Award of the 2.3 and 3.4 GHz spectrum bands

Competition issues and auction regulations

BT/EE response to the consultation

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1. Executive summary

1. Ofcom fails to present a coherent case for imposing competition measures in this auction. The wholesale and retail markets for mobile services work well, with four credible mobile network operators (MNOs) and many Mobile Virtual Network Operators (MVNOs) driving good outcomes for consumers. Against that backdrop, any intervention must be based on robust evidence of identified risks to competition that are expected to arise in the future, and cannot be addressed at that point in time. These cannot be speculative but must be economically robust on a first principles basis and by reference to likely market developments.
2. Ofcom considers it unlikely that any of the four MNOs will cease to be a credible national player regardless of the outcome of the auction. BT/EE agree. Furthermore, BT/EE consider that this test, which is based on an assessment of competition in relevant retail and wholesale markets, is necessary and sufficient to satisfy Ofcom's obligation to promote competition in the provision of mobile services.[1] As Ofcom finds the test to be passed, there is no basis for intervening.
3. Any concerns relating to particular services or customer segments (i) must form part of the credibility assessment and (ii) need to be substantiated on the basis that these services/customer segments are critical to effective competition in the provision of mobile services. Ofcom's approach is flawed in both respects.
4. More specifically Ofcom seeks to rely on a "bolt-on" test relating to asymmetric spectrum holdings that has no coherent threshold and is inappropriately detached from the assessment of an MNO's credibility. In particular there is no coherent explanation for why Ofcom finds current levels of asymmetry to be unproblematic (even pro-competitive) but finds a higher level of asymmetry (potentially reached post-auction) to be problematic because some notional and unspecified "tipping point" is reached. If there were a tipping point beyond which asymmetric spectrum holdings would be problematic then it would be incumbent upon Ofcom to identify that tipping point as precisely as possible through a robust evidence-based assessment. Applying an arbitrary and unproven threshold by vague and high level reference to spectrum holdings in other European jurisdictions with different market features does not stand up to scrutiny. Moreover, a test devised on this basis renders Ofcom's proposed intervention disproportionate to the incoherent and unsubstantiated theory of harm identified.
5. Ofcom was correct to previously conclude that all four national wholesalers had sufficient spectrum to be credible in the short term and that there would be a reasonable selection of user devices supporting the 3.4GHz band in the medium term.[2] As such, no competition measures were deemed necessary. Nothing has changed to affect that view. Whilst Ofcom points to the BT/EE merger, it fails to explain how that concentration may have given rise to a competition concern (Ofcom's speculative theories of harm are dismissed below), contrary to the conclusions of the CMA which cleared the merger without imposing a spectrum divestment remedy (or indeed any remedy). The second

[1] Section 3(2) of the Wireless Telegraphy Act 2006.

[2] Ofcom, PSSR Award of the 2.3 GHz and 3.4 GHz bands - Consultation, November 2014, para 7.58. Ofcom also noted that the 3.4GHz band is already used for wireless broadband in a number of countries.

reason as to why matters have changed is so heavily redacted, that third parties have no opportunity to review or comment on Ofcom's reasoning. In order to comply with its duty to give reasons and to have regard to the principle of transparency[3], it is incumbent on Ofcom to expose the second reason to scrutiny.[4]

6. The proposed intervention in the 2.3 GHz auction is predicated on an assumption that very asymmetric spectrum holdings in 'immediately usable' spectrum may adversely affect competition in the two to three year period following the auction. This theory of harm is flawed both as regards the 2.3GHz award but also in the wider context of upcoming auctions.

    - First, there is no spectrum 'market' – hence reaching a view on asymmetry by simply calculating total spectrum shares by volume does not give a good indication of the state of competition in the relevant retail and wholesale markets which should be Ofcom's primary focus. As Ofcom explained to the CMA: "*Ofcom … did not equate the level of spectrum holdings with market share. This was because there was a range of ways of providing capacity. Purchasing more spectrum was one way, another was adding cell sectors, macro sites and small cells.*"[5] The relevant market(s) for Ofcom to assess are the retail and wholesale markets for the supply of mobile services. These are currently highly competitive and are very likely to remain so in the coming years.[6] This is consistent with Ofcom's statutory duty under the Wireless Telegraphy Act 2006 to promote competition in the provision of electronic communications services.[7] There is no duty to promote competition in relation to spectrum.

    - Second, even in the scenario that total spectrum holdings as an input are considered, the value of spectrum (rather than volume shares) is the more accurate measure of the extent to which there is asymmetry in spectrum holdings, as it incorporates the business value of that spectrum. The asymmetries by value are much lower.

    - Third, indeed, Ofcom concludes that each MNO will remain credible regardless of the outcome of the auction[8] –i.e. that each MNO will be "*able to exert an effective constraint on its rivals - in terms of factors such as the provision of high quality services, competitive prices, choice and innovation – and so contribute to the overall competitiveness of the market..*"[9] It is difficult to square this conclusion with a finding that very asymmetric holdings may nonetheless cause a material concern. No analysis or reasons are provided to support the assertion that certain sub-categories of customers may nonetheless be harmed or that any such category constitutes a

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[3] Section 3(3)(a) of the Communications Act 2003.

[4] See footnote 39 of the Consultation, which explains that the key change is the BT / EE merger and a 'risk' that is redacted.

[5] Ofcom hearing summary 5 August, paragraph 94

[6] In paragraph 2.25 of the Consultation, Ofcom itself states that "*The market is operating well for consumers at present, with strong competition between suppliers, relatively low prices for UK consumers, and continued investment in new services*.". This is supported by Ofcom Digital Communications Review consultation document (referred to below) that confirms these points.

[7] Section 3(2) of the Wireless Telegraphy Act 2006.

[8] See for instance paragraph 4.158 of the Consultation.

[9] Ofcom, The Consultation, para 4.6.

relevant market. Instead, Ofcom appears to justify its intervention on the basis that all four UK MNOs must not only be credible but must also meet other criteria (i.e. they must be able to offer a sufficient range and quality of services, and be able to compete in certain customer segments). The assumption that to be competitive an operator must be more than credible in some undefined sense is intellectually incoherent and inconsistent with other recent regulatory decisions. If Ofcom considers that ensuring there are four credible competitors would be sufficient to promote competition, this suggests that the assessment of credibility itself is flawed. However, should Ofcom wish to pursue a "credibility plus" standard, it should carry out a detailed assessment of the specific criteria which it considers are appropriate to assess the ability of MNOs to effectively compete, explaining how such an assessment is consistent with the recent European Commission and CMA findings, and then subject this reasoning to scrutiny.

- The available evidence demonstrates that no competitive harm has arisen in the retail market as a result of the current asymmetries in spectrum holdings, indeed those asymmetries may have enhanced competition. As Ofcom acknowledges: *"…there could be quite significant asymmetry without it causing a competition concern. Indeed, there could be upside benefits to providers holding different spectrum amounts, because it might stimulate them to adopt different approaches to delivering their services…"*.[10] Ofcom provides no evidence that this position would likely change on a forward looking basis including in scenarios where shares became more asymmetric;

- Fourth, assessing overall spectrum shares can only (potentially) be informative of one factor of relevance to the assessment competition i.e. capacity (and there are many ways to add capacity aside from spectrum). Overall volume shares of spectrum are not informative of other competitive parameters such as quality of coverage. Equally, different bands have widely different values to MNOs owing to different technical properties, and therefore it is not appropriate when assessing competition to lump spectrum together as if it were all the same. Spectrum shares calculated on the basis of value reflect more closely underlying uses and competitive parameters. On this basis, EE/BT has a materially lower share of total spectrum. Ofcom must keep in mind that each MNO has chosen the spectrum portfolio it desires on the basis of its assessment of this value, and specifically how any particular spectrum can help to deliver what are inevitably differentiated commercial strategies. O2, for instance, choose to pay similar sums to EE at the 2013 combined award auction to purchase (less, but more valuable and expensive) low frequency spectrum.

- Fifth, the specific mechanics that Ofcom cites as to how competition may be harmed are implausible, amounting to nothing more than assertion. For instance, in reaching the conclusion that an MNO may become a high price leader in some services or customer segments and then aggressively price cut if other MNOs seek to grow their market share of different services or customer segments through lower prices, Ofcom makes no attempt to define the relevant market(s) or assess whether the ability or incentive for such conduct exists.

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[10] Ofcom hearing summary, 5 August 2015, paragraph 95

- Each of the competition concerns Ofcom raises are dismissed below. However, as an overriding submission, exercise of regulatory judgement has its limits and cannot be relied on to side-step the need to conduct a robust economic assessment. Ofcom is obliged to ensure that its decision-making in respect of spectrum licensing is objectively justifiable, non-discriminatory, proportionate and transparent.[11] Moreover, Ofcom must exercise its powers consistently with other relevant regulatory decisions.[12] The preliminary findings reached by Ofcom in its latest consultation on the Award of the 2.3 and 3.4 GHz spectrum bands (the "Consultation"), do not meet these standards.
- Moreover, even if those concerns were evidenced, Ofcom overestimates the incentive to, and ability of, MNOs to bid strategically for the 2.3 GHz spectrum. In its November 2014 Consultation and May 2015 Statement on the 2.3 and 3.4 GHz award, Ofcom concluded that strategic investment in spectrum in unlikely in this award. The key reasoning that supported this conclusion still holds, in particular there is no evidence that strategic investment would have an associated payoff, never mind whether that payoff would exceed the likely substantial cost of such investment. Ofcom has itself also explained why its SMRA auction design mitigates against any such strategic bidding.[13]

7. To the extent that Ofcom has any concerns that one or more MNOs are unable to add sufficient capacity in the short term to compete effectively (for example, due to short term difficulties in adding capacity by using alternatives to spectrum and any lack of maturity of the handset ecosystem for 3.4GHz spectrum), these should be assessed in a transparent and properly reasoned manner as part of Ofcom's analysis of whether an operator is credible. Detailed evidence to demonstrate this need would be required. We note in this regard that the European Commission has dismissed claims from H3G and O2 that they face material capacity constraints (an analysis Ofcom has not performed). Having assessed such evidence, Ofcom must then explain why the allocation of spectrum through market forces would not resolve this issue. When considering intervention, Ofcom must weigh the benefits of intervention against the cost of doing so, in particular the negative impact of building an expectation that certain operators can rely on Ofcom to intervene to solve their own failings. This is particularly important given Ofcom's duty to ensure that its regulatory activities are proportionate, consistent and targeted only at cases in which action is needed. Such short term capacity concerns, even if evidenced, are unrelated to asymmetric holdings of spectrum.[14]
8. In assessing credibility (i.e. the ability to exercise an effective constraint on rivals) Ofcom must keep in mind the observable evidence of how competition has evolved to date. Whilst O2 has less spectrum per subscriber, it has performed very well in both the retail

[11] Wireless Telegraphy Act 2006 section 9; Directive 2002/20/EC on the Authorisation of Electronic Communications Networks and Services, Articles 5(2), 6(1) and 7(3).

[12] Communications Act 2003, Section 3. In this case this would require adequately addressing all relevant findings of the European Commission in relation to the case of Hutchison 3G UK/ Telefonica UK and the CMA in relation to the BT/EE merger.

[13] Ofcom, PSSR award – Statement, October 2015, para 3.42.

[14] Section 3(3) Communications Act 2003.

and wholesale mobile markets. In its own words it has the best mobile asset in the UK[15] and it has recently won wholesale business from both Sky and TalkTalk. As José María Álvarez-Pallete – Chairman and Chief Executive Officer of Telefonica explains: "*…what is crystal clear, is that we have the best mobile asset in the UK, with the lowest churn, the best quality. And as a result, whatever could happen on that market, we have a very valuable asset.*" Three on the other hand has a very strong spectrum holding on a per subscriber basis and it has very strong profitability. In this context, preferential support to O2 or Three would breach Ofcom's duty to not discriminate against particular persons or a particular description of persons (whether BT/EE is named specifically or implicitly by reference to its volume of spectrum). Such preferential treatment could not be justified by a need to promote competition for spectrum since - as explained above - Ofcom's statutory duty requires it to promote competition in the provision of electronic communication services, not spectrum.[16] Moreover, Ofcom has made no credible case that an increase in asymmetry (beyond some unspecified threshold) would tip the market from one which is considered by Ofcom to be effectively competitive to one where there are serious competition concerns in relation to specific services and/or customer segments.

9. Even if such an assessment were to identify an adverse impact on competition due to short term difficulties in adding capacity (which Ofcom has not), any remedy should seek to ensure that each operator has sufficient spectrum to remain credible rather than capping overall volume shares which is neither objectively necessary nor proportionate as a remedy to any such issue. More specifically, Ofcom should take the minimum necessary measures to resolve the specific issue identified. Before taking any competition measures however, Ofcom must first consider how operators would respond to any issues they may face absent intervention. For instance, if Ofcom were concerned that O2 may require spectrum in order to alleviate short term capacity constraints, Ofcom must consider whether O2 has the ability and incentive to purchase the spectrum that it needs. O2 clearly has the means to do so; as recently as 2015 it was able to spend EUR 7.24bn acquiring Brazilian operation GVT.[17] Alternatively O2 will no doubt have considered how it would respond if it fails to win 2.3GHz spectrum, there being a number of options to expand capacity aside from deployment of spectrum. As regards incentives, if O2 is capacity constrained in the short term (which has not been demonstrated), then it

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[15] Telefonica's public comments to its investors are that O2 is performing exceptionally well. See: https://www.telefonica.com/documents/162467/51547305/rdos16t3-transcript.pdf/013ee2f0-2a45-4f08-8de0-8796f504c4d1 See for instance pages 8, 11-12 (noting O2's position that revenue trends are sustainable), and 22. Note also that Telefonica explained in relation to its deleveraging: "*What we're doing, means that we are fully confident that we can rely again on organic and growing free cash flow generation to reduce leverage. It also means that we do not need any more to do any divestment in order to meet our deleveraging goals. It means that from now on, any such process will be run exclusively according on its strategic and value-creating merits, and it means as well that we are no longer under any rush to proceed with any transaction. Because by doing what we are doing today, we think that we should not be depending anymore on any longer and external factors to deleverage.*" Pages 16-17.

[16] Section 3(2) of the Wireless Telegraphy Act 2006.

[17] According to Wall street journal, 26 March 2015, the purchase was made up of 4.66bn euros in cash with the balance in shares in two of its other businesses. See http://www.wsj.com/articles/telefonica-raises-cash-for-8-billion-brazil-deal-1427373241.

is reasonable to assume that O2 would have strong incentives to protect its existing large customer base by using its financial muscle to acquire the required spectrum.

10. In deciding what measures to impose (if any), Ofcom must keep in mind the risk that its interventions may drive an expectation on the part of some MNOs that they can rely on further interventions in future auctions. For instance H3G, having received significant subsidy in past auctions, should now be a sustainable operator able to compete without preferential treatment by Ofcom. Its reported profitability supports this view. With a number of upcoming auctions expected to take place in the next few years, Ofcom must be careful to consider how its intervention in this auction may give rise to expectations in future auctions. The risks of failing to impose competition measures where it transpires that they are needed (especially in this case where intervention is justified with reference to hypotheses only) are less than the risks of intervening where intervention is not proven to be necessary. This is because, in the first case, operators needing spectrum will still be credible and will have other means of expanding capacity in the short term, but in the second case there is significant risk of distortion to bidding incentives which will endure beyond the immediate auction.

11. We do not comment in detail on the Options Ofcom puts forward because we do not agree with the concerns expressed. However, we see no scenario where either Option C or E could be proportionate even if Ofcom's concerns are warranted (which BT/EE disputes). Moreover, in light of the points above we reiterate that any intervention in this auction would be disproportionate and unjustified.

2. Overview of the UK mobile market

Current state of retail competition

12. Ofcom states that in order for it to determine whether there is a risk of weakening competition, or whether it is appropriate to actively promote competition, it must understand the UK mobile market.[18] We agree.

13. All relevant indications suggest a highly competitive market. Indeed, Ofcom concludes that "*the market appears to be operating well at present, with strong competition between suppliers, relatively low prices for UK consumers, and continued investment in new services.*"[19] In Ofcom's Strategic Review of Digital Communications Consultation it acknowledged that:

> "*UK consumers have benefited greatly from end-to-end competition in mobile services*."[20]
>
> "*The UK also has some of the lowest mobile prices among the EU5 countries. In 2014, the UK had the second lowest total 'lowest available' and 'weighted*

[18] Ofcom, The Consultation, para 3.2.

[19] Ofcom notes in paragraph 3.5 of the Consultation, consistent with the evidence presented in Annex 7 of the Consultation, that "*the UK mobile market is currently working well, with four credible MNOs and a range of MVNOs supporting strong retail competition*".

[20] Ofcom, Strategic Review of Digital Communications Consultation ("DCR Consultation"), July 2015, para 1.49.

average' stand-alone prices for the eight mobile baskets we included in our analysis."[21]

14. Ofcom goes on to explain that this is despite asymmetric spectrum holdings, operators with smaller spectrum portfolios are those gaining market share.[22] In the Consultation Ofcom notes that:

> *"H3G and MVNOs have increased their retail market share of subscribers over the past few years, mostly at the expense of BT/EE and Vodafone"[23].*
>
> *"The market is still relatively concentrated, but the rising market share of H3G and other MVNOs have led to a decrease in concentration indicators".*
>
> *"Vodafone and EE have lost a significant number of subscribers since 2011. Only H3G has seen a continuous growth in the number of pre-pay subscribers."[24]*

15. More generally, Ofcom acknowledges that asymmetric holdings can have pro-competitive effects. It states:

> "*A certain degree of asymmetry in spectrum holdings may reflect differences in operators' commercial strategies and expectations about the future. Such asymmetries may give rise to consumer benefits. For example, an operator that already has a high share of spectrum may use additional spectrum in an innovative way, and an operator that has a lower share of spectrum may find innovative ways of attracting consumers to compensate for its lower share of spectrum e.g. targeting particular consumer or business segments, or offering higher quality in other aspects of service*."[25]

16. There is nothing surprising in the fact that retail competition in the UK is highly competitive despite asymmetric spectrum holdings because spectrum holdings are only one factor amongst many that determine an MNO's competitive strength, and no direct relationship between the volume of spectrum and the competitive force posed by a credible MNO can be assumed. Without establishing a direct relationship, the proposed competition measures cannot be relied upon to deliver Ofcom's desired competition outcome. The required linkage between the remedy and the competition concerns is absent or, at the very least, insufficiently strong to justify the proposed intervention.

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[21] Ofcom, DCR Consultation, July 2015, para 4.11.

[22] Ofcom concludes that asymmetric spectrum shares do not appear to have weakened competition in the UK, in fact the operators with the smallest overall spectrum holdings have increased their market shares since the 2013 auction of 800 MHz and 2.6 GHz spectrum. The evidence presented in Annex 6 of the Consultation on spectrum holdings in other European countries with four operators, also demonstrate consistent differences between spectrum shares and subscriber market shares, suggesting too that there is no evidential link between spectrum shares and subscriber market shares.

[23] Ofcom, The Consultation, para A7.23.

[24] Ofcom, The Consultation, para A7.26-7.

[25] Ofcom, The Consultation, para 4.29.

Four credible MNOs

17. Ofcom assesses a number of dimensions of quality in order to determine whether each MNO will remain credible as a national provider of mobile services. We comment on coverage, capacity, speed and other parameters of competitive advantage below.

(a) Coverage

18. Those operators with significant holdings of sub 1 GHz spectrum are able to [✂]. This is why sub 1 GHz spectrum is particularly valuable. As Ofcom themselves have noted "*while the 1800 MHz band may have short-term LTE advantages over 900 MHz, there are significant propagation advantages to sub-1 GHz spectrum*".[26] O2 paid almost as much for low frequency spectrum at the combined award auction as EE paid for a larger volume of higher frequency spectrum.

19. Ofcom identify a specific concern that "*very asymmetric holdings of immediately useable spectrum*" may adversely affect "*high value consumers who demand consistently high data speeds.*"[27] Ofcom makes no attempt to evidence either the existence of this customer group or the assertion that they would be harmed by asymmetric spectrum holdings. However if this were correct then it must be assumed that these customers are seeking high data speeds both indoors and outdoors. Indeed, BT/EE estimates that [✂] of mobile data use occurs indoors[28]. [✂]. Therefore, even if the "high value" customer segment demanding "consistently high data speeds" existed (which Ofcom has not shown), BT/EE disputes that greater asymmetry in spectrum holdings following the auction would lead to any competition concern. As indicated above, the total volume of spectrum holdings is not a useful proxy for a credible MNO's ability and incentive to compete. Additionally, we explain the relevance of speed in customer decision making below.

(b) Capacity

20. The recent merger decision in the H3G/O2 transaction is highly instructive on the question of capacity.[29] Three and O2 in particular claimed that they faced capacity constraints[30], however such arguments were dismissed. Importantly, the European Commission (the "Commission") conducted a detailed review of Three's future network

[26] Ofcom, Annual licence fees for 900 MHz and 1800 MHz spectrum ("ALF") - Consultation, October 2013, para 4.52.

[27] Ofcom, The Consultation, para 4.9.

[28] [✂].

[29] In relation to the BT/EE merger, the CMA also considered it unlikely that the MNOs in question would "*individually or in combination be sufficiently and enduringly weakened by any potential capacity constraints to the extent that the loss of BT from the retail mobile market is expected to lead to an SLC*". CMA, BT/EE Final Decision, para 18.

[30] Vodafone also made rather half-hearted submissions on this point. These were readily dismissed by the CMA, who noted that Vodafone had provided a forecast of the proportion of its sites that may become congested over time, having reviewed that analysis the CMA stated "*we therefore do not further consider capacity constraints in respect of Vodafone*". CMA, BT/EE Final Decision, Appendix G, para 125-6.

plans and of its claims to be capacity constrained,[31] something Ofcom, on its own admission,[32] has not. If Ofcom were to intervene on the basis of purported capacity constraints it must first conduct an in-depth assessment and having done so, if it finds such concerns to be made out, explain why the Commission's analysis was wrong.

21. As regards Three, the Commission concluded:

- It is not capacity constrained[33] and is unlikely to experience serious capacity constraints that will affect its ability to compete in the future;[34]
- As regards the next 2-3 years, "*...it cannot be reasonably predicted that Three's ability to compete would materially deteriorate due to capacity constraints….*"[35] ; and
- "[A]*bsent the Transaction, Three would continue to exert at least the same competitive constraint it exerts on the relevant market pre-Transaction (if not a stronger one)*".[36]

22. As regards O2, likewise the Commission conducted an in-depth review of its arguments concluding:

- "*...O2's financial outlook is positive and that, taking into account its current profitability and growing customer base, it appears unlikely that O2's ability to compete would deteriorate in the next two to three years*."[37]
- Having reviewed O2's arguments regarding capacity "*it cannot be concluded that it would be likely that O2's network quality would degrade to a point where its ability to compete would be materially undermined."*[38]
- Absent the Transaction, O2 would continue to exert the same competitive constraint it exerted on the relevant market pre-Transaction[39] and "*based on the available evidence in its file, it appears unlikely that O2's ability to compete would materially deteriorate in the next two to three years.*"[40]

23. Given these findings, Ofcom should treat any submissions claiming capacity constraints with a high degree of scepticism. Moreover, to ensure consistent regulation Ofcom must have proper regard for the recent findings of the Commission which has already assessed competition in Ofcom's 'transitional period' and concluded that there will be no material reduction in either O2's or Three's ability to compete. Certainly there is no cause for Ofcom to make assumptions which run contrary to the findings of another regulator following a detailed examination of the relevant evidence.

[31] The Commission, H3G/O2 Final Decision, para 774.
[32] Ofcom, The Consultation, para A8.44.
[33] The Commission, H3G/O2 Final Decision, para 2097.
[34] The Commission, H3G/O2 Final Decision, para 1949.
[35] The Commission, H3G/O2 Final Decision, para 775.
[36] The Commission, H3G/O2 Final Decision, para 2413.
[37] The Commission, H3G/O2 Final Decision, para 851.
[38] The Commission, H3G/O2 Final Decision, para 865.
[39] The Commission, H3G/O2 Final Decision, para 870.
[40] The Commission, H3G/O2 Final Decision, para 869.

24. As Ofcom notes,[41] it is also open to Three to amend its commercial offers in order to manage demand. In a situation where Three has more spectrum per customer than any other MNO, it could consider improving its demand management techniques to free up capacity to enable it to grow its customer base.[42] A perverse consequence of offering support to Three through the spectrum auction, before it has exhausted commercial strategies for more efficient management of demand on its network, is that its incentives to efficiently use existing spectrum would be undermined. This would be contrary to Ofcom's duties under the Wireless Telegraphy Act relating to the efficient use of spectrum.[43]

(c) Speeds

25. As regards speeds, it is important to distinguish between peak and average speeds. Rootmetrics has explained: "*while 4G speeds are often eye catching, keep in mind that a law of diminishing returns exists with speed: you need enough speed to perform typical consumer activities with ease, but beyond that the benefits of extra speed might not be impactful.*"[44] Peak theoretical speeds are therefore of less relevance to consumers. Before the CMA, Ofcom was doubtful about the competitive importance or significance of peak speeds.[45] [✂]. Ofcom has previously used the example of the fixed network, explaining that for speeds above 10 megabits per second, usage was almost independent of line speed and "*therefore gave providers bragging rights, but did not make any real difference to user experience*."[46] For mobile, Ofcom expected the threshold to be lower than 10 megabits per second and that what mattered to consumers more was the ability to deliver <u>sufficient</u> speed, not the headline speed.[47]

26. In considering how important speed is to consumers, Ofcom has previously commissioned research from Ipsos Mori, which explained the mobile performance factors that affected customer switching. The report notes that aspects of services related to voice (reception and quality) are more important than mobile internet speed.[48] In the Consultation, Ofcom also cite a report by Enders Analysis and a survey by Yougov which show that[49] only 10% and 13% of consumers respectively, considered network speed to be the most important factor.[50] In comparison 19% of consumers considered that network coverage was the most important factor in deciding whether to switch to 4G

[41] Ofcom, The Consultation, para 8.43.

[42] CMA, BT/EE Final Report, January 2016, para 14.68.

[43] Ofcom has previously indicated, in the context of Annual Licence Fees (ALFs), that insofar as ALFs resulted in higher end user prices then that may be justified if it was required to encourage efficient spectrum use (see Ofcom's 2010 SRSP Statement, para 5.152 and Ofcom's August 2014 ALF Consultation, para A5.25). We also note that in footnote 183 of Ofcom's October 2013 ALF Consultation it stated that it did not consider there was a basis for Ofcom bringing about lower consumer prices if this entailed introducing a market distortion.

[44] CMA, BT/EE Final Report, January 2016, Appendix G, para 108.

[45] Ofcom, CMA summary of hearing with Ofcom on 5 August 2015, para 99.

[46] Ofcom, CMA summary of hearing with Ofcom on 5 August 2015, para 100.

[47] Ofcom, CMA summary of hearing with Ofcom on 5 August 2015, para 101-102.

[48] A point Ofcom made to the CMA, Ofcom submission of 31 July 2015, para 3.55.

[49] These questions were asked in the context of which factor is the most important in deciding whether to take up 4G and in determining the quality of a mobile network.

[50] Ofcom, The Consultation, Figure A7.30 and A7.31.

and 37% of consumers considered it to be the most important factor in determining the quality of a mobile network. [✂].

27. BT/EE has previously provided the CMA with evidence from an Enders Analysis consumer survey that showed that when assessing network quality, data speed was the most important factor for only 9% of consumers.[51] The CMA noted that this may suggest that high data speeds are not a strong driver of competition.[52]

28. [✂].

29. Importantly data speeds were no more important than other value add aspects of the package including content subscriptions, such elements capable of being replicated by any MNO.

Figure 1 [✂]

[✂]

30. Ofcom's December 2016 report on 4G mobile broadband performance found that all four operators delivered average download and upload speeds of at least 8Mbit/s in each of the seven major UK cities surveyed, and an overall average download above 12Mbit/s.[53] From this Ofcom concluded that there was little difference in 4G web browsing speeds and successful web page loading rates across all MNOs, with an average 98% success rate.[54]

31. Ofcom also found that in 98% of trials, users were able to load a video in High Definition (HD) on Vodafone, EE and O2 and 95% on Three, across all of the seven cities. This is particularly telling since streaming of HD video is one of a small number of services which require the "consistently high speeds" that Ofcom suggests some operators may not be able to deliver with smaller spectrum holdings, and it is unclear what services or applications would require speeds beyond those currently offered (especially in the next 2-3 years).[55] Ofcom's study demonstrates that all four operators are able to deliver sufficient speeds, for not only basic web browsing but also for applications and media that requires consistently high data speeds in densely populated urban areas, and this can be sustained by adding capacity through a range of alternatives to spectrum, as we set out in section 3.

(d) Other competitive advantages

32. It is important to understand that there are other parameters of competition of importance to customers. Ofcom appears to accept that trade-offs between different factors does not necessarily undermine the conclusion that an MNO is a credible competitor overall. "*We*

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[51] CMA, BT/EE Final Report, January 2016, Appendix G para 104-5.

[52] CMA, BT/EE Final Report, January 2016, Appendix G para 105.

[53] Ofcom, Smartphone Cities Measuring 4G mobile broadband and voice performance, December, pages 27-28.

[54] Ibid, page 4.

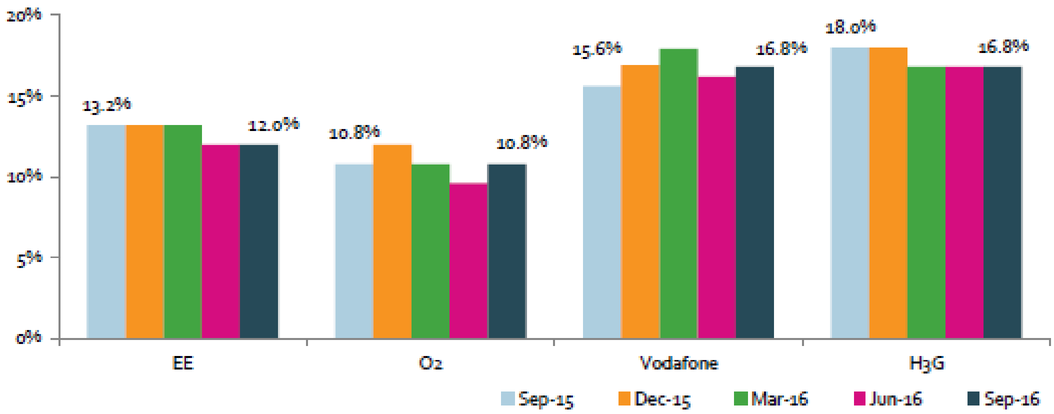
[55] We note that streaming of videos above HD (e.g. Ultra HD) offer minimal marginal benefit over HD when viewed on a mobile handset, so consumer demand for the speeds required to support above HD streaming is likely to be weak.

noted that an MNO could be a credible competitor even though it is not in a strong position in some dimensions of service, or in delivering particular services or to particular customers. For example, a MNO might be credible if it were able to provide good quality of service (such as high data rates and latency) in most indoor locations, even if it could not compete as strongly for customers that particularly valued having a connection in the most difficult to serve locations."[56] This runs contrary to Ofcom's concern about "very" asymmetric spectrum holdings namely that it may compromise the ability of those with smaller holdings to compete for particular services or customer segments.

33. In terms of these other parameters of competition, where Ofcom refers to customers who demand high average data speeds, it is very unlikely that this is their only or indeed their overriding requirement. Even if an operator could not offer an average data rate as high as another operator, that operator it is likely to be able to compensate for this through other parameters of service. Whilst not intended to represent an exhaustive list, relevant parameters would include, brand, customer service, and value added services (e.g. O2's Priority Moments[57], early upgrade, and Three's roaming services). [✂].

34. Market churn rates in Figure 2 show that despite having a relatively smaller volume of high frequency spectrum, O2 has maintained market leading low churn rates, demonstrating its ability to retain customers. [✂]. H3G on the other hand have recently been rated the best network for internet use by a Yougov survey published in December 2016.[58]

Figure 2 – Annualised contract churn rates (%)



Source: Enders Analysis, December 2016

Conclusions on capability

35. Ofcom is right to find it unlikely that any of the four MNOs would cease to be credible in the next few years even if they did not obtain any spectrum in this award.[59] Ofcom's definition of credibility - which is expressed in terms of an effective constraint across

[56] Ofcom, The Consultation, Footnote 23.

[57] Priority Moments delivers exclusive offers, such as tickets for entertainment, to O2's customers (https://priority.o2.co.uk/). O2 also state that they have been awarded best for customer service 7 years in a row (http://www.o2.co.uk/).

[58] http://www.three.co.uk/Discover/awards

[59] Ofcom, The Consultation, para 4.6.

factors such as "*the provision of high quality services, competitive prices, choice and innovation*" - captures the relevance of a range of factors and their contribution to overall market competitiveness. This test is both necessary and sufficient in assessing the need for competition measures. There is no case for particular factors to be singled out and/or elevated in importance as part of "credibility-plus" analysis unless Ofcom has concrete evidence that these are key drivers of competition (which it does not). Effective competition does not require that every MNO offers exactly the same services; indeed service differentiation is a key element of competition. Moreover, proportionality weighs against intervention absent clear evidence of significant concerns.

MNOs spectrum holdings

36. Ofcom is wrong to simply calculate overall volumes of spectrum holdings and intervene on that basis. Total volume of spectrum held gives little indication of the nature of retail and wholesale competition, which is what Ofcom is required to assess. Assessing overall spectrum shares may be informative of one aspect of quality, i.e. capacity (albeit there are many ways to increase capacity aside from additional spectrum[60]) but provide no insight into the many other aspects of quality including coverage.

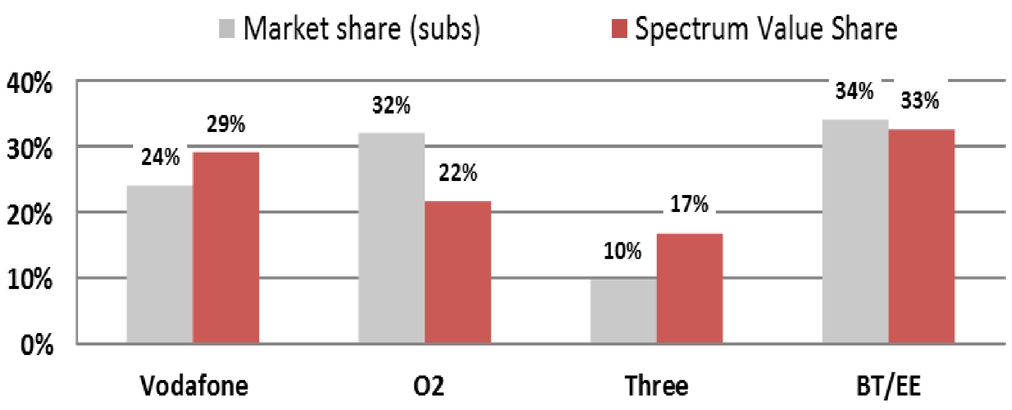
37. Indeed the spectrum holdings of other MNOs reflect their differing strategies at the previous combined award auctions – strategies they would have devised in light of their anticipated needs in order to compete effectively in the retail market. O2 for instance chose to purchase high value low frequency spectrum and now holds a very high share of this most valuable spectrum, which Ofcom overlooks when considering only MNOs' respective shares of all immediately usable spectrum. If one was to consider spectrum holdings by value, a materially different picture would emerge.

38. Figure 3 provides an estimate of spectrum shares by value which indicates that spectrum is more evenly distributed when calculated on this basis. This analysis shows that BT/EE holds around 33% of the spectrum by value, which is similar to the share of subscribers on its network, whilst Vodafone and H3G have spectrum shares by value above the share of subscribers on their networks.[61] We note that these estimates are likely to overstate BT/EE's share of spectrum, in particular since in our view Ofcom's valuation for 1800 MHz overstates market value.

[60] Ofcom accepts that "*companies can add capacity through network investment rather than deploying additional spectrum*". Ofcom, The Consultation, para 1.21.

[61] Spectrum values based on per MHz values sourced as follows: 800MHz, 900MHz, 1800MHz and 2600MHz per MHz values taken from Ofcom Statement on Annual licence fees for 900 MHz and 1800 MHz spectrum, September 2015; 1500MHz derived using reported Qualcomm trade value, scaled to 20 year licence duration; 2100MHz taken from Ofcom DCR Statement; and 2600MHz TDD based on Ofcom analysis of 4G auction data. The use of the Ofcom's spectrum value estimates in Figure 3 should not be taken as our endorsement of them.

Figure 3 – MNO's share of spectrum by value and volumes of subscribers on their networks



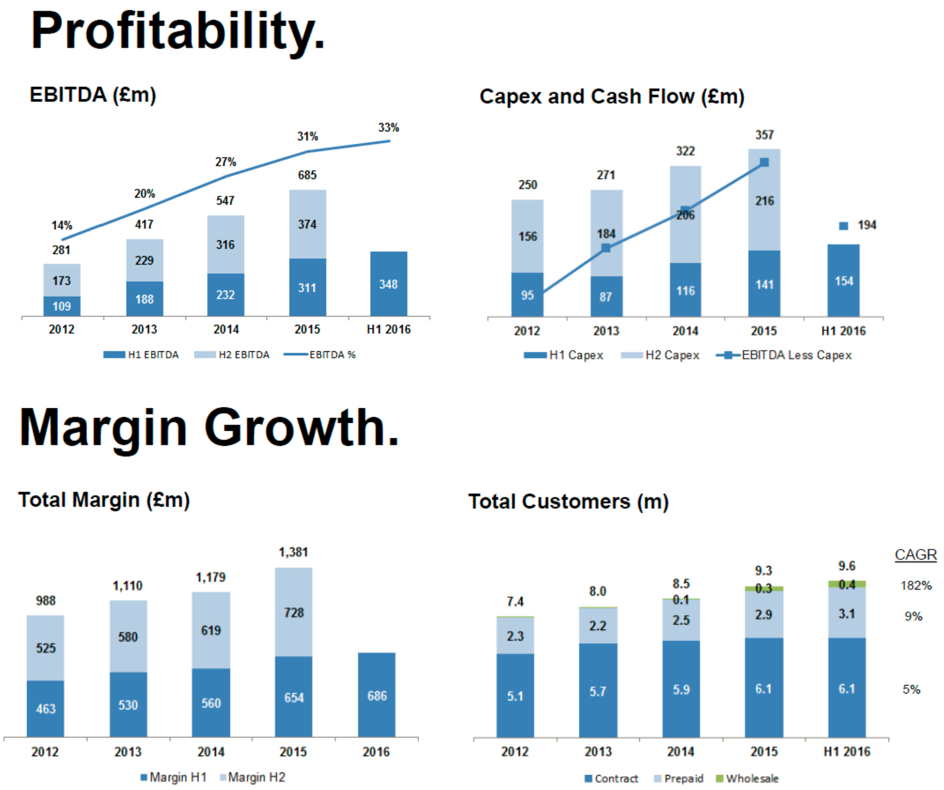
39. Given Ofcom's duty to have regard to the principle of consistency when exercising its regulatory duties, Ofcom cannot take account of the differences in the value of spectrum in one context (i.e. annual licence fees) but have no regard to this in another context (i.e. the current consultation).

40. There is no evidence that any operators have been materially prejudiced in their ability to compete as a result of their spectrum holdings. In a recent investor relations call, the Telefonica CEO has explained "…*let me remind you that O2 is the best mobile asset in the UK market. It has the best operational performance among the MNOs, it's the best brand in the market, it has a differential value proposition to customers and it has effectively the lowest churn and an outstanding commercial activity during these two quarters.*"[62] As we note above, brand and value propositions are likely to be important considerations for high value customers, hence O2's focus in these areas. Telefonica also note that "*UK financials are improving sequentially, consistently outperforming the market.*"

41. Likewise Three has proven that it has the ability to purchase the spectrum it requires. Indeed Three currently has the highest number of MHz of spectrum per customer and recently submitted the winning bid for L-band spectrum in a trade sale [✂]. Like O2, H3G's market share has been steadily growing since 2010, increasing by close to 50% in that time, and showing it to be a strong competitor in the market. Further, in a recent Business update to investors H3G boasted of consistent year on year growth in EBIDTA, cash flows and subscribers over the period H1 2012 to H1 2016, as shown in Figure 4. A recent report by Enders Analyses also showed that in terms of EBITDA and cash flow margins, H3G is the industry leader. (see Figure 5). H3G's market share growth and self-proclaimed strong financial position is yet another clear indication that its ability to compete effectively has not been undermined by its current spectrum holdings. Moreover, it calls into question why Ofcom would feel compelled to intervene to exercise preferential treatment to help the most profitable UK MNO win spectrum at auction.

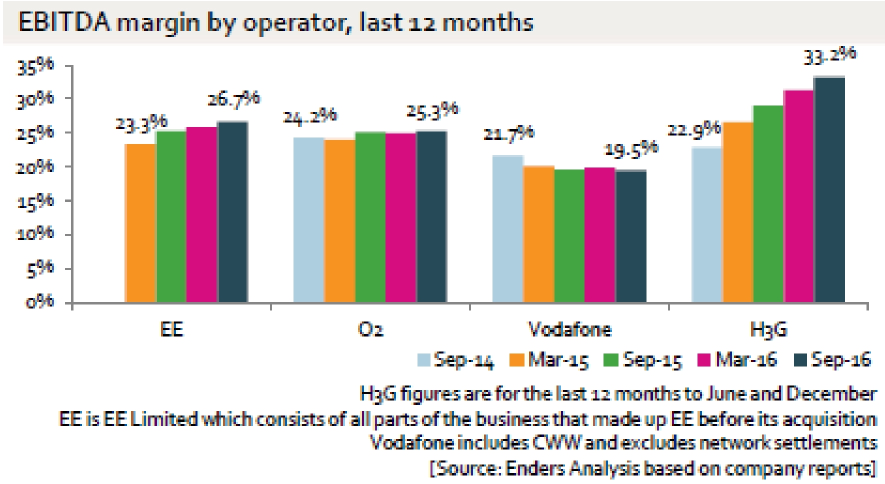
[62] Telefónica, January-June 2016 Results Conference Call Transcript, 28th July 2016, see https://www.telefonica.com/documents/162467/51547305/rdos16t2-transcript.pdf/f65feadf-3169-4d2c-98c3-ddb885904323.

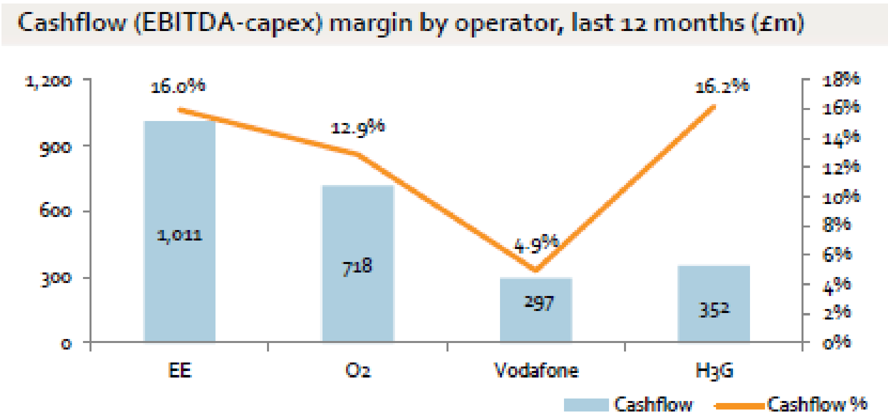
Figure 4 – H3G's profitability and margin analysis



Source: H3G Business update, September 2016.

Figure 5 – Enders Analysis MNO margin analysis





Source: Enders Analysis, UK mobile market Q3 2016, December 2016.

3. Competition concerns on which Ofcom relies

Theory of harm concerning asymmetry of holdings

42. Ofcom's stated concern is that competition between MNOs may be weakened in the event of very asymmetric spectrum holdings post auction. This section considers this concern, we discuss the likelihood of this asymmetry arising at all, and the conclusions that should be drawn from that, in section 5 below.

43. Ofcom states a general concern that competition may be weakened if any operator has more than 40% of spectrum by volume,[63] but also raises a more specific concern (on which it justifies its intervention) that competition in the 2-3 years after the auction (the 'transitional period') may be weakened as some operators require additional 'immediately usable' spectrum. More specifically, Ofcom states that "*during the transitional period, we are concerned that competition could become weaker, as mobile*

[63] Ofcom note that "*as MNOs need to continue adding capacity in the future to meet growing consumer demand, we remain of the view that there is a risk that competition may be weakened if any single operator has more than 40% of spectrum*." Ofcom, The Consultation, para 4.32.

data use continues to grow and MNOs need to continue to add capacity to be able to compete effectively. MNOs with much smaller useable spectrum shares may not be able to add capacity as cost effectively as the operator with the highest share, which may tend to weaken competition for some customers over the transitional period."[64]

44. The concern Ofcom articulates regarding the transitional period must be set in context. Growth in data usage has been predictable and there are numerous options available to increase capacity over time, aside from deploying more spectrum (for example additional sites, sectorisation, and spectrum re-farming). MNOs have had many years to plan upgrades to their networks and for most of this period would not have expected further spectrum to be made available in the short term in light of statements by Ofcom which indicated uncertainty about future releases.

45. For example in Ofcom's Statement on the award of 800 MHz and 2.6 GHz spectrum bands it noted that the Ministry of Defence (MoD) only expected to be in a position to release 160 MHz of spectrum in the 2.3 and 3.4 GHz band by the end of 2016. Ofcom went on to state that it was therefore possible that that spectrum could be awarded within 5-10 years of the 4G auction (i.e. post 2017), but that there was still uncertainty about what spectrum will be released, the timing of release, and/or the availability of user devices.[65] [66] MNOs' expectations would therefore most likely have been that less spectrum was to be released (160 MHz rather than 190 MHz) and that this would be awarded post 2017. Ofcom should, therefore, be wary of protecting MNOs if they have failed to respond to existing or foreseeable market signals as this will create perverse incentives that could lead to an inefficient outcome in both the upcoming and in future auctions as well as distorting competition by creating an uneven playing field. The issue of how cost effectively operators can increase capacity is addressed below.

46. The emphasis on 'immediately usable' spectrum is, therefore, inappropriate as it fails to properly consider the various methods available to operators to increase capacity over time, and which there has been ample incentive to deploy (if needed) given uncertainty about the availability of spectrum.

47. However working with the definition of 'immediately useable' spectrum, Ofcom must include the 1400 MHz spectrum. There are already handsets available that support this band, such as the Google Pixel handset, and more are likely to follow in the short term. Moreover, it is open to operators to influence the bands that are available in handsets by working with the device manufacturers. Each of Three, O2, and Vodafone are international operators who purchase very large volumes of handsets annually which gives them a strong bargaining position. If they urgently needed handsets that were 1400 MHz compatible one would expect that they would be able to provide evidence to Ofcom of the steps they are taking with handset manufacturers to accelerate adoption. As Ofcom notes, the relevant consideration is whether a band can be used to offload some traffic rather than all traffic i.e. the band does not need to be accessible to all devices in order to alleviate capacity. "*We consider that spectrum can be useful for adding capacity even when it is only in a minority of user devices.*"[67]

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[64] Ofcom, The Consultation, para 4.68.
[65] Ofcom, Statement on the award of 800 MHz and 2.6 GHz, July 2012, Footnote 29.
[66] Ibid, para A2.80.
[67] Ofcom, The Consultation, footnote 32.

48. Ofcom's theory of harm concerning very asymmetric holdings is flawed both as regards the 2.3GHz award but also in the wider context of upcoming auctions. The evidence available to Ofcom shows a highly competitive retail market despite (or in part because of) existing asymmetric holdings of spectrum. As Ofcom acknowledges "[*I]ndeed, there could be upside benefits to providers holding different spectrum amounts, because it might stimulate them to adopt different approaches to delivering their services…*".[68]

49. Actual evidence of how the UK retail market has developed in the context of asymmetries should be given significantly more weight than a theoretical concern (which is in any event flawed and un-evidenced). Moreover, Ofcom's 40% cap is arbitrary: no evidence is presented as to why concerns arise once 40% share by volume is reached. Furthermore, an overall cap treats all spectrum as being of equal value, which is evidently not the case, and which Ofcom must recognise given that it previously imposed a sub-1GHz cap.

50. It is clear that the overall volume of spectrum held by each MNO is not informative of the ability of each MNO to compete as spectrum is not a 'market'.

How does Ofcom's theory of harm impact competition in practice?

51. Ofcom lists a number of different ways in which its theory of harm might manifest itself in practice. The common theme across all of these concerns is that they are highly speculative and unsupported by evidence or research. This is particularly striking given Ofcom's conclusion that asymmetric holdings have caused no concerns to date. Ofcom provides no clear explanation as to why current levels of asymmetry are unproblematic but higher levels of asymmetry which could arise post auction would be problematic. If Ofcom's position is that there is a threshold beyond which the degree of asymmetry becomes problematic rather than pro-competitive then it is incumbent upon Ofcom to identify this threshold and clearly set out the economic rationale for this theory.

(a) *Theory of harm ('ToH') 1 – cost of rolling out capacity*

52. Ofcom notes that operators with smaller spectrum holdings tend to have higher marginal costs of adding capacity. Moreover that it takes time to use alternatives to spectrum for adding capacity and that such alternatives may not be credible in the next 2-3 years. The net effect of this, according to Ofcom, is that failure of operators to obtain at least some of the 2.3GHz spectrum may reduce their incentives to compete aggressively for customers. As such competition would be stronger if these operators had a higher share of immediately usable spectrum.[69] Although there are significant redactions, it appears that Ofcom has considered more generally whether any operator is capacity constrained, although the conclusion of that assessment is redacted making it impossible for third parties to comment on it.

53. As regards the point concerning marginal costs, Ofcom's analysis is flawed because it ignores the fact that spectrum holdings have an associated cost, either lump sum when acquired or as an ongoing charge. Moreover, when operators bid for spectrum, the

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[68] Ofcom, CMA summary of hearing with Ofcom on 5 August 2015, para 95.
[69] Ofcom, The Consultation, para 4.27.

spectrum value is determined by the avoided cost of the next best alternative therefore operators would have made their decision not to purchase additional spectrum in previous awards (or not to bid higher in order to win spectrum) because they considered that the alternative means of adding capacity could be achieved at lower cost. Therefore those holding more spectrum have the burden of greater costs.

54. In terms of time to deploy alternative options, Ofcom must take account of the fact that MNOs have had many years to plan and implement these alternatives and therefore – to the extent that any MNO faces capacity constraints in the transitional period that would affect their ability and incentive to compete (contrary to the conclusions reached by the Commission following their detailed review in Hutchison 3G UK/ Telefonica UK) - any intervention by Ofcom would reward operators for failure to invest or plan. This would set a very bad precedent for future auctions. In any event, adding capacity through other means in the short term is possible. H3G, for example, has recently announced that it is trialling small cells in London to boost capacity in urban areas[70], and we understand that as well as launching a service that automatically connects its mobile customers to free Wi-Fi networks[71], O2 has sectorised a number of sites up to 6 and even 9 sectors.

55. There are number of ways that additional capacity could be added in the short term. These include: re-farming 2G and 3G spectrum to 4G which improves spectrum efficiency; network densification (whether macro cells or deployment of small cells); sectorisation e.g. 3>6 sectors on existing sites; adoption of four receiver devices in their device base; and encouraging Wi-Fi offload. Operators can also manage demand on their networks during peak hours.

56. More fundamentally there is no substantiated causation between Ofcom's competition concerns and asymmetric spectrum holdings. As we explain below, if Ofcom believes that it has identified a short term impediment to effective competition (i.e. that some operators require additional capacity to compete effectively in the short term) then it must evidence that finding and then go on to consider whether such issues would be remedied through market mechanisms and only if not should Ofcom assess whether intervention to impose measures to guarantee spectrum to one or more bidders is proportionate, consistent with previous regulatory interventions and targeted only at cases in which action is needed. To the extent that an operator believes that it will face higher marginal costs of increasing capacity through means other than spectrum, this will be reflected in their intrinsic value and, in turn, their bidding strategy.

57. As regards driving more aggressive competition[72], as Ofcom already notes the UK is highly competitive, none more so than on price. In the Consultation Ofcom points to further evidence that the UK mobile market continues to be among the most competitive.

> "*Compared to the average of the 28 EU member countries, the UK handset plan prices are between 24%-64% cheaper*."[73]

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[70] http://www.mobileeurope.co.uk/news-analysis/three-uk-dips-its-toe-into-small-cells-but-wants-more-action-from-wider-ecosystem

[71] http://www.trustedreviews.com/news/o2-wifi-extra-ditches-log-ins-with-hotspot-auto-connect

[72] We have found it difficult to interpret whether this is a concern of Ofcom or not, the superficial and hypothetical nature of the analysis in the Consultation makes it difficult to interpret exactly what it is that Ofcom is concerned by.

"*the UK's 'weighted average' stand-alone price is still significantly below that of most other comparator countries for which we have data*."[74]

58. To the extent that H3G suggests that current market prices may not be sustainable in the long-run, we note that this may be due to some operators' prices reflecting short-run rather than long-run costs. The nature of the mobile industry means that capacity upgrades tend to be lumpy, and so short-run costs fall and then rise sharply over time. As a result, an operator that prices to reflect its short-run costs, may be able to reduce pricing after investing in adding capacity, as short run marginal costs are low, but then may be forced to increase prices once it approaches capacity as it needs to invest in adding further capacity (e.g. by purchasing more spectrum). In contrast, it may be possible to sustain low prices that are based on long-run costs, which are less sensitive to costs of adding capacity.

59. Also, to the extent that Ofcom is concerned with the cost of rolling out capacity generally, then this is an issue that all operators wish to solve, for instance by decreasing site rentals and easing planning restrictions.

(b) ToH 2 – ability to compete across certain segments / ability to offer services that cannot be replicated

60. Ofcom states that operators may struggle to compete strongly across certain services or certain customer segments or temporarily over some period of time. Such customers may be '*high value customers who demand consistently high data speeds*." No further detail is given as to the services it considers an operator may be unable to provide competitively, or to what period of time Ofcom is referring (possibly a lesser period than the transitional period?) or to what proportion of customers comprise this segment of 'high value customers'. Ofcom also argues that an MNO with a very high share of spectrum may be able to offer such superior services that rivals are unable to replicate them, which could weaken competition at least for some customers, some service or over a temporary period. Again, no explanation is provided for these assertions, contrary to Ofcom's duty of transparency. This makes it difficult for third parties to effectively assess and respond to Ofcom's views on the matter which is concerning given the significant impact of the remedies proposed in response to this concern.

61. Indeed Ofcom's position appears to be merely a hypothesis. Ofcom has not:

- *Defined the relevant market(s)* – The CMA and the European Commission have identified national markets for the supply of retail mobile services to end customers, declining to define narrower markets, largely on the basis of supply side factors including that the conditions of competition are similar across sub-segments.[75] As regards high data users and speeds the CMA concluded that, from a demand perspective, there was no evidence to support a finding that customers would not switch between high and lower data allowances or speeds in response to a price rise.[76] From a supply perspective it noted that all MNOs offer 4G and 3G services and

[73] Ofcom, The Consultation, para A7.74.

[74] Ofcom, The Consultation, para A7.44.

[75] CMA, BT/EE Final Report, January 2016, para 10.10.

[76] CMA, BT/EE Final Report, January 2016, para 10.38.

that the extent of 4G coverage is rapidly converging. As such the CMA concluded that the conditions of competition do not vary significantly across 2G, 3G and 4G services and that the segments can be aggregated on that basis.[77]

- Having properly defined the retail mobile market, it becomes immediately apparent that such a customer segment, entirely divorced from competition in the rest of the retail mobile market, is highly unlikely to exist. To the extent that Ofcom is concerned that a player with a very large spectrum holding will be able offer a range of services - or a quality of service - that cannot be matched by smaller competitors and also that smaller players may struggle to compete in some segments of the market or in the provision of some services, Ofcom should have regard to the economic literature on competition in differentiated markets. In a differentiated market it is not necessary for all competitors to fully replicate range, quality and segment coverage in order for there to be effective competition. Indeed a differentiated product may not have a single close substitute but nevertheless be constrained by the collective effect of other differentiated products including those offered by smaller players and new entrants.[78]
- *Researched whether this customer segment (or any other that may be affected) in fact exists* – Ofcom has failed to explain to which customers it is referring beyond the description that they are high value customers and require high average data speeds. As we note in relation to speeds above, it is unclear which customers would require these particularly high speeds, as speed becomes less relevant to competition once a certain minimum speed is met.[79] Moreover, Ofcom's assessment assumes that there are no other dimensions of these customers' requirement which operators with smaller spectrum holdings would be able to compete for, which seems implausible.
- *Determined the size of this segment* – without determining the size of this segment it is impossible to determine the extent of any competition concern or the proportionality of the proposed intervention to address the hypothetical risks; and
- *Explained which operators cannot serve this segment* - Ofcom does not explain which operators might be less able to compete strongly for certain customers and then to determine whether competition between the operators that can compete strongly is sufficient.

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[77] CMA, BT/EE Final Report, January 2016, para 10.39.

[78] Ofcom appears to appreciate the merits of competition through differentiated offerings when it says "*For example, an operator that already has a high share of spectrum may use additional spectrum in an innovative way, and an operator that has a lower share of spectrum may find innovative ways of attracting consumers to compensate for its lower share of spectrum e.g. targeting particular consumer or business segments, or offering higher quality in other aspects of service*." Ofcom, The Consultation, para 4.29. Despite this Ofcom appears to be concerned that issues may arise when spectrum shares become even more asymmetric. However, unless Ofcom has a credible theory as to why these services/segments are distinct markets/segments it is hard to see how any notional market power could be exploited in these circumstances because, even if products are differentiated, customers would switch if price differentials exceed their valuation of the quality/service differential.

[79] Services that may require the highest speeds such as UltraHD video only add marginal benefit to the user experience on larger devices (e.g. TV and tablets). This is because the human eye cannot see the difference between HD and UltraHD on very small screens. UltraHD streaming is typically viewed within the home, where customers switch to their fixed broadband.

62. No evidence is given as to what services an operator may provide that would be unmatchable. Ofcom has provided no analysis of how the purchase of 2.3 GHz spectrum would enable EE/BT to provide such services. Even if such services exist, Ofcom would have to weigh the benefits of such superior services against the harm to consumers through the lost competition from other operators.

63. In light of the above, BT/EE considers that Ofcom has not adequately discharged its statutory duty to consider the desirability of promoting competition in the provision of electronic communications services. In particular, the exercise of Ofcom's regulatory judgement in this case requires a detailed competition assessment involving a robust analysis of how the relevant market is currently operating and how it is expected to develop over time. This is a matter of fact and evidence, rather than discretion. To the extent that Ofcom wishes to depart from the recent conclusions on the relevant market by the CMA and the Commission, Ofcom must identify risks based on a robust analysis of the economics and a proper assessment of the likelihood of any competition issue arising. A hypothesis concerning a risk to competition in the future is not sufficient to justify a significant market intervention.

64. Indeed, even if Ofcom had substantiated its concern (which it has not), it is likely that, the impact on consumers would be limited because any issue would be temporary and would only affect a limited number of customers (as Ofcom itself accepts).[80] In addition to the reasons Ofcom gives as to why this would be the case, an operator's ability to increase prices for its customer base over the next two years is limited by General Condition 9.6 (right of customers to churn without charge where they suffer material detriment), and the fact that most customers are subscribed to 24 month contracts. The limited impact on consumers in the 'transitional period' is clearly a highly relevant factor in determining whether any intervention is proportionate and whether any perceived benefits outweigh the costs of potentially distorting competition by giving advantages to certain MNOs where these are unnecessary (and, if so, whether these costs can be minimised by ensuring that any measures are appropriately targeted).

65. Moreover, Ofcom should keep in mind the dire (but ultimately unfounded) warnings some operators put forward regarding their ability to compete in the context of the EE's application to vary its spectrum licence to permit the use of LTE at 1800MHz. Despite claims that operators would be materially weakened due to temporary advantages competition was not harmed and indeed was increased. As Ofcom notes "…*despite competitor MNOs claiming to be significantly weakened by temporary advantages in spectrum holdings enjoyed by some MNOs, competition in the period after these decisions has remained strong*".[81]

(c) *ToH 3, denying spectrum to rivals*

66. Ofcom states that a MNO with a high share of spectrum may make limited use of it in the short term but by acquiring it deny it to its rivals. This concern is assessed in section 5 below, in the context of whether it is likely that MNOs will engage in strategic bidding.

[80] Ofcom, The Consultation, para 4.59.
[81] Ofcom submission to the CMA on the proposed BT/EE merger, 31 July 2015, para 3.49.

(d) ToH 4, conduct analogous to predation

67. Ofcom considers that an MNO with a high spectrum share could become a leader in setting relatively high prices for some services or customer segments. In Ofcom's view this could pose a credible threat to competition by being able to respond with aggressive price cuts if rivals seek to grow their market share of different services or customer segments through lower prices which could lead to a softening of competition.

68. Ofcom's concern appears to hinge on the assumption that BT/EE would be able increase prices for some customers, presumably the "high value" customer segment Ofcom references in para 4.79, in the next 2-3 years, if EE/BT acquires the 2.3 GHz spectrum. In the absence of any rigorous competition assessment (including a market definition analysis) to determine whether any distinct customer segments exist and, if so, how competition may play out between these segments (and indeed within any such segments) this concern is highly speculative. Ofcom provides no evidence of distinct customer segments within the mobile market and none have been identified by the CMA or the European Commission in the recent UK mobile merger decisions.

69. Ofcom also appears to suggest that in setting relatively high prices for some services or segments, an MNO with a high spectrum share could aggressively price cut in such a way that would soften competition for some services. Crucially, however, Ofcom does not explain the basis on which it expects that aggressive price cuts would soften competition or which segments and/or services would be affected. This absence of detail or analysis regarding Ofcom's thinking makes it difficult for BT/EE to respond meaningfully and forms a weak basis on which to base significant market intervention, contrary to Ofcom's duties to exercise their regulatory powers in a transparent and proportionate manner.

70. One possibility is that Ofcom believes that such a price strategy could be used to sustain a co-ordinated agreement on retail prices by creating a credible punishment in the event that deviations from such an agreement were detected. BT/EE does not consider that the conditions exist for price coordination to be sustainable in the retail mobile market and Ofcom has not adduced any evidence to the contrary - it would therefore be disproportionate and inappropriate to predicate competition measures on an unproven hypothesis of this kind.

71. Further, any such assessment would need to recognise that asymmetric holdings encourage greater product differentiation, which in turn can help disrupt coordinated behaviour (if that were a risk, which is unproven) by reducing incentives to reach an agreement and by increasing incentives to deviate from such an agreement. In a paper on coordinated effects of mergers in differentiated products markets Kuhn states that…"*an increase in the heterogeneity between firms will make collusion more difficult and consequently lower the highest sustainable prices in models with product differentiation*".[82] Further, in its guidelines for market investigations the CMA lists

[82] Kai-Uwe Kuhn, "*The Coordinated Effects of Mergers in Differentiated Products Market*", Law & Economics Working Papers Archive: 2003-2009, page 18.

differentiated products as one of the structural characteristics that might make coordination less sustainable.[83]

72. Alternatively, to the extent that Ofcom believes that an operator with high spectrum share could use the threat of aggressive price cutting in order to deter entry/expansion which could reduce incentives to compete, BT/EE notes that Ofcom must first establish that one operator has dominance[84] in the relevant mobile market (which it has not done). Absent dominance, a competitive response to entry/expansion is entirely rational and may be expected to yield benefits to customers. If entrants/smaller players do not enter/expand because they cannot compete with a legitimate price response then this is indicative of inefficiency and should not be protected through competition measures.

4. Possibility that competition concerns may endure beyond the transitional period

73. Ofcom states that if the 3.4GHz spectrum is not substitutable for the 2.3GHz spectrum, then any competition harm regarding the immediately usable spectrum would be more enduring. However, Ofcom must take account of the fact that the longer the transitional period is, the more viable alternatives to increasing capacity become.

74. In any event, Ofcom is right to dismiss the following concerns raised by other MNOs:

- Whilst the handset and network ecosystem may be less developed now relative to the 2.3 GHz band, these issues will be resolved by the end of the transitional period if not before. Moreover, it is not necessary for a large number of handsets to be compatible with the 3.4 GHz band for that spectrum to be used to alleviate capacity concerns. The relevant consideration is whether a band can be used to offload *some* traffic rather than *all* traffic. Therefore the band does not need to be accessible to all devices in order to alleviate any capacity constraints. Moreover, operators that win 3.4 GHz spectrum will be able to influence the bands that are available in future handsets;
- To the extent that the 3.4 GHz is less compatible with existing network infrastructure which affects speed / ease of deployment, this will be resolved before the end of the transitional period. In any event no evidence is provided as the materiality of such concerns.
- It is wrong to state that the 3.4 GHz is not substitutable for 2.3 GHz. Whether or not the 3.4 GHz spectrum is used on the macro layer or for small cells or in combination, it will enable operators to add capacity and as such is substitutable. Moreover, operators may use the 3.4 GHz spectrum as a path to 5G in order to increase capacity on their networks.

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[83] CMA (formerly Competition Commission), Guidelines for market investigations: Their role, procedures, assessment and remedies, para 252.

[84] In assessing competition Ofcom should have regard to the well-established jurisprudence on abuse of dominance and not seek to bypass the rigorous assessment that is needed to both establish dominance and to find abuse of that dominance. It is not appropriate for Ofcom to seek to bypass a proper regulatory assessment.

75. Ofcom notes that the competition effects may be enduring even if the 3.4 GHz spectrum is substitutable because it may take time to regain lost customers due to reputational damage and barriers to switching. Again no evidence is provided to evidence the extent of this issue. Switching provider is already simple in mobile and to the extent that Ofcom considers otherwise its reforms in this area will presumably resolve such issues. The issue of reputational damage is speculative.

5. Market mechanisms will determine the best allocation of spectrum - the risk of strategic investment is low

76. In the consultation document, Ofcom distinguishes between two sources of value of spectrum: ‘intrinsic value’ and ‘strategic investment value’. Intrinsic value is defined as the additional profits an operator can expect from holding the spectrum and strategic investment value refers to value associated with denying competitors access to the new mobile spectrum (i.e. the gains from inhibiting competition).

77. Ofcom’s main concern appears to relate to bidding on the basis of strategic investment value but it also briefly analyses the likelihood of competition concerns occurring as a result of bidding on the basis of intrinsic value. In this section, we first comment on Ofcom’s analysis of competition concerns arising as a result of bidding on the basis of intrinsic values before turning to Ofcom’s analysis of the risk of competition concerns arising on the basis of strategic bidding.

Competition concerns occurring through bidding based on intrinsic value

78. Ofcom raises a concern that a very asymmetric distribution of spectrum arising from bidding based on intrinsic values could be against consumers’ interests. It is difficult to follow the rationale Ofcom provides in paras. 4.164 to 4.168 but it seems to restate Ofcom’s two principal competition concerns coupled with some ‘on the one hand’, ‘on the other hand’ observations as to whether those concerns could arise on the basis of bidding on the basis of intrinsic values:

- Concern 1: If as a result of bidding based on intrinsic values, one or more MNOs would cease to be credible:
    - Ofcom reiterates that this is not a concern as no operator requires spectrum to remain credible in the ‘transitional period’ and in the longer term there will be further opportunities to acquire spectrum.
- Concern 2: That a very asymmetric distribution of spectrum arising from intrinsic bidding would weaken competition.
    - Ofcom notes this is not likely to happen. If MNOs who currently hold less spectrum face high marginal costs of adding capacity (and capacity is important to retail and wholesale competition) then this would translate into higher intrinsic values for such operators so that they would win more spectrum in the auction when bidding based on intrinsic values.

- The risk that some bidders could have estimated their intrinsic value incorrectly (leading to a very asymmetric spectrum share when bidders bid on the basis of those values) is reduced in an open, multiple round auction format.[85]
- Moreover, to the extent that Ofcom's pricing rule and information policy in the auction incentivises demand reduction, it is widely recognised that bidders with high intrinsic value for large blocks of spectrum may have an incentive to reduce demand at the margin (in order to pay lower prices and maximise surplus), which results in auction outcomes where bidders with relatively lower intrinsic values win spectrum with greater frequency and intensity.[86] Therefore, even if a bidder with large spectrum holdings has relatively higher values on large blocks of spectrum, it may have an incentive to reduce its demand at the margin, in order to pay a lower price and maximise its surplus, and thereby increases the likelihood that bidders with relatively smaller holdings and intrinsic values acquire spectrum, and reducing the risk of asymmetric outcomes in the auction.
- Finally, very asymmetric spectrum shares arising from intrinsic valuations could be a consumer benefit if they reflect differences in the services operators can provide to customers with that spectrum.

79. Ofcom concludes the sub-section titled "Likelihood of competition concerns occurring if bidding is based only on intrinsic value" by stating "*there is a concern that a very asymmetric distribution of spectrum arising from bidding based on intrinsic values could be against consumers' interests*".[87] It is unclear how Ofcom has reached this view based on the assessment set out in the section above. In order to reach this view Ofcom would need to first conclude on the likelihood of competition concerns arising based on intrinsic values. However, on the basis of the evidence and analysis presented (including the current state of competition), the only reasonable conclusions available to Ofcom are that (i) the likelihood of a very asymmetric spectrum distribution arising as a result of bidding based on intrinsic values, and (ii) that the risk of asymmetric spectrum distribution being contrary to consumer interests, are both so low and unproven as to provide no basis for any intervention on competition grounds.

80. Ofcom has stated that no MNO needs to win spectrum in this auction to remain credible, i.e. Ofcom's first potential concern above is not one upon which it needs to act with respect to the auction. We note further that, if the failure to acquire spectrum would lead to an established MNO with a significant market share failing to remain a credible competitor, such an MNO would be expected to have very large intrinsic value for the spectrum i.e. the value of being able to continue its business and enjoy a return on the assets it has deployed. This franchise value would dwarf any intrinsic value of other

[85] An open, multiple round auction helps to reduce so-called common-value uncertainty because bidders receive feedback through the auction on how other bidders value the spectrum and that reduces the risk of bidders having made mistakes in their valuations.

[86] Paul Klemperer, *Auctions: Theory and Practice* (Princeton University Press, 2004), page 64. Peter Cramton, Yoav Shoham, and Richard Steinberg ed., *Combinatorial Auctions* (MIT Press 2006) page 107.

[87] Ofcom, The Consultation, para 4.168.

bidders who would have assessed their value on the basis of incremental spectrum such that, if there was a bidder that needed to win spectrum to remain credible, that bidder would most certainly win spectrum. For an indication of how large such values might be, Ofcom may wish to refer to the £10.5bn acquisition value attached to the O2 UK business by Hutchison in 2015 – O2 will clearly make any investment it needs to protect an asset value at £10.5bn, if indeed it believes that failing to do so would threaten its credibility. Further, if an operator believes that it risks becoming less competitive for a particular segment or service for a given period if it fails to acquire 2.3 GHz spectrum, as Ofcom claims, then it could be expected to have a high intrinsic value relating to the value of being able to compete more fiercely for these services or segments (e.g. to retain or extend market share of these segments).

81. In terms of Ofcom's second potential concern that very asymmetric spectrum holdings could weaken competition, Ofcom presents evidence in Section 3 and Annexes 6 and 7 of the consultation document which demonstrates that mobile services in the UK are very well priced and of good quality compared to its peers, despite Ofcom's assessment that UK spectrum holdings are among the most asymmetric. Further, the UK operators with the overall smallest spectrum shares (O2 and Three) have increased their market shares since the 2013 auction, and have relatively low churn rates and/or relatively high margins. Ofcom certainly cannot conclude from this body of evidence that competition is weakened as a result of asymmetric spectrum holdings. In fact the evidence may even suggest that asymmetric holdings strengthen competition. In the trade off Ofcom discusses, therefore, between a) allowing very asymmetric shares to potentially arise as a result of intrinsic bidding because it could be good for competition or b) seeking to prevent very asymmetric spectrum shares arising as a result of bidding based on intrinsic values because it would weaken competition, the available evidence, set out in Ofcom's Consultation and in section 2 of this response, firmly supports a balance in favour of the former. Asymmetric spectrum shares arising from intrinsic values are more likely to be of benefit to consumers rather than weaken competition.

Competition concerns occurring as a result of strategic investment

82. We now turn to Ofcom's analysis of the likelihood of competition concerns occurring as a result of strategic investment. Ofcom has previously concluded that the risk of participants bidding strategically in this auction is low. Nonetheless - and in contrast to Ofcom's brief analysis of the likelihood of competition concerns occurring as a result of bidding based on intrinsic values - the analysis of strategic bidding runs to more than ten pages and considers many hypothetical ways in which strategic bidding could occur. Such hypothetical concerns are insufficient to justify an intervention: the obligation to exercise its duties in a transparent, proportionate and non-discriminatory manner would in this context require Ofcom to substantiate that bidders have both an incentive and the ability to bid strategically, and that such strategic bidding is likely to negatively impact competition in the market, before imposing any competition measures on the auction based upon a perceived risk from strategic bidding. In our view, Ofcom's consideration of a variety of hypothetical scenarios fall short of demonstrating that bidders have either an incentive or an ability to bid strategically.

83. As Ofcom notes, an incentive for strategic bidding may hypothetically arise from the value associated with an "*increase in profits arising from weakening competition in the market as a result of denying spectrum to one of more rivals*".[88] We assume Ofcom is referring to the market for mobile services as defined in relevant case precedent.[89]

84. Ofcom expresses a concern that asymmetric spectrum shares could weaken competition in the future but provides no evidence to demonstrate that this as a credible or likely risk. Indeed, Ofcom has not provided any evidential link between spectrum holdings and market share, pricing or profitability. More specifically, Ofcom has not presented any evidence to suggest that having a relatively large holding of total spectrum by volume or depriving competitors of acquiring spectrum will in itself bestow any benefits on a bidder engaging in such behaviour. As such there is no basis for assuming that some bidders would have an incentive to engage in strategic bidding aimed simply at preventing competitors from acquiring spectrum. Ofcom's hypothetical scenarios are flawed because they fail to adequately account for the fact that there are a number of alternatives to spectrum for adding capacity. Therefore strategically bidding for spectrum could not guarantee that the winning bidder would effectively limit the capacity of its rivals. By contrast, it is clear that a bidder who won spectrum for which it had no (or low) intrinsic value would nonetheless be required to pay for that spectrum which would impact its own profitability, whilst its rival could nonetheless build up its capacity using alternative methods. For this reason it is deeply troubling that in considering the incentive for strategic investment, Ofcom, elevates its own hypothetically-framed competition concerns that it raises in section 3 of the Consultation to a level that assumes that they will in fact arise. This is without carrying out a proper analysis including the costs and risks faced by a would-be strategic bidder which would render strategic bidding extremely expensive and unlikely to offer any realistic prospect of the conduct achieving the desired outcome of limiting a competitor's capacity or of affecting competition in the retail market.[90]

85. As Ofcom has not provided any compelling evidence that bidders have an incentive to engage in strategic bidding, the question of ability to engage in strategic bidding is irrelevant. However, as Ofcom provides analysis of the question of ability to engage in strategic bidding and has considered its information policy for the auction carefully with reference to the risk of strategic bidding, we set out below our view on the ability of bidders to engage in strategic bidding with the aim of depriving specific competitors of the ability to win spectrum in the auction.

86. Under the information policy that Ofcom has adopted for the auction, bidders will know the identity of other pre-qualified bidders in the auction but they will not know either their eligibility or their bids in a given round. If a bidder had an incentive to bid strategically to deny a given competitor any spectrum or a certain amount of spectrum (which BT/EE disputes), it would seem very difficult to execute such a strategy when the strategic bidder cannot observe who stands to win what spectrum during the course of the

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[88] Ofcom, The Consultation, para 4.171.

[89] See for instance The Commission's decision on the proposed H3G/O2 merger.

[90] In paragraph 4.177 of the Consultation Ofcom states: "Both the pay-off and the costs are ***dependent on evidence which we take as given for the purposes of this analysis***. ***This includes*** the detail of the auction design…, the amount and type of spectrum available …, and ***the competition concerns identified above***." (Emphasis added)

auction. Likewise a strategy for two bidders to tacitly coordinate their bids in order to jointly prevent other bidders from winning spectrum is impossible to execute when each bidder cannot see, as aggregate demand reduces towards supply, whether the remaining bidder in the band is its ‘coordinating partner’ or one of the bidders it is supposed to outbid i.e. there is a lack of transparency as to what is driving the auction outcomes and hence no mechanism to facilitate coordination.[91]

87. This leaves only a strategy of a single bidder buying all of the available spectrum or buying all the 2.3 GHz spectrum if Ofcom’s premise of this being ‘immediately usable’ spectrum that could affect competition in a ‘transitional period’ is accepted. However such a strategy would be extremely difficult to execute in practice. Suppose, for example, that BT/EE intended to bid strategically to ensure neither O2 nor Three won any 2.3 GHz spectrum. In practice, BT/EE would be doing so blindly, given the information on aggregate excess demand in multiples of 20 MHz will mean a bidder who is active in a band may at best be able to deduce whether there is one or more additional bidders who remain active in that band. BT/EE would therefore not know whether it was bidding against Vodafone, potentially pursuing the same strategic goal unilaterally, or against O2 and/or Three. Therefore there would be a great deal of uncertainty as to whether the goal is being achieved – the absence of any reasonable likelihood of executing such a strategy successfully, would be a strong deterrent against using it in the first place.

88. Furthermore, as Ofcom itself recognised in its October 2015 Statement, Ofcom’s auction design mitigates against unilateral strategic bidding.[92] To the extent that a bidder has any strategic value in acquiring spectrum, this strategic value is likely to lie in obtaining most, if not all, of the available spectrum, and so this bidder would have rising marginal values for increasing lots of spectrum. Further, under a simultaneous multiple-round ascending auction (SMRA) the price for lots within each band will be the same and bidders may win less than they bid for but pay a per MHz price that exceeds the bidder’s valuation for that smaller amount of spectrum. As a result a bidder may bid up to its valuation (intrinsic and strategic) for all of the available spectrum (e.g. 40 MHz of 2.3 GHz) for which it has a high marginal value, but end up winning 20 MHz and paying a per/MHz price which reflects its value for 40 MHz and not 20 MHz. This would reduce the incentive to bid strategically.

89. The ability of one or more operators to free-ride on the strategic investment of another operator would also weaken both conditions and incentives for strategic investment. If, for example, it was possible to reduce competition and/or reduce the market share of one operator by denying that operator 2.3 GHz spectrum, then presumably other operators would also stand to benefit from this (i.e. have strategic value), through high prices (assuming competition is reduced) and/or acquiring some of the market share lost by the operator most dependant on acquiring the spectrum, without having to pay for the strategic value.

90. We also note that Ofcom’s analysis overlooks the risk that bidders eligible to acquire 2.3 GHz, under Ofcom’s proposed cap, may engage in strategic bidding. Ofcom’s analysis on strategic bidding focusses squarely on whether BT/EE would have strategic value in

[91] This is principally the same reasons Ofcom adopts to note that the risk of strategic demand reduction is small.
[92] Ofcom, October 2015 Statement, para 3.41-3.42.

acquiring spectrum, and whether this would lead to a weakening of competition. Ofcom fails to consider whether under its proposed cap, where there are only three operators that can acquire 2.3 GHz spectrum,[93] there is an increased risk of tacit collusion or strategic demand reduction (e.g. O2 and H3G tacitly colluding to accommodate one another and pay lower prices). Whilst we considered that under Ofcom's proposals in the October 2015 Statement, where all qualifying bidders were eligible to acquire 2.3 GHz spectrum, the risk of tacit collusion was low, Ofcom should investigate this in light of its proposed competition measures.

Conclusion

91. In practice, competition concerns would be very unlikely to arise as a result of intrinsic value and bidders do not have an incentive to bid on the basis of strategic values.[94]

6. Moral hazard risk associated with interventions

92. Ofcom is correct to acknowledge, but underestimates, the risk of operators altering their behaviour both before and during auctions if they consider that Ofcom may afford them preferential treatment through the imposition of competition measures in future auctions that will happen relatively soon.[95] Operators may choose to bid less than their intrinsic value in the hope of influencing Ofcom's decisions in future awards and the greater the competition intervention in any auction the more operators will expect further interventions in future awards.

93. In the Consultation, Ofcom notes for example that "*the availability of the 700 MHz spectrum could mitigate longer term concerns about the allocation of the 2.3 GHz spectrum*".[96] Ofcom goes on to say that, "*If one or more bidders failed to acquire spectrum in the auction because the final prices were exceptionally high…this would tend to increase the case for taking competition measures in future auctions*".[97] With spectrum auctions now taking place every couple of years, they are a repeated game and by such statements O2, or other MNOs, may seek to game the auctions.

94. [✂].

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[93] Assuming BT/EE does not sell some of its existing holdings.

[94] We note that the Commission also considered the prospects of strategic bidding and agreed with Ofcom's previous conclusion that strategic bidding concerns are 'remote'. The Commission's rationale can be summarised as follows: the potential gains from strategic bidding are limited and the costs of doing so are material; the auction design discourages strategic investment or mitigates its effects, including the way prices are set in the auction, the nature of the bidding and the limited information available to bidders during the auction; and the capacity spectrum being auctioned could be substituted by other means of expanding network capacity, making the pay-off from strategic bidding highly uncertain (Commission, H3G/O2 Final Decision, Annex C, paras 2596-7 and 393). The material change in the market since that date (the acquisition of EE by BT) further reduces the likelihood of strategic bidding by bringing together BT and EE's spectrum holdings the merger is likely to have a countervailing effect of reducing the merged entity's intrinsic need or value for spectrum (The Commission, H3G/O2 Final Decision, Annex C, para 12.46)

[95] The 700 MHz auction is scheduled for Q2 2020 whilst the 3.6-3.8 GHz auction could take place around the same time.

[96] Ofcom, The Consultation, Para 4.92.

[97] Ofcom, The Consultation, Para 4.215.

95. [✂].

Table 1 - [✂]

96. Likewise, Ofcom's 'transitional period' is artificial and misleading as operators have had time to plan their network deployments over the last few years. As noted above, when they planned the combined award auction, Ofcom explained that it did not expect the current auctions to be so soon. Assuming that other operators had similar expectations, they would have had this in mind in planning their strategies at that auction and in their network planning that followed. This means that the fact that, if true, some operators cannot increase capacity sufficiently other than by deploying more spectrum is a problem entirely of their own making. In any event as we note above there are a number of methods operators can adopt to increase capacity even in the short term. In conjunction with this operators can also invest in retaining/acquiring customers through other means such as improved customer services, innovative tariffs (e.g. O2 Refresh), customer perks (e.g. O2 priority moments), early upgrades and subscriptions to premium content (e.g. Netflix). [✂]. Ofcom should therefore think very carefully about the longer term impact of bailing out operators who have failed to adequately plan and execute capacity increases.

97. Moreover, Ofcom must appreciate that each MNO's current spectrum holdings reflects their past commercial strategies. O2 for instance chose to purchase (at similar cost to EE's capacity spectrum) more of the very valuable sub 1 GHz spectrum at the 2013 combined award. This gives O2 a significant advantage in offering quality coverage. It should not now be granted preferential access to spectrum above 1 GHz such that it would have the best of both worlds. If this spectrum is now of value to O2 it is sufficient for Ofcom to rely on the auction mechanism and O2's bidding incentives to deliver an outcome consistent with intrinsic values.

7. Options for addressing Ofcom's concerns

98. We do not consider that the competition risks Ofcom has articulated are credible nor that they flow from asymmetric spectrum holdings. Given this we do not comment in detail on each of Ofcom's options to resolve such concerns.

99. However, if Ofcom is minded to intervene it must keep in mind the following[98]:

- Ofcom must demonstrate that market mechanisms will not resolve the concerns it identifies, and in doing so, should seek to take a consistent approach to that of other recent regulatory decisions;
- Ofcom must assess the impact of any intervention in terms of undesirable incentives it may create for this auction and for future auctions;
- Ofcom must be alive to the risk of competitive distortions that may flow from subsiding operators;

[98] In paragraph 5.3 of the Consultation, Ofcom explains the framework is uses for assessing proportionality and then considers in general terms the risk of intervention. We urge Ofcom to revisit these points as we consider that they have not been sufficiently adhered to in the sections that follow.

- Ofcom must take due account of the fact that each of O2 and H3G are part of well-resourced international groups and are very capable of protecting their own interests; and
- Any intervention must be targeted at the specific concern identified and be the least intrusive means of addressing the concern. In any event, any measures taken should be proportionate to the potential harm identified. We agree with Ofcom that the greater the degree of intervention, the greater the degree of risk of unintended consequences.

100. Even in the unlikely event that Ofcom was able to substantiate its concerns, we consider Options C (caps on immediately usable spectrum combined with an overall spectrum cap) and E (tight overall cap at 30%) to be highly interventionist, disproportionate and that these options give rise to significant risk of unintended consumer harm.

101. [✂].

102. Ofcom considers as part of Option A whether it would be appropriate to go further in terms of capping EE's share of immediately usable spectrum for instance by preventing it from bidding for 3.4GHz spectrum unless it divested some of its existing spectrum. Ofcom is right to dismiss this option:
    - There is more than enough 2.3GHz spectrum to resolve Ofcom's concerns (should these be substantiated);
    - The concerns identified are insufficient to justify any intervention. To go further and require EE to divest spectrum would be a breach of Ofcom's Statutory duties; and
    - Requiring divestment of spectrum that BT/EE already owns and intends to use is highly interventionist and disproportionate to the magnitude of the potential harm identified.

103. Leaving aside the issue of asymmetry, any short term exceptional capacity issues are likely to be attributable to the following factors: (i) a time lag between the auction and the widespread availability of handsets compatible with the 3.4 GHz band spectrum; and (ii) a failure by some operators to adequately invest in a timely manner in alternatives to increase capacity and reluctance to manage the demand on their networks effectively which has meant that they now demand spectrum in order to increase capacity.

104. Whilst we remain highly sceptical that any such arguments provide a justification for intervention, if Ofcom is to assess these concerns it should do so as part of Ofcom's analysis of whether an operator is credible. In the event that concerns of this nature are made out, notwithstanding Ofcom's previous considerations on this issue, Ofcom should take measures that directly address the concern.

8. Factors indicating no restrictions on the 3.4 GHz

105. We agree with Ofcom that there is no justification for competition measures in relation to the 3.4GHz spectrum band. We see no competition issue that needs resolving in this auction and there is a significant risk, as Ofcom note, that imposing competition measures could delay or even prevent innovations in the market such as the launch of 5G services.

106. As Ofcom note in the Consultation, it is unlikely that very asymmetric shares of 3.4 GHz will arise from the auction.[99] In any event, we agree with Ofcom that even if asymmetric holdings were to arise, there are several mitigations that would minimise the risk of competition being weakened even if only one or two operators obtain the 3.4 GHz spectrum in the auction.

107. Firstly, Ofcom plans to make further spectrum available, in particular at 3.6-3.8 GHz which is substitutable for the 3.4 GHz band. In a recent opinion paper the Radio Spectrum Policy Group (RSPG) wrote that the 3.6 - 3.8 GHz is also likely to be a key band for 5G, and together with the 3.4 GHz to be auctioned, could provide "up to 400 MHz of continuous spectrum enabling wide channel bandwidth".[100] Ofcom has identified the 3.6 – 3.8 GHz band as a high priority band for future mobile services in its Mobile Data Strategy back in 2014 and more recently proposed to make the band available for future mobile services including 5G in its consultation on "Improving consumer access to mobile services at 3.6 to 3.8 GHz" (the "3.6 - 3.8 GHz Consultation"). In the 3.6 - 3.8 GHz Consultation Ofcom raises concerns around coexistence of mobile and existing users in the band and the potential for interference, however what is clear is that those bands will be used significantly by mobile operators.

108. Secondly, as Ofcom notes in the Consultation, UK Broadband holds 40 MHz of 3.4 GHz spectrum and 84 MHz at 3.6-3.8 GHz, and is widely expected to be awaiting an opportunity to sell given its very limited current use of the band. The availability of this spectrum would also enable more contiguous spectrum to be awarded in the upcoming auction and in the subsequent award of 3.6 – 3.8 GHz spectrum. This offers all operators a further opportunity to acquire spectrum that they could use for 5G.

109. Thirdly, whilst the wider 3.4 – 3.8 band has been identified by regulators and industry across Europe as a key band for the rollout of 5G services, there still remains significant uncertainty around the future landscape of 5G.[101] As Ofcom notes in the consultation there is no consensus view as to what the optimum channel size for 5G, with estimates ranging widely. Whilst there is some uncertainty, it may be possible to re-farm existing bands (e.g. the 900 MHz) from current 4G use to 5G, thereby providing an alternative route to 5G.

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[99] Ofcom, The Consultation, para 4.239.

[100] We note that in the UK there is the potential for 390 MHz of spectrum in the 3.4 – 3.8 GHz to be made available. This comprises 150 MHz in the upcoming auction, 116 MHz currently used for fixed links and satellite services, and the 124 MHz currently held by UK Broadband.

[101] Radio Spectrum Policy Group (RSPG), Strategic roadmap towards 5g for Europe, June 2016.

110. The significant uncertainty around the future landscape of 5G services, and in particular the spectrum requirements, means that there is a material risk competition measures could inadvertently stifle innovation and delay the launch of 5G services in the UK. [✂]. Placing restrictions on the amount of spectrum one or more operators can purchase could prevent or at least delay any operator from launching innovative services such as 5G and in the process inadvertently stall the UK's move to 5G, to the detriment of UK consumers. This risk and the subsequent consumer harm that would arise should it materialise, are significant, and clearly outweigh the very remote risk that competition may be weakened in the absence of competition measures.