Designing the broadband universal service obligation

Summary of responses to the call for inputs

About this document

Ofcom has been asked by the Department for Culture, Media and Sport (DCMS) to provide technical analysis and recommendations to support the design of a broadband universal service obligation (USO). The USO would give everyone a right to a decent broadband connection on reasonable request. The UK Government proposed introducing the obligation in recognition of the increasingly important role that broadband plays in people's lives.

Ofcom published a call for inputs (CFI) in April 2016, seeking views from industry and consumers on the broadband USO design. This document summarises the responses we received. The non-confidential responses received can be viewed in full on our website.[1]

We will provide our final advice to Government by the end of 2016.

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[1] http://stakeholders.ofcom.org.uk/consultations/broadband-USO-CFI/?showResponses=true

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Executive summary

The need for a broadband universal service obligation

1.1 DCMS has asked Ofcom to provide technical analysis and recommendations for the design of a broadband Universal Service Obligation (USO). We published a Call for Inputs (CFI) in April inviting views from stakeholders. These views will be taken into consideration in our forthcoming advice to Government. We received 115 responses covering a diverse range of opinions and perspectives[2].

1.2 Almost all respondents strongly supported increasing the coverage and quality of UK broadband services, although there were different views on how this goal should be achieved. Some industry respondents argued that a USO scheme is unnecessary as its objectives can already be met via existing commercial and publicly-funded roll-out plans.

1.3 However, Ofcom considers that commercial broadband delivery has not, to date, succeeded in meeting the needs of a significant number of UK households and is unlikely to do so in the near future. While existing publicly-funded roll-out programmes have succeeded in significantly extending broadband availability, the existing programmes are not designed to support the universal provision of decent broadband.

1.4 As we set out in our Strategic Review of Digital Communications[3], the starting point for any future communications strategy must be to ensure that everyone shares in the benefits of a modern digital society. When it comes to accessing a decent level of broadband, our starting principle is that no one should be left behind. A broadband USO is one potential key tool in ensuring individuals and small businesses are able to receive decent broadband services in the near future and over time.

Two distinct visions of how to achieve the objectives of a USO

1.5 The 115 responses we received set out a very wide range of views. These are summarised in more detail in the rest of this document. However, the overwhelming majority of responses can be categorised broadly within two different visions of how decent broadband coverage can be extended:

- A vision for a more highly specified universal service for all, with the cost of such interventions a more secondary consideration.

- A belief that people and businesses need a safety net to complement existing public- and private sector-led broadband deployments.

The more expansive vision: keeping pace with existing and evolving standards of provision in areas already served commercially

1.6 Some respondents saw an opportunity for further intervention in the broadband market to deliver a more expansive vision for broadband universal service. In overview, these stakeholders advocated a policy position:

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[2] Non-confidential responses have been published on the Ofcom website
[3] Ofcom, Strategic Review of Digital Communications 2016, p. 19

- making services available across the entirety of the UK;

- with a technical performance comparable to that delivered commercially to existing customers;

- priced the same for all customers, regardless of underlying technologies and costs; and

- that does not modify (reduce) the technical specification for the hardest-to-reach (or highest cost) locations.

1.7 Underlying this vision was the importance of broadband services for effective social and economic inclusion. Those adopting this position also place significant weight on the goal of equity and fairness for 100% of UK people and businesses, regardless of location or circumstances. This vision was favoured mostly by public sector respondents and consumer groups, along with the majority of individual respondents to the CFI.

1.8 Respondents supporting this view envisaged a **technical specification** with a minimum download speed higher than 10Mbit/s. For example, several respondents felt service speeds should be in line with the EU Digital Agenda targets of 30Mbit/s or above. They also suggested specifying further elements of minimum performance including upload speeds and the minimum acceptable delay in connecting to services (latency[4]). Some went further, to recommend that services should offer the same download and upload speeds ('symmetrical services') and that the service was dedicated to each individual with no shared capacity ('dedicated services' with no contention[5]).

1.9 It was felt this would deliver a more future-proof solution while ensuring fairness and equivalence with the technical performance delivered by publicly-funded and commercial superfast roll-out programmes. These respondents also expressed a preference for fibre technologies.

1.10 On **affordability**, these respondents stated that pricing and service standards should be the same across the UK, regardless of where the customer lives. Respondents also felt a social tariff (a lower priced service for those on low incomes) would also be appropriate to ensure everyone can access broadband services.

1.11 On **cost, proportionality and efficiency**, this group of respondents felt strongly that intervention should deliver a more highly-specified solution to 100% of premises, with no lower specification option for the hardest-to-connect premises in order to reduce overall intervention costs. They also argued against placing a ceiling on the cost it is reasonable to incur to upgrade individual premises, arguing that any upper limit on reasonable costs would dilute the policy objective of 'universality'.

1.12 On the **universal service provider or providers**, these respondents believed assigning multiple universal service providers for different geographic regions of the UK would promote competition and deliver value for money.

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[4] The time it takes for a packet of data to travel to a third-party server and back.
[5] Contention is a measure of how many users share available bandwidth at some point within the network.

1.13 Generally, these respondents did not raise concerns about the potential for the USO to cause **market distortions**.

1.14 On the **review period**, this group of respondents argued in favour of a short review period or ongoing monitoring of the intervention. They believed this was necessary to ensure speeds and other technical characteristics evolved alongside, or were comparable to, those delivered by commercial networks or public sector schemes.

The more conservative vision: a safety net for access to core digital services

1.15 Other respondents, while acknowledging the need to deliver broadband to the very hardest-to-reach premises, did not necessarily consider that a USO was the best means of achieving this outcome. However, if a USO was to be introduced, it was argued, it should act as more of a 'safety net'. They believed the policy goal should be to prevent social and digital exclusion by giving access to online services where commercial or public sector deployments would otherwise not reach, given the economics of building suitable networks. This view was mostly favoured by industry respondents.

1.16 These respondents supported a more limited **technical specification**, suggesting a 10Mbit/s download speed was sufficient to give people access to the core online services required for social and economic inclusion. They argued that over-specifying further aspects of technical performance, such as upload speed and latency, could increase costs and limit the technology options available to deliver the USO.

1.17 On **affordability**, they favoured giving USO providers more freedom in setting prices, suggesting this would support the case for investment. Some respondents suggested pricing should vary by location, reflecting the differing costs of serving different geographies.

1.18 On **cost, proportionality and efficiency**, this group of respondents favoured limiting the maximum costs involved in providing universal service when upgrading individual premises, given the potentially very high cost per connection of the most remote or hardest-to-reach locations. Some also recommended a lower specification option for the hardest-to-reach premises, allowing for an improved broadband connection, but one that considered the underlying cost of provision. Some respondents suggested the highest cost premises may need to make some sort of cost contribution, alongside the universal service funding. They emphasised the need for demand to be aggregated to make network rollout more efficient.

1.19 On the **universal service provider or providers**, these respondents emphasised the need for a competitive, transparent designation process, with measures in place to prevent the universal service provider or providers from over-recovering costs. There were mixed views on who should provide the USO, with some respondents advocating for a single USO while others were in favour of multiple USO providers for different geographic regions.

1.20 Industry respondents raised particular concerns about **market distortion**, particularly the risk of the USO increasing retail prices and reducing the incentives for further commercial infrastructure investment by duplicating existing networks. They emphasised the need for the USO to put measures in place to prevent network overbuild that might be funded through the USO. Some suggested the USO might discourage future commercial investment by encouraging the universal service provider(s) to seek funding for roll out that could be commercially viable.

1.21   On the **review period**, these respondents tended to favour a longer review period. They suggested the USO specification should be fixed for periods long enough to allow a return on investment in new infrastructure for the designated universal service provider(s).

There were mixed views on how the USO should be funded

1.22   The USO could be funded using public funds, a levy on industry, or a combination of the two. The majority of public sector stakeholders were in favour of an industry-funded mechanism. This is also the Government's preference for funding the USO.

1.23   However, the majority of industry and some consumer and business groups argued that public funding would be more appropriate. This preference was for a range of reasons, including the suggestion that the Government could make cost savings if more consumers used online public services. It was also argued that an industry levy could cause market distortions and result in higher retail prices, which could make broadband less affordable for low-income households.

1.24   Regardless of how the USO is funded, consumer groups including Citizens Advice[6], the Communications Consumer Panel and the Advisory Committee for Older and Disabled People (ACOD)[7] expressed a wish to avoid higher prices across the board as a result of the USO.

From stakeholder responses, there appears to be limited industry appetite to be a designated USO provider

1.25   The majority of respondents from all sectors shared Ofcom's preference for a transparent and competitive universal service provider(s) (USP) designation process, with many advocating the designation of USPs at a regional or sub-regional level. It was argued that a competitive process would secure value for money. Those suggesting the designation of multiple USPs recommended this in order to allow smaller providers to play a role in delivering the USO.

1.26   At the same time, few industry stakeholders expressed a willingness to become a designated USO provider. BT[8] said it was difficult to identify how the USO provider could be designated before the specification and scope of the USO is decided. BT referred to previous public statements[9] that it is able to deliver 10Mbit/s coverage universally on a voluntary, commercial basis as part of a 'universal service commitment', subject to Ofcom making specific changes to the regulatory environment. Although Virgin Media[10] argued that the case for a broadband USO has not yet been adequately made, it suggested that if a USO was deemed necessary, it considered that BT should be the designated USO provider.[11]

1.27   Mobile operators indicated that the USO should be an obligation for fixed providers only. Satellite providers indicated satellite broadband could be part of a solution. However, we note that some respondents, mainly individuals, expressed concerns

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[6]6 Citizens Advice, p. 9
[7] Communications Consumer Panel and ACOD, p. 4
[8] BT, p. 17
[9] BT Group Q4 2015/16 results – investors meeting slide pack, slides 104 and 109
[10] Virgin Media, p.10
[11] Virgin Media, p. 10

that latency and reliability issues may affect the ability of current satellite technologies to deliver a suitable service.

Implications from stakeholder responses and next steps

1.28 The views summarised in this document represent helpful input for developing our advice to Government. They are useful in setting out a key difference of opinion among different stakeholder groups on the purpose and broad intent of a broadband USO. Elements of both visions set out above are important, for example:

- Any broadband USO must extend the reach of decent broadband services significantly, while noting the challenges inherent in delivering to some specific locations;

- The specific circumstances of locations across the UK, including the nations, must be considered in designing any solution;

- The design of any USO should address the needs of the majority of people and businesses, and be suitably forward looking;

- Universal service obligations are intended to ensure social and economic inclusion, acting as an effective complement to private and public sector funded network rollouts. Undermining commercial incentives to invest in new services would not be a positive outcome for people or businesses across the UK; and

- Any intervention needs to be proportionate, considering the costs of delivering services alongside the benefits. Specifically, wherever possible, costs associated with the USO should be minimised while still meeting the overarching policy goal.

1.29 A balanced and effective approach to delivering a broadband USO will need to take all these, and other, elements into account. Ofcom will provide Government with a range of options for the design of the broadband USO that reflect the range and diversity of responses to the CFI. Ultimately, it will be the Government's decision as to which of our proposed options best meets its objectives for the broadband USO.

We will publish our report to Government later this year

1.30 We welcome the views of stakeholders responding to our CFI and will take them into account in preparing our report for Government by the end of the year.

1.31 In December 2016 we will provide Government with a range of options for the design of the USO, which take into account the latest available analysis and data, as well as the range of priorities and preferred outcomes expressed by stakeholders.

Section 2

Background

2.1 Broadband has become essential to most citizens' daily lives. Digital participation is already important for social and economic cohesion, and will become increasingly important as more services move online and new applications come to the market.

2.2 Fixed broadband download speeds across the UK have risen rapidly, from an average of 3.6Mbit/s in November 2008[12] to 28Mbit/s in mid-2015.[13] But many premises cannot receive anything more than a small fraction of this average, with the problem affecting rural premises much more than urban ones. For example, 48% of premises in rural areas could not receive a connection with a download speed of 10Mbit/s or more in mid-2015, compared to 4% of urban premises.[14]

2.3 Slow download speeds continue to be a problem because speeds depend closely on the length and quality of the copper line used for delivery. Where premises are further away from the exchange and/or from the nearest street cabinet, degradation of speeds occurs[15]. Over time, the problem of slow speeds has diminished as providers have deployed superfast broadband to the overwhelming majority of the country. But around one in ten premises are not yet able to receive superfast broadband. Rural areas have lower superfast availability as the commercial case for deployment is more difficult where the population is more dispersed.

2.4 BT and Virgin Media are the two largest fixed broadband network operators in the UK, with KCOM operating a network in Hull and the surrounding areas. Together, BT and KCOM cover virtually the whole of the UK with a mix of fibre and copper networks. BT's infrastructure also carries competing broadband services from retail providers like Sky and TalkTalk. Additionally, Virgin Media has a separate cable network, which covered 44% of premises in mid-2015[16]. It is currently investing in expanding its network further and reported extending coverage to 85,000 new premises as of the end of June 2016[17]. Separately, some smaller providers have invested in entirely fibre networks.

2.5 Overall, 83% of premises could receive superfast services in mid-2015 (with an actual download speed of 30Mbit/s or higher). This figure will have increased since due to a mix of commercial and publicly-funded roll out[18], as the Government-funded Broadband Delivery UK (BDUK) programme aims to deliver superfast broadband to 95% of UK premises by the end of 2017[19]. Ofcom will publish updated coverage data by the end of the year.

2.6 Mobile operators also play a role in delivering good connectivity to households across the UK. As of May 2016, 93% of UK premises had outdoor coverage for 3G mobile

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[12] Ofcom, Communications Market Report 2015, p. 279
[13] Ofcom, Connected Nations 2015, p. 1
[14] Ofcom, Connected Nations 2015, p. 19
[15] Speeds typically start to decrease between 1 and 2km from the exchange and are reduced considerably at distances more than 3.5km.
[16] Ofcom, Communications Market Report 2016, p. 11
[17] Virgin Media Q2 2016 Results, p. 2
[18] Ofcom, Communications Market Report 2016, p. 11
[19] Government guidance on BDUK.

services from all four mobile network operators[20], while 71% of premises had similar outdoor 4G coverage from all four mobile network operators[21]. The mobile operators continue to deploy their 4G networks.

2.7   Government intervention has helped provide faster broadband in areas that have traditionally been considered difficult to serve commercially. As noted above, the Government's BDUK programme aims to deliver superfast broadband (with a download speed of 24Mbit/s) to at least 95% of the UK by the end of 2017. The devolved administrations in Northern Ireland, Scotland and Wales are responsible for national projects that use funding both from BDUK and additional sources. In some cases, smaller commercial and community providers have also been delivering connectivity in highly-localised circumstances.

2.8   Despite both commercial and publicly funded efforts to improve superfast broadband coverage, some people remain stuck on slow speeds. Many of these are in rural areas but others are located in cities. The broadband USO is intended as a safety net to ensure that these households are not excluded from the benefits of living in a digital society. It aims to ensure that a minimum level of broadband is available to everyone at a fixed location, on reasonable request, and at an affordable price, irrespective of where people live. A USO connection is demand-led, meaning it is provided on request rather than pre-emptively (e.g. through a publicly funded roll-out programme).

2.9   The Government set out its intention to introduce a broadband USO with a download speed of 10Mbit/s in November 2015, with the speed delivered by the USO to be upgraded over time as technology and demand evolve.[22] The proposed download speed reflects Ofcom evidence that shows that user experience is constrained at speeds below this level.[23] A download speed of 10Mbit/s also allows a household to carry out multiple activities simultaneously, like web browsing, video streaming and video calling.[24]

2.10   In March 2016, the Department of Culture, Media and Sport (DCMS) wrote to Ofcom asking for technical advice and recommendations to support the design of the USO.[25] Ofcom published a call for inputs[26] (CFI) in April 2016 seeking views from stakeholders. The responses to the CFI are summarised in this document. We will provide a final report to DCMS by the end of the year.

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[20] Ofcom, Communications Market Report 2016, Nations charts, slide 8
[21] Ofcom, Communications Market Report 2016, p. 157
[22] Government press release, 7 November 2015
[23] Ofcom, Infrastructure Report 2013, p. 31
[24] Ofcom, Connected Nations 2015, p. 27
[25] Letter from the Secretary of State for Culture, Media and Sport to Ofcom, 22 March 2016
[26] Ofcom, Designing the broadband universal service obligation: call for inputs

Summary of stakeholders' responses

3.1   The potential design and scope of a broadband USO is still in development. Accordingly, our call for inputs (CFI) was framed in broad terms to capture the widest set of views, questions and comments from a diverse group of stakeholders.

3.2   We fully recognise the challenges and limitations faced by stakeholders[27] in responding to such a request at a time when key elements of the USO including eligibility, coverage and cost have yet to be comprehensively defined.

The overall principle and objective of introducing a broadband USO

3.3   The majority of respondents from all sectors were supportive of the objective of extending the coverage and quality of UK broadband services.

3.4   Several individuals[28] responding to the CFI welcomed the Government's intention to deliver decent broadband universally, with many stressing the importance of extending connectivity, particularly in rural areas. Among consumer groups, Age UK[29] underlined the benefits of expanding broadband access for older people, and the Royal National Institute for the Blind (RNIB)[30] stressed the assistive value of broadband services for blind and partially-sighted individuals. The National Farmers Union[31] (NFU) also reinforced the essential value of delivering high-quality broadband to farming and rural communities to support a productive rural economy.

3.5   The Scottish Government[32] voiced its priority for delivering high-quality connectivity across Scotland, while the Scottish Futures Trust[33] highlighted the 'prize' of enhanced digital communications and their capacity to significantly improve competitiveness, productivity and innovation across all user groups.

3.6   Among industry respondents, Cisco[34] and TalkTalk[35] voiced support for the Government's ambition to ensure everyone in the UK is digitally connected, while Sky[36] underlined that improving the access, speed and consistency of connectivity of broadband is of vital importance to the UK's future. BT[37] emphasised its support for universal and effective broadband services bringing new technology and speeds to the UK. UK Broadband[38], Broadband Stakeholder Group[39] (BSG), and Oneweb[40] also supported the objective of ensuring access to good quality broadband access.

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[27] UK Broadband, p. 2, and raised by BT, TalkTalk and Vodafone in meetings with Ofcom
[28] For example, Mr J Fraser, Mrs S Curley, and several confidential respondents.
[29] Age UK, p. 2
[30] RNIB, p. 3
[31] NFU, p. 1
[32] Scottish Government, p. 1
[33] Scottish Futures Trust, p. 2
[34] Cisco, p. 1
[35] TalkTalk, p. 1
[36] Sky, p. 1
[37] BT, p. 1
[38] UK Broadband, p. 1
[39] BSG, p. 2
[40] Oneweb, p. 3

3.7 Several respondents, particularly public sector, devolved government and local government stakeholders, welcomed the Government's intention to introduce a broadband USO to achieve these goals. The Local Government Association[41] (LGA) welcomed the creation of the USO as a safety net for residents and businesses with poor connectivity, while the Scottish Government[42] saw the USO as an opportunity to ensure every part of the UK has an underlying fibre infrastructure that supports a range of technologies capable of delivering a 10Mbit/s service.

3.8 There was some support among industry for the introduction of a USO. Sky[43] broadly supported the USO, but emphasised it should be proportionate, cost-effective and targeted appropriately. Arqiva[44] considered that a formal USO mechanism could deliver a number of key criteria (including technology neutrality and the addressing of market failures). It also stated that a USO should be seen in the context of the wider set of interventions aimed at supporting connectivity. ViaSat[45] welcomed the commitment.

3.9 Others (mostly industry respondents) raised concerns about how the USO might operate in practice, and questioned whether it was the best mechanism to achieve the intended policy goals.

3.10 The BSG[46] questioned if a USO was the correct intervention at the scale and time currently being considered. It felt a USO risked undermining commercial investment, and any industry funding scheme risked higher retail prices.

3.11 TalkTalk[47] cited raised consumer expectations around a USO programme which it felt was unlikely to be truly universal in practice. TalkTalk recommended that Government consider more flexible and targeted interventions[48] to address local instances of market failure as opposed to arbitrarily setting national targets.

3.12 Some industry stakeholders believed a formal USO mechanism was not necessary to achieve the objective of improving broadband service quality. BT[49] contended that rather than Government seeking to impose a mandated solution on industry, Ofcom should aim to implement a regulatory strategy that enables the market to invest more effectively in rural connectivity, which it considered could minimise or possibly remove any need for a formal USO.[50]

3.13 Virgin Media[51] argued that if the USO is intended as a safety net, the means to achieve this are already available, for example through satellite provision. It suggested the case for a broadband USO has not been persuasively made.

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[41] LGA, p. 1
[42] Scottish Government, p. 4
[43] Sky, p. 1
[44] Arqiva, p. 2
[45] ViaSat, p. 1
[46] BSG, p. 2
[47] TalkTalk, p. 2
[48] TalkTalk highlighted that in some cases it may be rational to opt for faster, more future-proofed services (e.g. when there are marginal cost differences between providing a 'safety net' 10Mbit/s service and more advanced services).
[49] BT, p. 1
[50] BT argued that its analysis shows that a market led, coverage based approach could provide 99% of UK premises with a connection of at least 10Mbit/s – which would leave the remaining 1% which could be addressed with via an on-demand scheme.
[51] Virgin Media, p. 1

However, it argued[52] that, if a USO was deemed necessary, it was in favour of BT using Long-Reach VDSL[53] to meet the obligation, suggesting BT could do this without incurring an unfair cost burden providing a minimum level of demand is demonstrated before BT is required to upgrade or build a cabinet.

3.14   BT[54] underlined its previous public statements[55] that it is able to deliver 10Mbit/s coverage universally on a voluntary, commercial basis as part of a 'universal service commitment'. BT set out its view that, with changes to the regulatory environment, it could deliver a roll-out programme resulting in 10Mbit/s coverage to 99% of homes. The remaining 1% would need alternative solutions.

3.15   BT did not set out any detail on how it would deliver such outcomes, the costs and prices associated with its plans, or the timescales for delivery. It did set out that any action on its part was subject to Ofcom making specific changes to the regulatory environment. The changes to the regulatory environment proposed by BT included: continued pricing freedom for wholesale fibre products; active regulatory support from Ofcom for Long-Reach VDSL; and a "stable environment for universal services" without uncertainty over "potential escalating requirements from frequent reviews".

3.16   Other industry respondents accepted some form of intervention could be necessary, but raised concerns about the USO's potential to cause market distortions. Vodafone[56] raised concerns that a USO could reduce choice and competition more broadly, particularly if USO funding is used to overbuild existing commercial networks. Three[57] argued that while the USO may benefit those in remote or rural areas, distorting market competition could adversely affect everyone in the UK.

3.17   UK Broadband[58] stated that it was premature to consider the design and implementation of the USO since commercial and publicly-funded roll outs are still ongoing, and suggested implementation of the USO should be delayed until after 4G and BDUK deployments are complete (e.g. the second half of 2017).

3.18   Regardless of whether they believed intervention was necessary, industry respondents emphasised that should any USO be introduced, it should be carefully designed to avoid creating distortions to the wider market.

Specification and scope

Headline download speed

3.19   Ofcom has said that 10Mbit/s is the appropriate level at present for a broadband USO.[59] We have highlighted previously that demand is constrained at speeds below this level.[60] Based on this work, the Government has agreed a download speed of 10Mbit/s is an appropriate ambition for the USO. However, both Government and Ofcom have recognised that, while a 10Mbit/s USO may be appropriate now, it will be

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[52] Virgin Media, p. 1 and 10
[53] Technology that BT has been trialling to deliver faster speeds to remote premises.
[54] BT, p. 7
[55] BT Group Q4 2015/16 results – investors meeting slide pack, slides 104 and 109
[56] Vodafone, p. 2
[57] Three, p. 4
[58] UK Broadband, p. 1
[59] Ofcom, Strategic Review of Digital Communications 2016, p. 27
[60] Ofcom, Infrastructure Report 2013, p.31

important for any USO implementation to include a mechanism for increasing the level of performance delivered by the USO over time, to ensure consumers and businesses that rely on the USO are not digitally excluded in future as networks and services continue to evolve.[61]

3.20   Many public sector stakeholders, consumer groups, and individual respondents[62] felt the download speed should be higher. The Department of Enterprise, Trade and Investment[63] (NI DETI) in Northern Ireland and Ofcom's Advisory Committee for Northern Ireland[64] suggested a 30Mbit/s download speed, in line with plans in the Republic of Ireland to increase the country's USO to 30Mbit/s by 2020. The Welsh Government[65] and the NFU[66] also suggested a higher USO specification would be more appropriate.[67] The NFU[68] underlined the importance of future-proofing the USO.

3.21   The Independent Networks Cooperative Association[69] (INCA) felt specifying a 10Mbit/s USO risked becoming redundant very quickly.

3.22   In contrast, many other industry stakeholders agreed that 10Mbit/s was an appropriate download speed for a 'safety net' broadband service. Virgin Media[70] considered a 10Mbit/s download speed was more than adequate to supply the services required to prevent social exclusion within the foreseeable future.[71] KCOM[72] and Eutelsat[73] agreed that 10Mbit/s was appropriate, while BT[74] said its own analysis[75] suggests a download speed of 8-10Mbit/s is appropriate.

3.23   The BSG[76] acknowledged the logic behind specifying a 10Mbit/s USO, but suggested this should be the average speed required rather than a guaranteed speed.

3.24   Other industry respondents felt the download speed of the USO should be lower. Oneweb[77] argued that in rural and remote areas the USO should be designed to serve the basic connectivity needs[78] of citizens which could be covered by speeds between 2Mbit/s and 4Mbit/s and a 10GB monthly data allowance.

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[61] Ofcom, Strategic Review of Digital Communications 2016, p. 28
[62] Such as Mr M Parle, Mr T Rix, Dr W Jack, Mr S Lee, Mr A Horne, Ms M Meek, Mr W Willcox and Dr A Sutter.
[63] NI DETI, p. 1
[64] Advisory Committee for Northern Ireland, p. 1
[65] Welsh Government, p. 1-2
[66] NFU, p. 3
[67] Citing the Digital Agenda for Europe's 2020 broadband target of 30Mbit/s.
[68] NFU, p. 3
[69] INCA, via email
[70] Virgin Media, p. 10
[71] Virgin Media suggested the applications most relevant to the purpose of a USO today a workable with a download speed of 5Mbit/s, p. 12
[72] KCOM, p. 5
[73] Eutelsat, p. 1
[74] BT, p. 6
[75] Based on guidance issued by the European Commission that Member States consider setting a data rate for a USO that is achieved by "at least 80% of all households with a broadband connection."
[76] BSG, p. 4
[77] Oneweb, p. 8
[78] Oneweb claimed that like gas, water and electricity which are basic needs for households, the USO should primarily focus on access to essential services such as web browsing, emailing, online commerce and banking, e-learning, e-government and e-health services.

Other technical characteristics

3.25 Our Strategic Review of Digital Communications set out our ambition for a USO with quality standards extending beyond download speed.[79] We asked for stakeholders' views on which aspects of the USO's technical performance should be specified.

3.26 Stakeholders from both public sector and industry backgrounds felt further technical characteristics were important. The Scottish Government[80] said the USO should consider a range of performance factors and the LGA[81] argued in favour of an upload speed of at least 2Mbit/s, given the importance of services like cloud computing and video conferencing for businesses. Eutelsat recommended a minimum upload speed of 4Mbit/s,[82] while EEF[83] suggested businesses increasingly need a balanced upload and download speed (symmetrical connections) to reflect that internet users are now producers as well as consumers of data. B4RDS[84] also called for all broadband connections to be symmetric so multiple users can work simultaneously, both uploading and downloading large quantities of data (e.g. cloud computing).

3.27 Some argued in favour of a technical specification that does not allow a slowdown in performance when multiple people are using the network at the same time (known as 'contention'). ACRE[85] noted that the theoretical download speed of a connection is often different to the actual speed a consumer receives, and suggested the minimum USO speed should be consistently received. The Federation of Communication Services[86] proposed the USO should specify an 'uncontended' 10Mbit/s. The LGA[87] suggested Ofcom should monitor the performance of USO connections to assess whether the specification is delivered during peak hours.

3.28 Others considered a specification on latency (the time it takes a packet of data to travel to a third-party server and back) should be included. B4RDS[88] suggested this was necessary to make interactive applications like video calling useable.

3.29 Among industry, the BSG[89] and KCOM[90] argued in favour of specifying further aspects of the USO's technical performance. KCOM stressed this should reflect common forms of functionality required by users rather than the extreme upper levels of their potential requirements.

3.30 In contrast, many industry respondents argued for a more limited technical specification. BT[91], Satellite Internet[92] and Oneweb[93] suggested that specifying

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[79] Ofcom, Strategic Review of Digital Communications 2016, p.28
[80] Scottish Government, p. 4
[81] Local Government Association, p. 2
[82] Eutelsat, p. 1
[83] EEF, p. 1
[84] B4RDS, p. 6
[85] ACRE, p. 2
[86] Federation of Communication Services, p. 2
[87] Local Government Association, p. 2
[88] B4RDS, p. 6
[89] BSG, p. 5
[90] KCOM, p. 5
[91] BT, p. 2
[92] Satellite Internet, p.1
[93] Oneweb, p. 6-7

further performance aspects of the USO would limit the number of viable technical solutions for delivering the USO, with a resulting increase in costs.

3.31   Virgin Media,[94] TalkTalk[95] and UK Broadband[96] argued against further specifying the technical performance of the USO, given it is intended as a safety net to support a basic level of functional internet use.

3.32   Citizens Advice[97] underlined that the technical scope of the USO involved many complex policy trade-offs. An excessively high specification could impose significant costs on industry which may be passed through to consumers, potentially causing affordability issues for vulnerable individuals and households. But a highly specified USO might have benefits in terms of the digital delivery of essential services online.

3.33   Citizens Advice[98] suggested the USO should be set at the minimum level possible to guarantee access for all consumers to the essential benefits that broadband offers, which has the minimum effects on either innovation and investment in the market, or the range of consumer choice.

Technology used to deliver the USO

3.34   Ofcom recognises that a variety of technologies, including wireless, are capable of delivering a USO with a download speed of 10Mbit/s. Some respondents to our CFI submitted views on the most appropriate technologies to deliver the USO. For example, Arqiva[99] noted that mobile infrastructure could provide high speed data services to areas where the cost of fixed line solutions is high.

3.35   In contrast, Three[100] argued a broadband USO should be an obligation on fixed operators, given this service has traditionally been provided over the fixed network.

3.36   Respondents from the satellite industry[101] felt satellite could provide a cost-effective solution for delivering the USO in rural and remote areas. ViaSat[102] said high-capacity satellite services could be used to meet a very high bar USO and will be available everywhere in the UK by 2020 delivering 100Mbit/s – but noted the potential need for an individual user data cap.[103]

3.37   Some consumers[104] disagreed and expressed strong preferences for non-satellite solutions, except in exceptional circumstances. They were concerned that reliability and latency issues could make activities like working from home difficult.

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[94] Virgin Media, p. 12
[95] TalkTalk, p. 3
[96] UK Broadband, p. 2
[97] Citizens Advice, p. 2
[98] Citizens Advice, p. 8
[99] Arqiva, p. 3
[100] Three, p.2
[101] Eutelsat, Oneweb, ViaSat, SES
[102] ViaSat, p. 6
[103] ViaSat, slide pack supporting CFI response, slide 3
[104] For example, Mr J Fraser, Mr D Reed, Mr N Booth, Mr T Rix, Mr P Lansberry, and several confidential respondents.

3.38 Hyperoptic[105] suggested that future-proof technical solutions capable of offering over 30Mbit/s should be valued over other offerings.

3.39 Other respondents, such as TalkTalk,[106] the Communications Consumer Panel and the Advisory Committee for Older and Disabled People (ACOD)[107], and the Welsh Government[108], pressed the need for technological neutrality to allow a range of technologies to deliver the USO.

Affordability

3.40 European and UK legislation requires Ofcom to ensure that the universal service is provided at an affordable price irrespective of where people live in the UK. Options for achieving this include setting requirements for prices of broadband to be the same across the whole country (uniform pricing) or mandating caps on charges. Alternatively, it may be decided that intervention is not needed to secure affordability.

3.41 Many respondents were in favour of pricing intervention, with several[109], particularly public sector, consumer groups and individuals, favouring uniform pricing across the whole UK. Ofcom's Advisory Committee for Northern Ireland[110] and NI DETI[111] considered that broadband services and pricing in rural areas and urban areas should be equitable. The NFU[112] suggested that rural connection costs and bills needed to be benchmarked against those paid by urban dwellers on similar incomes.

3.42 Others, for example the Scottish Government[113] and the Country Land and Business Association (CLA)[114], felt a price cap would be appropriate to secure affordability. KCOM[115] referred to the European Commission's BDUK's 2012 State Aid decision as a guide for affordable[116] NGA-based[117] broadband services.

3.43 Industry respondents tended to argue against the need for intervention to secure affordability, and in favour of market-based pricing. Virgin Media suggested there was no affordability problem in the broadband market today and as such considered it unlikely that there will be one in the future.[118]

3.44 BT[119] argued in favour of market-based pricing, suggesting this generates incentives to support commercial investment, with prices constrained by consumer willingness

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[105] Hyperoptic, p. 5
[106] TalkTalk, p. 3
[107] Communications Consumer Panel and ACOD, p. 2
[108] Welsh Government, p. 3
[109] NI DETI, Brightling Parish Council/Rother Association of Local Councils Working Group, Irish Central Border Area Network, the Rural Services Network, Advisory Committee for Northern Ireland, Action for Communities in Rural England (ACRE), and individuals (such as Dr W Jack, Mr A Horne, Ms M Meek, and several confidential respondents).
[110] Advisory Committee for Northern Ireland, p. 1
[111] NI DETI, p. 1-2
[112] NFU, p. 4
[113] Scottish Government, p. 4
[114] CLA, p.3
[115] KCOM, p. 8
[116] This set a ceiling on installation costs above £200 and monthly charges higher than £50.
[117] The European Commission defined NGA broadband services as those capable of delivering speeds in excess of 30Mbit/s - see EC State aid SA.33671 (2012/N), p. 6
[118] Virgin Media, p.18
[119] BT, p. 9

to pay and competition between fibre, cable and mobile operators. BT[120] and INCA[121] both suggested that geographically differentiated pricing (which reflects the higher costs of serving remote premises) is essential to make connecting these areas viable.

3.45 Oneweb[122] suggested that an affordable USO might only be achieved via a two-tier specification which offered 10Mbit/s and above in urban and suburban areas, with hard to reach premises in remote and rural location offered a maximum of 10Mbit/s (with those customers given the option to pay for higher service levels if desired).

Social tariff

3.46 A USO may also include particular measures for the benefit of those on low incomes or with special social needs. BT (and KCOM in Hull) provides a 'social tariff' for fixed telephony for consumers on certain income-related benefits.[123] We sought views from stakeholders on whether a social tariff for broadband services may be appropriate.

3.47 Several local government and consumer groups[124] supported introducing a social tariff. The LGA[125] argued a social tariff is necessary to prevent further digital exclusion, especially when government services for vulnerable groups (e.g. universal credit) are shifting online. The Communications Consumer Panel and ACOD[126] said a social tariff would help make the USO more meaningful and democratic.

3.48 Some in industry were also broadly supportive of the need for a social tariff. Sky,[127] KCOM[128] and the BSG[129] felt that a social tariff could be appropriate for a basic level of service, although the latter two added there would need to be careful study of the cost implications and value for money of such a scheme.

3.49 BT[130] noted that it already offers a social tariff for broadband services alongside its obligations under the telephony USO. It felt that other broadband providers should do the same.

3.50 In contrast, TalkTalk,[131] Telefonica[132] and Hyperoptic[133] argued that the question of a social tariff for broadband services was wider than the question of a USO to provide faster broadband to some households, and as such should be considered separately.

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[120] BT, p. 9
[121] INCA, via email
[122] Oneweb, p. 6
[123] BT's social tariff service is BT Basic, offering low monthly line rental (but with a low call allowance) to people in receipt of certain state benefits, and the equivalent in Hull is KCOM's social access package.
[124] Local Government Association, Fermanagh and Omagh District Council, Shropshire Council, Consumer Council for Northern Ireland, Communications Consumer Panel and ACOD, Age UK, ACRE, NFU Scotland, RNIB and the Rural Services Network.
[125] Local Government Association, p. 3
[126] Communications Consumer Panel and ACOD, p. 5
[127] Sky, p. 5
[128] KCOM, p. 8
[129] BSG, p. 5
[130] BT, p. 10
[131] TalkTalk, p. 4
[132] Telefonica UK, p1
[133] Hyperoptic, p 6

Demand for the USO

3.51 Our Connected Nations report highlighted that over 8% of UK premises could not receive a speed greater than 10Mbit/s in mid-2015. A combination of BDUK's superfast broadband programme, national projects administered by the devolved administrations in Northern Ireland, Scotland and Wales, and continued private investment has since reduced this number, but it remains a significant proportion across the UK. We will be publishing updated figures later in 2016 taking account of further private and public sector investment in the past year. We invited views from stakeholders on what demand for the USO might be, given its importance for assessing the likely future costs of a USO.

3.52 BT[134] said that it expected take up rates of between 40-50% for a 10Mbit/s USO service, though this may be lower in areas where existing commercial services are already delivering speeds which are close to 10Mbit/s.

3.53 Others felt that, given the importance of broadband to daily life, demand would be high, particularly where current service is poor.[135] Some respondents[136] suggested that educating people on the benefits of broadband and increasing digital literacy would increase take up. The LGA[137] suggested there should be a Government-funded national campaign to raise awareness of the USO.

3.54 The Communications Consumer Panel and ACOD[138] emphasised that premises that may request a USO could be in inner city areas as well as rural areas, and that these consumers should not be forgotten.

3.55 TalkTalk[139] and INCA[140] agreed that in light of the risks of market distortion posed by the USO, Ofcom should conduct research to better understand the projected level of demand, the range of potential customer requests, the geographical distribution of likely demand and the expected price elasticity of that demand.

Cost, proportionality and efficiency of the USO

Cost of the USO and the net cost calculation

3.56 Costs will vary depending on the technical specification, choice of technology, pricing, and eligibility criteria applied to the USO scheme. The costs over and above customer revenues and any additional benefits received by the universal service provider(s) (USP) can be recovered through Government funding, industry funding or a combination of both. The difference between costs and benefits is referred to as the net cost burden.

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[134] BT, p. 12
[135] ACRE, CLA, Brightling Parish Council/Rother Association of Local Councils Working Group, Irish Central Border Area Network, Fermanagh and Omagh District Council, Local Government Association, Shropshire Council, Rural Services Network, and the Welsh Government.
[136] Local Government Association, Shropshire Council, Mid Ulster District Council, CLA and Age UK.
[137] Local Government Association, p. 3
[138] Communications Consumer Panel and ACOD, p. 3
[139] TalkTalk, p. 4
[140] INCA, via email

3.57   There were some concerns around how the net cost burden would be transparently calculated. Sky[141] and Vodafone[142] expressed concerns that the USP(s) could over-recover on their costs. The LGA[143] also urged transparency from the USP(s) calculating per premises costs, saying the USP(s) must allow wider scrutiny on how these costs are calculated.

3.58   KCOM[144] argued that the net cost assessment should be part of a broader review of the full set of USO obligations (including the telephony USO) to ensure more efficient use of funding to meeting the requirements of both USOs in parallel.

3.59   Some respondents argued there may not be a significant net cost burden if BT was the designated USP. Virgin Media[145] argued that BT will have the technical capability – using Long-Reach VDSL – to meet a USO of 10Mbit/s without incurring an unfair net cost burden, providing that there is a minimum level of demand expressed before BT is required to upgrade or install a cabinet. Three[146] also suggested there might be a negligible incremental net cost burden on BT if it is the USP, given its scale post the acquisition of EE and its current network reach.

Proportionality and universality

3.60   Legally, the USP(s) is only required to meet reasonable requests for broadband connections with the specified characteristics. Defining which requests are 'reasonable' will be an important factor in determining who can benefit from the USO and the overall cost of the USO. An effective universal service policy needs to achieve a balance between ensuring as many people as possible can benefit from the USO, while also ensuring that the costs of delivery are not disproportionate. Ultimately, disproportionate costs could result in higher prices for services for people and businesses across the UK.

3.61   Ensuring the cost of the USO is proportionate can be achieved through setting a ceiling for the costs it is reasonable to incur to upgrade any individual premises.[147] However, this will limit the number of people who can benefit from the USO.

3.62   In the CFI, Ofcom suggested another way to ensure proportionality could be to modify the technical specification for consumers where the cost of providing the full specification USO is prohibitively expensive.

3.63   Some respondents[148] felt that the USO should be supplied to everyone in the UK. Ofcom's Advisory Committee for Wales[149] argued that 'universal' means the USO should be available to all customers. The NFU[150] felt that any household or business

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[141] Sky, p. 2
[142] Vodafone, p. 13
[143] Local Government Association, p. 4
[144] KCOM, p. 1-2
[145] Virgin Media, p. 1
[146] Three, p. 2
[147] For example, under the current telephony USO, BT (the USP for the UK outside of Hull) is required to provide a connection where the costs of installing the line are equal to or less than £3,400. If the cost of installation is greater, the consumer is required to pay the excess construction charges.
[148] Advisory Committees for Scotland and Wales, Community Broadband Scotland, Brightling Parish Council/Rother Association of Local Councils Working Group, the CLA, and some individuals.
[149] Advisory Committee for Wales, p. 1
[150] NFU, p. 5

should be able to make a 'reasonable request' to receive a USO service without additional charges.

3.64 In contrast, TalkTalk[151] suggested that the USO should include a clear definition of 'reasonable request' to ensure intervention is proportionate and delivers on its objectives. The Internet Service Providers' Association (ISPA)[152] agreed that universality must be within reason, and supported setting a cost threshold. The BSG[153] also was also strongly supportive of setting a reasonable cost threshold.

3.65 Industry respondents were open to the suggestion that the USO specification could be modified when the costs of providing the full specification service were disproportionate. Oneweb[154] supported a two-tier specification – but suggested it should be a minimum of 10Mbit/s and above for urbanised areas, and a maximum of 10Mbit/s for rural and remote areas. Virgin Media[155] suggested that satellite could be an option where the cost of serving an individual premises exceeds the cost threshold.

3.66 In contrast, the Scottish Government was strongly opposed to any dilution of the USO specification, arguing this would eliminate the safety net effect afforded by the introduction of the USO.[156]

Efficiency

3.67 It is important to ensure the overall costs of delivering the USO are efficient, for example, by ensuring the right technology is deployed for local circumstances and ensuring a least cost approach from the USP(s).

3.68 INCA[157], TalkTalk[158] and several other stakeholders[159] said the USO should aggregate demand to ensure costs are efficient. Many network elements are often shared between multiple end users, with high upfront fixed costs of building shared network elements and much lower costs for connecting individual consumers.

3.69 Some industry stakeholders raised concerns about the potential inefficiencies of a USO provided on reasonable request. BT[160] cautioned that commercial roll out could be distorted by disparate on-demand requests, making implementation of the USO inefficient. It argued that on-demand requests should be processed after commercial network build has been completed. KCOM[161] expressed similar concerns. The BSG[162] also questioned whether a supply or demand led deployment of the USO would be the most efficient.

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[151] TalkTalk, p. 5
[152] ISPA, p. 2
[153] BSG, p. 5
[154] Oneweb, p. 3
[155] Virgin Media, p. 10
[156] Scottish Government, p. 5
[157] INCA, via email
[158] TalkTalk, p. 5
[159] The CLA, the Local Government Association, Kent County Council, Shropshire Council and the Rural Services Network.
[160] BT, p. 17
[161] KCOM, p. 3-4
[162] BSG, p. 5

3.70   UK Broadband[163] contended that a demand-led approach for the USO would be undermined by challenges around predicting how demand aggregation would affect costs. It suggested that it may be more sensible to extend BDUK roll-out projects to cover the last few premises than to serve these premises via a USO.

The universal service provider or providers

Who should provide the USO?

3.71   The USP will have to be capable of providing the USO on reasonable request. Ofcom is able to designate a single USP for the whole of the UK or multiple USPs for different regions. We can designate a USP directly or through a competitive process such as commercial procurement or reverse auction. Ofcom's preference is for a technology neutral, competitive procurement process wherever possible.

3.72   Virgin Media[164] argued that BT should remain the sole USP outside of Hull, given Virgin Media's belief that the provision of 10Mbit/s using Long-Reach VDSL is unlikely to constitute an unfair cost burden on BT, providing that BT is only required to upgrade a cabinet when a minimum level of demand is demonstrated.

3.73   TalkTalk disagreed, suggesting that the USO runs the risk of eroding competition in the non-superfast connection market if BT is the sole USP.[165]

3.74   The majority of respondents from all sectors[166] argued in favour of multiple USPs to encourage competition and secure value for money. Many felt the designation process should allow multiple potential USP(s) to bid for different geographic regions. For example, NI DETI[167] recommended that USPs be designated on a regional or sub-regional basis to enable smaller alternative operators to be involved to deliver a more competitive process.

3.75   BT[168] disagreed, saying that the bidders in any competitive process should commit to covering all areas, as allowing potential providers to cherry pick the most economically attractive locations would result in a patchwork of networks, the creation of local monopolies and a lack of supplier choice at retail level.

3.76   The majority of stakeholders from all sectors expressed a preference for a competitive procurement process. TalkTalk[169] emphasised that the process for selecting the USP in any location should be fully transparent and contestable. INCA[170], Three[171] and the BSG[172] were also in favour of a competitive designation process.

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[163] UK Broadband, p. 2
[164] Virgin Media, p. 10
[165] TalkTalk, p. 1
[166] Among public bodies: DETI, Fergus Ewing MSP, Local Government Association, Advisory Committee for Wales and Shropshire Council. Among consumers: NFU Scotland, the CLA, Grey Sky consulting, and many individuals. Among industry: Three, Oneweb, Eutelsat, SES, TalkTalk and INCA.
[167] NI DETI, p. 2-3
[168] BT, p. 18
[169] TalkTalk, p. 5
[170] INCA, via email
[171] Three, p. 3
[172] BSG, p. 6

3.77   Citizens Advice[173] recommended a competitive process that did not discriminate between different operators or technological solutions. It considered price caps could be considered if only one USP was appointed. The NFU[174] argued that the designation of the USP(s) should avoid the creation of monopolies or restrictions on the choice of provider or technologies.

3.78   TalkTalk[175] contended that if a monopoly USO supplier (or different regional monopoly suppliers) were appointed, it would be able to artificially inflate roll-out costs and retail prices, increasing the overall cost of the USO and causing significant consumer harm.

3.79   Hyperoptic[176] suggested that designating the USP(s) via a reverse auction could ensure the costs of providing the service were efficient.

3.80   We note that, although the majority of respondents called for a competitive designation process, most industry stakeholders did not express a willingness to become a designated USO provider. This could affect the degree to which there is competition in the designation process, although industry may be more willing to come forward for designation once the specification and scope of a USO are clear.

Funding the USO and potential market distortions

Source of funding

3.81   The net cost of the USO (i.e. after taking account of any additional revenue or other benefits of providing the USO) may be recovered from either public funds, through an industry funding scheme or through a combination of both industry and Government funding. The Government's preference is for an industry-funded mechanism.[177] It has asked Ofcom to reflect that preference in our final advice on the design of the USO.

3.82   The majority of public sector, devolved government and local government stakeholders[178] supported an industry-funded levy. Ofcom's Advisory Committee for Northern Ireland[179] suggested this could be extended beyond traditional telecoms providers to players that will benefit from greater broadband availability and take up.

3.83   In contrast, industry respondents [180] felt that Government should provide funding for the USO. Respondents gave three main reasons for this: to limit potential market distortions (for example, arising from pricing advantages afforded to competitors who do not contribute to the funding mechanism[181]); to reflect that the USO is a social

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[173] Citizens Advice, p. 8-9
[174] NFU, p. 6
[175] TalkTalk, p. 1
[176] Hyperoptic, p. 10
[177] Letter from the Secretary of State for Culture, Media and Sport to Ofcom, 22 March 2016
[178] Welsh Government, Scottish Government, Ofcom's Advisory Committees for Scotland, Wales and Northern Ireland, Local Government Association, Brightling Parish Council/Rother Association of Local Councils Working Group, Kent County Council, and Shropshire Council.
[179] Advisory Committee for Northern Ireland, p. 2
[180] KCOM, the BSG, TalkTalk, INCA, CONFIDENTIAL Virgin Media, Three, Cisco and Vodafone.
[181] For example, CONFIDENTIAL Virgin Media said an industry funding mechanism amplifies the risk of market distortion by giving a significant pricing advantage to OTT players like Netflix, which would not be asked to contribute to the fund, compared to telecoms companies owning infrastructure and offering their own OTT propositions, such as Sky or Virgin Media.

policy pursued by the Government; and to reflect the cost savings the Government makes through moving its services online (its 'Digital by Default' strategy).

3.84   Vodafone argued that self-funding by BT would provide strong incentives for efficiency and avoid the costs of setting up and administering an industry-funded mechanism. However, it said that if Government insists that telecoms operators should contribute, the funding should result in an equity stake in the USO assets for the contributing operators.[182]

3.85   Some respondents noted that an industry-funded mechanism would likely result in costs being passed on to the customers of contributing industry players. For example, Citizens Advice[183] felt that the possible impacts on affordability for low income groups triggered by this supported the case for public funding.

3.86   Regardless of the method of funding (via prices or taxation), Citizens Advice[184] expressed concern around unintended consequences where a USO could create scenarios where low income consumers who struggle to afford basic broadband services end up subsidising connections for affluent rural consumers.

Who should contribute to an industry-funded mechanism?

3.87   Contributors to an industry-funded scheme may include any communications provider or may be more restricted. We asked for stakeholders' views on who should contribute to an industry funding mechanism. The majority of views on this subject were from industry, many of whom felt that Government should fund the USO.

3.88   Mobile respondents tended to argue that mobile providers should not be required to contribute to any industry funding mechanism. Telefonica[185] felt that mobile providers operate in markets that are not expected to be affected by the USO. Three[186] also agreed, given its belief that the obligation falls on fixed operators only.

3.89   Virgin Media[187] disagreed. It said that if an industry funding mechanism applies only to fixed broadband providers, the pass-through to consumers would give mobile or wireless providers an unfair pricing advantage. Similarly, Sky[188] argued in favour of a technologically neutral industry levy, on the grounds that internet access can be delivered in a variety of ways.

3.90   BT[189] and Virgin Media[190] questioned whether online service providers such as Amazon, Apple, Spotify and Netflix, who benefit from new consumers gaining access to their services, could be required to contribute.

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[182] Vodafone, p. 16-20
[183] Citizens Advice, p. 9
[184] Citizens Advice, p. 9
[185] Telefonica UK, p. 2
[186] Three, p. 3
[187] Virgin Media, p. 15
[188] Sky, p. 3
[189] BT, p. 16-17
[190] Virgin Media, p. 15

Potential market distortions

3.91   A major concern, particularly among industry respondents, was the USO's potential to cause a range of market distortions. Stakeholders stressed the need to consider how to best mitigate these in the design of the USO.

3.92   Many industry stakeholders raised concerns that the USO could result in inefficient overbuild of existing networks, citing the negative resulting impact on investment this would have.

3.93   Sky[191] and Vodafone[192] voiced concern that the USP(s) could use USO funding to overbuild or duplicate existing or planned networks operated by the USP's competitors, which would diminish incentives for future investment, threatening competition and constraining innovation. Sky[193] suggested that USO funding might diminish the USP(s) incentives to invest in areas which may in fact be commercially viable. BT[194] warned that the USO could distort existing and future commercial infrastructure investments if implemented in parallel to these network deployments, or if its specification places USO services in direct competition with commercial offerings.

3.94   Eutelsat[195] expressed concern that the USO risks crowding out potential private sector investment in broadband infrastructure and TalkTalk[196] suggested it could incentivise providers to seek USO funding for network roll outs that they would have previously funded themselves.

3.95   Some suggested ways to mitigate the risk of overbuild. Vodafone[197] stressed that mitigating this risk should be a priority in designing the USO, and that a national register of assets and network connections could serve to minimise overbuild. It also suggested Ofcom could reduce overbuild by carrying out further work to assess how much more commercial roll out is possible and how best to support it.[198]

3.96   Virgin Media[199] argued for a USO roll-out approach focusing on the most remote areas first to prevent overbuild, with designated USO areas 'de-scoped' when other providers announce an intention to build there. It saw no case for any USO scheme to apply in urban areas or in postcodes that will already be served by the market within a reasonable timeframe.

3.97   Sky[200] suggested that there should be clear restrictions on the use of USO funding where networks already exist or are planned. The BSG[201] and Eutelsat[202] noted that a safety net USO should only operate in areas where market failure has occurred without overlapping with existing or planned commercial or BDUK deployments.

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[191] Sky, p. 2
[192] Vodafone, p. 7
[193] Sky, p. 2
[194] BT, p. 8
[195] Eutelsat, p. 9
[196] TalkTalk, p. 1-2
[197] Vodafone, p. 10
[198] Vodafone, p. 3
[199] Virgin Media, p.17
[200] Sky, p. 2
[201] BSG, p. 5-6
[202] Eutelsat, p. 3-4

3.98 Oneweb[203] stressed that USPs should not be permitted to build and deploy infrastructure in parallel to existing solutions unless they can demonstrate that it can do so more cost effectively than by using existing network infrastructure.

3.99 Hyperoptic[204] suggested that if the provision of the USO to a premises was necessary because of non-economic factors (such as access to wayleaves) steps should be taken to overcome those factors first.

3.100 Some industry respondents raised concerns about the potential for competitive distortions in the retail market. Vodafone[205] suggested this could occur if the benefits to the USP(s) that arise from providing the USO (for example, greater brand recognition) are not recognised. Sky[206] expressed caution that a vertically integrated USP may be able to leverage any benefits that accrue at a wholesale level into downstream markets.

3.101 Sky[207] also made a specific point regarding potential distortions arising from the technology used to deploy the USO. It suggested that the deployment of Long-Reach VDSL could have an adverse effect on competition if it prevented the provision of ADSL broadband by other providers.[208] To avoid this, they suggested avoiding any USO technology which might negatively affect retail competition.

3.102 Other respondents questioned how the USO would interact with publicly funded roll-out schemes, including BDUK. INCA[209] suggested that USO implementation should be delayed until the BDUK roll-out programme, alongside other commercial and devolved government initiatives, were complete.

3.103 The Scottish Government highlighted their commitment to providing 100% superfast broadband coverage across Scotland by 2021, and underlined that the USO scheme should ensure that Scotland is not disadvantaged as a result of taking early action. In particular, the Scottish Government[210] was keen to ensure that the USO did not create disincentives for public bodies or commercial providers making infrastructure investments in Scotland during the intervening period.

Review of the USO

When should the USO be reviewed?

3.104 In the CFI, Ofcom asked stakeholders when and on what basis the USO should be reviewed. We outlined the tension between ensuring consumers relying on the USO do not find they are unable to access the applications and services necessary for

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[203] Oneweb, p. 10
[204] Hyperoptic, p. 9
[205] Vodafone, p. 12-13
[206] Sky, p. 2
[207] Sky, p. 4
[208] This is because Long-Reach VDSL uses the same frequencies as ADSL as well as higher power transmission. This can result in interference to ADSL broadband services deployed in the exchange, such as those used by providers taking Local Loop Unbundled (LLU) lines to serve customers. This is likely to prevent retail fixed broadband providers from supplying, or continuing to supply, ADSL broadband to customers served any cabinet that has been upgraded to Long-Reach VDSL.
[209] INCA, via email
[210] Scottish Government, p. 5

social and economic inclusion, and the need to give USP(s) a reasonable opportunity to recover network investments.

3.105   The overwhelming majority of stakeholders from all sectors recognised the need for the USO to evolve over time to take account of evolving consumer need and expectations as well as technological advances.

3.106   Public sector, devolved and local government respondents tended to be in favour of a shorter review period, or ongoing monitoring of the USO scheme. Suggestions ranged from 1-2 years initially (NI DETI[211]) to five years (Citizens Advice[212]). The Communications Consumer Panel and ACOD[213] noted the need to balance regular reviews, to ensure the USO remains fit for purpose, with the cost to providers, particularly where that cost is passed on to consumers and businesses. It suggested a review every three years would be appropriate, with discretion to do so more frequently if evidence of consumer harm emerged. Others, like the Scottish Government[214] and the LGA[215], felt the USO should evolve in line with speeds delivered by the market and digital advances across the UK.

3.107   Industry tended to suggest a longer review period. BT[216] cited the need for a stable definition of the USO service over a defined investment period, arguing a short review period would increase the risk for any provider designated to deliver the USO and increase the cost of the USO.

3.108   Vodafone[217] expressed a concern that, unless the initial USO is implemented using easily upgradeable technology, there is a risk that it will need to be revisited on a relatively frequent basis.

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[211] NI DETI, p. 4
[212] Citizens Advice, p. 9
[213] Communications Consumer Panel and ACOD, p. 4
[214] Scottish Government, p. 5
[215] Local Government Association, p. 5
[216] BT, p. 19
[217] Vodafone, p. 5

Concluding remarks and next steps

4.1   A minority of industry respondents argued that a USO scheme is unnecessary as its objectives can be met through existing commercial and publicly-funded roll-out plans. However, Ofcom considers that commercial broadband delivery has not, to date, succeeded in delivering a decent broadband connection universally and is unlikely to do so in the future. Although publicly-funded roll-out programmes have significantly improved coverage of broadband services, they are unlikely to serve the very hardest-to-reach premises. Ofcom is committed to securing wide availability of broadband services, and supports the USO as a potential tool to achieve this.

4.2   While the responses received cover a range of detailed areas, we believe they can be broadly summarised within two alternative visions of what further intervention in the broadband market should aim to deliver.

4.3   The first suggestion, favoured primarily by public sector and consumer groups, along with the majority of individual respondents to the CFI, sees an opportunity to deliver a universally-available solution, with a technical performance comparable to that delivered commercially. This approach would involve a minimum download speed in excess of 10Mbit/s alongside additional performance standards relating to latency and upload speeds. These respondents expressed a preference for fibre technologies, alongside concern that broadband USO speeds and pricing should be the same for all UK households.

4.4   The second model, favoured mostly by industry, sees the USO as essentially a safety net for those left unserved by commercial roll out and the current BDUK programme, with a more limited technical specification to ensure costs were reasonable. These respondents were concerned about potential market distortion caused by a more highly-specified USO. They favoured giving the market freedom to set prices and offer differently specified broadband USO services to allow providers to address the varying costs of connecting some of the hardest-to-reach premises.

4.5   This sets out two distinct visions of what intervention in the broadband market should seek to achieve. The first goes beyond the traditional scope of a USO intended to serve as a minimum level of service or connection capability, providing a safety net for people and businesses. However, the second may not go far enough in some aspects to meet the real needs and expectations of people and businesses, and therefore fail to deliver the underlying goal of digital, social and economic inclusion.

4.6   We welcome the views of stakeholders responding to our CFI and will take them into account in preparing our report to Government by the end of the year.

4.7   Before then we will publish our Connected Nations 2016 reports, which will provide updated figures on how many homes receive slow broadband now. It is uncertain how this number will change in coming years, or what the likely costs of connecting these premises might be.

4.8   In December 2016 we will provide Government with a range of options for the design of the USO, which take into account the latest available analysis and data as well as the range of priorities and preferred outcomes expressed by stakeholders. Ultimately, it will be the Government's decision as to which of our proposed options best meets its objectives for the broadband USO.

Respondents to the call for inputs

A1.1   The CFI closed on 23 June. Ofcom received 115 responses, including eight confidential responses, from a range of stakeholders, including private individuals, consumer interest organisations, government bodies, local authorities, companies and trade bodies. Ofcom also received 19 petitions with a total of 4,562 signatures.

A1.2   Organisations from which we received non-confidential responses are listed below. We also received responses from 55 individuals.

A1.3   Responses to the CFI are also published on our website.

Action for Communities in Rural England (ACRE)	Federation of Communications Services	New Economy, Greater Manchester
Advisory Committee for Northern Ireland	Federation of Small Businesses (FSB)	Newcastle Business School, Northumbria University
Advisory Committee for Scotland	Fermanagh and Omagh District Council	Oneweb
Advisory Committee for Wales	Foundation for Information Society Policy	Ordnance Survey
Age UK	Grey Sky Consulting	Predictable Network Solutions
Arqiva	High-Speed Broadband Services	Royal National Institute for the Blind (RNIB)
B4RDS (Broadband for Rural Devon and Somerset)	Hyperoptic	Rural Services Network
Bit Commons	Independent Networks Cooperative Association (INCA)	Satellite Internet
Brightling Parish Council/ Rother Association of Local Councils Working Group	Institution of Engineering and Technology	Scottish Futures Trust
Broadband Stakeholders Group (BSG)	Internet Service Providers' Association (ISPA)	Scottish Government
BT	Irish Central Border Area Network	SES
Cisco		Shropshire Council
Citizens Advice	KCOM	Sky
Communications Consumer Panel and Advisory Committee on Older and Disabled People (ACOD)	Kent County Council	SSE
	Local Government Association	TalkTalk
		Telefonica UK
		Three
		UK Broadband

Community Broadband Scotland	Mid Ulster District Council	ViaSat
Consumer Council for Northern Ireland	MG Alba	Virgin Media
Country Land and Business Association (CLA)	Moorsweb Community Broadband	Vodafone
Department of Enterprise, Trade and Investment, Northern Ireland	National Farmers Union (NFU)	Welsh Government
EEF	National Farmers Union Scotland	
Eutelsat		