Net Neutrality

Research into consumer understanding and views on UK net neutrality rules now and in future.

Qualitative research report

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1. Executive Summary

1.1. Background, objectives and approach

Ofcom's primary duty is to further the interests of consumers and citizens in relation to communications matters. Part of this duty is to ensure consumers have access to the communications services they need, when they need them.

'Net neutrality', or the 'open internet', is the principle of treating all internet traffic equally, so that users of the internet control what they see and do online, not the internet service provider (ISP) that connects them to the Internet.

Among other things, net neutrality rules cover how ISPs treat internet traffic, and also transparency measures about information within customer contracts. The rules state that all users must have equal access to the Internet and that the ISP can provide both 'reasonable' traffic management, and also additional specific 'exceptional' traffic management going beyond reasonable traffic management, e.g., to manage temporary congestion or preserve network security. ISPs are not allowed to accept commercial inducements to speed up or slow down specific content.

This qualitative report is part of a review of the current UK net neutrality framework:

- To provide insight into consumer awareness of current net neutrality rules;
- To explore consumers' views of their future internet needs;
- To understand consumers' response to the current UK rules, and their view on the suitability of these rules for the future;
- To examine some hypothetical future scenarios of rule relaxations or changes.

The qualitative sample comprised 70 respondents: 62 residential consumers and 8 small and medium enterprise (SME) consumers of fixed and mobile broadband, placed in nine separate groups representing a range of life-stages and special categories. The sample was designed to cover a cross section of types of UK internet users, allowing an exploration of potential issues and behaviour. In addition to including a wide spread of geography and demographics, the sample was designed around a range of relevant criteria including a broad range of ISPs, a representative spread of internet speed, heavy and light use of the Internet, different household size, people working at home and not working at home, tech savvy and non tech savvy consumers, people on low incomes, city, town and rural locations, including locations with limited choice of provider, and consumers who felt they had satisfactory and unsatisfactory service.

The qualitative method was deliberative. This means that over the course of the project respondents were inducted into a common level of understanding of both the Internet and the net neutrality rules and then invited to consider issues in depth and reach their own conclusions. This method was chosen because net neutrality rules, the related operation of the Internet, and how traffic management works are generally hidden behind the scenes and were believed to be complex to explain to the research respondents. However, it was important they could be understood before respondents could come to meaningful judgments, for example, about what was desirable for themselves or society.

Each respondent participated in five stages of research involving online pre, mid and post tasks; and two focus groups of two hours each, the first exploring general behaviour and introducing net neutrality, and the second deliberating hypothetical future scenarios.

1.2. Overview of findings

Use of the Internet and baseline levels of knowledge of net neutrality

- Respondents said they both expected and wanted internet reliability, quality and speed to continue to grow in future. All viewed themselves as extremely dependent on the Internet, both mobile and fixed, and judged that this reliance would only grow.
- Respondents had almost no knowledge of net neutrality principles initially, therefore, did not take ISP traffic management practice into account in deciding what contract to purchase.

Reactions to net neutrality concept and rules

- When exposed to the concept and rules, they expressed strong support for net neutrality, specifically the principle that 'you should control what you see and do online, not the broadband provider that connects you to the Internet.' They perceived net neutrality to be fair to customers, supportive of social equality and good for competition.
- Current net neutrality rules were deemed acceptable, including ISPs' use of traffic management to prevent the network going down and to manage traffic in exceptional circumstances (but only then, and not regularly) and to block illegal content.

Attitudes towards current and hypothetical net neutrality rules being fit for purpose in the future

- If ISPs were to be permitted to traffic manage on a regular and commercial basis or sell services prioritising attractive content like video streaming, respondents felt this risked ISPs being dominated by commercial pressures. They felt this would not operate in the interests of consumers, particularly less affluent ones. Respondents were also concerned that allowing permanent traffic management would not encourage ISPs to invest in infrastructure.
- If internet-wide prioritisation became *necessary*, which a few speculated might happen if there was inadequate internet supply in future, many suggested the decisionmaker on what should be prioritised should not be ISPs, but a 'higher authority' with a broad societal view. The only services respondents could agree should be prioritised online were emergency services and 999.
- The majority favoured the 'status quo' - a fast, unrestricted broadband service to their door which they could then prioritise within their own premises on a flexible and ad hoc basis if they so wished.
- Those respondents who wished to block and/or prioritise content, wanted to be in control of both blocking and prioritising within their premises, rather than having it done for them by their ISP.
- There was full support for parental controls, with ISPs seen as suitable providers.

- There was support for rules on accessing content on all devices and using data between devices. These were felt to help both business operations and social equality.
- Both residential and SME respondents had a low awareness of zero rating. It was felt it might have some benefit for customers with a low data allowance, but it could promote brand switching between ISPs or content providers. Respondents wanted it to continue to be monitored from a competition perspective.
- There was some consumer cynicism about ISPs' motivations, so some suggested external monitoring of their current traffic management compliance, rationales around incidents, complaints performance, and tightening some language in the rules, e.g., on what was permissible within 'exceptional circumstances'.
- A few thought that as the Internet and its use were changing rapidly, net neutrality rules might need more regular review in future.
- Both residential and SME respondents wanted the Internet to improve in speed and quality so that prioritisation of content never became necessary. On consideration, some argued that an excellent internet capacity was an essential pre-condition for net neutrality to function as intended, avoiding the need for any 'rationing' or regular traffic slowdowns.

2. Background, objectives, methodology and sample

2.1. Background to the project

Ofcom's primary duty is to further the interests of consumers and citizens in relation to communications matters. Part of this duty is to ensure that consumers have access to the communications services they need, when they need them.

'Net neutrality', sometimes referred to as the 'open internet', is the principle of treating all internet traffic equally, so that users of the internet control what they see and do online, not the internet service provider (ISP) that connects them to the internet.

EU rules (i.e., the Open Internet Regulation), aimed at protecting the principle of the open internet, came into force in 2016. These were retained as part of domestic UK law following the end of the Brexit transition period (31 December 2020), subject to minor amendments.

Ofcom is responsible for monitoring and ensuring compliance with these rules and is also able to issue guidance on complying with them.

The rules protect end users' rights to access and distribute information and content, run applications and services of their choice, and use the terminal equipment of their choice. End users include residential and business consumers, as well as content and application providers.

The rules cover how ISPs treat internet traffic, the provision of non-internet access services known as 'specialised services' (not covered in this study), and transparency measures relating to information within customer contracts. For example, the principle that contracts should include details of download/upload speeds, traffic management policies and the remedies available to consumers if they experience performance issues with their internet access service.

The rules state that all users must have equal access to the Internet and that the ISP can apply reasonable' traffic management. Traffic management (e.g., slow down services) is considered 'reasonable' under the open internet rules provided they are "transparent, non-discriminatory and proportionate, and shall not be based on commercial considerations but on objectively different technical quality of service requirements of specific categories of traffic". For example, to manage temporary congestion or preserve network security. ISPs are not allowed to accept commercial inducements to speed up or slow down specific user content.

This qualitative report is part of a review that Ofcom is carrying out of the current net neutrality framework.[1]

This research was commissioned to provide insight into levels of consumer awareness and understanding of the current net neutrality rules and to explore levels of current knowledge and anticipated future broadband needs.

[1] The review was launched in September 2021 with a public call for evidence, available here.

The research covers residential consumers of fixed and mobile internet services, as well as a small sample of small and medium enterprises (SMEs), to determine issues faced according to usage needs.

2.2. Objectives

The objectives of the research were:

- To probe respondents' awareness and understanding of net neutrality principles, the value they attach to them and the extent to which they take them into account when making decisions;
- To understand respondents' experience of any difficulties they may have faced in accessing and/or uploading, distributing, or making commercial use of content;
- To scope current user needs:
  - The types of services respondents are currently using and applications they use on those services;
  - Whether the services they are currently using meet their needs in terms of:
    - Performance, their experience of poor-quality internet service and what, if anything they have done to remedy this;
    - What respondents think their future needs/demands might be;
    - Whether they foresee any need for additional services that would result in significant changes to their data usage or needs related to internet access.
- To explore consumer views on hypothetical changes of current rules and practice in relation to net neutrality, including but not limited to, views on content or device prioritisation, equal access on all devices, and views on how (if at all) internet traffic should be managed;
- To explore whether consumers view current net neutrality rules as suitable going forward, and why.

2.3. A note on qualitative analysis

Qualitative research was chosen as appropriate for this part of the review because it allowed us to explain complex issues to respondents, look deeply into their responses and motivations and debate current and future options.

This report covers the views and experiences of 70 respondents: 62 residential consumers and eight SME consumers of fixed and mobile broadband. A further eight respondents were included in an upfront pilot exercise.

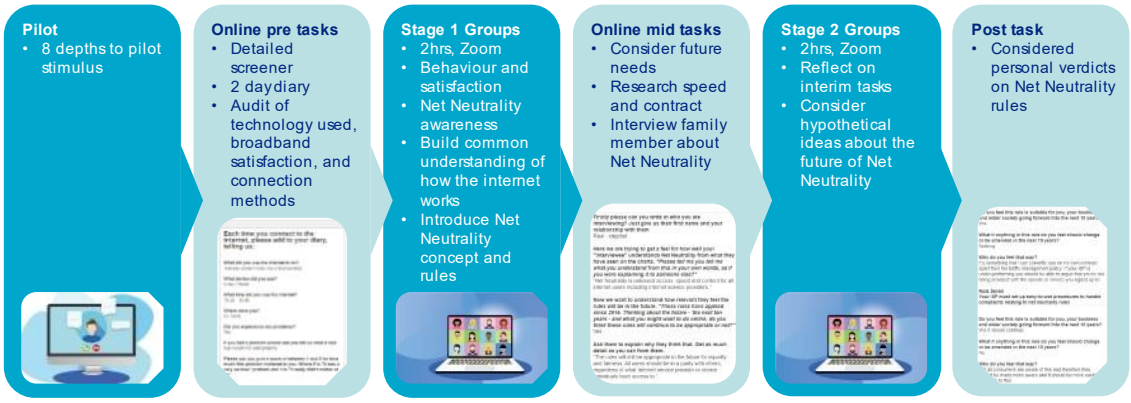
As the sample is small in absolute terms, findings included in the report are indicative and not intended to be a comprehensive picture of UK consumers' views. References to 'most', 'some', 'a few' and 'a small minority' in the report are relative to the size of this sample of participants. Where the views and experiences of residential respondents and SME respondents differed, we have made this clear - otherwise, references to 'participants' or 'respondents' refer to both residential and SME respondents.

2.4. Methodology, sample, timing

2.4.1. A deliberative online method

The research employed a deliberative method over five stages, preceded by a research stimulus pilot.

Fig 1. Deliberative method with online tasks and 9x two-hour focus groups



A deliberative method was chosen because Ofcom anticipated respondents would have a low level of knowledge both of net neutrality rules and of how the Internet works. Both areas were considered to be complex for respondents to understand. The research design was therefore planned to bring all respondents up to a common level of understanding of these issues before we asked them to comment – or 'deliberate' – in a more informed way on hypothetical future changes.

A pilot stage, of eight one-hour individual depth interviews was conducted in December 2021 using a stand-alone sample of respondents which replicated the demographic profile of the core research groups (see section 2.4.2 for details of the research groups). This pilot was used to help develop a set of stimulus materials that was effective in communicating the concept of net neutrality in a way that was accessible to respondents starting from different levels of technical knowledge.

The following five stages of core deliberative research among 70 participants comprised, for each respondent, a pre-task, an initial focus group, a mid-task, a second focus group and a post task (detailed below). Each focus group was two hours long and was conducted online using Zoom.

Stage 1 was an online pre-task in which respondents sensitised themselves to their own behaviour online by completing a two-day diary in which they recorded occasions when they went online, whether they had any issues connecting to the Internet on each occasion, and how much each issue mattered to them. We also collected details about their technical equipment (e.g., Wi-Fi, cables, 4G or 5G enabled handset) the nature of their broadband services, and their overall claimed levels of satisfaction. This supplemented detailed information previously gathered in the research screener.

In Stage 2, which was nine introductory two-hour online focus groups of 6-8 respondents, we explained how the Internet works and introduced the rules of net neutrality using the range of

PowerPoint stimulus contained in the appendix[2]. This aimed to bring all respondents up to a common level of knowledge and understanding.

In Stage 3, which we will refer to going forward as the 'online mid-tasks', respondents were asked to conduct some research of their own over a period of 5-7 days to consolidate their personal understanding of net neutrality, gather broader views than their own on the subject, and reflect on their future needs from the Internet. This was in preparation for the final deliberative stages.

The online mid-task exercises were:

- A 'community reporter' exercise (written, audio or video recorded) in which respondents presented some slides on net neutrality to other household members or business colleagues and interviewed them about what they thought of the concept and some of its implications (this effectively included a further 71 respondents' views of the basic precepts of net neutrality and widened participants' own perspectives);
- A 'catalogue' task in which the participants reviewed future internet linked product and service options to think about what their future needs from the Internet might be, either at home or work;
- Further diary work recording incidence of problems with their broadband connection. For these, respondents were asked what they felt might have caused these issues: explicitly, whether they could have been caused by ISP action linked to current net neutrality rules or by other issues, for example, with equipment, software or the websites being accessed;
- A review of the traffic management sections of their mobile and fixed broadband contracts;
- Measuring their achieved speeds on fixed broadband.

In Stage 4, reconvened online focus groups of two hours, each group of respondents joined together again, this time to discuss their views of their own future needs from the Internet and to respond to various hypothetical future changes to net neutrality rules. These were prompted with written and illustrated 'concepts' provided by Ofcom (see appendix)

Finally, in Stage 5, respondents completed an individual online questionnaire to complete their personal deliberative journey, in which they commented in more depth on the current net neutrality rules and some of the hypothetical future changes.

Overall, the main questions on which respondents 'deliberated' during the course of this research were:

- Their responses to whether net neutrality rules were fair, both personally and 'for Society';
- Their views of what their future needs from the Internet would be;
- Whether they thought the current net neutrality rules were suitable going forward;
- Responses to hypothetical changes to the rules.

[2] See Appendix on the Ofcom website

The recruitment questionnaire, discussion guides and pre-, mid- and post- tasks can all be found in a separate appendix document[3].

2.4.2. Sample

The sample was designed to cover a broad section of UK internet users allowing an exploration of potential issues.

In addition to ensuring a broad spread of geography and demographics, we designed the sample around a range of criteria relevant to the objectives.

The sample reflected residential and business needs, the needs of those working at home and not working at home, heavy and light broadband users, tech savvy and non-tech savvy respondents, the economically active and inactive, those on low incomes, those who felt they had satisfactory and unsatisfactory broadband, and a broad range of different activities done online.

We took a view that many issues were intersectional; for example, that the overall level of use of the Internet within a home was likely to be partly dependent on household size and composition and the age and economic activity of inhabitants.

The core of the sample construction was therefore based around life-stage.

We recruited a core of five focus groups, representing one group in the pre-family group aged 18-30, three groups of family formers aged 28+ (with either primary aged or teenaged children at home), and one group of retired and 'empty nester' respondents aged 60+.

We included both larger households which typically had many people on the Internet at once, and single person or couple households. We also included respondents with and without school age children so we could estimate the impacts of heavy internet use types like streaming and gaming, and of working and schooling at home. This sample structure also gave a perspective on emergent behaviour among the young, both via parental reporting of children's behaviour and self-reporting by young adults.

In addition, we recruited four specially targeted focus groups: Individuals on low incomes, Community Experts, a group of residential Consumers on Standard broadband (i.e., with a download speed of less than 30Mb/s) and a group of SMEs.

Individuals on low incomes

- A group of residential consumers in social class E and benefit-dependent respondents;
- All agreed they were on restricted incomes;
- This was designed to include the perspective of those with fewer choices of provider or service level.

Community Experts

[3] See Appendix on the Ofcom website

- A group of individuals who gave advice either at work or in social situations. Half worked in IT and half were ordinary members of the community who informally helped relatives or workmates or were habitually resorted to for advice (for example, a care home assistant, an office administrator);
- This group was recruited both to include the point of view of the 'more informed' consumer and community influencer on some technical issues, and to get a perspective from the more vulnerable or less knowledgeable citizens many of them helped.

Residential consumers on Standard broadband:

- A dedicated group of Standard broadband users mainly made up of people living in rural and remote areas within England and the Nations;
- Standard broadband users were included across most groups in the project, but this particular group was recruited to ensure a clear picture of the specific issues of users of broadband with speeds of 30Mb/s or lower, including those with limited choice of service.

SMEs

- A group of SMEs was included to ascertain their knowledge and views of net neutrality and to check whether they had differing needs from those of residential users;
- Business sizes ranged from under 10 to over 200 employees;
- This group represented a wide range of sectors including retail, education, medical, personal services, rental, transport, media, and hospitality;
- They were working in a wide range of types of business premises, including working from home (some in combination with working elsewhere, others solely from home);
- We included sole traders, employers, and employees with significant influence over broadband ISP choice.

Table 1: Residential and SME group composition

Gp. No.	Residential consumers: core sample built around life-stage and household weight of use	Gp. No.	Residential consumers: additional targeted groups	Gp. No.	SMEs:
1	Pre-family, 18-30 single or partnered, mix of social class	**6**	Individuals on low incomes including disability benefits and social group E	**8**	Sole traders, Business owners and employees.
2	Family formers, 28-45, parents of primary school aged children	**7**	Community Experts working in IT or informally consulted by friends, family or in workplace		
3	Family formers, 35+ parents of Teens, C2D	**9**	Standard broadband users including rural and remote locations		

4	Family formers, 35+ parents of Teens, BC1
5	Empty Nester and retired, 60+ mix of social class

In addition, within the residential focus groups, there were many respondents working from home, sometimes, but not entirely, as a result of the Covid-19 pandemic, and others working on the move in the community (e.g., in the Police Force, as a courier or in sales).

The following additional demographic criteria were applied

A range of geography and location type:

- A mix of UK nations representation, with 59 respondents in England, 5 in Scotland, 4 in Wales and 2 in Northern Ireland;
- A mix of city, urban and rural respondents within each group.

A mix of fixed broadband providers with ultrafast, superfast and standard contracts and a mix of mobile providers:

- The sample included 14 respondents with ultrafast, 40 with superfast and 16 with standard broadband;
- A good range of internet speed was achieved, with download speeds from 0.25m/s (rural area) to 1.1 Gb/s and upload speeds from 0.32 Mb/s to 142 Mb/s;
- A broad mix of ISPs was achieved. In each focus group no more than two respondents per group had the same fixed or mobile broadband provider;
- All respondents had smart phones enabled with 4G or 5G.

A mix of gender, age, household size, social class, and ethnicity:

- All respondents were either sole or joint decision makers for their household's broadband supplier;
- An equal mix of males and females in each focus group;
- An age range of 18-65+;
- A minimum of 1 minority ethnic respondent per focus group;
- A broad range of social class.

2.4.3. Timing and personnel

Online pre, mid and post tasks were completed between Tuesday 28th December 2021 and Wednesday 26th January 2022. The group discussion fieldwork took place on Zoom between Wednesday 5th and Monday 24th January 2022. The research was conducted by Drusilla Gabbott and Stephen Pickthall of Oxygen and Jason Vir, an independent associate.

3. The consumer context: broadband behaviour, experience and attitudes

The research began with an online pre-task and hour-long contextual exploration of how respondents used the Internet, both fixed and mobile. This, and an examination of respondent priorities and expectations was planned to allow us to fully understand later responses on net neutrality against the background of respondents' everyday attitudes and behaviour online, both in and out of home.

Questions included respondents' criteria for choice of service, what they 'valued' about the Internet and the activities they saw as most important, and how they assessed their personal satisfaction with both their mobile and fixed line performance. The pre-task and group discussion included any problems and issues they had with accessing the Internet, and how much these mattered to them. Also, whether issues with service ever constrained what they attempted to do in any location. We examined any workarounds or 'fixes' respondents put in place for poor signal, and how effective these were felt to be. We also explored decisions to connect to either fixed Wi-Fi or mobile data, both in or out of home, and use of hotspots.

3.1. Fixed and mobile equipment and broadband type used

Use of the Internet over both fixed and mobile connections was examined in the research.

For fixed internet, all residential respondents were using a Wi-Fi connection at home. This was seen as the modern norm.

In addition, some respondents used boosters to work around Wi-Fi blackspots in their properties.

Use of mesh systems was rarer. These were only used by a minority of tech minded householders seeking perfect internet.

There was also limited reported use of additional ethernet cables in homes (to connect devices directly to the router). These had mostly been fitted to specific devices, to assist gaming or video streaming.

> *"A lot of people don't appreciate that if you connect your device to a CAT5 cable that will increase the speed."* (Male, 28-45, Primary-aged children)

Many respondents connected their mobile phones to the home Wi-Fi as a default behaviour. Conscious and deliberate Wi-Fi connection seemed to be particularly common among older respondents, perhaps based on longer term habits to avoid over-using data. The majority of the other respondents who did this consciously were respondents who had restricted mobile data contracts.

Younger respondents sometimes said they were not conscious of which service they were connected to via their mobile handset at home and left both Wi-Fi and data connections on.

"I just leave them (fixed broadband and mobile internet) both on all the time, so I don't really know which one I am using." (Male, 28-45, Primary aged children)

For many of these respondents, their relaxed attitudes stemmed from having unlimited mobile data, or because connecting on either service was 'not expensive now'. However, one or two also reported that during extended periods at home during lockdown some family members had run out of data because of this habit.

Out of home, respondents generally used mobile data, only occasionally connecting to public Wi-Fi or password protected private networks depending on necessity, trust of provider and the perceived confidentiality of their activity.

Some were very cautious about connecting to 'public' Wi-Fi in cafes, hotels or shops, fearing exposure of personal details, and many would not, for example, ever attempt banking or payment activities outside their mobile network.

There were, however, plenty of people using public Wi-Fi fairly confidently without security concerns. Even if they had a generous data allowance, sometimes they needed to make a 'distress decision', for example, because they had to contact family, find an address, buy parking, etc. Since necessity was the chief impetus to connect in these instances, they found it upsetting if they could not. Uses that are regarded as higher risk such checking a bank statement could usually wait until a more secure connection is available.

Additional, but differently motivated, concerns were expressed about the perceived quality and reliability of public Wi-Fi and specifically lack of public Wi-Fi provision in remote places. The latter concerns were often driven by personal safety fears or blackspots when using their phone for in-car navigation.

3.1.1. Perceived level of reliance on broadband

All respondents claimed great reliance on both their fixed and mobile internet.

For fixed broadband, residential respondents reported that a good in-home or in-premises connection was now an expectation. Broadband was seen as another 'utility', essential to every home, as so much of what you needed to do was now online.

"My son says the Internet is a human right." (Male, 35+, Teenage children, BC1)

*"It has pretty much become another utility, like gas and electricity. I cannot do my job without it – it is essential. When I was looking for houses, I wanted to know 'can I get a decent internet?' because otherwise there is no point, it is that important" (*Male, 28-45, Primary aged children, WFH)

Mobile internet was seen as equally essential. The phone is an essential 'minicomputer' which is not just a device used for calls. The mobile internet was an access point to everything online for most respondents, and it could also be a regular backup for larger devices.

Claimed feelings of mobile internet 'dependency' differed slightly between respondents by age. On the one hand, a number of respondents in their late forties upwards said that, because they could remember a time when they hadn't had the mobile internet, they felt they could probably manage without it briefly. On the other hand, the young claimed an absolute emotional and functional reliance on their mobiles.

> "*If I left the house and my phone wasn't working, I would panic, because I can't listen to my music, I can't WhatsApp, everything relies on it when you leave the house."* (Female, 18-30, Pre-family)

> "*I'm checking my phone every 5 seconds*." (Male, 18-30, Pre-family)

> *"I wonder if it is a generational thing, I can manage, but I am not sure about my kids!"* (Male, 35+ Teenage children, BC1)

3.2. Types of activity done online and their perceived value

We probed respondents' online activities via the initial screener and two detailed diary exercises.

Residential respondents performed a very wide range of activities online. They used social media, emails, gaming, video and audio streaming, home shopping, web searches, video conferencing for home working, voice calls and messaging including WhatsApp and Messenger, and more.

Residential respondents said the most 'valuable' activities to them were, in an emotional sense, communicating with others, friends and family.

In terms of the perceived 'importance' of activities, using the Internet for work was felt to be the most important activity as it impacted the economic status of the household.

Secondary to this, essential leisure (streaming and gaming) was seen as important for personal mental health and recreation.

SMEs pursued a similarly wide range of activities, including emails, internet searches and accessing services in the cloud or on remote servers. Further examples from the wide range of business types included were customer communications, to deal with sales and orders, to take appointment bookings, access remote business servers (e.g., appointment systems, business performance statistics), and place advertising using their business social media accounts. Some of the businesses were built around dedicated online services, for example one respondent's business involved making and uploading medical ultrasound scans and performing online and phone consultations.

For some SMEs, particularly those who worked in dedicated premises like offices, clinics or their own retail unit, the laptop was the primary device they used to access the Internet. For others, who worked in more than one location or needed to be contacted while on the move, accessing the Internet via their mobile phone was felt to be crucial. The latter SMEs said they needed access in all places and at all times in order to be responsive to enquiries and not lose business.

When we asked SMEs which services were important and which were less important, they replied that all were ‘essential’ because all affected the health of their business.

3.3. Claimed satisfaction levels with fixed and mobile broadband

The majority of the sample were ‘fairly satisfied’ with their internet service on both fixed and mobile, and claimed levels of satisfaction for both services roughly correlated to the type of package bought.

3.3.1. Claimed fixed internet satisfaction, and reasons for it

When probed on **fixed internet** satisfaction, two thirds of the 70 respondents claimed they were ‘fairly satisfied’, about a fifth ‘extremely satisfied’, and only about one in ten claimed to be ‘dissatisfied’ or ‘neutral’.

For fixed broadband, we assessed satisfaction across the spectrum of broadband contracts from ultrafast, to superfast and standard. All the respondents on ultrafast broadband were either extremely or fairly satisfied with their service, while respondents on superfast were slightly less satisfied, with just under a fifth ‘dissatisfied.' Satisfaction among those on standard broadband was lowest, with a quarter claiming to be ‘dissatisfied’.

However, respondents reported quite different experiences within comparable fixed package bands from different ISPs and in different locations:

- Several ultrafast users reported almost perfect service, others a few minor glitches;
- Superfast users reported a mixed experience of delivery, with some reporting their service was fairly or extremely satisfactory, others not;
- Some standard users said they had selected their service as adequate for a small household or low data load and claimed to experience a satisfactory service, whereas others found their service unsatisfactory, often, but not solely, in remote or rural areas.

Furthermore, some of these respondents felt they had no options for improving or upgrading their service, owing, for example, to a lack of providers in their area, an upgraded technology not yet being available locally, or such infrastructure explanations as ‘being on the end of the line.’

As satisfaction is a subjective assessment, we probed respondents’ personal criteria for responding as they did.

For fixed broadband those who were ‘fairly satisfied’ said that slowdowns or perceived non-delivery of ‘advertised speeds’ drove their response.

The ‘extremely satisfied’ quoted satisfaction criteria such as having sufficient capacity for several household members to be online at the same time with all achieving a ‘fast and reliable’ connection.

"Reliable service, fast connection, and can cope with six people all using the Internet at once with hardly any problems." (Female, 35+, Teenage children, BC1)

"Reliability, speed and coverage round the house" (Male, 60+)

There were, of course, wider satisfaction reasons not related to performance of the connection for many, such as cost or customer service.

3.3.2. Claimed mobile internet service satisfaction, and reasons for it

Claimed mobile satisfaction proportions were very similar to those quoted above for of fixed, with the vast majority claiming to be either extremely or fairly satisfied.

For mobile internet, claimed satisfaction was similarly linked to connectivity level. Across 70 respondents, both 5G and 4G mobile users had good satisfaction, with 5G users giving slightly higher satisfaction scores.

Two 'tech savvy' people said that they had had high expectations of 5G and then when they had upgraded to 5G, the service wasn't quite the 'step change' they'd imagined. But others were very satisfied.

Where respondents said they were 'extremely' satisfied, they tended to explain this by saying that their connection was 'reliable', 'easy', or 'fast.'

For those who said they were fairly satisfied or dissatisfied, the most common criterion was being out of network coverage more often than they felt they should reasonably expect, whether in their local area or further afield.

"I am fairly satisfied because of the amount of data etc… but better network coverage would be beneficial." (Female, SME)

"'Fairly', because my mobile network is sketchy." (Female, Low income)

3.4. Problems encountered when using the Internet

We asked respondents both in the pre-task diaries and in their first focus group to describe the problems they encountered when trying to connect to the Internet.

It should be noted that we did this before explaining net neutrality to respondents.

The most common fixed internet issues they reported in pre-tasks were problems streaming content such as buffering, time delays on gaming, intermittent disconnections or freezing of streams, for example, on video streaming, slow loading of content or evening slowdowns.

For mobile internet, problems were slow loading, mobile data blackspots or being unable to call, message or connect.

As noted above, the majority of the sample had high satisfaction with their service. They recorded few problems with the Internet during their diary exercises, and typically said their problems were not frequent or mattered very little to them.

However, a minority of the sample recorded many problems connecting to the Internet during the course of the research, and said that their problems were significant, and that they 'mattered a lot' to them.

There was therefore polarisation in satisfaction and experience, with some respondents receiving what they perceived as a poor service, and others an excellent one.

The problems experienced by the users who had **high satisfaction** with their services were most usually confined to what we understand are heavier data use occasions such as gaming or video streaming; for example, buffering or connection issues, experiences of evening 'slowdowns' with such services.

> *"Freezing when using Instagram reels, problem disappeared when re-loaded."* (Female, 28-45, Primary aged children, ultrafast broadband)
>
> *"Netflix stopped, took a little while to re-load."* (Female, 60+, ultrafast broadband)
>
> *"Occasionally buffering, disappeared when refreshed, this was between 5pm and 6pm."* (Female, 18-30, Pre-family, ultrafast broadband)

However, those who rated their services as most **unsatisfactory**, did not just experience impairment on higher data traffic services, but on lower data services, such as sending and receiving email, connecting to a government website, or accessing their workplace's website to enter data.

In diaries, in addition to frequent streaming issues, the more dissatisfied respondents reported a wider range of problems, which were often recurrent during a day or work session. For example, the service not being available, cutting out or losing connection, a website taking a long time to load and then failing to do so, repeated delays or interruptions to tasks several times during a session.

> *"Day 1 (pm), only intermittently connecting to Excel (on work server) and when sending emails, and also during Teams call. Day 2 (am) intermittent buffering when opening up Excel documents… delays and timing out. Day 3 – more intermittent connection problems, the connection is lost and the PC attempts to re-connect."* (Female, 35+, Teenage Children, BC1, standard broadband, WFH)
>
> *"Couldn't connect to the Internet for the first five minutes on my laptop, Apple TV and iPlayer froze (repeated over two days). I couldn't listen to Alexa in my bedroom as there was no internet."* (Male, 35+, Teenage children, C2D, superfast broadband)

We probed to see if experiences of broadband problems had any knock-on effect on the activities respondents attempted for home or work.

Referencing **fixed broadband** use, a few respondents said they restricted, did not attempt or changed their ways of doing activities because of unreliable internet quality.

This included respondents downloading video content overnight or 'never attempting' to stream at home, abandoning the use of technology such as Smart TVs or speakers (rural location with poor broadband), asking other household members to restrict activities during online work or education occasions they personally deemed important, or a case of two partners who worked from home using different services (one person on fixed and the other on mobile).

> *"I can generally get through my working day, Teams calls and Zoom, but when you're at the end of the line, and try to watch something at night when everybody else is at home…forget it if you want to stream it real time!"* (Female, Standard broadband group)

The SMEs in the sample said they sometimes delayed or avoided uploading large files at home and waited until they were at work where some had taken steps to ensure the most reliable service, such as installing ethernet cabling, upgrading to a faster package or buying a business package.

In the case of **mobile broadband,** many respondents said they did not expect to be able to stream video on the move, or sometimes in holiday homes, and downloaded films in advance to watch if travelling, particularly to keep children occupied.

Some SMEs said they avoided such activities as business videoconferencing or making business calls on a mobile, sometimes but not solely, when on the move. This was to avoid giving a bad impression to the person they were calling, or just making an ineffective contact.

> *"Mobile data drops out in various regions and towns when travelling through, so today my mobile data was interrupted three or four times during a one-hour journey. This means I cannot confidently make business calls as the signal may drop out."* (Community Expert, rural Northern Ireland)

3.5. Perceived reasons for internet access issues, and attempted fixes

Respondents were not entirely sure what caused poor fixed internet service. In particular, they weren't always sure whether poor connection issues within their home or place of business were due to issues within their premises or external factors outside of their premises and beyond their control.

Many thought 'a lot of other people being on the Internet at the same time' in their area caused the problem. This impression was reportedly reinforced by ISPs, who when rung up for advice, had referenced times of day when the network was under stress.

Most tended to blame the ISP for a poor connection. They felt that the ISP should be able to deliver the advertised speed, and some were suspicious if it was not delivered.

> *"To get more capacity it (the ISP) is slowing us down deliberately…when you buy a bandwidth between 2 set markers you don't expect them to slow the service down. If they can't provide it…then don't take on more customers!"* (Male, Community Expert)

Issues such as 'distance from the cabinet' or being on the 'end of the line' were referenced by some. One rural respondent linked heavy rainfall to instances of unsatisfactory connection. There was little mention of contention ratios or more sophisticated infrastructure issues except by a small number of 'Community Experts.'

As explained previously**,** mobile broadband satisfaction was based largely on respondents' perceived frequency of being out of signal in their home area or when travelling.

Respondents felt they understood mobile service 'glitches' and poor signal issues more than fixed ones.

For example, respondents seemed more aware of physical mobile infrastructure such as masts, as these were visible, and some said they had experienced historical changes in service when they saw them go up in their area.

Respondents claimed not to expect perfect mobile network coverage everywhere, and to an extent, tolerated certain problems. For example, many said they expected to experience blackouts from place to place, especially in rural or remote areas when on holiday or driving. However, these were still seen as inconvenient.

Respondents felt that by choosing their ISP network carefully they could exert some control over signal strength. Some even congratulated themselves on their choice of ISP relative to their friends'.

> *"I think I have chosen well because I seem to have a reasonable signal wherever I go, I was on holiday with friends recently and they were all using my phone."* (Male, 35+, Teenage children, BC1)

> *"The signal was always better, so I went back to (ISP brand)." (Female, 60+)*

Many respondents also expected to experience blackouts in mobile data indoors when a part of the premises was 'out of reach of the mobile signal' (e.g., in corners of the house, through thick walls, in some shops).

They also expected this at some big events or in very busy places or occasions where a lot of people were attempting to access the Internet in a specific location or at the same time (e.g., football matches, Blackpool Sea front, New Year's Eve). On these occasions, the number of other people attempting to use the network was blamed.

It was felt that in busy public places or on such occasions, boosting or free public Wi-Fi networks should be put in place to compensate for black spots.

3.5.1. Attempted fixes for fixed internet problems

Respondents took four main actions to address any fixed broadband connection problems: (i) upgrading their package, (ii) seeking help from the ISP, (iii) technical fixes, and (iv) workarounds.

- **Upgrading the package**

  Respondents upgraded (e.g., from standard to superfast broadband) because they realised they needed a better service. For some, this had happened as a result of lockdown, when more individuals were at home and accessing the Internet simultaneously, or when some realised they needed a better connection for work purposes. They might also upgrade when a standard or superfast service was simply poor, or when ultrafast broadband came to the area. Several SME respondents had upgraded to business services for rapid repair responses or in search of increased reliability.

  Upgrading was generally seen as an effective solution, where available.

- **Seeking help from the ISP**

  Many respondents went straight to the ISP to complain about speed or poor connection or to ask for advice. Several had received advice or technical equipment such as boosters from their ISP to address an in-home or in-premises problem.

  Technical fixes

  Respondents had put in place a number of technical fixes for a poor fixed signal, but they were not entirely sure if they were all effective:

  - Turning the router or equipment off and on again was a very common solution and often advocated by the ISP as a first resort. It was sometimes seen as effective;
  - Improving the Wi-Fi signal by using a signal booster or Wi-Fi extender was fairly common in the sample and usually seen as effective in improving signal reception in previous Wi-Fi ‘blind spots’ within a property;
  - Moving the router had been tried by a few respondents. However, there was low awareness of the possibility of other devices, for example baby monitors, causing interference with home routers’ Wi-Fi signals;
  - Installing a different router than the ‘standard’ one supplied by the ISP. This was spoken about as an option, for example by some of the Community Experts, who expressed an opinion that some ISP supplied routers were less good or suitable than ones you could buy independently, several householders mentioned having installed different routers, one a dual band router, another choosing the most top of the range router from their ISP;
  - Ethernet cabling had been installed by six householders specifically to connect a gaming device or TV to the router, in the hope of that device getting a better or faster service than other devices in the household which were using Wi-Fi to connect. Users certainly believed this technique was effective;

- Some SMEs reported that ethernet cabling had been installed by a business supplier for phones or PCs. Cabling seemed more commonly used by SMEs for business premises than by home-based workers for their offices, though we did find one instance of the latter in the Standard broadband group.

- **Workarounds**
  - Some common workarounds, described earlier in the report, include downloading rather than streaming content, delaying uploading large files or switching some tasks or one person's activities onto a mobile service.
  - The workaround of asking other people in the house to come off the Internet when an important task needed to be done was common in the sample, but respondents were not absolutely sure it was effective.

Not all respondents were equally capable of fixing their issues, and they felt this could put some of them at more disadvantage.

Respondents with higher incomes, or in multi-person households where some family members had more social confidence or IT knowledge tended to be able to put in place more remediation for unsatisfactory fixed internet.

Such respondents could afford to try or buy new equipment, do research, or spend time with a supplier or ISP exploring causes and sorting issues out and arguing for remediation.

For example, some of the dedicated group of standard broadband users, particularly in rural and remote areas had become very 'clued up' and tried many solutions, including:

- Trying to persuade the supplier to extend fibre to their door from a 'very close' box in a rural area;
- In depth investigations of their reception issues with the ISP;
- Upgrading to the 'top of the range' router;
- Installing an aerial (one respondent);
- Prioritising on the home router;
- Installing boosters;
- Installing CAT5 cable to a study.

However, half of these respondents still found their service extremely unsatisfactory, and remained frustrated, with a few falling back on mobile internet connections to support working from home.

Across the sample, some less technologically supported, isolated or lower income respondents lacked solutions or the ability to explore options. Some of the less supported reported they had learned to put up with issues and work around them.

> *"Where I lived before,* (rural Scotland)*, we just all gave up and used our mobiles* (to access the Internet)." (Female, 35+, single mum with Teenage children, C2D)

One or two on lower incomes had downgraded to a more affordable, but slower fixed package. This was sometimes deemed unsatisfactory, for example, by one grandmother, when treasured calls to family abroad broke up.

> *"It is a little slow but being on Universal Credit, I have gone to their (ISP's) cheapest option. They suggested it and they did say they hoped they would be able to speed it up a bit in future…But it is very important for me to have a good connection to call my grandson in Australia. At busy times the signal is poor and there are only certain times of day when we are both awake."* (Female, 60+)

3.5.2. Attempted fixes for mobile internet coverage

The most common permanent fixes for unsatisfactory mobile network coverage, were switching mobile provider or upgrading to 5G.

Temporary fixes for lack of signal were walking around the house, local area or premises to find a 'better signal', trying to connect to public Wi-Fi, or anticipating congestion, for example, sending New Year messages before midnight to ensure they got through.

These solutions were felt to be relatively effective, but it was suggested by some that other measures should be put in place for public safety, e.g., for young women travelling alone to connect to Wi-Fi, or to deal with surges in demand during emergencies.

3.6. Internet access problems that matter most to consumers

The internet connection problems that mattered most to respondents related to work, including both adults' personal work and children's education, personal relationships, safety, mental wellbeing, and general feelings of frustration caused by task disruptions and wasting time.

- **Work**

  For those using fixed broadband, not being able to fulfil work obligations was felt to be a particularly important problem. Those working from home said they felt 'unprofessional' when some issues occurred. For example, if on video conferencing, a picture broke up or if they were late performing essential functions like uploading large files. It was pointed out by several respondents that their job or contract might depend on being able to work from home.

  > *"My husband can tolerate slow broadband, I have to use mobile when working from home, because otherwise I would not have my job*." (Female, Standard broadband group)

  > *"When I am doing social media marketing for work and it won't post something it took me two hours to write!"* (Female, 35+, Teenage children)

The SME focus group said that they would put all work functions done online into the 'essential' category because any of them could affect the business.

> *"I get times on videoconferencing when its slow or goes funny. It is a bad experience, and it doesn't look professional I think."* (Female, SME)

Those dependent on mobiles said that a poor signal locally or when travelling could mean work opportunities were missed (examples given were audition notifications by an actor and booking enquiries by a holistic therapist).

SME respondents also reported delays in arriving for appointments when using their mobile phones as a navigation aid, because of difficulties caused by unreliable network coverage.

Education or schooling were viewed as having similar issues and importance to work by most respondents. Live streams like Google Classrooms had been time-sensitive, so parents felt children had been under similar pressures to themselves to access the Internet reliably during lockdown.

Respondents who were parents said that during lockdown accessing lessons and websites had been a top priority, prompting upgrades to higher capacity fixed services in at least one case. They said education problems would rise to the top of the importance list, alongside work, if home schooling ever became necessary again.

- **Personal relationships and social interaction**

  Respondents said that family harmony could be impaired by unsatisfactory fixed broadband. Broadband was critical to children and teenagers for streaming, gaming online - alone, or with friends - and to do school assignments. Parents reported there could be a very bad atmosphere in the home when the quality of the connection was impaired, or the service was unavailable. Rows over who can and can't get online were dreaded.

  For broadband, relationship maintenance is one of the most 'valued' internet activity areas. Many depend on services like WhatsApp for maintaining contact with family and friends. For example, they worried about being cut off from family groups if messages are not delivered.

  > *"I am reliant on mobile internet because of WhatsApp, the family group, everyone uses it."* (Male,28-45, Primary aged children)

- **Safety**

  Safety is an important consumer concern, particularly related to mobile internet access. Not being able to contact children, elderly relatives or helpers, to access mapping/directions apps or call 999 were all concerns. This feeling was particularly voiced by parents and young women.

- **Mental wellbeing**

  Many respondents said they used their internet-connected devices to access video and music streaming services, which they felt was important to their getting personal

downtime or emotional release, and that a stable connection was essential for these activities. Younger people claimed to feel similarly about access to gaming.

Some of the older respondents pointed out that they and friends were very dependent on 'the TV', including, nowadays, use of streaming services.

> *"Services like Netflix – it's important to see that for certain age groups people's lives can revolve around their TV watching."*
> (Female, 60+)

- **Task disruption and wasted time**

  Time is wasted when a service is unreliable and any tasks like uploading files, shopping, etc. have to be regularly aborted. This was felt to be very frustrating by all and to be even more important in the SME or working from home contexts.

4. Respondent perceptions of future internet needs and usage

Respondents were helped to deliberate their future needs realistically by carrying out an ‘online mid task’, which included the assessment of a ‘catalogue’ of possible future internet linked products and services for residential respondents.

Interest in acquiring each of these in the next ten years was recorded online by participants, who considered them alongside other household members. These residential services ranged across security, utilities, household management and entertainment.

SMEs completed a similar but more open-ended task. Because the SMEs in the study operated in many different sectors, the online questionnaire asked them first whether they had acquired any internet related services in the last two years, then what they considered the general trends were for their sector, both in general and related to the Internet, and lastly, to outline three possible internet linked business services they might acquire in the next five to ten years.

4.1. Services of interest, how these may impact future internet needs

The context for respondents’ deliberation about the future was that they spontaneously expected internet speed, supply, quality and full fibre technology access to continue to increase.

Alongside this, they expected that many new internet services would become available to them.

All respondents therefore foresaw needing a high-quality and increasing internet capacity in the future. None of them liked the idea of a future where there was competition between households, businesses or devices within home or business premises for internet access.

Residential respondents expressed their future requirements from the Internet using a range of vocabulary including ‘more internet’, ‘better quality’ internet, ‘faster’ or ‘better internet’.

SMEs used vocabulary that centred more single-mindedly around internet ‘reliability’, emphasising that they could not afford to miss emails or messages or have them delayed, that tasks on the Internet should not take too long, and that connections for communications and transactions needed to be stable and predictable.

Residential respondents described a ‘new normal’ in their use of the Internet related to the Covid-19 pandemic and successive lockdowns. They agreed that their use of the Internet had changed and become more data-intensive in the past two years, with more use of the Internet for working, including Zoom and Teams video conferencing, home-schooling and entertainment. Streaming video and ‘binge-watching’ box-sets or series on demand was also felt to be in long term growth.

With the exception of home-schooling, respondents said they had retained these behaviours acquired during the pandemic, and they expected them to continue.

Respondents also foresaw an increased level of household dependency on the Internet linked to the Internet of things (or IoT)[4]. The experience of completing the online mid tasks, including thinking through what they might buy for the home in future, led respondents to a consensus on this.

For the online task, respondents reviewed their visualised 'catalogues' of possible future services and internet related home devices. These included security services (cameras, locks, home alarms), heating services; smart meters; carbon monoxide and fire alarms; cars with internet-connected computers; smart speakers for domestic utility programming, purchasing and streaming; entertainment technology; white goods; kitchen equipment; and robotic assistants (e.g., vacuums).

When these were considered, respondents showed most interest in familiar products (like smart speakers) those with clear economic or practical utility, such as smart meters, security cameras, and those with entertainment value, such as video and music services.

Respondents overall showed less interest in new internet-linked products that they perceived made them dependent on the Internet for things they currently operated themselves, for example fridges, robotic vacuums and in particular, front door locks. For example, one older respondent said that he had just bought an internet-enabled washing machine unintentionally and wasn't sure the Internet linked function was relevant for him.

Once respondents had reviewed these new products and services many felt that not only might they be reliant on broadband for *more* household purposes in the future, but also that home utilities reliant on the Internet would require a particularly 'stable' connection. For example, if the Internet 'went down', some were nervous that if they had an internet enabled front door lock, they might not be able to get into their house or that their door might unlock itself. Such respondents speculated about whether their home security might turn itself off or their internet enabled fridge defrost. They therefore began to talk about stability and reliability of supply, using vocabulary more similar to that which SMEs had initially used.

SMEs predicted a similar growth in their anticipated future needs for internet use:

> *"In the future, I believe the business may not be able to function without a reliable, improving, internet."* (SME, Beauty Therapist)

Because of the diversity of business types in the sample, the services SMEs thought they would acquire in future were wide-ranging

[4] The internet of things refers to a network of objects embedded with sensors that can communicate and share data with people and other connected devices over the internet. Operators use IoT for a range of applications, e.g., smart meters.

Fig 2. SMEs, example future needs

Ideas for possible future business needs from the Internet suggested by SME respondents:	
• Cloud based computing • Car which messages you – for example when parked outside client to tell you the parking is running out • More use of online services to boost companies' eco-friendly credentials – for example, less paper generated, carbon offsetting • Remote security, locks to let either clients or services into premises • Smart meters to help save costs • More sales online with related marketing activities: websites, chatbots • More online marketing activity to generate sales and standout • More Zoom-type services, staff remote working, supplier liaison on PC	• Using the metaverse with suppliers to experience new products before purchasing, e.g., VR glasses, avatars, meet people online at virtual sales conferences • Data management tools, e.g., for sales forecasting • Automatic orders from clients, from your printer, from your lighting system (ink, light bulbs) • Automatic office services: automatic invoicing, robotic document scanners • Services using algorithms to get cheaper flights and travel, international shipping costs • Internal security cameras linked to internet for stock control • NFTs and blockchain

4.2. Attitudes to fixed line telephony and the introduction of VoIP

In the light of the impending switch of the UK telephone network to voice over internet protocol (VoIP), Ofcom wanted to explore what impact this might have on consumer expectations of broadband service provision.

VoIP carries voice calls over a broadband connection rather than via traditional telephone technology, which uses copper wires on the PSTN (the Public Switched Telephone Network). This, and the upcoming change to services, was explained to respondents, and they were asked how likely they were to retain a fixed handset on the new lines.

Fixed lines (i.e., landlines) and their related phone handsets were of low interest, except to older respondents and SMEs.

Many residential respondents claimed they had got rid of, or rarely used their fixed line while others said they had their line by default because it 'came' with their package. Some had a line, but no phone handset plugged in.

Many were instead using multifunction devices such as mobile or laptop for voice calls, either on their mobile phone network or over the Internet using apps such as Messenger and WhatsApp.

Fixed lines were associated by respondents with older people, or with backup for an unusually poor connection on a mobile or fixed broadband service.

> *"I only have it (fixed line) because that is how I buy my internet*." (Male, Teenage children, BC1)

> *"I keep the phone for just one person who rings…when it goes, I know exactly who it is going to be."* (Female, 35+ Teenage children, C2D)

> *"Some of my older friends still call me on it."* (Female, 60+)

> *"I was using it to call my family abroad (Pakistan)…now they all have mobiles."* (Female, Low income)

When we asked whether respondents would retain a version of fixed line on VoIP after switchover, some said that if any cost or inconvenience was attached to the change, for example if they had to buy a new phone handset or router, they would not bother to move to VoIP and would cease to use a fixed phone handset.

There was stated concern for and from more vulnerable and older consumers about what would happen if there was a power cut and they or relatives were unable to make emergency calls after the existing fixed line had been removed.

> *"No way my Nanna could use a mobile"* (Male, 35+, Teenage children, BC1)

SMEs in the sample had a more positive approach to fixed lines and handsets, and reported more active use of them, for example, for international business. One business had even added two fixed lines in the recent past.

The most intensive user of fixed lines in our SME sample had been approached by his provider to move to VoIP but was reluctant and wanted evidence that the replacement would be of similar call quality to his analogue service.

> *"I want more assurance that call quality will not drop… in my healthcare business we have to deal with our clients quite carefully and the last thing we want is a muffled line"* (Male, SME)

5. Initial responses to net neutrality principles

The existing net neutrality rules were introduced to respondents using charts which explained the following:

- ISPs treat all content equally with no preference being given to any type of content over others;
- ISPs treat all internet users' 'data traffic' equally with no blocking or slowing down (unless in exceptional circumstances) and no prioritisation of, or discrimination against, users;
- People are able to use the equipment of their choice to access the Internet (routers, mobile handsets, gaming devices etc).

It was also explained to respondents that an 'internet user' was both a person or business like themselves and a content or app provider like Netflix or Spotify. To help with the explanation they were also shown a video from the Ofcom website (https://www.ofcom.org.uk/phones-telecoms-and-internet/advice-for-consumers/advice/net-neutrality).

There was almost no pre-existing understanding of net neutrality in the sample. Four or five respondents thought they had heard of it, but on probing this seemed to be name awareness only.

Individual ISPs' net neutrality policies or performance therefore did not play any part in respondents' current choice of ISP provider.

In the first online focus group, in order to bring everyone up to a common understanding, it was necessary to explain to respondents how data traffic and data traffic management worked on the Internet, including how data was broken down into packets and transmitted via different IP addresses. The role of the ISPs needed to be explained as did the fact that both consumers and content providers are 'users' of the Internet.

A range of stimulus (slides and videos) both explaining how data travels on the Internet and the principles and outline rules of net neutrality was used and is appended.

This stimulus was carefully piloted in eight depth interviews before the main research began to ensure it was both effective and non-leading. Much of it was based on material already available on the Ofcom website or in one instance, via the BBC.

Of the explanations and rationales explored, a principle quoted in Ofcom's online explanations, i.e., '**that <u>you</u> control what you see and do online, and not the provider that connects you to the Internet'** proved to be a particularly useful gateway idea for respondents to start to understand the theory and rationale of net neutrality. This was because it allowed them to start to imagine a world where the opposite situation applied.

Overall, the rules and principles of net neutrality proved quite easy for respondents to understand. Respondents were asked to tell us their personal takeout once the stimulus had been exposed and the vast majority correctly played back the following:

- That all should have equal access to the open internet;

- That all traffic should be treated equally;

and

- That ISPs should not accept commercial incentives to prioritise certain content or traffic.

> *"I think a free and open internet is fair."* (Female, 35+, Teenage children, BC1)
>
> *"The rules are there to make sure we are all treated fairly."* (Male, 35+, Teenage children, BC1)
>
> *"Yes, no one should be discriminated or policed on how they access the Internet or what content, unless it is harmful."* (Male, Community Expert)
>
> *"It needs to stay fair, if there will be even more traffic it needs to stay equal."* (Female, 15, 'Community Reporter' exercise)

When exposed to the restrictions on ISPs blocking content, respondents spontaneously said they wanted the blocking of harmful content such as terrorism, or illegal pornography by ISPs, and actively asked for some reassurance that this happened.

There was support for the concept of equal access for all. The idea that net neutrality could support business innovation as well as consumer equality was accepted and understood as a potential 'good.'

Once respondents had thought through the implications of commercial incentives, they supported the thought that larger players should not be able to buy priority access and that this would be uncompetitive. They felt that the ability of an ISP to accept commercial incentives for prioritisation would undermine equal access for all users.

The exceptional circumstances in which ISPs should be allowed to block or prioritise content or data streams were also understood, and initially seen to be reasonable, but there was emphatic feedback from the beginning that these were not to be over-used.

Some concepts were harder to communicate

- The stimulus referred to some ISPs prioritising live streams in traffic management. Respondents had a little difficulty understanding why certain video streams were currently prioritised when traffic management was put in place. They sometimes missed the quality of service arguments and interpreted this as arbitrary decision-making, prioritisation in return for deals or because consumers had paid a fee to access live sports streams. The idea that certain types of content depend on fast data transmission to be usable, and that the rationale was quality or usability needed careful exposition.
- Illegality and court orders proved to be a satisfactory 'consensus' rationale for why certain sites should be blocked. There was overall agreement that such sites should be blocked:
    - Most respondents took the view that ISPs should not be able to make arbitrary decisions to block content or traffic and that there needed to be a clear reason why;

  - Illegality did not, however, fully cover all the content areas that some respondents were concerned about, for example, non-illegal pornography, hate speech, suicide or self-harm content;
  - It proved complex to explain further reasons why some websites might be inaccessible (e.g., country-specific rights).

- Respondents often raised privacy questions, as some of them did not understand how their personal information became available online. A few were puzzled for example, when advertising appeared on their feeds which reflected recent browsing, or even, they thought, recent personal conversations. Awareness of cookies and how they worked was evidently incomplete, particularly among older respondents. Some therefore wondered for example, whether ISPs were able to see any personal data when it travelled on their networks. The moderators explained the role of the ISP versus content providers and social media platforms a little to offset these concerns. But because privacy was an important spontaneous concern, respondents reacted well to, and approved of, all the privacy reassurances in the net neutrality rules.
- Respondents were a little surprised to find that both they and content providers counted as 'users' with equal access to the Internet, and although they felt this was very fair, they needed this to be explained.
- The ability to choose your own service level and contract (e.g., ultrafast, superfast or standard broadband) proved uncontroversial and familiar and was supported.
- A communication in the stimulus that if one service is speeded up other streams and services on the Internet will be commensurately slowed down proved important when we asked respondents to assess impacts on society as well as individuals in the later phases of the research. This information proved influential when respondents came to assess whether, for example, ISPs should be able to offer contracts which prioritised video streaming or gaming.

Respondents initially judged the rules to be fair, attractive, and desirable both for them, and when prompted, 'for Society'. They felt the net neutrality 'status quo' was currently resulting in a service that met their needs, and endorsed it.

Information about making complaints to the ISP, and Ofcom's role - as suggested in its online net neutrality video - as a body whom respondents could copy such concerns to was registered and well received. However, when it came to making final verdicts on net neutrality rules (see section 7) some advocated a stronger role for Ofcom in enforcement and scrutiny than was outlined in this precise online form of words.

As the deliberative process continued, respondents maintained their positivity towards the idea of net neutrality and all respondents ended the project with a firm commitment to the concept.

6. Respondents' views on hypothetical areas of change to the net neutrality rules

An objective of the research was to explore consumer views on some completely hypothetical changes of current rules and practice in relation to net neutrality, including but not limited to, views on content or device prioritisation, equal access on all devices, and views on how (if at all) internet traffic should be managed;

6.1. Summary of response to hypothetical areas of change

- Consumers have different views of blocking and prioritisation. They are very familiar with blocking as a concept and expect it to be a fairly permanent arrangement once in place, only overridden reviewed and updated occasionally.
- They are far less familiar with prioritisation and want it to be a more ad hoc and flexible arrangement.
- Consumers are spontaneously favourable towards having illegal and particularly 'harmful' content blocked at source on the Internet by ISPs.
- They also approve of parental controls and blocking by premises owners, and are happy for ISPs to be one of the numerous existing providers of parental controls.
- Consumers are happy to use services to block content from entering their home or workplace, including using services sourced from the ISP, but they want to be in control of the blocking process.
- Some consumers can see a role for being able to prioritise streams or devices within the home or workplace, however, again, they wish to be able to enact this themselves, using an easy and convenient technique, for example touchscreen controls on their own router.
- Respondents are far less keen to see any content streams permanently prioritised on the Internet or to see any form of permanent traffic management in place, including any offers of permanent content or traffic stream prioritisation by ISPs. They prefer an unrestricted service direct to their door which they can then prioritise.
- Consumers were not attracted to any financial compensations for a slower internet.
- They wanted the Internet to remain constantly updated, ever faster, and open and equal for all.
- The principles that consumers should be able to use the Internet on any device and use their data on any device were supported.

- Zero rating[5] of certain services was seen to have some consumer advantages for those with low data and providing a social good in relation to zero-rating certain public interest services, e.g., education. However, both consumers and SMEs wanted an eye kept on competitive impact.

6.2. Overview of response

Respondents' spontaneous expectation of the Internet is that speeds and capacity will continue to increase, and that fibre all the way to the home or business premises (FTTP) providing ultrafast broadband will become widely available.

As we have seen above, broadband was seen as an essential utility by both households and businesses.

Some of the hypothetical areas of change probed in the research dealt with limiting, prioritising, extending ISP traffic management or slowdown of some data streams.

Some participants feared these were being discussed in the research because future demand might mean rationing was intended.

Almost all resisted changes involving any slower or more segmented service or compromise. They resisted this both for themselves, and also for other people who might receive a worse service.

> *"I just want everything to work, and I want that everywhere. I have high expectations!"* (Female, Community expert)

Respondents repeatedly fed back that they wanted ISPs and/or Ofcom to focus on ensuring sufficient internet capacity going forward so that regular slowdowns or prioritisation never became necessary.

> *"Don't make it complicated… I just want good internet."* (Female, 35+ Teenage children, C2D)

6.3. Attitudes to blocking and prioritisation

6.3.1. Blocking and prioritisation were viewed differently

The research explored various concepts in terms of content blocking, including that of the ISP blocking content either on the Internet as a whole or the ISP or consumer blocking content within

[5] Zero-rating is a commercial practice whereby an ISP applies a price of zero to the data traffic associated with a particular application (e.g., Facebook) or category of applications (e.g., social media). This means that the customer is able to access certain zero-rated data without that data counting toward their general data allowance.

respondents' homes or business premises. We also probed scenarios around prioritisation, including the ISP prioritising different content types on the Internet or the ISP or consumer prioritising within consumers' premises. We also probed whether the latter was more relevant to consumers in terms of prioritising devices or prioritising content streams. Respondents' attitudes to blocking differed from their attitudes to prioritisation.

Blocking of content on the Internet, whether at source, at school or workplace or in-home was a familiar concept to respondents.

The vast majority supported the blocking of unlawful or 'harmful' content at source on the Internet, and many respondents had individual security controls of some kind on PCs, phones or TVs.

Home, school or workplace blocks on content were seen as something that respondents wanted to remain in place semi- permanently once set up. Blocks were not expected to be lifted or altered until they needed to be reviewed or upgraded.

On the other hand, **prioritisation** of types of traffic or devices was a much less familiar idea for respondents. A very small number of respondents, including an SME hotelier and a couple of Community Experts, understood that devices or traffic streams inside their premises could be prioritised on their router. But most respondents were not initially aware that this was possible.

As most respondents were quite satisfied with their internet supply and weren't experiencing problems, they often needed to go on a journey of consideration before they could assess the potential usefulness of being able to prioritise within their home or premises. Many needed further explanation during the group session in order to understand the concept and think about whether it could be of use to them.

After thinking potential applications through, many responded favourably to the idea of prioritising streams or devices at home or in the workplace but much less so to having streams prioritised on the Internet as a whole.

However, respondents said they wanted prioritisation of streams or devices at home to be capable of being done 'ad hoc' in an easy, responsive way which could enable them to make changes hour to hour, not more permanently set in place as with blocking.

This was because respondents felt that their personal priorities about what device or traffic in the home was most important would change considerably by individual, time of day or day of the week.

6.3.2. Attitudes to blocking within premises and security controls

Residential

Most residential respondents had security controls of some kind on their devices, the most common being antivirus software.

Many parents of primary school age children in this study were using parental controls, but parents who only had teenagers at home were not. Parents used controls to block content and

also to restrict hours of use. They used a variety of methods and suppliers, including broadcaster services and controls on individual devices.

When offered a choice of methods, most said they wanted to set the blocks themselves, but they acknowledged that their suppliers had the up to date and in-depth knowledge of what sites are harmful.

Of the hypothetical changes tested, respondents favoured blocking content using their router or software, and using easy controls like a phone app with 'dashboard', touchscreen, or website to choose and block categories. There was resistance to the idea of making a phone call or 'sitting on chat' to arrange the service with the ISP, as it was felt it would be inconvenient.

Respondents also wanted to be able to override controls for personal use, block additional specific sites or change child age range definitions easily.

There was no particular resistance to using a blocking service provided by their ISP, except among a few dissatisfied respondents on standard broadband packages who claimed not to trust their ISP in general.

The ability to ask their ISP to block content or sites on their behalf was thought potentially helpful for the less technically able. However, most respondents seemed to be thinking of older or more vulnerable consumers in this context. Only one or two parents said they didn't know how to set controls and that this had stopped them using them.

Approval of parental controls was high. All respondents in the project supported their availability. The vast majority also accepted content blocking by premises owners such as cafes, employers, and schools, seeing this as the right of the person in charge of the premises.

SME

SMEs were more likely than residential respondents to say they used filters like malicious content or fraud blocking. One employer mentioned blocking Facebook for employees. Using software pre-installed on their routers was the method most commonly used by respondents.
There was assent for ISPs becoming another provider offering blocking services for business, particularly interest in tailored security filtering services.

> *"I would like to see more emphasis on our ISPs to protect us from viruses and hacking and make it harder for people to do this, especially for businesses"* (Female, SME)

Personal control over putting blocks in place was also important for SMEs but views diverged from those of residential respondents, in that a few SMEs liked the idea of getting ISPs to actually enact the blocks, both to get more value from the contract, and so that the ISP would be responsible and 'liable' for any failures.

> *"It gives peace of mind, it has been addressed, the ISP has done their part and there is no scope for human error"* (Male, SME)

> *"I am paying for a service and using a service, so I can expect them to block the content."* (Female, SME)

6.3.3. Attitudes to prioritisation of traffic or device within premises

Prioritisation was a relatively unfamiliar concept to residential respondents.

We prompted respondents on the idea of prioritising both traffic types and devices. We observed that it seemed easier for respondents to think in terms of prioritising a device, and respondents spontaneously named and discussed devices they would like to prioritise more than they named traffic streams. Only a couple of respondents thought through implications and noted, for example that if a stream (e.g., Netflix, workplace Zoom) could be accessed on multiple devices, prioritising the stream might be the logical method.

The minority of respondents who felt they had unsatisfactory fixed broadband saw an immediate appeal to prioritisation in their premises, for example:

- To improve connections for home working or schooling;
- When they wanted a faster service to game or stream.

For the majority of respondents, who had fairly or extremely satisfactory fixed broadband, the benefits of in-home or in-premises prioritisation were initially harder to imagine.

Their initial lack of interest was for two reasons:

- Firstly, many respondents in this research were satisfied with their broadband, and felt they had no issues with capacity. These respondents either lived alone and had no competition for service, or all members of the household were currently able to use the service easily.
- Secondly, at first, prioritisation sounded very complicated to respondents. Some had an initial impression that it would need to be put in place permanently, or to a set weekly schedule which changed during weekdays or weekends or they feared it would be difficult to change the settings (e.g., if they had to contact the ISP). Fundamentally, they had no idea how prioritisation might be done.

However, their opinions changed as they got more information.

When respondents discovered that they could prioritise channels or devices ad hoc and quickly on their own router they found this a new and potentially useful message. This knowledge made attitudes to the concept much more positive. Many felt the facility should be better known.

On consideration, even respondents with satisfactory broadband felt that they might benefit from this service in future if internet quality came under pressure, or in occasional in-home situations when they were having difficulties.

> *"I'd like my PC to be 'the last man standing'!"* (Female, Community Expert)

Residential respondents wanted to be able to control prioritisation via an app, website, router software or phone control; again, no-one wanted to call an ISP or wait for an instruction to be enacted.

Respondents were keen to control prioritisation. Overall, they much preferred the idea that they could easily prioritise within their premises rather than have the ISP speed up – and by inference, also slow down – streams within the out of home internet service that came to their door.

> *"I want my big pipe in, then I'll decide where it goes."* (Male, Community Expert)

As with blocking, when prompted, it was felt that vulnerable consumers might be allowed to ask the ISP to enact prioritisation on their behalf. But most of the respondents feared that using the ISP to implement the service might be cumbersome and unnecessary.

When asked if there were any downsides to being able to prioritise content or devices at home respondents brought up family harmony. They felt the bill payer might upset children or teens by de-prioritising services that were important to them. Or children might learn to prioritise and disrupt the parent's activities.

However, a responsive service over which the family had control meant such issues could be straightened out, and internet priorities allocated 'fairly' later to compensate for temporary needs to prioritise. For example, children's gaming might be prioritised at the weekend if the parent's laptop had been prioritised during the week for work.

On the other hand, for SME respondents, the identification of priority services and devices in a business seemed to some to be clearer and more consistent than it was at home. For example, some claimed that they might choose to prioritise some baseline devices such as the PCs, server or office security on a more permanent basis.

> *"The laptop is our holy grail we use to run the business."* (Female, SME)

6.3.4. Attitudes to content prioritisation on the Internet as a whole

Many respondents assumed services which society relied on (e.g., national security) were already prioritised.th

On the Internet as a whole, respondents agreed that they wanted 'matters of life and death' prioritised, but only the prioritisation of emergency services and 999 got a complete consensus of support.

Respondents were given a range of prioritisation suggestions in the stimulus and when they considered them, some respondents, but not all, added air traffic control, life support or heart monitoring as 'matters of life and death'. A few favoured prioritising NHS, police or utility services too. In this context, no one felt leisure should be prioritised.

However, having gone through this exercise, respondents expressed the opinion that they felt individual priorities would probably be too different and arbitrary to drive a fair national policy on prioritisation.

Residential respondents expressed concern about who should make any decision to prioritise. They feared ISPs might be vulnerable to commercial or subjective influences. They believed that,

if permanent prioritisation was ever needed, strategic priorities should be set 'higher up', and not by ISPs.

Some SMEs felt if legislation was ever required, in their opinion there was an argument to prioritise business over leisure services.

6.4. Attitudes to allowing permanent content prioritisation by ISPs

Respondents were shown hypothetical stimulus suggesting that ISPs might be allowed to prioritise certain types of traffic over others more permanently, e.g., live streaming to ensure quality. The stimulus made it clear to respondents that this would slow other services to households but that everyone would receive the same level of service. They were asked if they would be prepared to 'put up with' some services being slower 'in exchange for others being faster or more reliable', or if they would pay more to ensure they always had a good speed for things they wanted to do. They were asked if they would expect any discount and how they would feel if they were not a user of the services that had been prioritised by the ISP.

The idea of permanent, versus exceptional ISP traffic management like this was not acceptable to respondents. For the majority, any reference to slower, restricted or less convenient service simply meant that residential respondents defaulted to saying they just wanted 'good internet', that is, that they preferred their current contract arrangements.

Compensatory ideas were explored but none of these changed respondents' minds:

- The idea of getting discounts on any services being slowed down was only raised spontaneously by a small minority;
- Most felt that changing a service, for example, to introduce prioritisation and attendant slowdowns, mid-contract would merit compensation as they would not have had the priority or slowdown described in the original contract. But even so they did not want the compensation, because they did not want their service changed;
- Respondents were resistant to the idea of paying more for ensuring a good or speeded up service on some content, as they felt they were already paying a lot of money for their current entirely unrestricted one;
- There was particular resistance from those with poorer broadband;

  > *"We pay more for 'faster speeds' already. It's just that our speeds are still very slow!"* (Standard broadband user group)

- Respondents felt they would be 'unhappy' if their service slowed down because another had been prioritised without their upfront agreement.

6.4.1. Response to setting content priorities in contracts

Respondents were asked about an evolution of the first concept – specifically, if they would like to be able to have some service types (e.g., streaming or gaming) prioritised upfront in contracts,

with the ISP 'guaranteeing' a better quality for the prioritised services. This too was rejected as 'too inflexible' for most.

It was felt that household needs and priorities could change daily, and definitely might do so over a full contract period, leaving the householder stuck with priorities they no longer wanted.

Consensus in households was important to people, so permanent prioritisation (as opposed to ad hoc emergency switchovers, which could then be reversed 'fairly' to meet the needs of others) was seen as divisive.

People felt their needs changed, not only during a contract period but from day to day:

> *"One night I might be wanting to stream…another time I might be needing to upload my Tesco order before 11pm."* (Female, 35+, Teenage children, BC1)

There was also scepticism, that even if a better service was offered, it could be 'guaranteed'.

The offer was also not seen to be 'good for society' by the majority of respondents, as the research concept stated that the prioritisation would 'slow other services to all households.'

Some respondents expressed concerns about 'human nature' and felt that having offers of this kind might mean 'a few' - they imagined enthusiastic streamers or gamers - would be willing to pay for a better service to the detriment of others.

In fact, two or three respondents who didn't find their gaming or streaming speed satisfactory currently, agreed that they *would* pay more for ISP prioritisation to be able to game better or stream video. These were younger respondents, one a single parent with a small child, and one living with parents. However, one of these respondents also said in their final written submissions that they would only purchase the service if it didn't have a bad knock-on effect on others.

Following exposure to these concepts, respondents quickly defaulted to preferring their current 'unrestricted' services. This was because they felt the research stimulus implied that:

- They would need to make complex, time consuming or inflexible decisions;

  "It's complicated enough choosing (ISP), without adding all this in!" (Male, 60+)

- The move might lead to a 'two-tier internet', including one in which their own preferred services might be slowed down;

or

- That the 'common good' was at risk.

  "This sort of thing will disadvantage people on lower incomes even more!" (Female, 60+)

There was agreement that if anything of this kind was offered, it should be specified upfront in the contract.

6.5. Attitudes to allowing access to the Internet on all devices

Access to the Internet on all devices

There was support for the existing rule requiring equal access to content on any device. This was already a firm expectation for respondents. It was valued particularly by the less affluent, who might have access to fewer or less versatile devices, and for work and business purposes.

> *"Yes, so as to avoid discriminating against those who only have certain equipment."* (Female, Standard broadband group)

> *"Important as a user that I should have the choice as I frequently use and switch between devices: phone, laptop and PC. This is for convenience."* (Female, 35+, Teenage children, C2D WFH)

Examples of accessing the same content on different devices were:

- To start a task on one device and pick it up on another (e.g., video watching);
- To switch platform if the Internet was down on either fixed or mobile;
- If a person was 'out of data' on one device;
- If their preferred device was not available (e.g., during lockdown, lent to a child to join a lesson);
- When out and about away from a main business device (any workers who travelled).

Respondents said they did sometimes experience problems accessing their content on all devices. However, some suspected a few of these problems may have occurred for reasons other than net neutrality. Other possible explanations were felt to be, that:

- devices might be out-of-date;
- some software couldn't be accessed on mobiles;

and/or

- some sites were still not optimised for mobile phones.

SMEs felt that device switching was particularly important as a backup, to keep the business functioning.

Using your data on all devices

There was similar strong support for being able to use one's data across a range of devices.

Again, this flexibility was particularly valued by the less affluent, for those who used the Internet for business or to work from home, for larger families where there needed to be some flexibility on data or devices, for frequent travellers, and those with poor broadband (whether mobile or fixed).

"It could be helpful for people - not like me! - who have home jobs and large families using Wi-Fi all at once." (Female, 18-30, Pre-family)

Tethering a device to mobile signal was used quite frequently, by up to half of respondents in family former groups, to:

- Work on the move;
- Join a mobile network if fixed broadband was not available;
- Share one's hotspot with a child or family member for entertainment or education purposes.

A few respondents said their mobile package let them 'gift' data to family members who ran out. They felt - correctly or not - that this might be net neutrality related as it involved using 'their' data on a different device.

In the research we also tested the scenario of transferring a mobile phone SIM card into a home router in order to access the Internet on other devices via the router. We explained that this might be relevant if the fixed broadband supply was not working or if you had a greater amount of data on your phone contract than on your fixed broadband contract.

Respondents felt that as long as the mobile contract did not forbid doing this, then it sounded like a 'smart' workaround; especially for less affluent consumers. Their sympathies in terms of what 'fair' or unfair usage lay with the consumer and not with the provider if a mobile company lost money in this usage scenario.

"They, (ISPs) do well enough out of us." (Female, SME)

However, few respondents actually saw much appeal to this example scenario or thought that they would personally bother with it.

Firstly, they felt that they were personally more likely to have high or unlimited amounts of data on their fixed broadband contract than on their mobile and therefore they would have no need.

Secondly, SIM transfer was usually only done when respondents switched mobile handsets. It was seen as fiddly and inconvenient. Once a SIM card was lodged in a phone, few wanted to take it out again, and some also pointed out that putting your SIM into your router would mean you couldn't use your phone as normal.

"My SIM is staying in my phone, thank you!...that's a faff." (Female, 30+, Teenage children, BC1)

Although some respondents argued that 'unlimited mobile data' should mean 'unlimited', the majority had also heard of 'fair usage clauses' and expected that if a SIM card was, in fact, overused there would swiftly be a clamp down by the mobile provider. They imagined that there might be a clause somewhere in the contract to exclude unsuitable use.

All felt that if using the SIM card in this way was to be excluded then it needed to be made clear in the contract.

The idea of a router that was able to switch a user between fixed broadband and mobile signal if one was stronger than the other (e.g., BT Halo) was attractive to users with unsatisfactory fixed connections.

6.6. Attitudes to Zero rating by ISPs.

6.6.1. Zero rating of commercial services

The term 'zero rating' was not recognised by respondents, and the practice itself also had quite low awareness. When it was explained that zero rating meant you could use a particular service/app without it counting towards your data allowance a few respondents said that they thought they had been offered something like zero rating in the past but had either not understood it or seen its relevance.

> *"Now I am thinking about it, I think I was offered this on Sky Go, but I didn't really understand what it was."* (Male, 30+, Teenage children, BC1)

On the whole, users with unlimited mobile data saw no attraction. They did not currently feel constrained in their usage of high data use services like video streaming.

It was, however, appealing to those with a capped mobile data allowance.

The main usage of zero rating in this sample was by parents who had bought their children mobile phone contracts offering specific zero-rated apps. Three respondents had purchased VOXI contracts because they offered their children zero-rated access to social media content, and the children had previously run up top up bills. One father quoted a price of £12 a month per child for a VOXI contract, which he viewed as 'a good deal'.

A few respondents with limited mobile data said they would switch provider, dependent on price, for zero rating of services like Netflix video streaming, satnav services (e.g., Waze, Google Maps), desirable football streaming services, or a particular social media brand for their children.

They felt that whether a zero-rated offer could drive switching mobile provider would depend on the loyalty you felt to the apps you currently used.

Some adults felt such an offer might mean they would switch from one satnav service to another (e.g., Google maps to Waze) or between music streaming services.

But parents said their teens were unlikely to switch from a favoured social media content brand (e.g., TikTok) to one they saw as irrelevant to their social group, just for zero rating.

Mobile contracts such as those available from VOXI, with zero rating of popular apps, were seen by the parents who had bought them to be useful to the family finances. They therefore defended the service, saying that the use of zero rating certain apps as an incentive by the ISP was 'just marketing'.

All residential respondents agreed that 'smaller players' should not be disadvantaged by zero rating, but they were unsure 'smaller players' existed in the worlds of music streaming, video streaming and social media.

SMEs, however, felt strongly that the effect of zero rating on smaller companies should be monitored. They agreed with the net neutrality statements about an open internet favouring business innovation and perceived it would be harder for new companies to break into markets if larger players were able to afford to subsidise zero rating of services to grow share and usage.

6.6.2. Zero rating for 'social good' purposes

We exposed the example of zero-rating education services in lockdown as an example of zero rating for non-commercial purposes.

Zero rating education services during the Covid-19 pandemic and possibly permanently, was approved of by respondents. Teachers in the sample pointed out that many children were still off school during the period of the research because of Covid self-isolation rules, so the provision of zero-rated education services might still be relevant.

It was recognised by many respondents that some households with children had been affected negatively during lockdown by limited or capped broadband allowances, including on pay-as-you-go (PAYG) mobile contracts, or a lack of enough suitable devices to access the Internet on. They had got this impression either from personal experience or news coverage. A few also felt that some children might not have had access to all, or the same, educational websites on financial grounds, though they did not fully understand why. Therefore, it was felt that, in principle, zero rating of educational websites had been helpful in providing more equal opportunities to learn.

When asked their opinion about whether all or only a few education content brands should have been zero rated in lockdown, respondents preferred the option of zero rating all brands:

- This was viewed as fairer to children who might have had restricted access to certain educational websites;
- Furthermore, it was felt that the zero rating of only a few brands might imply those brands had some superiority over other brands;
- Zero rating of all education brands rather than just a few was seen as fairer to small players.
- Both residential respondents and SMEs agreed on this point:
    - SME respondents looked at this example from the point of view of a company who might be a provider of such services, so they supported universal zero rating as pro-competitive;
    - Residential respondents found it easier to see how smaller players might be disadvantaged in this particular market and supported zero rating all players.

We did not prompt extensively for further examples of services that respondents might approve for zero rating.

The only other 'public good' services spontaneously suggested by respondents that should be zero rated were 999 and 'emergency' services. Some believed these were zero rated on mobile phones already. In addition, the oldest group (60+) also suggested that general 'medical services' could be zero rated.

6.7. Summary of differences in SME and residential consumer attitudes

SMEs were similar in their overall responses to residential respondents, but with a few differences:

- SMEs expressed more intolerance of broadband failings, taking the view that unreliable broadband lost them time or customers and had a direct impact on their business;

  > *"It is not just that I cannot connect…I'll try again! It is missed sales, missed meeting deadlines, a domino effect. The internet has to be reliable and accessible for business purposes."* (Male, SME)

- SMEs were clear about their need for a very stable, high quality and reliable internet connection. To achieve this, some had invested in business contracts for fixed or mobile, faster fixed services or ethernet cabling. They felt that business contracts provided the higher levels of confidence that they desired. If problems occurred, they believed that they would be sorted out faster on a business contract;
- A greater proportion of respondents in the SME group used fixed phone lines than in the residential groups, and at least one expressed caution about switching to new internet-based services (VoIP was an example);
- SMEs were more demanding than residential respondents about service standards, redress and securing value for money or refunds. For example, one suggested being able to exit contracts sooner if the ISP failed to deliver the required speeds;

  > *"If they cannot take you up to at least 75% of the promised speed, all the time, then you should be able to get out of a contract halfway through."* (Female, SME)

- SMEs tended to express cynicism about any effects of future relaxation of net neutrality rules on traffic management and ISP behaviour. They suggested Ofcom might impose checks upon ISPs now or in future, for example, reporting around traffic management incidents;
- SMEs accepted and supported the net neutrality rationale that an open internet would foster business growth and competition. They were more spontaneously alert to competition issues than residential respondents, quickly extrapolating, for example, to the potential consequences of more zero rating on the providers of non-zero-rated services.

  > *"For all businesses to compete on a level footing, net neutrality is important: we could lose contracts and clients if our data was seen as less important than competitors'*." (Female, SME)

7. Respondents' final attitudes towards current net neutrality rules

7.1. Context

The net neutrality 'rules' probed in the research were in a format supplied by Ofcom and the text is referenced below.

An online mini poll was administered to the research participants at the end of the project. This asked each of them for a detailed response to each rule and a view on its suitability for the future. A horizon of ten years was suggested.

7.2. Detailed responses

All users of the internet have the right to access and share information and content, and use and provide apps or services online

7.2.1. Attitudes to rules on equal access

There was support for this rule as central to the concept of net neutrality. Participants felt that more and more content would be shared online and more services used.

> *"Yes, I think it is suitable, as I frequently access content and share information online. it is also applicable for the next ten years, as the Internet develops and we are all sharing more and more content."* (Male, 18-30, Pre-family)

> *"It works as it is, there are specific blocks to extremely sensitive content, that is fine. Everything else should be up to the users to access."* (Male, standard broadband user in a rural location)

The only caveat proposed by respondents to this universal freedom, was a spontaneous wish (and latent expectation) that really 'harmful' sites be blocked to protect the public, national security or themselves and their families. Individual definitions of 'harmful content' were diverse, however, and some are covered in section 7.2.5)

7.2.2. Attitudes to rules on access on any device

Users should be able to access the internet on any equipment they choose

Respondents supported this rule for reasons of convenience, personal safety, and economic equality, particularly for the less affluent.

It was also particularly supported by SMEs who saw this flexibility as essential for business support and continuity, including helping them work around unexpected events.

> *"This is absolutely suitable! We will be using a lot more devices in the future."* (Female, Lower income)

> *"Accessibility from all devices is key, dependent on what you have available to use and where you are located."* (Male, 28-45, Primary aged children)

> *"Yes, if you are going on your Xbox, you have access to the Internet to game. Or using your phone, you should have access to the Internet. Your laptop, yes, access to the Internet. Your TV, Alexa, or other types of apps. I would say, 'yes.'"* (Female, 35+, Teenage children, BC1)

> *"We all have busy lives, and we are not always at home."* (Female, SME)

7.2.3. Attitudes to rules on commercial action

Your internet provider should not take any commercial action that limits these rights (for example, they cannot ask a company like Netflix to pay to have its content take priority over its competitors)

There was support for this rule from both residential respondents and SMEs, who believed that larger companies should not be able to pay to prioritise their streams or content. They felt smaller competitors and all users should be protected on two fronts: both from unfair competition *per se*, and from having their own internet speeds slowed down owing to competitors' faster speeds being allowed. Residential respondents were keen to support SMEs in order to maintain marketplace choice.

> *"I agree 100%, both for business and for Society."* (Male, SME)

> *"It makes it fair for the little people, not just the rich."* (Female, 35+,Teenage children, BC1)

> *"Equality is important, big corporate companies should not take advantage only because they have a good financial backing."* (Male, 28-45, Primary aged children)

> *"They shouldn't be given priority only because they can afford to do so, other smaller competitors should also have their turn and chance to be promoted."* (Male, Community Expert)

"Yes, I agree as I watch many streaming services myself, as more services arise this (competition) will be relevant to me in ten years' time too." (Male, 18-30, Pre-family)

7.2.4. Attitudes to rules on 'reasonable' traffic management

Your ISP must treat all traffic equally in providing internet access, subject to certain limited exceptions.
They can use 'reasonable' traffic management (e.g., blocking, slowing down) if the process:

- **Is transparent, non-discriminatory and proportionate**
- **Is based on the quality of service requirements of the traffic (e.g., prioritising live streaming, which requires a lot of space in order to ensure the picture does not get distorted over downloading software updates, which are not majorly affected by being slower in their delivery to your device)**
- **Is not being done to gain a commercial advantage over a competitor**
- **Is in place no longer than necessary**
- **Does not look at the actual content of the traffic, which must be kept private, just the type of traffic.**

The rules obtained general approval on the basis of looking reasonable to most respondents.

> *"These exceptions for traffic management are fair, and don't look like they could benefit anyone more (than anyone else)."* (Female, Low income)

However, respondents wanted to make sure the rules were properly enforced and applied and any ambiguity eliminated.

As indicated in previous sections, respondents felt traffic management should be the exception, not the rule, and some suggested that ISPs' current traffic management practice should be scrutinised as fully as possible.

> *"It (legislation) should be enforced and investigated. ISPs have too much control."* (Female, Standard broadband user).

The quality or usability argument for prioritising certain types of content stream when managing traffic, proved to need some consumer explanation if it was not to be interpreted as unfair, arbitrary or suspicious (e.g., implying that live content streaming companies had obtained a commercial advantage). The detailed explanation of making the stream 'fit for purpose' in this rule helped to an extent.

There was approval for the statement about privacy, as this was a spontaneous respondent concern,

And, as previously explored, for the principle that no ISP should prioritise for commercial inducement or to gain an advantage over another supplier.

One respondent wanted the definition of 'no longer than necessary' to be tightened up.

"'Is in place no longer than necessary', what does this mean?" (Female, 35+ Teenage children).

In addition, the word 'proportionate' was not particularly well understood, so its meaning and implications were questioned by some.

7.2.5. Attitudes to 'exceptional cases'

In addition to 'reasonable' traffic management which can be used at times when there is a lot of traffic on the internet, there are some exceptional cases when your provider can use traffic management practices.
For example, if they need to:

- **Follow a legal requirement (e.g., a court order to block an illegal website);**
- **Keep their network secure (e.g., prevent hacking or going down);**
- **Deal with exceptional or temporary network congestion.**

These 'exceptional cases' were felt to be reasonable and clearly expressed. Specifically, basing any criteria to block content around legal requirements and court orders was acceptable to almost everyone, and effectively closed down debate.

> *"The internet is available to everyone as long* ***as what they are doing is legal****, they should be able to use it as they see fit to help them in everyday life."* (Male, SME).

However, beyond this, there was less consensus on the criteria that should be applied by and to ISPs on blocking. There was certainly a general feeling from respondents that they did not want to be exposed to 'harmful content.' Respondents had a general expectation that content which carried threats to national security (such as terrorism) and also content on the 'dark web' was already blocked, whether by ISPs or another body.

Quite a few respondents wanted to block other content that worried them, which the term 'illegal' didn't fully cover (legal pornography, suicide, hate speech or self-harm).

> *"As long as pornography and suicide, self-harm are blocked!"* (Female, 60+)

On the other hand, a very small number (two of 70) advocated much more content freedom even in core 'harm' categories and were suspicious of any blocking. Several more certainly wanted individual ISP blocking[6] criteria explained, to prevent potential abuse of freedom.

Taking action to prevent networks failing in security or going down were also seen as reasonable measures.

Some respondents supported ISPs taking measures to keep their network 'secure' because they interpreted it as meaning their own personal security or information might be protected by this measure; this may be incorrect.

[6] Consumers did not understand the term 'filtering', but blocking was unambiguous.

When it came to dealing with temporary network congestion, the point that this should mean 'in exceptional circumstances' was again made

> *"Providing it is only in the rarest of circumstances, I am happy with this rule."* (Female, SME)

7.2.6. Attitudes to rules on net neutrality information, contracts, and complaints

Your ISP must publish certain information in their customer contracts including:

- **The service download/upload speeds you can expect on your chosen contract;**
- **Their traffic management policies;**
- **How this may affect quality of service;**
- **Your privacy;**
- **What you can do if your internet experience is not what was promised to you in your contract.**

Your ISP must set up easy-to-use procedures to handle complaints relating to net neutrality rules.

Contracts

It was evident from respondents' comments in the online mid-task that few respondents ever read their contract in detail, but that they relied on summary information or a sales conversation to capture the main points.

As we have noted above, traffic management was not an issue for respondents in their current decision making, both because they had never heard of it, and also because most of them currently had a satisfactory service, that they did not need to investigate in depth.

Having scrutinised their contracts in detail as a research exercise, respondents said their ISP contracts should be made clearer, shorter and more transparent overall, including any traffic management and complaints arrangements.

Respondents felt that if more extensive and frequent traffic management ever became necessary (for example, due to restricted internet supply) or if there was ever relaxation of the rules to allow commercial prioritisation, the importance of individual ISP's traffic management arrangements would grow.

In this case then they felt it would become important to put traffic management very prominently in the contract or in the upfront summary information or sales conversation.

> *"I think as long as the provider states this* (individual ISP traffic management strategy) *in their contract, it is fine and suitable, but the contract must be transparent."* (Female, 35+, Teenage children, BC1)

> *"It was disappointing to see how these traffic management details had to be searched for in a 45-page contract with numerous links to other documents." (referring to mid-point online task of contract checking)* (Male, Standard broadband group)

"Things must change in the length of the written contract." (Female, 60+)

As before, respondents strongly supported the inclusion of privacy reassurances in the rules.

Many respondents (SMEs and those with 'unsatisfactory' services in particular) expressed a wish for meaningful Ofcom scrutiny of ISP traffic management, both now, and particularly if the rules concerning prioritisation were relaxed in the future. Some expressed mistrust of ISPs' future actions in the latter scenario. These respondents seemed particularly concerned about:

- Over-use of the 'exceptional circumstances' rules, whether now or in future;
- Any future scenario in which they feared ISPs might be able to offer speeded up contracts to a few, and any related temptation to abandon investment in infrastructure for 'the many'.

> *"I think the regulator should have more[7] power to actually monitor speeds, traffic and act on behalf of the customer."* (Female, SME)

There were several suggestions for additional monitoring by Ofcom, including in particular, monitoring of ISP achieved speeds, which related to the reference in the rules to what was promised in their contract, and the number and rationale of traffic management incidents.

Complaints

A small number of respondents commented that they hoped the rules did not indicate that users would **only** be able to complain to their ISP, and not to the regulator, or that there was no complaint escalation process.

Respondents suggested that each ISP offer a variety of complaint methods, including disability friendly methods, and easy and up to date online methods that could be quickly accessed and completed whether from PC or mobile, such as apps or Live Chat. They suggested that every customer be offered a choice of channels to make their complaint or contact the ISP.

> *"Writing a letter – the norm – shouldn't be the only way: apps, live chats, more ways to contact are all important"* (Female, 18-30, Pre-family).

Respondents asked for contact and complaint links to be easy to find. For example, on their ISP's website, in a prominent place in the contract, or notified upfront when you took out the contract.

> *"Procedures that are in an easy to find location on their websites."*
> (Male, 18-30, Pre-family)

> *"Having had to dig through sites for contact information, just to get to the point where I could tell someone my issue, I feel like we need to do more*

[7] In this quote and some others from the online work, respondents talk about Ofcom needing 'more' power, or doing more, but we did not expose any details about the powers Ofcom currently have or what they do in detail, and there was no indication from consumers that any of them actually knew what Ofcom's powers or activities were. So, we suggest this is treated as a figure of speech on the part of the respondent, and just as a signifier that consumers want effective regulatory scrutiny and some ability to intervene.

to make it easier to get our issues heard." (Male, 35+ Teenage children, C2D)

Finally, a few suggested there should be periodic checks that ISPs' complaints procedures were actually satisfactory.

7.3. Respondents' conclusions on fairness of the net neutrality rules

To conclude, there was universal support for net neutrality rules among respondents both at initial exposure and when consumers reached the end of their deliberations. The rules were seen to support a fair and equitable Society and a thriving and innovative business community.

Respondents showed their support for preserving net neutrality rules both by suggesting measures to tighten up definitions of exceptions to the current rules or to impose more ongoing Ofcom scrutiny of ISP compliance with net neutrality, such as reports on traffic management incidents, and monitoring of average speeds.

Currently respondents claimed they were not scrutinising their contracts, including the traffic management parts of them in any depth, and that they were certainly not using ISP traffic management policy as a criterion to select suppliers.

This was both because traffic management was not much known about and also because the majority were not experiencing any pressure on internet access. The majority received a good service which they did not need to investigate.

However, they felt that this might change if internet supply ever became more restricted and this led to some urging of enhanced transparency in communicating ISP policies and a more prominent positioning of them both in upfront sales materials and in contracts.

The rules on net neutrality were deemed suitable overall, but some respondents suggested that as the Internet was 'changing so fast' more frequent reviews should be conducted by Ofcom, for example, to scope the issues caused by increased working from home and customer satisfaction with internet access and availability.

> *"For example, whether certain VPN accesses should be prioritised given that so many of us now work from home."* (Male, Community Expert)

There was scepticism from some respondents that internet quality and growth would keep pace with demand or whether it might need to be 'rationed' one day. They feared congestion would become an issue or ISPs would not invest sufficiently in infrastructure.

> *"This rule is to ensure a quality of service for ALL consumers, without this, the whole internet could get clogged-up in one giant log-jam which would affect everyone. But this (traffic management) must be the exception, and not the norm – ISPs should not be allowed to manage traffic as an alternative to investing in infrastructure."* (Male, 50+, BC1, teenage children)

If this were to be the case, then respondents felt that transparency of ISP practice, monitoring and enforcement of net neutrality rules would become yet more important.

A couple urged that there be more 'preventative' forward planning on what services might be prioritised on the Internet, in case that ever became necessary. This backed up respondent remarks earlier in the research that 'higher authority' thought should be applied to prioritisation strategy rather than leaving it to ISPs to evolve it 'ad hoc'.

> "*Realistically, I think this, (net neutrality delivery of equal service) …is likely to happen less as traffic gets heavier. I think there needs to be amendment to determine universal priority*" (Female, Standard broadband group)

Finally, throughout, consumers kept coming back to one theme. Many argued that the most important criterion for net neutrality to succeed and deliver for the customer was that internet capacity should continue to grow. They wanted the ever better, ever faster internet that they already expected, not more traffic management.

> *"I believe this is important, as (I think) the development and modernising of infrastructure delivering internet to peoples' homes is sometimes not keeping pace with the development of technology relying on the Internet. Therefore, those who cannot get fast internet because of where they live should not have their speeds made even slower to keep things running. People should not be cut off or unable to work because the Internet gets busy."* (Male, standard broadband group)

> *"I use the Internet more and more, as does everyone. I still want to be able to listen to my music and look up things without being stopped or slowed down in any way."* (Male, 60+)

> *"Appropriate rules, but again I emphasise we need more capacity to meet the increasing need."* (Male, SME)

Many felt that net neutrality could not function as intended for consumers without a fast and high-capacity internet. That is, that it was pointless for all users to have equal treatment and access if the Internet itself was slow or unfit for purpose.