
- What is more important here – speed or reliability – and why?

3 – Managing day-to-day life:

- What differences (if any) have you noticed in your ability to manage your day-to-day life as a result of upgrading to faster broadband?
- Are there any areas where you feel like the internet gives you more control? Or less control?
- FOR DIFFERENT AREAS: What is more important here – speed or reliability – and why?

4 – Community participation:

- What differences (if any) have you noticed in your ability to take part in community groups and events?
- Is there anything that is still stopping you from doing this as much as you want?
- What is more important here – speed or reliability – and why?

Impact of speed and reliability – NON-ADOPTERS ONLY (15 minutes)

I'd now like to speak to you about your use of the internet in everyday life in more detail.

Firstly, how happy are you with your internet connection? How fast/reliable is it?

PROBES:

- Overall, how fast and reliable would you say your broadband connection is?
- How has this changed over recent years?
- Do you know the typical speed of your broadband connection? What is it? How did you find this out?
- IF ANY PROBLEMS: How much of a problem is this for you/your family? What is the biggest issue?

In which areas of your life are the speed and reliability of your broadband connection most/least important?

- How has this changed over time – and why?
- Is there anything you're not able to do that you would like to?
- Do you expect anything to change in the next year or so?

Broadband companies often offer a range of internet packages, providing different types of speed and/or connection. You've told us that you do not have the fastest internet speed available in your area.

Were you aware that faster speeds are available in this area?

IF NO: How interested are you in finding out more about this?

IF YES: **Why have you chosen not to get a faster connection?**

- PROBE FULLY FOR REASONS: Cost, do not want it, worried about more internet use, current internet fast enough, don't believe the fast speed will be provided, etc.
- How likely do you think it is that you might change your mind in the future? Why?

Thinking now about the different areas of life we spoke about earlier – keeping in touch with friends, entertainment and education, and managing your day-to-day life – what role (if any) does the internet play for you in each?

PROBES FOR EACH BELOW – ENSURE YOU ARE CLEAR WHEN THEY ARE TALKING ABOUT THEIR HOME BROADBAND VS. OTHER CONNECTION TYPES (E.G. VIA MOBILE NETWORKS)

1 – Keeping in touch:
- How does your current internet access help you with this? And does it ever get in the way?
- How do you think this might change (if at all) over the next few years?

2 – Entertainment/education:
- How does your current internet access help you with this? And does it ever get in the way?
- How do you think this might change (if at all) over the next few years?

3 – Managing day-to-day life:
- How does your current internet access help you with this? And does it ever get in the way?
- Are there any areas where you feel like the internet gives you more control? Or less control?
- How do you think this might change (if at all) over the next few years?

4 – Community participation:
- How does your current internet access help you with this? And does it ever get in the way?
- How do you think this might change (if at all) over the next few years?

Impact of speed and reliability – LOCKED OUT ONLY (15 minutes)

I'd now like to speak to you about your use of the internet in everyday life in more detail.

Firstly, how happy are you with your internet connection? How fast/reliable is it?

PROBES:
- Overall, how fast and reliable would you say your broadband connection is?
- How has this changed over recent years?
- Do you know the typical speed of your broadband connection? What is it? How did you find this out?
- IF ANY PROBLEMS: How much of a problem is this for you/your family? What is the biggest issue?
- KEY PROBE: How does your internet connection compare against the connections your friends and family (who live elsewhere) have?

In which areas of your life are the speed and reliability of your internet connection most/least important?
- How has this changed over time – and why?
- Is there anything you're not able to do that you would like to?
- Do you expect anything to change in the next year or so?

Thinking now about the different areas of life we spoke about earlier – keeping in touch with friends, entertainment and education, and managing your day-to-day life – what role (if any) does the internet play for you in each?

PROBES:
1 – Keeping in touch:
- How does your current internet access help you with this? And does it ever get in the way?
- How do you think this might change (if at all) over the next few years?

2 – Entertainment/education:

- How does your current internet access help you with this? And does it ever get in the way?
- How do you think this might change (if at all) over the next few years?

3 – Managing day-to-day life:

- How does your current internet access help you with this? And does it ever get in the way?
- Are there any areas where you feel like the internet gives you more control? Or less control?
- How do you think this might change (if at all) over the next few years?

4 – Community participation:

- How does your current internet access help you with this? And does it ever get in the way?
- How do you think this might change (if at all) over the next few years?

Currently, the area you live in has slower internet speeds than the national average. How much of an issue is this for you personally?

PROBES:

- Was this something you were aware of?
- How does this make you feel? (Probe on feelings of injustice: north/south divide, etc.)
- How much of an issue is this for other members of your household?
- Would you switch to a faster broadband connection if this was possible?
- IF YES: Have you considered moving elsewhere (in part) because of this? Why/why not?

Final section – ALL (5 minutes)

Thank you for your time today, we're nearly at the end of the interview. Before we finish, I'd like to ask a few questions about your use of the internet more generally.

How important is a good broadband internet connection to your everyday life?

- How important is it to the life of your children/other HH members?

And how positive (or negative) an impact would you say your home broadband connection has on your overall quality of life?

- What are the main positive/negative impacts? For you/other HH members?
- How has the internet's impact on your quality of life changed over time?

We're now at the end of the interview. Is there anything else you would like to add about your broadband connection?

RECORD ADDRESS FOR INCENTIVE – THANK AND CLOSE

Appendix C – Postal questionnaire

Technology in your local community Residents' survey

INTRODUCTION

Thank you for your interest in this survey. It is being carried out by Ipsos MORI, an independent research organisation, on behalf of the UK Government Department for Digital, Culture, Media and Sport (DCMS).

Your participation in this survey is confidential and anonymous. All the information you provide will be treated in the strictest confidence and used for the purposes of the research only. Your internet service provider will provide us with your internet speed, but this will not be linked to your address or other personally identifying information. By filling out and returning the survey you consent to Ipsos MORI using this information for our analysis.

If you have any questions about the survey please email us at: DCMStechsurvey2018@ipsos.com. We look forward to receiving your response and thank you in advance for taking part.

HOW TO COMPLETE THIS QUESTIONNAIRE

For most questions please tick one box for each row like this ☑. If you wish to change your answer, fill in the box like this ◉ and tick your chosen one.

If you do not want to answer a question please leave it blank, if it is not relevant to you select 'Not applicable'. There are no right or wrong answers. We are interested in your opinion, whatever it is.

If you did not receive the freepost envelope, please send to Freepost Plus RTSY–KHYL–BKRS, Technology in your Local Community, Ipsos MORI, Kings House, Kymberley Road HA1 1PT. (You do not need a stamp).

EVERYDAY LIFE

Q1. On a scale of 0-10, where 0 is not at all satisfied and 10 is completely satisfied, overall, how satisfied are you with your life nowadays?

*Please tick **one** box only*

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Not at all satisfied *Completely satisfied*

Q2. On a scale of 0-10, where 0 is not at all happy and 10 is completely happy, overall, how happy did you feel yesterday?

*Please tick **one** box only*

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Not at all happy *Completely happy*

Q3. On a scale of 0-10, where 0 is not at all anxious and 10 is completely anxious, overall, how anxious did you feel yesterday?

*Please tick **one** box only*

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Not at all anxious *Completely anxious*

Q4. On a scale of 0-10, where 0 is not at all worthwhile and 10 is completely worthwhile, overall, to what extent do you feel the things you do in your life are worthwhile?

*Please tick **one** box only*

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Not at all worthwhile *Completely worthwhile*

Q5a. We'd like to know about the different methods and approaches you use to do some everyday tasks. For each of the following areas of life, please tick the three methods you use most often to do them.

Keeping in touch with friends and family who do not live with you

*Which are the most common methods you use to do this? Please select **up to three** boxes.*

- ☐ Meeting them face to face
- ☐ Calling them via a landline/mobile phone
- ☐ Video chat using Skype, FaceTime, or another application
- ☐ Sending messages using text messaging
- ☐ Sending messages using internet-based apps such as Whatsapp, iMessage or Facebook Messenger
- ☐ Email
- ☐ Using social media sites including Facebook and Twitter
- ☐ Other *(please specify)*

☐ Don't know

Q5b. Watching entertainment programmes and content at home.

*Which are the most common methods you use to do this? Please select **up to three** boxes.*

- ☐ Watch live broadcast TV
- ☐ Watch broadcast TV using a set top box (Sky Plus, Freeview Plus or Virgin TiVo)
- ☐ Stream using a broadcast TV catch up service (BBC iPlayer, ITV Player, All 4 or My5)
- ☐ Stream using an internet-based streaming service (e.g. Netflix, Amazon Prime)
- ☐ Watch videos on YouTube, Vimeo, etc.
- ☐ Online gaming (through a console or PC/Laptop)
- ☐ Download films or programmes to watch later
- ☐ Listen to the radio (digital or analogue)
- ☐ Go out to the cinema, theatre, or other performance
- ☐ Other *(please specify)*

☐ Don't know

Q5c. Finding out what is going on in your local area.

*Which are the most common methods you use to do this? Please select **up to three** boxes.*

- ☐ Talk to friends/family locally
- ☐ Through Facebook
- ☐ Check in local shop/community hall
- ☐ Member of a local organisation, church, sports team etc.
- ☐ Read local newspaper/newsletter
- ☐ Look up websites of organisations and venues
- ☐ Get email notifications from venues or organisations
- ☐ Through local school (as parent or governor)
- ☐ Other *(please specify)*

☐ Don't know

Q5d. When it comes to managing day-to-day life, for example paying bills, everyday shopping and running a household, many tasks can now be done online (using the internet), or offline (for instance over the phone, in person, or by post).

Thinking about how you personally manage your day-to-day life, which of the following statements best describes how you do this?

*Please tick **one** box only.*

- ☐ I manage as much as I can of my day-to-day life online
- ☐ I manage my day-to-day life mostly online, but also do some things offline
- ☐ I manage my day-to-day life equally online and offline
- ☐ I manage my day-to-day life mostly offline, but do some things online
- ☐ I manage my day-to-day life offline
- ☐ Don't know

YOUR USE OF THE INTERNET

Next, we'd like to know a bit about your use of the internet.

Q6. Which of the following best describes the frequency with which you personally use the internet across all devices? *Please tick **one** box only.*

- ☐ Several times a day or more
- ☐ Around once a day
- ☐ A few times a week
- ☐ Around once a week
- ☐ A few times a month
- ☐ Around once a month or less often

Q7. Which of the following internet-enabled devices do you have in your household?

*Please tick **all that apply**.*

- ☐ A personal computer (Apple/PC or Laptop)
- ☐ A tablet (e.g. iPad, Samsung Galaxy tablet or Amazon Kindle Fire)
- ☐ A smart phone (e.g. iPhone, Android, Windows phone or Blackberry)
- ☐ A set top box for TV (Sky Plus, Virgin TiVo, Freeview Plus or Play)
- ☐ An internet-connected digital media player (Apple TV, Google Chromecast, Amazon Firestick or similar)
- ☐ A smart/connected TV (a TV set that is directly connected to the internet, not through another device such as a games console, computer or set top box)
- ☐ An internet-connected games console (e.g. Wii, Wii U, PS3 or PS4, Xbox One or Xbox 360)
- ☐ Any other devices *(please specify)*

- ☐ None of these
- ☐ Don't know

Q8. And do you personally use any of the following social networks? Please tick any for which you have an account. *Please tick **all that apply**.*

- ☐ Facebook
- ☐ Twitter
- ☐ LinkedIn
- ☐ Google Plus
- ☐ Instagram
- ☐ Snapchat
- ☐ Other *(please specify)*

- ☐ None of these

Q9. Thinking about the social networks you use, would you say you use them more outside of your home on a smart phone, in your home through a PC, tablet or smart phone, or do you do both equally? *Please tick **one** box only*

- ☐ Mostly outside of home through a phone
- ☐ Mostly at home using a PC, tablet or phone
- ☐ Both equally
- ☐ Don't know
- ☐ Don't use any social networks

Q10. For each of the following uses of the internet, how often do you do each of them?

*Please tick **one** box only per statement.*

	Several times a day or more	Around once a day	A few times a week	Around once a week	A few times a month	Around once a month or less often	Never
Visiting websites to buy products online	☐	☐	☐	☐	☐	☐	☐
Visiting websites for information on products I am thinking of buying	☐	☐	☐	☐	☐	☐	☐
Visiting social networking websites including Facebook, Twitter and Instagram	☐	☐	☐	☐	☐	☐	☐
Downloading or streaming television programmes	☐	☐	☐	☐	☐	☐	☐
Downloading or streaming movies	☐	☐	☐	☐	☐	☐	☐
Playing games online	☐	☐	☐	☐	☐	☐	☐

Previously this questionnaire has asked about your use of the internet across a range of locations. Now, for the following questions, we'd like you to think about your use of the internet when connected to your home internet connection only.

Q11. How important, if at all, would you say the following aspects of your home internet connection are to you? *Please tick **one** box only per statement.*

	Essential	Very important	Fairly important	Not very important	Not at all important	Don't know
The speed of your connection	☐	☐	☐	☐	☐	☐
The reliability of your connection	☐	☐	☐	☐	☐	☐

Q12. Still thinking about your home internet connection, which of the following statements best describes the type of connection your household has? *Please tick **one** box only*

- ☐ I/we have the faster connection available in the local area
- ☐ There are faster speeds available in the local area, but I/we don't have it in the household
- ☐ Don't know

YOUR VIEWS ON THE INTERNET

We'd now like to ask a few questions about your views of the internet. We are interested to hear your views even if you don't use the internet very much.

Q13. Overall, how confident are you using the internet? *Please tick **one** box only.*

Very confident	Fairly confident	Not very confident	Not confident at all	Do not use the internet	Don't know
☐	☐	☐	☐	☐	☐

Q14. To what extent do you agree or disagree, it at all, with the following statements?

*Please tick **one** box only per statement.*

	Strongly agree	Tend to agree	Neither agree or disagree	Tend to disagree	Strongly disagree	Don't know
I cannot imagine life without the internet	☐	☐	☐	☐	☐	☐
The present use of computers and the internet is a threat to personal privacy in this country	☐	☐	☐	☐	☐	☐
I trust the information that is available online	☐	☐	☐	☐	☐	☐
The internet is bad for job opportunities in my local area	☐	☐	☐	☐	☐	☐
Technology generally makes life better	☐	☐	☐	☐	☐	☐
The internet would be better if the Government got more involved in regulating what happens online	☐	☐	☐	☐	☐	☐

Q15. Thinking again about your home broadband connection, we'd like you to think about how important your home internet connection is in different areas of everyday life.

For each of the following activities, could you let us know how important your home internet connection is in how you usually do them?

*Please tick **one** box only per statement.*

	Essential	Very important	Fairly important	Not very important	Not important at all	Don't know
Keeping in touch with friends and family who do not live with you	☐	☐	☐	☐	☐	☐
Watching entertainment programmes	☐	☐	☐	☐	☐	☐
Purchasing groceries and everyday products	☐	☐	☐	☐	☐	☐
Purchasing other goods (for instance clothes and household appliances)	☐	☐	☐	☐	☐	☐
Finding out what is happening in your local area	☐	☐	☐	☐	☐	☐
Using local services such as libraries and GP surgeries	☐	☐	☐	☐	☐	☐

Q16. And overall, how important, if at all, is your home internet connection to your everyday life?

*Please tick **one** box only.*

Essential	Very important	Fairly important	Not very important	Not important at all	Don't know
☐	☐	☐	☐	☐	☐

ABOUT YOU AND YOUR HOUSEHOLD

Thank you for your answers so far. This next section asks a few questions about you and your household to ensure that we are talking to as broad a range of people as possible. Your answers will be treated with the strictest confidentiality.

About your household

Q17a. Including yourself, how many people usually live in your household?

Enter the number in the box below. Please remember to include any babies or lodgers.

☐☐

☐ Can't remember

Q17b. How many children aged 10 and under live with you in your household?

Enter the number in the box below.
If the answer is "none", please enter a zero.

☐☐

☐ Can't remember

Q17c. How many children aged 11 to 18 live with you in your household?

Enter the number in the box below.
If the answer is "none", please enter a zero.

☐☐

☐ Can't remember

Q18. How long, in years, have you lived at this current address?

Enter the number in the box below.
If the answer is "none", please enter a zero.

☐☐

☐ Can't remember

Q19. What is your age?

Enter the number in the box below.

☐☐

☐ Can't remember

Q20. Which of the following describes how you think of yourself?

*Please tick **one** box only.*

- ☐ Male
- ☐ Female
- ☐ In another way

Q21. Are you married or living with a partner?

*Please tick **one** box only.*

- ☐ Yes
- ☐ No

Q22. How is your health in general? Would you say it is...?

*Please tick **one** box only.*

- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Bad
- ☐ Very bad
- ☐ Don't know

Q23. How often do you meet friends or relatives who are not living with you? Is it...

*Please tick **one** box only.*

- ☐ ...on most days?
- ☐ ...once or twice a week?
- ☐ ...once or twice a month?
- ☐ ...less often than once a month?
- ☐ ...never?

Q24. Do you, or anyone in your household, currently receive any Government benefits? These include things like Universal Credit, Job Seekers Allowance, Income Support, Housing Benefit and Tax Credits

*Please tick **one** box only.*

- ☐ Yes
- ☐ No
- ☐ Don't know

Q25. Which of these activities best describes what you are doing at present?

*Please tick **one** box only.*

- ☐ Employed full time
- ☐ Employed part time
- ☐ Self employed
- ☐ Looking after home
- ☐ Unemployed
- ☐ Wholly retired
- ☐ Full time education
- ☐ Permanently sick/disabled
- ☐ Something else

Q26. In which of these ways does your household occupy your current home?

*Please tick **one** box only.*

- ☐ Own outright
- ☐ Buying on mortgage
- ☐ Rent from council
- ☐ Rent from Housing Association/Trust
- ☐ Rent from private landlord
- ☐ Other
- ☐ Don't know

Q27. What is your ethnic group?

*Choose one section from A to F, then tick one box to best describe your ethnic group or background. Please tick **one** box only.*

A – White
- ☐ British/English/Scottish/ Welsh/Northern Irish
- ☐ Irish
- ☐ Gypsy or Irish Traveller
- ☐ Any other White background

B – Asian/Asian British
- ☐ Bangladeshi
- ☐ Chinese
- ☐ Indian
- ☐ Pakistani
- ☐ Any other Asian background

C – Mixed/multiple ethnic groups
- ☐ White and Black African
- ☐ White and Black Caribbean
- ☐ White and Asian
- ☐ Any other mixed/multiple ethnic background

D – Black/African/Caribbean/Black British
- ☐ African
- ☐ Caribbean
- ☐ Any other Black/African/Caribbean background

E – Other ethnic group
- ☐ Arab
- ☐ Any other ethnic group

F –
- ☐ Prefer not to say

Thank you for completing this survey!

Please return the questionnaire in the pre-paid envelope provided.

If you did not receive the freepost envelope, please send to Freepost Plus RTSY–KHYL–BKRS, Technology in your Local Community, Ipsos MORI, Kings House, Kymberley Road HA1 1PT.

You do not need a stamp.

Appendix D – Survey topline and methodological note

Ipsos MORI sent a postal survey to 20,000 Sky customers living in two types of areas: those upgraded under the Superfast Broadband Programme and those living in areas that do not have any access to superfast internet speeds, either via infrastructure subsidised through the programme or otherwise paid for by providers (referred to non-upgraded areas).

1,314 responses were received in total. 714 were from those living in upgraded areas, and 600 from those in areas with slower speeds. Fieldwork took place between 19 March and 9 April 2018[12].

The raw data was analysed using Propensity Score Matching (PSM), a statistical technique aimed at generating a suitable comparison group to evaluate the impact of a specific intervention. Evaluation studies involve the comparison of a treated and a control group; making an appropriate comparison between these groups is fundamental to avoid any biases in the analysis. PSM is often used when randomisation is not an option, as it allows for the selection of a suitable control group while avoiding selection bias. This type of bias occurs when a selected sample is not representative of the population intended to be analysed. In this context, an example would be to compare treated and non-treated respondents without controlling for the geographical area they live in, property type and other personal characteristics.

PSM ensures that only very similar cases are analysed, meaning that any observed differences between samples are more easily attributed to the treatment. This is done by first pooling treated and non-treated cases together and running a logistic regression. The regression yields the probability of being treated (i.e. having a superfast internet connection) as a function of relevant observable features. In this instance the variables used to determine the propensity score were: index of multiple deprivation, geographical area, age, house price, number of people in household, gender, presence/absence of health conditions, whether the respondent receives benefits, employment status, tenure and ethnicity.

The propensity scores yielded by the regressions are estimates of the probability of belonging to the treatment group. The final step involves matching respondents in the treated group with those in the control group with the smallest difference in propensity scores (i.e. finding the nearest neighbour). In this stage only respondents in the "common support" are associated to a counterpart. The "common support" represents a range of values where propensity scores of treated and non-treated cases overlap. Those cases with extreme propensity scores (outside this range) are not matched.

PSM does have some weaknesses, primarily that it cannot account for the impact of unobservable characteristics on respondents' outcomes. Such factors are by their nature difficult to define and measure; in this analysis we expect key factors to include undetectable individual personal characteristics, (such as ability, motivation, etc.). These do not appear to be strongly related to superfast broadband, hence PSM is suitable to yield a robust control sample.

Any differences in response observed between the matched pairs in the topline below are correlated with the treatment variable. Two PSM analyses were carried out using the data – the treatment variable for each is outlined below:

[12] It should be noted that there was no information available on the demographic profile of bill payers so it is not possible to assess the how far respondents were representative of the relevant populations.

- An area-based comparison between those in upgraded areas ("upgraded") and those in areas not upgraded ("non-upgraded")
- A speed based comparison using premise-level Sky data to compare those with slower speed (10 Mbps or less) against those with superfast speeds (24 Mbps or greater)

The data for both weighted groups is provided in the topline below. Statistically significant differences have been underlined. Note that significances can only be measured between the two groups in each PSM, and not across the analyses. Aside from PSM weighting the data is unweighted. Where percentages do not sum to 100, this may be due to computer rounding, the exclusion of "don't know" categories, or multiple answers. An asterisk (*) denotes any value of less than half a per cent.

Q1 **On a scale of 0-10, where 0 is not at all satisfied and 10 is completely satisfied, overall how satisfied are you with your life nowadays?**

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
0 – Not at all satisfied	*	1	1	1
1	1	*	-	*
2	1	1	*	1
3	4	2	3	2
4	2	2	2	1
5	7	7	8	6
6	8	10	6	11
7	17	21	18	23
8	30	29	28	28
9	17	17	20	18
10 – Completely satisfied	11	9	11	7
Don't know	2	2	3	1
Mean score	***7.42***	***7.38***	***7.60***	***7.36***

Q2 **On a scale of 0-10, where 0 is not at all happy and 10 is completely happy, overall how happy did you feel yesterday?**

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
0 – Not at all satisfied	*	1	1	2
1	1	*	*	*
2	2	2	1	3
3	4	3	3	2
4	2	3	1	2
5	8	8	10	6
6	8	11	9	12
7	18	19	16	19
8	24	26	23	25
9	18	17	19	17
10 – Completely satisfied	12	10	14	9
Don't know	3	2	3	3
Mean score	***7.31***	***7.27***	***7.48***	***7.17***

Q3 **On a scale of 0-10, where 0 is not at all anxious and 10 is completely anxious, overall how anxious did you feel yesterday?**

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
0 – Not at all satisfied	**23**	**21**	**26**	**20**
1	**13**	**15**	**13**	**14**
2	**15**	**16**	**11**	**15**
3	**9**	**9**	**9**	**12**
4	**6**	**5**	**5**	**6**
5	**8**	**10**	**10**	**10**
6	**6**	**6**	**6**	**6**
7	**6**	**7**	**7**	**6**
8	**7**	**5**	**6**	**4**
9	**2**	**3**	**3**	**3**
10 – Completely satisfied	**1**	**2**	**1**	**2**
Don't know	**3**	**2**	**3**	**2**
Mean score	***3.12***	***3.22***	***3.06***	***3.18***

Q4 **On a scale of 0-10, where 0 is not at all worthwhile and 10 is completely worthwhile, overall to what extent do you feel the things you do in your life are worthwhile?**

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
0 – Not at all satisfied	*	**1**	*	**1**
1	**1**	**1**	*	**1**
2	**1**	**1**	**1**	**2**
3	**3**	**2**	**2**	**3**
4	**3**	**2**	**2**	**1**
5	**8**	**7**	**7**	**7**
6	**6**	**8**	**5**	**10**
7	**14**	**17**	**12**	**19**
8	**28**	**27**	**28**	**25**
9	**17**	**19**	**21**	**19**
10 – Completely satisfied	**16**	**13**	**17**	**10**
Don't know	**2**	**2**	**2**	**3**
Mean score	***7.56***	***7.48***	***7.78***	***7.31***

Q5a **We'd like to know about the different methods and approaches you use to do some everyday tasks. For each of the following areas of life, please tick the three methods you use most often to do them**

Keeping in touch with friends and family who do not live with you

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Meeting face-to-face	**58**	**60**	**53**	**57**
Calling via landline/mobile phone	**61**	**61**	**59**	**58**
Video chat using Skype, Facetime, etc.	**13**	**13**	**15**	**16**
Sending messages using text messaging	**49**	**44**	**44**	**41**
Sending messages using internet-based apps	**35**	**42**	**39**	**48**
Email	**20**	**23**	**19**	**22**
Using social media (Facebook, twitter)	**18**	**18**	**19**	**19**
Other	**1**	**1**	*	*
Don't know	*	*	-	-
Not stated	**9**	**8**	**12**	**9**

Q5b **We'd like to know about the different methods and approaches you use to do some everyday tasks. For each of the following areas of life, please tick the three methods you use most often to do them**

Watching entertainment programmes and content at home

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Watch live broadcast TV	**51**	**52**	**50**	**48**
Watch broadcast TV using set top box	**77**	**79**	**78**	**80**
Stream using broadcast TV catch up service	**22**	**23**	**18**	**25**
Stream using internet based service (e.g Netflix)	**19**	**21**	**21**	**28**
Watch videos on YouTube, Vimeo, etc.	**7**	**9**	**6**	**10**
Online gaming	**2**	**4**	**3**	**3**
Download films/ programmes to watch later	**35**	**32**	**35**	**28**
Listen to the radio	**29**	**35**	**31**	**32**
Go out to cinema, theatre	**11**	**12**	**11**	**10**
Other	**1**	**2**	**1**	**3**
Don't know	-	-	-	-
Not stated	**7**	**4**	**7**	**5**

Q5c **We'd like to know about the different methods and approaches you use to do some everyday tasks. For each of the following areas of life, please tick the three methods you use most often to do them**

Finding out what is going on in your local area

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Talk to friends and family	**69**	**72**	**68**	**73**
Through Facebook	**37**	**39**	**38**	**43**
Check in local shop/hall	**11**	**12**	**8**	**11**
Member of a local organisation, church or sports team	**14**	**12**	**11**	**10**
Read local newspaper	**45**	**49**	**48**	**42**
Look up websites of organisations	**31**	**34**	**34**	**38**
Get email notifications from venues/ organisations	**19**	**19**	**17**	**20**
Through local school as parent or governor	**5**	**5**	**5**	**7**
Other	**4**	**3**	**3**	**4**
Don't know	**2**	**2**	**2**	**2**
Not stated	**4**	**2**	**3**	**3**

Q5d **Thinking about how you personally manage your day-to-day life, which of the following statements best describes how you do this?**

Ba11ses: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
I manage as much as I can of my day-to-day life online	**24**	**26**	**21**	**32**
I manage my day-to-day life mostly online, but also do some things offline	**24**	**24**	**25**	**26**
I manage my day-to-day life equally online and offline	**18**	**19**	**21**	**18**
I manage my day-to-day life mostly offline, but also do some things online	**21**	**19**	**21**	**16**
I manage my day-to-day life offline	**12**	**11**	**10**	**6**
Don't know	*	*	*	-
Not stated	**2**	*	**2**	-

Q6 **Which of the following best describes the frequency with which you personally use the internet, across all devices?**

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Several times a day or more	**73**	**78**	**79**	**87**
Around once a day	**12**	**12**	**11**	**9**
A few times a week	**6**	**5**	**6**	**3**
Around once a week	**2**	**2**	**2**	**1**
A few times a month	**1**	*	*	-
Around once a month or less often	**3**	**2**	**2**	*
Not stated	**3**	**2**	**1**	**1**

Q7 **Which of the following internet-enabled devices do you have in your household?**

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Personal computer/laptop	**85**	**86**	**87**	**91**
A tablet	**78**	**78**	**81**	**84**
A smartphone	**78**	**81**	**81**	**92**
A set top box for TV	**82**	**83**	**85**	**87**
An internet-connected digital media player	**25**	**29**	**28**	**37**
A smart/connected TV	**35**	**38**	**38**	**48**
An internet-connected games console	**25**	**29**	**27**	**36**
Any other devices	**5**	**5**	**5**	**4**
None of these	**1**	**1**	**1**	-
Don't know	-	-	-	-
Not stated	**1**	*	*	*

Q8 **And do you personally use any of the following social networks? Please tick any for which you have an account.**

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Facebook	**65**	**65**	**67**	**70**
Twitter	**21**	**23**	**25**	**27**
LinkedIn	**22**	**23**	**24**	**27**
Google Plus	**8**	**12**	**9**	**11**
Instagram	**21**	**21**	**23**	**23**
Snapchat	**11**	**12**	**13**	**13**
Other	**5**	**4**	**4**	**3**
None of these	**26**	**25**	**23**	**20**
Not stated	**2**	**2**	**2**	**1**

Q9 **Thinking about the social networks you use, would you say you use them more outside of your home on a smart phone, in your home through a PC, tablet or smartphone, or do you do both equally?**

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Mostly outside of the home through a phone	**8**	**9**	**12**	**11**
Mostly at home using a PC, tablet or phone	**44**	**43**	**42**	**40**
Both equally	**23**	**25**	**24**	**29**
Don't know	**1**	**1**	**1**	**-**
Don't use any social networks	**22**	**21**	**20**	**18**
Not stated	**2**	**2**	**1**	**2**

Q10a **For each of the following uses of the internet, how often do you do each of them?**

Visiting websites to buy products online

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Several times a day or more	**7**	**7**	**7**	**9**
Around once a day	**10**	**8**	**9**	**9**
A few times a week	**22**	**21**	**22**	**25**
Around once a week	**10**	**13**	**10**	**14**
A few times a month	**17**	**22**	**21**	**24**
Around once a month or less often	**24**	**21**	**24**	**15**
Never	**6**	**6**	**5**	**3**
Not stated	**3**	**2**	**2**	*

Q10b **For each of the following uses of the internet, how often do you do each of them?**

Visiting websites for information on products I am thinking of buying

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Several times a day or more	**10**	**12**	**11**	**15**
Around once a day	**12**	**10**	**14**	**10**
A few times a week	**24**	**26**	**21**	**31**
Around once a week	**11**	**11**	**12**	**12**
A few times a month	**19**	**20**	**23**	**19**
Around once a month or less often	**15**	**14**	**13**	**10**
Never	**4**	**5**	**4**	**2**
Not stated	**5**	**3**	**3**	**2**

Q10c **For each of the following uses of the internet, how often do you do each of them?**
Visiting social networking websites including Facebook, Twitter and Instagram
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Several times a day or more	**34**	**40**	**36**	**45**
Around once a day	**16**	**15**	**16**	**15**
A few times a week	**9**	**7**	**9**	**8**
Around once a week	**4**	**4**	**4**	**3**
A few times a month	**2**	**3**	**1**	**3**
Around once a month or less often	**3**	**4**	**5**	**3**
Never	**27**	**26**	**26**	**21**
Not stated	**5**	**3**	**3**	**2**

Q10d **For each of the following uses of the internet, how often do you do each of them?**
Downloading or streaming television programmes
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Several times a day or more	**6**	**8**	**6**	**9**
Around once a day	**10**	**11**	**13**	**14**
A few times a week	**23**	**18**	**24**	**20**
Around once a week	**9**	**12**	**9**	**14**
A few times a month	**12**	**9**	**9**	**10**
Around once a month or less often	**11**	**12**	**13**	**11**
Never	**22**	**25**	**22**	**18**
Not stated	**7**	**5**	**3**	**4**

Q10e **For each of the following uses of the internet, how often do you do each of them?**
Downloading or streaming movies
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Several times a day or more	**2**	**4**	**2**	**5**
Around once a day	**4**	**4**	**5**	**6**
A few times a week	**11**	**11**	**11**	**12**
Around once a week	**12**	**9**	**11**	**12**
A few times a month	**12**	**11**	**13**	**13**
Around once a month or less often	**16**	**17**	**19**	**19**
Never	**35**	**39**	**35**	**29**
Not stated	**8**	**6**	**4**	**5**

Q10f **For each of the following uses of the internet, how often do you do each of them?**
Playing games online
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Several times a day or more	**6**	**7**	**6**	**7**
Around once a day	**7**	**5**	**7**	**7**
A few times a week	**5**	**6**	**4**	**5**
Around once a week	**2**	**2**	**3**	**4**
A few times a month	**3**	**5**	**2**	**6**
Around once a month or less often	**4**	**5**	**4**	**6**
Never	**65**	**64**	**68**	**59**
Not stated	**9**	**7**	**6**	**6**

Q11a **How important, if at all, would you say the following aspects of your home internet connection are to you?**
The speed of your connection
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Essential	**42**	**43**	**46**	**52**
Very important	**35**	**38**	**35**	**37**
Fairly important	**14**	**13**	**14**	**7**
Not very important	**3**	**2**	**3**	**1**
Not at all important	**2**	**1**	**1**	**1**
Don't know	**1**	**1**	**1**	*
Not stated	**3**	**2**	**1**	**1**
Very/fairly important	**49**	**50**	**49**	**44**
Not very/not at all important	**5**	**3**	**4**	**2**

Q11b **How important, if at all, would you say the following aspects of your home internet connection are to you?**
The reliability of your connection
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Essential	**56**	**61**	**60**	**69**
Very important	**34**	**29**	**31**	**27**
Fairly important	**5**	**5**	**5**	**2**
Not very important	**1**	-	*	-
Not at all important	*	**1**	**1**	**1**
Don't know	**1**	**1**	*	-
Not stated	**4**	**3**	**2**	**1**
Very/fairly important	**39**	**34**	**36**	**29**
Not very/not at all important	**1**	**1**	**1**	**1**

Q12 **Still thinking about your home internet connection, which of the following statements best describes the type of connection your household has?**

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
We have the fastest connection available in the area	**19**	**38**	**20**	**58**
There are faster speeds available in the local area, but we don't have it in the household	**46**	**35**	**52**	**26**
Don't know	**30**	**24**	**25**	**14**
Not stated	**5**	**3**	**3**	**1**

Overall how confident are you in using the internet?

Q13 *Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299*

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Very confident	**42**	**46**	**51**	**57**
Fairly confident	**47**	**43**	**41**	**38**
Not very confident	**6**	**6**	**5**	**3**
Not confident at all	**1**	**2**	**2**	**1**
Don't use the internet	**2**	**1**	**1**	**1**
Don't know	*	**1**	*	**1**
Not stated	**1**	**1**	*	**1**
Very/fairly confident	**89**	**89**	**92**	**94**
Not very/at all confident	**7**	**8**	**6**	**4**

Q14a **To what extent do you agree or disagree, if at all, with the following statements?**

I cannot imagine life without the internet

Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Strongly agree	**28**	**32**	**33**	**38**
Tend to agree	**35**	**35**	**33**	**34**
Neither agree nor disagree	**18**	**18**	**17**	**16**
Tend to disagree	**9**	**8**	**8**	**7**
Strongly disagree	**7**	**6**	**6**	**4**
Don't know	*	**1**	*	-
Not stated	**3**	**3**	**2**	**1**
Agree	**63**	**67**	**66**	**72**
Disagree	**15**	**13**	**14**	**11**

Q14b **To what extent do you agree or disagree, if at all, with the following statements?**

The present use of computers and the internet is a threat to personal privacy in this country
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Strongly agree	**16**	**17**	**18**	**16**
Tend to agree	**36**	**41**	**37**	**41**
Neither agree nor disagree	**25**	**21**	**21**	**20**
Tend to disagree	**12**	**11**	**11**	**12**
Strongly disagree	**5**	**7**	**7**	**8**
Don't know	**1**	**2**	**1**	**1**
Not stated	**5**	**3**	**4**	**1**
Agree	**52**	**57**	**55**	**58**
Disagree	**17**	**18**	**18**	**20**

Q14c **To what extent do you agree or disagree, if at all, with the following statements?**

I trust the information that is available online
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Strongly agree	**3**	**2**	**3**	**1**
Tend to agree	**20**	**22**	**20**	**21**
Neither agree nor disagree	**40**	**40**	**44**	**42**
Tend to disagree	**23**	**23**	**21**	**25**
Strongly disagree	**8**	**9**	**8**	**8**
Don't know	**1**	**1**	**1**	*
Not stated	**5**	**3**	**3**	**1**
Agree	**23**	**24**	**23**	**22**
Disagree	**31**	**32**	**28**	**34**

Q14d **To what extent do you agree or disagree, if at all, with the following statements?**

The internet is bad for job opportunities in my local area
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Strongly agree	**1**	**1**	**1**	**1**
Tend to agree	**3**	**2**	**3**	**2**
Neither agree nor disagree	**29**	**29**	**25**	**32**
Tend to disagree	**23**	**22**	**25**	**23**
Strongly disagree	**17**	**16**	**22**	**18**
Don't know	**23**	**25**	**20**	**22**
Not stated	**5**	**4**	**4**	**2**
Agree	**4**	**4**	**4**	**3**
Disagree	**40**	**38**	**47**	**41**

Q14e **To what extent do you agree or disagree, if at all, with the following statements?**
Technology generally makes life better
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Strongly agree	**18**	**18**	**21**	**19**
Tend to agree	**51**	**55**	**51**	**59**
Neither agree nor disagree	**18**	**16**	**16**	**14**
Tend to disagree	**4**	**5**	**5**	**3**
Strongly disagree	**2**	**2**	**2**	**1**
Don't know	**1**	**2**	**1**	**1**
Not stated	**5**	**4**	**4**	**2**
Agree	**69**	**73**	**72**	**79**
Disagree	**6**	**6**	**7**	**5**

Q14f **To what extent do you agree or disagree, if at all, with the following statements?**
The internet would be better if the Government got more involved in regulating what happens online
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Strongly agree	**28**	**29**	**29**	**26**
Tend to agree	**30**	**33**	**29**	**29**
Neither agree nor disagree	**20**	**17**	**20**	**22**
Tend to disagree	**7**	**8**	**9**	**11**
Strongly disagree	**6**	**7**	**7**	**9**
Don't know	**5**	**4**	**3**	**2**
Not stated	**4**	**3**	**3**	**1**
Agree	**58**	**62**	**58**	**56**
Disagree	**13**	**15**	**16**	**19**

Q15a **For each of the following activities could you let us know how important your home internet connection is in how you usually do them?**
Keeping in touch with friends and family who do not live with you
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Essential	**23**	**29**	**28**	**31**
Very important	**30**	**29**	**30**	**29**
Fairly important	**21**	**24**	**21**	**24**
Not very important	**14**	**10**	**12**	**10**
Not important at all	**7**	**6**	**6**	**4**
Don't know	**1**	**1**	**1**	**-**
Not stated	**3**	**2**	**2**	**1**
Very/fairly important	**51**	**53**	**51**	**54**
Not very/not at all important	**21**	**16**	**18**	**14**

Q15b **For each of the following activities could you let us know how important your home internet connection is in how you usually do them?**
Watching entertainment programmes
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Essential	**10**	**15**	**14**	**17**
Very important	**24**	**23**	**21**	**26**
Fairly important	**27**	**26**	**25**	**29**
Not very important	**19**	**20**	**23**	**18**
Not important at all	**13**	**11**	**13**	**8**
Don't know	**1**	**1**	**1**	*
Not stated	**5**	**3**	**3**	**2**
Very/fairly important	**51**	**50**	**47**	**55**
Not very/not at all important	**33**	**31**	**36**	**26**

Q15c **For each of the following activities could you let us know how important your home internet connection is in how you usually do them?**
Purchasing groceries and everyday products
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Essential	**7**	**9**	**6**	**9**
Very important	**13**	**12**	**13**	**14**
Fairly important	**17**	**23**	**23**	**27**
Not very important	**25**	**27**	**27**	**28**
Not important at all	**33**	**25**	**26**	**20**
Don't know	**1**	**2**	**1**	**1**
Not stated	**5**	**3**	**3**	**1**
Very/fairly important	**29**	**34**	**37**	**41**
Not very/not at all important	**58**	**52**	**53**	**48**

Q15d **For each of the following activities could you let us know how important your home internet connection is in how you usually do them?**
Purchasing other goods (e.g. clothes and household appliances)
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Essential	**8**	**9**	**5**	**12**
Very important	**19**	**21**	**21**	**23**
Fairly important	**37**	**33**	**40**	**34**
Not very important	**19**	**22**	**20**	**22**
Not important at all	**12**	**11**	**10**	**8**
Don't know	**1**	**1**	**1**	-
Not stated	**5**	**3**	**3**	**2**
Very/fairly important	**56**	**54**	**61**	**57**
Not very/not at all important	**30**	**33**	**30**	**30**

Q15e **For each of the following activities could you let us know how important your home internet connection is in how you usually do them?**
Finding out what is happening in your local area
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Essential	**5**	**6**	**5**	**7**
Very important	**14**	**15**	**16**	**18**
Fairly important	**39**	**39**	**43**	**43**
Not very important	**21**	**25**	**19**	**21**
Not important at all	**14**	**11**	**12**	**10**
Don't know	**2**	**2**	**2**	**-**
Not stated	**5**	**3**	**3**	**1**
Very/fairly important	**53**	**53**	**59**	**61**
Not very/not at all important	**35**	**36**	**31**	**31**

Q15f **For each of the following activities could you let us know how important your home internet connection is in how you usually do them?**
Using local services such as libraries and GP services
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Essential	**5**	**7**	**6**	**7**
Very important	**18**	**16**	**22**	**17**
Fairly important	**26**	**27**	**22**	**29**
Not very important	**24**	**25**	**25**	**27**
Not important at all	**20**	**18**	**21**	**17**
Don't know	**3**	**3**	**1**	**1**
Not stated	**5**	**3**	**3**	**2**
Very/fairly important	**44**	**44**	**43**	**46**
Not very/not at all important	**43**	**43**	**47**	**44**

Q16 **And overall, how important, if at all, is your home internet connection to your everyday life?**
Bases: Non-upgraded – 714; upgraded – 600; <10 Mbps – 449; >24 Mbps – 299

	%		%	
	Non-upgraded	Upgraded	<10 Mbps	>24 Mbps
Essential	**30**	**31**	**31**	**38**
Very important	**32**	**33**	**33**	**34**
Fairly important	**23**	**26**	**25**	**22**
Not very important	**9**	**7**	**7**	**4**
Not important at all	**4**	**3**	**2**	**1**
Don't know	*	*	*	-
Not stated	**1**	**1**	**1**	**1**
Very/fairly important	**56**	**58**	**59**	**57**
Not very/not at all important	**12**	**10**	**9**	**5**

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