Gigabit Take-up Advisory Group: Interim Report

Executive Summary

Purpose

It is vital that consumers and businesses across the UK have the right connections to meet their needs. The government's ambition is for a minimum of 85% gigabit-capable broadband coverage by 2025.[1] The private sector has already committed billions of pounds to rolling out next-generation gigabit-capable infrastructure. Alongside this, the government has committed £5 billion to support gigabit-capable broadband rollout to the hardest to reach areas of the UK.[2]

However, supply is only one part of the picture. Demand for gigabit-capable broadband is an important consideration. Understanding the barriers to gigabit adoption for businesses and consumers is essential to stimulating demand and ensuring the benefits of this technology are felt across the economy. Faster uptake of gigabit-capable technologies will also support the private sector investment case for faster rollout of this next-generation connectivity.

That is why in August 2020, the government asked Which? (the UK's consumer champion), the Confederation of British Industry (CBI) and the Federation of Small Businesses (FSB) to convene the Gigabit Take-up Advisory Group (GigaTAG).[3] The GigaTAG wants to encourage migration to gigabit-capable networks and the adoption of gigabit-capable services (i.e. services at or around 1000 Mbps), where consumers and businesses can benefit from them,[4] as soon as possible.[5]

Wider context

The GigaTAG's work sits alongside the growing need for good quality connectivity, for example as more services move online and the government seeks to harness the power of data, and as Openreach retires its own copper network. For consumers and businesses to easily adopt these connections, a range of measures are already being put in place, such as the implementation of the European Electronic Communications Code (EECC) which mandates Gaining Provider Led (GPL) switching, alongside a range of other measures to help support switching more broadly.

While these measures are helpful, and the GigaTAG has taken them into account when assessing solutions, they will be insufficient to address all the barriers faced by consumers and businesses to adopting gigabit-capable connections. Therefore the GigaTAG's focus is on the *additional* measures that may be required.

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1   However, it will seek to accelerate roll-out further to get as close to 100% as possible. Source: National Infrastructure Strategy, November 2020. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938049/NIS_final_web_single_page.pdf

2   £1.2 billion of this will be made available from 2021/22 to 2024/25.

3   The members of GigaTAG are as follows: Which?, CBI, FSB, Broadband Stakeholder Group (BSG), Internet Service Providers' Association (ISPA), Be the Business. DCMS and Ofcom sit on the Advisory Group as observers. The Good Things Foundation provides external advisory to the GigaTAG. This report presents the views and emerging findings from the Gigabit Take-up Advisory Group, it does not necessarily reflect the views of the individual organisations which make up the GigaTAG.

4   Some consumers and businesses will not have a need to purchase connections with gigabit speeds. However, they will still be able to benefit from the reliability and resilience that these networks offer.

5   Note that the barriers set out in Section 2 may be more relevant to one or the other of these goals.

Work to date

The GigaTAG has sought to obtain a wide range of views from a diverse group of stakeholders through its work to-date. Alongside regular meetings of the Advisory Group, it has collected views and feedback from stakeholders on its emerging thinking over the past few months. It has also undertaken primary research to explore businesses' barriers to adopting gigabit-capable broadband.

In September 2020, the GigaTAG issued a call for evidence to ensure it took account of all the existing evidence in relation to the adoption of gigabit-capable broadband. This asked stakeholders to share their expertise and contribute any existing evidence they had relating to the take-up of gigabit-capable connectivity. Alongside the call for evidence, the GigaTAG has been undertaking wider stakeholder engagement on an ongoing basis.[6]

Summary of key barriers

The GigaTAG has undertaken an initial assessment of factors that may inhibit consumers and businesses from adopting gigabit-capable broadband, drawing on the information received through the call for evidence. The barriers to adoption assume that gigabit-capable broadband is widely available. We have also necessarily made our assessment on the basis of some key assumptions about the likely future development of the market: for example, that all major retail providers will launch and market broadband services over full-fibre in the near future, including as part of bundles of services.

Consumer barriers

Current consumer engagement with the broadband market is low.[7] Many consumers are satisfied with their current broadband service[8] and/or perceive the broadband market to be complex and technical[9], which deters people from engaging, and there are insufficient incentives to prompt them to switch to a different package.[10] These are consistent findings across existing research, and not ones that apply to the adoption of gigabit-capable broadband alone. The barriers facing consumers which are likely to impact adoption of gigabit-capable broadband fall into three broad categories as set out below. These barriers may exist to different degrees and combinations for different consumers.

- **Lack of awareness of gigabit-capable broadband:** Many people may be unaware that the government and industry intends for most premises to be connected to a new network that will deliver them much faster and more reliable broadband services. Which? research found that 63% of broadband decision-makers said that they were not aware of the government's ambition for nationwide gigabit-capable broadband.[11]

- **Little benefit/perceived benefit of gigabit-capable broadband:** as part of this, there is currently no pull for consumers to adopt these connections, either in the form of a 'killer' consumer application or perceived importance of faster speeds; lack of clarity as to how it differs to other connections; low willingness to pay for the service.

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6   This has included meetings with BT, CityFibre, Communications Consumer Panel (CCP), Country Land and Business Association (CLA), Hyperoptic, INCA, the Local Government Association (LGA), Mobile UK, National Farmers Union (NFU), Openreach, Sky, TalkTalk, Virgin Media and VX Fiber Limited. The GigaTAG has also spoken to CBI committees and business councils and – where possible - has invited stakeholders to GigaTAG meetings, including the Advertising Standards Authority (ASA) and Citizens Advice.

7   Ofcom research finds around 40% of broadband customers are out of contract. 19% of customers are in their first contract with their provider (i.e. new customers). See https://www.ofcom.org.uk/__data/assets/pdf_file/0031/199075/bb-pricing-update-july-20.pdf

8   85% of people are satisfied with their service overall. Ofcom (2020) Customer satisfaction survey. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0014/201434/comparing-service-quality-2019.pdf

9   This can lead to challenges comparing products, due to lack of comparability.

10   Which? (2019) Consumer engagement with broadband.

11   Which? (2020) Consumer attitudes towards gigabit-capable broadband, quantitative survey.

- **Practical barriers to adoption:** These factors are likely to be subsidiary for most consumers but include hassle related to the switch and (for specific groups of consumers) affordability and capability to engage.

Businesses

Recent research by CBI suggests businesses are evenly split on their intentions to invest in gigabit-capable connectivity – with 37% of firms surveyed already investing in gigabit, a combined 30% planning to invest within the next five years, and 33% with no current plans to invest. These figures vary according to business size and more granular data is required to better understand the views of microbusinesses and sole traders, although research suggests that microbusinesses behave similarly to consumers when navigating the broadband market. Based on survey evidence and qualitative research, the GigaTAG has identified three key barriers facing businesses of all sizes:

- **Understanding of 'gigabit-capable broadband'** is low amongst businesses across the UK, with 14% of businesses surveyed not knowing what gigabit-capable connectivity is and, of business respondents that hadn't already adopted gigabit, over a third (36%) highlighted a lack of information on when gigabit would be available as a barrier**.**

- **Benefits:** Many SMEs do not see the current benefits of gigabit-capable technologies. Almost a third (36%) of SMEs that have not already adopted gigabit don't think gigabit is relevant for their day-to-day business operations and 31% don't see the benefit of gigabit-capable technologies.

- **Skills:** firms face a range of skills barriers. These include a lack of skills and resources to navigate the broadband market, lack of skills to adopt gigabit-capable technologies effectively, and a responsibility vacuum within firms to address changing connectivity needs amongst employees as more people work from home.

Emerging solutions

Looking at the barriers, the GigaTAG identified a number of outcomes that need to be achieved if gigabit-capable broadband is to be widely adopted by consumers and businesses. Some of the barriers to these outcomes are already being addressed through Ofcom's work.[12] Therefore, the GigaTAG has mapped possible *additional* solutions against the outcomes, drawing on the input received through the call for evidence process. In coming to its final solutions, the GigaTAG will continue to examine the wider landscape as well as learnings from previous migrations, such as such as the take-up of superfast broadband.

This is the GigaTAG's initial thinking. At this stage it seems that improving awareness of gigabit-capable broadband is a critical first step. However, in isolation, addressing awareness will not be sufficient. Over the coming months the GigaTAG will consider what the right package of final solutions should look like, recognising that they may need to be sequenced and that there may be dependencies between them. The GigaTAG will assess these solutions against a criteria which will include measures such as: the cost for businesses and government; effectiveness in addressing the barriers; and potential unintended consequences. The GigaTAG considers that the entire sector potentially has a role to play in ensuring adoption of these connections.

Table 1 sets out the GigaTAG's emerging thinking on potential solutions. It also indicates when these possible solutions may need to be implemented, alongside an initial assessment of the evidence and where further consideration will be needed.

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12   In particular, through the implementation of the European Electronic Communications Code which mandates Gaining Provider Led (GPL) switching; a requirement for providers to make more information about their services available to digital comparison tools, including information about the availability of fixed broadband services; extending 24 month maximum contract duration to services for microenterprises and SMEs, unless they explicitly agree otherwise; continuity of service and timing and date of switch.

Table 1: Emerging solutions mapped against key outcomes

Outcome	Potential solution	Timing	Current Position
Consumers and businesses are aware of, and understand, gigabit-capable broadband.	**Develop clear and consistent terminology and practical use-cases for gigabit-capable broadband** (Industry)	Now	Strong evidence in support of this type of intervention
	Information Campaigns (Local Authorities)	As availability becomes widespread in given area	Strong evidence in support of this type of intervention
	Information Campaigns (Government /Consumer and Business Groups)	As availability becomes widespread	Strong evidence in support of this type of intervention
	Labelling systems to present simple, clear and consistent information (Ofcom/Government)	Now	Further consideration needed as to how this would apply to UK market
Consumers and businesses know if gigabit-capable broadband is available to them	**Tools to check availability and/or register interest** (Industry/Third Parties)	Industry already has some initiatives in place	Further consideration needed to ensure there is not duplication
It is easy to migrate to gigabit-capable broadband	**Clear information to ensure clarity about what will happen when migrating to gigabit-capable and assurances to prevent or limit loss of service** (Industry)	Now	Further consideration needed to understand steps already being taken by industry
Low willingness or ability to pay for gigabit-capable broadband does not hamper widespread migration to gigabit-capable broadband	**Targeted voucher schemes for specific consumers and businesses, including to address affordability and awareness of the (business) benefits.** (Government)	Now	Further consideration needed into costs of such a scheme
	Employer scheme to support employee purchase of gigabit-capable broadband (Government/Employers/Industry)	As availability becomes widespread	Further consideration needed into costs of such a scheme
Specific groups of consumers and businesses have the right support, information and skills to get the right connection for their needs	**Improved digital skills; including digital skills component in voucher schemes, or signpost to relevant digital skills courses when consumers or businesses access the scheme** (Government)	Now & as availability becomes widespread	Further consideration needed, linked to voucher schemes
	Protections for vulnerable consumers eg industry should make lower-speed, lower-price packages available over gigabit-capable networks by the time that all customers are required to migrate off the copper network. (Industry)	As availability becomes widespread	Further consideration needed to understand what industry already has planned

Next steps

The GigaTAG is keen to hear stakeholders' thoughts on this document. In particular, it is keen to understand whether these are the right barriers and if the emerging solutions are focused in the right areas. A list of questions is included in Section 4. The GigaTAG would like to receive views and comments on the issues raised in this document **by 5pm on 5 February 2021.**

The GigaTAG wants to continue its active stakeholder engagement and will be arranging evidence sessions to discuss the emerging findings from the interim report. A final report, setting out final recommendations, will be published in Spring 2021.

Section 1: Introduction

1.1 Background

It is vital that consumers and businesses across the UK have the right connections to meet their needs. COVID-19 has further highlighted the importance and need for good quality connectivity. More than ever, consumers are relying on good connections, not just for entertainment and to stay in touch with friends and family, but to perform everyday tasks: to work, shop and bank. Businesses are increasingly reliant on good quality connectivity to survive and thrive, from engaging customers and adopting technologies to exporting online. For the economy as a whole, good connectivity can lead to improvements in productivity, transformations in public services, greater innovation and more flexible working.

The government's ambition is for a minimum of 85% gigabit-capable broadband connectivity by 2025; it is seeking to accelerate the rollout further to get as close to 100% as possible.[13] To support this, the government has committed £5 billion to support gigabit-capable broadband rollout to the hardest to reach areas of the UK.[14] Gigabit-capable connections deliver improved reliability, resilience and lower latency. Research suggests that they can also, for example, deliver productivity improvements, new working opportunities and a reduction in transport and housing pressures.[15, 16]

The private sector has already committed billions of pounds to rolling out next-generation gigabit-capable infrastructure, a necessary and fundamental prerequisite to business and consumer take-up of these services.[17] As of November 2020, more than a third of homes and businesses have access to a gigabit-capable broadband connection.[18, 19]

However, supply is only one part of the picture. Demand for gigabit-capable broadband is an important consideration. That is why in August 2020, the government asked Which? (the UK's consumer champion), the Confederation of British Industry (CBI) and the Federation of Small Businesses (FSB) to convene the Gigabit Take-up Advisory Group (GigaTAG),[20] to advise the

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13   National Infrastructure Strategy. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938049/NIS_final_web_single_page.pdf

14   £1.2 billion of this will be made available from 2021/22 to 2024/25.

15   This research relates to full-fibre, one technology that can be used to deliver gigabit-capable broadband.

16   In October 2019, the Centre for Economics and Business Research (Cebr) for Openreach estimated that nationwide full-fibre could boost UK labour productivity by £59bn by 2025. Available at https://www.openreach.com/content/dam/openreach/openreach-dam-files/images/hidden-pages/full-fibre-impact/CebrReport_online.pdf

17   Note however that a range of supply-side policy challenges were highlighted in the call for evidence that slow the rollout of these connections. It is vital that the government addresses these barriers to ensure that consumers and firms across the UK can quickly access and benefit from gigabit connections.

18   National Infrastructure Strategy, November 2020 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938049/NIS_final_web_single_page.pdf

19   As of May 2020, 14% of UK homes had access to a full-fibre broadband connection, Ofcom, Connected Nations, Summer 2020. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0017/202571/connected-nations-summer-update-2020.pdf

20   The members of GigaTAG are as follows: Which?, CBI, FSB, Ofcom (observer), Broadband Stakeholder Group (BSG), Internet Service Providers' Association (ISPA), Be the Business. DCMS sits on the Advisory Group as an observer. The Good Things Foundation provides external advisory to the GigaTAG. This report presents the views and emerging findings from the Gigabit Take-up Advisory Group, it does not necessarily reflect the views of the individual organisations which make up the GigaTAG.

government on options to stimulate demand among consumers and businesses for gigabit-capable broadband connections.[21]

The GigaTAG wants to achieve two interrelated and important goals related to demand – to encourage migration to gigabit-capable networks and the adoption of gigabit-capable services (i.e. services at or around 1000 Mbps), where consumers and businesses can benefit from them,[22] as soon as possible.[23] It wants to encourage as many consumers and businesses as possible to do this voluntarily, minimising the extent of 'forced migration'.

The GigaTAG notes that encouraging consumers and businesses to migrate to a gigabit-capable network may be the first step. This will enable consumers and businesses to experience the reliability of these networks and help industry to make a return on its investment, thereby supporting further rollout. In time, consumers and businesses may gradually move to the faster, gigabit, speeds delivered over these networks as they use more data intensive applications, with this leading to broader benefits to society.

1.2 Wider context

The GigaTAG's work to encourage the migration to gigabit-capable networks and services is particularly important given the growing need for good connectivity more broadly. For example, as the government seeks to move more services online and harness the potential of effective and appropriate use of data, as highlighted through its work on **Smart Data** and the **National Data Strategy**.

Alongside this the telecoms industry is planning to **switch off the public switched telephone network** (PSTN) and move to voice over internet protocol (VoIP) by 2025, which carries calls over a broadband connection.[24] Relatedly, in those Openreach exchanges where full-fibre is available, the **copper network will be retired**, driving up demand for gigabit-capable broadband.[25]

This need to move to gigabit-capable networks will require consumer and business engagement with the market. Ofcom has already put in place a number of interventions to help support and encourage engagement such as **end-of-contract and annual best tariff notifications** which seek to help consumers know when their contract is coming to an end and help them get the best contract for their needs.[26] It has also consulted on **Open Communications**, a potential data mobility initiative for the telecoms sector.[27] This may help some consumers more easily obtain the right connection for their needs.

Alongside this, Ofcom has recently implemented the **European Electronic Communications Code (EECC)**.[28] This introduces new general switching rules that will apply to fixed broadband

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21   Note that the GigaTAG has within its scope all technologies that can deliver gigabit-capable broadband. Alongside full fibre, this includes cable and fixed wireless solutions, such as 5G.

22   Some consumers and businesses will not have a need to purchase connections with gigabit speeds. However, they will still be able to benefit from the reliability and resilience that these networks offer.

23   Note that the barriers set out in Section 2 may be more relevant to one or the other of these goals.

24   Ofcom, the Future of fixed telephone services, February 2019. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0032/137966/future-fixed-telephone-services.pdf

25   Ofcom has set out plans for this, see Ofcom, Consultation: copper retirement – conditions under which copper regulation could be completely withdrawn in ultrafast exchanges. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0022/204853/consultation-copper-regulation-withdrawal-conditions.pdf

26   Ofcom, Statement on end-of-contract notifications and annual best tariff information, May 2019. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0018/148140/statement-helping-consumers-get-better-deals.pdf

27   Although Ofcom does not have the power to introduce such measures today. See https://www.ofcom.org.uk/consultations-and-statements/category-1/open-communications

28   Ofcom, October 2020. Fair treatment and easier switching for broadband mobile customers, implementation of the new European Electronic Communications Code. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/204980/statement-eecc-revised-proposals.pdf

customers. While these measures are not solely focused on migration to gigabit-capable broadband, they will help to make it easier for consumers and businesses who are planning to switch to those connections.[29]

These interventions go some way to addressing the barriers that the GigaTAG has identified to the adoption of gigabit-capable broadband and it has taken account of these interventions when considering its emerging solutions. However, the steps taken so far are insufficient to address all the barriers. Therefore the GigaTAG's focus is on what *additional* measures may be needed.

1.3 GigaTAG call for evidence

To ensure the GigaTAG took account of all existing evidence, in September 2020, it issued a *call for evidence*.[30] This asked stakeholders to share their expertise and contribute any existing evidence they had relating to the take-up of gigabit-capable connectivity. A total of 23 written responses were received in response to this call for evidence.[31]

Alongside the call for evidence, the GigaTAG has been undertaking wider stakeholder engagement on an ongoing basis to update on progress and collect views on the GigaTAG's emerging thinking.[32] It has conducted primary research to explore business barriers to gigabit uptake. This included the CBI Tech Tracker Survey that was in the field from 17 September to 6 October 2020, to which 245 businesses of varying sizes responded. It also covered a Be The Business survey in October 2020 which canvassed 1,003 small and medium-sized enterprise (SME) business leaders.[33] FSB is currently carrying out further research in this area with a particular focus on microbusiness attitudes in response to the Covid-19 crisis, with data available in January 2021.

This document sets out the GigaTAG's emerging findings, obtained through its discussions, stakeholder engagement and call for evidence. Section 2 of this report offers an assessment of the barriers which may prevent consumers and businesses adopting gigabit-capable broadband. Section 3 then sets out the GigaTAG's emerging thoughts on potential solutions to address these barriers.

1.4 Next Steps

The GigaTAG is keen to hear stakeholders' thoughts on this document. In particular, it is keen to understand whether these are the right barriers and if the emerging solutions are focused in the right areas. A list of questions is included in Section 4. The GigaTAG would like to receive views and comments on the issues raised in this document, **by 5pm on 5 February 2021**.

The GigaTAG also wants to continue its active stakeholder engagement to ensure it captures a wide range of thoughts and views on its emerging thinking. It will be arranging evidence sessions to discuss the emerging findings from the interim report. A final report, setting out final recommendations, will be published in Spring 2021.

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29   It includes the introduction of Gaining Provider Led (GPL) switching; requirements for continuity of service and timing of a switch; a requirement for providers to make more information about their services available to digital comparison tools, including information about the availability of fixed broadband services; and extending 24 month maximum contract duration to services for microenterprises and SMEs, unless they explicitly agree otherwise.
30   https://action.which.co.uk/page/-/GigaTAG%20Call%20for%20Evidence.pdf
31   Responses were received from telecoms infrastructure providers and internet service providers, consumer organisations, businesses, rural organisations, member bodies and trade associations.
32   This has included meetings with BT, CityFibre, Communications Consumer Panel (CCP), Country Land and Business Association (CLA), Hyperoptic, INCA, the Local Government Association (LGA), Mobile UK, National Farmers Union (NFU), Sky, TalkTalk, Virgin Media and VX Fiber Limited. The GigaTAG has also spoken to CBI committees and business councils and - where possible – has invited stakeholders to GigaTAG meetings, including the Advertising Standards Authority (ASA) and Citizens Advice.
33   The CBI survey was not weighted. The Be The Business survey was a nationally representative sample.

Section 2: Factors that may inhibit consumers and businesses from taking full advantage of gigabit-capable broadband

2.1 Introduction

This section sets out the GigaTAG's initial assessment of factors that may inhibit consumers and businesses from adopting gigabit-capable broadband, drawing on the information received through the call for evidence. While the rollout of gigabit-capable broadband is currently happening at pace, it is not yet widely available and there can be a lack of choice for consumers, in terms of providers and availability.

The barriers set out in this section assume that gigabit-capable broadband is widely available, with retail services launched by providers.[34] However, the government's ambition is for a minimum of 85% of the UK to have coverage of gigabit-capable broadband by 2025. Therefore, it is likely that there will be some consumers and businesses who will want a gigabit-capable connection but who will remain unable to access one. Those consumers and businesses will face an additional practical barrier to adoption in terms of availability.

This section begins by discussing the *consumer* typologies and barriers before moving on to our initial assessment of the *business* typologies and barriers. Many of the smallest businesses may engage with the telecoms market as consumers (eg home-based businesses) or, because of their limited resources and expertise within their business, in a way that mirrors the consumer experience.[35]

2.2 Consumer typologies

Current consumer engagement with the broadband market is low.[36] There are many reasons for this, spanning consumers' capability to engage in the market, opportunities for doing so, and their motivation.[37] However, the largest barriers are that most consumers are satisfied with their current broadband service[38], perceive the broadband market to be complex and technical,[39] and/or have insufficient incentives to prompt switching to a different package.[40] Gigabit-capable connectivity is unlikely to change this so it is useful to understand who may be more or less likely to engage.

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34   Note that the launch of retail services is an important first step, alongside marketing of these services. However, providers may be cautious about marketing services too early, or nationwide, if they are only available to some parts of the UK.

35   Recent FSB research suggests that, before COVID-19, 61% of smaller firms relied heavily on their home internet for their business.

36   Ofcom research finds around 40% of broadband customers are out of contract. 19% of customers are in their first contract with their provider (i.e. new customers). See https://www.ofcom.org.uk/__data/assets/pdf_file/0031/199075/bb-pricing-update-july-20.pdf

37   p71. Which? (2018) Consumer engagement with broadband.

38   85% of people are satisfied with their service overall. Ofcom (2020) Customer satisfaction survey. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0014/201434/comparing-service-quality-2019.pdf

39   This can lead to challenges comparing products, due to lack of comparability.

40   Which? (2019) Consumer engagement with broadband.

This will support the GigaTAG's thinking about how to develop the most impactful solutions.[41] The evidence suggests that early adopters of gigabit-capable broadband are likely to be people who:

- are motivated by having the latest technology (the classic 'innovator' and 'early adopter' definition) or who have technology which requires high bandwidth, eg gamers. These consumers are likely to have one or more of the following characteristics: be younger, have higher income than average, already have superfast/ultrafast connections[42]

- have an inadequate connection which is significantly affecting their experience of internet-based services (eg large households who place excessive demands on their connection or those who currently receive poor service due to lack of fibre-to-the-cabinet [FTTC] options), or those who do not have a 'decent' connection.[43]

At the other end of the scale are those who are not motivated at all to adopt gigabit-capable broadband and will only do so when it becomes necessary ('laggards'). They are satisfied with their current service and the benefits of gigabit are either not applicable to them or they do not perceive them. They are likely to be older adults, lighter users and/or those who have chosen to be on standard connections. Which? analysis shows that people currently on standard broadband are less likely to switch to gigabit, along with those who are 65 years or older.[44] This group is different to the 'late majority' who the GigaTAG anticipates will be cautious about adopting but who will ultimately adopt of their own volition.

It is useful to think about these different consumer typologies and recognise that not all consumers will move to gigabit-capable connections at the same time. The GigaTAG will focus on getting the majority of consumers, ie. those who will adopt by their own volition at some stage, to do so more quickly, and prioritise its solutions towards these groups.

A more detailed segmentation of consumers based on attitudes and behaviour would be possible.[45] The GigaTAG considers that the existing segmentations are sufficient to develop an initial framework for solutions. However, the details of these solutions may be best informed by further insight on people's behaviour in relation to adoption. Any evidence stakeholders are able to share on further segmentations would be useful.

Some consumers may find it particularly difficult to engage

In addition to considering the role of motivation as a barrier to engagement there are various groups of consumers who may be slow to adopt gigabit-capable broadband due to characteristics of the market which can make it hard for them to engage in general. These groups of consumers are often classed as vulnerable and include: older adults, disabled people, people with mental health conditions, people with reduced cognitive resources (including 'bandwidth' – the cognitive space to engage), low income/financially vulnerable households and households in the DE socio-economic groups.[46]

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41   We hypothesise that some consumers will opt to upgrade to gigabit-capable broadband without engaging with the market or seeking alternative providers.

42   Superfast broadband is defined as a connection with a download speed of at least 30 Mbps. Ultrafast broadband has speeds of 300 Mbps and above.

43   Defined as 10Mbps or below as per the broadband universal service obligation (USO).

44   Which? (2020).

45   Which? qualitative research found that there are consumers who don't engage partly because they don't tend to trust providers to deliver, those who routinely engage because they are driven to get the best value possible and those who know they should engage but feel they lack the resilience to engage in the market. These may all influence at what stage they adopt gigabit-capable broadband.

46   It is important to note that people are unlikely to just fit into one group. For example, disabled people are more likely to be unemployed and therefore have low incomes; older adults may have a physical disability and or reduced cognitive ability.

These groups do not necessarily face the same barriers and therefore solutions should be considered on a group by group basis and tailored as necessary. For example research suggests that:

- people on low incomes and people with mental health conditions have a heightened perception of risk, presented in the form of high regret aversion (fear of making the wrong choice). For them, the potential for financial and emotional detriment is more severe than for an average person (eg concerns about going into debt if they don't spot certain additional costs or being more vulnerable to the emotional impact).[47] Stability of their package may be prioritised over one that suits their needs better or represents good value for money.[48]

- People with mental health conditions may be uncertain or nervous when receiving information from providers, fearing the worst, particularly when receiving unexpected correspondence. These feelings may determine whether a customer is able to take information on board and act on it.[49]

- People with disabilities or cognitive impairments may find the systems to engage with accounts and providers difficult to engage with. For example, the experience of speaking on the phone with providers is more likely to provoke anxiety,[50] or the phone navigation systems may be difficult for those with memory problems.[51] Those with speech, hearing or comprehension difficulties may find communication on the phone hard[52] or their assistive technology may not be supported.[53]

- Older adults and disabled people are less likely to say that they are confident in understanding the language and terminology used by providers (than younger adults and non-disabled people respectively).[54]

2.3 Consumer barriers to gigabit adoption

The GigaTAG identified a number of barriers which it believes will impact consumer adoption of gigabit-capable broadband. This is based on the assumption that consumers have access to these connections.

The assessment of the barriers has drawn on a strong evidence base and as such the GigaTAG considers that these are the right barriers for it to focus on addressing. These fall into three broad categories:

- lack of awareness of gigabit-capable broadband
- little benefit/ perceived benefit of gigabit-capable broadband
- practical barriers to adoption.

A full list of the barriers within each category is shown in table 2.

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47 Jigsaw for Ofcom (2019) Consumer engagement in fixed broadband; Britainthinks for Citizens Advice (2018) Getting a good deal on a low income; Futuresight for Ofcom (2014) Affordability of essential communication services.
48 Britainthinks for Citizens Advice (2018) Getting a good deal on a low income.
49 Money and Mental Health Institute (2019) Access Essentials: Giving people with mental health problems equal access to vital services.
50 Money and Mental Health Institute (2019) Access Essentials: Giving people with mental health problems equal access to vital services.
51 Communications Consumer Panel (2015) We're not all the same! Older and Disabled People's Experiences of Contacting Communications Providers.
52 Britainthinks for Citizens Advice (2018) Getting a good deal on a low income.
53 Communications Consumer Panel (2015) We're not all the same! Older and Disabled People's Experiences of Contacting Communications Providers.
54 Ofcom (2018) Access and Inclusion report.

Table 2: Barriers to consumer adoption of gigabit-capable broadband

Category	Barrier
Lack of awareness	The majority of people are not aware gigabit-capable broadband
Little benefit/ perceived benefit	There is currently no 'pull' to adopt, either in the form of a 'killer' consumer application or perceived importance of faster speeds
	Consumers are unclear how it differs to other connections (on the market and their own)
	Cost (low willingness to pay for faster speeds)
Practical barriers to adoption	Restricted opportunities to switch
	'Hassle' related to the switch
	Affordability (for specific groups)
	Capability to engage (for vulnerable groups)

2.3.1 Lack of awareness

A number of submissions identified consumers' lack of awareness as a barrier to adoption. Which? research found that 63% of broadband decision-makers were not aware of the government's ambition for nationwide gigabit-capable broadband.[55] This could in part be the result of industry marketing of gigabit-capable products not being widely prevalent or not clearly illustrating these connections to consumers.

2.3.2 Little benefit/perceived benefit

A number of submissions highlighted that currently gigabit-capable broadband offers little benefit for the majority of consumers.

There is currently no 'pull' to migrate to gigabit-capable broadband, either in the form of a consumer application or perceived importance of speed.

Submissions indicated that the services people have, or have available to them (ie. superfast broadband), currently meet the needs of the majority. This does not appear to have been changed by COVID-19: Which? research found that 73% of broadband decision-makers said that their connection met their needs during lockdown.[56]

Ofcom research found that the majority (82%) of people are satisfied with the speed of their service.[57] Respondents to the call for evidence pointed to adoption rates of superfast as an example of how consumers have not been pulled to switch packages by the prospect of faster speeds (see Figure 1).[58] TalkTalk's customer research found that *'many people consider their household usage to be "average" and won't be motivated by higher speed claims.'*

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55   Which? (2020) Consumer attitudes towards gigabit-capable broadband, quantitative survey.
56   Which? (2020) Consumer attitudes towards gigabit-capable broadband, quantitative survey.
57   Ofcom, Customer Satisfaction survey, 2020.
58   Superfast broadband is available to 95% of residential premises and yet nine years after it became available only 57% have adopted it. Ofcom (2019) Connected Nations Report.

Figure 1: Coverage and adoption of superfast broadband
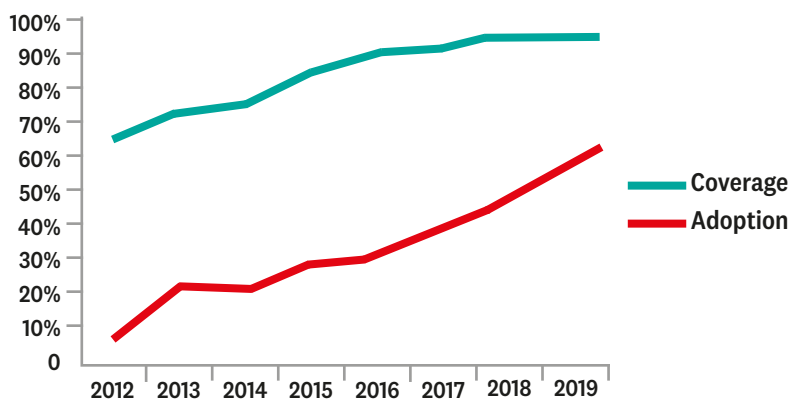
Source: Data from Ofcom Infrastructure Reports 2012 -2014 & Ofcom Connected Nations Reports 2016-2019.

While faster speeds may not motivate the *average* consumer, for those consumers where an upgrade will lead to a meaningful difference in their experience, it is likely to be a pull:

- **households with *'bandwidth hungry use'*:** VX Fiber indicated that a main audience for gigabit-capable broadband will be those with 'bandwidth hungry use', particularly where the existing service is inhibiting activities. This reflects Which? research findings that while speed was not a pull for the majority to engage with the broadband market, it was when people were experiencing major service issues.[59] Alongside this, a number of submissions cited gaming as the current use-case that is likely to attract certain consumers to adopt gigabit-capable connections.

- **households with poor or no connections available:** Some respondents highlighted that for those people who live in areas which have poor, or limited, connectivity, there will be higher demand for gigabit-capable connections. For example, the LGA cites two examples in Shropshire and Staffordshire where take-up of fibre-to-the-premises (FTTP) was 55% and 43%, respectively, as a result. The GigaTAG also notes the findings of WIK Consult which found evidence from Germany, France and the UK that where there are currently only low speed offerings, speed can become a pull.[60]

Yet, even for consumers who fit the above use-cases, the desire to switch to a gigabit-capable connection should not be presumed. Other factors such as price, lower usage and difficulty switching mean that it is not a clear choice for everyone.

There is a risk that there are groups of consumers who will never be motivated to switch. This may include light users who don't require such a high specification connection, are satisfied with their current broadband and are not driven by new technology. The GigaTAG expects these people to be older and to have a strong preference for maintaining the status quo.

This is supported by qualitative research by DCMS exploring the experience of a rural community who had full fibre installed in their area. They found that even though it was cheaper than the alternative provider, who only offered copper connections, there were individuals who were

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59   For example as a result of high household usage which led to problems such as buffering, Which? (2019) Consumer engagement with broadband.

60   WIK Consult for the Broadband Stakeholder Group, available at: http://www.broadbanduk.org/wp-content/uploads/2020/06/WIK-report_BSG_02062020_final.pdf

satisfied with their current connection and didn't feel the need to change.[61] In addition Which? quantitative research found that 32% of broadband decision-makers who chose standard broadband didn't want the speeds offered by superfast broadband, while 60% said it was a premium product that they didn't need.[62]

Consumers are unclear how it differs to other connections (on the market and their own)

A number of submissions cited that the language used to describe different types of connections can lack clarity and meaning for consumers. Specific examples included the use of technical terminology which is not understood by consumers[63] and terms such as 'superfast fibre'.[64] This creates a barrier, with people unable to distinguish between different types of connections, including what they currently have, and the relative benefits.

There are some indications that this barrier may be exacerbated for certain groups of people, for example those who are physically disabled and older adults, who are likely to be less confident in understanding the language and terminology used by providers.[65]

Cost (low willingness to pay for faster speeds)

A number of submissions indicated that consumers may be unwilling to pay much more than they do now for a gigabit-capable connection. This may be because there is not currently a significant benefit to them, or due to price sensitivity. Which? research found that only 18% of broadband decision-makers would be willing to pay more than they do now to have gigabit-capable broadband.[66]

However, willingness to pay may be less of a barrier for some consumers. In particular, in those areas of the UK where there is access to an alt-net FTTP connection, competitively priced offers are likely to be made available as the alt-nets seek to build scale quickly. In addition, it may also be less of a barrier to getting people to move to gigabit-capable networks, while taking a lower speed offering.

Certain groups of people are less likely to indicate willingness to pay more: those who are aged 45 years or more, those who have a combined income below £34k and those who don't tend to engage in the market.[67]

2.3.3 Practical barriers to adoption of gigabit-capable broadband

In addition to motivational barriers to adoption, there may be additional practical barriers. For most consumers, these are likely to be subsidiary to the impact of lack of motivation.

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61   DCMS (2020) Benefits of high speed internet: case study research.

62   Populus, on behalf of Which?, surveyed 2069 UK adults of whom 542 were broadband decision-makers in their household and had standard broadband. Fieldwork was conducted online between 4 and 6 September 2019 and the sample was weighted to be demographically representative of the UK population.

63   For example, megabit, gigabit, superfast, ultrafast and full fibre.

64   This is supported by research by Which (2019) 'Consumer engagement with broadband'; Jigsaw for Ofcom (2019) 'Consumer engagement in fixed broadband; and WIK (2020) 'Moving to a fibre-enabled UK: International experiences on barriers to gigabit adoption'.

65   Disabled people are less likely to say they're confident understanding the language and terminology used by providers compared to non-disabled people (52%% vs 80%); older adults are less likely to say they're confident understanding the language and terminology used by providers (65+yrs: 47% vs 64 yrs or under 47%). Ofcom (2018) Access and Inclusion report 2018.

66   Which? (2020).

67   Which? (2020) Those aged 45+ years compared to those aged 44 years or under (12% vs 28%); those whose combined annual incomes is below £34k compared to those where it is £34k or over (14% vs 25%); those who say they hardly ever/ never check whether they're on the best package for their needs at the end of their contract, compared to those who say they sometimes or always do (12% vs 19%).

Research tends to find that the top reasons for people not engaging are related to motivation, rather than practicalities - as such there is an argument to prioritise addressing motivation barriers ahead of practicalities.[68]

If benefits can be communicated to, and internalised by, consumers this may outweigh the 'costs' of these practical barriers. However, for some people (eg light users, older adults and some vulnerable groups) it may be hard to tip the balance this way, such that these groups present the greatest challenge. It is for those people that more specific solutions would need to be explored. These practical barriers are explored in more detail below.

Restricted opportunities to switch

Through the call for evidence process, the GigaTAG identified two barriers which may limit consumers' opportunity to adopt a gigabit-capable connection when it is available in their area.[69]

Contractual barriers
Two submissions identified that often consumers who are in a fixed contract will not be able to switch until their contract ends without paying a termination charge. This means that over half of people with a broadband contract may not be able to switch when they first hear about gigabit-capable connections becoming available in their area.[70]

It is possible that this may slow gigabit adoption. However, those in a fixed contract are likely to be more engaged in the market and therefore more likely to engage with the gigabit proposition when their fixed term ends. Arguably it is those who have been out of contract for a long time who will be the more difficult group to engage.[71]

May not be offered as part of triple-play contracts
Both Ofcom and the LGA identified that gigabit-capable connections are currently not always offered as part of triple-play and quad-play packages. These bundled customers may be unlikely to adopt gigabit connections, as their TV package is just as - if not more - important as broadband when choosing their provider.[72] Furthermore, these people may face additional disruption to multiple contracts/services if they upgrade to gigabit-capable connectivity.[73] However, it is possible that more providers may offer triple-play services with gigabit-capable broadband included in the near future, as supply-side barriers are overcome.

'Hassle' related to switching

A number of factors identified in the responses to the call for evidence relate to the actual switch being perceived as a 'hassle' or legitimately being difficult for consumers.

The requirement for engineer visits
Gigabit-capable connections require an engineer visit for installation. This was identified by some communications providers and the LGA as a potential barrier to uptake. Which? research found that 22% of broadband decision-makers didn't want someone to come to their home to install a

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68 Which? (2019) Consumer engagement with broadband.

69 Note that some submissions observed that the lack of availability of gigabit will be a barrier to adoption. Thought will be needed on how to manage the risk of consumers disengaging with the proposition if it is not available when they initially want it.

70 Ofcom's Review of pricing practices in fixed broadband (2019) finds that 40.8% of consumers are out-of-contract, meaning that 59.2% are in contract.

71 As they have shown little interest in their broadband.

72 Which was the most important element of the package when choosing your provider? Broadband 38%, TV package 35%. Sample: triple-play customers (n=530). Which? (2019) Consumer engagement with broadband: quantitative survey.

73 This would constitute approximately 42% of broadband customers, Ofcom Technology Tracker, 2020.

new connection. This barrier may be exacerbated for those on standard connections and those who have never switched.[74]

Fear of loss of service

The fear of loss of service has been identified as a barrier in previous research exploring the lack of consumer engagement in the broadband market.[75] Which? found this to be a factor, but not a significant barrier, to the average consumer. 16% of people who said that they never – or hardly ever – make changes to their package said this was because they were worried about loss of service. More frequently cited was that they were happy with the status quo, lack of perceived benefit, and loss aversion in the form of fear of a worse service.[76]

In the current climate, there is increased reliance on broadband which could make this factor a more significant barrier. For example, qualitative research conducted by Ofcom suggested that consumers in the DE socio-economic groups, and who have a large household, found the *'prospect of being without internet access, even for a short period, was highly daunting and likely to result in high levels of stress and friction within the household'*.[77]

Uncertainty around time of and extent of work needed for installation

The LGA and some communications providers identified that there can be uncertainty around when an installation appointment will be and when the new connection will be 'live'. Uncertainty is not conducive to behaviour change and people would often rather opt for the known over the unknown. However, this is likely to be addressed by Ofcom's recent work implementing the European Electronic Communications Code.[78]

Affordability (for specific groups)

Affordability was identified as a potential barrier by Consumer Council NI, which suggested that gigabit connections can come at a cost: *'many consumers in the current climate cannot afford to pay'*. Furthermore, the NFU identified that it may be an issue for rural households if there is not a community scheme.

If gigabit-capable broadband is more expensive, or if there are additional costs (eg for routers, engineer visits or infrastructure), this may be a barrier for some groups of consumers. People with very low incomes may not have the immediate budget for an increased price and/or may have concerns about long-term affordability. They may not want to be 'locked-in' to paying more, especially if they do not have a stable income. It is for these groups of consumers, with additional barriers, that the GigaTAG will need to consider more tailored solutions.[79]

Ability to engage (for vulnerable groups)

There are certain groups of consumers who may be slow to adopt gigabit-capable broadband due to the characteristics of the market which make it harder for them to engage in general. Switching to gigabit-capable broadband will require people to engage with their current package and provider. From existing research on consumer engagement in the broadband market, and

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74   31% of those who have never switched agree that they don't want someone coming to their home to install a new connection; 26% of those who say they have standard broadband agree that they don't want someone coming to their home to install a new connection; compared to 22% average. Which? (2020).
75   Also in responses from BT and the LGA and FullFibre.
76   Which? (2019) Consumer engagement with the broadband market: quantitative survey.
77   Jigsaw for Ofcom (2019) Consumer engagement in fixed broadband.
78   https://www.ofcom.org.uk/__data/assets/pdf_file/0023/204980/statement-eecc-revised-proposals.pdf
79   Those with very low incomes are more vulnerable to sudden changes in circumstances, eg, job loss/redundancy, loss of a chief wage earner (via divorce, death of a spouse) or changes to benefits (in terms of frequency and amount). Futuresight for Ofcom (2014) Affordability of essential communication services.

other essential markets, it is clear that this engagement may represent a barrier to the adoption of gigabit for some consumers who have 'vulnerable' characteristics.[80]

Engagement with providers often necessitates a certain level of capability. For example consumers often need to be proactive if they are to receive a package representing good value for money.[81] Many providers have developed online switching services however communication by phone may still be helpful – such as for booking engineer appointments, asking questions and getting the best value deal. For vulnerable consumers this can be particularly difficult due to the emotional detriment they experience as a result (eg finding it very stressful or anxiety-inducing to speak to a provider)[82], physical barriers (eg being understood on the phone due to speech problems)[83] or cognitive barriers (eg being required to remember passwords or navigate long phone menus).[84] For vulnerable consumers, the actual experience of engaging may present a sufficient barrier in itself to adoption and as such, specific solutions are likely to be required.

2.4 Business Typologies

2.4.1 The current landscape of business connectivity

The telecoms market offers businesses a vast array of connectivity options

Businesses across the UK can choose a range of both business- and consumer-focused connectivity services on the market. These range from residential fixed broadband packages to fixed broadband packages with additional features such as Service Level Agreements (SLAs), or bespoke leased lines. Firms are also increasingly able to access a range of different broadband speeds:

- **Gigabit-capable**: Across the UK, over a third of premises now have access to gigabit-capable connectivity.[85]

- **Superfast**: Currently, 86% business premises can access superfast broadband.[86] Ofcom has suggested that this is lower than residential access due to the cost of rollout to business parks and the alternative use of "leased lines" by larger enterprises.

Yet information on which connectivity services and speeds businesses currently take-up is less clear than for consumers

Whilst superfast and gigabit-capable networks are increasingly available to businesses, there is a lack of comprehensive data on which connectivity services and broadband speeds are currently being used by businesses across the UK. Existing evidence gives an indication of which kinds of services businesses take up, such as leased lines or consumer packages, but not the overall speeds or technologies. Data is not comprehensive across the business community, leaving an evidence gap.

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80   Vulnerable consumers are likely to include: older adults, physically disabled people, people with mental health conditions, low income/ financially vulnerable households, households in socio-economic group DE and people with reduced cognitive resources (including 'bandwidth'- the cognitive space to engage).

81   The majority (82%) of people who got a discount from their provider in the last 12 months proactively contacted them, while only 16% said that their provider contacted them. Similarly, 76% who added extra or improved services contacted their provider themselves, while 21% were contacted by their provider. Ofcom switching survey, 2019.

82   Money and Mental Health Institute (2019) Access Essentials: Giving people with mental health problems equal access to vital services.

83   Britainthinks for Citizens Advice (2018) Getting a good deal on a low income.

84   Communications Consumer Panel (2015) We're not all the same! Older and Disabled People's Experiences of Contacting Communications Providers.

85   HM Treasury, 2020, National Infrastructure Strategy.

86   Ofcom, 2019, Connected Nations.

2.4.2 Segmenting businesses into typologies to better understand their connectivity experiences and take-up

Firms' experiences of digital connectivity vary significantly

The UK business community is diverse and vibrant; firms have a varied experience of connectivity depending on business size, region, sector, propensity to innovate, and many other factors. The GigaTAG's research, so far, indicates that business size and propensity to innovate are the most significant factors in determining experience and adoption of broadband services.

Business size: this generally determines the resources available to the business and the type of connectivity services bought.

- *Large businesses*: Ofcom/Cartesian research from 2018 found that leased lines and fixed broadband were the most common connectivity products for large enterprises; leased lines were mainly used for sites of critical importance such as HQs or data centres and fixed broadband for non-critical sites, such as regional, local and satellite offices.[87]

- *SMEs*: Research for Ofcom in 2017 showed that only 2% of SMEs take up bespoke leased lines and 80% take up fixed line broadband.[88] Evidence to the GigaTAG thus far from Internet Service Providers indicates that the majority of SMEs are more likely to take up residential lines. This evidence was backed up in recent FSB research[89], which suggested that less than 5% of smaller firms had taken up bespoke leased line products, although those operating in the Information & Communication sector were more likely (12%) to have pursued this option. The majority of smaller firms rely on either standard ADSL (40%) or fibre (43%) connections. And before COVID-19, 61% of smaller firms relied heavily on their home internet for their business.

  The term 'SME' itself covers a wide range of business sizes, from sole-traders to near-household names employing up to 250 staff. It is far from a homogenous group. Of the UK's 6 million businesses, 76% are sole traders employing no staff, with a further 19% made up of microbusinesses. 95% of all UK businesses have fewer than 10 employees.[90] Evidence across multiple markets suggests that many of these smaller firms lack resource, time and expertise to deal with non-core business issues. For many, their decision making and engagement with the market parallels the experience of domestic consumers. However, within this group, there will also be market leaders looking for very different opportunities to either the average small firm or domestic customer.

Propensity to innovate: CBI research shows that businesses generally fall into three categories on technology and innovation adoption: from early adopters, or 'Magpie' firms who have the skill and will to adopt best practice technologies, to those who wait for technologies to be mainstream before adopting, to 'Ostrich' firms who stick to what they know and have an inability to seek or find technologies that are proven to lift productivity.[91] Cisco's 2020 Small Business Digital Maturity Index also identifies a set of categories for SME digital maturity and propensity to adopt technology; from digital indifferent and digital observer to digital challengers and digital natives.[92] These frameworks can be applied to business adoption of gigabit-capable connectivity, as identified below.

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87 Cartesian, 2018, Business Connectivity Market Assessment. Prepared for Ofcom.
88 Jigsaw Research, 2017, The SME experience of communications services: research report. Prepared for Ofcom.
89 FSB,2019, Lost Connection: how poor broadband and mobile connectivity hinders small firms.
90 BEIS Business Statistics 2020, available at: https://www.gov.uk/government/publications/business-population-estimates-2020/business-population-estimates-for-the-uk-and-regions-2020-statistical-release-html
91 CBI, 2017, From Ostrich to Magpie: increasing business take-up of proven ideas and technologies.
92 Cisco and IDC, 2020, Small Business Digital Transformation: a snapshot of eight of the world's leading markets.
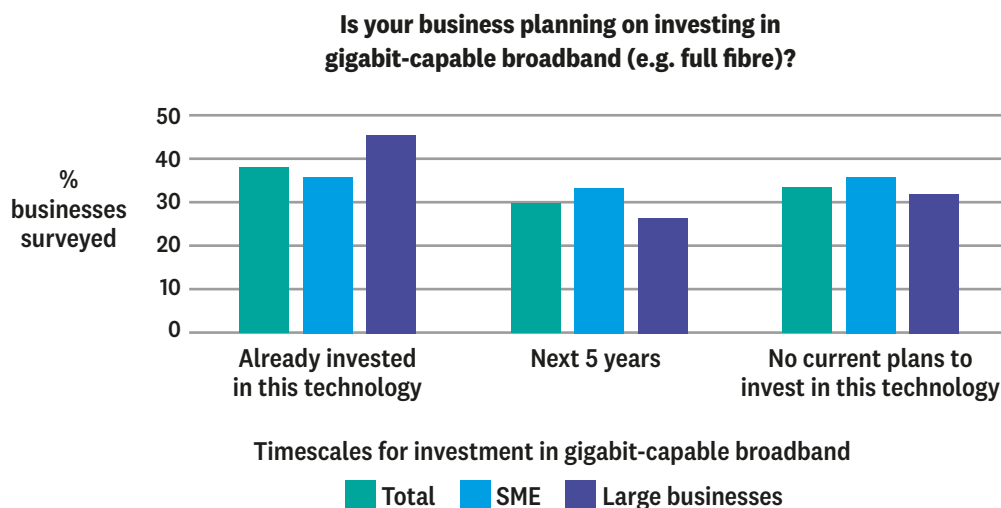
Businesses are evenly split on their intentions to invest in gigabit-capable connectivity – whether already invested, planning to invest, or not planning to invest

To gather more data on current business adoption of gigabit-capable connectivity, the CBI's Tech Tracker Survey (2020)[93] asked businesses about their investment intentions related to gigabit-capable connectivity.

Businesses that responded to the survey were evenly split on their intentions to adopt gigabit:

- Just over a third of businesses (37%) reported that they have already invested in gigabit-capable broadband (these are likely to include many firms that take leased lines), rising to 44% for large businesses.
- Just under a third of businesses (30%) are planning to invest in gigabit-capable technologies within the next five years.
- A third of businesses (33%) have no current plans to invest in gigabit-capable connectivity.

Figure 2: Business's investment intentions for gigabit-capable broadband

Is your business planning on investing in gigabit-capable broadband (e.g. full fibre)?

% businesses surveyed (y-axis)

Timescales for investment in gigabit-capable broadband (x-axis)

Legend: Total, SME, Large businesses

Data from a separate question in the Tech Tracker Survey (outlined in section 2.5) reports that some businesses do not have a clear understanding of what gigabit-capable connectivity is, or do not know when it will be available in their area. This may help explain, at least in part, why a third of respondents have no plans to invest in this technology despite its potential benefits for their business.

The GigaTAG has segmented businesses into nine groups, to ensure that it fully understands the range of barriers that businesses face and to effectively target solutions. These segmentations should be used to ensure that businesses have the right solutions at the right time to help support them in taking up gigabit connections.

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93   CBI, 2020.

Table 2: Business segmentations based on business size and propensity to innovate

	Gigabit Pioneer Early adopters/"have already invested in gigabit connectivity"	**Gigabit Follower** "Planning to invest in the next five years"	**Gigabit Sceptic** "No current plans to invest in this technology"
Large business 250+ employees	Large pioneer	Large follower	Large sceptic
SMEs 2–249 employees	Small pioneer	Small follower	Small sceptic
Microbusinesses 1–9 employees	Micro pioneer	Micro follower	Micro sceptic

2.5 Business barriers to gigabit adoption

Based on CBI and Be The Business survey data, the call for evidence, and wider business engagement, the GigaTAG has identified four key barriers that prevent businesses from taking up gigabit-capable networks; these are discussed in more detail below:

- understanding and market complexity
- benefits/Return on Investment
- skills
- practical concerns, such as switching.

These barriers are all felt most acutely by 'sceptic' businesses who are not planning on investing in gigabit-capable technologies, as well as by many 'follower' businesses, and even some pioneer businesses. In 2021, the GigaTAG will further explore how these barriers differ across business segmentations, particularly in relation to firms' propensity to innovate.

2.5.1 Understanding: of 'gigabit-capable broadband' is low amongst businesses across the UK

According to both CBI and Be The Business survey data, limited understanding of gigabit terminology and high market complexity are barriers to gigabit-capable broadband adoption.

Confusion amongst firms about broadband technology terminology, and what their options are, is a significant challenge. CBI data shows that 14% of respondent businesses didn't know what gigabit connectivity is, which they highlighted as a barrier to adoption. Qualitative data from businesses also found that some firms aren't aware of what connectivity the business currently has. Businesses also face an added level of complexity, in relation to business-focused 'add ons', such as Service Level Agreements.

There is also low awareness of how to access gigabit services within the market (and how these differ from leased lines for example), as well as limited information on availability, making it difficult for firms to plan for gigabit adoption and feed this into their wider digital adoption strategies. Of firms that haven't already adopted gigabit, 36% of firms surveyed by the CBI indicated that not knowing when gigabit-capable connectivity would be available in their area was a barrier to adoption. Supplementary qualitative research with businesses indicated that this impacts firms' ability to coordinate their connectivity and wider digitisation requirements or feed this into their digital strategy plans. The qualitative research also highlighted that accessing this information will be particularly pertinent as more people work from home and businesses increasingly rely on their employees' home networks. It would be valuable for firms to have a better understanding of when gigabit-capable technologies will be available in key locations for their employees, along with how the firm can procure gigabit-capable technologies for their offices.

Business segmentations

Understanding: The CBI survey showed that respondent SMEs are slightly more likely to lack an understanding of what gigabit connectivity is (16%), compared to larger businesses (10%). More broadly, SMEs have highlighted the complexity of the business communications market as a barrier to determining what kinds of connections are most appropriate.

Engagement with the CBI's SME Council also highlighted concerns regarding terminology and language of different products, as well as the need for better information about dedicated connectivity (such as leased lines or private 5G networks) and its benefits.

Many SMEs, especially smaller SMEs, perceive the market in the same way a residential consumer would, and have little visibility or understanding of the wider market for business communication services beyond consumer brands. For example, research in 2019 by FSB suggested that 'the fastest speed possible' was a 'top 3' priority for just over a third (38%) of small firms when choosing their broadband, with cost, customer service and reliability, and a range of other factors were also important, depending on their individual circumstances and requirements.[94] SMEs have also highlighted issues understanding the market and expressed concern about the possibility of making a mistake or bad decision.[95]

Availability: SMEs that responded to the CBI survey and hadn't already adopted gigabit-capable broadband were also more likely to highlight awareness of when gigabit connectivity would be available in their area (38%) as a barrier, compared to 33% of large businesses.

Due to COVID-19, many small firms have had to adapt their ways of working, with both an increase in home working for themselves and their employees, and an increase in online trade and delivery of services. As the small business economy recovers from COVID-19, it is clear that many businesses will be seeking to review the potentially altered markets in which they operate. As businesses have adapted their offering and ways of working during the crisis, it is likely that many will have faced challenges of broadband capacity and reliability, either reinforcing the problems they already had (but may have been considered manageable before the crisis) or highlighting new problems. This may have a demonstrable impact on how many small firms view the role of high speed broadband in future. In comparison, research shows that many larger businesses already have leased lines so this may be less of a consideration in their office spaces (see section 2.4.2).

Further research is required to understand sectoral and situational differences between different small business sectors, in terms of their likelihood to consider investing in gigabit-capable broadband at some point in the future. FSB is carrying out further research in this area with a particular focus on microbusinesses, with new data available by January 2021.

2.5.2 Benefits: Small and medium-sized businesses (SMEs) have a low awareness of the current benefits or Return on Investment of gigabit-capable technologies

If firms have a low understanding of gigabit-capable connectivity, they are unlikely to see the benefits and therefore will not take up the technology. According to both CBI and Be The Business survey data, a number of businesses perceive there to be little current benefit in taking up gigabit-capable technologies – with a third of respondents to the CBI Tech Tracker Survey stating that they have no current plans to invest in gigabit-capable technologies.

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94   FSB, 2019, Lost Connection: how poor broadband and mobile connectivity hinders small firms.
95   bdrc 2018, SME Communication Needs. Prepared for Ofcom.

CBI survey data shows that, of businesses that had not already adopted gigabit-capable technologies, almost one-in-five (19%) didn't see the Return on Investment of gigabit-capable technologies. The share was a bit higher for smaller businesses (21%) compared to large firms (15%). This chimes with wider technology adoption trends, with SMEs making up a significant proportion of the long-tail of low productivity businesses that are slow to adopt tried-and-tested technologies.[96]

At a broad level, businesses (especially follower and sceptic businesses) told the GigaTAG that they would adopt gigabit-capable technologies when they understand what the significant impacts of the technology will be on their business. For some businesses, this is because they consider their current connectivity to be sufficient. The importance of, and need for, sector-specific examples to make a convincing business case was noted by a range of businesses, and the need to target the right people within the business, such as Managing Directors, especially amongst SMEs who are often time-poor.

Furthermore, of businesses that had not already adopted gigabit-capable technologies, 14% of business respondents in the CBI survey also highlighted a lack of capital to invest. The GigaTAG's qualitative research shows that firms feel that they don't have the cash flow available to invest.

Business segmentations

Be The Business survey data shows that, of SMEs that had not already adopted gigabit-capable technologies, over a third of SMEs (36%) didn't think gigabit would be relevant for their day-to-day business operations and 31% didn't see the benefit of gigabit-capable technologies. This reflects previous research by FSB which suggested that 59% of smaller firms believed their current broadband speed was adequate for their current business needs.[97] Whilst increased speeds may not have been a priority for all SMEs, gigabit-capable connectivity offers increased reliability and a futureproof network. Therefore, these results may reflect a wider lack of understanding of gigabit-capable technologies and their potential benefits, especially in light of the changes enforced on businesses by COVID-19.

It is clear that the majority of smaller businesses do not currently consider that the relative benefits of gigabit outweigh either any additional costs associated with adopting gigabit-capable broadband or the opportunity cost of investing time and resource into understanding how their business could make best use of it. Small firms tend to have less capital to invest, with Be The Business survey data highlighting that, of SMEs that had not already adopted gigabit, 20% did not currently have access to the capital to invest in upgrading to a gigabit network.[98] This lack of investment power will have been exacerbated as a result of COVID-19, with more firms carrying debt and facing unprecedented levels of low confidence.

Innovation is also a critical element of business growth and productivity. For many smaller firms, investment in innovation and new technology tends to be incremental and new-to-firm (rather than new to market).[99] For them, the benefits of gigabit investment would need to be seen as immediate, guaranteed and affordable. In this regard, the minority of small business market leaders will play a critical role in embedding and normalising this new technology, demonstrating the value to the majority of more cautious late adopters, or 'sceptics'. Further research is required

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96   CBI, 2017, From Ostrich to Magpie: increasing business take-up of proven ideas and technologies.
97   FSB, 2019, Lost Connection: how poor broadband and mobile connectivity hinders small firms.
98   CBI data shows that, of firms that haven't already adopted gigabit, 15% of SMEs don't have access to the capital to invest in gigabit. Be The Business data shows that 20% SMEs don't have access to the capital to invest.
99   FSB, 2018, Spotlight on Innovation: how government can unlock small business productivity.

to understand sectoral and situational differences between different small business sectors, in terms of their views on the benefits of gigabit-capable broadband.[100]

In contrast, many large businesses generally see the benefit of gigabit investment already, with 44% of respondent large firms to the CBI Tech Tracker Survey having already invested in gigabit (compared to 34% of SME respondents).[101] Qualitative engagement with larger firms, through both the CBI's survey and 1-1 engagement indicates that ensuring employees have fast, reliable connectivity when working remotely is a priority in both the short and long term.

2.5.3 Skills: Lack of skills and a responsibility vacuum within firms were highlighted as key barriers to gigabit adoption

The GigaTAG's research so far indicates that businesses also face a range of skills barriers that hinder adoption. These include:

- *Skills to adopt gigabit-capable technologies effectively*: of firms that hadn't already adopted gigabit-capable connectivity, almost one in ten (9%) business respondents in the CBI's survey said they did not have the skills needed to adopt gigabit-capable technologies effectively. This sentiment was shared by a higher share of respondent SMEs (11%) compared to larger firms (3%) according to CBI data. Be The Business survey data also indicated that skills were an issue for 12% of SMEs that hadn't already adopted gigabit. The GigaTAG will further explore how this relates to other barriers, such as identifying the benefits and broader digital skills challenges facing firms that prevent them from effectively using and integrating new technologies.

- *Skills and time to navigate a complex market*: as highlighted above, the business communications market is highly complex and more fragmented than the consumer market. The GigaTAG's qualitative research thus far indicates that many businesses lack the time and skill to understand the market, the different products available and how these technologies would benefit their business (this was also noted in the CLA's response).

- *The need for new forms of business leadership on digital connectivity*: in the CBI's research, firms were clear that their connectivity needs are changing rapidly as employees work more flexibly. As one manufacturing company put it: '*with engineers working from home, we are dependent on the capacity of the final 'copper connection' to people's homes*'. It likely that these new connectivity requirements are set to pervade; when asked in a recent Ipsos MORI/CBI survey[102], almost half of businesses (47%) expect that staff will split their time evenly between home and the workplace in the two to three years beyond 2021.

As businesses find new ways to adapt to remote working connectivity needs, they can face a vacuum of leadership or responsibility on connectivity, especially on how they can facilitate better employee connectivity at home - which is vital for the smooth-running of many businesses. Responsibility for these issues varies substantially according to the firm; connectivity needs do not always sit within wider technology adoption or internal digital strategy teams, sometimes sitting with HR from a home-working perspective, or with a small, or outsourced, IT team. One respondent to the call for evidence highlighted that: '*greater understanding of who in households and businesses are making decisions on their connectivity would also give greater insight for the advisory group in targeting their recommendations*'.

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100   FSB is currently carrying out further research in this area.
101   Businesses were asked "Is your business planning to invest in any of the following technologies: gigabit-capable broadband (eg full fibre). [Already invested in this technology; next 12 months; 1-3 years; 3-5 years; no current plans to invest in this technology].
102   CBI/Ipsos MORI survey 2020: COVID-19 provides pathway to future of carbon reduction, flexible working and local shopping https://www.ipsos.com/ipsos-mori/en-uk/cbi-ipsos-mori-survey-covid-19

Business segmentations

These skills challenges are particularly pertinent for sceptic SMEs, who often face a lack of resource, expertise or time to navigate the market and adopt gigabit effectively. SME decision-makers are often non-specialists in IT and can have limited technical understanding of the wider market for business communications services beyond.[103] Research by FSB suggests that 26% of small business owners lacked confidence in their basic digital skills.[104] Some SMEs are unaware of/nervous of using B2B providers and only consider mass market brands with higher consumer awareness. FSB research found that around 20% of smaller firms highlighted brand trust and recognition as a major factor in their broadband decision.[105]

Further research is required to understand sectoral and situational differences between different small business sectors, in terms of whether or not they feel they have the skills or expertise to adopt gigabit broadband effectively and take advantage. FSB is carrying out further research in this area.

2.5.4 Other practical barriers: a range of other issues stop businesses of all sizes from generally upgrading their connections – although these are not specifically related to gigabit-capable technologies

Ofcom research, alongside the call for evidence, highlighted a broader range of barriers that hinder firms from switching.

- *Continuity of service*

Both GigaTAG qualitative research with businesses and Ofcom research suggest that some businesses have particular concerns about disruption to service caused by switching. In today's constantly-connected business world, firms need reliable connectivity, for example to process transactions in real-time and engage customers and clients. In some cases, switching involves a 'cease and re-provide process' where businesses have to cancel one service and order a new one separately, and are therefore concerned about long periods of down-time which would be disruptive and costly in today's business environment.[106]

- *Contract length*

Some firms, particularly SMEs, have highlighted that business contracts (rather than residential or basic business contracts) lasting several years and some businesses' multiple non co-terminous contracts with their provider create barriers to switching or upgrading their service.[107] SMEs have also raised concerns about high cancellation fees and termination policies. Over this time period, SMEs can quickly double in size or suffer significant losses, meaning that their connectivity requirements can change rapidly. As more SMEs digitise, it is vital that their connectivity needs can be met as quickly as they adopt new technologies.

Business segmentations

These barriers are consistent across a wide range of businesses, including pioneer large firms who have concerns regarding the time and cost of switching leased lines. However, concerns about disruption to service are a particular issue for SMEs. SMEs also highlighted concerns about protracted down-time due to difficulties installing new routers or problems that required an engineer visit, as well as billing and contract disputes with their current supplier, and the hassle and time involved in switching suppliers.

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103   BRDC 2018, SME Communication Needs. Prepared for Ofcom.
104   FSB, 2017, Learning the Ropes: skills and training in small businesses.
105   FSB, 2019, Lost Connection: how poor broadband and mobile connectivity hinders small firms.
106   Cartesian, 2018, Business Connectivity Market Assessment. Prepared for Ofcom.
107   BDRC 2018, SME Communication Needs. Prepared for Ofcom.

The 'opportunity cost' of market engagement for smaller firms is often overlooked across many different markets, including energy, water, insurance, banking and telecoms. The drag effect of this opportunity cost can be mistaken for disengagement or disinterest by small firms.

Section 3. Emerging solutions to support adoption of Gigabit-capable broadband

3.1 Introduction

This section describes possible solutions, drawing on the call for evidence and engagement with stakeholders, to help tackle the factors that may inhibit both consumers and businesses from taking full advantage of gigabit-capable broadband.

This is the GigaTAG's initial thinking. At this stage it seems that improving awareness of gigabit-capable broadband is a critical first step. However, in isolation, addressing awareness will not be sufficient. Over the coming months the GigaTAG will consider what the right package of final solutions should look like, recognising that they may need to be sequenced and that there may be dependencies between them. The GigaTAG will assess these solutions against a criteria which will include measures such as: the cost for businesses and government; effectiveness in addressing the barriers; and potential unintended consequences. The GigaTAG considers that the entire sector potentially has a role to play in ensuring adoption of these connections.

The GigaTAG will also need to assess the extent to which the market would achieve the desired consumer and business outcomes without intervention. It will examine the wider landscape, as well as learnings from other migrations, such as the take-up of superfast. The GigaTAG will also need to give careful thought to the appropriate timescales for solutions to be put in place (given the level of availability of gigabit-capable broadband), and the fact that different solutions may have a greater or lesser impact at different stages of rollout.

The GigaTAG is keen to gather thoughts and feedback from the industry, wider business community, and other stakeholders on whether these are the right areas of focus and whether there are additional considerations that the GigaTAG should take into account. It would welcome any evidence that stakeholders have on the impact of implementing any of these potential solutions, such as costs, or unintended consequences.

3.2 Emerging solutions

Looking at the barriers, the GigaTAG has identified a number of outcomes that need to be achieved if gigabit-capable broadband is to be widely adopted by consumers and businesses. It has mapped possible solutions against those outcomes, drawing on the input received through the call for evidence process. Some of the solutions the GigaTAG has considered are already in progress, through work currently being undertaken by Ofcom, and as such the GigaTAG will not be looking at them further.

Table 4 sets out the GigaTAG's emerging thinking on potential solutions. It also indicates when these possible solutions may need to be implemented, alongside an initial assessment of the evidence and where further consideration will be needed.

The rest of this section describes the potential solutions.

Table 4: Emerging solutions mapped against key outcomes

Outcome	Potential solution	Timing	Current Position
Consumers and businesses are aware of, and understand, gigabit-capable broadband.	**Develop clear and consistent terminology and practical use-cases for gigabit-capable broadband** (Industry)	Now	Strong evidence in support of this type of intervention
	Information Campaigns (Local Authorities)	As availability becomes widespread in given area	Strong evidence in support of this type of intervention
	Information Campaigns (Government /Consumer and Business Groups)	As availability becomes widespread	Strong evidence in support of this type of intervention
	Labelling systems to present simple, clear and consistent information (Ofcom/Government)	Now	Further consideration needed as to how this would apply to UK market
Consumers and businesses know if gigabit-capable broadband is available to them	**Tools to check availability and/or register interest** (Industry/Third Parties)	Industry already has some initiatives in place	Further consideration needed to ensure there is not duplication
It is easy to migrate to gigabit-capable broadband	**Clear information to ensure clarity about what will happen when migrating to gigabit-capable and assurances to prevent or limit loss of service** (Industry)	Now	Further consideration needed to understand steps already being taken by industry
Low willingness or ability to pay for gigabit-capable broadband does not hamper widespread migration to gigabit-capable broadband	**Targeted voucher schemes for specific consumers and businesses, including to address affordability and awareness of the (business) benefits.** (Government)	Now	Further consideration needed into costs of such a scheme
	Employer scheme to support employee purchase of gigabit-capable broadband (Government/Employers/Industry)	As availability becomes widespread	Further consideration needed into costs of such a scheme
Specific groups of consumers and businesses have the right support, information and skills to get the right connection for their needs	**Improved digital skills; including digital skills component in voucher schemes, or signpost to relevant digital skills courses when consumers or businesses access the scheme.** (Government)	Now & as availability becomes widespread	Further consideration needed, linked to voucher schemes
	Protections for vulnerable consumers eg industry should make lower-speed, lower-price packages available over gigabit-capable networks by the time that all customers are required to migrate off the copper network. (Industry)	As availability becomes widespread	Further consideration needed to understand what industry already has planned

3.2.1 Improved awareness and understanding of gigabit-capable broadband

Both consumers and businesses are facing barriers in relation to the lack of perceived benefit of adopting gigabit-capable broadband. To address this barrier, and achieve the stated outcome, it will be essential to explain what gigabit-capable broadband offers. The GigaTAG believes that improving awareness and understanding of gigabit-capable broadband is very important and something that should be dealt with now.

Explain the benefits

Consumers and businesses should not be expected to understand the technical specifics of broadband in great detail. Therefore, the GigaTAG considers that it will be important to focus on the experience, outcomes and benefits that gigabit-capable connections offer. There is strong evidence to support the need for clearly explaining gigabit-capable broadband to consumers and businesses.

This may include focusing on reliability as noted in some responses, as opposed to speed. A number of respondents to the call for evidence highlighted the importance of ensuring that consumers and businesses understand and recognise the benefits of gigabit-capable broadband to help support its take-up.

The GigaTAG understands that, in some instances, this is already happening. BT noted in its response to the call for evidence that its marketing of full fibre has '*shifted from a focus on ultrafast speed to a broader message of reliability, resilience and capacity to handle more connections*'. BT also states that the reliability of full fibre is an '*increasingly effective focus in [their] consumer marketing.*'

> The GigaTAG is keen to speak to providers and understand more about how they plan to, or already are, describing gigabit-capable services.
>
> The GigaTAG considers that there is an opportunity to work with industry to think about how to explain and develop use-cases that clearly communicate to consumers and businesses how it is different from other types of connection.

Information campaigns

The potential for the government and the public sector to play a direct role in supporting adoption was noted by a number of respondents, with strong evidence in support of information campaigns. Evidence highlighted that the government is likely to be a more trusted source of information than providers, which may mean they are better suited to running these campaigns. There are a range of existing networks that could facilitate this, as connections become available within an area, such as Local Enterprise Partnerships and Local Economic Growth Boards for businesses. The LGA suggested the potential role for an appropriately funded digital champion to coordinate local actions.

> The GigaTAG agrees that Local Authorities can play a role in communicating with consumers and businesses to explain the benefits of gigabit-capable broadband, as it becomes available in local areas. The GigaTAG will explore this in more detail before publishing its final report.

As gigabit connections become more widespread, information may also need to focus on the 'fit-for-the-future' aspect of this type of connectivity. This view was echoed by INCA, who stated in its response to the call for evidence that the move to gigabit-capable is a move to a future-proof network that can accommodate capacity demands over the coming decades; '*it will be helpful if government, industry associations and other organisations focus at least in part on that big message, leaving individual companies in the sector to make their specific marketing and sales pitches to consumers and businesses*'. Similarly, BT anticipates that '*a national 'switchover' campaign will*

be key' and both BT and Openreach highlighted the importance of national awareness-raising campaigns, at the right time, to help educate consumers of the benefits.

By this point, a campaign may also be needed to inform people about the need to take action and upgrade to gigabit-capable connections to ensure they remain connected if part-copper services are being withdrawn.[108]

Further work would need to be done to understand who would be best placed, from both a consumer and business perspective, to run such campaigns (eg government and/or consumer and business groups). For example, in their submission, TalkTalk highlighted research they conducted on the move to voice over IP (VoIP) which *indicated that consumers place value on communications from external bodies such as Ofcom and government, rather than Internet Service Providers (ISPs).* Timing of such a campaign would also be critical, given current levels of coverage.

> The GigaTAG will explore whether in the medium to long term, as gigabit connectivity becomes more widespread, a nationwide awareness-raising campaign may be needed to educate consumers and businesses of the benefits.

Simple, clear and consistent information

There is a need to ensure that as well as the benefits, information is clear to different audiences. This will help consumers and businesses understand what gigabit-capable broadband offers them and the differences between different types of connection. This need for clear and consistent information is something that the GigaTAG believes there is strong evidence in support of and would need to be addressed now.

Today, the wide range of different terms used to describe different types of broadband connection, as well as the broad use of the word 'fibre', adds complexity to the market. Therefore, solutions in this area are likely to be particularly useful in the near-term, while providers continue to offer FTTC services, alongside gigabit-capable broadband.

Octopus Investments stated in their call for evidence submission that it is '*important for the industry to clearly demarcate FTTC vs FTTP to consumers*'. This need to simplify was also echoed by VX Fiber who said that '*we need to get the narrative right so that a clear differentiation is obvious when comparing gigabit to superfast, copper hybrid to full fibre*'. Similar views were put forward in other submissions.

> The GigaTAG is keen to discuss with providers how terminology could be simplified and whether there is an opportunity to establish a consistent and clear approach to support take-up.

Furthermore, Citizens Advice Scotland suggested that the '*UK government, Ofcom, providers and consumer organisations collaborate to create a clear and accessible labelling system for packages that allows consumers to make informed purchasing decisions*'. The organisation also highlighted the communications should be in the '*most accessible language possible, ensuring that consumers understand what it is that they may be purchasing and how it compares to their existing broadband connection.*'

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108   Note that at this point, while an engineer visit would be required to connect to the new network, a service upgrade would not be necessary.

The idea of a labelling system is not new. In 2020, WIK-Consult explained in its report for the BSG that, in Italy, *'the regulator has introduced a clear labelling system which highlights through traffic lights the quality of the underlying technology'*.[109] This idea of a labelling system was also raised in responses from a number of respondents.

However, the GigaTAG notes Openreach's comments in relation to such a system that while there could be merit in exploring such an approach, *'it would need to be adapted to the UK's specific market environment'*. WIK-Consult's research also noted the potential for unintended consequences, which would also need to be considered in the UK context.[110] As such, the GigaTAG believes that further consideration is needed to look at how this solution could apply to the UK market.

> Labelling is a solution that the GigaTAG will consider in greater detail, ahead of publishing its final report, to understand if and how this could work in the UK and to get a deeper understanding of the pros and cons of this approach.[111]

It is also important to note that solutions related to ensuring consumer understanding and awareness of gigabit-capable broadband may not be enough for some to migrate to these connections.

3.2.3 Ease of migration

The GigaTAG wants to ensure that consumers and businesses are able to find out if gigabit-capable broadband is available in their area, and if it is, they need to be able to easily migrate to these connections. A number of respondents highlighted a 'demand register' as a potential solution. For example, Openreach explained that *'consumers could register their interest in buying a FTTP service once available and pre-register interest in hearing from specific CPs once service is available'*. CityFibre also encourages pre-registering of interest from residents before they build. They also highlighted that residents are twice as likely to register interest with CityFibre than they are with an ISP partner.

Citizens Advice Scotland *'believe each Local Authority/LEP should have a demand register where residents sign up through their websites'*. The CLA and the LGA also highlighted the potential role that Local Authorities could play to spur and aggregate demand.

The GigaTAG notes that there is already work being done by the industry to help consumers and businesses find out easily whether gigabit-capable broadband is available in their area, or if it is becoming available.[112] The GigaTAG does not want to duplicate the work that is underway, nor the steps being taken already around registering demand. As such, it needs to consider solutions in this area in more detail so as to avoid duplication.

The GigaTAG also notes Ofcom's work implementing the EECC. This requires providers to share address level broadband availability information that is published on their websites with qualifying digital comparison tools by December 2021.

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109   WIK Consult, 2020, 'Moving to a fibre-enabled UK: International experiences on barriers to gigabit adoption'. Available at: http://www.broadbanduk.org/wp-content/uploads/2020/06/WIK-report_BSG_02062020_final.pdf

110   Ibid.

111   The GigaTAG notes the recent work by WIK Consult 'Identifying Best Practice in Fibre Advertising' available at https://www.ftthcouncil.eu/documents/Study%20-%20Identifying%20European%20Best%20Practice%20in%20Fibre%20 Advertising%20-%20FTTH%20Conference.pdf?_cldee=Z3JlZy5tZXNjaEBjaXR5ZmlicmVob2xkaW5ncy5jb20%3d&recipie ntid=contact-cf8e4ca257b7e911a82c000d3ab18807-f801773249914daf962474cd15d93c87&esid=bd198e13-0834-eb11-a813-000d3ab8d09b

112   Such as Ofcom's Broadband checker - https://www.boostyourbroadband.com/broadband-checker

> The GigaTAG is interested to learn more about how demand register tools are working and whether more can be done to ensure consumers and businesses are aware of these tools. For example, is there anything that digital comparison tools (DCTs) or coverage checkers could do to support these tools?
>
> Alongside this, the GigaTAG is interested in receiving views on whether other steps could be taken by DCTs to improve awareness. For example, including a wider range of gigabit-capable services on their sites, or seeking out availability data to include in their user interfaces.[113] Is there any information that could be shared about connections becoming available in the near future, while being mindful of commercial confidentiality?

Consumers and (follower or sceptic) SMEs

Once consumers have identified that a gigabit-capable broadband connection is available to them, they need to be able to easily migrate. However, they can face specific challenges, including concerns about loss of service and 'hassle' related to the switch. The GigaTAG wants to ensure that consumers and SMEs are easily able to migrate to gigabit-capable services and not be concerned about losing their service in the process.

Responses to the call for evidence highlighted the need to move to Gaining Provider-Led (GPL) switching as part of achieving this outcome and overcoming people's barriers related to switching.[114] However, it was emphasised by some respondents that this would need to be a true GPL process, removing any contact with the losing provider.

The GigaTAG believes that addressing the switching process is an important solution and recognises that work is being undertaken by the telecoms industry and Ofcom to improve switching in the broadband market, including moving to a GPL switching process.[115] Ofcom has already published updated rules related to the European Electronic Communications Code.[116] These rules are likely to help overcome concerns such as loss of service, as well as providing compensation when things go wrong. It also helps to provide greater clarity about when a new connection will be provisioned. As such, the GigaTAG is not prioritising additional solutions in relation to the switching process.

> The GigaTAG will continue working with Ofcom to understand how proposals for GPL switching are progressing.

Some respondents highlighted the need to ensure that there is an easy process to switch, and address people's fears, such as lost phone lines. BT highlighted some of the challenges it has faced in transitioning customers to FTTC (at no extra cost) including fears around temporary loss of service.

> The GigaTAG would be interested to understand whether, prior to the introduction of GPL switching, the industry currently provides consumers and SMEs with information when they are migrating to gigabit-capable broadband to help allay fears and concerns. Or whether they are taking any other steps to help address concerns to support migration.

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113   This was also noted by the LGA.
114   CityFibre highlighted that this should not use a switching code.
115   However, the specifics of the GPL process are yet to be agreed.
116   Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/204980/statement-eecc-revised-proposals.pdf

3.2.4 Addressing low willingness, or ability, to pay

The GigaTAG wants to ensure that consumers and businesses are not prevented from migrating to gigabit-capable connections due to low willingness to pay. Given that broadband is an experience good, consumers are unlikely to fully appreciate the benefits before using it. This can impact on willingness to pay for such a service.

When there is greater availability of gigabit-capable broadband, it seems possible that the communications providers will do what they can to market their gigabit-capable services in a way that encourages their customers to migrate to these services and choose them over FTTC products.[117] The GigaTAG considers it likely that ISPs will price gigabit-services to encourage demand. However, there may also be other non-financial mechanisms they choose to use, eg. contract structures or free routers.

Voucher schemes

Alongside the role that industry can play in attracting consumers and businesses to migrate, many respondents to the call for evidence highlighted the important role that voucher schemes can play. This can be both in terms of supporting adoption by addressing cost concerns and limited understanding of the benefits, as well as deployment.[118] Some respondents highlighted that voucher schemes have previously had a positive impact on encouraging take-up.[119] Citizens Advice Scotland also suggested that vouchers could help to incentivise take-up, through provision of vouchers to local authorities and SMEs.

From a business perspective, FullFibre highlighted that '*it is much more difficult to truly understand a business' connectivity needs as every business is different, and it is also difficult to give a guide to what they will need*'. With this in mind, other respondents suggested that voucher schemes give follower and sceptic businesses the opportunity to take up the technology and uncover the specific benefits for their business once adopted, rather than providers consulting businesses on potential benefits.

Some respondents to the call for evidence suggested the use of voucher schemes to target specific groups of consumers and businesses. This is one way to address the issue of broadband being an "experience good" and help both businesses and consumers identify the specific benefits or use cases most appropriate to them. The Consumer Council for Northern Ireland highlighted that any scheme should be used to help those consumers who are most in need of improved broadband speeds. Openreach considered that vouchers could be targeted towards rural locations and/or specific groups with lower take-up.[120] As such vouchers may also have a role to play in addressing affordability concerns that are faced by some consumers. However, further consideration is needed into the specifics of such a scheme.

> The GigaTAG will look at the role that voucher schemes could play in encouraging adoption of gigabit-capable broadband by specific groups of consumers and businesses. It will consider previous schemes and lessons learned from these. It will also give careful thought to the feasibility and cost of any such scheme.

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117   We note that this may depend on wholesale conditions.

118   The GigaTAG notes the government's existing commitment of £5billion to support rollout of gigabit-capable broadband in the hardest to reach parts of the UK.

119   However, the CLA also noted that they do present challenges for some forms of tenure (eg landlords are unable to compel tenants to take a certain connection).

120   Openreach and BT noted the Greek example, which made vouchers available for customers moving to services with bandwidths of 100Mbps and above, offered on infrastructure that is readily upgradable to 1Gbps. This effectively reduced the price differential between services.

'Broadband-to-work' scheme

Similarly to voucher schemes, the CLA and CityFibre both suggested schemes akin to cycle-to-work, but for broadband. CityFibre described '*a new salary sacrifice scheme to encourage employees to upgrade their broadband connection, which would materially help both them and their employers and provide a significant ongoing boost to the UK econo*my.' However, the GigaTAG is of the view that such a scheme could only be implemented when gigabit-capable broadband becomes more widely available and it needs to give further consideration to the evidence in relation to such a scheme.

The GigaTAG will explore this proposed scheme further. COVID-19 means that more people than ever are working from home and dependent on their connection for work. However, consideration needs to be given as to how this might work in practice and how it could be funded, as well as the right timing to implement such a scheme.

Non-financial incentives

The GigaTAG also explored non-financial incentives to encourage migration to full-fibre. FullFibre suggested schemes that do not tie people to a contract, or offer free trial periods. CityFibre presented the example of Iceland, where contract lengths were restricted to 30 days by the regulator as a way to encourage switching. As of September 2019, Iceland had 97% FTTP coverage with take-up of 68%. However, the GigaTAG notes the importance of a mindful approach to making cross-country comparisons. The GigaTAG notes Ofcom's current rules which prohibit contract lengths longer than 24 months for residential customers, microbusinesses and SMEs, unless in the case of such businesses this right is waived. It also requires providers to offer a 12 month contract option, or shorter. Given Ofcom's current rules, the GigaTAG is not planning on looking at solutions around contract length in further detail.

In relation to contract termination, CityFibre's response suggested considering whether minimum contract periods with high early termination charges could inhibit the take-up of full fibre services. However, the GigaTAG is not planning to look at restrictions on early termination charges given the complicated contractual issues addressing this would raise. Even if there was a special case for gigabit-capable connections, there are likely to be issues in targeting this at those connections alone. There is also a risk that it would result in costs being recovered from consumers in shorter time frames in the form of higher prices, which could negatively impact take-up. Therefore, the GigaTAG will not be giving further consideration to this solution.

3.2.5 Support for specific groups of consumers and businesses

The different consumer and business typologies noted in Section 2 highlight the importance of taking a targeted approach for particular groups. The GigaTAG believes that a key outcome is ensuring that specific groups of consumers and businesses have the support they need to get the right connection for their needs.

For both consumers and businesses, there was a consensus across responses to the call for evidence that more work needs to be done to improve digital skills and increase digital literacy. While the GigaTAG's focus is on those who are already online, it is clear that even within this group, there is work to be done to improve digital skills (eg. supporting those consumers who face specific challenges to engage). This is required both today, and as gigabit-capable connections become more widespread.

> The GigaTAG will be exploring this solution in greater detail and will also consider whether it could be included as part of suggested voucher schemes.

Consumers

The GigaTAG's work has highlighted that some groups of consumers may face a specific challenge in relation to the affordability of gigabit-capable services. The GigaTAG knows that Ofcom and the industry have done significant work to help vulnerable consumers.

The GigaTAG considers that in future, a social tariff may be needed for gigabit-capable networks. This would be a mechanism to ensure that vulnerable consumers continue to receive decent broadband services, as technology progresses.[121] However the GigaTAG believes that this would only be relevant very late in the transition, so will not be considering this in further detail.

As previously noted, some people also have limited need for gigabit-capable broadband services. Even when more use-cases become available, some consumers will still not need a gigabit-capable service and would be unwilling to pay more for these services.

> The GigaTAG is interested to hear from industry as to whether it will make lower-speed, lower-price broadband packages available over gigabit-capable networks, as migration away from copper broadband products becomes essential, for those who do not want to pay more for, or do not need, gigabit-capable services.

Businesses

As the GigaTAG's indicative business typologies suggest, it is imperative that business solutions are targeted effectively, according to the specific challenges faced by each group. Our research thus far suggests that potential solutions, such as financial incentives (voucher schemes) and information campaigns, would be best targeted to follower and sceptic SMEs, for example. Other solutions, such as an employer-led scheme, have much wider applicability across the business community, and would also support pioneer firms in facilitating greater gigabit adoption amongst their employees.

Additional specific solutions may be required for these SME groups, such as support to better navigate the business market, or a major information awareness campaign linked to existing support for business investment and productivity gains. The GigaTAG will be seeking views on what other forms of business support would be appropriate and effective.

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121   ie. they would not have a gigabit-capable service.

Section 4. Next Steps

This document provides an update on the progress the GigaTAG has made to date. It sets out GigaTAG's initial findings on a wide range of barriers and possible solutions to tackle those barriers. Going forward, the GigaTAG wants to gather more evidence to test and refine its thinking in these areas, and to identify which are the most appropriate interventions for tackling the barriers to adoption. This document represents an important first step in that process

The GigaTAG would like to receive views and comments on the issues raised in this document, **by 5pm on 5 February 2021**. Please send these to gigatag@which.co.uk.

Please let the GigaTAG know if you wish to respond but are unable to meet this deadline, or if you would like to feed in evidence in an alternative format.

Any responses received will be shared with all organisations within the GigaTAG.[122] They will be used by the GigaTAG to develop policy recommendations and to publish a report summarising the information gathered. The responses may also be published in whole or in part, save for any information that is marked as confidential - see below.

Note that the GigaTAG will ensure that it obtains separate permission before publishing any information that would allow others to identify individuals, including responses from individuals. Please mark any parts of your response which are confidential. Any information that is marked 'confidential' will be treated as such and not shared more widely than the GigaTAG. We are happy to discuss any concerns around confidentiality.

Key Questions
Note that these summarise the questions raised in boxes throughout the report.

Barriers

1. Has the GigaTAG identified the right consumer and business barriers? Are they reflective of stakeholder experiences?

2. Do you have any evidence or research on more detailed consumer segmentations?

Solutions

3. Is the GigaTAG focusing on the right solutions to address the barriers identified for consumers and businesses? Are there other solutions you think should be considered?

4. Do you have any evidence on the potential impact of implementing any of these potential solutions, eg costs, unintended consequences.

5. How could terminology be simplified and a clear and consistent approach be established? How can gigabit-capable services best be described?

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122   The members of GigaTAG are as follows: Which?, CBI, FSB, Ofcom (observer), Broadband Stakeholder Group (BSG), Internet Service Providers' Association (ISPA), Be the Business. DCMS sits on the Advisory Group as an observer. The Good Things Foundation provides external advisory to the GigaTAG. This report presents the views and emerging findings from the Gigabit Take-up Advisory Group, it does not necessarily reflect the views of the individual organisations which make up the GigaTAG.

6. Do you have any views or evidence to help the GigaTAG assess how a labelling scheme could work in the UK and the pros and cons of such an approach?

7. Can more be done to help raise awareness of demand register tools? Is there anything that digital comparison tools (DCTs) or coverage checkers could do to support them?

8 .Does industry provide any information to consumers and businesses that are migrating to gigabit-capable broadband to help allay fears and concerns, eg disruption to service/loss of service? Is industry taking any other steps to help address concerns around migration?

9. Do you think voucher schemes would be effective in driving gigabit take-up? Why, and what evidence do you have to support this?

10. Does industry plan to make lower-speed, lower-price broadband packages available over gigabit-capable networks, as migration away from copper broadband products becomes essential, for those who do not want to pay more for, or do not need, gigabit-capable services?

11. What role should different government departments play in leading each solution, and what role can other organisations play supporting take-up (for example, learning from banks' digital skills initiatives offered to their consumers)?