Making communications work for everyone

Initial conclusions from the Strategic Review of Digital Communications

About this document

In March 2015, Ofcom announced a Strategic Review of Digital Communications: the first of this kind in ten years.

Following the publication of a Discussion Document in July 2015, we now set out the interim conclusions and next steps to implement our strategy.

This strategy focuses on five areas:

- the guarantee of universal broadband availability at a sufficient speed to meet modern consumer needs;

- support for investment and innovation in ultrafast broadband networks (such as fibre to homes or businesses) by giving BT's competitors improved access to its infrastructure;

- improvements in the quality of service delivered by the whole of the telecoms industry, including Openreach, BT's access network division;

- increased independence of Openreach from BT so that it is more responsive to all of its customers; and

- consumer empowerment so that people can understand the array of choices available to them and are able to switch to the best value deal easily.

The document also sets out how we will step back from regulation where consumers and businesses no longer need it.

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Section 1

Executive summary

Making digital communications markets work for everyone: Ofcom's Digital Communications Review 2016

1.1   This strategic review sets out Ofcom's approach to regulating communications markets for the next decade. It explains how we will promote investment and competition to ensure that people and businesses get the phone, broadband and mobile services they need in coming years, wherever they live and work.

Key proposals

A strategic shift to large-scale investment in more fibre: We will help create more choice for people and businesses, while reducing the country's reliance on Openreach. A major strategic shift will encourage the roll-out of new 'fibre to the premise' networks to homes and businesses, as an alternative to BT's planned innovation in copper-based technologies. As part of this, BT will be required to open up its network, allowing easier access for rivals to lay their own fibre cables along BT's telegraph poles and in its underground cable 'ducts'.

A step change in quality of service: We will publish service quality performance data on all operators, and look to introduce automatic compensation for consumers and small businesses when things go wrong. We intend later this year to introduce tougher minimum standards for Openreach with rigorous enforcement and fines for underperformance.

Reforming Openreach: We intend to reform Openreach's governance and strengthen its independence from BT. In future, Openreach should be governed at arm's length from BT Group, with greater independence in taking its own decisions on budget, investment and strategy. Openreach management will be required to serve all wholesale customers equally, and consult them on its investment plans. Greater independence could be achieved by 'ring-fencing' Openreach (for example, Openreach becoming a wholly owned subsidiary with its own purpose and board members). Full 'structural' separation remains an option.

The right to broadband: We will work with the UK Government to make decent, affordable broadband a universal right for every home and small business in the UK. The universal right should start off at 10Mbit/s for everyone, and then rise in line with customer demand over time. We will work with the Government to deliver it. We will also look to improve mobile coverage by including new obligations on operators seeking new licences for spectrum (the radio airwaves which transmit mobile signals).

Empowering consumers to make informed choices: We will give consumers real power to exercise choice through much more accessible and engaging information on the services available to them. We will continue to make switching easier for more services so customers really can exercise choice.

Deregulate and simplify whilst protecting consumers: We will step back from regulation where people and businesses no longer need it, including when there is a real prospect of competition. Our ultimate goal is to improve communications services for everyone, not to increase regulation.

Ofcom's vision: making digital communications work for everyone

1.2   The next ten years will see fundamental changes in networks and services, and in how consumers and businesses use them. Underpinning our strategy is a long term vision for the quality and availability of communications that UK businesses and consumers deserve over the coming decade:

- everyone in the UK will enjoy fast, reliable broadband services. Most consumers and businesses will move from 'superfast' to 'ultrafast' broadband, based increasingly on competing networks, and the latest mobile phone technologies will be rolled out across the UK's geography;

- the UK will move towards a new fibre future, with widespread availability of competing 'fibre to the premise' and cable networks to homes and businesses. As more consumers and businesses enjoy a greater choice of networks, competition will drive both innovation and affordable prices;

- people who do not have a choice of providers, do not enjoy even a basic level of service (whether through social circumstance or simply due to where they live), or find it hard to take advantage of offers in the market, will be protected through effective, targeted intervention; and

- the UK will be a world leader in the availability and capability of its digital networks.

The digital communications market today

1.3   The communications landscape today is unrecognisable from the one we reviewed in 2005. Broadband speeds have increased many times over[1]. Most households can now download a high definition film in minutes. Usage of smartphones and tablets has exploded, and mobile data speeds have soared across much of the country[2].

1.4   However too many people and businesses – especially micro, small and medium sized firms – have not benefited. 2.4 million households and small businesses (around 8% of all UK premises) cannot yet access a decent broadband speed of 10Mbit/s[3].

1.5   There is a persistent digital divide between those who have access to the latest technologies, and those who do not. As the world goes increasingly online, those left behind risk social and economic exclusion. We have found that people who are left behind are usually less well-off or living in vulnerable circumstances[4].

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[1] Until 2004, broadband services typically delivered up to 512Kbit/s. The first 'up to 1Mbit/s' broadband service provided by BT was launched in 2004, with cable companies at that time offering speeds of up to 3Mbit/s. Today, Openreach supports consumer speeds of up to 80Mbit/s to the majority of customers, and cable operators offer up to 200Mbit/s. Smaller scale fibre to the home providers offer services up to and above 1Gbit/s, or even more.

[2] In 2005, 3G services were in their infancy. Today, 4G coverage from all operators reaches 46% of premises.

[3] Ofcom, *Connected Nations 2015,* p.7.

[4] See, for example, Ofcom research indicating that the most income-deprived areas of cities were also those areas where NGA broadband was often least available (Ofcom, *Availability of Communications*

1.6   Many people and businesses continue to suffer poor mobile coverage, especially in rural and remote areas. While all four mobile network operators (O2, Three, Vodafone and EE) enable you to make a call in 99% of urban areas, this proportion falls to 72% in rural areas, 41% on UK roads, and 31% inside buildings in rural areas[5]. Rural customers have greater problems making calls, and are less satisfied with their services than anyone else[6].

1.7   Both fixed superfast broadband and mobile coverage is lower in Scotland, Wales, and Northern Ireland than in the UK as a whole, as are average speeds.

1.8   While the UK compares favourably to similar-sized countries in Europe on availability and price, more investment is needed to enable a step change in the speeds and technology available to consumers. Such a change will keep the UK at the forefront of digital connectivity globally.

1.9   When services work well for people, they report good levels of satisfaction. However, with consumer expectations rising, basic customer service and quality of service is too often poor. The Institute of Customer Service has ranked the communications industry among the worst sectors in this regard[7]. The most common concern expressed in submissions to this review was about poor service from the industry as a whole, and Openreach in particular.

Universal availability of fixed and mobile services is the starting point for good outcomes for all people and businesses

We will work with the Government to deliver a new universal right to decent, affordable broadband for every household and small business in the UK.

1.10   In the same way that every UK citizen has a right to a phone service, the Government announced in November 2015 that a new right to broadband (or 'universal service obligation') will apply. The Government has said that its ambition is that every household and small business in the UK will be able to demand a broadband speed of at least 10Mbit/s. We presented evidence in 2013 that 10Mbit/s is the speed needed given a typical household's use of digital services[8].

1.11   We will help the Government to implement this right. We will look to ensure that there can be competition to provide the USO, with the right technology deployed for local circumstances. This could involve a mix of fixed and wireless technologies to deliver the service. The broadband universal service must also build on existing commercial and community networks, rather than displacing them.

1.12   We know that demand for faster connections will grow in the future. The speeds promised by the USO offer a safety net for today's usage. However, the broadband USO will need to rise over time, particularly over a ten-year time frame. Otherwise,

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Services in UK Cities, p. 6) and that the affluence of the local population appears to correlate with good mobile coverage (Ofcom, *Economic Geography*, p. 6).
[5] Ibid., pp. 4 and 11.
[6] Ofcom, *Consumer Experiences of Mobile Phone Calls*, pp. 10 and 13-15; Ofcom, *Consumer Experience, 2015: Research Annex*, p. 61.
[7] Institute of Customer Service, *UK Customer Satisfaction Index: The state of customer satisfaction in the UK*.
[8] Ofcom, *Infrastructure Report: 2013 update*, p.5 and 32.

people and small businesses that rely on the USO could again fall behind those who benefit from new and upgraded commercial services.

We will ensure that consumers have the best possible information about mobile coverage, so that they can make informed choices. We will also look to include new obligations in future spectrum licences to ensure rural coverage continues to improve.

1.13   Mobile operators' own plans should deliver significant improvements in mobile coverage, notably with the rollout of 4G. Coverage of all four operators expanded from 37% to 46% of the country in 2015, and has the potential to reach further than previous generations of mobile technology.

1.14   In addition, we have placed obligations on the mobile operators to provide better coverage. As a condition of its licence, O2 must provide indoor 4G coverage to 98% of UK premises (and at least 95% in Scotland, Wales, and Northern Ireland) by the end of 2017. The other network providers are following suit. All four mobile operators have signed up to provide voice call coverage to 90% of the UK's landmass.

1.15   Ofcom intends to go further to ensure that mobile services are widely available. We will:

- publish accurate and easy to use coverage information[9], so that consumers can choose the best provider for them. In turn, this should incentivise mobile operators to improve coverage;

- assess how we can impose new obligations on operators bidding in the future for wireless airwaves ('spectrum') to increase coverage, especially in rural areas. The 700 MHz spectrum band, is particularly well suited to providing better coverage The 700 MHz band will be available for mobile use by the end of 2021 and potentially up to two years earlier. We expect to auction mobile licences for the band in late 2018 or 2019.

- support Government action to reduce the cost of mobile network investment, by providing technical advice. This includes the Government's review of rules governing the construction of new mobile masts, making it easier for operators to improve their coverage; and

- ensure regulation encourages the market developing and deploying innovative technologies such as those that can potentially solve coverage problems in buildings, vehicles or on trains.

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[9] Mobile coverage maps are available at maps.ofcom.org.uk.

A strategic shift to large-scale fibre deployment

We will make a strategic shift to encourage large-scale deployment of new ultrafast networks, including fibre direct to homes and businesses, as an alternative to the copper-based technologies currently being planned by BT.

New deployments will deliver increased choice of broadband services for people and businesses over the next decade, while reducing the UK's reliance on the Openreach network.

1.16   With the universal service obligation as a backstop, many people and businesses will demand significantly more from their communications networks over the next decade.

1.17   Exactly what services will drive that demand cannot be predicted, but the experience of the last ten years suggests that demand will soar. Take the rise of on-demand TV. Many of these services became available in the last decade: YouTube launched in 2005, the BBC iPlayer in December 2007. Last year, on-demand TV services were used by 74% of adults.

1.18   The UK's communications sector needs significant investment to meet the needs of people and businesses and to avoid being left behind by our international competitors.

1.19   Several of the largest providers have already announced plans to roll out high-speed services to certain parts of the country. BT intends to deploy 'G.Fast' technology to 10 million premises by 2020, using an innovative approach to copper-based broadband. Virgin Media is extending cable broadband to four million new premises (from 45% of the country to around 60%) by 2020 through its 'Project Lightning' initiative[10].

1.20   A number of smaller providers are also deploying 'fibre-to-the-premise' (FTTP); for example Hyperoptic, whose network reaches 100,000 UK premises[11]. Sky, TalkTalk and CityFibre are together trialling a new fibre network in York.

1.21   Ofcom will build on this progress. We will make it easier for telecoms providers to invest in advanced, competing infrastructure, while protecting those who have already made investments. We will enable the large-scale deployment of fibre-based networks, including fibre-to-the-premise, bringing about significant change in consumer and business broadband services. New networks will support 'ultrafast' broadband, providing more choice and greater reliability of service for customers.

1.22   Investment in new fibre networks will create an alternative means of delivering world-class connections to people and businesses, in addition to the innovations in copper-based technologies currently being planned by BT, and advanced improvements to Virgin Media's cable network. Together, new investments will help secure the UK's position as a world leader in the availability and capability of its digital networks.

1.23   We intend to achieve this strategy shift by improving access to Openreach's network of telegraph poles and its 'ducts' – the underground tubes that carry telecoms cables. Competitors will then be able to connect their own fibre optic cables directly to homes

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[10] Virgin Media, DCR main response, p. 17.
[11] Hyperoptic, press release, 11 February 2015.

and businesses at a lower up-front cost. This will require substantial improvement in how Openreach opens access to its infrastructure.

1.24 Competing providers must be able to plan deployments of new fibre networks. Openreach will be required to provide greatly improved systems and processes for access to its ducts and poles. We will require Openreach to provide a new database showing the physical location and characteristics of its ducts and poles. We will implement and enforce these changes, including through our competition powers.

1.25 We will ensure that all communications providers building new networks have a fair opportunity to make financial returns that reflect the risks and costs incurred. In the past we have not set specific regulated prices where new investments are truly risky, and we expect to maintain this approach. In doing so, we will need to guard carefully against the risk of higher prices for consumers and businesses, particularly as services become mass-market.

1.26 In places where consumer demand leads to new investments, we want to see one or more new providers enter the market, competing head-to-head with BT and existing network operators such as Virgin Media. This competition can deliver significant consumer benefits by driving innovation and take-up of new technology, improving service quality, delivering affordable prices and reducing the country's reliance on Openreach.

1.27 This is a long term strategy: the opening up of access to ducts and poles and then its adoption and use by industry to build new networks will bear fruit over time. Inevitably, this kind of investment is most viable in denser urban areas and other places with strong demand for new services.

1.28 In places where the private sector cannot offer competing infrastructure investment, regulation will be needed to ensure that BT provides access to its range of 'active' products. These products allow competitors to buy capacity on BT's network to deliver services to people and business. Competitors can then build on these products to offer services to consumers where network investment is not credible. This will provide sustainable opportunities for competition everywhere, and is most likely to be needed in rural and remote areas.

1.29 Where network based competition can work, there is the real prospect of removing existing regulation.

In mobile services, competition will drive network innovation and investment. But if competition becomes ineffective, including through mergers or takeovers, we are prepared to intervene to prevent consumer harm.

1.30 The global mobile industry's focus is now on developing the next improved technical standard for mobile networks (known as 5G).

1.31 We are confident that investment in 5G will be made if the UK continues to benefit from real competition between its four national network providers (Vodafone, EE, O2, Three), and a range of resellers. As a result, 5G could potentially be available in the UK well before 2025. Ofcom will make the necessary wireless spectrum available for these services.

1.32 However, if we see takeovers or mergers leading to fewer, bigger network operators, today's market competition may be at risk. If consumers are worse off as a result, this

could lead us to a fundamental rethink of our approach to competition and investment in mobile services. We will not hesitate to step in if we see consumer detriment.

A step change in quality of service

We intend to set tougher quality of service standards for Openreach, publish performance data for all operators, and ensure consumers and small businesses receive automatic compensation if things go wrong.

1.33   Urgent improvements are needed to quality of service. We will regulate to require and incentivise the whole industry, including Openreach, to bring about real improvements to service quality.

1.34   A key driver of service quality is competition. For competition on service quality to be effective, people need to understand how operators compare against each other. We will therefore publish an annual Service Quality Report, naming the best and worst performers – among both fixed and mobile operators – on a range of quality measures.

1.35   Central to our strategy will be tougher minimum quality requirements on Openreach, rigorously enforced. We intend to impose a floor for service quality that rises over time, taking account of consumers' expectations. If Openreach fails to meet these standards, it will face substantial fines. Where required, we will establish minimum standards in new areas, such as for faults and incomplete orders, to complement existing requirements for improved repair and installation times.

1.36   We also intend to use our price regulation to incentivise significant performance improvements, while still penalising performance below the service floor. This mirrors the incentives of companies in a normal competitive market to attract customers by setting themselves apart through exceptional service quality.

1.37   Finally, we will seek to ensure that, if things do go wrong, consumers and small businesses receive automatic compensation for any loss of or reduction in service. This will provide a significant incentive for providers to improve service and fix faults quickly.

Significantly strengthening Openreach's independence

We will reform Openreach's governance and secure the independence necessary to take its own decisions on budget, investment and strategy.

How Openreach works now

1.38   Ofcom agreed the 'functional separation' of BT in 2005, in a telecoms market that looked very different from that of today. Functional separation means that Openreach sits within BT Group, but has obligations to treat all its customers equally.

1.39   We are concerned that the current model of 'functional separation' has failed sufficiently to remove the incentive and ability to discriminate against competing providers. In particular:

- BT Group has retained control over Openreach's strategic decision-making and over the budget that is spent on the parts of the network used by competitors;

- BT Group does not consult sufficiently with all Openreach customers on new investments in the network – such as G.Fast, the proposed next generation of broadband technology that partially uses existing copper networks, but might deliver speeds up to 500Mbit/s;

- Openreach's governance lacks independence from BT Group; and

- Openreach does not have its own capability, independent of BT, in areas such as research and development.

1.40   BT Group is a 'vertically-integrated' company, combining dominant wholesale, and retail operations. The concerns above all stem from limited independence for Openreach within this structure.

1.41   Any solution to concerns arising from this vertical integration must be able to take account of developments in how networks are built and services are delivered. For example, if BT were found to discriminate in favour of EE, its new acquisition, over other mobile network operators, we must be able to step in as required to maintain a level playing field.

<u>How Openreach should work in future</u>

1.42   In view of these concerns, the status quo for Openreach is not an option.

1.43   Therefore, Ofcom has decided it is necessary to reform the relationship between Openreach and BT Group to give the former greater independence and autonomy to behave as though it were an independent company. Openreach should behave like, and be seen to behave like, an independent company. Under this new structure, Openreach should have:

- Independent governance structures and processes, with a responsibility to serve all wholesale customers equally;

- Independent technical and operational capabilities. Openreach should be able to develop and advise on options for upgrading its network, improve operational performance, and meet wholesale customers' future needs – without recourse to BT;

- Autonomy over its budget, and over its strategic and operational decision making;

- An on-going responsibility to consult with all customers in the same way. This should allow for more bilateral discussion of specific proposals between Openreach and all its customers, in a manner that does not favour BT Group; and

- Greater transparency over how costs and assets are allocated between Openreach and the rest of BT. This will help ensure that BT does not allocate its costs in a way that artificially increases prices for regulated services.

1.44   One option that might achieve these aims is 'structural separation': requiring BT to spin-off Openreach as an entirely separate company, with its own shareholders. This remains a potential solution. A change of ownership would eliminate the ability and the incentive for BT to use its control of Openreach to discriminate against competitors. It would also reduce the need for detailed regulation to address discrimination concerns, although regulation would still be needed on price and

quality where Openreach remained a monopoly. A structurally separate Openreach may also not face greater incentives to invest in new networks. Nonetheless, structural separation may be the cleanest and most clear-cut long-term solution.

1.45   We do, however, recognise that structural separation would entail significant disruption and costs to both BT and the wider industry. There would be practical challenges, both for BT Group and for regulators. In a rapidly changing sector, there would be risks with establishing a fixed 'boundary' for Openreach. In other words, splitting BT once and for all reduces the flexibility to re-set the boundary if future technologies or competition means change is appropriate. Re-setting the boundary around Openreach's network of ducts and poles could be one such change.

1.46   We are, therefore, also considering other options that could deliver the independence and autonomy for Openreach that Ofcom deems necessary. One such option we call legal separation. This means making Openreach a wholly-owned subsidiary of BT Group, with its own purpose, board of directors and governance arrangements. This can be supplemented with an explicit requirement on Openreach management to consider the interests of all customers, not just BT, when making decisions.

1.47   There would be practical issues to be resolved, such as reconciling increased independence for Openreach with the corporate governance responsibilities and legal duties of the main BT Board. However it could present an opportunity to simplify significantly the current rules and regulatory processes in place to protect against favourable treatment of BT. If functional separation cannot be strengthened, we reserve the right to take forward structural separation.

1.48   We are now developing detailed proposals to bring about the greater independence and authority for Openreach that will benefit the whole telecoms industry and consumers in years to come. We will develop proposals for discussion with the European Commission, which sets the telecoms framework that Ofcom and other EU regulators operate under, later this year.

1.49   During our review, BT made a proposal for reforming the relationship between Openreach and BT Group that sought to address our concerns. However, we do not believe these proposed changes go far enough. We are however open to voluntary proposals that address the concerns we have identified.

Empowering and protecting consumers

We will give consumers the information and tools they need to make informed choices and to switch provider, so that they can take advantage of the best deals available on the market.

1.50   The choice of the best package to buy is becoming increasingly diverse and complex. People need practical information and tools to understand and to take advantage of what is on offer. Multiple products such as landline phone, broadband and TV services are increasingly sold as a bundle. BT's acquisition of EE could see an acceleration over the next year in mobile phones being offered to customers in a 'quad play' package as standard.

1.51   Consumers need clear and accurate information to compare what is available and to make the best choices. To ensure that this is the case, we will:

- Publish more detailed information, including on: service quality and customer response; fixed and mobile service availability; and broadband speeds;

- Work to introduce a standard cost comparison measure, such as the average monthly cost of the core elements of a service over the contract period, so consumers can more easily compare different products;

- Closely monitor the impact of providers' adherence to the Advertising Standards Authority's broadband price advertising rules;

- Work with third parties such as price-comparison websites to improve the information that consumers have to hand before they buy; and

- Identify what more can be done for consumers who are not responsive to this information, for example through stronger triggers for them to consider other deals when contracts expire.

1.52 Consumers must be able to act on this information by easily switching provider to get a better deal. We have already ensured switching is easy for companies selling broadband using the Openreach network. We will soon follow this with proposals for new rules to make it easier to switch mobile company. We will also complete our review of switching triple-play services (i.e., phone line, TV and broadband).

1.53 We will identify what more can be done to support consumers who may not respond to new or better information, or to easier switching. Of particular concern are people in vulnerable circumstances. Possible measures include stronger prompts to consider other deals when their contract expires. We will also be tracking prices more closely to see whether consumers are getting the best value deals possible, and specifically whether vulnerable or older people systematically get a worse deal.

1.54 However, we are also prepared to implement direct and targeted protections for those people, especially the most vulnerable, who cannot protect themselves through informed choice.

1.55 We have a range of rules in place to ensure that communications services work for everyone, including the most vulnerable. For example, we require social tariffs to be available for certain people on low incomes. We also set rules around making communications services accessible to consumers who are blind or deaf, and to those who may need their bills in a different format such as braille.

1.56 Going forward we will need to ensure current protections are updated to take account of changes in technology and usage. In particular, we will need to consider how those protections that currently apply to traditional telephone services, such as the requirement to provide a social tariff and arrangements for sensitive handling of debt, might in future apply to broadband and mobile services.

1.57 Even in well-functioning markets, things sometimes go wrong for consumers. This can be due to service failures or poor customer service. It can be because providers fail to meet their obligations. In the worst cases, it can be because criminals engage in scams.

1.58 Ofcom will continue its work to identify and address such sources of harm. A specific example is nuisance calls: these cause significant annoyance and in some cases real distress for consumers. In the worst cases, calls can result in serious fraud.

1.59 Action in this area is a current priority, and we intend to go further. We are consulting on a revised enforcement policy. We will prioritise action against those making the

most harmful silent calls. We have proposed new penalty guidelines enabling significantly larger penalties against companies found culpable.

1.60   We are also working with others to address this problem. We have signed a new 'memorandum of understanding' with telecoms companies to monitor and stop nuisance calls on their networks.[12] We are also working with international partners on stronger enforcement and standards to allow the public to identify callers.

Simplifying and removing unnecessary regulation

1.61   It is a core principle of Ofcom that we only intervene where necessary. We do not believe regulation is an aim in its own right; rather it is a necessary tool to deliver benefits to people and businesses where markets alone cannot.

1.62   Since 2005, Ofcom has sought to deregulate wherever we can rely on competition to deliver for consumers, or where changes in technology or market structure have rendered certain interventions obsolete.

1.63   For example, in our 2015 *Business Connectivity Market Review* consultation, which looks at dedicated business connections, we have proposed for the first time to deregulate central London completely where sufficient competition has taken hold.

Looking ahead, we see further potential opportunities for deregulation

1.64   In the eyes of consumers, fixed and mobile networks are becoming more and more interchangeable for calls and messaging services. These services are also increasingly delivered over the internet, by providers such as Skype and WhatsApp, rather than by traditional telephone networks.

1.65   In our forthcoming Narrowband Market Review (which examines competition in the landline market) we will consider how far we can deregulate traditional landline telephone – while maintaining important protections for vulnerable users and people who depend on their traditional landline.

1.66   We set out in this review a new strategic focus on competition between independent networks. In those parts of the country where there is a real prospect of effective competition, we will seek to remove unnecessary regulation.

1.67   Our focus on gauging the right level of regulation has led us to initiate a review of the General Conditions, the rules that all telecoms companies have to meet in order to operate in the UK. Our review will seek to make the rules clearer, reduce the cost of compliance, and remove any redundant rules.

Next steps

1.68   Many of these proposals will be delivered through our normal process of regular reviews of individual telecoms markets, as set out in our proposed Annual Plan for 2016/17[13]. Specifically, we will consult on detailed implementation through:

- our review of competition and quality issues in broadband connections to homes and business premises – the Wholesale Local Access Market Review;

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[12] Nuisance Calls (Technical Measures): Memorandum of Understanding MoU).
[13] Ofcom, *Proposed Annual Plan 2016/17*, p.7.

- our review of competition issues in traditional telecoms services, including voice telephony – our Narrowband Market Review

- our review of the small market where local loop unbundling of BT's copper cables is not economically viable and superfast broadband is not yet available – the Wholesale Broadband Access Market Review; and

- our review of dedicated business lines – the Business Connectivity Market Review.

1.69   Where our proposals do not fall within a specific market review, we will take forward implementation through a series of dedicated projects, set out below.

Securing universal coverage

i)   In fixed networks, we will work with the Government to implement the new universal right to broadband.

ii)   We will continue to provide accurate, comparable, accessible and increasingly granular coverage information. This will be published in our *Connected Nations 2015* report – and nation-specific reports – towards the end of 2016.

iii) We will use the powers that we have to require operators to improve mobile coverage. For example, by including licence conditions on population and geographic coverage for new future spectrum releases.

Strategic shift to enable large scale fibre deployment

iv)   Over the coming year, we will work with BT and industry to make BT's underground duct and pole infrastructure easily and quickly accessible to competitors. We will implement changes through the Civil Infrastructure Directive, subject to the transposition of the Directive into UK legislation, planned for summer 2016. We also will make specific proposals this year in our Wholesale Local Access (WLA) market review.

v)   To support investment, we will implement regulated access and pricing policies to support investment in access networks through the WLA market review.

Step change in quality of service

vi)   We intend to set tough minimum standards for Openreach with rigorous enforcement and fines for underperformance in the business market through our business connectivity market review in April 2016.

vii) We will publish the first annual 'Report on Service Quality' in early 2017.

viii) We will consult through the WLA review on enhancing and extending minimum standards for Openreach.

ix)   This year we will also seek to introduce rules to incentivise Openreach to go beyond minimum standards and deliver better service, consulting through the WLA review.

x)   We will set up a working group with industry to co-ordinate service quality across organisational boundaries.

xi) We will consult on the introduction of automatic compensation for consumers and small businesses.

Strengthening Openreach's independence

xii) We are now developing detailed proposals to bring about greater independence and autonomy for Openreach, for discussion with the European Commission later this year.

Consumer empowerment

xiii) We will work with industry and third parties, such as price comparison websites, to improve the level of information available to consumers.

xiv) This year we will actively explore requiring providers to publish a standard cost comparison measure, such as a measure of the average monthly cost of the core elements of a service over the contract period, alongside their tariffs.

xv) We will consult on mobile switching in the first half of 2016. We will also complete our review of switching triple-play services (i.e., phone line, TV and broadband).

Deregulation

xvi) We will consult on proposals to streamline and update the General Conditions by summer of this year, and finalise proposals by spring 2017.

xvii) Beyond this, we will consider the scope for deregulation in every one of our market reviews.

The Digital Communications Review and our vision for the next decade

Ofcom's purpose

2.1   Ofcom's purpose is to make communications work for everyone. To do this, we have three core goals:

a)   promote competition and ensure that markets work effectively for consumers;

b)   secure standards and improve quality; and

c)   protect consumers from harm.

2.2   Our job is to set the rules for companies who provide communications services – TV, radio, telephony, broadband and post – so people and businesses benefit from choice, innovation and affordable prices.

The Digital Communications Review

2.3   In March 2015, we announced our review of how we regulate digital communications, namely fixed and mobile networks as well as the range of communications services offered to consumers and businesses from video streaming to gaming.

2.4   We set the goal for the review as making sure our approach delivers the best possible outcomes for consumers and businesses in these critical sectors. By looking ahead to the future, we are setting a bold vision for what consumers and the sector should reasonably expect from digital communications.

2.5   In July 2015 we published a Discussion Document[14] which described the transformation that has occurred in digital communications services over the last decade. Demand among businesses and consumers for internet connectivity and the services available online has exploded. These services are no longer a luxury, but essential to how we live and work.

2.6   These initial conclusions represent the result of our review, following input from stakeholders, and further analysis and evidence-gathering. It sets out our overarching strategy and intended actions to deliver it. We will implement these actions through a number of new and specific initiatives, as well as through current and future market reviews.

2.7   As we look to implement the proposals in this review, we will consult with stakeholders and consumers in the normal way[15].

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[14]Ofcom, *Strategic Review of Digital Communications: Discussion document.*
[15] We set out the guiding principles for how we will regulate, including on consultation and proportionality, on our website.

Our vision for the coming decade

2.8   The pace of change and innovation witnessed in the last ten years will continue over the coming ten years: consumers will use communications services in new ways; new networks, such as ultrafast fixed broadband and 5G mobile will be deployed; and there will be an ever-greater variety of services provided over networks.

2.9   We cannot today predict what future demand will be, or the precise technologies that will deliver it. Our strategy must, therefore, enable the evolution of digital communications in line with the expanding needs of consumers and businesses. In particular, we must support the new investment and innovation that will be required.

2.10   People and businesses will become ever more dependent on communications services. In order to run a business, communicate with each other and access public services, consumers will rely on faster, better communications services that are reliable and accessible whenever and wherever they are needed.

2.11   Our ten year vision is that:

- everyone in the UK will enjoy fast, reliable broadband services. Most consumers and businesses will move from 'superfast' to 'ultrafast' broadband, based increasingly on competing networks, and the latest mobile phone technologies will be rolled out across the UK's geography;

- the UK will move towards a new fibre future, with widespread availability of competing 'fibre to the premise' and cable networks to homes and businesses. As more consumers and businesses enjoy a greater choice of networks, competition will drive both innovation and affordable prices;

- people who do not have a choice of providers, do not enjoy even a basic level of service (whether through social circumstance or simply due to where they live), or find it hard to take advantage of offers in the market, will be protected through effective, targeted intervention; and

- the UK will be a world leader in the availability and capability of its digital networks.

Wide availability and reliable services

2.12   Consumers' and businesses' expectations of, and need for, widespread availability of advanced communications networks and services will increase. A decent basic level of broadband service will need to be available to all households and business premises to ensure communications services are not a barrier to social and economic inclusion.

2.13   People and businesses will also need highly effective mobile services across the UK geography to access information and entertainment services on the move, and to enhance productivity. More machine to machine communications (such as the 'internet of things') will require ubiquitous networks offering real-time communications to hundreds of millions of devices.

A real choice of innovative, advanced services

2.14   Communications networks are used for an ever growing range of services from historical services such as telephony to internet content. Most observers expect that

because of this, demand from consumers and businesses for access to ever more important and complex communications will grow.

2.15   This demand is also increasingly diverse.[16] One example of this changing demand is the need to limit time delays in network connections that can result in a poor experience for services like video calling or gaming. To meet such wide-ranging demands effectively, there needs to be a range of choice among communications providers.

2.16   UK networks and services must keep pace with these demands, taking advantage of continuing global technical developments and putting in place new infrastructure. This will require investment in innovative technologies and services from as much of the industry as possible. We want to see new entrants able to invest and bring real choice for consumers over quality, speed and price.

2.17   To take advantage of such choice, consumers must understand the options available to them and be able to select and switch to the service that best meets their needs. We can help by providing information and tools for consumers to make informed choices. In addition, key services must remain affordable for all consumers and businesses.

Universal access for all consumers through effective, targeted interventions

2.18   While many consumers and businesses will demand and benefit from greater innovation and choice, many others may lack access to even a basic level of service:

- Coverage of superfast broadband in the UK in rural areas, at 37% of premises, is significantly lower than for all UK premises at 83%.

- SMEs also experience poorer superfast broadband coverage at 68%.

- 2.4m homes across the UK, and 1.5m in rural areas, cannot get access to 10Mbit/s broadband services.

- Use of a mobile device to access the internet is lower for disabled consumers (at 42%) than for non-disabled consumers at (59%).[17]

2.19   Where this lack of access is driven by reasons of geography or vulnerability, we will intervene with targeted and effective regulation to ensure these consumers can access the services they need.

2.20   Digital participation is already important for social and economic cohesion. However in the future, with consumers increasingly reliant on communications networks and new applications such as e-health coming to the market, we expect that the dependency on these services (and our interventions to secure them) will only increase.

The UK as a world leader in digital communications networks

2.21   Overall the UK communications sector compares well with other countries today. Of the five largest European economies, the UK has the highest proportion of mobile

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[16] Analysys Mason, *Understanding the demand for communications services by SMEs*.
[17] Ofcom, *Disabled consumers' use of communications services*, p. 34.

connections that are 4G, as well as the highest proportion of fixed broadband lines used for superfast broadband.[18] Furthermore, prices compare favourably to other European countries, as well as the US.[19]

2.22   However, on other metrics the UK is already lagging. Fibre-to-the-premise broadband services are only available to 2% of UK premises, compared to global leaders in fibre deployment such as Japan (70%), Spain (over 60%) and South Korea (over 60%).[20]

2.23   Over the next decade, we believe that the UK must build on this strong position. We want to see the large-scale deployment of new ultrafast networks, such as fibre-to-the-premise and 5G mobile, which will dramatically change consumer and business broadband services. These networks will support innovative new services, providing more choice and help to improve quality of service.

2.24   These investments will help secure the UK's position as a global leader among our peers in Europe and internationally.

Our strategy has been developed to deliver on this vision for consumers and businesses

2.25   Our Discussion Document[21] invited views on a wide range of topics:

- the widespread availability of services and extending availability through targeted public policy;

- convergence and changing market structures;

- strategies for sustainable competition;

- promoting efficient investment through regulation;

- regulating vertically integrated firms;

- empowering consumers;

- delivering quality of service; and,

- removing and better targeting our regulations.

2.26   We received 133 responses. Stakeholders set out their views on all of these topics, and raised some new issues. A summary of the responses is available in the annex, along with our responses to the points raised.

2.27   The stakeholders who offered views included individual consumers, companies who work in the sectors we regulate, local and central government bodies, and representative groups of consumers and businesses.

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[18] European Commission, *EU Digital Agenda Scoreboard*.
[19] Ofcom, *International Communications Market Report 2015*, p. 105.
[20] Analysys Mason, September 2015.
[21] Ofcom, *Strategic Review of Digital Communications: Discussion Document*.

2.28   Having considered all of the views brought to us, and conducted further analysis and assessment, we are setting out a strategy to make communications work for everyone. This will shape the decisions we take over the coming decade.

2.29   Our strategy has five main components. For each component this document has a section setting out our initial conclusions on this strategy and the next steps to implementing it. The components are:

   a) Securing wide availability of services (section 3);

   b) Promoting investment and competition (section 4);

   c) Delivering a step change in quality of service (section 5);

   d) Strengthening Openreach's independence (section 6);

   e) Empowering and protecting consumers (section 7);

2.30   In addition, our decisions are aimed at improving outcomes for people and businesses; they are not about increasing regulation. We have challenged ourselves to identify regulation that could be simplified or removed. Our approach and proposed next steps are set out in section 8.

We raised further issues in our Discussion Document, and have decided that our current approach remains appropriate

2.31   We received stakeholder responses on a number of other policy areas.

2.32   In these areas we have considered the submissions made to us, and reaffirmed our existing approach. Two particular areas worth highlighting are our approach to TV content when bundled together with telecoms services, and our approach to internet-based services that may be substitutes for traditional services (commonly known as 'over-the-top services').

2.33   We set out our position on these issues in section 9. Our responses to other topics raised by stakeholders can be found in the annex.

Section 3

Securing wide availability of services

Overview of our strategy and next steps

From a UK-wide perspective, the availability of fixed and mobile services is good. Most consumers can now access high broadband speeds at home and in their place of work, as well as mobile voice and data services while on the move.

However, some areas of the UK do not have access to an acceptable level of service. The starting point for any future communications strategy must be to ensure that everyone shares in the benefits of a modern digital society.

The Government's plan for a right to decent, affordable broadband is central to our availability strategy. We will prioritise supporting plans for a 10Mbit/s broadband Universal Service Obligation (USO) to ensure that all people and small businesses have access to decent broadband speeds. Over time, we expect that the USO will need to evolve to ensure all consumers and businesses benefit as technologies and services improve.

We will also secure wide availability of services by:

- enabling further investment in fixed networks, especially the transition from superfast to ultrafast broadband services, through competitive mechanisms wherever possible;

- exploring options for extending mobile coverage. We will seek to place new coverage obligations on companies who win new spectrum licences. The 700MHz band is particularly well suited to providing such coverage

- supporting the UK Government's reform of the Electronic Communications Code; and

- providing consumers and businesses with accurate, comparable and accessible coverage information across communications services so that they can make better choices about their services.

Widespread availability depends on both private and public sector investment

3.1   High quality fixed and mobile communications services are fundamental to the way people live and work and for successful businesses. These services should be available to everyone.

3.2   Since the mid-1990s, communications infrastructure has been transformed. Successive rounds of private sector investment in core fixed networks, business telecoms services, voice and data mobile networks, broadband services and local loop unbundling have delivered substantial benefits to consumers.

3.3   The last decade has seen extensive development of networks and services. Consumers now expect reliable access to broadband at home and while out and about, as well as to be able to make calls at home and on the move. These expectations will only continue to rise. In many locations, we expect that the private sector will meet these demands. However, it is not commercially viable for operators to provide services at affordable prices in areas where there are few customers or

where the costs of deploying infrastructure are high.[22] This creates a 'digital divide' between those areas that receive coverage of communications services and those that will not if infrastructure roll-out is left to the private sector alone.

3.4   Beyond commercial deployments, we have seen a number of community projects step in to extend coverage to some towns or villages, especially in rural areas. For example, the projects run by Community Broadband Scotland.

3.5   Public sector intervention may be needed to extend availability to uncommercial areas. Ofcom has a role in supporting the Government in delivering such interventions. Our role includes providing technical advice on mobile coverage on the Government's reform of the Electronic Communications Code[23] or implementing UK Government policy such as the broadband USO. At other times, Ofcom will make its own policy decisions that can enhance availability, such as coverage conditions in spectrum licences.

3.6   As part of our advice and work on public sector interventions, wherever possible we will make sure competition is maximised in the areas that receive support and the impact on private investment in other areas minimised.

3.7   But universal availability of existing services is only the starting point. The next decade will see the roll-out of ultrafast broadband offering speeds of at least 300Mbit/s, enough to stream multiple HD videos simultaneously and to support new, very high bandwidth services such as virtual and augmented reality. In mobile, today's 4G services will evolve further, with 5G technologies and small cell deployments offering improved user experiences. Over the course of the next decade, technologies that are only deployed in laboratories today will also need to become universally available. Public sector interventions will need to keep pace with private sector innovations in order to avoid the digital divide re-emerging over time.

As a whole, the UK enjoys good and improving levels of coverage

Fixed communications

3.8   The percentage of homes and small businesses able to access superfast broadband has increased from 58% in July 2011 to 83% in June 2015. This equates to 24 million premises now capable of taking superfast broadband services.[24]

3.9   Investment in superfast broadband by BT and Virgin Media has resulted in good outcomes for the majority of consumers in terms of availability of superfast speeds. BT's commercial superfast broadband deployment reached around two-thirds of UK homes. Virgin Media has upgraded its cable network technologies to offer increasing speeds of up to 200Mbit/s to its whole footprint (c.45% of UK homes including recent new build network).

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[22] For an analysis of economic geography and mobile services, see Ofcom, *Economic geography*.

[23] The Electronic Communications Code (ECC) regulates the relationship between network operators and holders of sites. It enables communications network providers to construct infrastructure on public land and to take rights over private land.

[24] Ofcom, *Connected Nations 2015*, p. 1. Data from the *Connected Nations 2015* was collected in May and June of 2015. We have defined superfast broadband as any service with an actual download speed greater than 30Mbit/s, a definition which is consistent with that used by the European Commission. The current UK average upload speed for superfast broadband is 8Mbit/s (Ofcom, *Connected Nations 2015*, p. 16. The UK government defines superfast broadband as any service with an actual download speed of 24Mbit/s.

3.10   Public funding has also made a significant contribution to these totals. An estimated 3.6 million premises have benefited from public funding from BDUK as of December 2015.[25] BDUK has contributed to funding programmes such as the Superfast Extension programme in Northern Ireland targeting 39,000 premises and due to complete in 2017, the Superfast Cymru programme (548,000 premises covered as of February 2016[26]) and the Digital Scotland Superfast Broadband programme (500,000 premises covered as of January 2016[27]).

3.11   The combination of private and public funding means the UK has the highest level of superfast coverage amongst the EU5[28]; this level is also higher than the EU average. This availability level compares well with EU nations of a similar size, and with global peers, as seen in Figure 1. However, the UK compares less well with smaller EU countries, especially those with near universal cable coverage. The actual technologies deployed vary significantly between countries.

Figure 1: Superfast broadband availability in different countries[29]
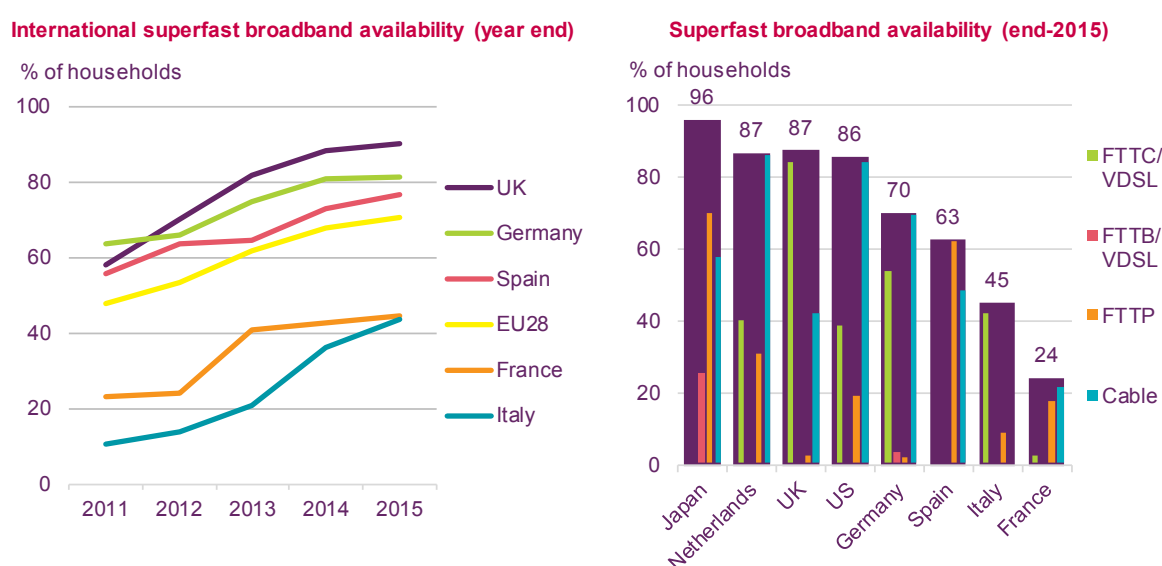
Source: EU Digital Agenda Scorecard (left) and Analysys Mason, September 2015 (right[30])

3.12   This wide availability is supporting increasing take-up of superfast broadband. As of June 2015, more than a third of UK fixed broadband connections (36%) had a headline speed of 30Mbit/s or more, a higher proportion than in France (15%), Germany (25%), Italy (5%) and Spain (29%).[31]

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[25] Department for Culture, Media and Sport, *Broadband Performance Indicator - December 2015*, p.4.

[26] Informal update from the Superfast Cymru project team.

[27] Digital Scotland, Half a million homes on digital network.

[28] France, Germany, Italy, Spain and the UK.

[29] This figure compares the availability of various technologies for supplying superfast broadband. Technologies are defined as: FTTC/VDSL – fibre to the street cabinet, with short copper links to the home; FTTB/VDSL - fibre to a building's basement, with short copper links in building to apartments; FTTP – fibre built all the way to customers' premises; Cable – fibre to the street cabinet, with co-axial cable links to the home. See the glossary at the end of this document for more explanation.

[30] Note: Analysys Mason figures are based on actuals for 1H 2015 and forecasts for 2H 2015. FTTB/VDSL is fibre-to-the-building where in-building distribution is via VDSL over copper connections.

[31] European Commission, Digital Agenda Scorecard.

3.13   However, the UK has lower availability of ultrafast broadband than many other countries. At present, only 2% of premises are covered by broadband with speeds greater than 300Mbit/s.[32] We currently take ultrafast broadband services to be those that offer a minimum download speed of 300Mbit/s or more (a factor of ten greater than that offered by superfast). These services also offer higher upload speeds than superfast broadband. Over time we expect ultrafast technologies to evolve towards providing gigabit speeds and above – 1000Mbit/s or more. We discuss the need for future investment in ultrafast technologies in section 4 below.

Mobile communications

3.14   Mobile coverage has also improved significantly. Today, 93% of UK premises receive outdoor 2G coverage from all operators, with 3G coverage at 88%. The percentage of premises without outdoor coverage from any 4G operator fell from 27% to 10% between 2014 and 2015.[33] Ofcom's *European Broadband Scorecard* ranks the UK first among the EU5 in 3G mobile broadband coverage and second in 4G mobile broadband coverage.[34]

3.15   The rollout of 4G in the UK is broadly in line with our EU5 peers. However, the UK is behind leading nations such as South Korea and the US in 4G coverage. Both of these nations reached 99% coverage levels in 2013.[35]

Figure 2: UK and European 4G network availability
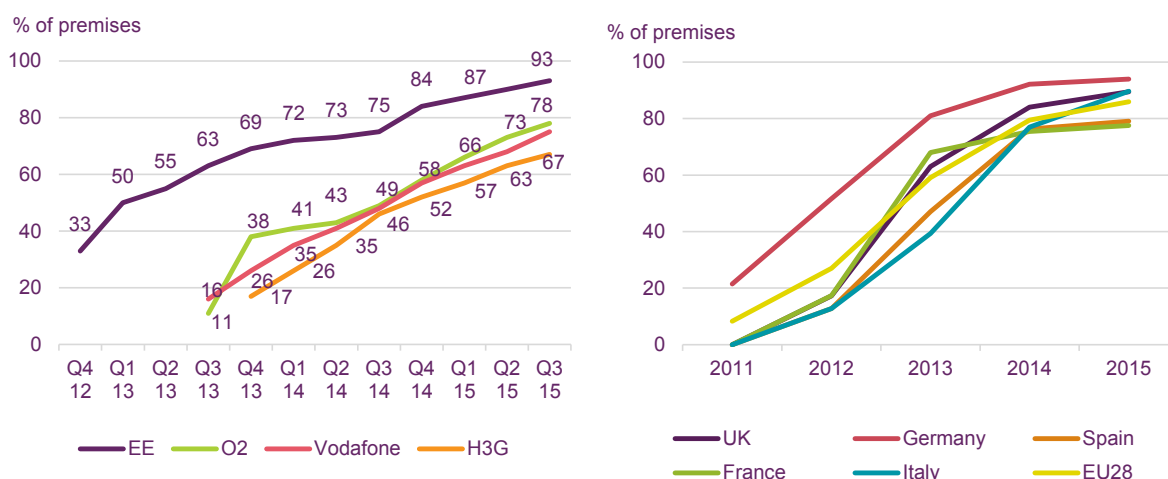
Source: Enders Analysis estimates, EU Digital Agenda Scoreboard

However, not everyone in the UK enjoys the same high level of availability

3.16   The increasing importance of fixed and mobile services means consumers expect to be able to access them no matter where they are. However, this is often not possible. There are a number of different concerns in terms of wide scale availability of decent services. We explore each below:

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[32] Ofcom, *Connected Nations 2015*, p. 24.
[33] Ofcom, *Connected Nations 2015*, p. 2
[34] Ofcom, *The European Broadband Scorecard*, p. 8.
[35] WIK-Consult, *Competition & investment: An analysis of the drivers of investment and consumer welfare in mobile telecommunications, July 2015*, p.21.

- a significant number of homes and businesses do not have access to superfast broadband, and too many do not even have a decent broadband service;

- availability of fixed and mobile services is lower in rural areas. This has a particular impact on Scotland, Wales and Northern Ireland;

- many small businesses do not have access to superfast broadband; and

- mobile coverage remains uneven in key places people look to make calls and use data, including indoors and on the move.

A significant number of homes and businesses do not have access to superfast broadband, and many do not even have a decent broadband service

3.17   Nearly 5 million premises are unable to receive superfast broadband because rollout has not yet extended to their area.[36] Of these, 2.4 million (8% of UK premises) do not even have access to a decent broadband service, which we define as a service capable of delivering at least 10Mbit/s.[37] This figure will fall as the various superfast broadband public sector interventions are completed, but will remain a significant minority of homes beyond 2017.

3.18   Even in areas where superfast broadband is available, technical limitations such as poor line quality, mean 2 million premises do not have access to speeds of 30Mbit/s.

Availability of fixed and mobile services is lower in rural areas. This has a particular impact in Scotland, Wales and Northern Ireland.

3.19   Rural areas have a lower availability of broadband and mobile, set out in Figure 3 below.

- While the availability of superfast broadband services in rural areas increased from 22% to 37% between 2014 and 2015, this is still much lower than the national average of 83%.[38]

- Of the 2.4 million UK premises without a decent broadband service, 1.5 million are in rural areas. This corresponds to nearly 50% of all premises in rural areas.[39]

- Indoor rural voice coverage (2G and 3G) for premises is currently at 31%.[40] While 4G is being deployed rapidly, it has not yet gone beyond the footprint of existing 2G and 3G networks.

3.20   This difference results from the increased costs of deploying communications infrastructure to serve a widely dispersed population. As a result, consumers in rural areas do not enjoy the same benefits as urban consumers. Poor rural availability has a particular impact on Scotland, Wales and Northern Ireland, which are more rural than the UK as a whole (see Figure 3 below).
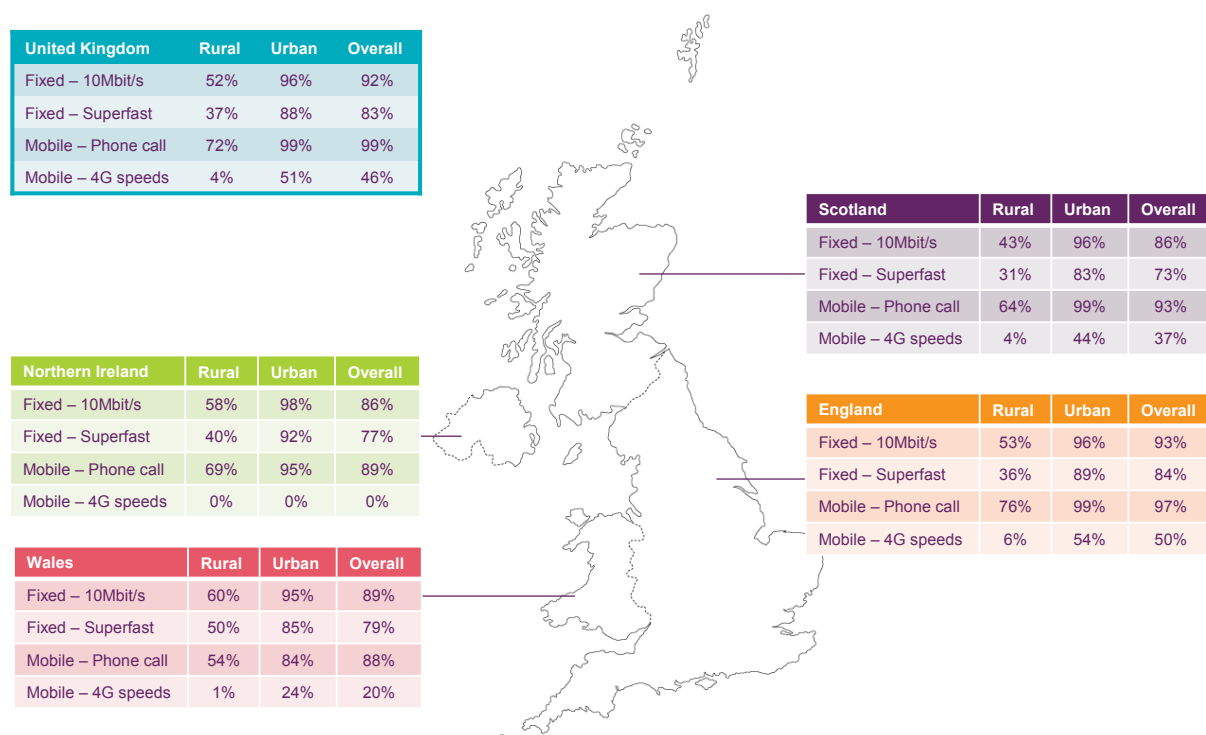
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[36] Ofcom, *Connected Nations 2015*, p. 18.
[37] Ibid., p. 19.
[38] Ibid., p. 18.
[39] Ibid., p. 18.
[40] Ibid., p. 35.

Figure 3: UK coverage of communications services[41]

United Kingdom	Rural	Urban	Overall
Fixed – 10Mbit/s	52%	96%	92%
Fixed – Superfast	37%	88%	83%
Mobile – Phone call	72%	99%	99%
Mobile – 4G speeds	4%	51%	46%

Scotland	Rural	Urban	Overall
Fixed – 10Mbit/s	43%	96%	86%
Fixed – Superfast	31%	83%	73%
Mobile – Phone call	64%	99%	93%
Mobile – 4G speeds	4%	44%	37%

Northern Ireland	Rural	Urban	Overall
Fixed – 10Mbit/s	58%	98%	86%
Fixed – Superfast	40%	92%	77%
Mobile – Phone call	69%	95%	89%
Mobile – 4G speeds	0%	0%	0%

England	Rural	Urban	Overall
Fixed – 10Mbit/s	53%	96%	93%
Fixed – Superfast	36%	89%	84%
Mobile – Phone call	76%	99%	97%
Mobile – 4G speeds	6%	54%	50%

Wales	Rural	Urban	Overall
Fixed – 10Mbit/s	60%	95%	89%
Fixed – Superfast	50%	85%	79%
Mobile – Phone call	54%	84%	88%
Mobile – 4G speeds	1%	24%	20%

Source: *Information derived from data published with the Connected Nations 2015*

3.21   This point was picked up by several stakeholders. The Northern Ireland Department of Enterprise, Trade and Investment noted that Northern Ireland has 'particularly challenging terrain' with the highest percentage of people living in rural areas in the UK. The Scottish Futures Trust said that Scotland has lagged behind the UK in fixed services, as well as 3G and 4G connectivity. The Welsh Government submitted that, in spite of a competitive market, large areas of Wales are not served by usable mobile services.

3.22   Specific areas in the UK have particularly poor availability. Ofcom analysis of data at the local authority level indicates that areas such as Carmarthenshire in Wales, Argyll and Bute in Scotland and Fermanagh and Omagh in Northern Ireland are among those with the greatest percentage of premises that cannot receive a download speed of greater than 10Mbit/s.[42]

**Many small businesses do not have access to superfast broadband**

3.23   Decent broadband services are vital for a growing number of businesses, including micro and small businesses. An Ofcom study on business use of telecoms found that 83% of SMEs said that communications services were fundamental to their business.[43] But almost a third of SMEs do not have access to superfast broadband, as seen in Figure 4. To date, rollout of new superfast networks has focussed more on residential rather than business premises.

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[41] Figures for mobile in this diagram are for outdoor premises coverage by all operators. 'Phone call' refers to coverage by 2G and 3G services. Data on coverage levels is from May 2015 and may have changed since.

[42] Ofcom, *Connected Nations 2015: Wales*, p. 13; *Connected Nations 2015: Scotland*, p. 11; and *Connected Nations 2015: Northern Ireland*, p. 12.

[43] Jigsaw Research, *SME experience of communications services - a research report*

Figure 4: UK coverage of superfast broadband for SMEs compared to all premises
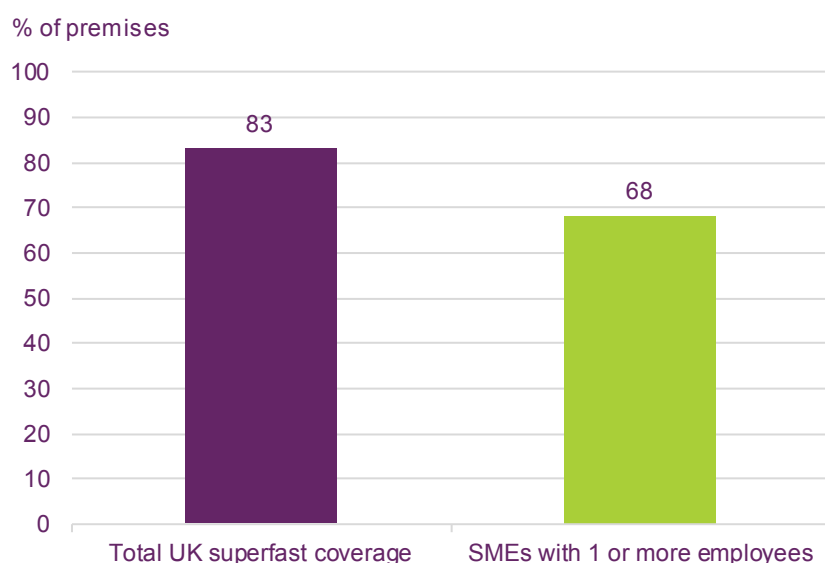
% of premises

Source: Ofcom, Connected Nations 2015

3.24   We also note that availability of superfast broadband is a particular issue for SME business districts (defined as postcodes where all the postal addresses are for SME premises). Ofcom's *Connected Nations 2015* looked at the number of premises located within postcodes with full superfast coverage and compared the UK as a whole with SME-only postcodes. The data showed that 81% of all UK premises are located in a postcode with full superfast coverage; this figure falls to 56% of premises in SME-only postcodes. In addition, we estimate that, as of August 2015, 46% of premises in SME-only postcodes had broadband connections of less than 10Mbit/s, while 12% had maximum speeds of less than 2Mbit/s.[44]

3.25   The poor availability of superfast broadband in business parks and in 'city not-spots' such as the City of London[45] is surprising. One of the causes, though not the only one, is the prevalence in such areas of 'Exchange Only Lines'. These are connections which run directly from an exchange building to the customer's premises, with no intervening street cabinet. They cannot be upgraded to superfast broadband using BT's preferred technology, 'fibre-to-the-cabinet', because there is no cabinet to upgrade.

Mobile coverage remains uneven in key places where people look to make calls and use data, including indoors and on the move

3.26   Mobile services need to be able to work in more than one location. People expect good mobile coverage in their home, in other buildings including work spaces, outdoors and while on all forms of transport. In spite of this, mobile coverage figures usually quote figures for the availability of services outdoors and in terms of the premises that are covered, rather than the geographic areas or transport links that can receive service.

3.27   Figures for indoor coverage to premises are typically lower than for outdoor coverage. This is because a mobile signal loses strength as it passes through walls

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[44] Ofcom, *Connected Nations 2015*, p. 21.
[45] Ofcom, *Infrastructure Report 2014*, pp. 28-29.

to reach inside buildings. The differences between indoor and outdoor coverage levels can sometimes be significant, with rural areas, in particular, severely affected. In urban areas less than 1% of premises have no mobile coverage, compared to 13% for rural areas. But 91% of urban premises have indoor coverage from all voice networks, whereas only 31% of rural premises have this coverage.[46]

3.28   However, there are emerging commercial solutions to indoor mobile connectivity. For example, all UK mobile networks now offer voice over Wi-Fi services, where calls can be made and received over an available Wi-Fi connection rather than traditional mobile networks.

3.29   Poor mobile coverage is not only an issue for premises; it is also an issue for transport networks. The levels of mobile coverage on A and B roads are set out in Figure 5.

Figure 5: Mobile coverage of A and B roads[47]
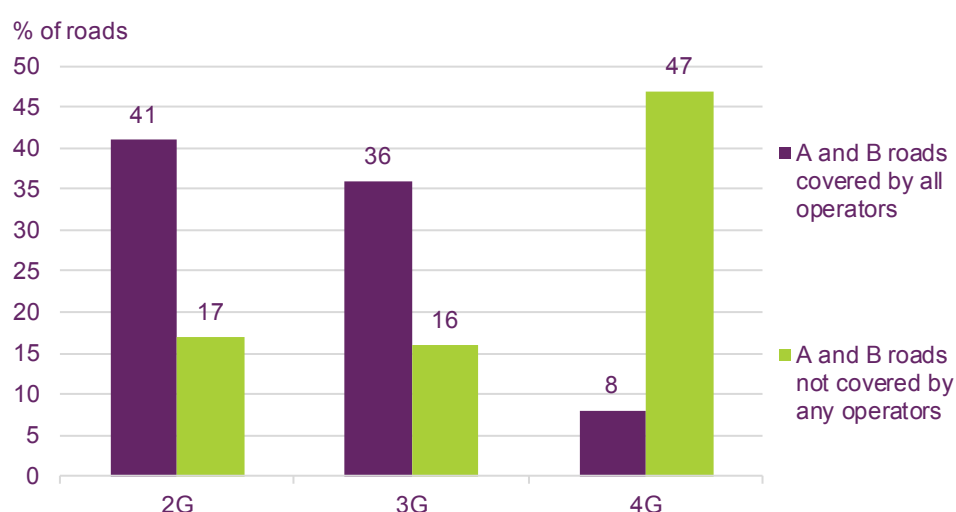
Source: Ofcom, Connected Nations 2015

3.30   Similarly, the rail network suffers from mobile availability problems, as was shown in a study for Ofcom on rail coverage on the east and west coast main lines from 2012.[48] In 2013, Network Rail announced that it would seek to make high speed mobile broadband of 50Mbit/s available to customers on the busiest 30% of Britain's railways, with 70% of passengers to benefit from the technology by 2019.[49] In June 2015, the Department of Transport issued a Call for Evidence on improving mobile communications for UK rail passengers to better understand technical and commercial challenges to delivering mobile connectivity on trains[50].

Universal availability of decent fixed broadband connections

3.31   Ofcom has long been committed to ensuring that consumers and businesses across the UK have the legal right to a decent level of broadband. The majority of stakeholders who responded to the Discussion Document recognised the need for a

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[46] Ofcom, *Connected Nations 2015*, p. 35.
[47] Ofcom, *Connected Nations 2015*, pp.2-3.
[48] Mott MacDonald, *Rail 'Not-spots' – Technical Solutions & Practical Issues*.
[49] Network Rail, High speed mobile broadband for the busiest parts of the railway by 2019.
[50] Department of Transport, *Improving mobile communications to UK rail passengers*.

broadband universal service, though some questioned the reasoning supporting it, saying that a universal service obligation (USO) would be too inflexible or that Ofcom's recommended speed of 10Mbit/s is too high.[51]

In November 2015, the UK Government announced a broadband USO, building on our 2013 analysis of broadband use

3.32 Ofcom believes that no one should be left behind when it comes to access to a decent level of broadband. The USO promises a safety net to ensure that everyone can access a decent broadband service. The USO will mean that at least one provider must fulfil all reasonable requests to provide an affordable connection.

3.33 We will actively support the development of a USO, with the UK Government due to consult on it later in 2016. Ofcom will have a role in implementation. Once the universal right to decent broadband is in place, people and small businesses currently unable to receive the defined broadband service speeds will be able to request it and see it delivered in response.

3.34 In our view, 10Mbit/s is the right level at present for a broadband USO. There is good evidence that demand is constrained at speeds below this level, as we have highlighted over a number of years.[52] We reiterated this conclusion in the *Connected Nations 2015*.[53] We have also found that consumers are more likely to rate their broadband experience as less than good at speeds below 10Mbit/s, see Figure 6.

Figure 6: Consumers with faster broadband speeds are more likely to rate their internet experience as "good" or better[54]
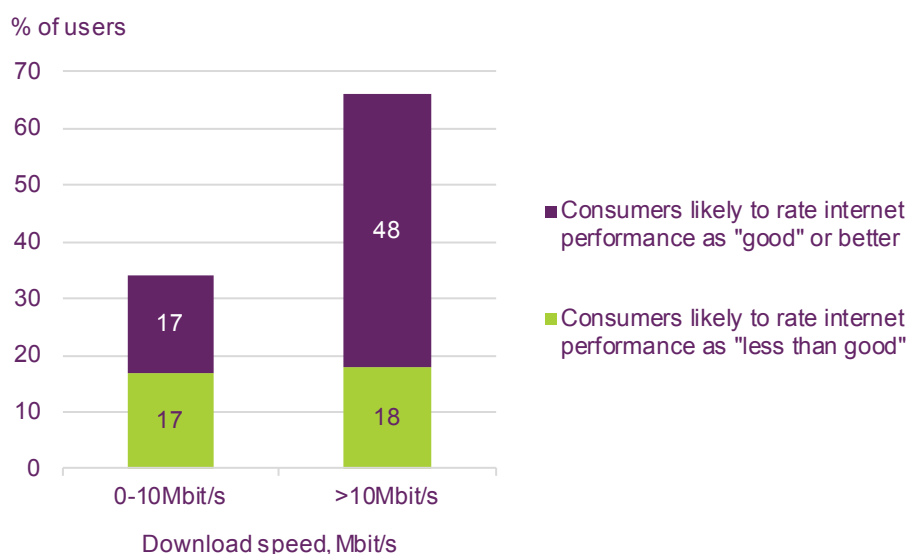
Source: Ofcom, Connected Nations 2015

3.35 Advanced applications that demand higher speeds are becoming more commonplace. Increasingly, there are several simultaneous uses of broadband in a home at any one time. This also points to a download speed of 10Mbit/s as a likely minimum.

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[51] TalkTalk, *DCR main response*, p. 65; BT, *DCR main response*, p. 55.
[52] Ofcom, *Infrastructure Report 2013*, p. 31.
[53] Ofcom, *Connected Nations 2015*, pp. 26-27.
[54] Ofcom, *Connected Nations 2015*, p. 29.

3.36   A download speed of 10Mbit/s has the advantage of being deliverable by a range of technologies, including wireless. This increases the likelihood of there being competition between providers in the provision of the broadband USO.

3.37   In advising on and implementing the USO, Ofcom will aim for the following wherever possible:

- a competitive and technology neutral procurement process, ensuring that the most appropriate technology is deployed for different local circumstances, delivering the greatest benefit at the lowest cost;

- a USO that builds on existing commercial and community networks, rather than displacing them; and

- a USO with quality standards that extend beyond download speed to take account of the range of important factors that affect the experience of a household or small business, including upload speeds.

3.38   A 10Mbit/s USO may be appropriate now, but we can already see evidence of consumers adapting their usage as superfast broadband becomes more widely available. The *Connected Nations 2015* showed that a household's average monthly data usage increases significantly once its broadband speed reaches 40Mbit/s.[55]

3.39   It will therefore be important for any USO implementation to include a mechanism for increasing the level of performance delivered by the USO over time. Otherwise, consumers and businesses that rely on the USO could fall further behind those who benefit from new and upgraded commercial services.

Alongside implementation of the USO, we will facilitate the deployment of new technologies that enable commercial solutions

3.40   There are a variety of ways in which new technologies, or new approaches to network deployment, can improve availability for the hardest to reach. We will do what we can to support these commercial solutions.

3.41   For example, it may be possible to increase the performance of copper-based broadband delivered from street cabinets, essentially by increasing the power at which signals are transmitted. Current VDSL technologies deliver much higher bandwidths than traditional ADSL based copper broadband but over relatively shorter distances. As distance increases, so speeds worsen: current VDSL can deliver 9Mbit/s over 2km copper connections. However, BT has demonstrated that so-called 'long-reach VDSL' can achieve speeds of 24Mbit/s over the same distance. In the longer term, BT considers that it may be able to achieve even faster speeds.[56]

3.42   The downside of this technology is that it may generate interference with services delivered in the same geographic area, but which are provided from a local exchange building rather than a street cabinet. This may include services delivered by operators other than BT using local loop unbundling (LLU). LLU is a process that allows operators other than BT to install their telecoms equipment in the local BT exchange, allowing them to offer their own broadband services to consumers.

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[55] Ibid., p. 7.
[56] BT, *DCR main response*, p. 23.

3.43   We support examples of such technical innovation, given the significant consumer benefit it can offer. This is particularly true in areas where there is no local loop competition, such as very rural areas. Rural premises can often be far from the local BT exchange and hence the benefits of this technology are more pronounced and there would be few competition implications.

3.44   In areas where BT's competitors have unbundled the local loop, the situation is more complex. Existing local loop competitors may need to replace existing equipment to be able to co-exist with the long-reach VDSL technology or potentially withdraw the LLU service altogether from the exchange area and move to buying wholesale access from Openreach. In the first instance, we would look to providers to resolve the potential issues raised on a commercial basis. Were we to intercede, we would consider circumstances on a case by case basis, weighing the consumer benefits of competition based on LLU against the benefits of faster broadband speeds.

3.45   Another option to improve broadband services could be greater use of wireless technologies. These include fixed wireless technologies (using a permanent outdoor antenna on customers' premises) and satellite broadband. Wireless solutions are good at providing broadband connectivity to widespread but very sparsely populated areas: they are shared networks that face reduced quality if too many customers use the service at once. Wireless solutions avoid the potentially high cost of laying physical connections to remote premises. However, wireless solutions come with their own associated difficulties, such as longer latency for satellite and the need for geography that does not disrupt a signal for broadband provided over fixed wireless technologies such as high mountains.

New regulatory options to extend mobile coverage

3.46   Central to Ofcom's approach to extend the reach of mobile are coverage obligations that could be attached to certain spectrum licences. There are already examples of such obligations.

- In 2013, we attached a coverage obligation to the 800 MHz spectrum licence won by Telefonica UK. The obligation requires Telefonica UK to provide a mobile broadband service for indoor reception to at least 98% of the UK population, and at least 95% of the population of Scotland, Wales and Northern Ireland, by the end of 2017. Other operators have said that they will match this coverage.

- A voluntary agreement on coverage between the UK Government and the Mobile Network Operators, given effect through conditions in spectrum licences, means that the operators will provide call and text coverage to 90% of the UK geographic area by the end of 2017. This will improve signals in areas that have coverage from some, but not all, operators (known as partial not-spots. It will lead to coverage from all operators across around 85% of the UK's geographic area by 2017.[57]

We will seek to include new coverage obligations on bidders that win a licence for appropriate spectrum to increase coverage, particularly in rural areas.

3.47   Coverage obligations are a key lever for Ofcom to improve the availability of mobile services in the future.

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[57] This is because while the 90% requirement applies to each operator individually, the coverage is not necessarily all in the same place.

3.48   Due to the physical characteristics of different spectrum bands, not all spectrum is suitable for extending coverage. The spectrum made available by the Public Sector Spectrum Release (2.3 GHz and 3.4 GHz spectrum) is best suited to providing additional capacity than increasing coverage. As a result, there may be relatively limited net benefits in attaching coverage obligations to licences for this spectrum.

3.49   In 2014, we announced that we would make spectrum in the 700 MHz band available for mobile data use. The physical characteristics of this spectrum mean that it is particularly well-suited to achieving coverage over wide areas and indoors from mobile network towers. We will seek to include a coverage obligation as one of the conditions of using this spectrum and will consult on its inclusion and form when we consult on conditions for that award.

3.50   The 700 MHz band will be available for mobile use by the end of 2021 and potentially up to two years earlier. We expect to auction mobile licences for the band in late 2018 or 2019.

These coverage obligations will improve mobile availability, but we are also evaluating how new technologies will help further

Mobile repeaters

3.51   Mobile repeaters are signal boosters that amplify and retransmit a mobile signal and are marketed as a way of improving mobile coverage. They are illegal to use under current UK legislation, except under very specific circumstances, on the grounds that they potentially cause interference.[58] However, we do see the possibility for repeaters to extend coverage in difficult to reach locations such as sparsely populated areas, in vehicles and in buildings.

3.52   In particular, repeaters could improve indoor coverage in locations where a fixed broadband connection is not available. Such connections are needed to provide mobile backhaul (the connection from the mobile cell to the core network) for alternative indoor coverage solutions such as femtocells. We will publish a statement setting out our proposed way forward in the first half of 2016.

Voice over Wi-Fi

3.53   We intend to facilitate deployment of Voice over Wi-Fi by removing regulatory barriers to the use of this technology. All of the mobile operators now offer voice over Wi-Fi services. These services have the potential to help improve coverage in buildings that have poor mobile coverage but good Wi-Fi connectivity indoors.

 White space devices

3.54   TV white spaces refer to gaps in existing spectrum use in the 470 to 790 MHz band, which is primarily used by Digital Terrestrial Television (DTT) and Programme Making and Special Events (such as outside broadcasts and West End theatres). The use of white space databases to enable dynamic spectrum sharing makes it possible to free up access to the unused spectrum at times and in places where it is not being used. Spectrum in this band is especially valuable because it has excellent characteristics in terms of both capacity (bandwidth) and coverage (signals travel

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[58] More information about the current use of mobile repeaters is available on the Ofcom website.

further and penetrate buildings more readily). This means that it has a wide range of possible applications, including extending mobile coverage.

3.55   In February 2015, we set out our decision to enable access to white space devices in the unused parts of this spectrum without the need for a licence, while ensuring a low probability of harmful interference to other users.[59]

3.56   Our decision to allow the use of white space devices should result in more efficient use of spectrum and help to meet the increasing demand for more spectrum to deliver existing and new services. We also expect that lessons learnt from the use of dynamic spectrum access methods in the 470 MHz to 790 MHz band can be applied to other spectrum bands.

We are informing consumers about mobile coverage in their local area through our coverage maps, enabling them to make better choices about their provider

3.57   In August 2015 we launched interactive online mobile coverage maps, which enable consumers to compare phone call and data coverage provided by mobile operators.[60] These have two purposes: they help consumers choose the service that best meets their needs and they increase the incentive on operators to compete with each other by providing better coverage.

3.58   In 2016 and beyond, we will work to improve further our coverage maps by including information on coverage of 'Voice-over-4G', 'Voice-over-LTE' and voice over Wi-Fi services. These services offer a superior call quality to calls made over 2G or 3G. We will also publish information detailing when and where mobile networks become congested. At very busy times consumers may experience problems connecting calls and data services may be slow or unreliable. We plan to make this information available on an operator by operator basis to help consumer choice.

We support the Government's reform of the Electronic Communications Code

3.59   The Electronic Communications Code (ECC) regulates the relationship between network operators and holders of sites. It enables communications network providers to construct infrastructure on public land and to take rights over private land. The Code is important because, in part, it determines the rental fees paid by mobile operators to landowners, and these rental fees are an important factor in determining the commercial viability of rural mobile coverage.

3.60   The UK Government issued a consultation in February 2015 on reforming the ECC. The consultation sought to provide a robust legal framework for the rollout of communications infrastructure to expand mobile coverage.[61] Among other things, the consultation considered how levels of payment made by network providers when exercising ECC rights are to be determined.

3.61   While the review of the ECC is a matter for the UK Government, we are committed to supporting its work and have provided some technical guidance and regulatory insight to Government as they consider various policy options. This includes participating in the Government's ECC Project Board, which is driving the review and undertaking a thorough evidence-gathering process ahead of any proposed Code reform.

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[59] Ofcom, *Implementing TV White Spaces*.
[60] Ofcom's coverage maps are available on the Ofcom website.
[61] Department for Culture, Media and Sport, *Reforming the Electronic Communications Code*.

Promoting investment and competition

> **Overview of our strategy and next steps**
>
> Our strategic objective in relation to fixed networks is to encourage the large scale deployment of new fibre networks over the next decade, driving the widespread availability of competing ultrafast broadband services.
>
> To deliver this we will:
>
> - make it easier for competing providers to build their own fibre networks, across as much of the UK as is practicable, by providing them with access to Openreach's network of underground ducts and telegraph poles;
>
> - price access to BT's network in ways that encourage providers to build their own networks while protecting consumers from excessive pricing;
>
> - deregulate where network based competition is effective; and
>
> - continue to promote competition based on other forms of access to Openreach's network, where effective network competition does not arise.
>
> In mobile, there is no change to our existing strategy. We want the UK to continue benefiting from competition between four national network providers, and a range of resellers. We will work to ensure that the necessary wireless spectrum is made available. If we see takeovers or mergers leading to fewer, bigger network operators, and consumers are worse off as a result, this could lead us fundamentally to rethink our approach to competition and investment in mobile services.

In fixed telecoms, the UK compares well to international peers, but will need further investment to continue as a global leader

4.1   As set out in section 3, overall, the UK is performing well against European and global peers on a number of measures, including the availability and take-up of superfast broadband. UK fixed and mobile service prices also compare well with the EU5, as set out in our recent report *The Consumer Experience*.[62]

4.2   However, the UK is notable for its very limited availability of ultrafast broadband services[63], including those based on fibre-to-the-premise (FTTP). On this metric, it compares poorly with the majority of our global peers, as shown in Figure 7.

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[62] Ofcom, *The Consumer Experience 2015: Research Annex*, p. 16-17.
[63] See Section 3 for superfast and ultrafast broadband definitions.

Figure 7: Fibre coverage to premises in OECD nations, end-2015

% of premises passed
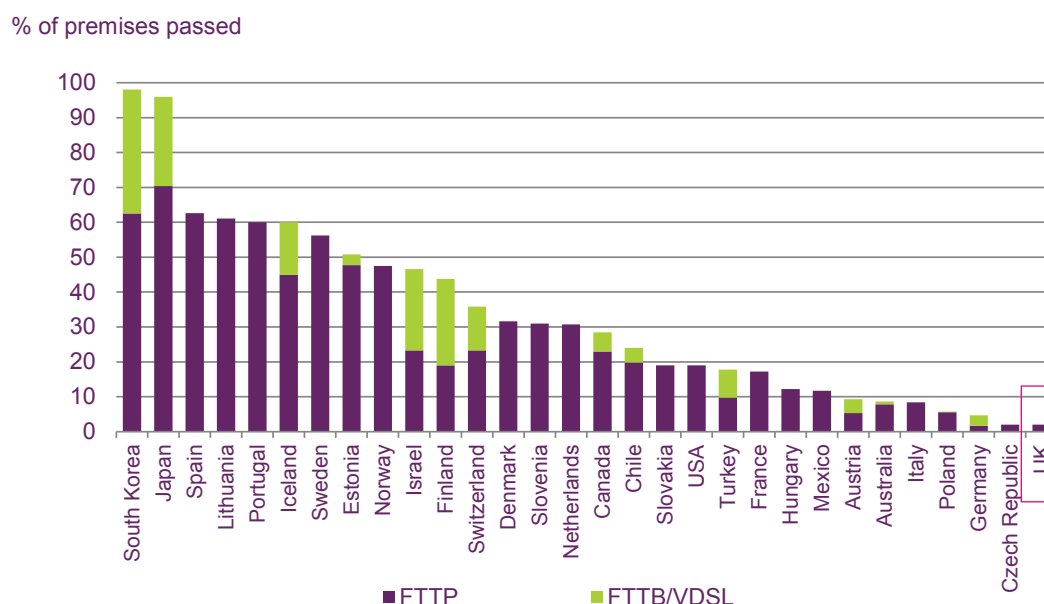
Source: Analysys Mason, September 2015. Note: Analysys Mason figures are based on actuals for 1H 2015 and forecasts for 2H 2015.FTTB/VDSL is fibre-to-the-building where in-building distribution is via VDSL (very high bit rate digital subscriber line) over copper connections.

4.3   FTTP was forecast to reach around 2% of UK premises at the end of 2015,[64] offered by a range of smaller providers such as Hyperoptic and Gigaclear, and a number of community deployments. Mass market providers do not offer ultrafast speeds in any scale: Virgin Media comes closest with its up to 200Mbit/s services. BT has made some limited deployments of FTTP, including as part of a public intervention in Cornwall. This service offers speeds in excess of 300Mbit/s where available. By comparison, global leaders in FTTP such as South Korea and Japan had FTTP coverage of 63% and 70% respectively at the end of 2015.[65]

4.4   The availability of ultrafast broadband services is expected to increase. Several network operators have announced plans to invest in higher speed broadband networks in certain parts of the country:

• BT has announced its intention to upgrade further its copper network using an innovative approach to an existing technology ("G.Fast"). It has said that this could deliver broadband speeds of 300-500Mbit/s to 10 million homes and small businesses by the end of 2020, and the majority of premises within a decade;[66]

• Virgin Media has announced trials of a new cable technology ("DOCSIS 3.1"), noting that this could deliver speeds of up to 10Gbit/s. It has also announced plans for and started rollout that will increase the cable footprint by almost a third,

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[64] Source: Analysys Mason, September 2015.
[65] Source: Analysys Mason, September 2015.
[66] BT press release, 22 September 2015.

to nearly 17 million premises by 2020 or from 44% to 59% of the country.[67] This is estimated to cost £3 billion.[68]

- There are a number of local deployments of networks which take fibre all the way to the home, such as that being deployed by Sky, TalkTalk and CityFibre in York. These are being used to deliver services of up to 1Gbit/s but have the potential to go much faster. These initiatives have tended to be relatively small scale to date.[69]

Service-based competition has delivered good outcomes, but does not promote major network investment

4.5   In 2004, prior to our last strategic review, only around 25% of households had a fixed broadband service.[70] A key objective of that review was increasing broadband take-up. The focus was not on encouraging or enabling significant upgrades to fixed access networks.

4.6   We therefore focussed our strategy on delivering effective regulated access to BT's copper loops (known as local loop unbundling – LLU). This allowed providers to deliver phone and broadband services using BT's infrastructure, and to innovate around some elements of the service, including the electronic equipment deployed and the capacity of broadband connections.

4.7   This strategy helped build scale retail competitors to BT by lowering the cost of market entry and giving others equal opportunities to sell to consumers. The resulting competition improved consumer choice, reduced prices and increased broadband take-up. By the end of 2014, 95% of UK premises were connected to an unbundled exchange and 29% of UK fixed lines were provided by alternative providers using LLU.[71] Total fixed broadband take-up had reached 78% by Q1 2015.[72]

4.8   In 2009-10, BT announced its intention to deploy fibre-to-the-cabinet (FTTC), offering better broadband services than could be delivered over LLU. After considering the options to promote competition based on this new technology, we complemented the LLU strategy with a product called virtual unbundled local access (VULA) which offered wholesale access to BT's network and electronics. This product offered some, but not all, of the same innovation and differentiation benefits presented by LLU.

4.9   In 2015, 54% of retail superfast broadband connections are provided using VULA; 37% by BT Retail and 17% by other communications providers.[73] For Q3 2015/16,

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[67] Ofcom, *Infrastructure report 2014* p. 19. Virgin Media coverage of UK homes was 44% at the end of 2014. Virgin has since announced Project Lightning has extended coverage by 250k homes in 2015 – Liberty Global fixed income press release, February 2016, p. 5.

[68] Virgin Media press release, February 2015.

[69] *Strategic Review of Digital Communications: Discussion Document*, pp. 89-90.

[70] Ofcom, *Communications Market Report 2005* p. 94.

[71] Ofcom, *Communications Market Report 2015*, p. 282.

[72] Ofcom, *Communications Market Report 2015*, p. 316.

[73] Ofcom, calculations based on BT quarterly results, Q3 2015/16, sheet 7, and Virgin Media key facts at 30 September 2015. We define superfast broadband in relation to the advertised headline speed, and have assumed that all Virgin Media customers are on superfast broadband.

new VULA based broadband customers are split broadly 50:50 between BT Retail and other communications providers.[74]

4.10   Whilst these approaches have delivered continued retail competition, a strategy based on LLU and VULA has limitations. It provides limited incentives for Openreach to upgrade the underlying fixed network, and limited opportunities and incentives for others to invest in their own networks. Both products also leave decisions on many of the service characteristics and quality of service provided with BT.

4.11   As set out in our Discussion Document[75], it has historically been competition from cable that has played a greater part in driving network upgrades. In the early 2000s, one of the factors that drove BT to increase the performance of its initial broadband service was the availability of cable broadband. Similarly, BT announced its rollout of superfast broadband shortly after Virgin Media's upgrade to DOCSIS 3.0. BT's recent announcement of G.Fast investment plans was in the context of Virgin Media offering a maximum service speed of 200Mbit/s compared to a maximum of 80Mbit/s available from Openreach for VULA.

A fixed strategy focussed on network investment and competition

4.12   The best driver for investment and innovation is network based competition: and this is at the heart of our future strategy. We believe competition between different networks (including those built from scratch or built using duct and poles owned by others) is the best way to drive investment in high quality, innovative services for consumers.

4.13   Providers that offer services using their own network will be able to decide what type of network they build. Instead of being constrained by BT's chosen strategy of incrementally upgrading its existing copper network, competing operators should have the opportunity to build their own FTTP networks.

4.14   Investing in their own network also gives providers full control over the quality of service provided. Competing operators can strive to win customers by offering a better quality of service than their competitors. Such competition can help address one of the main concerns expressed to us in this review: the poor quality of service received by many consumers (see section 5).

4.15   We acknowledge, however, that consumers across much of the country will continue to rely on competition based on Openreach's network and services. Equivalent access to Openreach's network will remain vital so BT's competitors can still get access to the same services at the same quality as BT's retail divisions. For this reason, we are also setting out a strategy to further enhance the independence of Openreach from BT Group (see section 6).

4.16   Our strategy for fixed competition and investment will therefore focus on three main elements:

- **Reducing the cost and barriers to new network investment**, specifically by giving operators improved access to BT's network of underground ducts and telegraph poles, (Duct and Pole Access or DPA). This can facilitate new

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[74] Ofcom calculations based on BT quarterly results, Q3 2015/16, sheet 7.
[75] Ofcom, *Strategic Review of Digital Communications: Discussion Document*, p. 54.

investment in ultrafast broadband networks. This is the cornerstone of our new strategy. See paragraphs 4.17 – 4.33 below.

- **Continuing to regulate access to Openreach's networks and services** where network competition is not effective, including in more remote and rural areas. See paragraphs 4.34 – 4.43 below.

- **Pricing regulated access to superfast and ultrafast services to give everyone incentives to invest** – we will set prices in ways that give existing and new entrant providers the incentive to invest whilst still protecting consumers from excessive pricing. In particular, we want to ensure the incentives are there for operators to build new networks as opposed to relying overly on buying access from BT. See paragraphs 4.44 to 4.56 below.

We will help make it cheaper and easier for competing providers to build their own fibre networks through improved access to Openreach's ducts and poles

4.17 We will make it easier for competing providers to build their own fibre networks through improved access to Openreach's underground ducts and overhead telegraph poles. This will help to create more choice for consumers while reducing the country's reliance on Openreach.

4.18 DPA can reduce both costs and disruption of building FTTP networks. For example, Vodafone say DPA has reduced the capital expenditure per home passed by its Spanish FTTP network by at least 40% compared to building it on a greenfield basis.[76]

4.19 Lowering the up-front cost of new network deployment is a key factor in helping promoting new entry and more investment. There are a number of examples where actions to reduce costs have resulted in material new investments in FTTP. For example, Danish electricity companies have deployed FTTP networks covering around 40% of the country as a result of synergies with electricity network upgrades.[77]

4.20 In other countries we have seen DPA used to build FTTP networks that have brought consumers innovation, improved service quality and faster broadband speeds. In particular, those countries which have made more extensive use of DPA (such as Portugal, Spain and France) have all experienced greater FTTP deployment by both incumbent and non-incumbent operators than in the UK, where FTTP coverage is around 2%.[78]

4.21 In relation to new entrant operators, in Portugal, Vodafone's FTTP network was on schedule to cover 50% of households (2 million) by the end of 2015.[79] This network has taken 5 years to deploy.[80] Spain and France have also seen DPA used to support FTTP rollout by non-incumbent telecoms operators.

4.22 Alternative FTTP networks deliver benefits in their own right, but they also drive a competitive response from incumbents. In Portugal and Spain the incumbents' FTTP

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[76] Vodafone, Annex 4 to DCR response, p. 9.
[77] Source: IDATE-DigiWorld, World FTTx Market dataset, edition December 2015.
[78] Analysys Mason, September 2015.
[79] Analysys Mason, *International case studies*, p. 49.
[80] Source: IDATE-DigiWorld, World FTTx Market dataset, edition December 2015.

networks were due to cover 46% and 62% of premises respectively by the end of 2015. In France the figure is 15%.[81]

4.23   Analysys Mason's international benchmarking report[82] sets out how passive infrastructure access, including duct access, has supported the building of FTTP networks by new companies entering the market. These remedies have been supported by a number of other country specific factors. For example, in France, investment has been assisted by the French regulator's policy on mandated shared network access and long term commercial access rights ('mutualisation') to network that are built, regardless of the building company.

4.24   In its response BT has argued there are a number of differences between the UK and countries where passive access have been used extensively and BT suggested "caution against making simple comparisons across countries."[83] We agree that there is not a simple read across from other countries to the UK but believe there is scope for significant use of DPA, and these countries illustrate the potential benefits that can be realised.

4.25   A number of operators (for example Sky, TalkTalk and Vodafone) have indicated that DPA could have a wider role in our competition and investment strategy. For example Sky's response says "… industrialised, fit-for-purpose passive access to BT's ducts, poles and cables could play an important role in fostering effective and sustainable competition in the communications sector as it transitions further to fibre."[84] TalkTalk's response set out the benefits of 'deeper' competition (i.e. more based on physical infrastructure). These include the benefits of "expos[ing] more of the value chain to competition, reducing the extent of BT's monopoly while leading to greater and earlier innovation….more efficient investment and more pressure to reduce costs."[85] Vodafone's letter following its main DCR response says, "We remain supportive of regulatory efforts to … improve regulated access to incumbent passive infrastructure to improve the depth of competition and consumer choice."[86]

Making it easier to access BT's ducts and poles

4.26   A form of DPA has been available in the UK since 2010. This includes a reference offer from Openreach, outlining the product characteristics, processes for using the product and pricing.

4.27   We believe that sufficient duct space could be available in the UK to support this model of competition. A survey undertaken for us in 2010 found that, between the street cabinet and the premise, 63% of the 90mm duct ends surveyed and 97% of the 50mm duct ends surveyed had at least 42% of unoccupied space.[87] As noted by BT in its response[88], this will not all translate into useable duct space, but in our view it does provide a basis for cautious optimism.

4.28   However, the current reference offer has not been taken up, and stakeholders potentially interested in using DPA have responded to our Discussion Document by

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[81] Analysys Mason, September 2015.
[82] Analysys Mason, *International case studies.*
[83] BT, DCR main response, p. 70.
[84] Sky, DCR main response, p. 25.
[85] TalkTalk, DCR main response, p. 39.
[86] Vodafone, letter dated 25 January 2016.
[87] Analysys Mason, *Sample survey of ducts and poles in the UK access network*, p. 3.
[88] BT, DCR main response, p. 72.

arguing that current processes are not fit for purpose for scale use. BT disputes this and maintains that its statement of requirements process (the mechanism for all communications providers to request Openreach modify its products) has not been used in relation to its existing DPA product. It states that, "This does not suggest any meaningful (but suppressed) demand".[89]

4.29   Our discussions with stakeholders suggest that the position is more complex and there is a 'chicken and egg' problem associated with DPA. Unless we take a proactive lead on DPA, uncertainties on its viability and the degree of support it would face may continue to hold back any interest in its use.

4.30   We therefore intend to take action on several fronts in order to ensure that DPA can be used by competing providers to build new fibre networks:

- **Better information**. We will require Openreach to establish an online database, accessible to all of its wholesale customers. We expect this to include the location, condition and capacity of the infrastructure deployed. We expect that a database containing information that already exists could be made available relatively quickly, and over time proactively extended to capture a richer dataset. It should allow competing operators to plan new networks with a degree of certainty that is currently impossible, significantly reducing the level of commercial risk associated with such networks.

- **Equivalence of inputs**. We will work to apply equivalence of inputs to Openreach's provision of DPA, so as to require Openreach to provide DPA to all communications providers (including other parts of BT) on the same timescales, terms and conditions, and by means of the same systems and processes. We expect only to consider exceptions to this where it would result in a disproportionate level of costs being incurred, such as in relation to certain existing network infrastructure as opposed to where new network assets are deployed.

- **Efficient operational processes**. We will work to ensure that efficient operational processes for using DPA are established early. We will do this in part by supporting and, where necessary, enhancing the work of industry working groups and the Office of the Telecommunications Adjudicator.[90] We will ensure that the relevant dispute resolution processes are in place to resolve any disputes quickly and efficiently.

- **Pricing**. We believe that the pricing of the existing DPA remedy is broadly in line with international comparisons. This was supported by stakeholder submissions.[91] We will review pricing as required, including ancillary service charges such as survey costs or costs to access information, to ensure the product can be effective.

- **Making DPA available for business as well as residential consumers**. The current DPA remedy is designed to support the provision of broadband services

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[89] BT, DCR main response, p. 72.
[90] OTA is an independent organisation tasked by Ofcom to oversee co-operation between communications providers and enable a competitive environment in the telecommunications sector. It is independent of both the regulator and industry. Its primary task is to deal with major or strategic issues affecting the rollout and performance of products provided by Openreach.
[91] Vodafone, Annex 4 to DCR response, p. 17.

to residential consumers and small businesses, and cannot be used for connecting larger businesses. We recognise that operators are less likely to deploy new networks if they are unable to connect business as well as residential customers. Where DPA is used to deploy to residential consumers at scale, we will look to remove this restriction.

4.31   We will look to implement these measures using the existing framework of market reviews. However, we also note that a new Civil Infrastructure Directive will be implemented in the UK by 1 July this year, and that this is specifically designed to reduce the cost of deploying fibre networks by giving a right of access to existing civil infrastructure.[92] This Directive will therefore provide an important starting point for implementing our strategy to make new network deployment easier and cheaper.

4.32   Our ambition is to maximise the reach of new network investment. The economics of new network build tend to favour dense urban areas, and the speed at which new networks can be constructed tend to be limited by a variety of practical considerations. However, it is possible the lessons learned from innovations where investment occurs may spill-over more widely. For example, as demand for network connectivity grows, and deployment costs may fall, the proportion of the country that cannot be reached by network competition may reduce. A good outcome in the long term would be to achieve network competition of around 40% of households.

4.33   In areas where we achieve effective competition based on network investment we will remove the downstream regulation.

Continuing to regulate access to Openreach's networks and services where network competition is not effective

4.34   In areas where network competition is not effective, Openreach will continue to be the underlying network serving consumers. Here we will continue to require alternative forms of access to Openreach's network. We have two broad options:

- "Unbundling" – where a dedicated, existing physical connection to a customer premise is rented by a competing operator. Examples are the copper connections (local loop unbundling) enabling broadband provision to residential or business premises, or fibre based leased line connections to business premises (dark fibre); or

- "Bitstream Access" – where a competitor buys wholesale 'capacity' from the network owner, but does not own or control any of the underlying access network connections to the premise.

Unbundling of existing copper or fibre connections

4.35   Unbundling of existing copper connections will continue to be important in the near term, as many consumers still use such services, but its importance is likely to decline over time as consumers shift towards superfast broadband.

4.36   Unbundling will not in our view be an effective means of promoting competition in mass market superfast or ultrafast broadband services. This is because:

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[92] Department for Culture, Media & Sport, *EU broadband cost reduction directive.*

- where broadband services are delivered using FTTC technology, it is possible in principle to unbundle the copper loop which runs from the street cabinet to the home ('sub-loop unbundling'). But although this option has been available for a number of years, practical constraints such as the need to build additional street cabinets have prevented any large scale commercial deployments; and

- where broadband services are to be delivered using FTTP technology, it is not possible to do so by unbundling fibre connections, because these do not exist.

4.37   In the longer term, technology developments may support future options for further unbundling. In particular, once fibre networks are deployed, unbundling could play a role. This could involve fibre unbundling of point to point networks, or unbundling wavelengths (different colours of light for different providers) on passive optical fibre networks (PONs).[93]

4.38   Whilst fibre unbundling is not available today for mass-market broadband services, the position is different for the provision of dedicated fibre connections to large businesses, and fibre connections to BT exchanges and mobile base stations ('mobile backhaul'). In these situations, a significant amount of fibre is already available, and might be unbundled in the form of 'dark fibre'.

4.39   Dark fibre does not allow the same degree of control over network topology as DPA (though costs may be lower), since competing providers are constrained by the availability of existing fibre. This issue may be more important only where network topology is an important point of differentiation. Dark fibre does offer some potential for innovation: for example, it might allow mobile network operators to use new technologies, for example C-RAN,[94] at existing base stations independently of each other. We have recently consulted on the imposition of a dark fibre remedy in our *Business Connectivity Market Review*[95] and will publish our decision on this shortly.

The role of 'bitstream' access (VULA)

4.40   As noted above, unbundling is not an effective means of promoting competition in superfast broadband and until now, there has been no scale competition based on DPA.

4.41   Therefore, the primary means by which we have promoted competition in superfast broadband is using a form of bitstream access called VULA designed to enable competing operators to differentiate themselves from each other.

4.42   Going forwards, we see a continued role for bitstream access:

- as the primary access remedy in areas where it is not economic to build alternative networks to BT;

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[93] ITU standard (G.989.1) issued in 2013.
[94] C-RAN (Cloud RAN) is a proposed architecture for future mobile networks. It is a centralised, cloud computing-based architecture for radio access networks that supports 2G, 3G, 4G and future wireless communication standards.
[95] Ofcom, *Business Connectivity Market Review: Review of competition in the provision of leased lines*.

- as a secondary remedy in areas where network competition occurs but does not give rise to effective competition (for example, in areas where there are only two network competitors); and

- as a transitional measure in areas where full network investment or DPA delivers effective upstream network competition.

4.43 The type of bitstream access which is currently available was designed so as to provide competing operators with as much operational control as possible, thereby promoting service innovation.

Pricing regulated access to superfast and ultrafast services to give everyone incentives to invest whilst protecting consumers from high prices

4.44 Our current approach is to provide BT with pricing flexibility, by not setting regulated prices for VULA, but at the same time providing suitable protection for the margins of BT's retail competitors.

4.45 A range of views was expressed on the pricing of new, risky investments by stakeholders:

- BT set out its broad position that pricing flexibility should remain on superfast broadband, and that it should be applied to new risky investments such as G.Fast.[96]

- Other stakeholders, notably Virgin, suggested pricing flexibility on regulated superfast broadband has encouraged other network investment.[97]

- Alternatively, some providers said we should regulate superfast broadband to cost. For example, TalkTalk argued BT will reach payback on its FTTC investment during 2017. It considered BT could not have expected, before it made the investment, more than eight years of pricing freedom.[98]

4.46 We believe pricing flexibility has provided the right balance in promoting investment whilst supporting continued wholesale competition, in period of uncertainty on the most effective long-term approach to fibre-based competition.

We believe pricing flexibility for risky investments remains the appropriate approach to deliver on our strategic aims

4.47 Our pricing strategy has four overall goals:

- **Preserving the investment incentives faced by BT**, by applying the 'fair bet' principle. Where an investment is risky, there is a significant possibility that it will fail, and there is also a possibility that it will be more successful than had been expected. The 'fair bet' principle recognises that the firm needs to benefit from sufficient upside potential from any investment to offset the downside risk of failure. The alternative, where BT faces the full cost of failure, but has the rewards of success strictly capped by the regulator, is likely to deter any form of

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[96] BT, DCR Main response, pp. 85-86.
[97] Virgin Media, DCR Main response, p. 20.
[98] TalkTalk, DCR Main response, p. 49.

risky investment.[99] To ensure investor confidence, it is important we honour the fair bet over time.

- **Preserving the investment incentives faced by competitors to BT**. Competing providers should be incentivised to build their own networks where this is viable. It must not be too 'easy' for competitors to rely on 'buying' access to another's network when there is the potential to invest in their own.

- **Protecting retail competition where necessary**, based on access to BT's network. Where it is not viable for competing operators to build their own networks, the prices charged for access to BT's network must allow them to compete in the provision of retail services.

- **Protecting consumers against the risk of high prices**. We are keen to see investment in new infrastructure, but interventions to achieve these aims must also take into consideration the risk that they result in higher prices to consumers. However, in some cases, the risk of harm through a lack of investment may be greater than the risk of harm where policy choices temporarily result in higher prices.

4.48   We believe regulating risky new assets based on the fair bet and pricing flexibility remains appropriate where investments are truly risky. Investments are likely to be riskier where they:

- involve a significant step change in capability compared to products available in the market today (e.g. 1Gbit/s services). This can lead to significant uncertainty on network deployment costs, consumer demand, and the prices that consumers will pay;

- require a single, upfront commitment rather than allowing more incremental and cautious investment, changing track if the expected demand does not emerge. An example might be investments in new civil infrastructure, as opposed to upgrades of existing electronics; and

- result in 'sunk' capital costs, where the assets have no alternative uses following deployment.

4.49   Given the market's focus on building new networks to support ultrafast services, and our strategic goal of promoting more network investment based competition, regulated pricing needs to set the right investment incentives for both regulated firms and those who compete today based on wholesale network access.

Situations when it may be appropriate to move away from pricing flexibility

4.50   Allowing for pricing flexibility involves a balance between encouraging investment and allowing higher prices. Over time, pricing flexibility will have allowed investors sufficient opportunity to earn a return on investment taking account of risk. At some point, if there is continued market power, we are likely to rebalance our approach

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[99] A fair bet means that an investor can expect to recover investment costs plus a return that covers its cost of capital. For 'risky' investments, this will only happen where the potential for upside (a return above the original investment plus the cost of capital) balances the potential for a failure (returns that do not cover the original investment plus cost of capital).

towards avoiding high prices for consumers by setting access pricing on past investments.

4.51   In deciding when to move away from pricing flexibility, we will take account of factors including:

- the date investors originally expected 'payback' on the investment. This is not the same as actual payback i.e. whether the investment delivered on the original expectations or not;

- whether returns earned to date and potential future regulated returns are sufficient to compensate for the original risk of failure;

- whether the availability of alternative products ('anchor products') is sufficient to provide constraints on prices. An anchor product does not have to be a perfect substitute, but it does have to be close enough to provide a real choice for a sufficient group of consumers such that excessive pricing of the new product is curtailed;

- whether there are credible prospects for market entry by other networks, sufficient to provide constraints on prices charged; and

- whether demand is sufficiently uncertain that there is an ongoing incentive to price low in order to stimulate demand.

4.52   In reaching any decision on pricing and the balance of encouraging investment against pricing, we will tend to err on the side of caution with respect to investment incentives.

4.53   There are several options available to us at the point when we move away from pricing flexibility. These include conventional charge controls, and caps on pricing. They also include options, such as introducing a new regulated 'anchor' product with a specific price cap attached, but continued pricing freedom on alternative products.

Our approach to superfast and ultrafast broadband networks

4.54   Our specific approach to both superfast and ultrafast services will depend on evidence provided in market reviews: our next wholesale local access review will cover 2017-2020.

4.55   This is an important period. By 2020 superfast broadband services are predicted to account for the vast majority of broadband connections. Pricing flexibility will have been applied to BT's FTTC investment for 10 years. For this market review, there will be a variety of arguments in favour of reduced pricing flexibility, including potentially reaching the original date for expected payback. In this context, we may be coming toward the end of the fair bet, which could result in a transition to some form of charge controls.

4.56   Going forwards, we will be seeing the emergence of a new generation of ultrafast broadband services. Where there is significant risk associated with major new investments in ultrafast broadband, these are likely to benefit from a similar approach to that we have applied to superfast broadband. We believe that there is a case for pricing flexibility for BT commensurate with the nature of investment and risk involved. Major new network investments, for example FTTP and potentially other technologies, may face material risk. As with superfast broadband, expected payback

period may be a useful way to understand in advance any potential period of pricing flexibility. This broad approach can also help to protect ultrafast network investment incentives for others.

Our strategy in mobile continues to focus on competition, but we will monitor the levels of investment and consumer outcomes

4.57   In mobile, the UK continues to benefit from network based competition.[100] As a result, there is no change to our existing strategy. We want the UK to continue to enjoy effective competition between four national network providers, and a range of resellers. To support continued and effective network competition, we will work to ensure that the necessary wireless spectrum is made available across a range of spectrum bands.

4.58   To support this level of mobile competition, we remain sympathetic to network sharing arrangements which reduce the cost of coverage, especially in rural areas. However, if we see takeovers or mergers leading to fewer, bigger network operators, and consumers are worse off as a result, this could lead us fundamentally to rethink our approach to competition and investment in mobile services.

4.59   In the Discussion Document, we noted some stakeholders' concerns that returns in the mobile sector are below operators' cost of capital, with the associated risk that this could affect their appetite to invest in improving their UK networks. If this risk were to be realised, it could undermine our strategy.

4.60   We stated that:

- UK MNOs' earnings before interest, tax, depreciation and amortisation (EBITDA) margins appeared to be low in comparison with those in other international markets;

- despite this, the UK mobile sector appears to be earning returns above its cost of capital within the current market structure and regulatory environment; and

- in some cases, operators are earning returns significantly higher than their cost of capital on a forward-looking basis – for example, we estimated that EE's forward looking return on capital employed (ROCE) was 27-28% compared to a 9% cost of capital).

4.61   A number of stakeholders responded to our consultation to dispute our conclusions. EE commissioned consultancy Economic Insight to challenge our methodology.[101] Three responded to suggest that, having published estimates for EE's returns only (due to the limited data available publicly on the other MNOs), Ofcom had not acknowledged that returns may vary significantly across the sector and that other MNOs' returns may be much lower.[102] We consider stakeholders' arguments in detail in the annex.

4.62   We continue to believe that the adjustments we have made to estimate EE's forward-looking returns are appropriate. We also remain confident in our conclusions as to

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[100] Today, there are two national networks of masts and antennas, supporting four wholesale telecoms providers who compete to offer services to resellers (MVNOs) and retail customers.
[101] EE, Annex to DCR response
[102] Three, DCR Main response, p. 13.

the apparent health of investment in the sector. We note that, since the publication of the Discussion Document, Enders Analysis estimated that EE's forward-looking ROCE was 25% in 2014[103] which is similar to our estimate. While Enders Analysis also estimated that two of the four MNOs were making returns slightly below their cost of capital, it concluded that the sector as a whole was making a forward-looking ROCE of 16%.

4.63   We would expect investment to suffer when MNOs cannot make a return that investors would consider adequate. The evidence suggests this is not the situation in the UK mobile market. Taking a simple average across the four MNOs, the sector's cash flow margin is around 12%[104], which appears healthy at a time when UK operators are investing heavily to roll-out 4G (EE's 4G population coverage in September 2015 was, at 93%, ahead of that of any other EU5 operator).

4.64   Therefore our strategy continues unaltered. We will work to ensure that the necessary wireless spectrum is made available. And we will continue to monitor investment and consumer outcomes in the sector.

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[103] Enders Analysis, *UK mobile market Q3 2015*. Enders Analysis also estimated EE's forward-looking ROCE including capitalised subscriber acquisition costs, to be 19%.
[104] Ofcom calculation using data from Enders Analysis, *UK mobile market Q3 2015*.

Section 5

Delivering a step change in quality of service

Overview of our strategy and next steps

Widely available networks and services alone are not enough. Consumers and businesses also need these networks and services to be reliable and of a high quality. While most consumers report that they are satisfied with telecoms services, their expectations of quality are rising. The sector needs to deliver significantly better quality of service than it does today.

Our concerns include Openreach's performance, but extend beyond it to all providers. For example, not only are we concerned about the volume of faults on Openreach's copper network and about how quickly Openreach repairs them; but also about the customer service that retail providers offer when something goes wrong.

For Openreach, we intend to:

- set more demanding minimum standards, extending them to new areas as necessary; and

- set wholesale pricing controls that strengthen Openreach's incentives to make long term investments in service quality.

For the wider sector, we will:

- drive improvements to service quality by making more information accessible to consumers and businesses; and

- publish an annual Service Quality Report showing how telecoms companies compare. Well-informed consumers who are able to make informed decisions are better able to hold providers to account for the service quality they deliver.

In addition, we intend to work with industry to improve coordination between providers where this is affecting service quality: for example, to reduce missed appointments and solve consumers' in-home problems. Finally, we will look to introduce automatic compensation for consumers and small businesses when something does go wrong.

Consumers and businesses experience service quality issues when using both fixed and mobile services

Stakeholders' responses and other evidence indicate widespread concern about service quality

5.1   The single biggest issue attracting comment during our consultation has been quality of service.[105] Consumer groups, industry bodies, communications providers and

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[105] By 'quality of service' we refer to consumers' experiences of: installing a new service; the reliability of the service or network; and the customer services contact that communications providers offer

individuals reported their dissatisfaction with slow repairs and installations, missed appointments and poor customer service, among other issues.

5.2 Wider Ofcom analysis suggests that, when communications networks and services work well, they usually meet consumers' needs. Our survey data indicates that over 80% of fixed line, broadband and mobile customers are satisfied with their services.[106] Our qualitative consumer research also suggests that, typically, residential consumers and small businesses consider telecoms services today to be reliable: they generally work as expected or advertised, and service quality problems are infrequent.[107]

5.3 However, when problems occur, consumers and businesses can suffer considerably. Residential consumers and small businesses that participated in our consumer research reported that telecoms services are now essential to their home and work lives. When things go wrong, the inconvenience they experience is acute. The disruption that loss of service causes can be on a par with a power cut or loss of water supply.[108]

5.4 Given consumers' reliance on telecoms, we are concerned by evidence that the proportion of consumers with reason to complain about their service or provider has grown in recent years (although it is still a minority). As set out in Figure 8, this proportion of consumers peaked in 2013. However, between 2009 and 2015 the proportion of consumers with reason to complain doubled among both broadband customers (from 6% to 12%) and mobile customers (from 3% to 6%).[109]

Figure 8: Proportion of consumers with reason to complain about their service or supplier in the past 12 months: 2009-2015
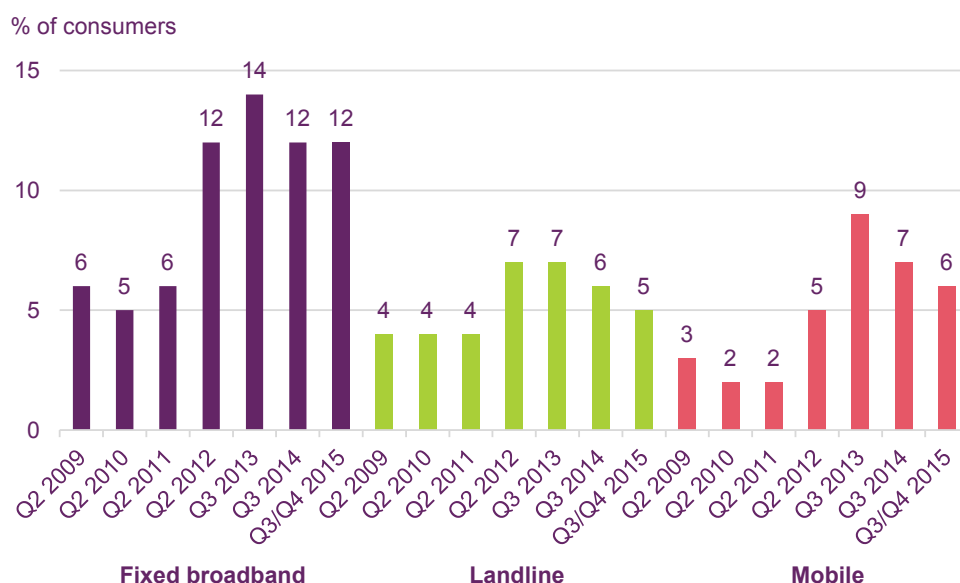
Source: Ofcom research, omnibus survey

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when something goes wrong. Consumers and businesses typically also understand the availability / coverage of fixed and mobile networks (to the expected speed) to be important elements of service quality. We consider these issues in Section 3.

[106] Ofcom, *The Consumer Experience 2015: Research Annex*, p. 57.

[107] Jigsaw Research, *Quality of service in telecoms: Residential consumer and SME experiences of quality of service in fixed line, broadband and mobile telecoms*, p. 3.

[108] Ibid., pp. 2-3.

[109] Ofcom, *The Consumer Experience 2015: Research Annex*, p. 68.

5.5   Quality of service and disruption to service are major drivers of complaints, particularly among broadband customers. As set out in Figure 9, between 2013 and 2015 the proportion of complaints related to disruption of service and other service quality issues rose markedly among broadband and landline customers.[110]
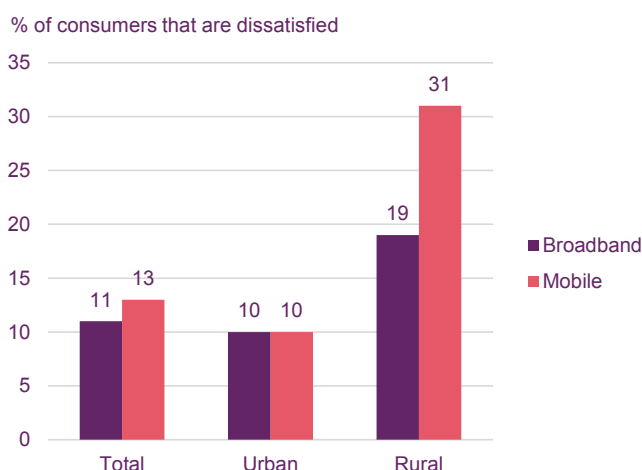
Figure 9: Main reason why consumers complained about their telecoms provider: 2013 and 2015
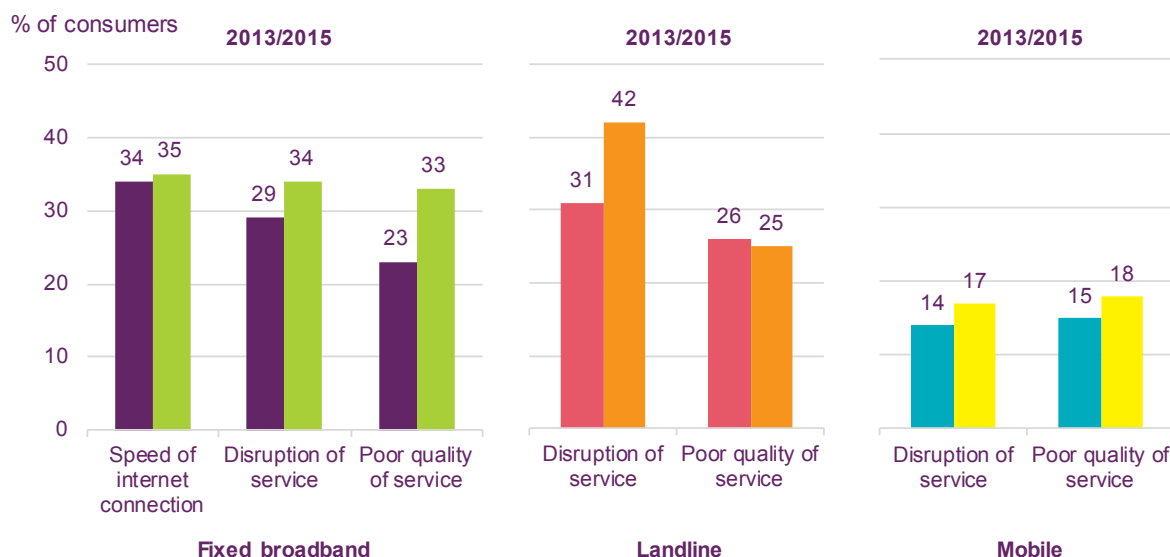
Source: Ofcom research, omnibus survey

5.6   Dissatisfaction with the reliability of telecoms is highest in rural areas, particularly in relation to mobile services (see Figure 10).[111]

Figure 10: Dissatisfaction with reliability of service, by urbanity: 2015

Source: Ofcom Switching Tracker

5.7   The reliability of telecoms services is also a particular concern for small businesses. In 2014 29% of small and medium enterprises (SMEs) reported that they had

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[110] Ofcom, *The Consumer Experience 2015: Research Annex*, pp. 69-71; Ofcom, *The Consumer Experience of 2013*, pp. 164-166.
[111] Ofcom, *The Consumer Experience 2015: Research Annex*, p. 59.

experienced problems with the reliability of their internet connection.[112] The Federation of Small Businesses found that 20% of SMEs experienced problems with their broadband connection on a daily basis and a further 23% experienced problems on a weekly basis.[113] The Citizens Advice Bureau found that of the small businesses it surveyed that had experienced problems; about a quarter were not satisfied that their problem had been resolved.[114]

5.8   Service quality issues are second only to price as a reason for switching among residential consumers. In 2015, 29% of residential consumers who had switched broadband provider in the previous 12 months did so owing to service quality issues.[115]

5.9   Customer service in the telecoms sector is too often poor. Among consumers who contacted their broadband provider with a complaint in 2015, only 53% were satisfied with the quality of customer service that they experienced and 19% were dissatisfied.[116] The Institute of Customer Service has found that, of the 13 sectors they examined in January 2016, telecoms and media were delivering the worst levels of customer satisfaction.[117]

5.10   Residential consumers who participated in our qualitative consumer research reported that fixed and mobile providers offer inferior customer service to that in other sectors.[118] Participants identified Amazon, First Direct and Dyson (among others) as delivering 'best in class' customer service.

5.11   By contrast, they stated that communications providers offered varying, often poor, customer service. In particular, they stated communications providers communicated with consumers badly. For example, they reported that providers failed to keep consumers informed about engineer visits or to provide a good level of support using apps. People regarded call centre staff as often poorly trained, working to a script and unable to take the initiative to resolve an issue.

Openreach's performance is a particular source of concern

5.12   Respondents to the Discussion Document reported strong concerns about the service quality that Openreach delivers. There was broad agreement among stakeholders, including Sky, TalkTalk, Vodafone and consumer groups (but excluding BT), that Openreach's performance does not meet the needs of its wholesale customers, consumers or businesses.[119] Vodafone argued that, owing to weak competition at the wholesale level, Openreach's incentives to improve service quality are poor.[120]

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[112] Jigsaw Research, *SME experience of communications services – a research report*, p. 2.

[113] Federation of Small Businesses, main response to the DCR, p.19.

[114] Citizens Advice, main response to the DCR, p. 8.

[115] Ofcom, *The Consumer Experience 2015: Research Annex*, p. 42.

[116] Saville Rossiter-Base, *Quality of Customer Service report*, p. 22.

[117] Institute of Customer Service, *UK Customer Satisfaction Index: The state of customer satisfaction in the UK*.

[118] Jigsaw Research, *Quality of service in telecoms: Residential consumer and SME experiences of quality of service in fixed line, broadband and mobile telecoms*, pp. 19, 21.

[119] Communications Consumer Panel and ACOD, main response to the DCR, p. 12; Federation of Communications Services, main response to the DCR, p. 16; Sky, main response to the DCR, p. 7; TalkTalk, main response to the DCR, p. 5; Vodafone, main response to the DCR, p. 30.

[120] Vodafone, main response to the DCR, pp. 40-41.

5.13 Stakeholders identified specific areas where Openreach's performance has fallen short of expectations. For example, the Welsh Government reported that it received complaints about missed appointments and slow resolution of consumers' problems.[121] Sky stated that its customers experienced too many missed appointments and changes of appointment date.[122] [✂]

5.14 The Federation of Small Businesses was concerned about the size of 'long tails' of incomplete repairs.[123] A number of stakeholders in the construction sector, including the Home Builders Federation, reported that their experience of securing new line installations to new developments had been poor.[124]

5.15 BT stated that, while it had not always met stakeholders' expectations, it had responded to growing demand for better quality. It argued that its performance had not deteriorated over the last ten years, but rather "been flat or slightly improved". It recognised that quality of broadband is increasingly critical to consumers.[125]

5.16 Openreach's service quality performance in respect of network faults, copper network repairs, and new business connections is set out below.

Network faults

5.17 In the two decades to 2013, fault levels on the copper network declined by over 2 million faults per year, down from 4.5 million faults in 1994 (see Figure 11).

Figure 11: Fault volumes on the copper network (millions)[126]
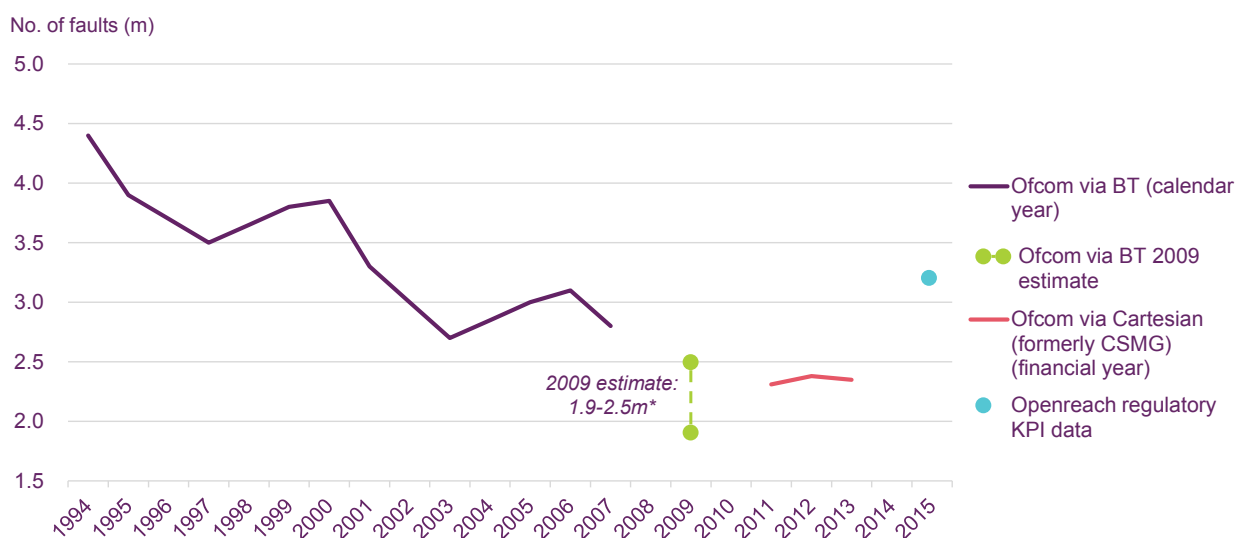
Source: Ofcom / Openreach / Cartesian

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[121] Welsh Government, main response to the DCR, p. 4.

[122] Sky, main response to the DCR, p. 11.

[123] Federation of Small Businesses, main response to the DCR, p.18. 'Long tails' refer to installation orders and faults that remain unresolved for an extended period of time.

[124] GTC, main response to the DCR, p. 2; Home Builders Federation, main response to the DCR, pp.1-2; Linden Homes, main response to the DCR, p. 2.

[125] BT, main response to the DCR, p. 30.

[126] *Openreach did not hold data on actual fault volumes for 2008 and the early part of 2009 when we requested it in 2013. We estimated (on a pro-rata basis) that the total number of faults was between 1.9m and 2.5m in 2009.

5.18   However, despite this long term trend, the total yearly volume of faults varied significantly, for example rising to over 3 million in 2006.[127]

5.19   A number of factors drive this volatility, including weather, but also the level of Openreach's investment in preventative maintenance. We have concerns about Openreach's capacity to manage faults, as our ongoing monitoring indicates that the number of faults rose by 28% from 2013 to 3.2 million in 2015.[128] This is a significant cause for concern if it reflects a worsening underlying trend in recent years.

Performance on repairs

5.20   In 2012/13 Openreach completed only 60% of repairs of unbundled lines[129] on time and 68% of repairs of phone lines.[130] It has since improved its performance, notably after we introduced minimum standards in relation to Openreach's performance in July 2014 (see below). Between October and December 2015 the respective figures were 76% and 75% (see Figure 12).

Figure 12: On-time repairs on the copper network: 2012-2016
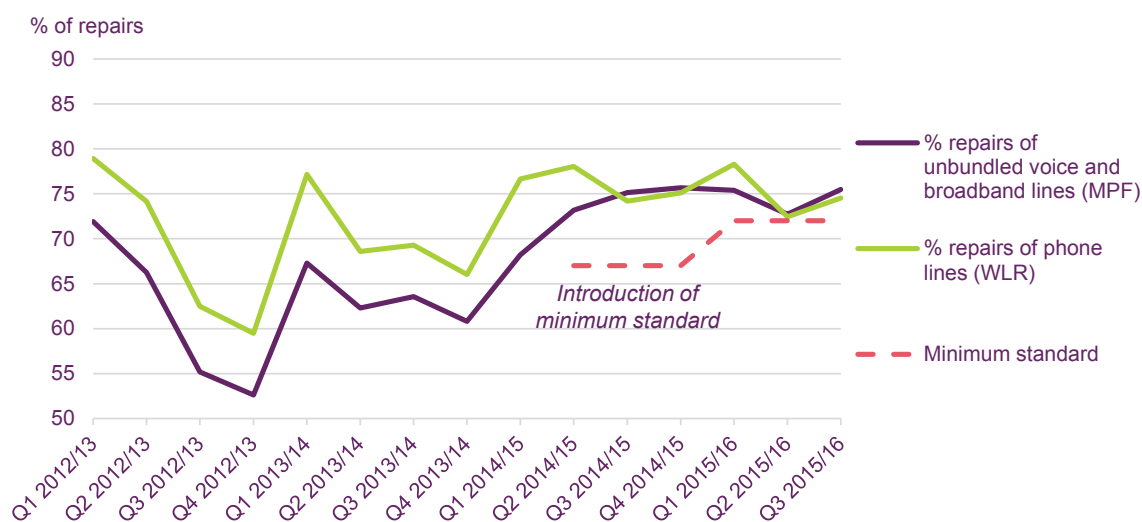
Source: Ofcom / Openreach. 'On-time' repairs are completed within contractual timescales. Retail communications providers typically purchase service level 1 (Openreach to complete repair within day reported plus 2 working days) in relation to repairs of phone lines (WLR) and service level 2 (day reported plus 1 working day) for unbundled voice and broadband lines (MPF)

Installing new business connections

5.21   The mean time Openreach has taken to install Ethernet circuits (business-grade connections) increased from 40 working days in 2011 to 46 working days in 2014

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[127] The total number of copper lines that Openreach serves has fallen from a peak of c.29 million in 2003 to c.25 million in 2015. However the complexity of the services it offers over those lines has increased, as broadband penetration on Openreach lines has grown to over 75%.
[128] Openreach regulatory KPI data.
[129] Local loop unbundling (LLU) is the process whereby BT makes its local copper network available to other retail communications providers. The formal product name for unbundled lines is Metallic Path Facility (MPF).
[130] Wholesale line rental (WLR) lines. In contrast to unbundled lines, Openreach can deliver voice and broadband services over WLR.

(not including delays caused by consumers). The primary driver of this increase was the growth of long tails of new orders not completed.[131]

5.22   Orders for Ethernet installations are categorised by how difficult they are to complete. The simplest category 1 orders do not need new infastructure, whereas the complicated category 3 and 4 orders can require road closures and civil works, or additional capacity between BT's exchange buildings. While the lead times for the simplest category 1 orders have stayed relatively stable, the complex category 3 orders have deteriorated significantly since 2011 (see Figure 13).[132]

Figure 13: Mean time to install by complexity of order (working days, excluding customer caused delay): 2011-2015
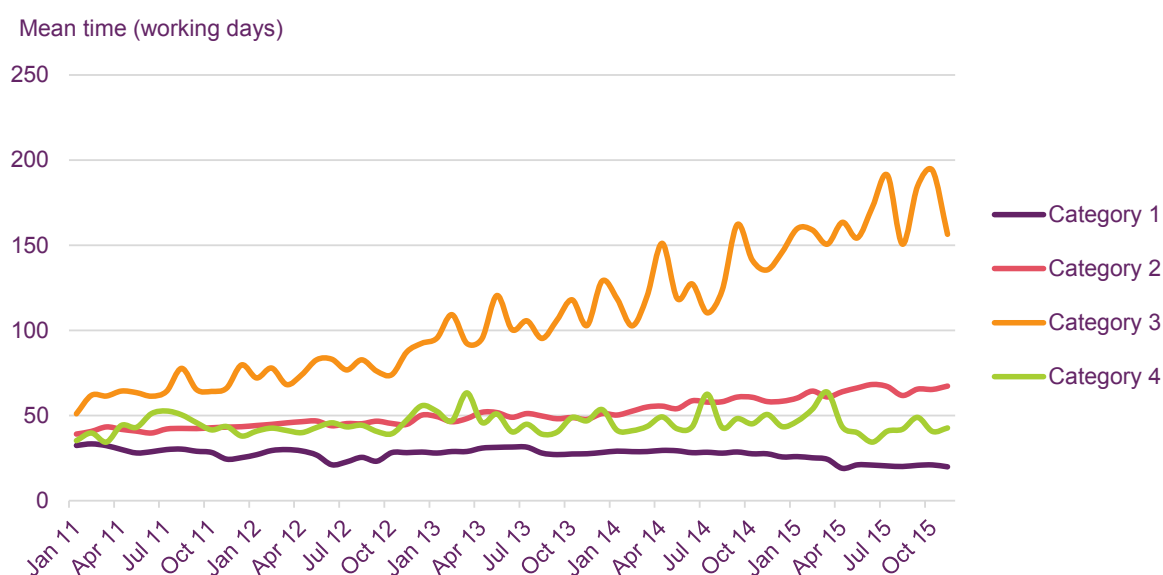
Source: Ofcom / Openreach

5.23   Openreach changed the appointed installation date of over 70% of Ethernet circuit orders in 2014.[133] During that year Openreach changed the appointed delivery date for installations more than three times on average. This created an average delay of over 24 days. Such delays create uncertainty for businesses that can have significant repercussions: for example if they are installing Ethernet circuits alongside new ICT services. It appears that, for the majority of orders it receives, Openreach has repeatedly changed the appointed delivery date and promised an unrealistic date in many cases.

Evolving our regulatory approach

5.24   Over time we have found it necessary to apply more prescriptive regulation in order to address concerns about Openreach's performance.

- Initially we relied on the application of 'Equivalence of Inputs'. Our expectation was that BT's retail divisions, as well as its competitors, would demand good

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[131] Ofcom, *Business Connectivity Market Review: Review of competition in the provision of leased lines*, p. 240.
[132] Ofcom, *Business Connectivity Market Review - Annexes*, p. 361.
[133] Ofcom, *Business Connectivity Market Review: Review of competition in the provision of leased lines*, p. 250.

service and that this would result in equally good service for everyone. We also facilitated industry engagement on quality issues by establishing the Office of the Telecommunications Adjudicator (OTA2), an independent organisation that oversees coordination and discussion between communications providers.

- However, the service quality that Openreach delivers has too often been equivalently poor for all providers. We responded in our 2014 fixed access market review by introducing minimum service standards for installations and repairs on the copper network.[134]

- In our Business Connectivity Market Review consultation of May 2015,[135] we proposed to extend minimum standards to Ethernet circuits in order to restore service standards to 2011 levels. We also proposed to set minimum standards by a method that allows us to raise them in response to businesses' requirements.

5.25   We have had to intervene more actively over time because Openreach is subject to limited competitive pressure at the wholesale level. As an operator with significant market power, it has the incentive and ability to earn excess profits in a number of ways: for example through either prices that are too high or by reducing costs through lower quality of service. With limited competitive alternatives, wholesale customers are unable to avoid any higher prices or lower quality charged by a network provider with market power. This can then affect consumers and businesses.

5.26   These problems can only be addressed through more effective network competition or through regulation. We set out below our strategy to increase Openreach's service quality.

5.27   We are conscious that ever more detailed regulation is unlikely to be the best means of improving quality of service. It creates a risk that Openreach focuses on meeting the minimum standards set by regulation, rather than striving to deliver better performance to its customers. Minimum standards are unlikely to capture fully all aspects of service performance. Therefore, while we have intervened where necessary, we want to see Openreach take more initiative to improve service performance and to display an internal culture that supports this goal.

5.28   Openreach argued that it would continue to improve its performance and aimed to exceed the regulated minimum standards (as it pledged in its 2015 Our Charter document).[136]

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[134] Minimum standard for completion of repairs within service level agreement (SLA) timescale (SL1: day reported plus 2 working days; SL2: day reported plus 1 working day): Year 1 - 67%; Year 2 - 72%; Year 3 - 77%. Minimum standard for the availability of installation appointments for new copper connections within 12 working days: Year 1 - 54%; Year 2 - 67%; Year 3 - 79%. Minimum standard for the completion of installation appointments for new copper connections by the appointment date: 89% (in each year). Ofcom, *Fixed access market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30*, p. 168.

[135] Ofcom, *Business Connectivity Market Review: Review of competition in the provision of leased lines*, p. 8.

[136] BT Group, main response to the DCR, p. 132; Openreach, Our Charter, September 2015.

Our concerns about service quality also extend to the wider fixed and mobile sectors, for both network and retail providers

5.29   Consumers using other fixed and mobile networks are also at risk of experiencing poor service quality. We are concerned that prevailing levels of quality in the wider sector may be lower than what consumers demand. [✂]

5.30   This problem may arise for two related reasons. Firstly, consumers may be unaware of the absolute level of service quality that operators provide or of any difference between them. Secondly, providers may not see a competitive advantage from enhancing and differentiating around service quality.

Quality of service at the network level

5.31   In the UK, only Openreach publishes information about service quality on its fixed access network. Other companies do not. However, the Openreach information is limited to the key performance indicators set by Ofcom. These are not necessarily accessible or informative for consumers or businesses.

5.32   [✂]

5.33   [✂] This indicates that other network operators may see no competitive advantage in differentiating their performance.

Quality of service at the retail level

5.34   Retail providers can determine consumers and businesses' experiences of service quality, even where they use the same underlying networks and systems. We see opportunities for retail providers to differentiate their services but limited evidence that they do so today.

5.35   For example, it appears that a large proportion of consumers' broadband service quality problems originate outside of Openreach's domain.[137] However retail providers do not appear to market to customers on the basis of many quality features, with the exception of a few that are in their control (for example, UK call centres or video streaming).

5.36   In addition, retail providers tend not to purchase Openreach's products that offer a higher quality for a higher price. For example, while Openreach offers a service that provides repairs within six hours, the main retail providers do not offer these to their customers. The best copper-based service that major retail providers (including BT Business and TalkTalk Business) offer is next-day repair.

5.37   In the mobile sector, the service that mobile network operators (MNOs) provide varies significantly, particularly in rural areas and in Scotland, Wales and Northern Ireland. For example, in rural Wales, dropped and blocked call rates varied from 78% (O2) to 91% (Vodafone) in 2013.[138]

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[137] BT Group submitted evidence that a large proportion of broadband faults occur within the domain of retail communications providers (e.g. on in-home wiring or customer premises equipment such as Wi-Fi routers). It stated that, over the last five years, [✂] of broadband faults recorded by BT Consumer were within its domain and only [✂] in that of Openreach or BT Wholesale. [✂]
[138] Ofcom, _Consumer experiences of mobile phone calls_, pp. 16-18.

<u>Consumers need more, accessible information on service quality</u>

5.38   We believe it is important for consumers and businesses to have clear and accessible information available to them about how providers differ in terms of service quality. This should act as an incentive on companies to raise their standards. We set out plans on how to achieve this below.

Our strategy for service quality

5.39   We intend to take the following actions to drive service quality improvements:

- we will use competition to drive up service quality at the network and retail level across all communications providers by making sure consumers can understand what is available. To enable this we will publish an annual Service Quality Report;

- we intend to set more demanding minimum standards for Openreach and establish them in new areas as appropriate. In addition we intend to set wholesale price controls that strengthen Openreach's incentives to make long term investments in service quality;

- we will work with industry where poor coordination is affecting service quality; and

- we intend to introduce automatic compensation for consumers and small businesses affected by poor service quality.

We will use competition to drive service quality by making sure consumers can understand what is available

5.40   We expect competition, where it is effective, to deliver the service quality that consumers demand. In section 4 we note the potential benefits of a greater level of competition between networks. If competing communications providers have full control of the service quality that their customers receive, they can seek new business by differentiating the quality they offer from that of competitors.

5.41   Even where retail communications providers rely on access to Openreach's network, it may be possible to provide them with greater control over service quality for their customers. For example we could allow their engineers more access to the copper network. Allowing retail communications providers' engineers to resolve certain types of fault could benefit consumers and businesses if, for example, they are able to complete repairs more quickly than Openreach.

5.42   Competition can only drive improvements to service quality if customers have the information they require to make informed decisions. We have published information for consumers on the service quality that retail communications providers offer in the past (particularly in relation to customer satisfaction with telecoms services[139]). However there is relatively little information available comparing the quality of retail communications providers' networks and services. Several stakeholders argued that Ofcom should make more information available to consumers on the quality of

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[139] For example we have published information on <u>telecoms and pay TV complaints</u> and <u>customer service satisfaction research</u>.

networks and services, such as measures of reliability, similar to those that utilities sectors use to measure service quality.[140]

5.43   The now-defunct Topcomm and TopNet schemes (launched in 2006) required providers to publish a number of measures of fixed and mobile network service quality and customer service. However, among other issues, the schemes did not generate significant consumer recognition and industry participants did not publish robust and comparable data. We will address these risks as we make more information available.

5.44   We plan to publish more information comparing the service quality that fixed and mobile operators offer. This will include statistics relating to both network service quality and customer service. We will ensure that the data we publish is robust and compares operators fairly and appropriately. Where practical we will cross-check operators' data against independent sources.

5.45   From early 2017 we will publish an annual Service Quality Report. The report will be clear and accessible to consumers, so that they can use it to make informed choices.

We will look to set more ambitious service standards for Openreach through both minimum standards and incentives

5.46   In the past we have applied minimum standards where we considered them necessary to ensure that Openreach supplies regulated products to a minimum quality threshold. We also applied them to prevent its performance from declining. Going forwards continued regulation may be required to ensure BT's market power in network products and services does not result in poorer outcomes for consumers and businesses.

5.47   In the responses to the Discussion Document there was broad agreement that Ofcom should do more to improve the service quality that Openreach provides. For example, the Communications Consumer Panel and others argued that the current minimum standards are unambitious and the penalties for breaches unclear.[141] A number of stakeholders, including Openreach, SSE, TalkTalk and Which? proposed that Openreach should have incentives to improve performance, for example through Ofcom's wholesale price control.[142]

5.48   There are several steps we intend to take in order to drive a step change in Openreach's service performance.

- First, we intend to set minimum standards at a level designed to ensure effective competition - so that they meet the needs of consumers and businesses - rather than at a level intended only to return performance to historical levels. Over time we expect to apply minimum standards that rise significantly.

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[140] Ofcom Advisory Committee for England, main response to the DCR, p. 5; Ofcom Advisory Committee for Wales, main response to the DCR, p. 1; SSE, main response to the DCR, pp. 4-5.
[141] Communications Consumer Panel and ACOD, main response to the DCR, p. 12; Advisory Committee for England, main response to the DCR, p. 3.
[142] BT Group, main response to the DCR, p. 141; SSE, main response to the DCR, p. 23; TalkTalk, main response to the DCR, p. 57; Which, main response to the DCR, p. 2.

- Second, we anticipate specifying minimum standards that protect consumers from being left without service for extended periods (i.e. standards that control long tails of incomplete orders).

- Third, we intend to apply minimum standards to cover new aspects of service where we have concerns. For example, existing minimum standards focus on fault repair times; there may also be a case for setting standards for the absolute number of faults, in order to incentivise proactive, as well as reactive, maintenance of the copper network.

5.49   Finally, we will differentiate clearly between the minimum standards, which are a level below which service must never fall, and the average level of performance above the floor that we expect Openreach to achieve.

5.50   We will consider how our charge controls can incentivise this, for example by making explicit the balance between price and quality that we expect Openreach to achieve. We will look at whether Openreach is able to retain cost savings it makes from quality improvements for long enough to make it prioritise this kind of investment. Such an approach would look to mirror the incentives of companies in normal competitive markets to attract customers by setting themselves apart from competitors through exceptional service quality.

5.51   We reiterate that we want to see Openreach take greater responsibility for improving its performance, rather than waiting for regulatory action. This would be in all stakeholders' interests, avoiding the need for ever more detailed and intrusive regulation of service quality.

Where poor coordination is affecting service quality we will work with industry to improve it

5.52   The supply chains for communications services are often complex, requiring a number of interactions between different communications providers. Providers need to coordinate with consumers when problems occur. Participants in our consumer research reported occasions where providers failed to share crucial information about the consumer's problem or availability, resulting in repeat visits and missed appointments.[143]

5.53   BT submitted evidence that retail communications providers achieve different rates of missed appointments for installations (between 5-7% and 7-10% in 2015). This demonstrates, it argued, the ability of some retail communications providers to coordinate with Openreach and consumers more effectively than others. Stakeholders including BT Consumer saw opportunities for Openreach and its wholesale customers to improve how they coordinate to reduce the number of missed appointments.[144]

5.54   Stakeholders also argued that it should be easier for Openreach to coordinate directly with consumers and businesses, and vice versa.[145] In particular, construction

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[143] Jigsaw Research, *Quality of service in telecoms: Residential consumer and SME experiences of quality of service in fixed line, broadband and mobile telecoms*, pp. 16-17.
[144] BT, main response to the DCR, pp. 129 and 141-142.
[145] Harington, Mr H., main response to the DCR, p. 2; Prospect, main response to the DCR, p.5.

industry stakeholders argued that Openreach did not coordinate effectively with their sector to make connecting residential developments faster and more efficient.[146]

5.55 To address this we will work with industry to improve providers' coordination and communication to the benefit of consumers. There are a number of areas where better coordination will improve services for consumers.

- Openreach and retail communications providers should make information on engineer visits, including precise, real time information on when an engineer is expected to arrive, useful and accessible to consumers. Openreach stated that it had made data on its engineers' activities more transparent to retail providers, consumers and businesses through its View My Engineer Service.[147] We welcome this development and would encourage industry to ensure that this information is made accessible to consumers.

- Openreach and retail communications providers collect different data on how consumers use their broadband connections.[148] Sharing this data may enable them to coordinate to improve consumers' experience of broadband.

- Communications providers in the fixed and mobile sectors and other industry stakeholders (such as home builders and consumer premises equipment manufacturers) should collaborate to address quality issues that affect service at business premises and in the home. Residential consumers in particular are unlikely to be able to address problems such as poor indoor mobile reception and faulty internal wiring without greater support from industry.

5.56 Openreach has recently consulted retail communications providers on what contact it should have with consumers, if any. It considered that it would not be appropriate for it to broaden the contact that it has with retail communications providers' customers. Instead it has pledged to improve existing means of coordination with consumers. We note this commitment, but also consider that there may be circumstances where enabling consumers and businesses to have direct contact with Openreach engineers might be the best way to improve service quality. For example, stakeholders reported difficulties when trying to arrange complex installations over multiple sites.[149]

5.57 In the first instance, we expect Openreach to make useful and timely information available to retail providers. We also expect retail providers to facilitate the flow of information from Openreach to consumers and businesses and vice versa. We will raise these issues with industry.

We plan to introduce automatic compensation for consumers and small businesses affected by poor service quality

5.58 Today, consumers and businesses can obtain compensation from a retail provider for a number of issues, including loss or degradation of service. However, it is typically

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[146] GTC, main response to the DCR, pp. 2-3; Home Builders Federation, main response to the DCR, p. 2; Linden Homes, main response to the DCR, p. 3.
[147] BT Group, main response to the DCR, p. 134.
[148] Retail communications providers can collect data on the use of ADSL connections while Openreach can collect data on the use of VDSL connections.
[149] Meeting between the Telecoms & Data Management Association and Ofcom, 25 November 2015.

paid in response to a complaint.[150] Which? reported that, in the mobile sector, consumers find that the onus may fall on them to 'prove' to their communications provider that they have experienced poor service quality.[151]

5.59   Where a provider refuses to offer redress, a consumer could take its case to the relevant alternative dispute resolution (ADR) scheme. If the scheme rules in their favour they may be awarded compensation or the right to exit their contract. However, consumers are likely to need to spend time and effort seeking compensation. Even engaged consumers may not consider the eventual compensation worth their effort. Vulnerable consumers may be less likely to complain and therefore less likely to receive compensation.

5.60   Our qualitative consumer research[152] suggests residential consumers are unlikely to claim compensation to which they might be entitled:

- Residential consumers typically showed little awareness that compensation may be available to them in relation to service quality issues. While some participants suspected that they could be entitled to compensation for serious service outages, they were not certain.

- In particular, residential consumers and smaller SMEs considered that compensation should be automatic for serious service quality issues, such as significant outages. This was necessary, they stated, to offset the harm that these issues cause and to make retail providers more accountable to consumers.

5.61   SSE and Which?[153] argued for the introduction of automatic compensation payments from retail communications providers when consumers experience service quality issues. As a result of legislation in the electricity, gas and water sectors, compensation is already paid automatically to consumers when their provider fails to meet specified performance standards.

5.62   Currently Openreach makes automatic service level guarantee payments to retail communication providers following service quality failures. However this is not necessarily passed on to the consumers and businesses that are most affected by these failures.

5.63   Given the essential nature of fixed and mobile communications services, we believe that consumers should receive automatic compensation where their retail provider does not deliver certain service quality standards. Automatic compensation would ensure that consumers who have experienced the inconvenience of service quality problems do not have to encounter further hassle in order to receive compensation. It should also act as an incentive for providers to improve the service quality they deliver. We will also consider whether there are circumstances in which consumers should have the automatic right to exit their contract without a penalty charge.[154]

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[150] Consumers also have a right to redress under the Consumer Rights Act 2015 where their provider has failed to deliver a service with "reasonable care and skill".
[151] Which?, main response to the DCR, p. 10.
[152] Jigsaw Research, *Quality of service in telecoms: Residential consumer and SME experiences of quality of service in fixed line, broadband and mobile telecoms*, pp. 5-6.
[153] SSE, main response to the DCR, p. 23; Which?, main response to the DCR, p. 2.
[154] We have recently introduced the voluntary Broadband Speeds Code of Practice, which grants the customers of retail providers that have committed to the Code the right to leave their contract when they experience certain service quality issues.

Section 6

Strengthening Openreach's independence

Overview of our strategy and next steps

BT has a crucial role to play in ensuring that consumers and businesses enjoy good communications services, given its market position and the continued reliance competitors will have on its network.

However, we are concerned that the current model of *functional separation* fails to remove sufficiently BT's ability to discriminate against competitors. Therefore risks to competition remain.

Given the concerns identified, continuing the *status quo* is not an option. We have decided to reform the relationship between Openreach and BT Group to give the former greater independence and autonomy. Under this new structure, Openreach should have:

- more independent governance structures and processes, with a responsibility to serve all wholesale customers equally;

- independent technical and operational capabilities;

- greater autonomy over its budget, and over its strategic and operational decision making; and

- an ongoing responsibility to consult with all customers in the same way.

One option that might achieve this is structural separation, but we recognise that this would entail significant disruption. We will therefore consider whether a strengthened model of *functional separation* could deliver the greater independence and autonomy for Openreach that we believe is necessary. If *functional separation* cannot be strengthened, we reserve the right to take forward *structural separation*.

We are now developing detailed proposals, which we will discuss with the European Commission later this year.

In 2005 we found little prospect for effective and sustainable competition to BT's fixed telecoms network

6.1   BT Group is a vertically integrated company, combining wholesale and retail operations. Vertical integration is a feature of many successful firms and is not a concern unless the company holds a position of market power. When we last conducted a strategic review of telecommunications (TSR) in the UK in 2005[155], we concluded that BT had a substantial degree of market power in the wholesale markets for access and backhaul network services. 'Access' refers to the last mile connections to consumers, while 'backhaul' refers to the longer distance, higher capacity connections to the core network. We also concluded that there was little prospect for effective and sustainable competition in the medium term.

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[155] Ofcom, *Final statements on the Strategic Review of Telecommunications, and undertakings in lieu of a reference under the Enterprise Act 2002*.

6.2   As a vertically-integrated firm with significant market power in access and backhaul markets, BT has the incentive and the ability to discriminate against those competitors who rely on its network. We were concerned that BT was acting on this incentive. Specifically, competitors reliant on BT's networks faced a range of issues. These issues included inferior quality wholesale products, slow product development, poor processes, and a general lack of transparency.

6.3   We sought to address the competition concerns that we had identified through some significant behavioural changes in the way BT operated and sold its services.[156] We accepted legally binding undertakings from BT under the Enterprise Act 2002 (the Undertakings) which remain in place today and consist of two main pillars:

   i)   The functional separation of BT's upstream and downstream operations.

   ii) A requirement on BT to supply a range of upstream products on an equivalence of inputs (EOI) basis. This means they are supplied to BT's downstream competitors in the same way as to BT's own downstream divisions, with the same timescales, terms (including price and service levels) and processes. This principle aims to ensure a level playing field between BT and its downstream competitors, notwithstanding BT's vertical integration.

6.4   These two pillars of the Undertakings are complementary. While EOI establishes rules to ensure equivalence in specific products, functional separation of Openreach should create the culture and incentives for senior management that ensure that those rules go with the grain of the organisation.

6.5   Under the Undertakings, BT created a new business division called Openreach, to sell its upstream network access products. Openreach was intended to be operationally distinct from the rest of BT Group. This arrangement was put in place to deliver behavioural change within BT by creating a division whose culture and incentives are aligned with the interests of all wholesale customers rather than just BT's downstream divisions. It was also intended to constrain BT's ability to act on any incentive to engage in discrimination when selling its products downstream.

6.6   The Openreach governance framework was intended to restrict the extent to which the wider interests of BT Group influenced decisions made by Openreach.[157] The Undertakings also contained specific rules to establish Openreach's independence. These rules included separate incentives for senior management, defined organisational boundaries and restrictions on the BT Group employees who could access commercial Openreach information. Taken together, this approach has delivered some independence from the rest of BT. However Openreach remains subject to the limits inherent in the wider BT corporate governance structure, such as the oversight and influence of the BT Group Board.

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[156] Competition remedies are conventionally classified as either structural or behavioural. Structural remedies are one-off measures that seek to increase competition by altering the competitive structure and incentives of the market. Behavioural remedies are ongoing measures that are designed to regulate or constrain the behaviour of those firms which have market power, in the context where the incentives remain essentially unchanged.

[157] While Openreach does have a separate management team, that team does not have the same corporate and fiduciary duties as the directors on the BT Group Board, who have legal responsibility for the whole of BT's operations, in the interests of BT's shareholders.

Openreach will continue to be important for securing good communications services for citizens and consumers

6.7   The current functional separation model has now been in place for ten years, and in many areas it has delivered benefits. As a result of competition, supported through regulation such as equivalence, we have seen increased availability and take-up of fixed broadband and better value for consumers as overall prices have reduced in real terms. At the same time, we have seen developments in fixed networks not anticipated in 2005, with multiple waves of upgrades to different access network technologies.

6.8   Looking ahead over the next ten years, our strategy – as set out in Section 4 – is to maximise network competition so that more parts of the country have an alternative provider to Openreach. However, there will remain some parts of the UK, mainly where populations are sparse and demand is low, where Openreach will be the sole infrastructure provider. It is therefore critical that Openreach operates in a way that is responsive to its customers.

We received extensive stakeholder responses, many of which focused on the strategic independence of Openreach

6.9   In our Discussion Document, we invited submissions on how the current model of functional separation is serving the UK telecoms industry and its consumers[158]. We have received substantial responses on this topic, many of which raised concerns with the model, and questioned whether it remains effective as a means of restricting BT's ability to discriminate. A significant number of respondents called on us to require Openreach to be structurally separated from BT.

6.10   Many of the respondents' concerns related to enduring structural issues that stemmed from the operation of Openreach within the current model of functional separation. In particular, there was concern that, under the current structure, Openreach may not have sufficient strategic and operational autonomy to ensure the equal treatment of all downstream customers. For example, several respondents, such as Sky, Vodafone and Three, highlighted the degree of BT Group control over strategic and operational decisions related to the access network.[159] They argued that this control leads to an uneven playing field for competitors at the strategic level, despite the obligations in place on BT to ensure equivalence after wholesale access products have been developed.

6.11   Respondents also raised broader arguments for a change to the model of separation. For example, Sky argued that given a structurally separated Openreach could no longer rely on demand from BT's retail business, it would have a stronger incentive to compete for the business of other major downstream operators. Sky said that structural separation may therefore lead to positive outcomes, such as improved quality of service and increased investment in FTTP deployment.[160]

6.12   In addition to their focus on these structural concerns, stakeholders also raised a number of specific behavioural issues. Some of these behavioural issues do not in

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[158] Section 11, *Strategic Review of Digital Communications: Discussion Document*.

[159] Sky, DCR main response, pp. 9-10, 18; Vodafone, DCR main response, pp. 25-28; Three, DCR main response, pp. 22, 28-29.

[160] Sky, DCR main response, p. 15.

our view support a case for changing the current model of separation, while others could be addressed, as appropriate, through our regular programme of telecoms market reviews. We discuss some specific examples of these issues below, which include, among other things:

- product discrimination and the statement of requirements process;

- specific instances of pricing discrimination;

- the potentially discriminatory effects of poor quality of service; and

- competitive distortions in the retail superfast broadband market.

6.13 In its response, BT stated that the market has worked well and there is no evidence to suggest a competition failure arising from the Undertakings.[161] The company argued that structural separation would remove important benefits for new investment provided by vertical integration and therefore risk reducing investment overall. BT also called for the Undertakings to be reviewed, for example with a view to removing obligations that duplicate those imposed through SMP regulation.

6.14 Similarly, Virgin Media set out that it was unaware of any potential or actual sources of discrimination by BT.[162] It considered that our analysis of the market suggests that consumers are not experiencing poor outcomes compared to international peers.

A wide range of operational concerns were raised by respondents

6.15 Since the Undertakings were put in place, BT has breached them in a non-trivial manner, 59 times. Over the course of the last ten years we would have expected to see a steady decline in the number of breaches, but this has not been the case.

6.16 The Equality of Access Board (EAB), which oversees the Undertakings, is the body that has identified these breaches. BT has acted on the EAB's advice and taken steps to resolve these. However, some stakeholders continue to raise concerns about BT acting its incentive to discriminate and the EAB's ability to detect this.

6.17 For example, several respondents argued that new product development within Openreach (applied through the 'statement of requirements' process) favours the needs of BT's retail divisions over those of all retail customers.[163] This is despite the EAB not finding BT in breach of the Undertakings in this regard.

6.18 We examined product development as part of our market review programme and have not found any significant differences in acceptance rates or completion times between new products requested by BT's retail businesses and those requested by its competitors. That said, the stakeholder responses we have received on this issue suggest a lack of confidence from the industry that the statement of requirements process is delivered in an equivalent manner. Therefore we will look at ways in which we can improve the process through our regular programme of telecoms market reviews.

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[161] BT, DCR main response, pp. 10, 12, 18-25.
[162] Virgin Media, DCR main response, pp. 29, 46.
[163] Sky, DCR main response, p. 6; TalkTalk, DCR main response, pp. 18-20; Vodafone, DCR main response, pp. 42-43; Three, DCR main response, pp. 28-29; SSE, DCR main response, p. 19; INCA, DCR main response, p. 9.

6.19   Respondents also raised concerns about the level of competition in the superfast broadband market[164]. Superfast broadband is delivered over the Openreach network using a product called virtual unbundled local access (VULA), which provides wholesale access to BT's network and electronics. Respondents argued that pricing flexibility on the VULA product, combined with BT's ability to treat the wholesale costs as 'internal transfers' between its divisions, has led to a distortion of retail competition in favour of BT. Clearly we would be concerned if BT were able to use the pricing of VULA to engage in a margin squeeze. Therefore we have imposed an *ex ante* margin squeeze test to protect downstream retail competition. If we did think that the pricing of VULA was leading to a distortion of retail competition, we have the ability to address this through our approach to VULA pricing within the WLA market review*.

6.20   The full range of concerns raised by stakeholders in response to the Discussion Document is set out in the annex.

Openreach is inherently subject to BT Group control in today's vertically-integrated structure of BT

6.21   We recognised in 2005 that the model of functional separation adopted was subject to the limits inherent in the current BT corporate structure. Without a structural solution, BT's underlying incentive to discriminate under some circumstances would remain. However we considered that at the time, the behavioural approach provided for in the Undertakings was the most proportionate way to proceed and should be sufficient to achieve effective competition. The Undertakings struck a balance between allowing an appropriate level of corporate oversight and preventing BT Group from using that influence to undermine the other aspects of functional separation.

6.22   Today the evidence provided in response to our Discussion Document highlights that, under the current model of functional separation, BT continues to have the ability and incentive to favour its downstream business in certain respects. Therefore risks to competition remain. In particular, several stakeholders were concerned about, among other things:

- **strategic decision making**: strategic decisions related to the access network are taken from the perspective of BT as a group, for the benefit of the group, rather than for the market as a whole;

- **consultation with customers**: there is insufficient consultation with all of Openreach's downstream customers, in particular in the early stages of major network investment decisions, leaving the risk that their needs may be neglected;

- **governance and operational independence**: Openreach lacks autonomy over its operating plan and capital budget. It also lacks the independent technical and operational capabilities required to deliver its priorities in the interest of all customers; and

- **cost allocation**: the current structure allows BT to act on its incentive to allocate costs in a way that favours the wider BT Group and therefore distorts competition.

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[164] Sky, DCR main response, pp. 7-8; TalkTalk, DCR main response, pp. 17-20.

6.23   The Undertakings contain provisions designed to address concerns related to strategic decision-making and consultation, specifically in relation to BT's original next-generation core network investment plans.[165] Core networks are the 'backbone' of the wider network, consisting of very long, high capacity connections between the operators' backhaul networks and to other networks. At the time, BT planned to move its voice and data services delivered over multiple networks to a single, multifunctional IP core network. However, since 2005 BT has moved its focus away from core networks and the majority of its strategic investment has been in access networks, which form the last mile connections to customers.

6.24   Despite this change of focus, the same principles that applied to BT's next-generation core network plans described above should have applied to its other major investment programmes. However, this does not appear to have happened to the same degree. The fact that these principles were not reflected in subsequent investments illustrates the wider challenge associated with establishing specific rules that remain effective in influencing a firm's behaviour over time.

Strategic decision making

6.25   Several respondents argued that, as a result of Openreach's vertical integration within BT Group, strategic decisions on investment are taken at a group level. This includes decisions on which geographic areas to invest in, and which new technologies to deploy.[166]

6.26   These respondents considered that competitors who purchase Openreach wholesale products do not have the same opportunity as those within BT to influence decisions regarding the network. They alleged that such decisions will consequently favour the interests of BT's downstream retail divisions over the interests of competing downstream providers. Respondents argued that this demonstrates the lack of purpose or efficacy of the Undertakings to address strategic rather than operational discrimination.

6.27   On the other hand, BT argued that the Undertakings were designed explicitly to remove the incentive and constrain the ability to discriminate. The company argued that the Undertakings ensure Openreach must make commercial decisions without considering downstream BT, and that performance-based pay is independent of group results. It added that there have been no significant instances of non-compliance with EOI. BT considered that, if there were material concerns, these could be addressed by reinforcing SMP obligations on non-discrimination[167].

6.28   We do not accept BT's argument that functional separation removes the incentive to discriminate. It is clear that the combination of BT's market power and vertically-integrated structure means that BT still has the incentive to discriminate against competing providers. Our current approach limits its ability to act on this incentive to an extent, but the underlying incentive to discriminate is unchanged. Therefore competition concerns related to discrimination may still remain.

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[165] Ofcom, *Undertakings given to Ofcom by BT pursuant*, Section 11

[166] Colt, DCR main response, pp. 14-15; Sky, DCR main response, pp. 9-10, 18; Vodafone, DCR main response, pp. 25-28, Three, DCR main response, pp. 23, 28-29; UKB Group, DCR main response p. 26; FCS, DCR main response, p. 10; BCS, DCR main response, p. 6; GTC, DCR main response, pp. 3-4; Union Street Technologies, DCR main response, p. 2; Nine Group, DCR main submission, p. 2; Powered by Vision, DCR main response, p. 4.

[167] BT, DCR main response, p. 90.

6.29   Under the current BT Group governance structure, the BT Group Board is ultimately responsible for major decisions concerning Openreach's commercial strategy. At the same time, BT's vertically-integrated structure means that the BT Group Board also holds ultimate responsibility for equivalent decisions in relation to BT's other downstream divisions.

6.30   We believe that this structure allows BT to take a group perspective when approaching decisions relating to Openreach. For example, where new significant access network investments are being considered, such as FTTC and G.Fast, initial decisions are made by BT Group on rollout plans, including the level of investment and network technology choice.[168]

6.31   Therefore the current position of Openreach as a business division of a vertically-integrated BT creates an inherent risk that important strategic decisions are ultimately subject to the views, decision-making powers and duties of the BT Group Board. These decisions are important not only for BT, but for the wider UK telecoms industry as a whole. The present structure also means that Openreach has limited potential to respond to major network investment requests from third-party downstream competitors without first seeking the approval of the BT Group Board.

Consultation with customers

6.32   In addition to the influence of BT Group, another concern raised was that there is insufficient consultation with all downstream customers on decisions regarding the network, such that their needs are not properly taken into account. For example, Vodafone argued that BT decided to invest in FTTC with limited discussion with its customers, despite the impact of this decision on the wider market[169]. Once the decision had been made, Vodafone said that discussion focused on the implementation of regulatory obligations rather than the merits of the strategic decision to deploy FTTC itself.

6.33   We believe that, when BT Group has made certain strategic decisions related to the network, Openreach has not consulted in a sufficient, timely or transparent manner with all its downstream customers. For example, BT Group's intention to roll out ultrafast broadband was first announced in January 2015 (including the technology choice and specific deployment targets), before wider consultation with industry.[170]

6.34   Our broader concern with this situation is that alternative outcomes are not fully tested and the interests and needs of all downstream providers are not necessarily taken into account. If strategic investment decisions relating to Openreach are taken with limited consultation, this leaves the risk that the needs of downstream customers other than BT may be neglected, or not given appropriate weight. More broadly, a lack of consultation may create the risk of an investment outcome which is sub-optimal for the UK as a whole.

Governance and operational independence

6.35   Several respondents argued that Openreach has to compete for resources, capital and management focus, and this competition has led to its operational ability being

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[168] BT, response to Ofcom questions, 18 December 2015.
[169] Vodafone, DCR main response, pp. 26-28.
[170] BT ultrafast broadband announcement, 30 January 2015

constrained in favour of other downstream divisions[171]. Sky and TalkTalk also raised concerns about the governance and operational independence of Openreach and proposed further ways that Openreach could be given more autonomy[172]. Respondents highlighted that, as an integrated group, BT has an incentive to prioritise investment in areas that benefit its own retail operations over investment in the copper access network, which would benefit all Openreach customers[173].

6.36   BT stated that the share of group capital expenditure allocated to Openreach has increased over the last ten years, which shows that it has not been losing out compared to other divisions. BT rejected any allegation that Openreach management is not focused on performance, highlighting quality of service as an area where Openreach is currently devoting significant time and resources[174].

6.37   The BT Group Board is ultimately responsible for approving Openreach's annual operating plan. Once approved, the Openreach management team has a certain level of autonomy within the annual operating plan. It can plan and approve specific investment decisions, but only those under £75m. Any investment decisions exceeding this amount must be approved by the BT Group Board.

6.38   The Undertakings do not specify how Openreach investment decisions sitting within BT Group (i.e., those above the £75m threshold) should be taken. Therefore, the current model of functional separation retains scope for the allocation of capital to be influenced by the priorities of BT Group rather than the requirements of all downstream customers. As a result, the interests of those customers may not be properly reflected in investment decisions.

6.39   Openreach has operated under a relatively consistent capital budget of approximately £1bn per annum. However the mix between different priorities within this budget has changed over time. [✂]. As set out in Section 5, we have received complaints from a number of stakeholders in the construction sector on poor experiences when securing installations to new developments. Openreach recently reached an agreement with Government and the Home Builders Federation to deliver superfast broadband connections to new build properties.[175]

6.40   Operationally, Openreach is dependent on shared BT Group functions. For example, Openreach relies on the Technology, Strategy and Operations (TSO) group for access to new systems developments, such as enhancements to Openreach products and processes. This includes the assessment and implementation of product development requests made through the statement of requirements process, both from internal BT divisions and external customers. Similarly, we understand that the roadmap for new access network technologies (such as G.Fast) is developed mainly within the BT Group research and development group.

6.41   We recognise that as a division of BT, it is not currently practical for Openreach to replicate all the capabilities of the wider group. Therefore it may be appropriate and beneficial for Openreach to outsource certain activities, such as research and development. However our broader concern is that, within the current structure,

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[171] Sky, DCR main response, pp. 9-10; Three, DCR main response, pp. 28- 29; TalkTalk, DCR main response, pp. 23-25; Vodafone, DCR main response, p. 41; INCA, DCR main response, p. 8.

[172] TalkTalk, DCR main response, pp. 30-32; Sky, DCR main response, p. 20.

[173] Sky, DCR main response, pp. 9-10; Vodafone, DCR main response, pp. 29-30, 41; BCS, DCR main response,p. 6; TalkTalk, DCR main response, p. 23; Vodafone, DCR main response, pp. 41-42.

[174] BT, DCR main response, p.100.

[175] New build homes to have superfast broadband connectivity, 5 February 2016.

Openreach may not have sufficient internal capability to develop its own strategy and manage its own operational delivery. This leaves a risk that a lack of operational autonomy constrains the ability of Openreach to deliver its priorities in the interests of all downstream customers.

Cost allocation

6.42 Respondents argued that BT has exploited the scope afforded by the current regulatory regime to allocate costs between different products in a discriminatory manner[176]. In contrast, BT argued that it is subject to the most comprehensive accounting separation regime in the world, offering the highest degree of transparency. It added that Ofcom has the power to determine BT's cost allocation methodologies and decides on appropriate cost allocation in its charge controls[177].

6.43 BT is subject to reporting obligations relating to accounting separation and cost accounting. These obligations include requirements to produce and publish annual regulatory financial statements and to maintain and publish certain accounting documents setting out how it prepares those statements. These requirements mean that BT must report its costs at a very detailed level. To do so, it must determine how best to attribute costs to its range of regulated products. BT's cost allocation system is complex, so this is not a straightforward task.

6.44 BT's vertically-integrated structure creates incentives to choose attribution rules that increase the reported cost of regulated services or benefit its downstream businesses. We have found that in some cases BT's choice of attribution rules is consistent with BT acting on this incentive. There are two main examples:

i) **Moving costs between markets:** for example, in 2013, BT changed its cost attribution rules with the effect (among others) of moving costs from the business connectivity market that had just been reviewed by Ofcom, into the fixed access market that was being reviewed.[178]

ii) **Moving costs from unregulated to regulated services:** our review of BT's cost attribution methodologies has identified errors and attribution rules that we consider inappropriate, almost all of which have the effect of attributing too much cost to regulated services.[179]

6.45 We have taken a range of steps to ensure that BT's current attribution rules are appropriate; its ability to change them in future is controlled; and the reasons for, and impact of, any changes are transparent. At the same time, it is also important that BT retains the flexibility to make appropriate changes to the way it attributes costs between markets from time to time, in response to new information.

6.46 We will keep under review BT's current attribution rules and its ability to change them in future. However, BT will always have the incentive to choose attribution rules that increase the reported cost of regulated services or favour its downstream divisions compared to other competitors. Despite the steps described above, the complex

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[176] Vodafone, DCR main response, p. 43; Three, DCR main response, pp. 25-27.
[177] BT, DCR main response, pp. 97-98.
[178] Ofcom, *Fixed access market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30*, June 2014.
[179] Ofcom, *Review of BT's cost attribution methodologies*, June 2015.

nature of BT's regulatory accounts, and inherent information asymmetry mean that the risk of inappropriate allocations going undetected cannot be entirely avoided.

The current model of functional separation fails fully to achieve the market outcomes that we think it should

6.47   The competition concerns we have identified as a result of BT's vertically integrated structure are, in many ways, similar to those we identified in 2005. As a result, whatever the market successes the Undertakings have been able to deliver, we are concerned that they – together with the SMP regulation that sits alongside them – have failed fully to achieve the market outcomes that we think they should. This is because the vertically-integrated structure of BT inherently affects the way in which BT makes significant decisions.[180] It is therefore our view that the important and persistent competition problems and market failures identified in 2005 have not been fully addressed by the current functional separation model.

6.48   Consequently, the *status quo* is not acceptable; change is needed.

We have therefore considered alternative models of separation which address the concerns we have identified

6.49   Taking a step back from our specific concerns, in principle there is a range of options for models of separation (see Figure 14 below).[181] Broadly, each model provides successively stronger constraints on the ability to discriminate. At the same time, the measures imposed become more intrusive for the regulated firm.

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[180] The model of functional separation between BT and Openreach that currently exists in Great Britain does not apply in Northern Ireland. For a more detailed discussion of the arrangements in Northern Ireland see the annex. We will consider whether the existing arrangements in Northern Ireland remain appropriate as part of the next phase of our work.
[181] Martin Cave, *Six Degrees of Separation: Operational Separation as a Remedy in European Telecommunications Regulation*, p.94; BEREC, Guidance on functional separation.

Figure 14: Models of separation

1. Accounting separation	Separate financial reporting, with costs and revenues of the upstream and downstream products allocated into different baskets
2. Creation of a wholesale division	A separate wholesale division established to supply inputs to competitors, but without equivalence of access
3. Virtual separation	Services offered to internal and external customers on equal terms, without any physical separation of the businesses
4. Functional separation	Physical separation of the business and its processes, e.g. location, staff, branding, management information systems
5. Functional separation with local incentives	Functional separation with separate governance and different management incentives to those of the wider firm
6. Functional separation with independent governance	Creation of a divisional Board with non-executive members who act independently from the group Board
7. Legal separation	Upstream business is established as a separate legal entity within the wider group, but remains under the same overall ownership
8. Structural separation	Split of the vertically-integrated operations into separate legal entities, with no significant common ownership and 'line-of-business' restrictions to prevent them re-entering each other's markets

6.50   Models one to seven comprise behavioural remedies, which try to address specific conduct where the underlying incentives of the regulated firm to discriminate remain unchanged. The models based on functional separation (models four to seven), introduce measures aimed at incrementally increasing the independence and autonomy of the regulated division, while preserving its ownership by the parent group. The current BT Undertakings broadly represent model five.

6.51   In contrast, structural separation (model eight) requires a split of the vertically-integrated firm into two legally separate entities under different ownership. This model would therefore remove the underlying incentive for the regulated firm to discriminate against competitors by leveraging its market power into downstream competitive markets.

6.52   Given that we have found the current model of functional separation (model five) has failed fully to achieve the market outcomes we think it should, we are considering which of the following two options would be an appropriate and proportionate response to address our concerns:

  i)   structural separation of Openreach from the rest of BT (model eight); and

  ii)   a strengthened model of functional separation (variations on models six and seven).

Structural separation is a one-off intervention that would significantly alter the market structure

6.53   Structural separation is one option for addressing our concerns. Several stakeholders argued in response to our Discussion Document that the problems with the current model suggest the need for structural separation of BT.

6.54   Structural separation would require BT to split its vertically-integrated operations into one firm providing non-competitive services and one providing potentially competitive services. The two firms would be separate legal entities, with no significant common ownership. It is likely that 'line-of-business' restrictions would be imposed to prevent the non-competitive firm from re-entering competitive activities. In addition, there may be restrictions on ownership of the separated network business by downstream customers.

6.55   Internationally, Australia and New Zealand are the most recent examples of countries to have undertaken pure structural separation in communications markets. However, in both cases, separation has been secured not as a competition remedy, but as a requirement made by Governments for public funding for superfast broadband deployment.

6.56   As part of its national broadband programme, the Singapore Government has invested public funds to build a national FTTP network. This required the separation of the fibre network operator from the active infrastructure level and from retail service providers. Although widely cited as structural separation, separation of the fibre network has not been associated with any divestment and remains fully owned by the incumbent operator, SingTel. SingTel's stake is managed at arm's length by a Trust, with a structure designed to ensure a break in the incentive and behaviours of a vertically-integrated company without undermining the beneficial ownership of the assets.

Structural separation would remove both BT's ability and underlying incentive to discriminate by leveraging its market power

6.57   The primary advantage of structural separation is that it removes the ability and incentive of the provider of the 'non-competitive activity' to engage in discriminatory actions that restrict competition in 'competitive activities'. Other models of separation simply limit the ability to discriminate to varying degrees, but do not change the underlying commercial incentives. Structural separation is therefore the cleanest and most clear cut long-term solution.

6.58   Full divestment and separate commercial ownership of the different assets would provide entirely independent governance and a level playing field for competitors to BT. A singular focus on the underlying network, with no concerns about cannibalising downstream revenues, may provide greater focus on ensuring that network investment decisions meet the needs of all customers. Structural separation would also ensure greater transparency of cost information and allocations, as there would be a clear delineation of costs for the set of assets owned by each entity.

However structural separation would not change BT's incentives in other areas and could potentially carry substantial costs

6.59   Structural separation may not in itself change Openreach's incentives to operate efficiently, invest, or deliver a good quality of service. This is because these incentives are dampened by a lack of sufficient competition at the infrastructure level, and not because BT is vertically-integrated.

6.60   Given that the costs of rolling out the copper network have already been sunk, a structurally separate Openreach would have the incentive to exploit these assets for as long as possible, rather than investing in new networks – unless there was sufficient competitive pressure from alternative infrastructure providers. Similarly, without that competitive pressure, Openreach would have little incentive to deliver

lower prices or better quality. As a result, we would still need to continue to regulate a structurally separate Openreach to protect consumers in the absence of strong competition.

6.61   We also recognise that structural separation would carry substantial costs, which we would need to consider carefully. Some of the main challenges include:

- **Establishing a firm and final boundary between network assets**. This would be complex to determine initially, and could be difficult to modify in future as networks and services evolve. However, minor variations could be handled by modifying line-of-business restrictions. In addition, we recognise that the scale of this issue could vary according to where the boundary is drawn. For example, a boundary set at the passive infrastructure level (ducts and poles) could be more stable than a boundary that cuts across different active (electronic) assets.

- **Co-ordination of upstream investment with retail demand may not be straightforward**. Where the separated firm carries out significant sunk investments, there is a risk that its customers could reduce their payment for wholesale access after the network investment has been made, which in turn may damage the incentive to invest in the first place. This concern could be resolved by contracting between the parties, but in the face of uncertain demand such contracts could be difficult to write and enforce. Structural separation could also see the loss of efficiencies made possible by a vertically-integrated structure, such as cost synergies and the removal of double mark-ups[182].

- **Practical challenges**. There are likely to be significant practical challenges associated with full separation. For example, alterations to the structure of BT Group may require action to address the BT Pension Scheme. There may be an associated effect on the status of the 'Crown guarantee' from which BT currently benefits. Also, legal agreements currently held in the name of BT Group, such as wayleaves, would need to be updated to apply to the newly separated entity. Therefore separation could trigger the renegotiation of these agreements, creating a process cost and risk of additional payments.

6.62   Therefore, in light of our duty to act proportionately, our view is that we should only take forward structural separation if we believe that the concerns that have been identified could not be effectively addressed by a less intrusive approach.

Functional separation could be strengthened, increasing Openreach's independence and focus on all its customers

6.63   Given the costs associated with structural separation we are particularly interested in considering whether a strengthened model of functional separation might be capable of addressing our competition concerns. Our aim would be to increase materially the independence of Openreach in relation to operational and strategic decision-making, and ensure it focuses on all downstream customers equally.

6.64   Some respondents raised specific options for strengthening the current model of functional separation. TalkTalk suggested a number of ways in which Openreach's

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[182] One of the benefits of vertical integration is cost synergies. In non-integrated operations, every step in production may involve mark-ups so the reseller can earn profit. By selling directly to end buyers, vertically integrated firms can "cut out the middle man" removing one or more steps of mark-ups along the way. This can therefore lead to lower prices for consumers.

autonomy could be increased, including its creation as a separate legal entity and subsidiary of BT Group[183]. Sky also argued that a range of improvements should be made to functional separation, such as better customer engagement on major infrastructure projects and a fully independent Openreach Board[184].

6.65   One of our main concerns is that, under the current structure, Openreach does not have sufficient strategic and operational autonomy to ensure the equal treatment of all downstream customers. If Openreach's operational and strategic decisions were made in a manner that was more independent of the BT Group, this could ensure more consistent treatment across all downstream customers and reduce the potential for competitive distortions.

6.66   Under a strengthened model of functional separation, solutions to the concerns identified would need to embed further specific behaviours by Openreach in a number of areas, including:

- **More independent governance**, **with a responsibility to serve all customers equally**: Creating an Openreach Board with more independent governance within the current model of functional separation.

- **Increasing Openreach's autonomy over budget and decision-making**: This could address our concerns related to decision-making by giving Openreach increased financial autonomy to take strategic decisions on network investment, network maintenance and operational systems. One way of achieving this would be to increase the delegated authority given to the Openreach Chief Executive from the BT Board to make individual decisions on the allocation and use of funds. One outcome of this increased autonomy could be the ability for Openreach to reach co-investment or risk sharing agreements with operators other than BT.

- **Improving Openreach's approach to consultation with customers**: We want to ensure that Openreach listens and takes into account the views of all its customers in making decisions that could impact downstream operators. Specifically, we could establish obligations for Openreach to consult openly with downstream operators on substantial investment and innovation decisions. For example, commitments to transparency when considering new network investments, consideration of any alternative proposals and consultation at an early stage on any favoured proposals. The EAB, or another independent body, would need to check compliance with such obligations.

- **Enhancing Openreach's operational capability**: Giving Openreach the ability to draw upon dedicated support services could address our concerns over its operational ability to deliver its priorities. This would ensure Openreach has sufficient internal capability to manage both its strategy and manage external supply arrangements. Such changes would have to be weighed up against any potential loss in efficiency or scale benefits.

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[183] TalkTalk, DCR main response, pp. 30-32.
[184] Sky, DCR main response, pp. 19-21.

Establishing Openreach as a wholly owned subsidiary could embed the strategic and operational autonomy required to address our concerns

6.67   Although we believe the specific behaviours we have listed above would go some way to addressing our concerns, we recognise there are inherent limitations to these types of behavioural remedies which may mean they are insufficient on their own.

6.68   One means of securing the above behaviours might be to establish Openreach as a wholly owned subsidiary of BT Group, with its own purpose, board of directors and governance arrangements. This change could embed greater strategic and operational autonomy through the corporate governance of the wholly owned subsidiary. A requirement could also be placed on Openreach management to consider the interests of all downstream customers, including BT, when making key decisions.

6.69   Such a model could contain the following broad elements:

- **Separate Openreach Board**: Openreach would become a wholly owned subsidiary of BT Group, making the relationship between it and BT's other divisions more transparent. The Openreach Board would be separate of the wider group and hold executive powers of decision-making over Openreach's activities in the interests of the legally separate Openreach, rather than the wider interests of BT Group.

- **Responsibility to serve all customers equally**: An explicit responsibility for Openreach to treat all downstream customers equally might be established through the objects and purposes of the company in its articles of association.

- **Autonomy over investments and decision-making**: The new Openreach Board might be given more autonomy over capital investments and the broader use of cash within the business.

- **Ability to raise funds**: There are different options for how a wholly owned subsidiary could raise funds. There may also be appropriate ways for BT Group to finance Openreach without directly influencing how the funds are spent. Alternatively, Openreach could raise funds directly from the market or fund network investments through contributions from downstream providers, secured by contract.

- **Statutory accounts**: An important aspect of the model is that BT Group shareholders would retain full ownership of Openreach and continue to benefit from any associated profits. As a legally separate subsidiary Openreach would be required to file full statutory accounts, including a separate balance sheet, profit and loss statement, and cash flow. This would improve transparency of cost and asset allocations.

6.70   It would be important for Openreach to retain some form of accountability to the wider BT Group, and therefore shareholders.

6.71   The wholly owned subsidiary model would have some wider benefits. It would deliver greater independence for Openreach while retaining BT Group ownership, therefore preserving some of the benefits associated with vertical integration. For example, where Openreach did invest in new networks or services, the common ownership of the group may mean that BT's retail divisions continue to act as an 'anchor tenant' and market these services to customers. BT Group would have an incentive to make

use of networks deployed by Openreach and therefore promote take-up of services delivered over these networks.

6.72   Establishing Openreach as a wholly owned subsidiary would also avoid creating a firm and final boundary between the different network assets. This would allow a flexible approach to the Openreach boundary, should it need to change in future to reflect market developments or a shift in our fixed competition strategy.

6.73   We will compare the benefits of such a model against those of structural separation, given that we are seeking to deliver the benefits of the latter while ensuring that our approach remains proportionate. A strengthened model of functional separation might present lower costs than full structural separation, given that no change of ownership is required.

6.74   However, as with structural separation, a strengthened model of functional separation - in particular the creation of a new legal entity - raises legal and practical questions. These include the effect on the BT Pension Scheme and its Crown guarantee, as well as employment, tax, property and other asset ownership issues. We will also consider the need to reconcile increased independence for Openreach with the corporate governance responsibilities and legal duties of the main BT Board.

We reserve the right to take forward structural separation if functional separation cannot be strengthened

6.75   Our current thinking is that a strengthened model of functional separation may be a proportionate response to our concerns. However, we continue to recognise the benefits of structural separation and it remains an option. If functional separation cannot be strengthened, we reserve the right to take forward structural separation.

6.76   As part of establishing a new model of separation, we will ensure that any outdated and unnecessary rules are removed.

We will consider whether the existing arrangements in Northern Ireland remain appropriate

6.77   The model of functional separation between BT and Openreach that currently exists in Great Britain does not apply in Northern Ireland. For a more detailed discussion of the arrangements in Northern Ireland, see the annex.

6.78   Some stakeholders have argued that functional separation, or any new model established as part of the review, should apply equally to Northern Ireland. Therefore we will consider whether the existing arrangements in Northern Ireland remain appropriate as part of the next phase of our work. Our starting position is that the same model should apply across the UK. However we would need to be satisfied that such an arrangement would not be disproportionate.

Next steps

6.79   We will now develop proposals aimed at securing the necessary independence for Openreach required to address our concerns. We will discuss these proposals with the European Commission later this year.

6.80   During the current consultation process, BT set out a potential variation to the current Undertakings, containing a series of amendments which it explained were aimed at addressing concerns set out in the Discussion Document.

6.81   We do not believe the changes BT set out go far enough to secure the strategic and operational autonomy within Openreach that we consider necessary to address the concerns in this document. We remain open to the potential for voluntary proposals and ideas on separation models that address the concerns set out above.

Empowering and protecting consumers

Overview of our strategy and next steps

Even when choices are available, people need practical information and tools to take advantage of what the market can offer. This need becomes increasingly important as communications services increase in diversity and complexity.

To help people make informed choices, we will:

- publish more detailed information, including on: service quality and customer response; fixed and mobile service availability; and broadband speeds;

- work to introduce a standard cost comparison measure, such as average monthly cost of the core elements of a service over the contract period, so consumers can more easily compare different products;

- closely monitor the impact of providers' adherence to the Advertising Standards Authority's broadband price advertising rules;

- work with third parties, such as price-comparison websites, to improve information consumers have to hand before they buy; and

- identify what more can be done for consumers who are not responsive to this information, for example, through stronger triggers to consider other deals when contracts expire.

We will follow up our work on Openreach network switching with proposals to make mobile switching easier. We will also complete our review of switching triple-play services (i.e., phone line, TV and broadband).

Some consumers will find it difficult to engage effectively with the market regardless of the information available them. We will therefore take more direct action to help protect such consumers, for example, by tracking market prices more closely and intervening directly to provide protections for the most vulnerable.

Finally, we will continue to protect consumers when things go wrong, from issues such as nuisance calls to various forms of fraud.

## Ensuring consumers are empowered to take advantage of competition

7.1 Competition is generally the best way to deliver good outcomes for consumers. However, for consumers to gain the benefits of competition they need to be able to exercise informed choice. Their ability to do so may be hindered for several reasons, such as:

i) the range and pricing of products is becoming more complex as providers tailor services to different customer groups and combine or bundle different services (TV, landline, broadband and mobile) into a single package; and

ii) the process of switching from one provider to another can be difficult.

7.2   Some consumers, including many of those in vulnerable circumstances, find it particularly difficult to engage in the market without assistance. This can be due to reasons of age, disability, income, or social isolation. These consumers may require additional support in understanding what is available to them from suppliers, and protection targeted at their specific needs.

7.3   Moreover, all consumers will on occasion suffer from various forms of bad practice, from nuisance calls to billing errors, and will require protection from these practices.

7.4   In general, stakeholders that commented on this element of our strategy supported the idea that consumer empowerment was vital to delivering good competitive outcomes. Many agreed that Ofcom should continue to focus on consumer empowerment in a rapidly changing industry.

7.5   Communications providers supported the general principle of consumer empowerment but nearly all then argued against the need for any additional policy focus. They believed that the existing level of retail competition was sufficient to deliver good outcomes for consumers. They were concerned that intrusive regulation risked stifling investment and innovation. We believe that it is important to take proportionate action where lack of consumer empowerment is leading to poor consumer outcomes.

A lack of consumer engagement in the market can lead to weakened competition and worse outcomes

7.6   Ofcom analysis shows that around half of consumers are "inactive" or "passive" (Figure 15 below) in the sense that they are less likely to search the market actively, keeping an eye out for the best deals.

Figure 15: Levels of participation, by total market (2015)[185]
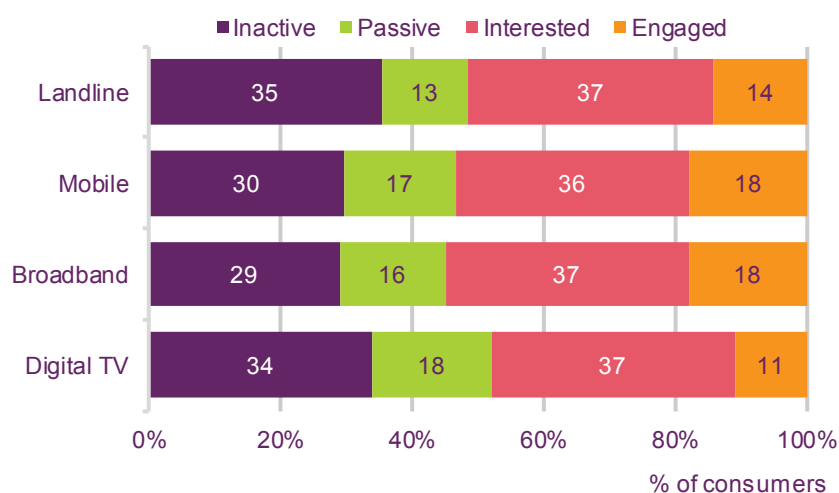
Source: Ofcom Switching Tracker, July – August 2015

7.7   Recent pricing trends show inactive consumers are likely to pay increasingly higher prices than those paid by engaged consumers.[186] Figure 16 below shows average

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[185] Base: All adults aged 16+ who are the decision-maker for fixed line (whole market, 2199), mobile (whole market, 2609), broadband (whole market, 1877), TV (whole market, 2251). Ofcom Switching Tracker 2015.

standard list prices available for 'dual-play' broadband and landline tariffs, and average 'discounted' prices. It indicates a growing gap between 'list prices' (which have increased) and promotional prices available to new customers. In Q4 2012 the average discounted dual-play price was 5% lower than the average list price. By Q4 2015, this saving had increased to over 20%.

Figure 16: Average cost of a dual-play fixed broadband and landline bundle, including and excluding promotional discounts[187]
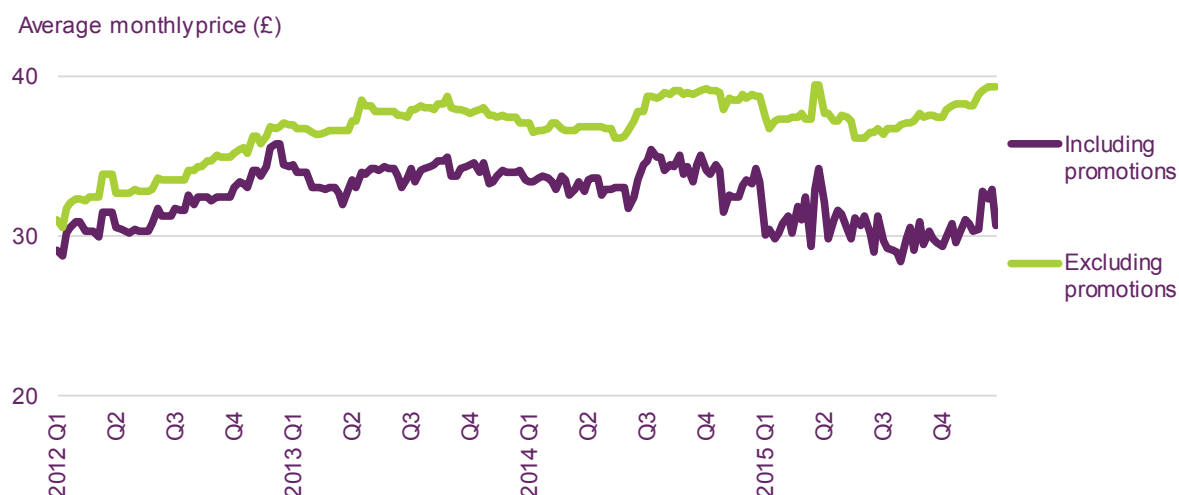
Source: Simplify Digital
Note: The average monthly cost is calculated across each service's minimum contractual term

7.8   The risk is that inactive consumers may not be benefiting sufficiently from competition. The increasing gap between 'list' prices and discounted prices shows that inactive consumers are increasingly worse off compared to consumers who actively engage in the market and switch packages or providers. Increasing engagement would likely benefit many inactive customers.

7.9   We have particular concerns about the situation for consumers who use standalone landline services.[188] These consumers generally do not engage with the market: 71% of standalone landline customers have never switched provider or considered doing so.[189] These customers tend to be older and more vulnerable. Almost 60% of consumers who buy standalone landline products and have no broadband service are over-75 and nearly half (47%) live in DE households on the socio-economic scale.[190] Actions to empower these consumers may not be enough on their own to produce a very different market outcome.

7.10   A number of changes can be observed in stand-alone landline services:

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[186] Ofcom, *The Consumer Experience 2015* for further information on pricing trends, including the increasing use of promotional discounting.
[187] Source: Simplify Digital, Ofcom *The Consumer Experience 2015*, Figure 2. Prices are nominal, i.e. not adjusted for inflation.
[188] Standalone landline refers to consumers who do not take voice and broadband services as a bundle. They may or may not take a fixed broadband service but if they do, it is from another provider. Ofcom, *The Consumer Experience, 2015: Research Annex*.
[189] Around 24% of all landline consumers buy a standalone landline service. Approximately 10% of all landline consumers buy a standalone landline services and have no broadband service. Ofcom, *The Consumer Experience 2015*.
[190] Ofcom, *The Consumer Experience 2015*.

- different providers' prices are converging towards higher levels[191]. For example, the Post Office has increased its prices after significantly undercutting BT a few years ago;

- line rental prices are rising , despite the price of wholesale services[192] on which they are based falling (see Figure 17);

- rising prices for both call bundles and out-of-bundle calls[193]; and

- less choice among the larger providers. For example, TalkTalk no longer offers a standalone landline service while Sky and Virgin Media do not actively promote this product.

Figure 17: UK residential line rental prices
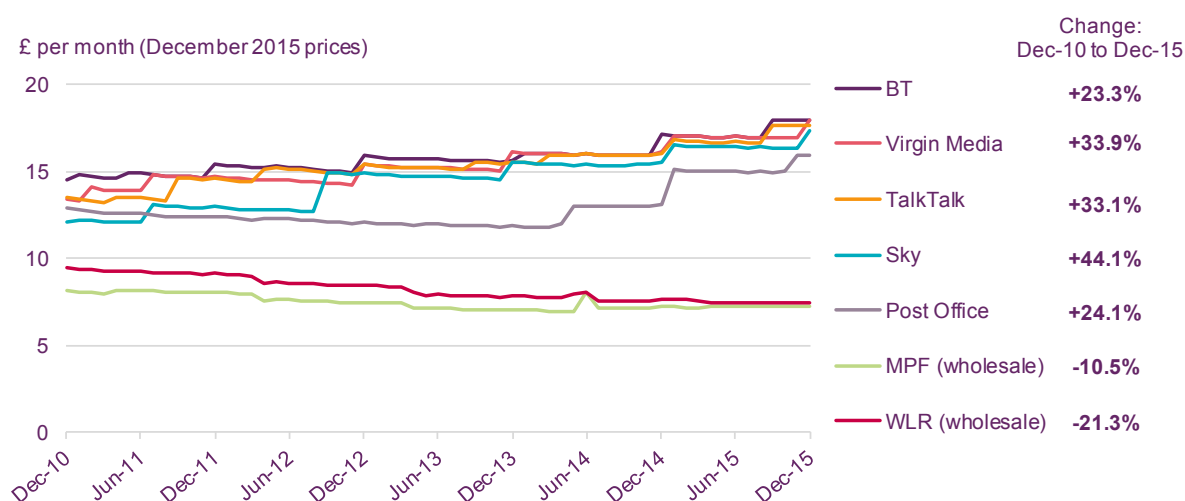
Source: Ofcom / Pure Pricing UK Broadband Updates[194]

Ofcom has identified four key strategic objectives to empower and protect consumers

7.11 Our four strategic objectives are:

i) Clear and accessible information so that consumers can make informed choices;

ii) Easy switching between providers so consumers can act on their choice;

iii) Additional, targeted support for consumers who struggle to engage, especially those who are vulnerable; and,

iv) Protection when things go wrong.

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[191] Between December 2010 and 2015 BT raised its line rental prices by 23%, Sky by 44%, Virgin by 34% and TalkTalk by 33%. Ofcom, *The Consumer Experience, 2015: Research Annex*, Figure 2.
[192] Voice services are underpinned by two wholesale BT products: wholesale line rental is bought by BT Retail and some other providers. Others (notably Sky and TalkTalk) base services on a different wholesale product – metallic path facility (MPF), also known as local loop unbundling. The prices of these services are regulated and have been converging over time.
[193] Ofcom, *The Consumer Experience, 2015: Research Annex*, Figure 18.
[194] Adjusted for CPI; excludes line rental saver pre-payment tariffs.

Clear and accessible information

7.12   Widely available, clear and accessible information on the services provided and available is vital for consumers to engage with the market. There are four broad areas of action for us to improve the availability and usefulness of this information. We will:

- make sure that information provided by communications providers on their services is accurate and accessible;

- take specific action in cases where the information provided by providers is more confusing than it needs to be;

- publish additional information that is likely to be useful to consumers, and do so in a manner that is easy to use; and

- support third parties in interpreting and spreading information more effectively, including, for example, price comparison websites (PCWs).

Accurate and accessible information from communications providers

7.13   Our starting point is that communications providers who are selling services to consumers must provide accurate and accessible information to those consumers.

7.14   This is both an important general principle, and one which is already supported by detailed regulatory obligations. For example, providers are required to:

- Publish information on their prices, terms and conditions and their complaints handling processes;

- Publish information on the traffic management policies that apply to the different broadband packages they offer; and

- Provide SMS text alerts on roaming fees.

7.15   We intend to build on this. Our approach is to identify the information consumers need in order to make well informed and effective choices, including where they may need a prompt (or trigger) to help them engage.[195] And where information is not provided by the market in a clear, easily accessible and comparable way, we will make proportionate interventions to address this.

7.16   For example, we are aware that many consumers and businesses are concerned that the actual speed of their fixed broadband connection or the actual coverage of their mobile service, is not what they were promised.

7.17   The major fixed providers have already signed up to a voluntary code committing them to make clear the speed of a broadband service at the point of sale, and allow penalty-free exit if the speed falls below a guaranteed minimum. But we believe further work is required to improve the accuracy of information on fixed broadband provided at the point of sale and ensure that what is promised is actually delivered. We will consider whether the same set of principles should be extended to mobile

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[195] For example, this could be a reminder that their contract will soon expire and they have options to shop around.

coverage, so that consumers get the mobile coverage they are promised or can switch to another provider if they do not receive the level of coverage promised.

Taking specific action to reduce consumer confusion from overly complex information

7.18   We are concerned that communications service prices are being structured and presented in ways that means some consumers struggle to identify and compare overall prices. As a result, consumers may make poor decisions or disengage from the market entirely. Complexity can also obscure overall price rises.

7.19   In response to the Discussion Document, a wide range of stakeholders agreed with our views on pricing complexity, noting that consumers could be misled by advertising. In particular stakeholders were concerned with 'misleading' headline rates, and bundled services promoted through a single attractive feature but locking consumers into contracts across multiple services.

7.20   We have particular concerns about broadband pricing. The advertised 'headline' broadband price excludes the price of line rental, which is required for the majority of fixed broadband services. There has also been an increase in the frequency and variety of promotional discounting. For example, some parts of the bundle are offered for 'free' during either a defined period or over the entire contract.

7.21   Research jointly published in January 2016 by Ofcom and the Advertising Standards Authority (ASA) into the advertising of broadband prices found that, although all the relevant information was available to consumers, just over 80% were not able to identify correctly the total cost of the contract (see Figure 18). In addition, just over half of the total sample did not see or take account of the total length of the contract and 74% considered that one-off and on-going costs were unclear.[196] The report suggested that the level of error, effort and difficulty involved meant consumers could be put off looking further into the detail of what was being offered.

Figure 18: Ability to calculate the total cost of the contract[180]
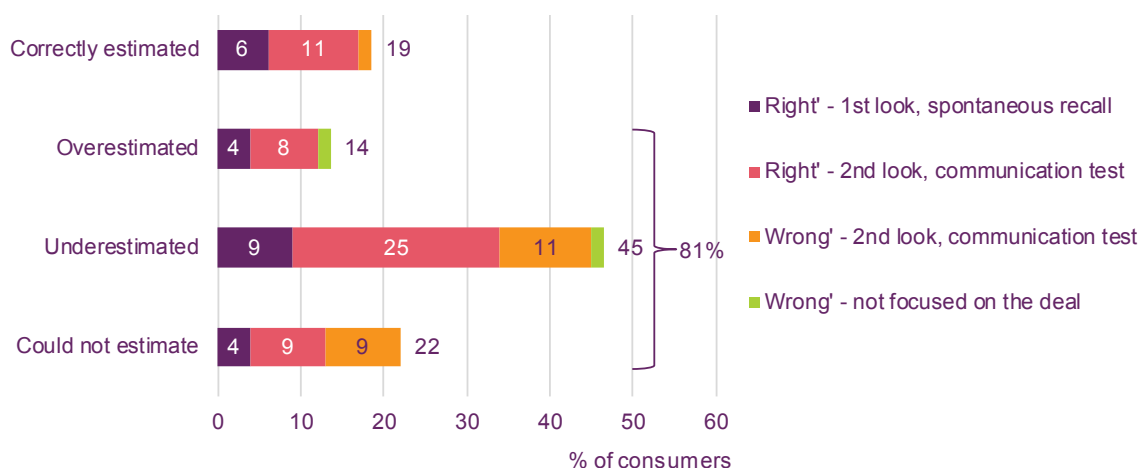
Source: Futuresight, Fixed broadband advertising of prices

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[196] Base: All that were shown advertising that stated any set-up and on-going costs over the total length of the contract: n=267. Excludes 33 cases (3 outdoor ads) where the total length of contract was not started. Totals may not be exact due to rounding. Futuresight, Fixed broadband advertising of prices, Figure 35.

7.22   Such pricing approaches make it more difficult for consumers to understand the total prices they are likely to pay. It may also contribute to a potential lack of price competition on the line rental component of the landline and broadband bundle.

7.23   The ASA is taking steps to ensure that broadband and landline prices are advertised more clearly.[197] The ASA has proposed that from 30 May 2016 broadband adverts should provide the total one-off costs and the full monthly price of the service including line rental, and give equal prominence to the monthly price after any time-limited discount has expired. We welcome these proposals, and will monitor the impact of providers' adherence to the ASA's broadband price advertising rules.

7.24   There are other examples of complex tariffs that may reduce comparability across providers. We will consider whether these may result in consumer harm. These tariffs include:

- Price of calls which are outside the inclusive call allowance bundle;

- Call prices which are difficult to calculate and compare, as they include both per minute charges and call set-up charges; and

- Where a 'SIM-only' service is advertised in the headline price but the deal is only available as part of a bundle which requires the purchase of other services (such as landline and broadband).

7.25   We will consider further simplifying consumer decision-making. For example, requiring standardised information on the average monthly cost of the core elements of a service over the contract period would provide a single figure for consumers to compare total cost of contracts across different providers on a consistent and comparable basis. This would address concerns about initial discounts obscuring the actual price payable over the term of a contract.

Publish additional information ourselves for consumers, in a manner that is useful

7.26   Ofcom already provides additional information to consumers and businesses, over and above that from providers. For example, we publish:

- Regular data on complaints against providers which give an indication of quality of customer service;

- Data on availability and quality of broadband and mobile speeds by postcode, most recently developed into interactive maps which allow consumers to provide feedback if they feel they have more accurate information; and

- Average list prices for broadband and landline bundles and prices for typical baskets of stand-alone landline services.

7.27   We will build on this. As set out in section 5, we will publish an annual Service Quality Report. At present, limited information on quality of service is publicly available. By helping consumers understand the differences in service quality between competing operators we will encourage operators to compete on quality of service.

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[197] ASA signals need for change in advertising of broadband prices, 21 January 2016.

7.28   Better consumer information will also help improve coverage as set out in section 3. We will ensure that consumers have accurate and easy-to-use coverage information, so that they can choose the best provider, which should in turn incentivise networks to improve coverage.

7.29   We will develop more granular data on broadband speeds, availability and mobile coverage. For instance, in 2016-17 we are aiming to provide data for every household on their access to 4G and fixed superfast broadband. We will increase the granularity of data already provided on fixed broadband speeds from postcode to address level.

7.30   We will also track pricing trends more closely including a particular focus on the level of prices actually paid (i.e. including promotional discounts and bespoke deals).

Supporting third-party intermediaries to enable them to help consumers

7.31   The role of third party intermediaries, including price comparison websites (PCWs), will become increasingly important as products become more and more complex. PCWs are well placed to help consumers navigate a complex set of choices across price and non-price features.[198]

7.32   When it comes to communications, consumers currently make less use of PCWs than they do for products in other regulated sectors. Around 13-31% of consumers say they make use of PCWs across the different communications services compared to 44% of consumers in the energy sector.[199] Only 13-20% of consumers considered PCWs to be a trusted source of information for communication services.[200]

7.33   Communications products can be more diverse and complex, with more options for consumers, than many other networked services (e.g., energy, water). This can make it harder for PCWs, on their own, to deliver simpler decision making for consumers. PCWs have highlighted some barriers faced in delivering better services for consumers including:

- the lack of standard industry terminology to make it easier for consumers to understand services;

- the lack of access to information on broadband speeds and fibre availability by address rather than postcode; and

- the lack of access to consumer usage data for a more personalised recommendation.

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[198] Information remedies on their own may not be effective in the presence of certain behavioural factors which affect decision-making. Too much information or information that is not easily comparable can inhibit effective decision-making and also exacerbate the effect of various behavioural biases. At the same time, consumers can struggle to absorb all this information or to carry out the calculations necessary to make sense of it all on their own.
[199] 13% for cable and satellite services, 21% for mobile and 31% for broadband. Consumer Futures *Price comparison websites: Consumer perceptions and experiences*, Figure 4.10.
[200] Ofcom, The Consumer Experience 2015: Research Annex, Figure 40.

7.34   We believe there is scope to make greater use of PCWs going forward. In its response to the Discussion Document, Which? believed there was room for improvement in how information was presented to consumers by telecoms PCWs.[201]

7.35   However we are aware that there are risks if the information that PCWs provide is not wholly impartial and consumers are faced with inaccurate or biased results e.g. if results are driven by commercial arrangements (and commission payments) between CPs and PCWs. We will consider these risks as we bring forward our proposals. [202]

7.36   Third parties may be able to make more effective use of the data Ofcom holds and collects in analysing and presenting it consumers. Releasing the data we collect and create as Open Data wherever possible can enable a range of stakeholders to undertake new analysis and build tailored applications and services to help consumers navigate the market. We will look to release as much data as possible in a carefully controlled way.

7.37   When doing so, we will ensure that we are mindful of the need to anonymise sensitive data appropriately to address concerns about data protection. Ofcom's Open Data is available at ofcom.org.uk/opendata.

Consumers need to be able to switch easily between providers so they can act on their choices

7.38   Switching in our sectors is becoming more complex: contracts are lengthening, bundled services are becoming the norm, and communications providers are putting a greater focus on customer retention activity. A policy focus on removing unnecessary barriers to switching remains crucial to ensure empowered consumers can act on decisions to change provider, and that communications providers can compete effectively to win consumers.

7.39   Of the stakeholders that responded, both parts of industry and consumer groups agreed on the importance of the principle of easy switching. For example, Three[203] set out that a fair and easy switching process is the cornerstone of a competitive market as effective switching incentivises operators to provide the best services for customers. BT[204], TalkTalk[205] and the Communications Consumer Panel[206] all pointed towards low levels of switching as an indicator that more needs to be done in this area.

7.40   Overall, switching levels (defined as those who have switched in the past 12 months) have increased in the year to July/August 2015, and – following a decline in 2014 – have returned to levels similar to those found in 2013 (see Figure 19).[207]

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[201] Which?, DCR main response, p. 6.
[202] For example, higher listing for providers paying larger commissions (even where this is not the best deal for the consumer) or lower incentives to provide information on an alternative tariff from the consumer's current provider if PCWs only get paid a commission when the consumer switches provider.
[203] Three, DCR main Response, p.56.
[204] BT, DCR main response, p.76.
[205] TalkTalk, DCR main response p.60.
[206] CCP and ACOD, DCR main response, pp.15-16.
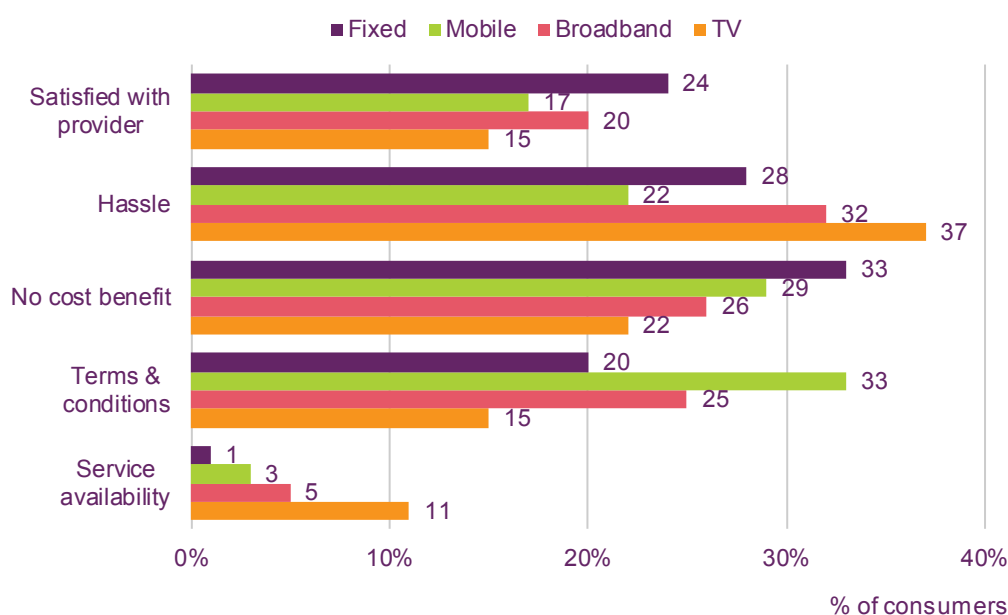[207] Ofcom, The Consumer Experience 2015.

Figure 19: Switching in communications markets in the past 12 months, year-on-year comparison

Switched in 12 months to Sep	Sep 2015		Sep 2014		Sep 2013	
	Total	Excl. home move	Total	Excl. home move	Total	Excl. home move
Fixed line	11%	9%	7%	6%	11%	9%
Mobile	10%		7%		11%	
Broadband	11%	8%	8%	6%	11%	9%
Total TV	6%	4%	3%	2%	4%	3%
Pay TV	7%	5%	3%	2%	5%	4%
Free-to-air TV	5%	3%	2%	1%	2%	1%
Dual play	12%	11%	7%	7%	10%	8%
Triple play	11%	10%	7%	6%	10%	8%

Source: Ofcom decision-making survey carried out by Saville Rossiter-Base in July to August 2015, 2014 and 2013[208]

7.41   'Hassle', or at least a perception of hassle, is a key reason why many consumers who considered switching end up not doing so (see Figure 20). It is particularly notable that the proportion of pay TV considerers who cited "hassle" as the main reason for not switching increased from 12% in 2014 to 37% in 2015: this may be associated with increasing take-up of pay TV in triple-play services.

7.42   'Terms and conditions' are also cited as a reason for not switching by a large proportion of consumers. A range of terms and conditions may be causing concern. These include terms around locked handsets, notice periods, having to pay an early termination charge (ETC) or start a new minimum term when moving house and unilateral variations of contract terms.

7.43   However, there may be areas where there is either a lack of understanding of these contractual commitments, or where they do in reality make it difficult to switch. If it is difficult, time consuming or costly to switch then competition can be adversely affected and consumers may have a poor experience of exercising choice.

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[208] Base: All adults aged 16+ who are the decision-maker for fixed line (1596 2013, 1736 2014, 2199 2015) mobile (1718 2013, 1679 2014, 2609 2015), broadband (1291 2013, 1464 2014, 1877 2015), digital TV (1592 2013, 1723 2014, 2251 2015), (pay TV, 908 2013, 1066 2014, 1302 2015) (free-to-air TV, 684 2013, 717 2014, 948 2015), bundle of services (2013, dual 621, triple 405) (2014, dual 734, triple, 656) (2015, dual 645, triple 532).

Figure 20: Reasons for considering, but not switching, provider

Legend: ■ Fixed ■ Mobile ■ Broadband ■ TV

Reason	Fixed	Mobile	Broadband	TV
Satisfied with provider	24	17	20	15
Hassle	28	22	32	37
No cost benefit	33	29	26	22
Terms & conditions	20	33	25	15
Service availability	1	3	5	11

% of consumers

Source: Ofcom Switching Tracker, July - August 2015[209]

7.44   Removing barriers to switching will continue to be a priority area for Ofcom. In June 2015, we completed implementation of a single, simpler gaining-provider led (GPL) process for switching voice and broadband services between providers on the Openreach and KCOM copper networks. This means that consumers can now switch their broadband and phone services on these networks simply by agreeing terms with their new provider. The gaining provider then manages the switch. We are currently considering switching processes on other networks and services.

7.45   In addition, we observed a large number of complaints from consumers trying to cancel their communications service contract. Therefore in July 2015 we opened a monitoring and enforcement programme to assess the impact cancellation processes have on consumers' ability to exit their communications service contract. Ofcom will take action if communications providers are making it difficult for consumers to leave their contracts.

7.46   To enable consumers to switch providers easily, Ofcom will:

•   publish proposals on mobile switching in the first half of this year. This follows our July 2015 consultation, which examined consumers' experiences of switching mobile provider and consulted on high level process reforms;

•   consult on potential improvements in the ease of switching triple-play services (landline, broadband, pay TV) in 2016, based on research on consumers' experiences of switching these services; and

•   continue our work to identify barriers to switching other than the process itself and take steps to remove them e.g. unfair retention and cancellation practices.

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[209] Base: All adults aged 16+ who are the decision-maker for each service who have considered switching but did not switch (fixed line, 189) (mobile, 259) (broadband, 239) (TV, 165).

Additional targeted support for vulnerable consumers

7.47   There will be circumstances where actions to help consumers better engage with the market do not work. A particular challenge is how to ensure that the market serves disengaged customers, notably those who are in some way vulnerable. This might be because they are affected by factors such as age, disability, income or geographical location. Life events such as illness can also temporarily reduce people's ability to participate in markets while increasing their dependence on certain communications services.

7.48   Such consumers require protection is targeted at their specific needs; many such protections already exist, for example:

- The Universal Service Obligation ensures that all consumers can have a telephone line, wherever they live. It also requires a special tariff to be made available to customers on low incomes;

- Communications providers are required to offer certain services for specific groups of disabled consumers, such as text relay for people with hearing or speech impairments, free directory enquiries for blind people and priority fault repair for people who depend on the phone because of disability;

- Communications providers must ensure bills and contracts are provided in formats which are accessible to all, and that those who need to can manage their account through a nominated third party;

- Mobile providers are required to provide SMS access to the emergency services so that people with hearing or speech impairments can call 999 or 112; and

- Broadcasters are required to ensure television programmes are accessible to people with hearing and vision impairments, by providing subtitling, audio description and sign language.

7.49   Going forward we will need to ensure that the protections which already exist are updated to take account of changes in technology and usage. In particular, we will need to consider how those protections which currently apply to traditional telephone services, such as the requirement to provide a social tariff and arrangements for sensitive handling of debt, might in future apply to broadband and/or mobile services.

7.50   We will also ensure that people who do not engage with new technology and rely on legacy services for their communications needs continue to receive good value and quality. As part of this we will examine whether specific protection is needed in relation to the pricing of standalone landline services.

7.51   We will also look at the positive opportunities to improve empowerment and protection which come with new technology. Technology has driven improvements in accessibility and this has helped drive digital participation for some groups of consumers.[210] We will look to build on this where appropriate, for example by continuing to review the suitability of speech recognition technology as a platform to improve conversation speeds in relay services.

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[210] For example, the number of people aged 65 and over accessing the internet rose by more than a quarter between 2012-2013 driven by a three-fold increase in the use of tablet computers to go online. Ofcom, *Adults' Media Use and Attitudes Report 2014*.

Protection when things go wrong

7.52   Even in well-functioning markets, things sometimes go wrong for consumers. Sometimes this is because of service failures or bad customer service. It can be because providers fail to meet their obligations. In the worst cases, it can be because criminals engage in scams. Areas where we have taken action against high levels of harm include:

- **Fixed line mis-selling**. Investigations against those who broke the rules delivered a substantial and sustained decline in mis-selling, as evidenced by a reduction in complaints to Ofcom from around 1000 per month in 2010 to 300 per month in 2015/16;

- **Unexpectedly high bills ('bill-shock')**. Following research on the drivers of "bill-shock" we focused action on mobile providers, making sure they complied with rules on caps for usage in the EU. Complaints about bill-shock are now at very low levels; and

- **Mid-contract price increases**. Following a significant rise in complaints, we introduced new guidance to clarify rules on changes to the core terms of contracts, allowing consumers to exit the contract penalty-free if the core price of the contract increased during its minimum term.

7.53   We will continue to monitor the market for emerging issues, and take direct and rapid action as required. Specific priorities for the coming year include:

7.54   **Nuisance Calls[211].** A long running source of harm over telephone networks is nuisance calls. Unsolicited calls and texts, and silent or abandoned calls, cause significant annoyance and in some cases distress for consumers. Technologies delivering telephony over the internet can also enable callers to alter their caller line identification (CLI) so as to obscure their identities, enabling a growing number of cases of serious fraud.

- We are consulting on a revised statement of enforcement policy. We intend to prioritise action against the most harmful silent calls. We have also published new penalty guidelines that will enable us to significantly increase penalties against companies found culpable; and

- We will work alongside Communications Providers under a new 'memorandum of understanding'[212] to monitor and stop nuisance calls on their networks. We are also working with international partners on enforcement and caller line identification authentication.

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[211] The majority of nuisance calls are 'live' calls, for which the Information Commissioner's Office has regulatory responsibility, Ofcom has direct responsibility for dealing with silent and abandoned calls.
[212] Nuisance Calls (Technical Measures) Memorandum of Understanding.

Deregulation and simplification of our regulation

Overview of our strategy and next steps

Our focus is on delivering good outcomes for residential and business consumers, and we seek only to intervene where necessary to achieve these. This approach means targeting regulation to achieve positive outcomes, as well as deregulating when and where regulation is no longer needed. We also seek to simplify regulation to reduce the administrative burdens that our rules impose. This review has identified several areas where we believe we can remove or simplify regulation over the coming decade.

The increasing availability and take-up of new services will allow us to deregulate older services over time. In particular, regulation of voice services may no longer be appropriate in future, given consumers' increasing use of mobiles and internet-based services. We will still need to protect the interests of those consumers who rely on traditional voice telephony.

We have set out a new strategic focus on network competition. This new focus will create opportunities to target regulation more effectively. In those parts of the UK where there is a real prospect of effective competition, we will be unlikely to regulate ultrafast broadband. This approach may initially mean flexible rules on pricing in those markets, and ultimately removing many of our other rules altogether where competition emerges.

Key opportunities for deregulation

New approaches to voice telephony will create opportunities for deregulation, but only if residual consumer protection concerns can be resolved

8.1   We expect substantial changes in the way communications services are provided, most notably traditional voice telephony. Since traditional voice telephony has historically been a particular focus of regulation, this has important consequences for the regulatory framework:

- we are already seeing the increasing convergence of voice services delivered over fixed and mobile networks, and the increasing availability of alternatives delivered over the internet (e.g., Skype, WhatsApp). We expect there to be an extended period during which both traditional voice telephony and these newer services are available to consumers; and

- in the longer term we expect traditional voice telephony will be replaced by voice services carried over broadband networks as one of a number of applications.

8.2   Although a wide range of voice services is available, which ones are used varies greatly. Many consumers use fixed and mobile voice services interchangeably. Many also make use of new, internet-based voice services. However, some consumers remain dependent on traditional voice telephony to stay in contact with family and friends, and to access essential services.

8.3   These changes suggest that, in future, many consumers will no longer need regulation in order to provide them with a reasonably priced service for making calls

('call origination'). Rather, they will have a range of competitively provided options available to them. However, those consumers who remain dependent on traditional telephony may need protection and assistance as the market evolves.

8.4   In the short term, protection may be needed for those consumers who remain on traditional voice telephony services. In the longer term, assistance may be needed to help them migrate to the new services with BT having announced plans to switch off its old telephone network by 2025. Therefore, as part of our *Narrowband Market Review*, we will consider whether it is possible to remove some of the existing market-wide regulation of call origination, and replace it with targeted protection for those consumers who need it.

8.5   While the ability to place a call (call origination) has the potential for deregulation, the same may not be true for the process of connecting a call to a different network (call termination). A consumer making a call to a specific number has no choice which network delivers that call, which means that the charge levied by that network for terminating the call is not subject to competition. We will continue to look for opportunities to simplify the regulation of call termination, but it is likely that some form of protection against high termination costs will need to continue.

8.6   In support of changes in the way consumers make calls, changes in the underlying networks that generate and carry calls are occurring. In particular, networks are shifting from traditional technologies (TDM) to entirely internet-based technologies. We hope that this transition can be managed through commercial negotiation between providers, but will be ready to intervene where necessary.

8.7   One of the consequences of voice deregulation is that it will also be necessary to change how broadband services are provided to residential consumers and small businesses. At present most broadband services are sold together with a telephone line. However, if there is no longer a need for a traditional voice telephony service, then it must be possible to purchase broadband on a standalone basis, both at the retail and the wholesale level. The development by Openreach of a standalone broadband product (Single-Order Generic Ethernet Access) is therefore an important enabler of voice deregulation.

8.8   As part of this process of deregulation, care will be required to ensure that we do not undermine the business models of existing communications providers, based on the regulation which has previously been in place. We will ensure that there is an appropriate period of transition, sufficient for these providers to adapt their businesses.

Lifeline services delivered over the telephone network must continue to be protected, but in a more technology neutral manner than at present

8.9   The most important function of the traditional telephone network is to allow people who are in difficulty to access the emergency services. There are specific regulatory obligations on communications providers to protect these 'lifeline services', and we attach a great deal of importance to these obligations. It cannot be acceptable for the deployment of new and more advanced network technologies to result in reduced safety of life. We do however recognise that the specific means of providing protection will need to evolve.

8.10   One specific area of concern is the way in which telephone networks are protected from loss of power. In the case of a traditional telephone service, power is provided to the telephone over the copper that connects it to the telephone exchange, and this

means that it is still possible to make an emergency call in the event of a local power-cut.

8.11 However, this approach is not an option for next–generation, fibre-based broadband networks, as optical fibre does not conduct electricity. Our current guidance to those operators deploying fibre networks is that they should instead provide a back-up battery capable of allowing the customer to make emergency calls on their landline phone for at least an hour after a power cut at the premises.

8.12 While battery back-up provides some resilience against domestic power cuts, it has limitations. For example:

- it may not work when required because the batteries have not been replaced or been maintained properly;

- the batteries will only operate for a limited period of time (one hour). Hence, for longer power cuts, the back-up facility offers no protection;

- the batteries are unable to protect the devices that are connected to the phone line. For example, the significant numbers of consumers who only have a cordless phone in the home are unable to make calls during a power cut, as the device that connects to the phone line requires mains power to work; and

- some next generation broadband access networks require battery back-up to provide power resilience to street furniture (such as cabinets). Hence the length of time that a telephone call may still be possible will be limited to the duration of the batteries in the street even if the in-home batteries were sufficiently charged.

8.13 Moreover, we recognise the increasing use of mobile phones to contact the emergency services. Approximately 60% of calls to the emergency services are now made using mobile rather than fixed telephones. Battery back-up is not an issue for mobile phones, but we do have concerns about the degree of protection for mobile base stations to widespread power outages.

8.14 We intend to take action in two areas:

- first, we will withdraw our existing guidance on the use of battery back-up to protect against localised power outages. We will instead assess what operators are doing on a case-by-case basis provided the technical solution delivers a level of protection equivalent to that provided by traditional means; and

- we will keep under review whether the resilience of operators' networks to wide area power outages is sufficient. We will carry this work out in close cooperation with Government, which is looking at similar issues, for example, through a review of the impact of recent floods.

Increasing availability and take-up of modern products and services will allow us to deregulate older services over time

8.15 The replacement of older or outdated products and services with more modern alternatives creates other opportunities for deregulation. Some stakeholders (including BT) called in their response for the deregulation of outdated products, given the availability of more modern alternatives. Examples include ISDN (integrated voice and data connections) and traditional interface (TI) leased lines (leased line connections based on older digital and analogue technologies).

8.16   Through the market reviews we examine where there remains a need for regulation of mature and outdated products. In our review of the leased lines market we have proposed ending all regulation of BT's retail very low bandwidth[213] leased lines products to allow for the withdrawal of these products given the very low remaining numbers of customers of these products.

8.17   We have also proposed removing wholesale regulation from some older forms of dedicated business connection[214]. These are dedicated connections based on older digital technologies. This is because remaining volumes are small and declining, and because remaining users are migrating to more modern alternatives.

8.18   The industry is already preparing for the migration of voice services from the traditional telephone network to delivery over new networks and we do not believe that it is in consumers' interests to prevent it. The migration will raise a number of challenges, and our priority will be to ensure that any future changes are handled carefully, to protect the needs of telephone users. We shall assess what further work may be necessary once network operators' plans are more advanced.

The emergence of network based competition should enable deregulation of broadband services in some parts of the country

8.19   Competition between different networks, supplemented by competition based on access to BT's ducts and poles, is central to our strategy. Where this competition is effective, it will allow us to deregulate downstream forms of network access.

8.20   There is a close parallel here to the deregulation that followed the success of local loop unbundling in promoting competition in the last generation of broadband services. As this model of competition became effective across different parts of the country, we progressively removed the regulation that required BT to provide access to the electronic elements of its broadband network.

8.21   In those geographic areas where network-based competition is effective in achieving good results for residential consumers and small businesses, we would seek to deregulate downstream markets, probably by removing existing regulatory requirements on BT – such as the requirement to provide Virtual Unbundled Local Access.

8.22   We will take a similar approach to those services such as leased lines which are provided to large businesses. We have already proposed to deregulate certain such services in central London[215], as we believe that a network-based market is effective in this area. We envisage taking a similar approach where effective network-based competition emerges elsewhere.

We are reviewing the General Conditions to make them fit for purpose in today's market

8.23   The General Conditions of Entitlement ('General Conditions' or 'GCs') underpin the regulatory regime for providers of electronic communications networks and electronic communications services in the UK. They were introduced in 2003.

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[213] Analogue and <2Mbit/s digital products.
[214] Specifically 'Traditional Interface' (TI) leased lines which are faster than 8 Mbit/s
[215] I.e. 'Contemporary Interface' products such as Ethernet leased lines.

8.24 Since 2003, we have amended individual GCs on repeated occasions in order to ensure that consumers remain adequately protected and empowered as the market continues to evolve. In their responses to our Discussion Document, some stakeholders (in particular, but not exclusively, communications providers subject to the general conditions) expressed concern[216] that some of the GCs were unclear. Respondents said that, in their view, certain GCs appeared to be duplicative, inappropriate, or no longer necessary.

8.25 In the light of stakeholders' comments, we have started a comprehensive review of the General Conditions. The aim of this project is to review the GCs to make them fit for purposes in today's market, and to reflect our current policy priorities. Our objectives include making the GCs clearer and more practical, to make it easier for businesses to set out processes for compliance, and to ensure compliance. We consider that this should also make it easier for us to enforce compliance in the interests of the general public and consumers.

8.26 We expect this to involve simplification, consolidation and in some cases deregulation. In some areas, we may seek to extend or strengthen regulation. We expect to consult on proposals by summer 2016.

Other areas of deregulation and simplification activity we are undertaking

We will help to improve mobile user experience by setting out our approach to the use of mobile repeaters

8.27 The Northern Ireland Department of Enterprise, Trade and Investment suggested that reducing regulation around the use of small cell technologies such as mobile repeaters would help to increase mobile coverage. We recognise the benefits of this technology and have a programme of work underway examining the potential use of mobile repeaters. We will publish a statement setting out our approach to mobile repeaters in the first quarter of 2016.

We will continue to keep regulatory reporting and information provision requirements under review

8.28 As communications markets continue to evolve, the most appropriate and proportionate way to ensure we have the information we need for evidence-based regulation may change, and we will continue to keep this under review. The on-going programme of market reviews is an opportunity for these regulatory burdens to be reviewed to ensure they remain fit-for purpose and proportionate.

8.29 Some stakeholders suggested that there may be scope to reduce the information reporting requirements we impose on communications providers. KCOM argued for the removal of regulatory financial reporting requirements on the basis of their burden, and the fact that KCOM's regulatory accounts were not being used to set charge controls for their regulated products.

8.30 We will continue to consider the reporting requirements of all stakeholders to ensure that they give us the information we need to regulate for the interests of citizens and consumers in a proportionate way.

8.31 We have adopted a targeted approach to regulatory accounts for those communications providers required to produce them (currently BT and KCOM). As

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[216] For further details including the a summary of the arguments advanced by particular stakeholders, please see the annex.

part of the market review process, we consider what regulatory reporting requirements would best support other remedies. We also take account of a communications provider's particular circumstances, including size and scale.

8.32   In some instances this may mean it is appropriate to reduce or remove reporting requirements. In other situations it may be necessary to increase reporting requirements. For example, we are proposing in the business connectivity market review to impose new requirements on KCOM in order that we can monitor the effectiveness of our proposed remedies in the two retail leased lines markets in which it has significant market power.[217]

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[217] Ofcom, Business Connectivity Market Review: Review of competition in the provision of leased lines, p. 338.

Section 9

Convergence: TV content and services delivered over the internet

Overview of our strategy and next steps

Over the last decade, we have seen increased availability and take-up of retail bundles that include multiple products such as broadband and TV, and a greater ability for telecoms and content services to be delivered over the internet. Against that background, we:

- will address engagement issues through our ongoing work on empowering and protecting consumers to ensure that switching bundles which combine pay TV and telecoms services is as easy as possible;

- recognise that certain types of content (e.g., premium sports) may be a determining factor for some people in their choice of pay TV provider and in turn their telecoms provider. We will set up an enhanced monitoring programme to track market developments across the pay TV sector to help us intervene quickly if we judge this to be necessary; and

- will adopt a flexible approach to the regulation of 'over-the-top' (OTT) services focussed on the type of service being offered rather than on how it is delivered.

Bundling TV content and telecoms services

Consumer outcomes in pay TV are broadly improving

9.1   Pay TV consumers have a wider choice of options than they did in the past, for example when we completed our review of pay TV in 2010.[218] There is wider availability of certain content (e.g., Sky Sports and Sky Movies) across the main traditional pay TV providers and increasing availability of lower price bundles of pay TV content.

9.2   We have seen significant developments both in terms of: (i) what content is available to consumers (e.g. the growth of high quality drama or box sets); and (ii) how consumers watch that content. As a result of technological developments and convergence, consumers can watch content via: 'hybrid' set-top-boxes offering linear channels and video-on-demand content; internet-enabled smart TVs; and wireless devices (smartphones, tablets and laptops).

9.3   There have been a number of market developments including the growth of BT's presence in the sector, in particular with the launch of BT Sport. We have also seen a significant expansion of internet-based, OTT services such as Netflix, Amazon Prime and NOW TV. Pay TV services are also increasingly bundled with other communications services, with quad-play bundles now also adding mobile telecoms services. For example, Vodafone plans to launch quad-play bundles during 2016.

9.4   Given these developments, we see the emergence of different business models and the potential for them to evolve further in the future. For example, Sky chooses to

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[218] Ofcom, *Strategic Review of Digital Communications: Discussion Document*, p.14, paragraph 1.63.

operate across the whole of the pay TV value chain, commissioning content productions, aggregating content, operating platforms and retailing packages to subscribers. Alternatively, some newer providers are adopting different approaches by offering services which do not include linear channels or necessarily require dedicated set-top boxes.

9.5   We believe consumers will benefit from an environment in which providers can invest and innovate in different business models, offering a richer choice of services to consumers, competing for subscribers not only on price, but on the range of their content offerings and functionality of their services. Rather than promoting a specific business model, we want to ensure obstacles are removed that could prevent or impede new, potentially disruptive, competitors from providing bundles of communications services, including pay TV. In this context, we will consider whether further regulation is required.

Our approach going forward

9.6   In the Discussion Document, we invited stakeholders to comment on issues relating to pay TV bundled with telecoms services:

- for consumers, whether barriers to switching for people looking to switch pay TV provider may present competition and consumer concerns; and

- for providers of services, whether there are competition concerns in gaining access to content, or access to platforms, which could also affect competition in other communications services.

We will address engagement issues to ensure switching bundles of pay TV and telecoms services is as easy as possible

9.7   Respondents to the Discussion Document recognised the potential complexity of bundling for consumers, and were broadly supportive of measures by Ofcom to empower consumers and improve the process of switching across bundles.

9.8   For competition in communications bundles to be effective and sustainable, consumers need to be informed, engaged and able to act successfully. In the pay TV sector we observe that, while levels of consumer satisfaction are relatively high, switching rates are low (about 5% excluding home movers) when compared with telecoms services and other utilities.[219]

9.9   There are a number of questions that we have around consumer engagement. We are addressing this as part of our on-going work on empowering consumers and switching, which has the following key strategic objectives:

- clear and accessible information so that consumers can make informed choices;

- easy switching between providers so consumers can act on their choice;

- additional, targeted support for consumers who struggle to engage, especially those who are vulnerable; and

- protection for all consumers, including when things go wrong.

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[219] Ofcom, The Consumer Experience, 2015: Research Annex, Figure 28 and p.39.

9.10   In section 7 we set out our further work on consumer empowerment which will encompass these issues. We will use our monitoring programme for the pay TV sector to support that work.

Access to certain types of content may be a determining factor in choice of provider and we will continue to monitor the availability and distribution of pay TV content

9.11   We will continue to focus on the potential for competition concerns to arise in relation to access to pay TV content. In addition to our powers to enforce the *ex post* prohibitions of the Competition Act 1998, and to make market investigation references under the Enterprise Act 2002, we have sector-specific *ex ante* powers under section 316 of the Communications Act 2003 to ensure fair and effective competition. This latter power was used as the basis for our decision in 2010 requiring Sky to offer to wholesale its Sky Sports 1 and 2 channels to other retailers.[220]

9.12   Sky said in its response to the Discussion Document that there is no evidence to suggest there are any enduring issues associated with distribution of content which might give rise to bottleneck concerns. Other stakeholders took an opposing view, and considered that there remain competition concerns regarding access to content that we should address.

9.13   Consumers have differing expectations of the telephony and pay TV components of their bundle, at least in some respects. While quality is an important consideration for both, pay TV has a further dimension beyond service delivery as it concerns the range and variety of content offerings, which may appeal to differing interests and audiences.

9.14   Differentiation through content offerings is an important dimension to competition in pay TV. One way in which differentiation can be achieved is through exclusive content rights. Generally, the commercial model for rights owners and content producers is to make pay TV content available on an exclusive basis to wholesale channel providers to maximise returns.[221] This allows wholesale channel providers to differentiate their services from others in the market.

9.15   However, competition concerns may arise in relation to certain types of content. This is likely to be the case for content that is capable of influencing the choice of pay TV provider for a significant number of subscribers, and for which it is difficult to find substitutes. In these circumstances differentiation could be a concern and the absence of such content could lead to a lack of effective competition. In the context of triple-play (and quad-play) bundles, this content may in turn be capable of influencing the choice of telecom services for that set of subscribers. While it may not be necessary to have identical content, if consumers do not regard any other content as a good alternative, the content concerned may effectively be 'unreplicable'.

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[220] Responses to the Discussion Document broadly agreed that we have the necessary tools to address envisaged competition challenges. However, BT said the regulatory regime for pay TV should be updated to align it with the European Framework market review process that applies to telecommunications services. We note that any revisions to the European Framework would be a matter to be considered by the European Commission.

[221] For example, a drama series might be made available exclusively on Sky 1. Those channels are typically made available on platforms non-exclusively, so for example the Sky 1 channel is available on a number of platforms.

- Non-sports content

    o In the Discussion Document, we questioned whether movies, and high quality drama or box sets, represented types of content that were sufficiently 'unreplicable' to merit intervention. Responses did not raise concerns about these genres specifically, though BT expressed a general concern that "Sky's insurmountable advantages in pay TV markets have the result that third party pay TV retailers cannot compete effectively".

    o We plan to ensure that our monitoring programme will track developments relating to these genres.

- Sports content

    o In November last year we decided to remove the "wholesale must-offer" obligation that required Sky to offer its Sky Sports 1 and 2 channels to other pay TV retailers.[222]

    o Following our review, we concluded that important sports content is still the main driver of consumer subscription decisions, but observed that Sky had been supplying its sports channels widely on commercial terms outside of the regulation. Consumers have been able to choose from a wider range of services, enabling them to watch sports through a range of pay TV broadcasters and devices.

    o Given the enduring influence of important sports content and Sky's strong market position, we said we would continue to monitor market developments closely.

Access to platforms and gatekeeper risks do not appear to require action at this stage

9.16   In principle, platforms may have the ability to act as a 'gatekeeper', setting unreasonable terms on which broadcasters and content providers can access viewers. Platform access concerns have previously arisen in the case of linear channel providers looking to secure access to Sky's satellite platform: the Technical Platform Services regime enables channel broadcasters to provide their services direct to subscribers if they are unable (or do not wish) to become part of Sky's retail package.[223] In the future, as content is increasingly watched on new OTT platforms and devices, gatekeeper concerns may dissipate or potentially shift to new areas.

9.17   Gatekeeper risks were not raised as a significant concern by stakeholders, although the BBC said that if the regulatory regime fails to keep pace, public service broadcasting (PSB) content in particular could be increasingly exposed to gatekeeper power – with inadequate guarantees to secure its widespread availability, prominence, and quality of delivery.

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[222] Ofcom, *Review of the pay TV wholesale must-offer obligation*. On 21 January 2016, the Competition Appeal Tribunal published a notice of an appeal lodged by BT to challenge the statement and decisions.
[223] The regime provides regulated access to electronic programming guide (EPG) services and conditional access (CA) services.

9.18 We recognise the nature of the concerns in this area and will continue to monitor the availability and viewing of on-demand content, in particular that provided by public service broadcasters over TV platforms.

We will actively monitor across the pay TV value chain

9.19 We are therefore putting in place a programme to track market developments across the pay TV value chain so that we can monitor our concerns in relation to access to pay TV content and TV platforms. Our objectives are to improve our understanding of the consumer experience and retail competition as the sector continues to evolve, and to enable us to intervene quickly if we judge this to be necessary.

9.20 The areas we intend to monitor include:

- Choice, availability and price (including promotional discounts) of traditional and OTT pay TV services;

- The availability and viewing of on-demand content over pay TV platforms;

- Information to better understand levels of consumer engagement, including consumer awareness of pay TV services, and consumer flows and switching between traditional pay TV providers, OTT providers and free-to-view TV;

- Pay TV provider subscriber and revenue data;

- Details of pay TV provider content rights and wholesaling arrangements; and

- Technological and service innovation in pay TV

Future approaches OTT service regulation should focus on consumer needs rather than on specific technologies

9.21 As we noted in the Discussion Document, a feature of the recent market has been the growth of OTT services, including messaging, services, voice services and TV content services, which are unmanaged digital communication services carried over a standard internet connection.

9.22 In their responses to the Discussion Document, several communications providers argued for a "level playing field" (i.e., a form of targeted regulation) between regulated telecoms services. While some saw this as an opportunity for deregulation of telecoms providers ('levelling-down'), it was also seen as an opportunity to 'level-up' regulation. Some providers queried whether at least some OTT services should become subject to sector-specific consumer protection rules given the way people use these services.

9.23 Stakeholders also noted potential practical issues concerning jurisdiction, given that OTT services may be based outside of the UK or European Union. In contrast other stakeholders contested this, arguing that consumers neither consider nor use OTT services in the same way as PSTN services.

9.24 OTT services are heterogeneous. Some allow consumers to order goods or services; others provide audiovisual content, while others are focussed primarily on person-to-person voice and text-based communications.

9.25   In our view the correct approach to consumer protection is focus on the type of service being offered, rather than to base the level of protection on technical characteristics such as whether or not a service is delivered on the internet, or on the entity providing the service. There may also be circumstances where general obligations will apply to both traditional and OTT providers.

9.26   In some situations we believe sector specific regulation to protect consumers may be appropriate. For example, in 2007 Ofcom required VoIP providers who allow calls to PSTN numbers to provide access to the emergency services. After considering consumer expectations, we decided it was proportionate to extend 999 access requirements to a particular type of VoIP services.

9.27   Given the different characteristics of OTT and PSTN services, the way in which OTT services may fulfil consumer protection obligations may differ to those of the PSTN. For example, OTT services may have the ability to use GPS or network metadata to provide location data to the emergency services.

9.28   In our December 2015 response to the European Commission's consultation on the Framework[224] we set out our view that it was important for regulators to retain flexibility in the regulation of OTT services and that it would be disproportionate automatically to extend the scope of the Framework to all OTT services by default. We remain of this view.

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[224] Ofcom, *Ofcom response to commission public consultation on the review of the regulatory framework*.

Next steps for implementing our strategy

10.1 We have a clear roadmap to implement this strategy, and will be bringing proposals forward for consultation on all elements over the coming year.

Next steps

10.2 Many of these proposals will be delivered through our normal process of regular reviews of individual telecoms markets, as set out in our proposed Annual Plan for 2016/17[225]. Specifically, we will consult on detailed implementation through:

- our review of competition and quality issues in broadband connections to homes and business premises – the Wholesale Local Access Market Review;

- our review of competition issues in traditional telecoms services, including voice telephony – our Narrowband Market Review

- our review of the small market where local loop unbundling of BT's copper cables is not economically viable and superfast broadband is not yet available – the Wholesale Broadband Access Market Review; and

- our review of dedicated business lines – the Business Connectivity Market Review.

10.3 Where our proposals do not fall within a specific market review, we will take forward implementation through a series of dedicated projects, set out below.

Securing universal coverage

i) In fixed networks, we will work with the Government to implement the new universal right to broadband.

ii) We will continue to provide accurate, comparable, accessible and increasingly granular coverage information. This will be published in our *Connected Nations 2015* – and nation-specific reports – towards the end of 2016.

iii) We will use the powers that we have to require operators to improve mobile coverage. For example, by including licence conditions on population and geographic coverage for new future spectrum releases.

Strategic shift to enable large scale fibre deployment

iv) Over the coming year, we will work with BT and industry to make BT's underground duct and pole infrastructure easily and quickly accessible to competitors. We will implement changes through the Civil Infrastructure Directive, subject to the transposition of the Directive into UK legislation, planned for summer 2016. We also will make specific proposals this year in our Wholesale Local Access (WLA) market review.

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[225] Ofcom, *Proposed Annual Plan 2016/17*, p.7.

v) To support investment, we will implement regulated access and pricing policies to support investment in access networks through the WLA market review.

Step change in quality of service

vi) We intend to set tough minimum standards for Openreach with rigorous enforcement and fines for underperformance in the business market through our business connectivity market review in April 2016.

vii) We will publish the first annual 'Report on Service Quality' in early 2017.

viii) We will consult through the WLA review on enhancing and extending minimum standards for Openreach.

ix) This year we will also seek to introduce rules to incentivise Openreach to go beyond minimum standards and deliver better service, consulting through the WLA review.

x) We will set up a working group with industry to co-ordinate service quality across organisational boundaries.

xi) We will consult on the introduction of automatic compensation for consumers and small businesses.

Strengthening Openreach's independence

xii) We are now developing detailed proposals to bring about greater independence and autonomy for Openreach, for discussion with the European Commission later this year.

Consumer empowerment

xiii) We will work with industry and third parties, such as price comparison websites, to improve the level of information available to consumers.

xiv) This year we will actively explore requiring providers to publish a standard cost comparison measure, such as a measure of the average monthly cost of the core elements of a service over the contract period, alongside their tariffs.

xv) We will consult on mobile switching in the first half of 2016. We will also complete our review of switching triple-play services (i.e., phone line, TV and broadband).

Deregulation

xvi) We will consult on proposals to streamline and update the General Conditions by summer of this year, and finalise proposals by spring 2017.

xvii) Beyond this, we will consider the scope for deregulation in every one of our market reviews.

Section 11

Glossary

2G Second generation of mobile telephony systems. Uses digital transmission to support voice, low-speed data communications, and short messaging services.

3G Third generation of mobile systems. Provides high-speed data transmission and supports multi-media applications such as video, audio and internet access, alongside conventional voice services.

4G Fourth generation of mobile systems. It is designed to provide faster data download and upload speeds on mobile networks.

5G Fifth generation of mobile systems, potentially available from 2020. Research is underway on this technology.

Access network An electronic communications network which connects consumers to a service provider; running from the consumer's premises to a local access node (a point of aggregation in the access network) and supporting the provision of access-based services. It is sometimes referred to as the 'local loop' or the 'last mile'.

ADSL Asymmetric digital subscriber line. A digital technology that allows the use of a standard telephone line to provide high-speed data communications.

Anchor pricing An approach that bases charge control modelling on the cost of existing technology rather than that of any new technology that might be adopted during the control period.

Backhaul The part of the communications network which connects the local exchange to the ISP's core network, or the mobile cell to the core network.

Base station The active equipment installed at a mobile transmitter site. The equipment installed determines the types of access technology that are used at that site.

Base station The active equipment installed at a mobile transmitter site. The equipment installed determines the types of access technology that are used at that site.

BCMR Business connectivity market review

BDUK Broadband Delivery UK

BEREC Body of European Regulators for Electronic Communications

Bit-rates The speed at which digital information is carried within a specified communications channel.

Broadband A data service or connection generally defined as being 'always on' and providing a bandwidth greater than narrowband connections.

CI Contemporary Interface leased line. Leased lines which use Ethernet or wavelength-division multiplex (WDM) technology.

Communications provider (CP) A company that provides an electronic communications network or provides an electronic communications service.

Core network The central part of any network aggregating traffic from multiple backhaul and access networks.

Cost orientation The principle that the price charged for the provision of a service should reflect the underlying costs incurred in providing that service.

Data packet In networking, the smallest unit of information transmitted as a discrete entity from one node on the network to another.

DCMS Department for Culture, Media & Sport

DECT Digital Enhanced Cordless Telecommunications. A digital cordless phone specification

DOCSIS Data over cable service interface specification. It is a standard for the high speed transmission of data over cable networks.

DPA Duct and pole access. A wholesale access service allowing a communications provider to make use of the underground duct networks and the telegraph poles of another communications provider.

DSL Digital subscriber line. A family of technologies generally referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as 'twisted copper pairs') into high-speed digital lines, capable of supporting advanced services such as fast internet access and video on demand. ADSL and VDSL (very high speed digital subscriber line) are variants.

DTT Digital terrestrial television. The television technology that carries the Freeview service.

Ducts Underground pipes which hold copper and fibre lines.

Duct access A wholesale access service allowing a CP to make use of the underground duct network of another CP.

ECC Electronic Communications Code.

EOL Exchange outlet line. A network line that runs straight from an exchange to the premises, without passing a street cabinet.

Ethernet A packet-based technology originally developed for and still widely used in Local Area Networks.

Equivalence of input (EOI) A remedy designed to prevent a vertically-integrated company from discriminating between its competitors and its own business in providing upstream inputs. This requires Openreach to provide the same wholesale products to all CPs,

including BT's own downstream division, on the same timescales, terms and conditions (including price and service levels) by means of the same systems and processes. Includes the provision to all CPs (including BT) of the same commercial information about such products, services, systems and processes.

FAMR Fixed access market review

FTTB – fibre-to-the-building. A form of fibre optic communication delivery in which the optical signal reaches a node at the edge of a building (e.g. apartment block), with in-building distribution via non-fibre means (for example VDSL over copper connections within the building).

FTTC Fibre-to-the-cabinet. Access network consisting of optical fibre extending from the access node to the street cabinet. The street cabinet is usually located only a few hundred metres from the subscribers' premises. The remaining segment of the access network from the cabinet to the customer is usually a copper pair (see DSL).

FTTP Fibre-to-the-premise. A form of fibre optic communication delivery in which the optical signal reaches the end user's home or office space (without relying on a copper access line).

Generic Ethernet Access (GEA) BT's wholesale non-physical product providing CPs with access to higher speed broadband products.

G.Fast A broadband transmission standard that further increases the access speeds possible on copper lines.

GSM Global standard for mobile telephony. This is used for 2G mobile systems.

Headline connection speed Marketed speed.

HFC Hybrid fibre coax. A network technology that combines optical fibre with coaxial cable.

IP Internet protocol. This is the packet data protocol used for routing and carrying data across the internet and similar networks.

ISDN Integrated services digital networks. A standard developed to cover a range of voice, data, and image services intended to provide end-to-end, simultaneous handling of voice and data on a single link and network.

ISP Internet service provider. A company that provides access to the internet.

Leased lines A transmission facility which is leased by a consumer from a public carrier, and which is dedicated to that user's traffic.

LLU Local loop unbundling. LLU is the process where incumbent operators (in the UK this is BT and KCom) make their local network (the lines that run from the customers' premises to the telephone exchange) available to other communications providers. The process requires the competitor to deploy its own equipment in the incumbent's local exchange and to establish a backhaul connection between this equipment and its core network.

LTE Long term evolution. This is a 4G technology which is designed to provide faster upload and download speeds for data on mobile networks.

Main distribution frame (MDF) An internal wiring frame where copper access network cables are terminated and cross connected to exchange equipment by flexible wire jumpers.

Mbit/s Megabits per second (1 Megabit = 1 million bits). A measure of bandwidth in a digital system.

Metallic path facilities (MPF) The provision of access to the copper wires from the customer premises to a BT MDF that covers the full available frequency range, including both narrowband and broadband channels, allowing a competing provider to provide the customer with both voice and/or data services over such copper wires.

MHz Megahertz. A unit of electromagnetic wave frequency.

MNO Mobile network operator, a provider who owns a cellular mobile network.

Mobile Broadband Various types of wireless, high speed internet access through a mobile telephone or a mobile data dongle.

MVNO Mobile virtual network operator. An organisation which provides mobile telephony services to its customers, but does not have allocation of spectrum or its own wireless network and instead buys a wholesale service from a mobile network operator.

Narrowband A service or connection providing data speeds up to 128kbit/s, for example via an analogue telephone line.

Next Generation Access (NGA) networks Wired access networks that are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over already existing copper networks.

Not-spot An area which is not covered by a telecoms network.

OTA2 Office of the Telecommunications Adjudicator. An independent organisation tasked by Ofcom to oversee co-operation between communications providers.

Partial Private Circuit (PPC) A generic term used to describe a category of private circuits that terminate at a point of connection between two operators' networks.

Physical Infrastructure Access (PIA) A regulatory obligation under which BT is required to allow CPs to deploy NGA networks in the physical infrastructure of its access network.

PMSE Programme making and special events.

PSTN Public switched telephone network. The network that manages traditional fixed-line telephone systems.

SIM Subscriber identity module. A SIM is a small flat electronic chip that identifies a mobile customer and the mobile operator. A mobile phone must have a SIM before it can be used.

SIP Session initiation protocol. A technology standard which manages the carriage of VoIP calls.

SLA Service level agreement. Contractual agreement between Openreach and its wholesale customers for Openreach to provide services to an agreed standard.

SLG Service level guarantee. Contractual agreement between Openreach and its wholesale customers for Openreach to pay compensation if it does not fulfil an SLA.

Smartphone A mobile phone that offers more advanced computing ability and internet connectivity than a basic 'feature' phone.

SMP Significant market power. The test for which is set out in European Directives. It is used by National Regulatory Authorities, such as Ofcom, to identify those CPs which must meet additional obligations under the relevant Directives.

Superfast broadband The next generation of faster broadband services, which delivers headline download speeds greater than 30Mbit/s.

SLU Sub-loop unbundling. This is where the unbundling of the access line takes place at the street-side cabinet (rather than the exchange as for LLU) for a communications provider to gain control of the access line to the customer.

SMEs Small and medium sized enterprises are businesses with 249 or fewer employees.

TI Traditional interface leased line. Leased lines which use legacy analogue interface or digital time-division multiplex (TDM) interfaces.

Ultra-fast broadband The next generation of faster broadband services, which delivers headline download speeds greater than 300Mbit/s.

Unbundled A local exchange that has been subject to local loop unbundling (LLU).

USO Universal service obligation.

VDSL Very high bit-rate DSL. A high speed variant of DSL technology, which provides a high headline speed through reducing the length of the access copper line by connecting to fibre at the cabinet.

VoIP Voice over internet protocol. A technology that allows users to send calls using internet protocol, over either the public internet or private IP networks.

VULA Virtual unbundled local access. An access remedy first imposed by Ofcom in the 2010 WLA that requires BT to provide access to its NGA network in a way that is similar to LLU. It provides a connection from the nearest 'local' aggregation point to the customer premises.

Wi-Fi A short range wireless access technology that allows devices to connect to the internet. These technologies allow an over-the-air connection between a wireless client and a base station or between two wireless clients.

WLR Wholesale line rental. This is a regulatory instrument requiring the operator of local access lines to make services available to competing providers at a wholesale price.