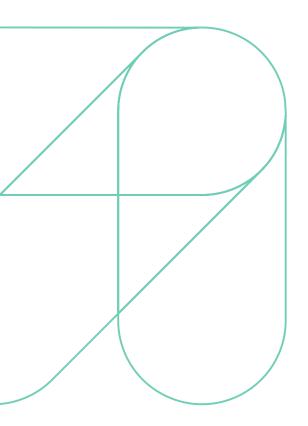# governup

Time for a broadband shake-up?

The case for reform of the UK's digital communications market

A discussion paper by Victoria Read

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Preface

GovernUp is an independent research project set up in 2014.

GovernUp brings together senior politicians of all parties, former civil servants, Whitehall advisers and business leaders to consider the far-reaching reforms needed in Whitehall and beyond to enable more effective and efficient government.

GovernUp is working to:
- Produce a rigorous body of evidence to identify the strengths and weaknesses of the current system of government;
- Generate radical but workable solutions to the long-term challenges that require reforms; and;
- Shape public debate and build a new cross-party consensus on reform, based on the conclusions of our research.

This discussion paper

This discussion paper was authored by Victoria Read, a policy and public affairs consultant with 15 years' experience in the telecoms, media and technology sectors. She was previously Executive Director of the Commercial Broadcasters Association and Head of Government Affairs at the social network Bebo. She has also held policy positions with the Broadband Stakeholder Group and the Publishers Association.

GovernUp's digital communications project has been supported by Vodafone UK.

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GovernUp

Further information about GovernUp, including discussion papers produced by the other research projects and a list of members of the Advisory Board, can be found at www.governup.org. GovernUp is an initiative of the Project for Modern Democracy, a company limited by guarantee no. 8472163 and a registered charity in England and Wales no. 1154924.

Executive summary

1. A debate is raging about how to ensure that the UK has a digital infrastructure that is fit to meet its future connectivity needs. In one camp, led by BT, is the view that we are already on the right path: with superfast broadband due to be available to 95 per cent of the UK by 2017[1], today's digital Britain is viewed as a "success story"[2]; BT has a plan for the future – and the means to deliver it – provided the UK sticks to its current policy and regulatory approach.

2. In the other camp, led by BT's competitors[3] but also joined by new digital infrastructure investors and business groups, lies a deep frustration that the network we have today is under-delivering, and a fear that plans for the future – which centre on BT rolling out their new copper-fibre hybrid technology (G.fast), rather than taking fibre directly to the premises (FTTP) – is woefully unambitious. Unless we radically change direction, the UK risks becoming a second class digital nation or worse. Somewhere between these two camps are consumers, who are less interested in markets or network structure than whether their connectivity needs are met by a market that offers choice, competitive prices and good quality of service.

3. Being on the right path is mission critical to the UK's economic future and we are currently at an important fork in the road. Ofcom is conducting a once-in-a-decade strategic review[4] of the market and has placed a range of options on the table – some which stick to or tinker with the existing plan, others which represent a change in direction, including separating BT from Openreach, its network arm. Next steps are to be announced in early 2016 and there are strong arguments to say that one of those steps should be a referral to the Competition and Markets Authority (CMA).

4. Ofcom must take this "momentous decision"[5] in difficult circumstances. The landscape has changed radically since it designed the current regulatory framework in 2005[6]. Data consumption is surging; expectations for ubiquitous connectivity are rising; the fixed telecoms market is blurring into adjacent mobile and content markets; and new entrants are challenging assumptions about where investment and competition is possible.

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[1]John Whittingdale, Secretary of State for Culture, Media and Sport, 18 November 2015: http://www.conservativehome.com/platform/2015/11/john-whittingdale-mp-we-are-making-real-progress-on-superfast.html

[2] Delivering Britain's Digital Future, BT

[3] For the purpose of this paper "BT's competitors" refers to the ISPs who use BT Openreach as wholesale customers, although BT has other competitors in the TV market and will shortly also compete in the mobile market, post the BT/EE merger.

4 Ofcom, Digital Communications Review: Promoting competition and investment in converged digital communications services: http://stakeholders.ofcom.org.uk/telecoms/policy/digital-comms-review/

[5] As described by the BBC's Rory Cellan-Jones, http://www.bbc.co.uk/news/technology-34972702

[6] Ofcom, Final statements on the Strategic Review of Telecommunications, and undertakings in lieu of a reference under the Enterprise Act 2002 Statement:

http://stakeholders.ofcom.org.uk/binaries/consultations/752417/statement/statement.pdf

Everyone agrees that a fit for purpose network is needed, with the right levels of investment and competition, but views diverge about how to best achieve this.

5. In the view of reformers, the current market structure is fundamentally flawed. A vertically integrated (if functionally separate) BT Openreach is simply not incentivised to deliver the investment and competition required for the network we need for the future. They point to the following warning bells as proof:

   a. Despite the Openreach network generating healthy profits and receiving public subsidies to deliver broadband in hard to reach parts of the UK, BT's investment in the network has been as "flat as a pancake"[7]. This has resulted in a poor quality of service for both retail and wholesale customers at a time when other parts of BT Group are aggressively pursuing expensive sports TV rights and will most likely have its purchase of the UK's largest mobile operator, EE, approved shortly.
   b. While BT may be investing heavily in G.fast, it is expenditure on a technology that has a limited shelf life; it will help the UK to stay near the top of the leader board for speed and coverage in the short-term, but nations who are investing in FTTP now will achieve similar coverage and take-up in due course but with a superior network, leaving the UK to play an expensive catch up game.
   c. Vertical integration has helped BT to secure upwards of 70 per cent[8] of connections in the emerging superfast broadband market on the Openreach network, putting it on track to regain a monopoly position and reversing the competition stimulated in 2005.

6. BT forcefully disputes this analysis, describing the evidence as "unfounded"[9] and the alleged discrimination as impossible given the regulations in place. Instead it insists it has the UK's best interests at heart, pointing to the "vital role"[10] BT played in the transformation of the UK's broadband since 2005 and its commitment to "forge an ultrafast future for the UK and to deliver faster broadband and better service to every property in the country."[11]

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[7] Sky Director of Communications Lyssa McGowan speaking at the Parliament and Internet Conference 29 October 2015,
http://www.theregister.co.uk/2015/10/29/bt_openreach_boss_says_uk_telco_market_needs_predictable_regulation/
[8] According to Ofcom, as of Q1 2015, BT had 36% of superfast broadband connections (Virgin had 49%) but accounted for 44% of net superfast broadband additions, p 29, Ofcom DCR Discussion Document
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf, TalkTalk puts the number at 70% in its October 2015 DCR response
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/TalkTalk.pdf
Vodafone puts the number at 72% in its October 2015 DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf
Sky puts the number at 74% in its October 2015 DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf
[9]http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[10] Delivering Britain's Digital Future, BT
[11] Delivering Britain's Digital Future, BT

7. Attracting all the headlines, as a solution to the alleged problems, is the structural separation of BT and Openreach. BT and its supporters say that the UK is best served by vertical integration (which brings BT Group's funds, scale and innovation to the table) and a stable regulatory environment (which gives investors confidence to commit the substantial capital required). They argue that the upheaval caused by separation would jeopardise BT and others' future investment plans, while failing to resolve the core complaints[12].

8. Others say that stability would be fine if the market was working well (but it is not) and that preserving Openreach's access to BT Group's funds would be worthwhile if it had a history of making the most of that access (but it does not). Critics argue that BT Group is benefiting more from owning Openreach (with Openreach contributing to 41.5 per cent of BT Group's EBITDA in the year to March 2015[13]) than the Openreach network and its customers benefit from BT's ownership. They argue that separation is the only way to address the misalignment of incentives at the heart of today's unsatisfactory broadband situation and short-sighted plans for the future; while Openreach is vertically integrated, it remains in BT's commercial interests to serve BT Group's shareholders first, rather than the needs of the nation's digital infrastructure.

9. In reality, the fork in the road between reform and status quo is not just about separation. Within the broad group of stakeholders who favour change of some kind, there is a variety of different views on the way forward:
    a. For some the key to encouraging investment is ensuring that Openreach is regulated not as a monopoly but as one network in a market of competing infrastructures, where the value of the underlying network is not diminished through price controls; setting the policy framework accordingly is more important than whether Openreach is separated or not;
    b. How, where and when it is separated is key to its success;
    c. Separation is not a silver bullet – it alone will not solve all the problems being cited. Other remedies – such as granting other communications providers (CPs) greater access to Openreach's network – urgently need to be applied whether separation takes place or not, and will continue to be needed alongside it, if it does.

10. Neither is separation a decision that Ofcom is able to take in early 2016. The root cause of the alleged problems is not just regulation, but fundamental flaws in the market. This is why many stakeholders – and not just BT's competitors – are arguing that the CMA, and not Ofcom, is best placed to assess whether there is a problem and to propose

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[12] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

[13] http://www.btplc.com/news/articles/showarticle.cfm?ArticleID=b2ef0c4a-ea85-4af8-8df0-592b06b3c721: Line of business results, Year to March 2015 shows Openreach EBITDA at £2600m and BT Group EBITDA at £6271m, which is 41.5%.

appropriate remedies (including consideration of structural separation), not least because Ofcom does not have the powers (which the CMA does) to carry this out.

11. In a debate where views are strongly held and divergent, one conclusion that can be drawn is that the stakes are too high, the voices of concern too diverse and the warning bells too loud to ignore. Cracks in the approach the UK is taking – where they exist and are not fixed – will become chasms in the decades to come, as the UK relies increasingly on its digital infrastructure. The next few months should be about making the right choices for the future, not defending past choices or addressing short-term or specific commercial objectives. Ofcom should refer the market to the CMA as soon as possible, so that we can confidently choose the right path to a fit for purpose digital infrastructure.

1. INTRODUCTION

"Access to the internet shouldn't be a luxury, it should be a right - absolutely fundamental to life in 21st century Britain." David Cameron, UK Prime Minister, 7 November 2015.[14]

"There are signs that we are entering a period of profound structural change in communications." Sharon White, CEO, Ofcom, 7 October 2015.[15]

The UK is at a critical juncture in shaping the digital infrastructure it will rely on in the future. A heated debate is taking place about what that infrastructure should look like and how it will be created. The coming months will see key decisions taken on the way forward, with Ofcom due to announce the initial findings of its once-in-a-decade Strategic Review of Digital Communications (DCR)[16] [17] in early 2016. Structural separation of BT and its network business Openreach is one option on the table.

On one side of the debate is the view that we are already on the right path:

- a Government plan that now comprises a promise to deliver 10 Mbps to all those who want it by 2020[18] and a Superfast Broadband programme on track to deliver to speeds of 24Mbps or more to 95 per cent of the country by the end of 2017[19];

- a market structured around BT Openreach, which led the move to superfast broadband by upgrading its network to Fibre to the Cabinet (FTTC) and recently announced plans to deliver ultrafast connections to a third of the country by 2020 with its new G.fast technology[20].

Proponents argue that we should focus on building on what has already been achieved and delivering the plan for the future, rather than rocking the boat with talk of disruptive change.

On the other side of the debate, is a mixture of business groups, commentators and BT's competitors, who are voicing frustration with a digital infrastructure they feel is already under-

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[14] https://www.gov.uk/government/news/government-plans-to-make-sure-no-one-is-left-behind-on-broadband-access
[15] http://blogs.lse.ac.uk/mediapolicyproject/2015/10/07/consumers-and-consolidation-sharon-white-of-ofcom/
[16] http://stakeholders.ofcom.org.uk/telecoms/policy/digital-comms-review/
[17] The House of Commons Culture, Media and Sport Select Committee is also conducting an inquiry into establishing world-class connectivity in the UK. The European Commission is reviewing Needs for Internet Speed and Quality Beyond 2020 and the Telecoms Framework.
[18] https://www.gov.uk/government/news/government-plans-to-make-sure-no-one-is-left-behind-on-broadband-access
[19] https://www.politicshome.com/culture-and-sport/articles/opinion/house-commons/john-whittingdale-mp-%E2%80%98-world-class-economy-requires
[20] http://home.bt.com/tech-gadgets/tech-news/bt-ceo-gavin-patterson-delivers-vision-for-britains-digital-future-11364005965808

delivering and a fear that unless an ambitious reform of market structure and regulatory framework takes place, the UK will be left behind in the global race.

A number of high profile stakeholders have publicly[21] called for Ofcom to refer the market to the Competition and Markets Authority (CMA), claiming that fundamental structural flaws, including BT's vertical integration with Openreach, are undermining competition and threatening the UK's ability to realise its digital infrastructure needs.

Stuck somewhere in the middle are the consumers, whose interest in broadband is very high, but as the Chair of the Consumer Forum for Communications[22] explains, are less interested in future debates about the who, what, where and how of broadband, than whether they are getting what they need now, at a reasonable price and with a good quality of service.

The debate is heated for two reasons:

● This really matters: the health of the UK's digital infrastructure will have a significant impact on its future. Even fierce rivals BT and Sky agree that "broadband is central to the UK's economic and social life today"[23] and that "reliable high capacity broadband connections are integral to a nation's future economic prospects"[24].

● While everyone agrees that the UK needs a world-class digital infrastructure, views diverge on almost everything else: how well today's market is performing; the technology we should be using; the targets we should aim for; and the market structure and regulatory framework required to meet those targets.

Finding the right answers in the midst of this polarised debate is a challenge, and one that is heightened by the tension between the long-term policy, regulatory and commercial planning required for big infrastructure investment and the much shorter attention spans of consumers/voters and political cycles.

About this paper

Ahead of Ofcom announcing the next steps of its strategic review in early 2016 – and away from detailed discussion of different technologies, predictions of future demand and potential regulatory remedies – the purpose of this paper is to present a snapshot of the ideas and arguments at the heart of the debate and make a number of conclusions on immediate next steps. It is written for those interested in this debate but not necessarily telecoms regulation experts.

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[21] http://www.ft.com/cms/s/0/4b2a7516-5dfb-11e5-9846-de406ccb37f2.html#axzz3mIGAHh00
[22] Interview with Roger Darlington, Chair of Consumer Forum for Communications, 19 November 2015
[23] BT submission to Ofcom DCR
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[24] Sky submission to Ofcom DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf

The debate centres on the question: "Does the current fixed broadband market structure create the long-term incentives for the investment and competition needed to deliver a fit for purpose future digital infrastructure in the UK?" As such the paper will focus on the fixed broadband market (residential and business) – and the position of a vertically integrated BT Openreach within it – and assess the case for reform. Other issues being reviewed by Ofcom include the mobile market, consumer empowerment (the ability to switch and price comparison websites) and the impact of premium content, bundling and Over the Top services. Also highly relevant is the BDUK plan for delivering universal broadband to the "final 5 per cent" (the hard to reach parts of the UK that the market is unlikely to serve without public subsidy) and the recently announced Universal Service Obligation[25]. While all of these issues are integral to the debate because fixed broadband is increasingly just one part of a converging marketplace, in-depth analysis lies outside the scope of this paper.

Methodology

The research for this paper was undertaken in November 2015 through a combination of desk research and interviews with stakeholders from all sides of the debate; interviewees do not necessarily endorse the findings in this paper.

- Ashley Shackleton, Head of Public Affairs, British Chambers of Commerce
- Bill Taylor, Head of Research and Nicola Marshall, Senior Policy Adviser, Communication Workers Union
- Domhnall Dodds, Head of Government Affairs, UK Competitive Telecommunications Association Secretariat
- Garry Miller, Head of Group Public Policy, BT Group
- Independent Networks Cooperative Association (INCA) roundtable:
    - Dana Tobak, Managing Director, Hyperoptic
    - Matthew Hare, Chief Executive, Gigaclear
    - Malcolm Corbett, CEO, INCA
    - Ali Law, Head of UK Policy, Sky
    - Paul Morris, Head of UK Government Affairs, Vodafone UK
    - Louise Lancaster, Head of Regulation and Policy, UK Broadband
    - Mark Collins, Director, Strategy and Public Affairs, CityFibre
    - David Cullen, Group Commercial Director, ITS Technologies Ltd and INCA Chair
- John Fingleton, CEO, Fingleton Associates
- Matthew Evans, CEO, Broadband Stakeholder Group
- Matt Warman MP, Co-Chair All-Party Parliamentary Group for Broadband and Digital Connectivity
- Paul Morris, Head of Government Affairs and Karen Wray, Regulatory Lead, Vodafone UK

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[25] https://www.gov.uk/government/news/government-plans-to-make-sure-no-one-is-left-behind-on-broadband-access

- Nick Delfas, Partner, Redburn
- Roger Darlington, Chair, Consumer Panel for Communications
- Will Black, Policy Adviser, Federation of Small Businesses

2. CONTEXT

Before assessing the case for market reform, we must look at:

- where we are now – the regulatory, consumer and market status quo
- where we need to get to – the policy goals and the implications of technology choices
- how we might get there – the role of investment and competition.

Review of these areas is important because views are polarised in each case and directly impact upon the assessment of the need for market reform.

Status quo

Current speeds and availability
The debate diverges when we look at where the UK stands on today's speed and availability. As Richard Hooper, Chair of the Broadband Stakeholder Group, points out, "in this debate people tend to reach for the data that supports their argument."[26] The official statistics released by Ofcom on 1 December 2015 in their Connected Nations[27] report are that superfast broadband (capable of delivering speeds of 30Mbps) is available to 83 per cent of UK premises. Recent Government statements enthusiastically confirm that this means that "we are making real progress on superfast broadband"[28] and predict that availability is expected to reach 95 per cent by 2017 (although it should be noted that the Government defines superfast broadband as 24Mbps[29]).

However, the figures are picked apart by commentators[30], who question whether measurements based on "up to", "capable of" and "available" really paint a true picture. Ofcom's Connected Nations report also confirms what many already know – that there are significant holes in this coverage: "around 2.4 million homes and small businesses in the UK are unable to receive broadband speeds above 10Mbit/s [and] only 68 per cent of SMEs have access to superfast broadband in the UK, compared to 85 per cent of all premises". The British Chambers of Commerce echoes the concerns of many stakeholders by saying that "many businesspeople will not recognise the picture of improved broadband and mobile coverage [painted by the

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[26] http://www.broadbanduk.org/2015/11/11/nextgen2015-awards-and-speech-from-richard-hooper/
[27] http://stakeholders.ofcom.org.uk/market-data-research/market-data/infrastructure/connected-nations-2015/
[28] Secretary of State, John Whittingdale http://www.conservativehome.com/platform/2015/11/john-whittingdale-mp-we-are-making-real-progress-on-superfast.html
[29] Secretary of State, John Whittingdale http://www.conservativehome.com/platform/2015/11/john-whittingdale-mp-we-are-making-real-progress-on-superfast.html
[30] http://www.computerweekly.com/blogs/when-it-meets-politics/2015/11/if-barely-half-the-uk-fttc-lin.html#.VkSu5hENT4I.linkedin

Government]. The reality for far too many companies is super slow, not superfast broadband – when they have a connection at all. There is no room for complacency on digital or mobile coverage, because the UK simply is not doing enough, fast enough, to keep up with the best in the world."[31] The recent House of Commons debate on superfast broadband[32] reinforces the conclusion that for many MPs' constituents today's broadband is a long way from where it needs to be.

The differences continue when looking at international comparisons. Both Ofcom's EU scorecard[33] (used by the Government[34]) and Analysys Mason's International Benchmarking Report[35] (favoured by BT[36]) show that the "UK will lead the EU 'big five' on broadband for the next five years"[37]. Critics question whether we should be comparing ourselves to European countries when the real economic challenge comes from Asia[38], and whether we should instead measure ourselves against tougher, more future-proof criteria. As analysts Redburn argue: "at 30Mbps the picture looks good, at 100Mbps it looks very poor"[39]. While new market entrants are now rapidly laying Fibre to the Premise (FTTP) networks, relatively speaking the UK is only just getting out of the starting blocks on FTTP – the UK doesn't even make it onto an FTTH Council chart from January 2014 showing the number of FTTP subscribers from 25 European countries[40].

Current regulatory approach
The key outcome of Ofcom's last strategic review in 2005 was the functional separation of BT from its network business – Openreach – and the introduction of a series of Undertakings intended to curb Openreach's dominant position. This gave more than 500 communication providers (CPs), such as TalkTalk and Sky, access to the copper phone line to customers' premises (known as Local Loop-Unbundling (LLU)) for the same price as BT Retail, enabling them to deliver their own broadband services[41]. The move has widely been regarded as a policy success, as it stimulated competition on the Openreach network with competitors using BT's passive infrastructure while building their own access infrastructure, which, combined with

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[31] http://www.britishchambers.org.uk/press-office/press-releases/bcc-comments-on-whittingdale-speech.html
[32] 12 October 2015, http://www.publications.parliament.uk/pa/cm201516/cmhansrd/cm151012/debtext/151012-0002.htm
[33] http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/bbresearch/scorecard-15-q1
[34] https://www.gov.uk/government/news/uk-broadband-coverage-better-than-european-rivals
[35] http://www.analysysmason.com/About-Us/News/Press-releases/Broadband-benchmarks-Sept2015/
[36] Delivering Britain's Future, BT
[37] http://www.analysysmason.com/About-Us/News/Press-releases/Broadband-benchmarks-Sept2015/#sthash.qtyXsM6O.dpuf
[38] Although BT argue that such comparisons show the UK in an equally good light, p3: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[39] Redburn response to Ofcom DCR: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Redburn_Annex.pdf
[40] p.19 http://www.ftthcouncil.eu/documents/Reports/2015/Market_Data_December_2014.pdf
[41] Ofcom DCR Discussion Document http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf

competition from cable operator Virgin Media at the network level in 44 per cent of the UK where they have a footprint[42], drove falling prices and an expansion of capacity and coverage[43].

In 2009 Ofcom introduced the regulatory framework[44] that provided the basis of BT's upgrade of the Openreach network to superfast broadband through the introduction of fibre to the street cabinet (FTTC). BT describes the policy as "very successful"[45]; competitors were less happy. As Sky explains, the FTTC technology chosen by BT and the way it is installed makes it difficult for competitors to access the network in the same way they did under LLU[46]. There are now complaints – as we will see in Section 3 – that as the UK moves towards an FTTC-based market, the competition that was stimulated in 2005 is being reversed.

Rapidly changing consumer behaviour
Our use of digital communications has been transformed since Ofcom's last Strategic Review in 2005: in 2005, Apple's iPhone was still two years away; now, two thirds of UK adults own a smartphone, and over half of UK households have a tablet. The streaming video services that make up 48 per cent of the data carried over the UK's fixed broadband networks today only really took off with the BBC iPlayer in 2007 and Netflix in 2012[47]. Underpinning all of this change is an explosion of data consumption. Ofcom's 2014 Infrastructure Report shows that the amount of data downloaded increased by 93 per cent from the previous year; Cisco predicts "global Internet traffic in 2019 will be equivalent to 64 times the volume of the entire global Internet in 2005."[48]

An evolving market: convergence
The convergence that was talked about in 2005 is now taking place, both in terms of consumer behaviour and market structure. As UK Broadband explains:[49]

- Fixed broadband is converging with wireless broadband;
- Business broadband overlaps with residential broadband;
- Mobile voice is increasingly a substitute for fixed voice;

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[42] p 19, Ofcom Infrastructure Report 2014,
http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2014/infrastructure-14.pdf
[43] Ofcom DCR Discussion Document
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf
[44] Delivering super-fast broadband in the UK, Ofcom,
http://stakeholders.ofcom.org.uk/binaries/consultations/nga_future_broadband/statement/statement.pdf
[45] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[46] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf. As elsewhere in this paper, BT says that they offer the product GEA to remedy this, but CPs say that it is not a commercially attractive product.
[47] Ofcom DCR Discussion document:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf
[48] Cisco, Cisco Visual Networking Index: Forecast and Methodology, 2014-2019 White Paper, May 2015:
http://www.cisco.com/c/en/us/solutions/collateral/service-provider/ip-ngn-ip-next-generation-network/white_paper_c11-481360.html
[49] UKB submission to Ofcom's DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/UKB_Group.pdf

- Apps such as Skype, FaceTime and Whatsapp are competing with traditional voice calls, texts and emails;
- Fixed and mobile markets are merging with content markets.

Consolidation of players – such as is planned with O2 and 3, and BT and EE – is adding to the effect. One impact of this convergence is that consumers' communications purchasing decisions are often based on access to exclusive content, which makes BT's aggressive focus on acquiring premium sports content for its TV platform particularly important to this debate.[50]

An evolving market: new entrants

While the creation of Openreach initially stimulated new entrants at the service level, including Sky and TalkTalk, the last few years have seen a wave of new entrants at the infrastructure level – companies such as CityFibre, Gigaclear and Hyperoptic who are building new FTTP synchronous networks of up to 1 gigabit and beyond in both city and rural locations. Others, such as UK Broadband, are building new fixed wireless networks. As the Federation of Communications Services (FCS) says: "From nowhere these new contenders have arrived at a point where they already pass 1.2m premises, and have [...] declared themselves on track for 10m by [2018-2020]"[51]. Fresh infrastructure investment has also come from Virgin Media, who are planning to spend £3bn to expand their footprint to 17m premises.[52]

It had been assumed that competition could not be achieved at the infrastructure level because there is no appetite to invest there, making it a natural monopoly and meaning that regulation had instead to focus on opening up existing networks (i.e. Openreach) to encourage competition. This new wave of investment therefore fundamentally challenges the presumption on which the current market structure and regulatory framework is based and illustrates that there is a much greater appetite for capital investment today than in 2005. How to unleash this investment potential is at the heart of policy decisions about future fit for purpose networks.

What are the policy goals?

It is clear that we have come a long way since 2005, but where does the market need to get to by 2025 and beyond? Again, views diverge, particularly when it comes to the technology required to deliver these goals.

1. **Fast, resilient, responsive, more symmetric connectivity:** Broadband speed still dominates the headlines, not least because many customers either do not get the speed they need or are not getting what they pay for. But speed is increasingly viewed as just

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[50] In turn, BT says that Pay TV regulations need to be addressed to create a level playing field: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[51] FCS submission to Ofcom's DCR, http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/ede.pdf
[52]http://about.virginmedia.com/press-release/9467/virgin-media-and-liberty-global-announce-largest-investment-in-uks-internet-infrastructure-for-more-than-a-decade

one critical aspect of a digital infrastructure fit for a data hungry, data dependent nation:

- **Speed:** Predictions of future demand for speed are notoriously contested. Some have attempted to propose firm numbers, including the Broadband Stakeholder Group. Its 2013 Domestic Demand for Bandwidth report estimates that "the median household will require bandwidth of 19Mbps by 2023, whilst the top 1 per cent of households will have demand for 35-39 Mbps"[53]. Others, such as the Independent Networks Cooperative Association (INCA), say we should take Joseph Bazalgette's approach to designing London's sewer infrastructure in the 1860s – work out what is needed and double it, on the basis that we can't predict the future and "we are only going to build this once."[54] Indeed Ofcom's December 2015 Connected Nations report confirms that the more bandwidth consumers have, the more they use it: "there is evidence that households with connections above 40Mbit/s are consuming significantly more data". Whether we need - or want - super, ultra or even hyperfast broadband, it's clear that the only way is up.
- **Symmetry:** Network symmetry relates to the relative download and upload speeds that can be achieved. Asymmetric networks are fine for email, web browsing and even today's video-heavy consumption, but future applications, such as the Internet of Things, cloud computing and smart cities require more similar high upload as well as download capacity.
- **Resilient and secure:** our increasing dependence on digital infrastructure means we are more and more vulnerable to and intolerant of downtime or performance problems, especially when applications are life-critical, such as telemedicine.
- **Responsive:** services, e.g. online gaming or the Internet of Things, will increasingly need instant, real-time response, with low latency.

2. **Ubiquity:** Much of the current debate focuses on resolving not-spots, rural and otherwise, but the idea of coverage as a static geographic concept is being replaced by the idea of ubiquity, regardless of where you live. As UK Broadband explains: "Consumers will expect simply to be connected to good quality data capacity wherever they are - at home, at work, at play on the move. They will also expect a seamless experience when moving from one network or network type to another".[55]

3. **Future proof:** the demands of a data-centric future are beginning to come into focus, but as ex-BT CTO Dr Peter Cochrane argues, "networks will have to cope with things we haven't envisioned"[56] and need the capacity to be constantly updated.

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[53]Domestic demand for bandwidth, Broadband Stakeholder Group, 5 November 2013, http://www.broadbanduk.org/2013/11/05/bsg-publishes-new-model-for-analysing-domestic-demand-for-bandwidth/
[54]INCA response to DCMS Digital Communications Infrastructure Strategy Consultation, March 2015
 http://www.inca.coop/policy/responses-dcms-digital-communications-infrastructure-strategy-consultation
[55] UK Broadband response to Ofcom DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/UKB_Group.pdf
[56]Dr Peter Cochrane speaking at Reform event 21st Century Connectivity Lessons for the UK, http://www.reform.uk/publication/21st-century-connectivity-lessons-for-the-uk/

4. **Good consumer outcomes: value for money, choice, quality of service:** Connectivity needs to be affordable (for both the private and public purse), delivered to a high service level, and able to meet differing needs (e.g. submissions to Ofcom's strategic review underline how business and residential needs vary).[57]

5. **World class:** All stakeholders are united in arguing for world-class digital infrastructure, although, as above, knowing when you have achieved "world-class" is much contested.

6. **Timely:** All this needs to be realised ahead of the consumer and international competitor curve.

The implications of technology choices

This paper is not the place to analyse the benefits of different types of network technologies. However, where you stand on technology significantly impacts your view on how to meet the policy objectives outlined above, including the right market structure required. While connectivity can be delivered by a mix of mobile and fixed networks, using a combination of copper, fibre, fixed wireless and satellite to connect to the end user, the key decision centres on whether the UK's policy objectives are best met by upgrading the national copper network (as BT is already doing through its FTTC roll-out and will continue to do with G.fast) or building new fibre networks to enable FTTP. So far both Ofcom and the Government have studiously avoided taking a technology-specific approach, although their policy and regulatory decisions have undeniably impacted the choices taken by the market.

Some stakeholders view upgrading copper as "the most sensible next stage and the most cost-effective for the present, believing that there is no point tearing copper out of the ground and replacing it with optical fibre when copper can these days carry faster and faster speeds"[58]. Broadband Minister Ed Vaizey seems to agree, questioning whether the higher performance that FTTP offers is a national priority: "most people regard 24 Mbps as the kind of broadband speeds they need. In reality, most people can live with 6-8 Mbps". (It should be noted that 6-8 Mbps is below the 10Mbps that Ofcom now views as the minimum for an effective connection[59].) G.fast is "the next generation of 'fast copper' technology"[60] that BT is backing to take the Openreach network far beyond 6-8 Mbps. In fact, BT predicts that G.fast will deliver "speeds of up to 500Mbps to most homes which is more than will be required by 90 per cent of households in the next ten years, even for their sudden peak requirements"[61] and has reported that it has reached 5Gbps in lab conditions[62]. However, it's important to underline that the performance of

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[57] See submissions from the FCS and FSB http://stakeholders.ofcom.org.uk/consultations/dcr-discussion/?showResponses=true&pageNum=1#responses

[58] BSG Chairman Richard Hooper explains how one group of stakeholders view FTTC, rather than the BSG view per se.

[59] http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2015/downloads/Government-Summary.pdf

[60] BT DCR submission: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

[61] BT DCR submission: ttp://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

[62] http://www.techweekeurope.co.uk/networks/broadband/bt-broadband-5gbps-gfast-179223

G.fast, including the top speed it can achieve and the number of premises that will benefit, is still dependent on factors such as distance from the cabinet, because copper continues to provide the final connection to the property. As Dr Peter Cochrane, ex-BT CTO says, regardless of what technology you use on it "copper has fundamental and damaging limitations, in terms of speed, reliability, symmetry, energy, ecology and the cost of upkeep […and therefore…] precludes smart cities, cloud working and the Internet of Things."[63]

For BT it is not whether FTTP is a better technology than FTTC/G.fast, but whether it is commercially viable for BT to deploy at scale. When deciding how to upgrade its network in the late 2000s, it had two options: a) a technology (FTTC) that it could *quickly* deploy to the *majority* of the country which would deliver connectivity comfortably ahead of what – at the time – it was understood that *most* customers required in the *near future* or b) *wait indefinitely* for there to be sufficient business case to deploy a technology (FTTP) that provides *all* the connectivity that *anyone* will *ever* need. It chose the former. BT stresses that they do provide FTTP and that it "remains a key part of our plans", but only where there is a business case and customers are prepared to pay for it, making them the largest single deployer of FTTP in the UK, with around 200,000 lines[64], although it's important to note that other FTTP players collectively pass 1.2m premises and predict they will pass 10m premises by 2018-20[65].

While the decisions that BT took in the late 2000s – and that led to FTTC and now G.fast – may be understandable given the context of the time and the particular commercial incentives at play, Ofcom's strategic review offers the UK a chance to make choices in today's context about how *all* players can meet future needs. For many stakeholders these needs are simply not going to be met by repeatedly upgrading the copper network. While BT may be investing heavily in G.fast, it is expenditure on a technology that has a limited shelf life; it will help the UK to stay near the top of the leader board for speed and coverage in the short-term, but nations who are investing in FTTP now will achieve similar coverage and take-up in due course but with a superior network, leaving the UK to play an expensive catch up game. As Cochrane argues, "every £1bn spent on the copper past sees us £2bn further away from the future".[66]

For proponents of FTTP a policy, regulatory and market framework that kicks FTTP into the long grass has serious implications for the future. Vodafone is concerned: "we do not believe that the UK is guaranteed to get the fibre network close enough to the end user, meaning that mobile and fixed networks will not be able to keep up with current and future demand."[67] TalkTalk

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[63] Dr Peter Cochrane speaking at Reform event 21st Century Connectivity Lessons for the UK, http://www.reform.uk/publication/21st-century-connectivity-lessons-for-the-uk/
[64] BT DCR submission: ttp://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[65] INCA DCR submission:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/INCA.pdf
[66] http://www.slideshare.net/PeterCochrane/fibre-broadband-futures, slide 19
[67] Vodafone's submission to CMS Committee inquiry on "Establishing world-class connectivity throughout the UK": http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/culture-media-and-sport-committee/establishing-worldclass-connectivity-throughout-the-uk/written/22497.html

agrees: "The old copper canals of the 1900s must be replaced with the fibre-optic railroad of the 21st century"[68].

The role of investment and competition in delivering these goals

Underpinning the delivery of these public policy goals are competition and investment, regardless of whether the UK is to have an FTTC/G.fast or FTTP future. Investment is needed to maintain and upgrade current networks; underpin innovation in new technologies; and build new networks. As with other infrastructure investment, the scale required is significant[69] and the return on this significant investment is long-term. In using public policy to stimulate this investment, it's important to bear in mind that:

- The investment climate is very different from ten years ago – investment is no longer just coming from the two largest investors to date – BT and Virgin Media - but from smaller but rapidly growing players such as Gigaclear, Hyperoptic[70] and CityFibre (who have just invested £90m on KCOM's network assets).[71] Some of the larger nationwide communication providers, including Vodafone[72] and Sky[73] have also indicated that they would be willing to invest more if the conditions were right.
- Investors require stability and visibility of future revenue streams before they are confident enough to, quite literally, dig their capital into the ground[74].
- Aligning the investment objectives of those who own and operate the nation's underlying infrastructure, with the long-term investment requirements of that infrastructure, is key.

Competition is also critical. As Chancellor George Osborne confirmed in November's Autumn Statement, "competition between broadband providers supports the delivery of the fast and reliable broadband a modern, productive economy needs"[75]. Ofcom says it's the "best mechanism for delivering, choice, quality and affordable prices"[76]. It also supports innovation, drives investment and allows deregulation. CityFibre echoes most other stakeholders by saying

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[68] TalkTalk DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/TalkTalk.pdf
[69] https://www.nesta.org.uk/sites/default/files/exploring_the_costs_and_benefits_of_ftth_in_the_uk_v7.pdf
[70] INCA response to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/INCA.pdf
[71] http://www.cityfibre.com/news/2015/12/14/cityfibre-acquires-kcoms-national-network-assets-for-90m-facilitated-by-180m-fundraising
[72] http://www.theguardian.com/business/2015/jul/24/vodafone-shareholder-company-replacing-bt-openreach-fibre-optic
[73] http://www.ispreview.co.uk/index.php/2015/12/interview-skys-position-on-separating-bt-from-its-uk-telecoms-network.html
74 As explained by Robert Wall, Senior Principal, Canada Pension Plan Investment Board at Reform event 21st Century Connectivity Lessons for the UK, http://www.reform.uk/publication/21st-century-connectivity-lessons-for-the-uk/
[75] https://www.gov.uk/government/publications/spending-review-and-autumn-statement-2015-documents/spending-review-and-autumn-statement-2015
[76] http://stakeholders.ofcom.org.uk/consultations/dcr-discussion/

that: "The promotion of effective and sustainable competition is the single most important and fundamental principle Ofcom should apply".[77]

But while agreement on the need for investment and competition is universal, at what point in the value chain they are needed – and where regulation should therefore be focused – is much more contested. Again, this plays an important part in the assessment of a fit for purpose market structure. At the time of Ofcom's last review in 2005, it was largely believed that competition was most viable at the service level, because the investment case was not strong at the infrastructure level. Many are now making the case for investment at the passive access and infrastructure level (or a combination of competition models in different parts of the country and for different products) and argue that Ofcom needs to determine what type of market it wants to encourage before it can settle on a "solution".

Service competition and investment
- Continuation of today's approach which gives wholesale customers (such as Sky, Vodafone and TalkTalk) access to Openreach's network, enabling them to offer their services to the end user;
- Proponents say it enables retail competition without damaging incentives for companies like BT and Virgin Media to invest.

Passive access competition and investment
- Openreach provides the basic infrastructure, but CPs are given greater access to its ducts, poles and dark fibre, so that they can deploy their own equipment to deliver services;
- Improves competition by allowing CPs to differentiate their product, but is more feasible than infrastructure competition, which some do not believe is economically viable;
- Colt says that Deep Passive Access should "be the primary focus of communications regulatory policy in the UK going forward" because "not only does it allow efficient utilisation of existing infrastructure, it is infinitely flexible, allowing the market to mix and match new and existing infrastructure to deliver services to hitherto unreached locations."[78]

Infrastructure competition and investment
- Investment in new networks that compete with Openreach and Virgin Media, either in their entirety or in particular locations, for e.g. a city or rural area;
- This allows private investors to build where they see a demand and creates alternative networks to Openreach. As CityFibre argues "BT is no longer the only answer to infrastructure supply"[79];
- In this model, ensuring that Openreach is not price regulated so that it becomes a monopoly wholesale supplier, thereby devaluing the underlying infrastructure, is key to encouraging investment;

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[77] City Fibre DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/CityFibre.pdf
[78] Colt DCR response: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Colt.pdf
[79] City Fibre DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/CityFibre.pdf

- Virgin Media argues that "building, not reselling, is best for consumers" and urges Ofcom to "commit to the promotion of infrastructure competition and the regulatory conditions that promote investment."[80]

3. IS THERE A CASE FOR MARKET REFORM?

As stressed above, an assessment of the health of the market depends heavily on the starting perspective, the view of where we need to get to and how. Those who say we are heading in the wrong direction, and that reform is required (whether in the form of structural separation or a different type of market structure), point to the following warning signs as proof the current market is not working well.

The market is not delivering for consumers

Price
Ofcom says that in the ten years since Openreach was created, "broadband customers have benefited from radically improved levels of service coupled with decreasing prices [...] bringing improved value for money.[81] But prices appear to be rising again. The Consumer Forum for Communications has highlighted that UK "home telephone and broadband customers are paying between 25-30 per cent more for their service than they did four years ago"[82] and line rental alone has risen 10 per cent in the past two years[83].

Choice

While LLU is celebrated as having stimulated choice and competition in the residential market, Ofcom's December 2015 Connected Nations report highlights that there are two areas where customers have been significantly under-served: rural areas (where "48 per cent of premises are unable to receive speeds above 10Mbit/s"[84]) and the business market and SMEs in particular, with "only 68per cent of SMEs having access to superfast broadband in the UK, compared to 85 per cent of all premises"[85]. The Federation of Small Businesses agrees that

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[80] Virgin Media DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Virgin_Media.pdf
[81] Ofcom, Cost and value of communications services in the UK, January 2014
 http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-13/cost_value_final.pdf
[82] Based on a Guardian Money survey Sept 2015,
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Consumer_Forum_for_Communications.pdf

[83] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Redburn_Annex.pdf

[84] http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2015/downloads/connected_nations2015.pdf

[85] http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2015/downloads/connected_nations2015.pdf

"there is a significant gap between the availability of superfast broadband for the residential market and for small business consumers"[86]. The Federation of Communication Services argues that "the current market offers little in the way of differentiation. We find the same product being sold in broadly the same way from a number of different brands."[87] This is having a limiting impact on many businesses; as the British Chambers of Commerce says, "the only constraint on the growth [of some businesses] is connectivity."[88]

As we move to the future, BT's competitors argue that choice will be reduced in all markets. BT's choice of technology for FTTC, and the way it has been installed, means that CPs are less able to differentiate their product, which will inevitably limit the choice of products available to all customers. Although BT has developed a product – Generic Ethernet Access (GEA) – that allows CPs to offer their services on FTTC connections, CPs have not taken it up because it is not viewed as a commercially attractive product.[89]

Quality of service

As Ofcom has identified, "at the wholesale level, the quality of service that Openreach delivers to downstream providers, including BT, has been unsatisfactory"[90] and is evidenced[91] by:
- delays in new line installations;
- frequently missed and changed installation appointments;
- increased fault rates;
- failure to meet targets to fix faults;
- misuse of deemed consent provision.[92]

The FCS reports that its "members still regularly report failure rates of 30 per cent for provisioning business lines against agreed deadlines, and as high as 70 per cent for Ethernet services. Wait times in excess of 12 months are not uncommon."[93] This type of complaint is repeated throughout the DCR submissions[94].

In defending this poor performance, BT Openreach points to Ofcom's focus on lowering consumer prices: "Customers [...] want better, faster, more reliable and more widespread networks and services, and these come at a price"[95] and argues that wholesale customers are

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[86] FSB response to DCR: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FSB.pdf
[87] FCS response to DCR: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FCS.pdf
[88] Dr Adam Marshall, Executive Director of Policy and External Affairs, BCC speaking at Reform event 21st Century Connectivity Lessons for the UK, http://www.reform.uk/publication/21st-century-connectivity-lessons-for-the-uk/
[89] Sky response to DCR http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf
[90] Ofcom DCR discussion document:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf
[91] INCA response to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/INCA.pdf
[92] http://stakeholders.ofcom.org.uk/binaries/enforcement/competition-bulletins/open-cases/all-open-cases/Provisional-Conclusions.pdf
[93] FCS DCR response: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FCS.pdf
[94] For a very detailed analysis, see Sky's submission to the DCR, which, it should be noted, BT describes as "misleading": http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf
[95] BT response to DCR: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

equally to blame: "service is a shared responsibility".[96] On price the Communication Workers Union argues that "There should be a shift in Ofcom's focus away from […] the pursuit of short term considerations of price and cost cutting, and towards incentivising long term investment."

In 2014 Ofcom introduced new targets to improve the service; Openreach says "we are now delivering on time more often and fixing faults quicker...last year we exceeded every one of our regulator's tough new service targets"[97]. But the Communications Consumer Panel argues the targets are "unambitious, verging on weak"[98] and Ofcom itself says it remains "deeply concerned about quality of service"[99].

This repeated under-performance has a material impact on both retail customers' satisfaction levels[100] and wholesale customers, who are reliant on the Openreach network to provide their services. It also dampens competition: while Openreach may deliver "equally poor" service to all its customers, including BT Group, consumers' tendency not to switch means the incumbent is better able to soak up the criticism than its competitors.

Discrimination and re-monopolisation

BT's Undertakings stipulate that Openreach treats all CPs equally, a condition that is enforced by the Equality of Access Board, who confirm that "Openreach has delivered equivalent service to all CPs including BT"[101]. BT says it would be impossible to discriminate against non-BT CPs given the "panoply of regulation imposed by Ofcom"[102], and points to the fact that it has "the lowest retail broadband share of any former incumbent in the major EU member states"[103] as proof of Openreach's non-discriminatory conduct.

Despite this, wholesale customers argue that Openreach favours its parent by:
- being reluctant to engage with non-BT wholesale customers to take forward innovations, and slow to drive them through once agreed;[104]

[96] BT response to DCR" http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[97] Joe Garner, Openreach CEO:
http://www.telegraph.co.uk/finance/newsbysector/mediatechnologyandtelecoms/digital-media/11862314/Openreach-boss-A-huge-mistake-if-Openreach-were-spun-off-as-an-independent-company.html
[98] Communications Consumer Panel response to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Communications_Consumer_Panel_and__ACOD.pdf
[99]http://www.theregister.co.uk/2015/10/29/bt_openreach_boss_says_uk_telco_market_needs_predictable_regulation/
[100] Ofcom's Consumer Panel highlights a fall in satisfaction with fixed broadband from 90% in 2010 to 86% in 2015, which "aggregates to millions of people."
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Communications_Consumer_Panel_and__ACOD.pdf; Consumer Forum for Communications says that "Customer satisfaction for communications services compares poorly with many other retail sectors"
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Consumer_Forum_for_Communications.pdf
[101]EAB submission to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Equality_of_Access_Board.pdf
[102] BT response to DCR: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[103]BT response to DCR: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[104] https://corporate.sky.com/documents/media-center/news-releases/2015/ofcom-strategic-review-initial-submission-final-non-confidential.pdf

- building and designing the Openreach network to suit BT's own operations first and other communications providers second if at all;[105]
- not readily sharing data with wholesale customers, which could be used to improve consumer experience, including about new G.fast technology;[106]
- using public subsidy to overbuild in areas that are already being served, or in the process of being served by other providers;[107]
- repeatedly turning down requests for dark fibre products and refusing requests for variations of products.[108]

BT Openreach's wholesale customers say this impedes their ability to invest, innovate and compete. They argue that, while this may dampen competition in today's market, the impact on future markets is more relevant. BT's choice of technology for its superfast roll-out (which makes it more difficult for CPs to use this network and/or install their own equipment to connect to the Openreach's network) combined with the pull of BT Consumer's premium content, gives BT Group an advantage in attracting customers to its bundled superfast offering. This competitive advantage has translated into BT gaining "an abnormally and unjustifiably high share of superfast broadband (SFBB) customers", according to TalkTalk, who says that "its uptake of SFBB (of its broadband base) is almost four times that of competitors and consequently BT currently accounts for 70 per cent of Openreach SFBB connections versus 40 per cent for all connections."[109] Sky puts the figure as high as 74 per cent[110]. The increased competition that Ofcom succeeded in creating in 2005 is in danger of unravelling as we move into a super and ultrafast future.

Under-investment in current and future networks

BT argues that the transformation in speed and availability since 2005 is principally down to its heavy investment in the Openreach network – £10.5 billion in the last ten years[111]- which took place through the teeth of the recession, despite "declining revenues"[112]. This investment enabled "the whole industry, and the whole country, [to] benefit from a properly maintained and upgraded network"[113], which has seen the UK go from "the bottom to the top of the [European] league tables"[114] for network performance. BT says this was made possible because they are able to draw on Group funds. All in all they say that they have invested "£3bn to roll out fibre optic broadband to the two-thirds of UK premises where we could make a commercial case for

[105] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf
[106] The Public Accounts Committee highlighted this in its "The Rural Broadband Programme" report, saying " Despite our recommendation last September, many of the maps currently available do not give sufficiently detailed information about BT's coverage to be of use to other potential suppliers seeking to plug the gaps." http://www.publications.parliament.uk/pa/cm201314/cmselect/cmpubacc/834/834.pdf
[107] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/INCA.pdf
[108] For example, Vodafone requested a dark fibre product from BT Openreach in October 2014 but this was rejected four weeks later, http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf
[109] TalkTalk submission to DCR: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/TalkTalk.pdf
[110] Sky submission to DCR http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf
[111]BT response to DCR: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[112] BT DCR response: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[113] BT DCR response: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[114] BT DCR response: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

investment, and in rural areas (the final third) where we have been rolling out fibre in conjunction with government body Broadband Delivery UK (BDUK)."[115]

Critics argue that the polar opposite is true:

- Openreach remains a highly profitable division of BT Group:

  - Research by Frontier Economics, commissioned by Vodafone, shows that "in FY 2014/15 BT made nearly £800m over and above its expected returns across its regulated services delivered to communication providers, bringing total excess profits over the last 10 years to a staggering £6.5bn."[116]
  - Analysts Redburn say that BDUK subsidies are annualising at over £400m pa.[117]

- But BT is accused of not having reinvested enough of the money it makes from the Openreach network back into this network. Redburn shows that investment has been growing below inflation for six years[118] and shows no sign[119] of the £3bn it says it has invested in fibre, something TalkTalk describes as "wholly unacceptable […] from a company entrusted with the upkeep of one of the UK's most nationally significant infrastructure assets."[120]

- It has been asserted that the cash flow from Openreach – from its regulated assets and from BDUK's public subsidy – has helped give BT the confidence to pursue its wider Group activities, including spending £897m to show all UEFA Champions League games from 2015[121] and £960m for 42 Premier League games per season from 2016[122] and £12.5bn on EE.[123]

Other figures have been quoted as part of this debate, for example, Ofcom itself has said that BT Openreach has made excess profits of £4bn up to 2014 (although it does caveat that estimate)[124], and accurate analysis is made difficult by complex financial reporting. Whatever

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[115] http://www.btplc.com/Thegroup/Ourcompany/TheBTstory/index.htm
[116] Vodafone DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf
[117] Redburn DCR
submission:http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Redburn_Annex.pdf
[118] Redburn DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Redburn.pdf
[119] Redburn DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Redburn.pdf
[120] TalkTalk DCR submission:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/TalkTalk.pdf
[121] http://www.bbc.co.uk/sport/0/football/24879138
[122]http://www.theguardian.com/football/2015/feb/10/premier-league-tv-rights-sky-bt
[123] http://www.ft.com/cms/s/0/e5f5bff4-7d42-11e5-98fb-5a6d4728f74e.html#axzz3sb0c06uT
[124] "We estimate that the gap between BT's returns and the benchmark cost of capital is £4bn […]we consider that around two thirds of the estimated gap of £4bn over the past nine years is accounted for by those factors that represent policy choices made by Ofcom when setting charges, with the remaining third being due to BT's performance against the charge controls put in place."
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf

the exact quantum, the argument is being made that funds from the public purse and an under-funded but highly profitable national digital infrastructure are allowing BT to confidently pursue its wider commercial interests.

What does the investment picture look like for the future? The plan set out by BT on 22 September 2015 is that it "is ready to forge an ultrafast future for the UK and to deliver faster broadband and better service to every property in the country"[125]. This translates into "fibre extended beyond 95 per cent of UK premises and 10 million homes and businesses [...] ultrafast broadband at 300-500 Mbps by the end of 2020"[126] all possible thanks to "the financial muscle"[127] of BT and conditional on a stable and supportive regulatory and policy framework. BT has reiterated that these are not idle promises and has issued a series of pledges on what it will deliver - if not what it will spend - in the coming decade[128]. The wave of investment from new market entrants, such as CityFibre and Gigaclear, is also cited as proof that the investment prospects are good for the future[129].

But BT has indicated[130] that the upgrade to G.fast will be achieved within current capex levels. Critics ask whether BT really is digging deep to fund the first class network we need. We come back to the concern that BT has a poor history of drawing on its vertical integration to invest sufficiently in Openreach and the perception that G.fast is effectively a cut-price technology that will not provide the functionality, reliability or ubiquity we require in the future.

Vertical integration undermines competition and investment

Proponents of reform argue that the warning signs of poor quality of service, discrimination and under-investment stem, in part, from the incentives that emerge from the vertical integration of BT Openreach; in essence that market failures are not the result of a "bad" player but the logical outcome of a global company acting in accordance with the incentives that exist at its core.

Reformers argue that as long as Openreach is bringing in substantial profits, BT Group has no incentive to invest substantially in:
- the current network or in FTTP, hence the decision to roll out FTTC/G.fast;
- coverage beyond what is commercially viable or where Virgin Media provides competition;
- improvements in quality of service because customer dissatisfaction will cost competitors more.

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[125] BT, Delivering Britain's Digital Future
[126] http://home.bt.com/tech-gadgets/tech-news/bt-ceo-gavin-patterson-delivers-vision-for-britains-digital-future-11364005965808
[127] http://www.telegraph.co.uk/finance/newsbysector/mediatechnologyandtelecoms/digital-media/11862314/Openreach-boss-A-huge-mistake-if-Openreach-were-spun-off-as-an-independent-company.html
[128] BT DCR submission: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[129] BT DCR submission: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[130] Sky DCR submission: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf

BT Group has substantial and privileged access to and influence over Openreach's operation and strategy:

- The Openreach CEO sits on the BT Group Operating Committee which addresses major operational, customer and strategic issues from across BT. In addition the Openreach CEO reports to the BT Group CEO.
- Openreach's budget for capital and operating expenditure is signed off by the BT CEO[131]; the blended balance sheet makes financial transparency difficult, as evidenced by BT apportioning £1.7m of EE merger costs to Openreach recently[132];
- BT Group has access to Openreach's information and is able to influence Openreach's strategy[133];
- BT Group was able to influence the choice of technology for FTTC in a way that reduced CPs' ability to compete[134].

The 'Chinese walls' of functional separation have been described as paper-thin externally as well as internally[135]. As FCS argues, this "perpetuates a view [...] that BT Group is a single vertically-integrated provider, rather than that Openreach is a separate entity"[136]:

- Openreach vehicles, corporate livery and marketing messages all carry BT Group logos[137];
- BT Group press and public affairs spokespeople "regularly speak of Openreach's (functionally separated infrastructure) investments as though they were an investment by BT's retail telephone and broadband business"[138].

All of this may arguably be acceptable if BT Group's commercial incentives were aligned with the requirements of the nation's digital infrastructure, but critics argue they are not:

- Openreach must compete for limited time and resource with BT Group's many other commercial interests, an issue that will increase with the EE/BT merger when it will become a smaller part of a much larger company[139];
- Ultimately BT Group is responsible to its shareholders, rather than Openreach's customers, which means it is incentivised to invest in non-regulated areas of its business rather than the UK's underlying digital infrastructure.

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[131] FCS submission to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FCS.pdf
[132] http://www.ft.com/cms/s/0/c37a1608-8d11-11e5-94a4-639039952d45.html
[133] FCS submission to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FCS.pdf
[134] Vodafone submission:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf
[135] FCS submission to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FCS.pdf
[136] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FCS.pdf
[137] FCS submission to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FCS.pdf
[138] FCS submission to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FCS.pdf
[139] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/TalkTalk.pdf

All these incentives and potential for discrimination were known about before 2005. As Ofcom says itself: "The current ownership structure of BT means that it still has the incentive to discriminate against competing providers. Although regulation limits its ability to do so, opportunities may remain."[140] In many stakeholders' view, the solution that Ofcom applied to address these problems in 2005 – functional separation – has not worked.

BT refutes this analysis, which it describes as "unfounded"[141], "perverse" and "motivated by self-interested corporate rivalry"[142]. Instead it argues that: "Britain has gained, and will continue to gain, from Openreach as part of BT – benefitting from more investment, coverage and speed"[143]:

- Discrimination against non-BT CPs is not possible – there are safeguards in place to prevent the abuse of monopoly-driven incentives in the form of the Undertakings, which "have proved themselves as the most successful competition solution in the world";[144]
- While there have been public allegations about discrimination, "In ten years of the Undertakings there are no significant instances of non-compliance"[145];
- BT Group is not distracted by other concerns but it is committed to playing a leading role in the UK's broadband future. Even if the incentives not to invest existed, the proof is in the pudding – £10.5bn in 10 years and a massive expansion of coverage and improved quality of service. The fact that G.fast was funded by BT Group and not by Openreach makes clear that BT is not sitting back on its laurels and is committed to innovation and investment for the future;
- The downsides of vertically integrated monopoly can be managed by regulation, but the upsides – of scale, investment, innovation – would be lost if separation was forced.

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[140] Ofcom DCR Discussion Document:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf
[141] BT DCR response: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[142] BT DCR response: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[143] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[144] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[145] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

4. WHAT NEXT?

The options

Amid the claims and counter-claims, Ofcom's July 2015 DCR Discussion Document proposes four possible ways forward:

A. Continue with the current approach
B. Strengthen the current model of functional separation
C. Consider structural separation
D. Substantial deregulation and greater reliance on end-to-end competition.[146]

Stakeholder responses to Ofcom's Discussion Document tend to group either around Options A and B (the status quo or a variation of it) or Options C and D (more fundamental reform), although each stakeholder has its own specific view on the best way forward.

However, it's important to underline that there are serious question marks over whether these are the real options facing Ofcom as it decides its next steps. Since the publication of the Discussion Document, Ofcom's CEO Sharon White has indicated that Option A is not really an option after all, having told the BBC that "it is very unlikely we will conclude that the status quo which has worked over the last 10 years is where we are likely to be over the next decade"[147]. BT's critics have argued that Ofcom does not have the statutory powers to introduce either B (as it seems unlikely that BT would voluntarily accept significantly revised Undertakings, given its publicly stated position[148]) or C (as the sectoral or competition law powers at Ofcom's disposal are not sufficient to enforce separation[149]). This suggests that only Option D remains.

However, what market players need are clear goals and ambition in which to make investment decisions. The focus needs to be about setting a framework for competition and investment in which regulation plays its part. Therefore a significant number of stakeholders[150]are suggesting that an Option E – referral of the market to the Competitions and Markets Authority – is the most viable way forward to address the alleged problems in the market, as the CMA has wider powers to assess and remedy structural problems in markets.

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[146] Ofcom DCR discussion document:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf
[147] http://www.bbc.co.uk/news/technology-34972702

[148] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf

[149] http://www.ft.com/cms/s/0/5020c9a2-5e2e-11e5-97e9-7f0bf5e7177b.html#axzz3tpujQ7UK - It should be noted that BT also agrees that Ofcom does not have the powers to carry out Option C "Ofcom does not have the power to impose structural separation under the European Regulatory Framework (ERF). It also has no power to insist on structural separation undertakings under the Enterprise Act 2002 (EA02). Should it minded to consider structural separation, Ofcom's powers
would be limited to making a market investigation reference to the Competition and Markets Authority
(CMA), provided (which BT does not accept) the statutory test for a reference is met."
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf
[150] http://www.ft.com/cms/s/0/5020c9a2-5e2e-11e5-97e9-7f0bf5e7177b.html#axzz3tpujQ7UK

Status quo

It follows that those who believe we are already moving in the right direction favour Options A and B. BT argues that Ofcom's next steps should "build on and extend the many strengths of the current model" rather than "rip-up the rule-book that has provided the foundation for the UK's success so far"[151]. Ed Vaizey has argued against change because he believes the current "regulations have proved very effective"[152] in delivering the Government's objectives to date.

In favour of the status quo is the argument that if the primary policy objective is to encourage investment, and investment requires stability, then the uncertainty created by radical change would outstrip any benefits created by enacting that change. Indeed both BT[153] and Virgin Media[154] have said that their commitments to invest could be halted if the regulatory conditions became unfavourable.

Straying from this path would also cost time – to overcome the "legal hurdles" to separation that BT describes as "very high"[155] – and money, including huge transitional costs and a risk to the BT pension fund. Crucially, a change of approach would jeopardise the "excellent"[156] progress that is being made, undermining investor confidence and operational focus at a critical time in the rollout of superfast and ultrafast broadband. It's not just BT who are concerned: the Country Land and Business Association expresses a concern that "at a time when rural areas suffer from a widening of the rural-urban digital divide, further delay will simply exacerbate an already unsatisfactory situation".[157] (It should be noted that the Countryside Alliance does not necessarily share this view[158].) The Communication Workers' Union argues that creating the "right investment incentives [...] rests on allowing operators [...] regulatory stability to justify major network extensions and upgrades"[159]. BT concludes that even the discussion of separation puts future investment at risk and says that "Ofcom should close down this question at the first opportunity"[160].

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[151] BT, Delivering Britain's Digital Future

[152] http://www.ft.com/cms/s/0/cbe4900c-6601-11e5-a57f-21b88f7d973f.html#axzz3sywKIH31

[153] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

[154] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Virgin_Media.pdf

[155] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

[156] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

[157] Country Land and Business Association response to DCR:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/CLA.pdf

[158] The Countryside Alliance view is that "it is right, and timely, that Ofcom, through their digital review are looking into the relationship between BT and Openreach. Whatever the outcome of this review our plea to Ofcom is to place customers at the heart of their decision making process, as it is vital at the end of this that we end up with a competitive market that delivers the modern digital services and the infrastructure Britain desperately needs." Email to Victoria Read, December 2015

[159] CWU DCR submission:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Communication_Workers_Union.pdf

[160] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

Those favouring the status quo argue that separation would not resolve some of the key problems reformers have identified[161][162]:

- A separated Openreach is still likely to favour copper - the asset it already owns - over FTTP;
- There is no guarantee that Openreach would invest more in future networks if it were BT owned.
- Separation would not guard against Openreach generating excess profits.

Reform

For other stakeholders, now is not the time for tinkering. As Vodafone says, "If Ofcom wants the performance of the UK market to change in a material way, it has to be prepared to be bold"[163]. "Bold" for many stakeholders means full structural separation, as the only way to address the concerns, which "are inherent in a blended balance sheet and integrated group structure." [164]

The benefits of separation are said to be:

- Regulation would be simpler and more transparent, in line with Ofcom's objectives[165];
- It would unlock investment in the Openreach network from two directions[166]:
  - Communication Providers (CPs) would have strong incentives to invest in Openreach if their main competitor did not own it;
  - As BT – as well as other CPs – would be able to use non-Openreach networks, it would force Openreach to compete for its custom by improving its service levels.
- Openreach would be more directly accountable to all its customers, with the current issues of discrimination resolved[167];
- Separation from BT Group's wider commercial strategies and balance sheet, meaning:
  - public funds invested in Openreach to deliver the final 5 per cent could benefit all communications providers more equally and result in a better service to consumers.
  - the operational and investment decisions regarding the UK's access infrastructure would be divorced from BT's sports rights and M&A strategy.

Rather than be costly, complex and time-consuming, proponents such as Sky argues that "company demergers happen all the time, with relatively modest transition costs" and point to the way that BT spun off its mobile business (BT Cellnet) in 2002, and the relatively

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[161] Virgin Media DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Virgin_Media.pdf
[162] The counter to this argument is that most reformers say that separation would need to be accompanied by other remedies to address all of the concerns
[163] Vodafone DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf
[164] Redburn DCR response:
http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Redburn.pdf
[165] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Redburn.pdf
[166] Sky DCR response: http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf
[167] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/TalkTalk.pdf

straightforward separation of Telecom New Zealand into network (Chorus) and retail (Spark) businesses. Sky concludes by saying that "it is probable that a demerger of Openreach from BT would be an order of magnitude more straightforward to achieve than the proposed integration of EE into BT – which BT is more than willing to undertake.[168]

Arguments about separation undermining stability are also singled out as weak in cases where underlying competition issues do exist. According to John Fingleton,[169] ex-CEO of the Office of Fair Trading, stability was used by BAA in defence of its monopoly of London's airports. However, the break-up that resulted in BAA selling off some of its airports has successfully led to increased competition, as seen by the fierce battle that is taking place between Gatwick and Heathrow for a new London runway, and improved facilities.[170]

Reform does not just mean separation

As tempting as it is to present the choice as "separation or bust", within the reformers' camp the views are more nuanced. For some, one of the key questions to resolve before looking at the issue of separation is what kind of market the UK wants to end up with. Do we want to stick with a highly regulated single national access infrastructure (Openreach) or create greater infrastructure level competition to Openreach? For those who support infrastructure level competition, if Openreach was spun off it would need to be in a way that doesn't "deny competition, harm investment and ultimately reduce consumer benefits substantially."[171] For others, such as FCS, who support the idea of "an industry mutual organisation, along the lines of Welsh Water ", an Openreach monopoly, with competition at the access or service level, would be preferred.

There is also the issue of where Openreach is separated (would it be along the current perimeter lines?); whether the same approach should be taken in all geographic areas (if infrastructure competition is viable in some parts of the country but not others); and when (should Ofcom focus on triggering greater competition in the market first, before looking at Openreach's ownership?).

Neither is separation viewed as a golden bullet (and this responds to the argument that separation won't solve all the problems in the market). All proponents for change argue that additional remedies will be required alongside and ahead of separation in order to address all the weaknesses in the market. Proposals include:

● Greater access to Openreach's assets: dark fibre, towers, poles, roofs and cabinets[172] (and ducts);
● BT should have to use the same products it offers its competitors;[173]

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[168] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf
[169] Interview with Victoria Read, November 2015
[170] http://blogs.ft.com/the-a-list/2014/02/14/no-one-answer-to-the-london-airport-question/
[171] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/CityFibre.pdf
[172] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/UKB_Group.pdf
[173] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf

- Requirement that Openreach ploughs excess profits back into the network;
- Stricter quality of service targets and tougher fines for breaches;[174]
- Greater autonomy for Openreach[175] and tighter rules to prevent BT Group from exerting influence over it, including a fully independent board and budget, open tendering processes and greater data sharing.[176]

Many of these suggestions could be included in a new version of BT's Undertakings. The Equality Access Board, one of the bodies that enforces the Undertakings, says that "ten years on it can sometimes be difficult to interpret [them] in a world where the environment and technology has changed"[177]. Even BT admits that it is "a reasonable interpretation of events that the current [DCR] includes and constitutes a review of the Enterprise Act undertakings"[178], although they focus on the removal of duplicated requirements rather than a more fundamental revision.

International examples of structural separation

Of course, the UK is not the only nation trying to create a fit for purpose digital infrastructure. This paper does not aim to undertake detailed analysis of international case studies, but it is worth noting how proponents both for and against separation have cited other countries' separation experiences to support their arguments.

BT has argued that "there are no successful examples of [structural separation] anywhere round the world"[179], citing Australia and New Zealand as cases in point, saying that "the Antipodean experience points in favour of leaving BT Group as it is."[180] In Australia, structural separation was forced on incumbents Telstra and Optus following a political decision to prioritise an FTTP roll out. The resulting government-owned NBNCo is now responsible for the access network. However, since its creation in 2009 it has been "beset by political, operational, logistical, technical and workforce problems"[181], as well as a pace of FTTP deployment which BT describes as "glacial"[182]. As a result, NBNCo has moved away from a pure FTTP strategy and moved "to a mixed technology approach including cable and fibre to the cabinet to improve the pace of delivery and to lower implementation costs."[183] BT concludes, therefore, that "there is no case for adopting the Australian approach."[184] However, proponents of separation in the UK are not proposing that the UK adopts the Australian approach – which would be akin to the Treasury

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[174] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf

[175] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/TalkTalk.pdf

[176] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf

[177] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Equality_of_Access_Board.pdf

[178] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

[179] http://www.telegraph.co.uk/finance/newsbysector/epic/btdota/11748496/BTs-Patterson-Why-splitting-the-company-is-without-merit.html

[180] "http://www.thisismoney.co.uk/money/comment/article-3260949/Breaking-BT-won-t-speed-Britain-s-broadband-says-chief-executive-GAVIN-PATTERSON.html

[181] http://www.afr.com/brand/boss/how-bill-morrow-leads-nbn-through-a-political-minefield-20150828-gj9rzi#ixzz3t57yLfQn

[182] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

[183] http://www.plumconsulting.co.uk/pdfs/Plum_September_2015_This_Connected_Isle.pdf

[184] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

taking control of Openreach and Virgin Media's cable network – and so to use the Australian experience to argue against separation in the UK has been described as "misleading"[185]. Australia is a red herring in the separation debate.

The New Zealand example is more relevant as it is being cited by those in favour of separation in the UK. In 2011 Telecom New Zealand voluntarily split into Chorus (network) and Spark (retail) as a condition of winning the majority of the contracts for the Government's fibre-based Ultra-Fast Broadband Initiative[186], which has committed to deliver broadband speeds of at least 50 Mbps to 80 per cent by 2022 and 99 per cent of New Zealanders by 2025 using fibre to the premise with investment supported by public funding.[187] BT says that although "Government funding has succeeded in rolling out fibre as an available infrastructure", the separation should not be considered a success because "actual customer take-up has so far been low" meaning that New Zealand has a "far lower share of high speed connections than in the UK, despite the fibre roll-out starting at around the same time"[188].

There are others who consider the New Zealand experience to be a success. Vodafone concludes that separation "has enabled an intensification of competition in retail broadband, delivered greater investment and innovation, and reduced the need for complex regulation."[189] Importantly separation has changed the incentives driving Chorus. "Ultimately, that means it shifts behaviour. The change in New Zealand has been stark."[190] In response to BT's concern about low take-up, TalkTalk argues that "the lower take-up in NZ may be due to the fact that Chorus has deployed more FTTH [rather than the FTTC deployed by BT Openreach], or that NZ is a more rural country, meaning higher roll-out costs (and prices) or the lack of local content to drive uptake." Low take-up may also be a temporary issue: according to a Chorus statement from March 2015, "uptake is gaining ground; volumes have tripled and the uptake rate doubled in the past 12 months", an annual growth of 272 per cent in 2014, which is the fastest growth in the OECD[191].

In considering how other countries' experiences can inform the UK's next steps, it is also worth noting two key sections from the Analysys Mason International Case Studies report published alongside Ofcom's DCR discussion document. AM caveats its conclusions by saying that "despite some commonalities, there are material differences between the case studies, both in terms of remedies and outcomes. This constrains our ability to draw general conclusions independent of country-specific factors."[192] In the case of New Zealand, AM goes on to say that although "structural separation is operational […] it may be too early to tell whether it is a

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[185] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/TalkTalk.pdf

[186] http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/communications/previous-reviews-and-consultations/telecom-separation/documents-image-library/telecom-separation/regulatory-framework-for-separation-of-telecom.pdf

[187] http://www.plumconsulting.co.uk/pdfs/Plum_October2015_New_Zealands_telecoms_policy_-_a_way_forward.pdf

[188] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/BT.pdf

[189] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf

[190] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Vodafone.pdf

[191] https://www.chorus.co.nz/file/62858/Q1-2015---Quarterly-Market-Update---March-2015-v2.pdf

[192] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/annexes/International_case_studies.pdf

superior model to the more "traditional" regulatory approaches […] over the longer term"[193]. Ofcom uses the report to make some tentative conclusions – that "the Australian case […] has illustrated the scale of the practical challenge associated with structural separation"[194] and that "on the other hand, Singapore provides some indication of the potential benefits associated with separation."[195] Both Ofcom and AM's restrained approach illustrates that while international case studies provide valuable insights for the UK, they should be treated cautiously, and that it is certainly too early to use them to write off possible approaches.

A referral to the Competition and Markets Authority (CMA)

While there are persuasive cases both for and against reform, there is also a strong argument that Ofcom does not have to make this decision at all. In an open letter to the Financial Times in September 2015[196], a group of stakeholders called for Ofcom to refer the market to the CMA. The signatories are not just 'the usual suspects' but a range of BT's wholesale customers, alternative network providers and business groups: the Association of Independent Professionals and the Self Employed, Federation of Communication Services, Independent Networks Cooperative Association, Institute of Directors, Sky, TalkTalk, and Vodafone. The British Chambers of Commerce[197], Federation of Small Businesses[198] and UK Broadband[199] have separately also called for a CMA referral.

These stakeholders argue that the competition and investment problems in today's market originate not in flawed regulations but in a flawed market structure. Without an independent and competition-based analysis to understand whether these problems exist or not, it is impossible to determine a way forward.

Indeed the very subjective and technical nature of the claims and counter-claims being made by all sides underline that this is a debate that urgently needs to be illuminated by the collection of fresh data on network investment, for example, and a dispassionate analysis of what is really going on. As UK Broadband puts it, "it is time for the CMA to take a fresh look at the market in its entirety" and as soon as possible; referral should be announced in early 2016 to avoid adding further delay to what will already be a lengthy and disruptive process. This paper agrees.

It's not just objectivity that marks the CMA as the appropriate body to take this forward. Ofcom's understanding of the market may be "deep", but as Sky observes, the CMA "has the power (which Ofcom does not) to implement [the] structural remedies"[200], which would need to be applied if structural problems in the market were found. The bar for referral is set fairly low – Ofcom must have only "reasonable grounds for suspecting that any feature, or combination of

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[193] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/annexes/International_case_studies.pdf
[194] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf
[195] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf
[196] http://www.ft.com/cms/s/0/4b2a7516-5dfb-11e5-9846-de406ccb37f2.html#axzz3sywKIH31
[197] http://www.ft.com/cms/s/0/8ffb055e-6b6e-11e5-8171-ba1968cf791a.html#axzz3uKqnGOJ8
[198] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/FSB.pdf
[199] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/UKB_Group.pdf
[200] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/responses/Sky.pdf

features, of a market […] prevents, restricts or distorts competition"[201]. The detailed and diverse complaints of underinvestment, poor quality of service, and the reversal of competition in future markets, seem to provide ample ground for "reasonable suspicion" and, combined with the vital importance to the UK of the communications market working well, warrant referral to the CMA.

5. CONCLUSION AND RECOMMENDTIONS

This paper set out to describe a debate that by and large is polarised and subjective – a difficult context in which to make policy decisions on something as important as the UK's future digital infrastructure. We have become used to competitors in these markets throwing accusations at each other and turning to the regulator to act as referee. For policy makers, it can be difficult to determine the validity of arguments that are based on technical and privileged information or on a subjective take on the future – in this case the view that aiming big is better than incrementally improving what we already have. It is out of the scope of this paper to determine which side is right. However, it is possible to make some observations that point to an immediate way forward.

- The stakes are very high. Cracks in the approach the UK is taking – where they exist and are not fixed – will become chasms in the decades to come, as the UK relies increasingly on its digital infrastructure;
- Calls for reform are coming from a wide variety of stakeholders, not just BT's direct competitors;
- The warning lights pointing to a need for reform are serious:
  - under-investment in the national infrastructure that is already resulting in poor quality of service and which may be insufficient to allow the UK to compete on the global stage in the future;
  - failure of competition as we move towards future networks;
  - an owner of the national network whose commercial incentives and expenditure priorities may not be aligned with the future needs of the nation's digital infrastructure.
- Most reformers argue that the warning lights about lack of competition and investment are too important to ignore and that, because the root cause is a failure of market structure, the market should be passed to a regulator – the CMA – with the tools at its disposal to assess and correct that structure. As the former CEO of the OFT, one of the CMA's predecessors, John Fingleton has said, "the right answer needs to come out of a very rigorous process".
- A referral would undoubtedly create short-term upheaval, but calls for "stability" must not be used to paper over potential cracks. The next few months should be about making

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[201] Section 131 Enterprise Act 2002

the right choices for the future, not defending past choices or addressing short-term or specific commercial objectives;
- While a CMA investigation takes place, BT's Undertakings could be rewritten, in order to bring them up to date and improve competition in the short term, to ensure that the UK does not stand still;
- Ofcom should refer the market and do it as soon as possible, so we can confidently choose the right path to a fit for purpose digital infrastructure.

Glossary

(Taken from the glossary of Ofcom's DCR Discussion document[202])

- BDUK: Broadband Delivery UK
- Communications Provider (CP): A company that provides an electronic communications network or provides an electronic communications 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.
- 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 subscriber's premises. The remaining segment of the access network from the cabinet to the customer is usually a copper pair.
- FTTH/FTTP Fibre to the Home / Premises: A form of fibre optic communication delivery in which the optical signal reaches the consumer's home 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.
- Internet Service Provider (ISP): A company that provides access to the internet.
- Local Loop Unbundling (LLU): 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.
- Mbps (Megabits per second) (1 Megabit = 1 million bits): A measure of bandwidth in a digital system.
- Not-spot: An area which is not covered by a telecoms network.
- Openreach: A BT Group business offering CPs products and services that are linked to BT's nationwide local access network.
- Superfast broadband: The next generation of faster broadband services, which delivers headline download speeds greater than 30 Mbit/s.

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[202] http://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdfhttp://stakeholders.ofcom.org.uk/binaries/consultations/dcr_discussion/summary/digital-comms-review.pdf