



**Non-Confidential**

## **Strategic Review of Digital Communications**

### **Summary**

Virgin Media welcomes the Strategic Review of Digital Communications (SRDC).

There is now an abundance of empirical evidence which shows that investment in, and competition between, end-to-end providers of infrastructure with networks of their own delivers the best benefits for consumers: higher uptake of services; more innovation and a lower cost per unit of output. Building, not reselling, is best for consumers, and it is this form of competition that Ofcom should champion.

In the case of cable, its better speed; consistency of performance and its lower cost of upgrading versus copper-based networks mean that incumbents must respond to investment in cable or risk losing customers.

Regulation matters to this process of competition. Across Europe and the US, the evidence shows that intrusive passive remedies have deterred network-based competition by shifting returns from the network builders to others (why bother deploying your own capital when you can use another's at cost and bear less risk?). Moreover, regulators often respond to infrastructure investment by incumbents by providing easier access, thereby undermining incumbents' incentives to invest in infrastructure in the first place.

And yet, in more recent years, the UK's enlightened approach to the regulation of superfast broadband—active access with wholesale pricing freedom and broadly stable copper prices—has encouraged investment to flow. There is no better evidence for this than Virgin Media's intention to invest £3 billion to expand its network so that it will pass 17 million homes and businesses. By 2020, the majority of UK households will be able to choose between two end-to-end infrastructure providers offering speeds of over 100Mbps. Ofcom's approach to date has resulted in positive outcomes. Ofcom therefore has a ready-made model for how to get this aspect of the regulatory regime right.

The capital of Virgin Media (and others) should be safe once it is in the ground otherwise this investment will grind to a halt. However, there are signs that this might not be the case. Ofcom is proposing to require BT to provide access to its dark fibre thereby decimating the competitive market for high capacity links; investors in infrastructure may be taxed to fund a new Universal Service Obligation; non-SMP operators face the prospect of having to open their networks to third parties under the Civil Infrastructure Directive; BT continues to be subsidised to extend superfast broadband to areas that would otherwise have competing suppliers; BEREC may wish to water down the threshold for intervention (possibly supported by Ofcom) and the Government is consulting on transferring value to the commercial PSBs (via retransmission fees) thereby damaging the economics of network rollout.

We urge Ofcom to use the SRDC to commit to the promotion of infrastructure competition and the regulatory conditions that promote investment. Ofcom must reject the calls for the structural separation of BT. Access seekers invariably want better arbitrage (via a heavily regulated separated Openreach) it's how they add value to their businesses; but structural separation is what you don't do if you want other providers to

*build* infrastructure of their own. Investors will rightly fear the ever more granular regulation of a structurally separated Openreach.

Since the TSR of 2003 Ofcom's consumer policy work has grown. The SRDC asks respondents to anticipate future problems and to guide Ofcom about where it can do more. We urge Ofcom to think strategically about its consumer policy work. There is evidence that these types of intervention can be particularly prone to regulatory error. Ofcom should be more scientific in its approach. When intervening in a market it should make (testable) predictions about the outcomes that it expects to see; and then go back and ascertain whether these have come to pass. If they have not, Ofcom should be prepared to remove or modify its intervention. We know of no consumer policy regulation for which this has been done, despite evidence that some have been ineffective (or worse).

## Introduction

This is an opportune time for Ofcom to undertake a strategic review of digital communications. As ever, there is much activity within our 'sector': the convergence of services and networks; consolidation within and between markets; more investment in end-to-end infrastructure (see Virgin's Project Lightning, the trials of G.fast and 98% in-building coverage of 4G expected by the end of 2017); the rise of OTT providers (Skype, Whatsapp, Netflix etc.); the spectre of regulation deeper into BT's network (dark fibre) and calls from a few that BT should be broken apart.

Below, we set out Virgin Media's response to the SRDC.<sup>1</sup> We believe that Ofcom has been hampered for a while by the absence of a strategic framework: individual decisions are made 'on their merits' but without reference to an overall strategy. For example, Ofcom intends to require BT to provide passive access to dark fibre. However, this proposal is made *prior* to deciding whether it is possible to "*set out a clear strategic preference*" for passive versus active remedies.<sup>2</sup> The SRDC is an opportunity to rectify this gap, and our submission below is made with this in mind.

### Outline of our response

Section 1 is on competition. We look at the evidence on the type of competition that delivers that best outcome for consumers, and explore how the rivalry between cable and copper-based fixed networks delivers these benefits.

Section 2 examines regulation. We review the evidence on how, in the past, access regulation has damaged the incentives to invest in competing networks. We look at what has changed with the regulation of NGA infrastructure in the UK and how it can continue to support this investment in future, in particular, via a 'regulatory commitment'.

We devote section 3 to critiquing the case for the structural separation of BT.

In section 4 we discuss consumer interest interventions and why it is important that these are subject to regular review and amended or withdrawn if the anticipated benefits prove to be illusory.

In section 5 we answer Ofcom's questions.

Note on terminology: we use the terms 'end-to-end infrastructure competition', inter-platform competition and infrastructure competition interchangeably throughout this response. By these terms we mean competition between communication providers who do not *generally* buy inputs from competitors. For example, a mobile operator who occasionally rents space on a rival's masts is still engaged in inter-platform competition. A broadband provider who buys GEA, PIA or dark fibre from BT is not; we term this intra-platform competition..

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1 With thanks to Dr. Richard Cadman of SPC Network and Rob Kenny of Communications Chambers for their help.

2 See Question 7

## Section 1: Competition

The evidence is clear: inter-platform competition brings the greatest benefits for consumers. The best example of inter-platform competition is cable versus the incumbent.

1. In paragraph 1.12 of the SRDC Ofcom sets out its desire to “*provide the right incentives for private sector investment and innovation, so that a full range of services is widely available*” together with its belief that a “*healthy competitive market*” is the best mechanism to deliver “*choice, quality and affordable prices*”.
2. Various *forms* of competition have now been in place for a sufficient length of time and in enough countries to be able to test which *type* of competition (inter- versus intra-platform) brings the best outcomes for consumers. This evidence is critical. If there is a form of competition that demonstrably delivers better outcomes for consumers, Ofcom should, to achieve its aims, prioritise providing the “*right incentives*” for private sector investment *in that type of competition*. In fact, there is an indication that Ofcom is thinking along these lines in the SRDC: “*[a] model of competition based on regulated access may not deliver the same level of benefits, and we would be cautious about adopting it unless end-to-end competition proves unsustainable.*”<sup>3</sup>
3. In the paragraphs below we survey and summarise the findings of the extensive empirical evidence on the differing impacts of inter- versus intra-platform competition.

*Inter-platform competition delivers the highest penetration of broadband*

4. Bouckaert, van Dijk and Verboven (2010)<sup>4</sup> distinguish between a) inter-platform competition; b) facilities-based intra-platform competition; and 3) service-based intra-platform competition. Based on a sample of OECD countries, their analysis finds that *inter-platform competition* has been the main driver of broadband penetration. The two types of intra-platform competition have a “*considerably smaller effect on the broadband penetration*”.
5. Nardotto, Valletti and Verboven<sup>5</sup> use data sets for the UK on broadband penetration and speeds to analyse the impact of inter-platform competition (cable vs. ‘traditional telcos’) and intra-platform competition (whereby entrants access BT’s network). They find that intra-platform competition through LLU entry has not significantly raised total broadband penetration. In contrast, inter-platform competition has had a more significant impact and “*always leads to market expansion*”. LLU has had a positive impact on the quality of service provided, although inter-platform competition has a positive impact on both penetration and quality.

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<sup>3</sup> Paragraph 1.49

<sup>4</sup>Jan Bouckaert, Theon van Dijk, Frank Verboven; Access regulation, competition, and broadband penetration: An international study. Telecommunications Policy 34 (2010) pp 661 – 671.

<sup>5</sup>Mattia Nardotto, Tommaso Valletti and Frank Verboven; Unbundling the Incumbent: Evidence from UK Broadband. Centre for Economic Policy Research, Discussion Paper No. 914, October 2012.

6. The table below (from Crandall, Eisenach and Ingraham<sup>6</sup>) summarises the results of 13 major empirical studies conducted between 2003 and 2011 that test for the effect of unbundling on either broadband penetration, or in a few cases, broadband availability. As the table shows nine of the 13 fail to find a positive relationship. Seven of the studies also examined the impact of inter-platform competition (between cable and telephone infrastructures). Five of the seven studies conclude that more robust inter-platform competition is associated with higher levels of broadband penetration.

**Table 1**  
Summary of empirical studies.

Study	Data	Unbundling increases broadband penetration/availability?	Inter-platform competition increases penetration?
<b>Studies showing negative and/or insignificant effects of unbundling on penetration</b>			
Aron and Burnstein (2005)	Cross-section, 46 U.S. States	N	Y
Bauer, Kim, and Wildman (2003)	Cross-section, 30 OECD countries	N	N/A
Denni and Gruber (2005)	Panel, 50 U.S. states	N	Y
Distaso, Lupi, and Mantenti (2005)	Panel, 14 European countries	N	Y
Cava-Ferreruela and Albau-Munoz (2006)	Panel, 30 OECD countries	N	Y
Wallsten (2006)	Panel, 30 OECD countries	N	N/A
Waverman Meschi, Reillier, and Dasgupta (2007)	Panel, 12 European countries	N	N/A
Boyle, Howell, and Zhang (2008)	Panel, 30 OECD countries	N	N
Wallsten and Haulsaden (2009)	Panel, 27 European countries	N	N/A
<b>Studies showing positive effects of unbundling on penetration</b>			
Garcia-Murillo (2005)	Cross-section, 18 countries	Y	N/A
Grosso (2006)	Panel, 30 OECD countries	Y	Y
deRidder (2007)	Panel, 30 OECD countries	Y	N/A
Gruber and Koutroumpis (2011 Draft)	Panel, 167 countries	Y	N

N= No; Y=Yes; N/A=Not applicable.

7. Crandall et al are negative about LLU. They find that “..it is clear that copper-loop unbundling did not accelerate the deployment or increase the penetration of first-generation broadband networks, and that it had a depressing effect on network investment. Overall, the evidence....suggests that the long-run effect of copper unbundling has been to reduce broadband penetration.”<sup>7</sup>(p. 279).
8. Distaso, Lupi and Manenti<sup>8</sup> estimate the impact of intra-platform and inter-platform competition on broadband uptake using data from 14 European countries. They find that “stronger competition across technologies as the main driver to stimulate broadband adoption”.<sup>9</sup> Conversely, the enhanced competition within the DSL segment of the market does not seem to have played a similar role.
9. Martin Cave<sup>10</sup> sums up the conclusions from the empirical work succinctly. He explains that until recently “there was little consensus on the effects of unbundling.” However, in the light of the many studies now completed, it seems that “the following conclusions can more confidently be drawn”:
- a. inter-platform competition is the gold standard, conferring considerable benefits;
  - b. bitstream access by itself produces limited benefits; and

<sup>6</sup>Robert W. Crandall, Jeffrey A. Eisenach, Allan T. Ingraham; The long-run effects of copper-loop unbundling and the implications for fiber. Telecommunications Policy 37 (2013) pp. 262-281.

<sup>7</sup> p.279

<sup>8</sup> Platform competition and broadband uptake: Theory and empirical evidence from the European Union Walter Distaso, Paolo Lupi , Fabio M. Manenti Information Economics and Policy 18 (2006) 87-106

<sup>9</sup> p.103

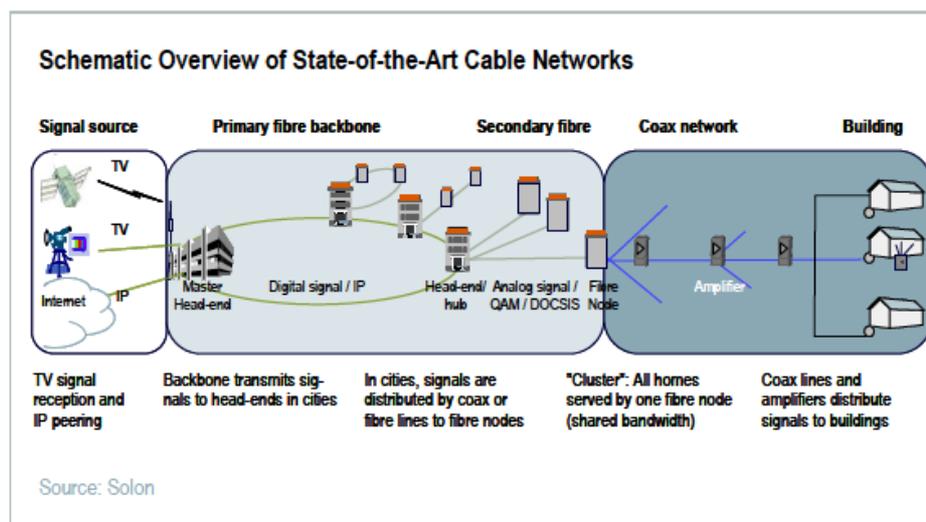
<sup>10</sup> Martin Cave; The ladder of investment in Europe, in retrospect and prospect. Telecommunications Policy 38 (2014) pp. 674-683.

- c. competition based on unbundled local loops has generally positive but not very large results.

10. In the section below we explore why inter-platform competition can be characterised as the 'gold-standard' for consumers.

*Why is inter-platform competition better for consumers?*

11. The crucial role played by the notion of dynamic competition is well known in Austrian economics. Austrian economists reject perfect competition models and replace them with the idea of an entrepreneurial-competitive market process with entrepreneurs discovering new information, new products and new forms of production in ways that are welfare enhancing.
12. This notion of rivalrous competition describes well inter-platform competition between cable and incumbent copper-based fixed networks.
13. Cable networks (characterised in the diagram below) have a number of advantages over copper-based fixed networks. We list below those identified by REDBURN in Liberty Global: A Long Sunny Summer,, 7 January 2015.

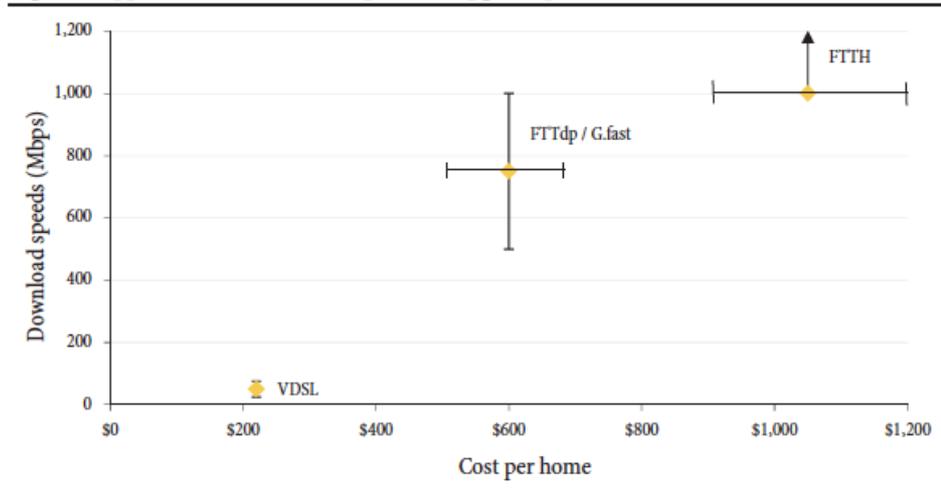


- Cable networks demonstrate a materially lower level of degradation. The coaxial cable to the home is physically thicker than the thin twisted copper pair and has significantly more shielding from interference; this results, in practice, in a negligible level of attenuation of the signal between the central exchange and the home. This means that cable is better able to deliver its headline speed.
- The coaxial tail end also tends to be shorter than the twisted copper pair, i.e., the cable network is penetrated more deeply with fibre. This also helps cable networks to deliver consistent speeds irrespective of the distance to the customer, unlike copper distribution platforms.
- Cable networks are well equipped for handling higher data capacity. Cable networks were originally designed for transmission of large downstream data amounts via the high capacity coaxial cables. Networks upgraded to bi-

directional transmission are particularly well suited to providing services with high bandwidth requirements due to their network characteristics.<sup>11</sup>

- Upgrade paths on the cable network are materially cheaper. The next enhancement for cable is DOCSIS3.1, another modulation software update costing roughly \$10 per home, allowing theoretical downstream speeds of more than 1Gbps and theoretical upstream speeds of up to 100Mbps in current up:down configuration. This compares very favourably with the cost upgrade path for copper (see the diagram below).<sup>12</sup>

Fig 11: Copper network: cost and speeds of upgrade path



Source: Redburn

14. The consequence of investments to upgrade cable technology has been to spur incumbent operators to ‘do better’ and attempt to match the performance of cable. Cave observes that the level of fibre deployment across the EU by telecommunications operators has been strongly driven by competitive investment by cable operators. Crandall et al. make the same point: next generation fibre networks are being deployed more aggressively in countries with substantial broadband platform competition—that is, in countries with well-developed cable television infrastructure that has been (or is in the process of being) upgraded to the DOCSIS3.0 standard.

15. The anecdotal evidence aligns with the empirical evidence:

- In Germany, Deutsche Telekom writes: “... Cable network operators are no longer small players. They acquire every second new customer. ... Therefore, we do not want to remain idle. For one thing, **we will build our network further out, so as to ensure that we can offer our customers the best service quality.** In doing

<sup>11</sup> Should customer demand require it, upstream and downstream capacity on cable networks can be brought more into line by reallocating the frequency plan.

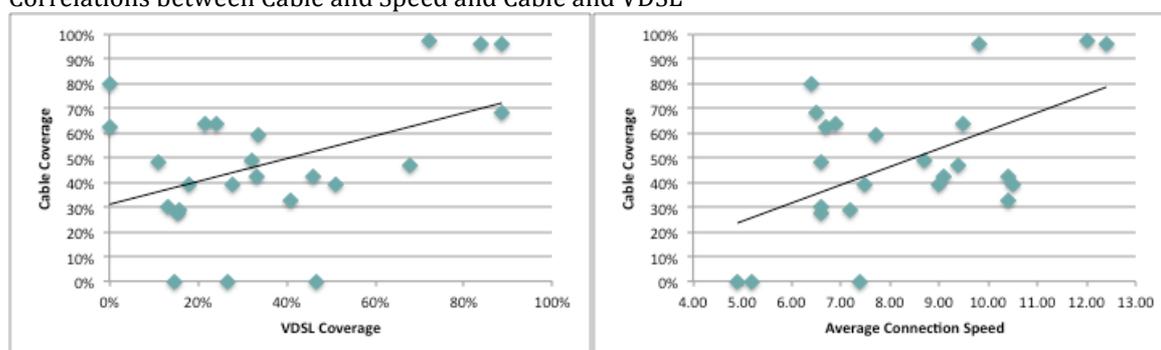
<sup>12</sup> On Liberty Global’s second quarter earnings call (8 May 2015) CEO Mike Fries said that “[w]e’re testing EuroDOCSIS 3.1 right now and should begin commercial deployment next year.....we feel great about our ability to extend our speed leadership with EuroDOCSIS 3.1.” He has also said that “for €20 a home passed, we can launch 3.1 across our entire platform and get to 10 gigs”. (Goldman Sachs 24th Annual Communacopia Conference September 2015).

so, we have fastened on the right technology mix of (V)DSL and glass fibre, but also mobile broadband technologies such as LTE.” (our emphasis) They go on to provide concrete examples of their intent to threaten the core business of cable operators, including an agreement with the building management firm Deutsche Annington Immobilien AG to deploy glass fibre to 171,000 households throughout Germany.<sup>13</sup>

- A few years ago, Swisscom’s CEO said: “We have to some extent lost a lot of customers to cable companies. I am not just talking about Cablecom, but also about the small municipal firms. Some of them have a market share of more than 50%. They are doing a very good job. We have to oppose them by investing in highly capable infrastructure.”<sup>14</sup>
- BT has begun its trial of G.Fast technology in Cambridgeshire, with 2,000 Huntingdon homes and businesses accessing speeds of up to 330Mbps.<sup>15</sup> On 22 September BT announced that 10 million premises will have access to speeds of between 300-500Mbps by 2020 making use of cabinet based G.Fast technologies.<sup>16,17</sup>

16. Our own analysis shows that there is a strong correlation between the presence of cable infrastructure and both the presence of VDSL and increased broadband access speeds, as shown below. The left hand panel shows the correlation between cable and VDSL coverage and the right hand panel between cable coverage and average connection speed.

Correlations between Cable and Speed and Cable and VDSL



Source: European Commission<sup>18</sup>, Akamai, SPC Network

17. Investment in VDSL is positively associated with the presence of cable networks. The right hand panel above shows an even stronger correlation between the coverage of cable and the average connection speed enjoyed by consumers. The

<sup>13</sup> Re-thinking the Digital Agenda for Europe (DAE): A richer choice of technologies. Independent analysis conducted by WIK-Consult GmbH on behalf of Liberty Global p.71

<sup>14</sup> WIK p.71

<sup>15</sup> <http://www.techweekeurope.co.uk/networks/broadband/bt-g-fast-fibre-broadband-175362#hPYhelY8JBQpeGyl.99>

<sup>16</sup> See <http://home.bt.com/tech-gadgets/tech-news/bt-ceo-gavin-patterson-delivers-vision-for-britains-digital-future-11364005965808>

<sup>17</sup> Ofcom has observed that G.Fast technology can be deployed relatively easily, meaning a wide commercial deployment is likely to be more attractive than was initially the case for FTTC. See :G.Fast – it’s [sic] role in meeting mass market broadband needs and the consequent regulatory issues Huw Saunders, Director, Network Infrastructure 21st April, 2015.

<sup>18</sup> European Commission ‘Broadband Coverage in Europe 2013’ Prepared by IHS Ltd and VVA Consulting

two countries with the highest broadband access speeds in Europe (the Netherlands and Switzerland) also have nearly 100% cable and over 70% VDSL coverage. Correlation does not mean a cause and effect, but access speeds are higher where cable is present. A reasonable interpretation of this correlation is that investors in cable and VDSL have responded to the presence of the other through investing more in their own technology.

18. Such an interpretation is supported by the findings of a report prepared as part of the Liberty Global Policy Series in 2009, by Bain & Company, which noted:

*“In European markets where a second wireline access infrastructure is widely available (most frequently cable in residential households), telecom and cable operators are increasingly competing in one another’s traditional markets. This competition is also spurring momentum for the upgrade of wireline networks, pushing them to provide higher broadband speeds. In countries such as the Netherlands, Belgium and Switzerland which have two competing fixed infrastructures covering more than 80 per cent of the population, consumers already experience higher average broadband speeds of 5.3 Mbit/s compared with 4.0 Mbit/s in other Western European markets. In addition, in these three countries broadband penetration is at 32 per cent of the population compared with 25 per cent in other Western European countries.”<sup>19</sup>*

19. This correlation closely matches that reported by Ofcom in paragraph 6.35 of the SRDC, and its finding that:

*“The degree of end-to-end competition from cable networks appears to play a role in encouraging incumbents to deploy faster broadband. In particular, as cable networks upgraded their networks to DOCSIS 3.0 to begin to offer superfast broadband, incumbents came under pressure to offer FTTP or FTTC broadband. Near-universal cable availability in the US and Canada has driven investment in fibre networks from incumbent operators.” (paragraph 6.35, bullet point 3).*

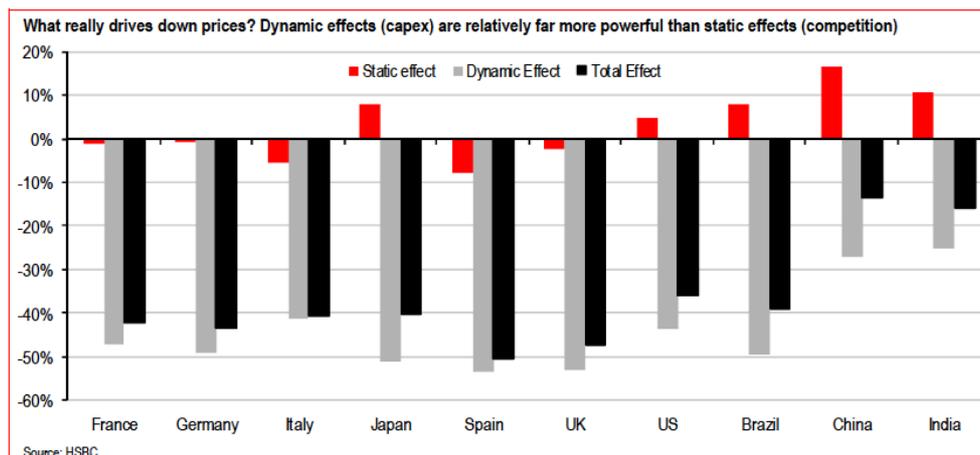
#### *Capital investment in inter-platform competition drives lower unit prices*

20. HSBC<sup>20</sup> has constructed a mathematical model that it tests empirically to determine the relative importance of the various drivers of mobile unit price declines in 10 countries. HSBC’s results are shown in the table below. We see no reason why this analysis is not also applicable to fixed networks.
21. The bars show the relative importance of static effects (e.g., competitive intensity) and dynamic effects (capital expenditure) in accounting for the unit price declines observed over the period 2008-12. The chart clearly indicates that dynamic effects (network investment) are far more powerful in driving down unit prices than are static effects (such as competition).

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<sup>19</sup> Bain & Company ‘Next Generation Competition: Driving Innovation in Telecommunications’ (2009)

<sup>20</sup> HSBC Global Research (Telecoms, Media & Technology): Supercollider European mobile consolidation is win-win for operators and citizens alike. February 2014



22. This result is not surprising. An operator's margin typically accounts for a minority of its unit price. Greater competitive intensity would indeed lower this margin, but the latter is not a sufficiently important quantity in determining the unit price to result in a reduction comparable with what can be achieved via dynamic effects (such as investment). Moreover, margins can only be lowered so far, whereas it is always possible to increase investment, thus adding to volumes, and thereby driving further reductions in unit price.
23. We think that Vittorio Colao (CEO of Vodafone) may have been making a similar point—investment in 4G networks is resulting in lower unit prices—at the Vodafone Group plc Preliminary Results Analyst and Investor Conference Call 19 May 2015:

*"...if you think about what we just discussed, we are saying that customers are using 50% more data. Germans are actually using only 50% more data; the others are using 80-100% more for marginal positive ARPU increases. Prices, defined as unit prices, are actually going down. Spending is going up, because people use it much more, but I think this is the type of speech, the narrative, that we need to use with the Commissions and they accept it, because these are the numbers. This is the true representation of what's happening."*

24. As HSBC further observes;<sup>21</sup> in the UK average customer downloads doubled in 2014 and it estimates that unit prices have declined by between 14-43% (per MB per month versus per GB per month) in the same year.

### Summary

25. The vast bulk of the evidence to date shows that inter-platform competition, in particular fixed versus cable, brings greater benefits to consumers than intra-platform competition: greater penetration, innovation and a lower cost per unit. It is plausible (and likely) that the technical advantages that upgraded cable networks have (lower degradation, better data speeds and lower cost per upgrade) have prompted fixed networks to match cable rollout in order to retain their base of customers; in turn, the customers of both have been the winners. As WIK finds "the

<sup>21</sup> HSBC Flashnote: UK Telecoms October 2015

*main factor which has driven next generation access (NGA) deployment is infrastructure competition primary [sic] from cable, and in some cases from independent FTTH investors.”<sup>22</sup>*

26. Our analysis so far suggests that Ofcom’s focus should be on promoting capital investment in competing network *platforms* rather than ensuring that each market maintains as large a number of operators as possible (e.g., via improving the conditions for access). Again, as WIK notes: “[t]here is a strong case for maintaining a focus on promoting competition (and specifically infrastructure-based competition) as it is a key driver for fast broadband”. In section 2 below we explore how regulation can help and harm the prospects for investment in competing infrastructures: we agree with WIK that “policies which incentivise infrastructure-based competition are likely to continue to yield positive outcomes for NGA deployments today and in the future.”

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<sup>22</sup> Competition & investment: An analysis of the drivers of superfast broadband. WIK-Consult

## Section 2: Regulation

The evidence shows that passive access requirements deter end-to-end infrastructure based competition and do not foreshadow greater investment on the part of the access seeker. More recently however, the regulation of access to BT's NGA network: active access with wholesale pricing freedom, has encouraged investment to flow. Ofcom must learn from this experience and make a strategic choice to perpetuate this model of regulation.

27. Regulation mandating the unbundling of copper telecommunications networks has now been in place for more than fifteen years, but the evolution of broadband penetration has shown substantial differences between OECD countries. It is therefore possible to study its effect on investment and penetration. Virgin Media has reviewed much of the published evidence; we think that it reveals that:

- The supposed ladder of investment (from service-based intra-platform competition to facilities-based intra-platform) does not lead to entrants 'stepping off the ladder' and investing in their own infrastructure. In fact, there is only weak evidence of movement up the ladder at all. **Put simply, passive remedies do not necessarily lead to 'better things' and a passive remedy is not a means to an (inter-platform competition) end;**
- Passive remedies (LLU) have some, but limited, incremental benefits above active remedies (bitstream access);
- However, **passive remedies have longer-term detrimental effects on investment in competing infrastructure.**<sup>23</sup>

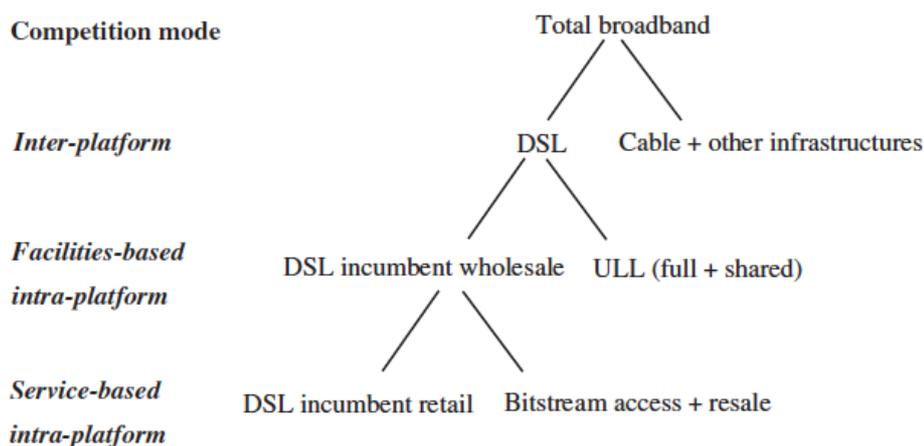
28. We cover these points in more detail individually below and we cite research evidence that we believe is representative. We then go on to contrast how, more recently, regulation has *positively* affected the rollout of NGA infrastructure and detail some of the upcoming challenges.

*Buyers of passive remedies do not 'jump off' the ladder of investment*

29. The ladder of investment philosophy was adopted by many European (and other) regulators in the era of copper networks as a means of implementing unbundling in a way that progressively promotes competitive providers' infrastructure investment. Entrants were expected to move up the ladder. By setting low access prices, the regulator encourages service-based entry in the short term. Then, once entrants have gained a customer base and acquired market experience, they can climb the ladder and invest in their own facilities. Hence, service-based competition serves as a stepping-stone for facilities-based entry. This is shown in the diagram below (courtesy of Bouckaert et al).

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<sup>23</sup> We acknowledge that Ofcom is aware of this risk: "[g]oing forwards, it is important that any access regulation remains mindful of its effect on potential future investment and the degree of sustainable investment in alternative infrastructure". [Paragraph 10.32]



30. Bacache, Bourreau and Gaudin<sup>24</sup> build an empirical model to test the three rungs (bitstream access, local loop unbundling and new access facilities) of the ladder of investment hypothesis. They find no evidence in support of the hypothesis i.e., no effect of the past number of service-based unbundled lines on the number of new access lines owned by entrants. They also consider a 'short' ladder composed of only two access rungs (bitstream access and local loop unbundling): the idea that new entrants may invest up to the local loop unbundling rung, but may be unable to replicate the last local loop rung. They find only weak support for the short ladder.

*Passive remedies have limited incremental benefits above active remedies*

31. Martin Cave in a recent paper<sup>25</sup> reviewing the history of and prospects for the ladder of investment summarises the empirical evidence as follows: "...*inter-platform competition has a significant positive effect on penetration, bitstream-based competition has a negative effect, while ULL-based entry has a small positive effect.....policy makers should focus on the promotion of inter-platform competition*". Put another way, competition based on passive remedies has a generally positive, but not very large effect.

*Passive remedies deter investment*

32. There is evidence of a trade-off between access regulation and investment incentives in telecommunications. This has long been recognised.<sup>26</sup> The role of access regulation with respect to infrastructure investment by entrants is inherently ambivalent: access regulation reduces barriers to entry because entrants do not need to duplicate the existing network, but it also reduces incentives to build new infrastructure because infrastructure can be rented from incumbents at regulated prices. Hence, permitting access to incumbents' infrastructure can undermine not only incumbents' incentives but also entrants' incentives to invest in infrastructure. It also devalues and disincentivises the investments of competing infrastructure owners. Put simply, the price charged for access to the incumbent's

<sup>24</sup>Maya Bacache, Mark Bourreau and Germain Gaudin; Dynamic Entry and Investment in New Infrastructures: Empirical Evidence from the Fixed Broadband Industry. Review of Industrial Organisation 44 (2014) pp. 179-209.

<sup>25</sup>Martin Cave: The ladder of investment in Europe, in retrospect and prospect. Telecommunications Policy 38 (2014) pp. 674-683.

<sup>26</sup>The theories suggest that access regulation has a negative impact on investment by a) lowering the net present value (NPV) of incumbents' investments; b) shifting the risk from entrants to incumbents and c) increasing incumbents' risk exposure and thereby, cost of capital.

network will have a significant influence on the general market price for such access. If that price is regulated directly, competing infrastructure providers will suffer 'collateral damage' as their returns are reduced.

33. Grajak and Roller<sup>27</sup> find empirical evidence of the trade off between access regulation and investment incentives. They find that regulation has a quite different impact on the investment decisions of incumbents and entrants, discouraging investment by incumbents and individual entrants even as entrants' total investment increases. Grajak et al also find, by treating regulation endogenously, that regulatory responses to infrastructure investment differ between incumbents and entrants. Access regulation is not affected by entrants' investment but *"regulators respond to higher infrastructure investment by incumbents by providing easier access, thereby undermining incumbents' incentives to invest in infrastructure in the first place"*. (p. 211).
34. The evidence is well summarised in Cambini and Jiang's<sup>28</sup> review of the literature, which examines more than 20 empirical studies and concludes that *"most of the evidence shows that local loop unbundling...discourages both ILECs and CLECs from investing in networks"*.
35. In its recent report for Cable Europe 'Oligopolies and Competition in Electronic Communications Markets' CRA concludes:

*"From a theory perspective, several opposite effects suggest that, contrary to the ladder of investment theory, access regulation may in fact hamper investment in the market, both by incumbents and new entrants...."*

*"On balance, we find that empirical evidence does not bring much support for the investment ladder theory. While there are of course exceptions, most articles generally find no or negative effects of access regulation on investment."*

36. Hausman<sup>29</sup> comments that the slow deployment of cable services to new markets in the United Kingdom could be explained, in part, by the introduction of mandatory unbundling of BT's network. Bouckaert et al support this observation; they suggest that advantageous access rates lead to further DSL entry than would otherwise arise. However, this increased, but narrowly scoped competition is likely to reduce returns from investing in an alternative platform such as Cable or wireless.
37. WIK however, in its report for the SRDC, simply brushes aside all of this evidence<sup>30</sup>:

*"In view of the abundant literature on this point, we also examined the theory that local loop unbundling might hamper investment in NGA, because it sets an expectation as regards regulatory intervention. In*

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<sup>27</sup>Michal Grajek and Lars-Hendrik Roller; Regulation and Investment in Network Industries: Evidence from European Telecoms. Journal of Law and Economics, 55 (February 2012).

<sup>28</sup> Cambini, C., and Jiang, Y. (2009) Broadband regulation and investment: A literature review. *Telecommunications Policy*, 33 559-574

<sup>29</sup> Hausman, J. A., & Sidak, J. G. (2005). Did Mandatory Unbundling Achieve its Purpose? Empirical p.217

Evidence from Five countries. Journal of Competition Law and Economics, 1, 173{245.

<sup>30</sup> p.8

*this context, we did find that in general, countries with higher LLU take-up had lower NGA deployment. However, this may be explained by the fact that countries with high LLU also have lower cable coverage, which is a driver of NGA deployment. In other words, the negative link is more likely to be due to market characteristics (low infrastructure-based competition) which lead regulators and operators to focus on access-based competition, than to the presence of LLU in itself. We note that there are also circumstances in which the higher speeds driven by LLU might incentivise NGA deployment by the incumbent as a source of competitive advantage.*

38. Put simply, WIK suggests that the weight of the empirical evidence (using sophisticated econometrics) must be wrong because of its own observed positive correlation between NGA deployment and cable penetration, so there can be no negative effect of LLU on NGA deployment. This is flawed. To reject the evidence, WIK must do its own empirical analysis (akin to the studies that we cite above) to determine the relative explanatory weight that should be given to LLU access and cable penetration in determining NGA deployment.
39. The evidence reviewed by Virgin Media demonstrates that the best benefits for consumers come from inter-platform competition; this brings improvements in penetration, quality and unit cost. **However, bitstream and LLU passive remedies do not increase the intensity of inter-platform competition, instead they reduce facilities-based investment.**<sup>31</sup> Moreover, the step up in the ladder from active to passive remedies does not deliver significant incremental benefits and unbundling has little effect on broadband penetration.<sup>32</sup>
40. Oftel, it seems, was on to this nearly 20 years ago: “[a]ny move to allow operators to take over BT exchange lines would undermine past investments and jeopardise future plans. Our conclusion, therefore, is that direct connection to the BT Access Network would adversely affect the development of competition and would not be in the interests of the UK consumer”<sup>33</sup>. In short, Oftel realised that mandatory unbundling would undermine the goals of dynamic efficiency and that “the key to achieving a vibrant market for services provided over telecommunication networks is the promotion of fair, efficient and sustainable **network competition.**”<sup>34</sup> (our emphasis)

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<sup>31</sup>As Ofcom notes in paragraph 2.24 to its early consultation of access to dark fibre: “If passive access provides a lower-cost or lower-risk route to market than self-build, this will change the future returns on past self-build decisions and...reduce the incentives for self-build in areas where CPs (other than BT) are not yet present.” As Robert Pindyck notes “...sunk costs do matter in decision making when those costs have yet to be sunk.” See MANDATORY UNBUNDLING AND IRREVERSIBLE INVESTMENT IN TELECOM NETWORKS. Working Paper 10287 National Bureau of Economic Research, February 2004.

<sup>32</sup> This is not to deny that other results have been found (albeit rarely). For example, Gruber and Koutroumpis (2013), study a large dataset of 167 broadband markets over 11 years, and find that facility-based competition has delayed broadband adoption. See: Competition enhancing regulation and diffusion of innovation: The case of broadband networks. Journal of Regulatory Economics, 43, p168-195.

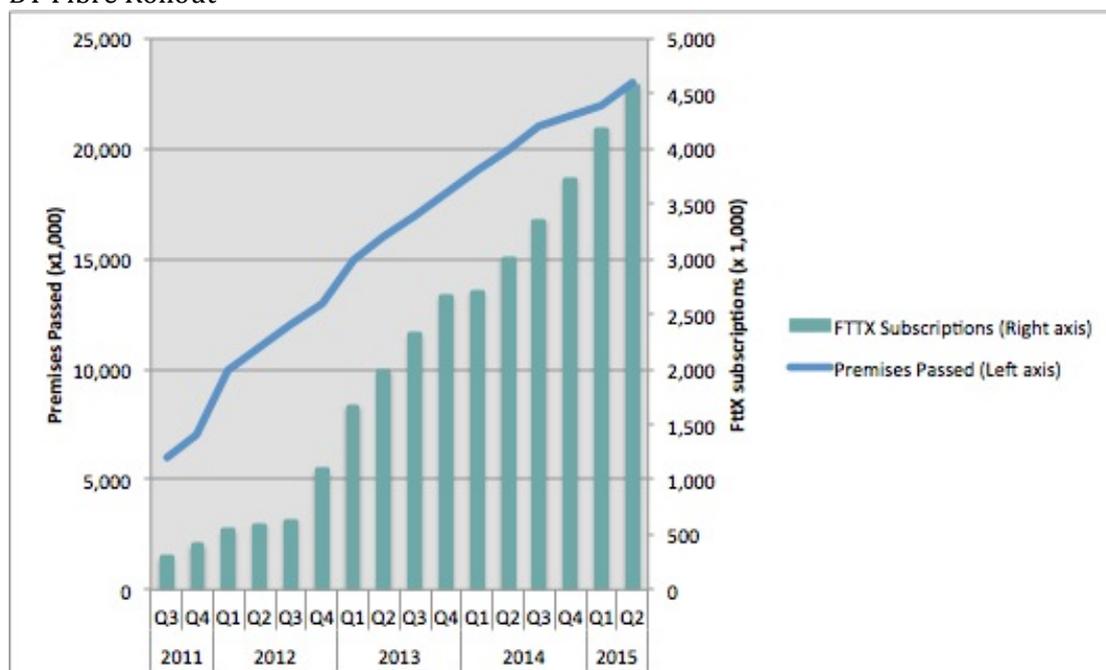
<sup>33</sup> Oftel’s Policy on Indirect Access, Equal Access and Direct Connection to the Access Network, at { 46, July 1996 (available at [http://www.ofcom.org.uk/static/archive/oftel/publications/1995\\_98/competition/access96.htm](http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/competition/access96.htm)).

<sup>34</sup> Oftel, Promoting Competition in Services over Telecommunication Networks, June 1996

*The evidence of investment in end-to-end NGA infrastructure is now more encouraging*

41. Our review of the evidence above strongly suggests that, in the previous decade, the effect of copper unbundling was to slow the development of investment in end-to-end infrastructure. However, as Ofcom notes, its approach to superfast broadband investment has been different. Ofcom has:
  - allowed BT price flexibility (supplemented with a requirement to maintain fair and reasonable VULA terms, conditions and charges);
  - recognised the competitive constraints provided by copper and cable on the pricing of BT's fibre based services;
  - introduced passive remedies to allow contestable investment.
42. The evidence of the impact of this enlightened approach is encouraging (we address directly the impact of passive remedies in paragraph 51 below).
43. BT has rolled out fibre to the cabinet (FTTC) to around 22 million premises and has connected over four million customers (see below).

BT Fibre Rollout



(Source: Ofcom, BT Annual Reports)

44. There are also many other investments in super- and ultrafast broadband being made by independent firms such as Virgin Media. For example, Virgin Media upgraded its network to offer 50Mbps, using DOCSIS 3.0 in 2009. Virgin Media subsequently implemented further upgrades to offer 120Mbps and then 152 Mbps<sup>35</sup> using this technology. DOCSIS 3.0 provides additional capability to deliver speeds of 400Mbps+ and the next generation of DOCSIS (DOCSIS 3.1) will allow the delivery of Gigabit speeds. From 1 October, Virgin Media's existing customers can opt-in to greater speeds as we initiate our third speed increase in the past three

<sup>35</sup> Virgin Media Press Release 'Virgin Media launches broadband twice as fast as the rest' 28 February 2014

years. Customers will be able to upgrade from speeds of 50Mb, 100Mb and 152Mb to speeds of 70Mb, 150Mb and 200Mb respectively.

45. In February 2015, Virgin Media announced that it would be rolling its network out to a further four million premises through a £3bn investment programme, 'Project Lightning'.<sup>36</sup>
46. Although Virgin Media and BT are by far the largest investors in NGA, we are not the only ones. Ofcom summarises network deployments by alternative providers in Figure 25 of the SRDC. We show some of the investments being made by the operators in the market in the table below.
47. Significant private sector investment in superfast broadband coverage is clearly taking place. The access speeds these network will provide comfortably exceed the projected demand for bandwidth reported by Ofcom in Figure 9 of the SRDC. This shows that by 2023 the minimum bandwidth required by the top decile of households will peak at 30 Mbps.
48. It is also of note that the UK is faring well against the European Commission's Digital Agenda 2020 Speed Targets – thanks, to an appreciable extent, to cable. In cable footprint areas, the first of the Commission's targets (services of at least 30Mbit/s to be available to all citizens) was achieved more than 10 years ahead of schedule). Further, cable is well on the way to achieving the second target of having at least 50% of citizens subscribing to a 100Mbit/s or faster service by 2020.

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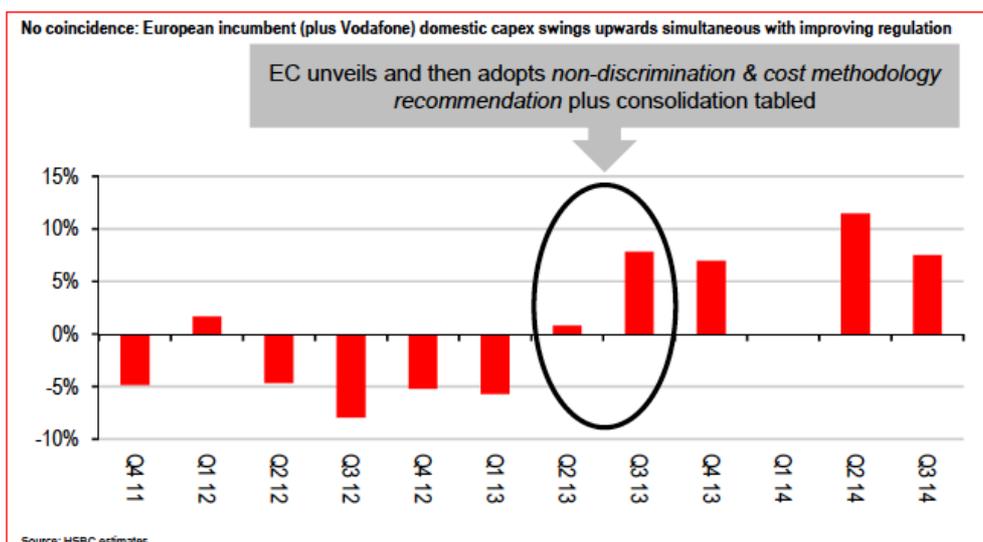
<sup>36</sup> Virgin Media Press Release '*Virgin Media and Liberty Global announce largest investment in UK's internet infrastructure for more than a decade*' 13 February 2015

### Investments in NGA

Type of deployment	Examples (not exhaustive)
<b>Commercial NGA networks</b>	<p><u>Cityfibre</u>: wholesale provider of fibre infrastructure including joint venture announced with <u>Sky</u> and <u>TalkTalk</u> to rollout FTTP in York. <u>Cityfibre</u> targets what it calls “second tier cities” and claims to have the UK’s largest FTTH network in Bournemouth, covering 21,000 homes.</p> <p><u>Hyperoptic</u>: Fibre to the Building to blocks of flats in cities including London, Cardiff, Reading, Bristol, Manchester, Liverpool and Leeds.</p> <p><u>Gigaclear</u>: FTTP to rural villages. It claims to have 25 live projects and 50 being installed. The villages tend to be clustered in Leicestershire and Oxfordshire.</p>
<b>Commercial Satellite Networks</b>	<p>Satellite broadband: commercial satellite service providing up to 20 Mbit/s broadband. The leading provider is <u>Avonline</u>. Satellite providers claim national coverage.</p>
<b>Commercial wireless networks</b>	<p>There are several local fixed wireless networks. For example:</p> <ul style="list-style-type: none"> <li>• <u>Call Flow</u> (Hampshire)</li> <li>• <u>Thinking Wisp</u> (Norfolk)</li> <li>• <u>WiSpire</u> (Norfolk)</li> </ul>
<b>Community NGA networks</b>	<p><u>Cybermoor</u> and fibre broadband in Alston Moor, Cumbria.</p> <p><u>B4RN</u>: FTTP in the rural north west of England.</p> <p>Shetland Telecom: wireless broadband around <u>Lerwick</u>.</p>

(Source: Ofcom, SPC Network)

49. Ofcom’s own analysis shows that the UK is not ‘falling behind’. For example, in paragraph 4.10: “[a]vailability of superfast broadband in the UK compares well to other European countries. This wide availability is supporting increasing take-up. At the end of 2014, nearly a third of UK fixed broadband connections (32%) had a headline speed of 30Mbit/s or more, a higher proportion than in France (12%), Germany (21%), Italy (4%) and Spain (24%)”. Indeed, HSBC has shown that the uptick in European incumbent investment occurred after the Commission endorsed Ofcom’s approach (see the diagram below).



50. The Commission’s costing and non-discrimination recommendation states that “pricing flexibility at wholesale level is necessary to allow both the access seeker and the SMP operator’s retail business to introduce price differentiation on the retail broadband market in order to better address consumer preferences and foster penetration of very high-speed broadband services.” (paragraph 49). As Ofcom has noted, this flexibility, in addition to the potential to increase consumer take-up, allowing different prices to be set and higher returns to be made on the highest quality products may also create efficient incentives to invest in next generation access. (See the March 2009 Statement).
51. We make a number of important observations on Ofcom’s approach to the regulation of superfast broadband investments:
- The competitive constraints on BT imposed by cable and other NGA investments and the spur to innovate and upgrade its network will become more effective over time as, in particular, Virgin Media expands its geographic presence to pass 65% of premises by 2020.
  - To our knowledge, whilst there have been a number of limited trials, no communications provider has utilised the PIA remedy to any meaningful extent and the economics of sub-loop unbundling are widely regarded as unsustainable.<sup>37</sup> The existence of these remedies therefore cannot be said to have facilitated investment in next generation networks (all the evidence that we have reviewed shows that users of active remedies do not jump off the ladder and start building their own end-to-end infrastructure via access to ducts and/or poles or otherwise). It is likely that BT does not anticipate that these passive remedies will be used and therefore, by extension, their availability has not deterred its own investment in fibre. The same, however, is not true for the potential requirement to provide access to its dark fibre (in its response to the BCMR consultation BT describes the proposals as “disproportionate” and creating “significant uncertainty harmful to investment”. (paragraph 1.41).

<sup>37</sup> There are some minor players who have used SLU – in the last Fixed Access Review (July 2013) Ofcom noted in paragraph 11.8 “[u]se of SLU is also low and largely restricted to one deployment by Digital Regions Limited (‘DRL’) in South Yorkshire – which is itself a State intervention”.

- Various factors have therefore resulted in a ‘virtuous investment circle’. Flexibility in wholesale pricing and the absence of a usable passive remedy (i.e., no risk that any upside from building network will be expropriated) has resulted in significant investment in NGA networks by BT, Virgin Media and others. As these competitors to BT expand their networks, the competitive constraints on the latter strengthen (along with its incentives to innovate<sup>38</sup>); thereby weakening the need for further regulation. HSBC has referred to this type of competitive investment as the ‘Holy Grail’.<sup>39</sup>
  - At the same time the VULA access remedy has meant that, for example, in the quarter ended June 2015, those (non BT Retail) CPs using this form of access accounted for just over 37% of the net additions in high speed broadband customers (see Enders Analysis UK broadband, telephony and pay TV trends Q2 2015 20 August 2015). Put another way, the existence of an active access remedy that is not priced at cost has not thwarted the ability of access seekers to grow.
52. We see no need to alter this approach. There should be no necessity to revert to the traditional spreadsheet based approach of allowing BT to recover the cost of access equipment plus a reasonable rate of return<sup>40</sup> when the current regulatory regime is so obviously resulting in investment in competing end-to-end networks. Indeed, any notion that wholesale pricing flexibility will eventually ‘time out’ and value will be shifted to access seekers risks deterring the investment that these access seekers rely upon in the first place. Investment in infrastructure is not a one-off event but a repeated round ‘game’; what happens in the early rounds affects the actions of investors in subsequent rounds.
53. In contrast, we believe that Ofcom must regulate to perpetuate the conditions that have created this ‘virtuous circle’ in order to achieve its desire to “*regulate in a way that protects the incentive to make significant, and potentially risky, investments*” (paragraph 1.30) and to apply access regulation in “*ways that protect incentives for new, significant and potentially risky investment*”.
54. It is therefore concerning that Ofcom believes that the strategic question is *when*, rather than *if*, it should resume its traditional mode of regulation:

*“Intervening too soon may risk eroding investor confidence and certainty in the regulatory environment for risky investments. In turn this could undermine the fair bet principle and affect incentives for future investment, including by potential competitors to the SMP provider. At the same time, intervening too late may risk harm to consumers arising from higher prices or lower adoption of superfast broadband.”* (paragraph 10.29)

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<sup>38</sup> When faced with investment by competing providers, BT has an incentive to innovate to ensure that retail customers continue to be attracted to providers using BT wholesale inputs and thus to preserve/increase connections to the Openreach network.

<sup>39</sup> HSBC UK Telecoms War & Pieces – rivals demand the structural separation of BT 17 March 2015 p.6

<sup>40</sup> With the inevitable endless ‘nickel and dime’ style arguments (and subsequent appeals) about: asset prices, economic depreciation profiles, definition and treatment of common costs, cost of capital etc. etc.

55. For Virgin Media the strategic question is whether Ofcom should rule out a change in the mode of regulation given that investment is flowing, availability and penetration of superfast broadband is growing, unit prices are falling and the 'virtuous cycle' of investment and counter investment by competing owners of infrastructure is flourishing; and that 'reverting to type' risks undermining the investment on which these benefits depend. We obviously think that it should.

*There are concerns that the climate for investment in NGA will worsen*

56. Since the announcement of Project Lightning there have been a number of developments that at least question the suitability of the UK as a place for investment in NGA. We discuss these developments below:

#### Passive access (to dark fibre)

57. Ofcom is consulting on its proposal to require BT to provide access to its dark fibre for the provision of leased line services.<sup>41</sup> The effect of this intervention (as Ofcom acknowledges) will be to decimate the competitive provision of high bandwidth (10Gbit/s) leased lines and therefore entrench BT as a dominant supplier. This will transfer value from infrastructure providers to access seekers and will weaken the incentive to invest in expanding networks. Virgin Media is, in part, expanding its network in the expectation that it will sell more high-capacity bandwidth circuits. For more details see Virgin Media's response to the Business Connectivity Market Review.<sup>42</sup>

#### Civil Infrastructure Directive

58. Non-SMP operators face the prospect of having to open their networks to third parties under the Civil Infrastructure Directive.<sup>43</sup> The UK Government is currently considering how to transpose this Directive into UK legislation, with a focus on facilitating the sharing of infrastructure across sectors (i.e., making it easier for Communications Providers (CPs) to utilise the infrastructure of other utility companies such as energy or water networks). However, the Directive can, in theory, also be used to require owners of non-SMP networks to share their infrastructure with third party CPs. Whilst this may not be the intent of the Government, the threat nonetheless remains – and constitutes a material concern to investors in infrastructure that is not dominant.

#### A possible revision to the USO

59. Ofcom says that it is currently *“working in collaboration with central government to assist the discussions relating to a universal service obligation in broadband.”* (paragraph 7.37). On 23 July the FT<sup>44</sup> reported that *“[s]enior government figures*

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<sup>41</sup> Access to dark fibre is to be implemented alongside a price regulated access remedy. We suggested that Ofcom's equivocal statement in A23.169 that *“in the longer term, if the availability of passive inputs allows CPs to replicate BT's downstream services, there may be less (or no) need to impose regulation of active remedies downstream”* is unlikely to give investors confidence that deregulation is a realistic prospect.

<sup>42</sup> [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/responses/Virgin\\_Media.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/responses/Virgin_Media.pdf)

<sup>43</sup> Directive 2014/61/EU of the European Parliament and of the Council of 15 May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks.

<sup>44</sup> “Web providers set to face multimillion-pound broadband levy”.

*told the Financial Times that ministers were weighing up whether to shift the cost of providing the final 5 per cent of coverage off the taxpayer and on to the industry, as George Osborne looks to deliver spending cuts while keeping manifesto promises.”*

60. The objective of a USO policy should be to prevent digital exclusion. However, it is reasonable to ask whether a USO is the *right* or proportionate policy response, particularly given the infrastructure already in place or being deployed.

#### *Existing satellite provision*

61. High speed broadband is available to virtually every UK household today, in the form of satellite broadband.
62. Satellite does have disadvantages relative to fixed line services, in that it is more sensitive to high traffic demand (with usage caps more prevalent than in fixed line services) and has higher latency. However, the issue of traffic volume and capacity constraints is less relevant if the focus is on the levels of usage that are sufficient for the vast majority of consumers.<sup>45</sup> Heavy users may decide that it is worth the extra cost of purchasing capacity ‘top-ups’ to be able to make heavy use of iPlayer, say, but that is a financial trade-off for them to make, with limited externalities to justify a policy intervention.
63. Moreover, satellite traffic costs will continue to fall, as technology improves. A current 2nd generation Ka band satellite has a typical capacity of 150-200 Gbps, compared to the 5 Gbps capacity of a Ku-band satellite of a decade ago.<sup>46</sup>
64. For some, the upfront cost of satellite equipment – in the range of £375 - might be more of a barrier than the monthly fee (if they are an average user).<sup>47</sup> However, this challenge is likely better met through a voucher scheme similar to those for faster connections for businesses in urban areas, rather than a ‘shotgun’ USO upgrade. Addressing the affordability of an existing network is a very different policy challenge from funding the deployment of an entirely new network. We note that the Government has announced that it is launching a pilot of its proposed subsidy (voucher) scheme to support the installation of “*superfast*” (24Mbps+) capable satellite broadband services in remote rural areas, which will begin this month in Suffolk and West Yorkshire (England).

#### *Developing wireless provision*

65. Another option that will be available to many households with poor fixed broadband is wireless. Mobile cellular data coverage is already increasing rapidly in the UK. The block of 800 MHz spectrum sold to O2 in 2013 included an indoor coverage obligation that 98% of the population should be able to receive at least 2 Mbps<sup>48</sup> by end of 2017 (and 95% within each of Scotland, Wales and Northern Ireland). While other operators do not carry this obligation, they intend to match

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<sup>45</sup> An Ofcom study of usage amongst Kingston Communications’ customers (June 2013) found great variation, such that the top 10% of users represented more than half of all usage. Whilst average usage was 25 GB/month, members of the top 10% consumed 127 GB each, of which 47 GB was video, and 24 GB was file sharing.

<sup>46</sup> ThalesAlenia, [Contribution of satellite systems to 100% EU broadband coverage](#), April 2013

<sup>47</sup> Avonline Broadband, [Choose Avanti Home](#) (accessed 4 September). Includes installation

<sup>48</sup> Average 4G speeds are circa. 15Mbps

these coverage levels.<sup>49</sup> In practice, since the various operators' indoor coverage areas will not exactly overlap, this means aggregate coverage will be greater than 98%.

66. Outdoor coverage will be even higher – walls attenuate mobile signals, reducing the scope of indoor coverage. However, for those wishing to use mobile broadband in areas with borderline indoor coverage it is possible to install an outdoor aerial to receive a stronger signal. In combination this means many households with poor fixed broadband today may be able to access mobile broadband of at least 2 Mbps (and potentially more). As with satellite equipment, it might be that targeted subsidies for such aerials was a far more efficient intervention than widespread investment of public money in the fixed network.
67. Mobile may also be relevant in conjunction with fixed. Hybrid solutions can make efficient use of both, with a household's fixed line (even of low speed) being used to carry 'base load' traffic, and the mobile network being used to carry spikes of demand for higher bandwidth. This technology has been deployed in Germany, and is being considered in the UK.
68. Thus both satellite and mobile networks are improving their coverage and capabilities, and hence will be a viable option for an increasing number of those with poor fixed connections. **Consequently, careful analysis would be required before determining that a permanent and substantial policy intervention such as a USO was appropriate to meet the needs of a diminishing number of households.**
69. This is doubly true since the USO might have impact well beyond this group of households, unless it is very carefully specified. While the intervention might be aimed at those beyond the reach of the mobile network (say), if it is a USO then households anywhere would be able to call on it. If the USO requirement was such as to mandate a fixed solution, then even those households with a good mobile alternative could call on it, requiring wasteful overbuild by the fixed provider in such areas.
70. A broadband USO levy imposed on providers such as Virgin Media would effectively be a hypothecated tax for which we receive no incremental benefit. In the 'old world' voice has substantial network effects and consumers in profitable areas would benefit from additional users in USO areas. However, this logic does not sustain for a broadband USO. Applications with network effects between end-users are far less important. Moreover, some of the more demanding applications (such as iPlayer, YouTube and software downloads) have particularly limited network effects. A USO customer making use of these applications does not benefit other network users.
71. Such a levy risks simply depleting the funds that Virgin Media has available to invest in competing end-to-end infrastructure.

#### BT returns £129m

72. In its results for the first quarter ending 30 June 2015 BT announced that "*[g]iven the strong market-wide demand for fibre, we have increased our base case assumption to 28% penetration with 30% in Broadband Delivery UK (BDUK) areas,*

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<sup>49</sup> Ofcom, [Infrastructure Report 2014](#), 8 December 2014

although it will still be many years before we recover our investment.”<sup>50</sup> BT goes on to say:

*“Capital expenditure was £658m (Q1 2014/15: £516m) after £3m (Q1 2014/15: £78m) of net grant funding mainly relating to the BDUK programme. This reflected £103m of gross grant funding directly related to our fibre broadband network build in the quarter which was largely offset by the deferral of £100m of the total grant funding we have accrued to date. This is primarily because we have increased our base-case assumption for take-up and under the terms of the BDUK programme, we have a potential obligation to either re-invest or repay grant funding depending on factors including the level of customer take-up achieved. The deferral accounts for most of the increase in our capital expenditure but is a non-cash item in the quarter that we expect to be reflected in our free cash flow in future financial years. Without the impact of the deferral, our capital expenditure would have been £558m. To date, we have deferred a total of £129m of grant funding.”*

73. This statement is hard to fathom, however it was widely reported that BT is to return £129m of government subsidies for superfast broadband rollout after penetration topped the initial forecasts. This would appear to be the end of the matter: the original take-up assumptions were underestimated and BT has recompensed BDUK.

74. Confidential<sup>51</sup>

75. Confidential

76. Confidential <sup>52</sup>

#### BEREC consults on ‘tight oligopolies’<sup>53</sup>

77. One interpretation of this consultation is that national regulators could be given a new tool that better enables them to regulate oligopolistic wholesale markets without having to rely on joint dominance. However, what justification is there to apply weaker or lower evidential threshold when assessing market failure in telecoms markets than when assessing competition in other parts of the European economy (where oligopolies are commonplace)? If joint dominance is the right test elsewhere in the economy, why is it insufficient for telecoms?

78. BEREC observes that only a few cases of joint dominance have been conducted/found by NRAs. This does not reveal a deficiency in the current regulatory framework. Findings of joint dominance in telecommunications markets are very unlikely because of the inherent nature of competition in the sector: excess

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<sup>50</sup> <http://www.btplc.com/Sharesandperformance/Quarterlyresults/2015-2016/Q1/Downloads/Newsrelease/q115-release.pdf>

<sup>51</sup>

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<sup>53</sup> See a thoughtful paper by Richard Feasey at <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbmZmZWZzZXI3YWxlcl3xneDoxZmU5MWVkbjVmM2Y1OGNm>

capacity, dynamic nature, innovation etc. The bar on ex ante intervention *should* be high.

79. Lowering this bar risks instituting some perverse (negative) incentives. Competing infrastructure providers commit capital and take market share from an incumbent only to find that they become tagged as part of a 'tight oligopoly' and subject to some form of ex ante regulation. This would be a powerful disincentive to investment.
80. However, Ofcom is supporting BEREK work hoping that it leads "*to a revision in the framework so that regulators have the full range of tools to respond to a changing market.*"<sup>54</sup>

#### DCMS consults on Retransmission fees:

81. The last government consulted on the Balance of Payments between the commercial PSBs and a subset of the pay TV platforms: Virgin Media and Sky. However, money transferred away from Virgin Media in the form of carriage fees dents the economics of extending the network. Project Lightning is a 'demand led' build out of the network. Virgin Media will lay network in streets where there is sufficient demand. If we have to pay a PSB 'tax' for the consumption of PSB programming (and are unable to pass this through to the customer) then the number of customers required to make laying network viable will increase. At the margin, this will result in less network build.

#### Ofcom consults on the structural separation of BT

82. We devote the following section to a discussion of structural separation.

#### *A Regulatory Commitment Problem*

83. To recap: the weight of quantitative evidence shows that investment in, and competition between, end-to-end infrastructure providers is the 'gold standard' for consumers. There is also evidence that the existence of copper-based LLU access remedies delayed investments in NGA and that this investment has only materialised with the institution of a different set of remedies which let incumbents set the price of (active) access subject to a margin squeeze test. In the UK this enlightened approach has resulted in substantial investment in competing infrastructure providers, of which Virgin Media is the most material. However, there are risks that returns from this (sunk) investment will be undermined, and future investment will be deterred, by retrograde regulation of which we cite a number of examples above.
84. We believe that this can be characterised as a regulatory commitment problem. Although the conditions for investment are currently favourable, investors worry that their capital will not be safe once it is in the ground (and consequently they don't put it there). David Newbury explains this better:

*The political demands for access and "fair" or non-exploitative prices means that investors must expect that after they have sunk their capital, they will be limited in the prices that they can charge and subject to possibly onerous obligations to supply, to guarantee security,*

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<sup>54</sup> [http://media.ofcom.org.uk/speeches/2015/consumers\\_and\\_consolidation/](http://media.ofcom.org.uk/speeches/2015/consumers_and_consolidation/)

*stability, and safety. If these investors are to be induced to invest, they need the reassurance that future prices will be set at a sufficiently remunerative level to justify the investment. Once capital has been sunk, the risk that the balance of advantage will shift toward those arguing for lower and possibly unremunerative prices.....What would be needed to persuade investors to sink their money into an asset that cannot be moved and that may not pay for itself for many years? The investors would have to be confident that they had secure title to future returns and that the returns would be sufficiently attractive. Durable investments require the rule of law, and specifically the law of property, which is provided by the State.* <sup>5556</sup>

85. Grajek and Roller (op. cit p.18) have found *evidence* of a regulatory commitment problem. They find that “*regulators respond to higher infrastructure investment by incumbents by providing easier access, thereby undermining incumbents’ incentives to invest in infrastructure in the first place*”.

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<sup>55</sup> David M. Newbury Privatisation, Restructuring, and Regulation. Walras-Pareto Lectures Chapter 2: The Problem of Regulatory Commitment. pp. 28-29.

<sup>56</sup> Newbury and Gilbert formalise this insight in to a model (Gilbert, Richard J., and David M. Newbury. "The dynamic efficiency of regulatory constitutions." *The Rand journal of economics* (1994): 538-554). In their game theoretic model, a regulated utility considers making an investment in, for example additional capacity or a network upgrade, which may be to superfast broadband. However, the utility is uncertain as to how the regulator will respond to any additional profits made by the utility. In a game theory model each player (in this case the utility and regulator) has a set of strategic choices it can make and receives a payoff based on both its and the other player's choices. In this case the set of choices available to the utility are to invest or not invest and the choices for the regulator depend on its objectives, but can be crudely described as to regulate the utility's prices strongly or weakly thereby allowing it higher or lower profits. The payoff for the utility is its profits and for the regulator are assumed to be consumer welfare as it is its job to represent the consumer.

The extent to which the utility will invest depends on its view of how it will be regulated after it has made the investment. If it considers that the authority will expropriate all its profits through excessive price regulation, then its incentives to invest are reduced and the investment is unlikely to be made. If, however, it believes the regulator will allow it to earn and retain positive economic profits then the investment is likely to be made. However, the regulator may be unhappy in this instance as consumer welfare will be reduced if the utility can charge higher prices.

By extension, although not discussed by Newbery and Gilbert, an independent, unregulated, investor's decisions will also be affected by this game between the regulator and regulated utility. Dependent on its cost structure, the independent firm's incentives are likely closely to mirror the utility's. Its pricing will be strongly influenced by the prices the regulated utility can charge, as it has to remain competitive, and so likewise its incentives and payoff will be similar.

A simple response would be that if the utility has no incentive to invest because its profits will be regulated away then the independent competitor would have the market to itself and have a strong incentive to invest. However, if the independent firm fears that it too might be regulated because it is the only provider of NGA, then it too may have no incentive to invest.

The challenge, therefore, for a regulator that wishes to encourage independent infrastructure competition is to ensure the right balance between encouraging investment and ensuring that consumers are protected.

86. The SRDC provides Ofcom will an ideal opportunity to address any regulatory commitment problem in the UK. This should take the form of a statement that expresses:

- an explicit preference for end-to-end infrastructure based competition;
- a clear strategic preference for active above passive access remedies;
- a reluctance to regulate directly the price of access remedies in favour of a margin squeeze test;<sup>57</sup>
- a commitment to work with Government to alleviate the process barriers to investment in infrastructure: permits, wayleaves etc. (see our answer to question 3 below).
- a reiteration of its intention to see "*broad stability in copper access prices*".<sup>58</sup> This is an essential underpinning to both (i) incentives for investment in infrastructure (as it means that infrastructure already in the ground will not be devalued) and (ii) the flexible approach to fibre pricing advocated above (as wholesale copper access prices serve as an anchor for, and constraint on, NGA services).

87. A commitment of this nature will reassure investors in infrastructure that Ofcom will resist the clamours of access seekers<sup>59</sup> once investment has been sunk and thereby persuade the same investors to sink more capital in the ground.

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<sup>57</sup> We accept that cost-oriented active access remedy can also harm investment, hence our preference for wholesale pricing freedom coupled with a margin squeeze test (with retail prices constrained by the presence of cable).

<sup>58</sup> The European Commission, as part of its fibre regulation document (Recommendation on consistent non-discrimination obligations and costing methodologies, 11 September 2013), said that it expects to see copper prices stable in real terms.

<sup>59</sup> Access seekers are congenitally programmed to seek better terms for access. This is how they add value to their business: reductions in the price of access are, in part, retained as profit by the access seeker. There is nothing wrong or underhand in seeking lower prices for access, but it does mean that those investing in the infrastructure to which access is sought are less inclined to do so.

### Section 3: Structural Separation

There is no identified problem to which structural separation is the answer. Investors will rightly fear a path of ever more intrusive regulation of prices and technologies; the reduced investments in competing end-to-end infrastructures will be the collateral damage.

88. The 2005 TSR identified underinvestment in competition based on LLU as a key problem in the market caused by the perception amongst BT's rivals that it could harm their investments through non-price discrimination. This was because the "no undue discrimination" obligation allowed in UK law permitted different treatment where such difference could be justified. To overcome this problem, Ofcom agreed a set of Undertakings with BT that introduced Equivalence of Input and "functional separation".
89. In its initial submission to Ofcom<sup>60</sup> Sky has called for a referral to the Competition and Markets Authority (CMA) for it to undertake a Market Investigation and Sky would clearly like the outcome of any such investigation to be the structural separation of BT. Other CPs, for example TalkTalk and Vodafone, have also suggested that BT should be structurally separated. However, it is not clear what problem structural separation is expected to solve.

#### *Structural Separation*

90. Structural separation is the complete ownership separation of Openreach and the rest of BT. Both companies would report to separate Boards representing separate shareholders and there would be no economic links between the two firms. There would presumably be some restriction on Openreach to prevent it entering downstream markets.
91. For this to happen Ofcom would need to refer the market to the CMA for it to conduct a Market Investigation. The CMA would then need to establish that the current market structure gives rise to an Adverse Effect on Competition (AEC) and that the only way to remedy the problem caused is through structural separation. Such a remedy would mean that the CMA would have to modify the property rights of BT's shareholders and to require them to divest themselves of a large part of their company. Such an intrusive action by the CMA into the private property of shareholders would require a high evidential base that there is an AEC arising from BT's vertical structure.
92. For the CMA to establish an AEC it must show that one or more features of the market are leading to a detrimental impact on consumers and competition. This was explained by the Competition Commission (the forerunner of the CMA) in its investigation into supermarkets:

*"The [Competition Commission] is required to determine whether any feature, or combination of features, of the market prevents, restricts or distorts competition (under s134 of the 2002 [Competition] Act). If this is so, there will be an 'adverse effect on competition', and we will seek to identify the detriment to consumers resulting from the adverse effect on competition (which might take the form of higher prices, less choice,*

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<sup>60</sup> Sky (2015) 'Ofcom's Strategic Review of Digital Communications: Initial Submission by Sky' 29 June 2015.

*lower quality of available products or lower innovation than if competition was working effectively).*<sup>61</sup>

93. Ofcom's analysis of the market suggests that consumers are not experiencing any adverse effects when compared with other G7 countries and that the UK broadband market is the least concentrated of any of the five largest EU Member States. We therefore think that it would be unlikely that the CMA could establish an AEC. In the discussion document, Ofcom describes the case for structural separation as a "difficult trade-off between competing arguments"<sup>62</sup>. Our view is that modifying the property rights of BT shareholders requires an indisputable justification, not making a judgement between competing arguments.

#### *Further Fibre Deployment*

94. Some (see for example REDBURN Cutting the Gordian Knot – The Break-up of BT March 2015) have said that a structurally separated Openreach may have a greater incentive to roll out superfast broadband to the whole country and deploy fibre deeper into its network to increase its revenue and profits. As its activities would be restricted to the provision of wholesale access only it could only increase its profits by becoming more efficient (although such efficiency gains may be regulated away in subsequent charge controls), extending the footprint of its network, and upgrading its capability, to attract more customers and for those customers to use the network more.
95. However, Openreach has these incentives *today* under the current regulatory regime (see the recent announcements by BT). To structurally separate BT Ofcom would need to reason that Openreach enjoys a dominant position and could not be expected to face increased competition in the medium term. The latter clearly fails on the facts given that Virgin Media's network covers over half of all households today and will be expanding significantly in the next few years. If Openreach was separated on the basis of its dominant position it would necessarily be subject to strict price regulation to prevent it abusing that position, for example by raising prices above the appropriate measure of cost. Such regulation would most likely be some form of charge control to stop it pricing above the competitive level, or something close to it (clearly margin squeeze could not be used if BT was no longer vertically integrated).
96. Openreach's profits would therefore be restricted and, if Ofcom does its sums correctly, we could assume that it would not be able to earn returns above its cost of capital. If it can only earn its costs of capital then it has no greater incentive than it does today to make investments as it cannot make an economic profit on those investments (although, arguably, it can today). Of course, the lot of the access seeker would be improved by having cheaper access to fibre but at the cost of reducing Openreach's incentive to deploy fibre.
97. In its paper, Sky suggests that the use of VULA, which is an active access product, will prevent Sky, and others who rely on wholesale access from BT, differentiating themselves from BT's NGA based broadband service, thus giving consumers less reason to switch to alternative providers. Sky also suggests that for BT upgrading a customer from copper to fibre broadband is an internal charge, whereas for

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<sup>61</sup> Competition Commission, Groceries market investigation: Statement of issues, June 2006 paragraphs 4-5

<sup>62</sup> op cit. footnote page 128, after paragraph. 11.69

companies such as Sky it is a real cost and this will mean BT will find it easier to upgrade customers than Sky. By structurally separating Openreach all retailers will be in the same boat.

98. A number of points can be made in response. Firstly, BT already has the lowest market share of any incumbent operator in Europe. Further, at the time of the Undertakings, when there were only a little over 100,000 LLU based lines and most providers were using Bitstream, it also had the lowest share. There is no reason to think, therefore, that BT Retail's market share will inevitably become much larger because access is upgraded to fibre, particularly, given the increased purchase of bundles of services, the many dimension over which CPs can compete and innovate.
99. Secondly, the obligation on BT to publish RFS alongside EOI and functional separation means that BT should not have any advantage from upgrades being an internal rather than an external charge. There is no reason to believe that full structural separation will inevitably result in the outcomes that Sky believes.
100. Finally, Sky argues that separating BT's retail operations from Openreach would have a positive impact on investment in alternative infrastructure. It specifically suggests that if BT's retail operations were free to buy from other network providers, such companies could gain the economies of scale necessary to compete with Openreach.
101. This is highly unlikely. At initial separation only Openreach would have the scale necessary to supply the new BT retail company. It is also likely that a long-term contract between BT and Openreach would need to be established at the time of separation to ensure that a separate Openreach is valuable enough to prospective shareholders. Thus, for the duration of this contract there would be no, or at best limited, possibility for BT's retail company to support the development of other network providers.
102. The justification for separation of Openreach would be that its existing dominance could not be challenged by expansion of existing networks or new entry. Why else would it be necessary to separate Openreach from BT? If the CMA considered Openreach to be in such a dominant position it would, of course, need to be regulated as such to prevent it abusing its market power, and in particular from setting prices at an exploitative level to maximise its own profits. Given its scale, there is a real danger that Openreach's regulated prices could be set at a level below that which a reasonably efficient operator could compete, forcing new market entrants out of the market and discouraging network expansion by established networks, for example Virgin Media.
103. The separation of Openreach as proposed by Sky could end up harming competition in infrastructure markets rather than acting as a panacea to promote competition.
104. Also, it should be noted that the largest independent investment in new network taking place today, Virgin Media's Project Lightning, is happening without the structural separation of BT. Furthermore, Virgin Media does not rely on wholesale revenues from access seekers and so must compete entirely in the retail market. Having a share of BT Retail's wholesale business is therefore not a requirement for investment in competing end-to-end infrastructures.

### *Quality of Service*

105. Sky has also commented on the poor QOS provided by Openreach and has suggested that vertical separation would resolve this issue. The general argument is that a separated Openreach would be able to increase demand for its service by providing all downstream firms with high QOS to attract end customers who, ultimately, create more demand for the upstream input. As a separated entity, Openreach would not have the incentive discussed above to lower QOS for all and thereby reduce switching to favour BT's downstream business.
106. There are two problems with this argument. Firstly, as discussed above, a separated Openreach would almost certainly be under a charge control mechanism that would restrict its returns to its cost of capital, meaning that it could earn no economic profit. One way it could get around this would be to reduce its QOS, and its associated costs, early in the charge control period allowing it to increase profits. There has been much anecdotal evidence that regulated utilities have followed such a strategy in many sectors and countries. We should not, therefore, expect structural separation automatically to lead to improved QOS.
107. Secondly, although closely related to the point above, Openreach would be a dominant firm with little or no competitive pressure to improve QOS to keep it competitive (or at least that would be one of the justifications for its separation from BT). In the famous words of the economist Sir John Hicks "*the best of all monopoly rents is a quiet life*"<sup>63</sup>. Without the pressure from competition, a separated Openreach could enjoy the quiet life by not investing in improved QOS.
108. To prevent such behaviour, Ofcom would need to intervene and set QOS targets and sanctions for not meeting those targets. In other words, it would have to implement the same regulation as it does today. Structural separation alone would not do the job for Ofcom.

### *Ownership of Openreach*

109. One way around these objections is for Openreach to be owned by its customers and to operate as a not for profit organisation, i.e. any profits it did make would be invested in the business. The advantage of this scheme is that its owners—presumably BT, Sky, TalkTalk and other customers of Openreach—would have the incentive to push Openreach to invest in the rollout of superfast broadband to rural areas, to push fibre closer to the customer and to improve QOS. Further, as all profits could not be taken, the owners would not have any incentive for Openreach to charge monopoly prices.
110. There are two immediate objections to this model. Firstly, how will shares in the co-operatively owned Openreach be structured? Would all customers have the same number of shares or would shares be owned in some sort of proportion to the size of the customer? There are obvious problems if shares are owned in proportion to size as BT's various retail businesses are the largest customers of Openreach meaning that it would retain substantial control over the separated company.

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<sup>63</sup> Hicks, John. Annual Survey of Economic Theory: The Theory of Monopoly." *Econometrica*, January 1935

111. Secondly, what happens when a new entrant, not one of Openreach's existing owners, wants to establish itself in the market? Would it be able to become a shareholder in Openreach or could existing owners effectively exclude it from the market?
112. These are not easy questions to answer and perhaps account for why such an approach has rarely if ever been taken in utility regulation. The one example in the UK of co-ownership was the National Grid Co. after the privatisation of the electricity sector, which was owned by the 12 regionally based distribution companies. Their ownership gave them no special rights over and above non-owners who needed access to the national grid. This model was time limited and National Grid is now a publicly quoted company listed on the London Stock Exchange.
113. Instead of the (assumed) approach of a separated Openreach taking the form of a privately limited company, co-operative ownership may help to overcome the problems discussed above, but creates a whole new set of problems of its own.

#### *Sports Rights*

114. Ownership of Openreach is irrelevant to BT's content investment. Investment in content is a rational course of action for BT's retail arm (it needs to assemble triple-play bundles to compete with Sky and Virgin Media) irrespective of the ownership of Openreach.
115. A simple analysis of BT's accounts suggests that BT Consumer can easily cover the costs of Programme Rights Charges (PRC) itself without a subsidy from Openreach. Our analysis of the BT Report and Accounts 2015 shows that PRC represents 9.8% of BT Consumer's operating costs. The PRC for the UEFA Champions League will start during the current financial year and would involve a doubling of PRC, but this would still be less than 20% of operating costs and can be covered by current profits. BT claims that its TV content has allowed it to increase Average Revenue per User (ARPU) and Ofcom data show that its market share has increased in the past few years to 32%<sup>64</sup>. This suggests that a strategy of acquiring sports content has allowed BT to compete successfully in the retail market.

#### *Signal to investors*

116. The prospect of structural separation of BT is likely to be perceived negatively by investors in the incumbent and the challengers. The former are likely to be concerned about greater involvement by the regulator in deciding what investments should be undertaken by Openreach (with a heightened risk of regulatory failure). The latter will fear an inexorable slide into cost-based regulation of the inputs supplied to others and the consequent reduction in the attractiveness of investing in infrastructure. More generally, the fact that Ofcom is willing to contemplate such a wide-reaching and intrusive intervention in a market would likely give investors significant cause for concern. If nothing else, it would signal that Ofcom has moved away from its recent trend of 'lighter touch' access regulation and that companies that are successful and/or achieve scale may ultimately face the prospect of being subject to intense regulation.

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<sup>64</sup> Albeit still lower than Ofcom's incumbent peer group.

*Conclusion on the Structural Separation of BT*

117. The discussion above suggests that the structural separation of BT would provide little if any benefit compared to the current arrangement.
118. There would be considerable costs and uncertainty associated with the structural separation of BT as assets would have to be split between the companies. The separated Openreach would have to be heavily regulated to ensure that it did not exploit its dominant position in the network market. Dependent on the nature and level of the price controls imposed on a separated Openreach, incentives for investment by other networks in market entry and expansion may be fatally undermined. This would be completely counter to the stated objective of Ofcom in the SRDC of promoting efficient private sector investment.

## Section 4: Consumer interest issues

We note Ofcom's focus on consumer policy work and understand that furthering consumers' interests must be at the heart of everything that Ofcom does. However, we encourage Ofcom to be more scientific in its approach. When intervening in a market Ofcom should make (testable) predictions about the outcomes that it expects to see; and then go back to ascertain whether these expectations have come to pass. If not, Ofcom should be prepared to remove or modify its intervention. We know of no consumer policy intervention for which this has been done despite evidence that some have been ineffective (or worse).

*'Consumer policy' includes promoting competition by empowering consumers*

119. As Ofcom notes, to participate in competitive markets, consumers must be able to access the market, assess the choices available and act on their choice.<sup>65</sup> Ofcom identifies two root causes of concerns in communications markets: a) services are complex and b) it can be difficult for consumers to act on their choices – that is, consumers' ability to assess and to act.<sup>66</sup>

120. As competition has flourished in communications, Ofcom has found itself increasingly dealing with problems that arise within competitive markets. As a result, over the period from 2003 to 2015, Ofcom's consumer policy work programme has grown. Early on, Ofcom's focus was consumer *protection*, addressing problems like slamming and nuisance calls.<sup>67</sup> For the past five years, Ofcom's focus has shifted towards consumer *empowerment*. This work involves regulating elements of the process of competition involving consumer, with a view to making markets work better.

121. We see a number of specific, and unrecognised, problems that often operate in practice in these projects. For example:

- the difficulty of establishing a robust counterfactual of 'more' competitive markets – even in markets that Ofcom finds are effectively competitive;
- the lack of a robust framework to assess which interventions are likely to be in the interests of consumers; and
- the lack of any cycle of learning to quickly unwind interventions that lead to problems, and to adjust future policy to reflect these lessons.

*When should we intervene? The counterfactual problem (diagnosis)*

122. When Ofcom regulates to empower consumers, it does so because it has determined that a particular retail market is not 'working', even when no party has SMP – in other words, that the market is 'effectively competitive' but not sufficiently

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<sup>65</sup> Paragraph 12.9.

<sup>66</sup> *'Communications services are unlike other utilities; a variety of offerings are aimed at differing needs of consumers and businesses, and to people with a varying willingness to pay. This is potentially good for customers as they can tailor their purchases to their needs. But they are only able to realise the benefits if they have a full knowledge of what's available, and can act on it easily.'* This is consistent with the position taken by Ofcom in the UKRN study on switching.

<sup>67</sup> We use the terms 'consumer empowerment' and 'consumer protection' with the meanings given to them by Ofcom in the SRDC at paragraph 12.3.

competitive.<sup>68</sup> For example, in the SRDC, Ofcom's strategic diagnosis is that, in summary, *"bundling is confusing customers, leaving them less able to choose and switch"*.

123. To assess whether a market is 'working' requires Ofcom to have in mind a counterfactual scenario of the market as it *ought* to work. But Ofcom's proposals often fail to spell out exactly what this counterfactual scenario is, or how it has been reached, or is presented in vague terms.<sup>69</sup>

124. But for this review, there is another concern that ought to be recognised: this type of reasoning increases the likelihood of 'Type I' errors – a false positive in assessing the case for regulation.

#### *Diagnostic errors in other sectors have harmed the interests of consumers*

125. Currently, in the UK, there is some focus on the harm to consumers caused by Type I errors by economic regulators. This harm is not abstract. In other sectors, well-intentioned but bad decisions by UK regulators appear to have raised prices, reduced innovation and undermined competition. This is most dramatically demonstrated in retail energy markets, where the CMA's provisional finding is that Ofgem's errors have cost consumers *billions* of pounds.<sup>70</sup>

126. The CMA's provisional finding is that competition in energy markets has been harmed by rules to 'simplify' a market believed by the regulator and consumers to be too complex. Along with the retail banking investigation, this work is revealing new information about the effectiveness and unintended consequences of interventions to shape retail activities in large, complex competitive markets.

127. Ofcom should not be complacent about the risk that some of its big-ticket interventions might do more harm than good for consumers. At the moment, Ofcom acknowledges this risk in principle but it should be a practical constraint on decisions to intervene.

128. Experience shows that there can be unintended consequences when Oftel/Ofcom inserts itself into the commercial process as a 'choice architect'.<sup>71</sup>

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<sup>68</sup> A typical example (from Ofcom's July 2014 'Strategic Direction' consultation (the 'Road-Map')) at paragraph 1.7: *'Fixed-line voice, fixed broadband, Pay TV and mobile voice and data services account for the majority of expenditure on communications markets and services. Therefore we want to understand whether switching processes are working well for consumers in these areas, or whether there are problems which negatively affect consumer experiences or competition.'*

<sup>69</sup> This is illustrated when, for example, Ofcom asks (as it did in the Road-Map consultation): *'Could the current switching processes for the networks and services in scope be modified to result in a better experience for or protection of consumers, and/or more effective competition?'* The implied counterfactual is that the market under some conditions is 'better' (or 'improved') – unspecified and impossible to test against evidence.

<sup>70</sup> The CMA's provisional finding is that average prices offered by the six largest suppliers over the period 2009 to 2013 were around 5% above the competitive level in the domestic segment, and around 14% in the SME segment. This equates to domestic consumers paying around £1.2 billion more per annum and SMEs paying £0.5bn more per annum than would have been the case had competition functioned more effectively (PFs summary document, paragraph 181).

<sup>71</sup> 'Choice architecture' is the design of different ways in which choices can be presented to consumers, and the impact of that presentation on consumer decision-making (see Sunstein and Thaler, *Nudge: Improving Decisions About Health, Wealth and Happiness*). In some circumstances, Ofcom is necessarily the 'choice architect' – for example, in designing the number porting

- In directory enquiries markets, where ‘liberalisation’ of a service that had no particular problems of high prices or low quality led to prices that have increased beyond inflation – and, for many, beyond comprehension – from their original level of 40p for two enquiries to today’s typical price of around £6 per call.<sup>72</sup> These poor decisions are likely to have cost consumers hundreds of millions of pounds over the last decade – with consumers who are particularly dependent on DQ services such as some disabled consumers, particularly at risk. Ofcom has never publicly acknowledged this outcome as a regulatory failure.
- In non-geographic call markets, where the early signs are that mobile access call charges (the charges paid by mobile users to 08 numbers) could be repeating this story – with much higher stakes for tens of millions of consumers. Ofcom’s decision to force providers to split access and service charges came after five years of complex consultations, several of which ran to more than 1,000 pages. Like Ofgem’s retail market review, the non-geographic calls regime was inspired by the desire to shape the choices facing consumers and to bring ‘simplicity’ to a complex market. Since the new regime took effect, the market price averaged across the four major national mobile retailers has gone up, not down – the opposite of what Ofcom expected would happen.

129. There is a possibility that, in some other projects, problems remain undetected (and hence, uncorrected) because there is no clear counterfactual against which to test their impact. This is not an argument for Ofcom to do nothing in relation to these markets and these issues but it is, we think, a powerful argument for Ofcom to adopt a more scientific, empirical and exploratory approach.

*Consumer policy analysis lacks a robust framework*

130. Competition policy analysis – that is, the framework that is adopted in merger control, competition law enforcement, in market studies and market investigations and that is adopted as the market review framework to set remedies under the Common Regulatory Framework – works well. It works well in the sense that:

- It is predictable, and the results are reproducible. Undertakings can routinely predict the likely outcome (will our merger be cleared? Will SMP be found in this market?), getting it right more often than not. This reduces the need for agencies to determine every matter themselves, raising the efficiency of regulation.
- It is accurate, in the sense of generally reaching answers that appear to achieve their objective of promoting competition. The framework has been refined through successive iterations to improve accuracy, addressing both Type I and Type II errors – an on-going process. What has emerged is a relatively reliable method for determining which interventions in market activity are likely to harm the interests of consumers.

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process. In other cases, such as non-geographic calls, Ofcom chooses to take on that role. This seems a particular source of risk in policy-making.

<sup>72</sup> See <http://stakeholders.ofcom.org.uk/binaries/consultations/dirinfo/summary/dirinfo.pdf> at paragraph 3.61 for a view from 2008.

- It is transparent. Each analytical step must be linked to specific evidence, meaning that errors in reasoning can be readily identified. Where there is a speculative element (the counterfactual in merger review, for example), that exercise is separable from the rest of the analysis and can be considered and critiqued separately.
- It provides accountability. An extensive corpus of competition case law ensures that key concepts such as substitutability, dominance/SMP, effects on competition and so on are used consistently. Where things go wrong, the courts can intervene, reviewing the merits of the decision, and their decisions are equally predictable and robust, because they are generally applying the same framework and themselves subject to further scrutiny.

131. When Ofcom exercises its powers to set SMP conditions using the market review framework, it operates within this stable and predictable environment. This is supplemented by sector-specific additional protections – for example, the need to consult with the European Commission and with BEREC members – that provide additional chances to avoid bad decisions. And each decision has a ‘sunset’ date built in, with market reviews repeated each three years. Whilst one can quibble about whether three or four or five years is the optimal period, this cycle has kept access regulation tightly mapped onto current market conditions – an impressive achievement given the rate of technological and commercial change in communications markets over the last two decades.

132. As a result, in the UK, access regulation has had some success in promoting competition through successive waves of technology and investment. Strikingly, this is true both in markets where the framework has led Ofcom to regulate intrusively – such as fixed access – *and* in markets where it has led Ofcom not to regulate access at all – such as mobile. That suggests that the framework is less prone to a skew in favour of ‘Type I’ errors.

133. None of these protections operate in the same way in relation to consumer policy. Analysis is frequently built using a framework being developed on an issue-specific basis, meaning that there is little scope to learn from experience. Transparency is often lacking – for example, it is not always clear what, precisely, is the benchmark of a good or acceptable outcome against which the ‘problem statement’ is being drawn. As a result, the accuracy and reliability of ‘demand-side’ analysis is, at best, open to question. And the entire process is opaque – because there is no objective measure of what constitutes ‘good enough’ (i.e., a counterfactual that would lead Ofcom not to intervene).

134. As a result, it is hard for Ofcom or anyone else to demonstrate conclusively that these interventions have delivered any net benefit for consumers.

*Without falsifiable hypotheses, Ofcom’s strategy cannot be proved right – or wrong*

135. Finally, and relevant particularly to this review, we are concerned that Ofcom’s strategic direction has been set in an inflexible way, with a lack of countervailing pressures to be cautious or sceptical. For example, here is Ofcom’s account of the strategic rationale in 2015 for increasing its work to empower consumers in the future:

*“Increasing complexity may reduce consumers’ ability to achieve the best deals in the market because they may struggle effectively to assess the information available to them. There is a risk that consumers simply feel overwhelmed by the issues and information they need to take into account when assessing their choices and opt not to shop around but to stick with the packages or services that they are getting from their current provider. Alternatively, they may decide that the gains from switching are not sufficient to justify both the increasing time and effort required to reach a decision. As a result, consumers may not bother to engage with the choices available to them or not make good choices for their own particular circumstances.”*

136. It should be clear that:

- This analysis is driven by Ofcom’s view of what *might* happen, and what consumers *should* have done, and ignores or gives little weight to what *has* happened and what consumers have *actually* done.<sup>73</sup>
- Linking conjectures: Ofcom creates a self-reinforcing internal logic that can foster ‘reframing’ rather than re-thinking, when inconsistent evidence appears.
- The result is a set of statements about the market that cannot be tested against any objective evidence..

137. This type of logic can take on a life of its own – leaving Ofcom vulnerable to confirmation bias, and explaining away discrepancies. As a consequence, there can be a risk of regulatory failure.

*A review of consumer policy would be timely and helpful*

138. Ofcom proposes a number of specific possible future areas of work in section 12 of the SRDC. Without commenting on them individually, the concerns we have raised here are illustrated by the fact that there is currently no proposal to understand what has worked and what has not worked in Ofcom’s current crop of interventions. We are also concerned at the asymmetry of approach – there are only new proposals and no areas where Ofcom might consider doing less.

139. Rather than choosing from a menu of new projects, Virgin Media considers that there is a need to reconsider and debate the fundamental strategic questions that drive Ofcom’s consumer policy programme. Ofcom’s last strategic review of its consumer policy was completed in 2006. Therefore, either as a stand-alone project or as one strand of the SRDC, it would be timely for Ofcom to revisit its strategic consumer policy.

140. It is clear that there are many factors that are important for Ofcom and its stakeholders to consider (e.g. behavioural economics, regulatory failures in other sectors, etc.) in deciding how to set strategy moving forward. Virgin Media would welcome an open, constructive dialogue between Ofcom, industry players,

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<sup>73</sup> For example, the long history of competition driving the market to simpler outcomes as a result of consumers’ choices (all-network bundles in mobile; monthly pricing for fixed internet access; simple pricing of telephone calls) is ignored, in favour of a view that in the future things might move in the opposite direction.



consumer representatives and of course, consumers themselves as to the right approach

## Section 6: Answers to the questions raised

**Q1: Do stakeholders agree that promoting effective and sustainable competition remains an appropriate strategy to deliver efficient investment and widespread availability of services for the majority of consumers, whilst noting the need for complementary public policy action for harder to reach areas across the UK?**

Yes. However, as we argue in section 1 above, there is a need to be clear about which *type* of competition should be promoted. The weight of available evidence shows that end-to-end infrastructure competition is the ‘gold standard’ for consumers. We explain in section 2 above the actions that Ofcom should take in order to encourage effective and sustainable end-to-end infrastructure competition.

We are not convinced that there is a requirement for “*complementary public policy action for harder to reach areas*” other than to encourage Government to remove some of the barriers and frustrations that CPs encounter when building networks (see our answer to question 3 below). Private companies (Virgin Media, Gigaclear, Hyperoptic and Cityfibre) are building superfast broadband networks. 4G networks will provide average mobile broadband speeds of 14Mbps to 98% in home coverage and affordable satellite broadband is available to all (30Mbps to any home in the UK for £19 per month) and government may opt to subsidise the cost of customer premises equipment (as it has done in Suffolk and West Yorkshire). Ofcom itself thinks that the total speed that the clear correlation between speed and data use ceases at around 10Mbps and that the requirement for a household is 12.5Mbps (see below) and that “*the speed requirement of a typical application typically falls over time*” (see below). [See G.Fast – it’s [sic] role in meeting mass market broadband needs and the consequent regulatory issues Huw Saunders, Director, Network Infrastructure 21st April, 2015]

Hypothetical example: Simultaneous use in a four person household			
User 1	User 2	User 3	User 4
Youview + web browsing = 3.5Mbit/s	Video call = 1Mbit/s	Iplayer = 2Mbit/s	Netflix in HD + video call = 6Mbit/s
Total speed requirement for household = 12.5Mbit/s			

**Q2: Would alternative models deliver better outcomes for consumers in terms of investment, availability and price?**

The evidence shows that the ‘old’ model of regulating the price of (passive) access to the incumbent’s network has retarded investment by the latter in network infrastructure and new services. However, encouragingly, the new model of flexibility in wholesale pricing and the absence of a usable passive remedy (i.e., no risk that any upside from building network will be expropriated) has resulted in significant investment in NGA networks by BT, Virgin and others which we can surmise is delivering more for consumers in terms of uptake, innovation and cost per unit than the old model of cost-

oriented passive access. We believe that Ofcom should commit to preserving the new model.

Active access requirements priced at cost can obviously also deter investment in infrastructure by the access provider (and indeed the seeker). Our contention is that the evidence shows that passive access remedies (at cost) do the most harm and that active access remedies with price flexibility on the part of the seller do no identifiable harm and have not retarded investment in end-to-end infrastructure (see: Project Lightning and BT's rollout of VDSL and its announcement on G.Fast). We urge Ofcom not to favour passive access on the grounds that it believes that it can mitigate its effects on investment through pricing (this appears to have been Ofcom's approach to dark fibre).

**Q3: We are interested in stakeholders' views on the likely future challenges for fixed and mobile service availability. Can a 'good' level of availability for particular services be defined? What options are there for policy makers to do more to extend availability to areas that may otherwise not be commercially viable or take longer to cover?**

Policy makers should focus on removing the barriers to network expansion. There are various non-economic measures specifically affecting communications services that have long been recognised as an issue but nevertheless remain in place. The coalition government recognised that it could *"do a lot to ensure that the costs of investment are directed to those elements of the network that benefit consumers and less to civil engineering"*<sup>74</sup>. It highlighted rules concerning trenching techniques, business rates and wayleaves as process barriers that raise costs and so reduce investment. Five years later these issues are still not fully resolved. For example:

- The ratings regime contains elements that can act as a disincentive to network rollout and is overly complex;
- Existing legislation can frustrate the use of innovative infrastructure deployment techniques, such as narrow trenching;
- There is an imbalance in the wayleave regime, such that communications providers have minimal leverage and are exposed to, and have very limited scope to challenge, unreasonable demands from some owners of rights of way;
- Communications Providers face substantial amounts of bureaucracy in deploying new infrastructure, which is costly to navigate. Examples of such bureaucracy include: permit schemes and requirements relating to traffic/highway management; and
- There is a lack of coordination between different utility companies in undertaking works. Coordinating such works could make infrastructure deployment easier and more efficient.

There is a key role for public authorities to play in reducing/removing these barriers and thereby making the deployment of additional, competing infrastructure more attractive. If these barriers to deployment of additional infrastructure were reduced, and as a result more network infrastructure was built, it could lead to sustainable and beneficial outcomes.

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<sup>74</sup> Department for Business Innovation and Skill 'Britain's Superfast Broadband Future' December 2010 p 25

**Q4: Do different types of convergence and their effect on overall market structures suggest the need for changes in overarching regulatory strategy or specific policies? Are there new competition or wider policy challenges that will emerge as a result? What evidence is available today on such challenges?**

At the present time we see no evidence that convergence requires specific policies or a different overarching regulatory strategy.

**Q5: Do you think that current regulatory and competition tools are suitable to address competition concerns in concentrated markets with no single firm dominance? If not, what changes do you think should be considered in this regard and why?**

Ofcom notes that increased fixed network investment may lead to the emergence of stronger infrastructure competition, noting that this may lead to a less concentrated market in certain areas of the country where neither BT nor any other operator would have SMP. Ofcom regards such a development as being a “*positive development*”<sup>75</sup>,

Virgin Media agrees that the development of competition leading to the removal of SMP regulation would indeed be positive. However, we see no justification to apply weaker or lower evidential thresholds when assessing market failure in telecoms markets than when assessing competition in other parts of the European economy (where oligopolies are commonplace). If joint dominance (and rules against anti-competitive agreements) is the right test elsewhere in the economy, why is it insufficient for telecoms?

Lowering this bar risks instituting some perverse (negative) incentives. Competing infrastructure providers commit capital and take market share from an incumbent only to find that they become tagged as part of a ‘tight oligopoly’, and subject to some form of ex ante regulation. The threat or likelihood of this occurring is the best way to deter investors in competing infrastructures and ensure that the incumbent preserves its SMP status.

**Q6: What do you think is the scope for sustainable end-to-end competition in the provision of fixed communications services? Do you think that the potential for competition to vary by geography will change? What might this imply in terms of available regulatory approaches to deliver effective and sustainable competition in future?**

End-to-end infrastructure competition is sustainable and growing and, by extension, growing by geography. Within a few years Virgin Media will pass 65% of premises in the UK. Ofcom’s priority should be on promoting and encouraging network infrastructure build. The SRDC provides Ofcom with an opportunity to commit to doing this by expressing a clear:

- preference for end-to-end infrastructure based competition;
- strategic preference for active above passive remedies;
- reluctance to regulate the price of access remedies in favour of a margin squeeze test;

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<sup>75</sup> Paragraphs 8.45-8.46

- commitment to stable copper access prices;
- commitment to work with Government to alleviate the process barriers to investment in infrastructure: permits, wayleaves etc.

Those that require access to the network of the incumbent should be able to obtain it but via a single (active) access remedy that is explicitly designed (i.e., it is not regulated at cost) not to bite the hand that feeds it.

**Q7: Do you think that some form of access regulation is likely to continue to be needed in the future? If so, do you think we should continue to assess the appropriate form on a case by case basis or is it possible to set out a clear strategic preference for a particular approach (for example, a focus on passive remedies)?**

The evidence shows that passive remedies deter investment in end-to-end infrastructure. If Ofcom wants to ensure the best outcomes for consumers it must promote end-to-end infrastructure investment and competition and, by extension, avoid regulation that deters both. Ofcom should not decide to regulate on a case-by-case basis; surely the whole point of having a strategic review is that it *can* express a strategic preference for a particular approach. As we have argued above, favouring passive remedies would throw the baby out with the bathwater.

To the extent that access remedies are deemed necessary in the future, active remedies, with a flexible approach to wholesale pricing regulation, are the best way to preserve incentives for investment in infrastructure. Forcing the regulated company to provide access to the rudimentary elements of its network will serve only to undermine that investment. Put simply, why would an investor commit funds to the deployment of infrastructure only to have to allow third parties to obtain access to its foundations in order to avoid making their own infrastructure investments. Active remedies achieve a balance of allowing infrastructure owners better to realise their investments, whilst also addressing any enduring competition problems resulting from SMP. To the extent that access seekers require a more rudimentary level of input, they are free to make their own investments in infrastructure (and to challenge the regulated provider).

**Q8: Do you agree that full end-to-end infrastructure competition in mobile, where viable, is the best means to secure good consumer outcomes? Would alternatives to our current strategy improve these outcomes, and if so, how?**

Yes. Again Ofcom should focus on alleviating the process barriers (e.g., height of base station masts) that frustrate network build.

**Q9: In future, might new mobile competition issues arise that could affect consumer outcomes? If so, what are these concerns, and what might give rise to them?**

Please see our answer to question 10 and Virgin Media's submission to the CMA<sup>76</sup>. We have expressed a concern that the market for the wholesale supply of 4G services is currently not operating effectively.

**Q10: Does the bundling of a range of digital communications services, including some which may demonstrate enduring competition problems individually,**

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<sup>76</sup> [https://assets.digital.cabinet-office.gov.uk/media/55a90f87e5274a6fed000017/BT-EE\\_-\\_Virgin\\_Media\\_submission.pdf](https://assets.digital.cabinet-office.gov.uk/media/55a90f87e5274a6fed000017/BT-EE_-_Virgin_Media_submission.pdf)

**present new competition challenges? If so, how might these issues be resolved through regulation, and does Ofcom have the necessary tools available?**

Recent data published by Ofcom in the Communications Experience Report reveals the continuing growth in the number of customers buying bundles of services. The number of consumers with bundled services rose from 60% in 2013 to 63% in 2014; triple-play fixed-line, broadband and multichannel TV bundles are up from 16% in 2011 to 23% in 2014 and, as a proportion of households, 39% in urban areas.<sup>77</sup> The price of bundles means that purchasing in a bundle is “usually cheaper than purchasing the same services separately”<sup>78</sup> and that bundle prices have declined over time. Ofcom reports that the lowest cost of a basket of communications services for a typical ‘networked family’ household has declined from £144.23 per month in 2011 to £107.99 in 2014. (figure 142 p. 146). There are clearly benefits that bundling can bring.

To answer the question of whether there are enduring competition problems we need to ask whether a communications provider who is ‘deficient’ in one or more of the elements of the bundle can buy it in elsewhere.<sup>79</sup> We tackle each in turn:

- Fixed line and broadband: CPs can buy WLR and GEA from BT with the latter subject to various regulations governing equivalence of input and margin squeeze.
- Mobile: CPs can negotiate with mobile network providers to secure wholesale access on commercial terms. Virgin Media has said to the CMA that there is evidence that the market for the wholesale supply of MVNO services is *currently* not operating effectively: Virgin Media cannot offer competitive 4G services and it faces on-going operational difficulties, in particular, the effective completion of our Mobile Transformation Programme (MTP) to become a ‘thick’ MVNO. We anticipate that the proposed transaction will further reduce the merged entity’s incentives both to provide us with competitive 4G and complete MTP. The potential merger of two suppliers of MVNO services exacerbates these concerns. We have said that these fears can be alleviated by appropriate remedies
- TV programming: Sport, especially football, remains a vital driver of subscriptions and is therefore ‘key content’. Virgin Media’s research data show that not having all Premier League and Champions League football would result in a material reduction in our customer numbers.

Both Sky and BT have incentives to deny access to key content to Virgin Media, or provide it on unfavourable terms. Past behaviour is not necessarily indicative of future intent. Virgin Media’s £3bn network expansion announcement; the increasing prevalence of bundles (including mobile) and Sky’s own NOW TV service all point towards *greater* incentives to withhold content in the future. More homes passed on the part of Virgin Media means that withholding content

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<sup>77</sup> See also comments from BT’s CEO Gavin Patterson: “What we’ve seen across Europe and from our own primary research is that there is a growing appetite to buy bundles but also converged services across fixed broadband and mobile. Some people have talked of this as quad play but I think it’s much more than that.” [www.telegraph.co.uk](http://www.telegraph.co.uk) 9 February 2015.

<sup>78</sup> Ofcom Consumer Experience Report 2014 paragraph 7.36.

<sup>79</sup> Of course CPs also have an option to build: Sky and TalkTalk have built FTTC in York and BT bought 2.6GHz spectrum in the 2013 auction to build a mobile network; although it still required an MVNO agreement with EE.

could be used as a strategy both offensively (to tempt prospective customers to switch), and defensively (to persuade existing customers not to go).

A WMO obligation on those broadcasters that hold significant key content is proportionate. However, the mandated wholesale supply of Premier League and Champions League content to rival pay TV retailers is by itself necessary, but not sufficient to tackle the competition problem. Ofcom must also ensure that the terms on which the rights are made available do not frustrate competition and assess the relevant scope of the remedy, i.e. is a narrow WMO remedy sufficient to incentivise rights holders to wholesale *all* of their sports channels?

It is also necessary for Ofcom to address the manner in which the rights are sold in order to develop appropriate and effective remedies that address both upstream and downstream issues.<sup>80</sup>

**Q11: What might be the most appropriate regulatory approaches to the pricing of wholesale access to new and, risky investments in enduring bottlenecks in future?**

See answer to Q6. We have described above how Ofcom's enlightened approach to regulated access to BT's NGA networks has resulted in a 'virtuous investment circle'. Pricing flexibility in wholesale pricing and the absence of a usable passive remedy (i.e., no risk that any upside from building network will be expropriated) has resulted in significant investment in NGA networks by BT, Virgin and others. As these competitors to BT expand their networks, the competitive constraints on BT strengthen (along with its incentives to innovate); thereby weakening the need for further regulation. At the same time the VULA access remedy has meant that, for example, in the quarter ended June 2015, those (non BT Retail) CPs using this form of access accounted for just over 37% of the net additions in high speed broadband customers.

Ofcom should learn from this experience and *commit* to adopting the same approach for future risky investments.

**Q12: How might such pricing approaches need to evolve over the longer term? For example, when and how should regulated pricing move from pricing freedom towards more traditional charge controls without undermining incentives for further future investment?**

This is a non sequitur. There should be no presumption that at, some point, it is right to regulate prices *because doing so will undermine incentives for future investments*. Moreover the knowledge that this is a real and present danger will undermine current *investment*. Ofcom should not be concerned to ensure that there is a temporally 'fair' distribution of value between network builders and access seekers. Its concern should be concerned that the conditions exist to promote investment in end-to-end infrastructure. The ability of access seekers to compete is adequately ensured by the availability of active access (VULA) and a margin squeeze test.

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<sup>80</sup> Ofcom is investigating Virgin Media's complaint under CA98 in relation to the way that the Premier League sells live television rights. Virgin Media alleges that the collective sale of TV rights on an exclusive basis involves a breach of the Chapter 1 prohibition on anti-competitive agreements because of the restrictions on competition which result from (a) the removal of upstream competition; (b) distortion of downstream competition; (c) output restrictions (168 out of 380 matches are sold for live broadcast); and (d) reduced price competition.

The current regulatory regime has resulted in investment flowing into network build and an increase in the geographic breadth of competition. Given this increasing competitive pressure on BT there is no need to move to the “*more traditional charge controls*”. As HSBC notes “[a]nxious awareness amongst investors about cost-oriented pricing inclinations of regulators...is perhaps the biggest single barrier underpinning their reluctance to sanction aggressive network upgrade.”<sup>81</sup>

**Q13: Are there any actual or potential sources of discrimination that may undermine effective competition under the current model of functional separation? What is the evidence for such concerns?**

We are not aware of any potential or actual sources of discrimination.

Openreach’s performance on provision and repair remains a key issue for CPs and end-consumers. These problems are sufficiently worrying for Ofcom to dedicate a whole section of the SRDC to the issues (Section 13). In Figure 37 of the SRDC, Ofcom sets out, over three pages, a range of quality concerns where it has already intervened or proposed to do so.

Openreach’s performance against targets is reported publicly via the Office of the Telecoms Adjudicator ([www.offta.org.uk](http://www.offta.org.uk)) and shows that Openreach provision and repair times consistently fall below the targets set. These data do not show that Openreach is providing a better service to BT’s retail operations than to CPs, rather that QoS for all retail providers falls below standard. The issue, therefore, appears not to be one of discrimination but simply poor performance.

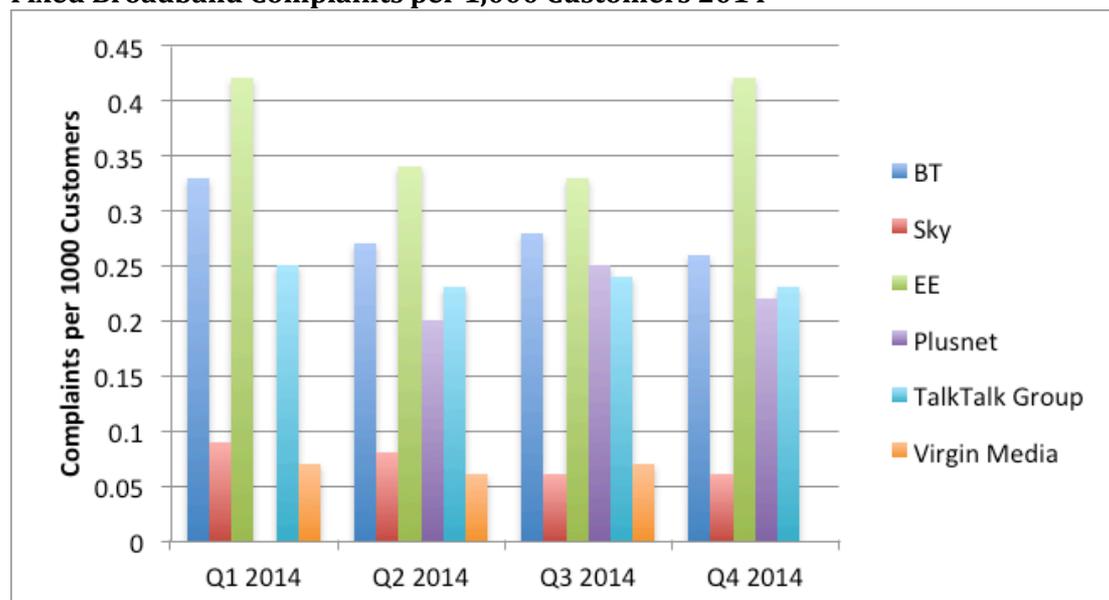
BT has adequate incentives to improve its QoS: there is an independent competitor (Virgin Media), using its own access network, which is not affected by the QoS offering of the vertically integrated operator and so can compete on QoS and offer consumers a better experience. This places an indirect constraint on the integrated firm’s upstream business if the higher QoS attracts retail customers away, thereby affecting demand for the upstream product.

Ofcom complaints data show that Virgin Media has been consistently the best performing broadband supplier with complaints per 1,000 customers some one third of the industry average. Sky is the only other firm whose complaints per 1,000 customers are below average (see the table below).

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<sup>81</sup> Reviewing the review HSBC Global Research 24 September 2015

### Fixed Broadband Complaints per 1,000 Customers 2014



Of course, we cannot know what the level of complaints reported to Ofcom would be in the absence of Virgin Media providing an alternative access network to BT. However, it would be unlikely if Virgin Media was not affecting some pressure on BT to improve its quality and so without its presence, complaints against copper network based providers may be even higher.

**Q14: Are there wider concerns relating to good consumer outcomes that may suggest the need for a new regulatory approach to Openreach?**

**Q15: Are there specific areas of the current Undertakings and functional separation that require amending in light of market developments since 2005?**

**Q16: Could structural separation address any concerns identified more effectively than functional separation? What are the advantages and challenges associated with such an approach?**

Please see section 4 of our response.

The structural separation of BT would provide little if any benefit compared to the current arrangement.

There would be considerable costs and uncertainty associated with the structural separation of BT as assets would have to be split between the companies. The separated Openreach would have to be heavily regulated to ensure that it did not exploit its dominant position in the network market. The price controls imposed on a separated Openreach would undermine the incentives for investment by other networks in market entry and expansion may be fatally undermined. This would be completely counter to the stated objective of Ofcom in the SRDC of promoting efficient private sector investment and, ultimately, detrimental for consumers.

**Q17: What do stakeholders think are the greatest risks to continuing effective consumer engagement and empowerment?**

**Q18: What indicators should Ofcom monitor in order to get an early warning of demand-side issues?**

**Q19: What options might be considered to address concerns about consumer empowerment at each stage of the decision-making process (access, assess, act)? What more might be required in terms of information provision, switching and measures to help consumers assess the information available to them? What role may Ofcom have to play compared to other stakeholders (including industry)?**

**Q20: Are there examples in competitive or uncompetitive sections of the market where providers are not currently delivering adequate quality of services to consumers? What might be causing such outcomes?**

**Q21: What further options, if any, should Ofcom consider to secure better quality of service in the digital communications sectors?**

Ofcom proposes a number of specific possible future areas of work in section 12 of the SRDC. Without commenting on them individually, the concerns we have raised here are illustrated by the fact that there is currently no proposal to understand what has worked and what has not worked in Ofcom's current crop of interventions. We are also concerned at the asymmetry of approach – there are only new proposals and no areas where Ofcom might consider doing less.

Rather than choosing from a menu of new projects, Virgin Media considers that there is a need to reconsider and debate the fundamental strategic questions that drive Ofcom's consumer policy programme. Ofcom's last strategic review of its consumer policy was completed in 2006. Therefore, either as a stand-alone project or as one strand of the SRDC, it would be timely for Ofcom to revisit its strategic consumer policy.

It is clear that there are many factors that are important for Ofcom and its stakeholders to consider (e.g. behavioural economics, regulatory failures in other sectors, etc.,) in deciding how to set strategy moving forward. Virgin Media would welcome an open, constructive dialogue between Ofcom, industry players, consumer representatives and of course, consumers themselves as to the right approach

**Q22: Might there be future opportunities to narrow the focus of ex ante economic regulation whilst still protecting consumers against poorer outcomes?**

Yes. Ofcom should examine markets in which there has been significant new entry and/or new services have substituted for legacy services. Examples of this are voice (where OTT services such as Skype and WhatsApp) have grown in prevalence, and are demonstrably being used as substitutes for legacy services.

**Q23: Where might future network evolutions, including network retirement, offer opportunities for deregulation whilst still supporting good consumer outcomes?**

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**Q24: What are the potential competition and consumer protection implications of the rise of OTT services? Might the adoption of such services enable future deregulation without raising the risk of consumer harm?**

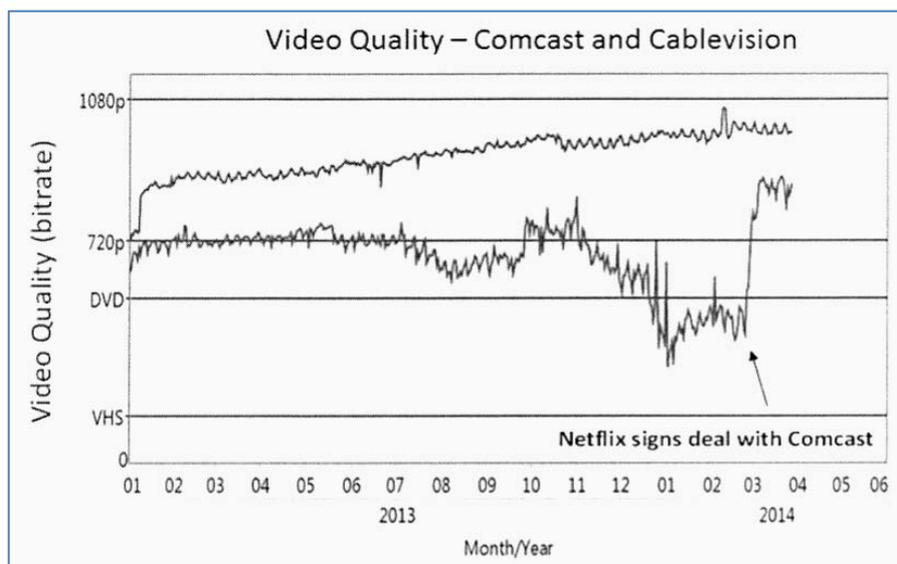
In the US 54% of broadband households now have subscription video on demand (SVOD). Approximately one-third of these subscribe to more than one service. In the UK, the summed subscriptions to different SVOD services is 24%. SVOD players are already significant investors in content (and growing fast).

Netflix has 41m US paid members (compared to 116m US households) and accounts for 36% of peak hour US internet traffic, and rising. Together Netflix and YouTube account for over 50% of peak hour traffic.

The growth in these types of OTT services will invariably raise policy issues:

- Even if you want to regulate IPTV, it may not be practical to do so. Even willing open platforms cannot fully control their content other than ex-post. In addition, offshore content is readily accessible (Netflix had 4% household penetration in Australia via VPN before it even launched).
- EPG prominence used to be relatively simple – consumers lived in one or two EPGs, their pay TV box and/or their TV, both of which were channel focused. However, interfaces are proliferating and regulating for EPG prominence will be difficult to achieve e.g., non-linear content on TV set (e.g., in-built iPlayer); consumption via IP-focused dongles (e.g., Firestick, Chromecast); nested interfaces (e.g., Netflix accessed via Firestick). Interfaces are not even standard within one provider: one of Netflix's key offers is a recommendation engine – that is, different content given prominence for different viewers.
- In the UK, net neutrality has relied on a broad consensus, an expectation of good behaviour and a competitive market. If broadband is primarily an IPTV delivery mechanism, this consensus will be under ongoing pressure. The US is starting to see the implementation of commercially agreed arrangements between ISPs and content providers..

In the US, Netflix has had significant disputes with Comcast, Verizon and others. Until 2014 Netflix bought transit from companies that had settlement free peering with Comcast. However, from 2013, Comcast declined to increase capacity on these peering links. As Netflix traffic grew, this caused congestion on the links, and degraded Netflix performance ('720p => VHS quality'). In March 2014, Netflix agreed to pay Comcast for traffic delivery (see below).



As far as the UK is concerned, Ofcom should continue with its 'hands off' approach. The competitive dynamic and multiple choices available to consumers at the retail level serves as a strong constraint on ISPs practices.

There has, however, been a tendency for the net neutrality debate to focus solely on the network/ISP section of the value chain, when in reality there are several players involved in the distribution of content, services and applications over the internet. Some of these players are becoming increasingly powerful and in some cases are beginning to demonstrate leverage over other players in the chain. While we do not advocate 'regulation' of the internet, we believe that Ofcom must be alert to these other players and their practices. This is increasingly important as demand for bandwidth/speed grows and network owners need to identify ways to fund the meeting of that demand.

**Q25: Are there any areas where you think that regulation could be better targeted or removed in future? What would be the benefit of deregulation as well as the main risks to consumers and how these could be mitigated? Please provide evidence to support your proposals.**

This is a hard question to answer without evidence. We suspect that there is a lot of 'undergrowth' in the current set of General Conditions that can be cleared away with no adverse consequences for consumers e.g., the multiplicity of transparency and informational obligations.

More importantly, we urge Ofcom to review some of the major policy interventions to see whether they have achieved their desired outcomes. (See section 4 above).