openreach

Promoting investment and competition in fibre networks: Approach to geographic markets

Openreach response to Ofcom consultation

Non-confidential version

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Executive summary

1. This consultation represents the next step in Ofcom's plan to implement a new regulatory model from 2021 aimed at achieving the strategic objective of promoting investment in and competition between 'fibre rich', ultrafast networks.

2. We fully support this objective. Over the last decade, Openreach has invested to drive near-universal availability of superfast broadband services based on VDSL fibre to the cabinet (FTTC) technology. We are now investing to make ultrafast services available. Our target is to make full fibre services available to 3 million premises in the UK by 2021 and we have a stated ambition to reach 10 million premises by 2025 if the commercial and regulatory conditions are right.

3. We believe the broad structure of the regulatory model Ofcom is putting in place has the potential to support our ambitions and – alongside possible public funding – provide scope to deliver the government's policy ambition of universal ultrafast availability by 2033. Ofcom sets out the key elements of the new regulatory model at paragraph 1.3 of this consultation. We note the following:

    a. Making duct and pole access (DPA) available on mixed-use or, as proposed in the Physical Infrastructure Market Review (PIMR) [1], unrestricted terms, will fundamentally alter the competitive dynamics around the supply of network access services for residential and business customers. We have taken steps to ensure others can share access to our physical infrastructure on fair terms and at regulated prices. This will significantly reduce the upfront costs, and associated risks, faced by other providers considering building new ultrafast networks.

    b. We agree that it then makes sense for Ofcom to consider the ongoing role of regulation in the provision of network access services, downstream of UDPA, _holistically_ across business and residential services, rather than in isolation as under the current cycle of overlapping market reviews.

    c. We agree that regulatory rules downstream of UDPA should differ by geographic area reflecting the extent of and scope for competition in the supply of network access services. Regulatory rules should only be imposed on the supply of network access services in areas where competitive constraints on those services are expected to be insufficient over the forward-looking period of the review. Furthermore, to the extent that the scope for future investment in ultrafast networks is likely to vary by geography (e.g. because of local costs to deploy such networks), there could be a case to vary regulatory rules for network access services by geography within any SMP footprint to achieve Ofcom's strategic objectives.

    d. We agree that Ofcom should conduct longer term reviews of the regulatory rules of at least 5 years. This should allow Ofcom to take a longer-term view of the scope for competition to emerge via investment in ultrafast networks and provide an opportunity for the market dynamics created by the availability of UDPA to 'play out' and drive market outcomes. Longer review cycles would also establish greater certainty for investors about the regulatory ruleset and how this could impact competitive dynamics and future cashflows.

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[1] Published on 2 November 2018

e. We agree that the overall approach to regulation must provide confidence to investors that they will be allowed a fair opportunity to earn a level of return on new full fibre services that reflects the risks faced ahead of investments in new networks being made. Any regulation imposed on the provision of access services should support a smooth, timely and efficient migration of services from existing technologies onto new full fibre connections to minimise the costs of parallel running and allow Openreach to generate higher value from connections with higher capabilities and service levels.

4. This consultation focuses on one of the elements listed above and sets out a methodology for how Ofcom intends to categorise different geographic areas downstream of UDPA, such that:

a. in areas where the supply of network access services is categorised as **'competitive'** (category 1 areas), there would be no finding of SMP and, therefore, no ex ante remedies applied;

b. in areas where supply is categorised as **'potentially competitive'** (category 2 areas), Ofcom would focus on "promoting competitive entry through the remedies we impose"; and

c. in areas where supply is categorised as **'non-competitive'** (category 3 areas), Ofcom objectives would be to "encourage investment by Openreach in new ultrafast networks and to allow access to its networks to promote retail competition and protect consumers from high prices".

5. Ofcom does not provide further detail on the regulatory remedies that may be applied in category 2 and category 3 areas. This makes it difficult to consider the appropriateness of the proposed methodology 'in the round'. We therefore reserve our position to fully comment on Ofcom's geographic market approach and the detail of the methodology in the specific context of Ofcom's full set of proposals on product market definition, geographic categorisation and the remedies that would be applied to specific network access services when Ofcom publishes its consultation for the 'Integrated Market Review'[2].

6. Nevertheless, we make the following comments at this stage:

a. **Ofcom should assess competitiveness in the supply of network access services on a forward-looking basis that reflects anticipated shifts in market dynamics**

Ofcom's proposed methodology for categorising areas as 'competitive' would be driven by competitor presence ahead of the market review period. Areas would only be deemed competitive where there were at least two networks alongside Openreach and where there was other evidence of competitiveness (e.g. on current market shares). We are concerned that this approach would not take account of changing market dynamics during a forward-looking period where network builders will be competing 'for the market' to provide ultrafast services at scale to major retail competitors leveraging strong buyer power. This would then carry a strong risk that the competitive playing field will be distorted as Openreach's commercial options are unnecessarily constrained by regulation during the market review period.

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[2] Expected later in 2019.

b. Ofcom should ensure its approach considers differences in competition across different forms of network access and captures all competitive constraints

Ofcom proposes a new broad product market ("wholesale network services") based on long-term assumptions about supply-side factors – i.e. that _all and any_ network access services would be supplied over ultrafast networks. This places weight on the presence of networks to determine the competitiveness of areas, rather than on market conditions affecting the provision of specific network access services. Under Ofcom's "illustrative assessment", Openreach would face a wide 'blanket' SMP finding and the risk of regulatory requirements applying to our supply of _all_ network access services despite there being material differences in competition between different forms of network access. Even remedies that may be considered 'light touch' could place unjustified restrictions on Openreach's commercial options. We would therefore request that:

i. Ofcom's approach should place weight on differences in the capabilities of different networks

In the period from 2021 access competition will be served by a combination of: Openreach's existing copper/VDSL network; an expanded Virgin Media cable network; rising availability of full fibre ultrafast networks; rollout of 5G and Fixed Wireless Access (FWA) solutions providing high capacity access at fixed locations; and continued growth in the availability and capability of leased line networks focussed on the provision of high capacity business connectivity services. During the period of this market review, therefore, in certain areas Openreach may be supplying network access services from its copper/FTTC network in competition with one or more ultrafast networks or deploying its own ultrafast capabilities behind others. We are therefore concerned that the 'blanket' SMP finding in these areas could create an unlevel playing field between Openreach and ultrafast network providers and need to better understand how this would be captured within Ofcom's analysis (whether in terms of market definition, SMP assessment or remedy setting).

ii. Ofcom's approach should capture the extent of current and future competition in the supply of access services to business customers

Ofcom acknowledges that it would need to separately consider the competitiveness of the supply of business connectivity access services from leased lines networks in its "SMP and remedies assessment". However, it is not clear what this would involve; in particular, whether it would impact the 'blanket' SMP finding set out in the "illustrative assessment" or would just change Ofcom's approach to imposing remedies. We submitted detailed evidence in response to Ofcom's Business Connectivity Market Review to demonstrate the scale of competition in the supply of business connectivity services in the Central London Area and elsewhere.[3] Competition will then increase if DPA is made available on unrestricted terms as planned. Ofcom's approach must therefore reflect this competition and ensure Openreach is able to compete effectively with other suppliers and does not face unnecessary regulatory constraints in the supply of business connectivity access services.

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[3] https://www.ofcom.org.uk/__data/assets/pdf_file/0021/136641/Openreach.pdf

iii. Ofcom's approach should allow for consideration of demand-side factors

The proposed focus on network presence suggests that Ofcom would not consider demand-side factors. This means Ofcom may not consider the extent of competitive constraints from, for instance, 5G mobile access services. This is key element of market definition[4] which is not analysed in Ofcom's consultation paper.

c. Ofcom should take a pragmatic and flexible approach to measuring boundaries between categories with a focus on the policy intent driving this exercise

The boundaries between category 1, 2 and 3 areas would, under Ofcom's proposed methodology, be driven by choices about the geographic unit to use, the coverage threshold used to identify network presence and the measures that define 'urban clusters'. We provide analysis in this response that suggests over 3 million premises could fall within category 3 areas ('non-competitive') even though they are currently capable of being supplied by both Openreach and Virgin Media. The scale of this issue would be reduced if Ofcom used a smaller geographic unit or a lower coverage threshold. However, we suggest Ofcom adopt a pragmatic and flexible approach that takes account of a wide range of information in deciding where to draw boundaries between the different categories. This approach should, as Ofcom suggests, err towards defining areas as 'potentially competitive' rather than 'non-competitive' given the policy intent underlying this exercise – i.e. to drive competitive build as far as possible and consider alternative regulatory solutions to promoting investment by Openreach in areas where competitive build is considered unlikely. In considering options for using different geographic units in its methodology, Ofcom should also give weight to the practicability of differentiating remedies at the level of that units.

7. We expand on these points in this response.

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[4] EU Commission Guidelines on the definition of relevant market for the purposes of Community competition law (97/C 372 /03), in particular para. 13 "*From an economic point of view, for the definition of the relevant market, demand substitution constitutes the most immediate and effective disciplinary force on the suppliers of a given product, in particular in relation to their pricing decisions*".

Assessment of Ofcom's proposed methodology for categorising areas

8. Ofcom sets out a methodology in the consultation for identifying category 1 ('competitive'), category 2 ('potentially competitive') and category 3 ('non-competitive') areas. Ofcom invites input on the detail of the metrics and thresholds used within the methodology, but outlines an "illustrative assessment" based on an assumed set of metrics and thresholds. Under this, Ofcom proposes to:

   a. Define a new single product market of "wholesale network services", downstream of the physical infrastructure market, which will be served by multi-service, fibre-rich, networks providing connectivity services (e.g. broadband access and leased lines at a range of speeds) to both residential and business customers.

   b. Find that the supply of wholesale network services in a postcode sector is competitive if:

      i. There is evidence of actual multi-service network build to at least 65% of premises in a postcode sector by and least 2 other network providers as well as Openreach; and

      ii. Further analysis, including looking at market share data in the area, shows that these alternative networks make the area effectively competitive.

   c. Find that the supply of wholesale network services in a postcode sector is potentially competitive if either:

      i. There is evidence that one other multi-service network had been built to at least 65% of premises in the postcode sector; or

      ii. There is evidence that at least one other multi-service network was planned that would cover 65% of premises in the postcode sector; or

      iii. At least 65% of the premises within the postcode sector are within a defined 'urban cluster' of contiguous 'urban' postcodes (smaller than 100,000m^2) that passes at least 20,000 premises.

   d. Find that the supply of wholesale network services in all other postcode sectors is non-competitive.

9. In applying this categorisation methodology based on information available[5], Ofcom's illustrative assessment suggests that no areas in the UK would be identified as 'competitive' – i.e. Openreach would be considered to have SMP in the provision of "wholesale network services" across the UK. Around 70% of UK premises would then fall within 'potentially competitive' areas and the remainder categorised as 'non-competitive'. Ofcom then states that it would separately take account of "leased lines networks" and the competition they are providing when considering "SMP and remedies".[6]

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[5] By which we infer to mean information from the latest 'Connected Nations' report

[6] Paragraph 3.30 in relation to leased line networks overall and paragraph 3.53 in relation to leased line networks in the Central London Area (CLA)

Framework for assessing Ofcom's categorisation methodology

10. In considering whether this methodology is likely to produce reasonable outputs, we have focussed on the policy intent of the categorisation exercise – i.e. to set regulatory remedies in different areas in a way that would support investment in ultrafast networks, reflecting differences in existing and future competitive conditions. A sense check of any outputs from a reasonable methodology should indicate that:

    a. In any category 1 area, Openreach would not have the ability to act independently of other providers in the supply of any network access services – so it would not have the ability or incentive to take actions that would harm consumers (e.g. by setting prices above competitive, efficient levels) and/or distort competition (e.g. by discriminating unduly in the supply of services). It would then logically follow that there was no need (and therefore no justification) to place regulatory constraints on Openreach's provision of network access services and that to do so would risk distorting competition and investment decisions.

    b. In contrast, in any category 2 and 3 areas, there should be evidence to suggest that Openreach would have the ability to act independently of other providers in the supply network access services and that some regulatory constraints on the terms of supply of those services may therefore be necessary.

    c. In any category 2 areas, it should be considered economically viable for at least one fibre rich, ultrafast network to be deployed alongside the Openreach access network, utilising UDPA where necessary. As such, any remedies on Openreach's supply of network access services would be set in a way that facilitated that deployment, noting the risk that detailed regulation of Openreach's supply of existing copper/FTTC services and/or new ultrafast services could otherwise distort investment decisions.

    d. In any category 3 areas, there should be low expectations, given build costs and expected customer take-up/willingness to pay, that any fibre rich ultrafast networks would be deployed alongside the Openreach network, even given the option of utilising UDPA on regulated terms. These factors would also be likely to make any Openreach investment case to overbuild existing copper/FTTC networks in these areas more challenging. This is why it may then be appropriate for Ofcom to implement regulatory remedies on the provision of network access services in those areas in a way that could support _Openreach_ making those investments. This might, for instance, involve setting prices across all Openreach's access services in a way that would fund network investment and migration of services over time[7].

11. Our assessment is that Ofcom's proposed methodology presents risks of areas being miscategorised by as summarised in the table below:

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[7] We reserve our position in this Response on the level of prices and the form of regulation that might support such investment and on whether any such remedies might be the best way to achieve Ofcom's strategic objective.

Risk of miscategorisation	Potential drivers of risk	Impact of risk
In areas defined as category 2 areas, Openreach is unable to act independently of other suppliers in the supply of all or some forms of network access (area should be defined as 'category 1')	• Ofcom's approach does not take a sufficiently forward-looking view of competitive dynamics • Ofcom does not consider capabilities of different networks within any area and how that could affect competition across network access services • Ofcom does not separately consider competitiveness in supply of business connectivity services • Ofcom does not consider demand-side constraints from 5G mobile	SMP designation leads to remedies constraining Openreach's ability to compete and/or distorting competition and investment incentives in competitive areas across the period of this market review
Investment in ultrafast networks by at least one other provider is viable in defined category 3 areas (area should be defined as 'category 2')	• Ofcom sets geographic unit and/or coverage thresholds at too high a level and includes premises within category 3 areas which are or will be served by competing ultrafast networks • Ofcom's approach to defining 'urban clusters' fails to capture the economics of ultrafast network build using UDPA • Ofcom fails to take sufficient account of the scope for competition in the supply of business connectivity services using UDPA	Attempts to determine prices to fund investment in category 3 areas could be undermined by competitive entry

12. This suggests Ofcom's methodology should:

   a. Take a truly forward-looking approach to considering market dynamics and constraints on Openreach's commercial activity;

   b. Consider differences in competitiveness across different services reflecting:

       i. Differences in capabilities of different networks;

       ii. Differences in existing and future competition for business connectivity services;

       iii.   Constraints from demand-side factors, particularly from 5G services.

   c.   Be flexible and pragmatic in the specific metrics used to categorise areas with a focus on the policy intent of this exercise.

13. We explain these issues below.

Ofcom should assess competitiveness in the supply of network access services on a forward-looking basis that reflects anticipated shifts in market dynamics

14. Ofcom's proposed methodology would appear to be designed to take a forward-looking view of the extent to which some competition is _expected_ to emerge (notwithstanding comments below on specific metrics used to assess this) – i.e. areas could be categorised as 'potentially competitive' where Ofcom saw that competitive entry was at least commercially viable. This appears broadly in line with the 5-10 year outlook during which Ofcom expects (and would like to see) ultrafast networks to be constructed and consistent with Ofcom's aim of setting regulation in these prospectively competitive areas in a way that promotes entry.

15. However, Ofcom's proposed approach for identifying when areas _are_ effectively competitive – and where SMP can therefore be withdrawn – would be more static in nature (i.e. based on observed data ahead of the review period) and cautious. Specifically, Ofcom signals that it would need to see evidence of at least two additional networks and, only then, consider additional evidence of the competitiveness of an area – e.g. Openreach's market share ahead of the review period.

16. Ofcom can and should be bolder here. Ofcom, in a truly forward-looking assessment – consistent with the EU Commission guidelines on SMP (new draft 2018) – should take into account the competitive constraints from potential competitors. It is well established that in assessing competition dynamics, a forward-looking analysis shall take into consideration the direction in which the market is evolving. Competitive constraints may come also from potential competitors not currently in the market and Ofcom should therefore take into account both (i) the competitive pressure operators not yet active on the market are already exercising; and (ii) on the supply side, the likelihood that undertakings not currently active on the relevant product market may in the medium term decide to enter the market[8]. The mere fact of an undertaking existing outside the market may give rise to competitive pressure on the undertakings currently operating in that market. Potential competition may be no more than the existence of an undertaking outside the market, and its mere existence may give rise to competitive pressure.[9] Also with respect to the time-frame within which potential entry should take place, the essential factor is the need for the potential entry to take place with sufficient speed to form a constraint on market participants[10]. Thus, a company's objective ability (based on experience

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[8] In this regard, see EU Commission guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services (2018/C 159/01) suggesting that in electronic communications markets, competitive constraints may come from innovative threats of potential competitors not currently in the market: "_NRAs should therefore take into account the likelihood that undertakings not currently active on the relevant product market may in the medium term decide to enter the market_". (para 41) available at _https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018XC0507(01)&from=EN_

[9] Judgment of 14 April 2011, _Visa Europe Ltd and Visa International Service v European Commission,_ T-461/07, ECR, EU:T:2011:181, paragraphs 166-169 See also _Joined Judgments of 15 September 1998, European Night Services and Others v Commission,_ T-374/94, T-375/94, T-384/94 and T-388/94, ECR, EU:T:1998:198, paragraph 137, Case T-177/04 easyJet v Commission [2006] ECR II-1931, paragraphs 123 to 125

[10] The General Court held, in this respect, that a period of one two years mentioned in the Commission's Guidelines on horizontal cooperation agreements (one year) was merely illustrative. See EU Commission, Case 39612 Perindopril

and position in other related markets), corroborated by plans to enter the relevant market, can exercise competitive pressure on the incumbents and thus qualify as a potential competitor.

17. Ofcom should also give full weight to the way purchasing decisions are made by retail suppliers of access services and the buyer power they are able to exercise in the presence of competing network providers. Market conditions can transform rapidly with the prospect of an alternative supplier and purchasers will be quick to use the potential for entry to negotiate improved terms of supply. New providers will be looking to secure take-up from retail suppliers at the earliest opportunity and secure volume commitments, risk-sharing arrangements, etc. These could have a transformative effect on competition in the supply of network access services and this needs to be more clearly reflected in Ofcom's methodology so that Openreach is allowed to respond fairly in developing its own commercial propositions across access services.

18. In light of the factors we identified above, we consider that Ofcom's approach risks being overly conservative and static insofar it might be the case that in certain areas where there is only one other existing network sufficient effective competition already exists on a forward looking basis.

19. Ofcom should also ensure that:

    a. it is not limiting its analysis to a static assessment of competition, de facto artificially raising the threshold for identifying competitive areas and not mirroring actual and prospective dynamics;

    b. network plans – at least when they are sufficiently detailed – are taken into due consideration in establishing whether an area should be considered as effectively competitive;

    c. its assessment does not only look at market shares at a particular point in time – as Ofcom seems to suggest - but also the development of market shares. It is important for Ofcom to try to gauge how market shares might be expected to change over the period of the market review and whether any observed variations in current or historic market shares are likely to increase, decrease or remain relatively stable.

20. The imposition of ex ante SMP remedies on a player in markets where competition is growing as demand in the market evolves – e.g. increasing demand for ultrafast connectivity – runs the risk of distorting competitive dynamics and how they play out. Even SMP remedies that may be considered 'light touch' – safeguard caps on certain products and/or backstop protections – can frame pricing structures in the market and/or limit commercial options, dampening competitive dynamics. The potentially restrictive nature of EOI could also restrict Openreach's ability to develop pro-competitive, innovative solutions to meet the needs of different customers – e.g. to drive take-up of new access services. Overall, the regulation of DPA should provide a high degree of comfort that competitiveness will only increase over time and Ofcom should therefore avoid taking an overly cautious approach when considering withdrawing downstream regulation.

21. **Ofcom should ensure its approach considers differences in competition across different forms of network access and captures all competitive constraints**

22. Ofcom's consultation document does not set out any analysis of the demand and supply side factors underpinning its proposed product market of "wholesale network services". Our understanding, however, is

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(*Servier*) decision, para 1158, 1159. See also *Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements*, point 29

that this market would cover all fixed access services that support services supplied to customers in downstream business and residential markets.

23. Ofcom's appears to define a broad market for "wholesale network services" on the basis of its long-term view that supply of all retail level fixed access services supplied to residential and business customers will come from 'ultrafast networks'. Specifically, Ofcom states that:

"Over the next five to ten years we believe that there will be significant investments in new, fibre rich networks that can support more services, higher speeds and greater reliability than existing copper-based networks. These networks, whilst being largely fibre networks, may provide the final connection to the customer using a variety of technologies, including fibre, cable, certain copper technologies (such as G.fast) and, potentially, fixed wireless access (FWA). A single network may use a mix of technologies to connect customers. In this consultation, we refer to these networks as 'ultrafast networks'."

24. This leads Ofcom to the view that it should "… *think about markets from a network point of view rather than focussing on specific services*" and that "… *it is no longer appropriate to focus on individual downstream wholesale services in isolation*".

25. We agree that Ofcom should conduct a more 'holistic' review of how fixed telecoms markets operate in deciding what regulation might be necessary, rather than continuing the current approach of looking at residential and business access separately. We also agree that, given the strategic objective to incentivise investment in fibre rich ultrafast networks, any policy decisions relating to the SMP remedies that should be imposed at the active access layer (i.e. downstream of DPA), should be made in the context of an assessment of the scope for such networks to be built over a long term period of at least 5-10 years.

26. However, in taking a more holistic and long term view of how networks and the supply of access services are expected to develop, Ofcom must still give full consideration to the factors impacting the level and nature of competition between different forms of network access services in the short to medium term – i.e. during the period of transition as the new networks are being deployed.

Ofcom's approach should place weight of differences in the capabilities of different networks

27. While Ofcom refers to "wholesale network services" in the context of the future availability of ultrafast networks, the analytical framework and "illustrative assessment" set out in this consultation would assess network presence by reference to any fixed network of any capability. So the network presence metrics used in this consultation would relate to:

   a. The Openreach access network whether it is based on copper access with VDSL fibre to the cabinet overbuild or – on a forward-looking basis – on expectations of growth in G.fast and FTTP overbuild;

   b. Virgin Media's cable access network; and

   c. new emerging ultrafast networks (which could be FTTP or FWA).

28. Openreach does not currently operate a scale ultrafast network and therefore our current supply of "wholesale access services" to UK residential consumers will be of more limited capability than services supplied by other fixed network providers. The nature of the competitive constraints faced by Openreach during the 2021-2026 period that will be reviewed in the next 'holistic' integrated market review could

therefore differ across geographic areas not just as a result of the number of networks present, but because of the specific capabilities of those networks.

29. The chart below provides a very simple view of the capabilities of different fixed access networks to support the provision of services to end-customers.
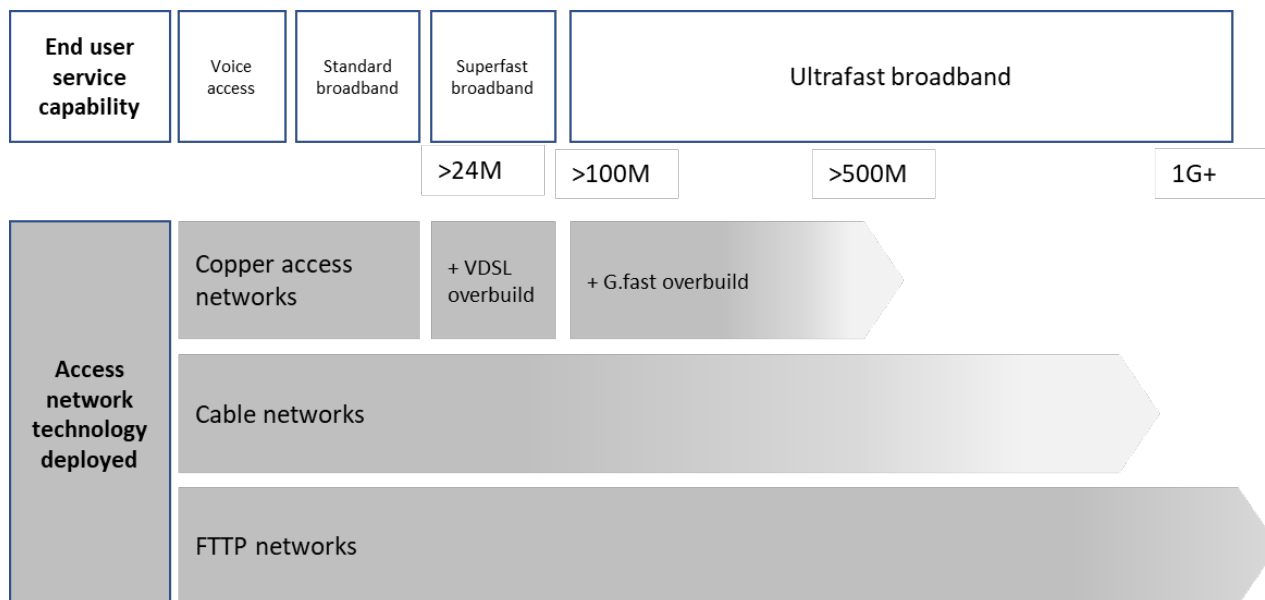
Notes: (1) the chart presents an illustrative forward-looking view of the relative capabilities of different technologies; the speeds achievable in any given area will depend on the specific technology deployed and, for G.fast, on distance from exchange and other factors. (2) The term 'ultrafast' is not defined in Ofcom's Consultation and is used here to represent speeds above the capability of the Openreach copper/VDSL network.

30. If we then considered areas which would be identified as 'potentially competitive' under Ofcom's categorisation methodology on the basis of there being scope for network presence from one other operator alongside Openreach, this could take the form (at any point during the 2021-2026 period) of:

   a. Openreach copper/VDSL network and Virgin Media cable network;

   b. Openreach copper/VDSL network and a new FTTP network provider;

   c. Openreach G.fast capability (alongside copper/VDSL) and Virgin Media cable network;

   d. Openreach G.fast capability (alongside copper/VDSL) and a new FTTP network provider;

   e. Openreach FTTP (initially alongside copper/VDSL) and Virgin Media cable network; and

   f. Openreach FTTP (initially alongside copper/VDSL) and a new FTTP network providers.

31. In each case, however, it would appear that the categorisation methodology would impose a blanket finding of SMP on Openreach which would apply to our provision of any "wholesale network services" we supplied at a point in time. This means that if we were supplying access services from our copper/VDSL network in competition with a new FTTP provider with higher capabilities and then, subsequently, began to deploy an overbuilt FTTP network in a category 2 area, our ultrafast services would immediately be 'caught' by the blanket SMP designation.

32. The impact of this on Openreach would of course depend on the set of SMP remedies imposed across services in the defined product market and geographic area. But while we would expect in 2021 that any specific price controls would only apply to existing anchor services (i.e. unbundled copper lines and 40Mb FTTC services) and we would face greater pricing flexibility for the provision of services above these anchors, the blanket SMP finding could mean that services at all bandwidths could – whenever they are made available - need to be supplied on an equivalent of inputs (EOI) basis and/or on terms that were not considered unduly discriminatory and/or on terms that were considered fair and reasonable. Ofcom's approach raises concerns as, under that approach, Openreach could face commercial constraints on ultrafast services even where our overall capabilities and/or share of connections in an area may be lower than rival networks.

33. We would expect to be able to compete fairly with the FTTP network provider in the area in supplying ultrafast services, but the scope for EOI to be imposed rigidly and/or for other ex ante measures to be interpreted in restrictive ways raises concerns that our commercial options would be inappropriately limited, creating an unlevel playing field.

34. For the sake of clarity, Openreach wants to make wholesale ultrafast services available to all customers in line with our commitment to treat all customers equally. But this should not prevent us, for instance, looking to work with customers to develop different commercial propositions in light of customers' different needs and levels of future demand (both in qualitative and quantitative terms). We would expect **[confidential]**.

35. To give some sense of how the capabilities of competing networks in areas might differ in the period up to 2026, the table below uses publicly available information on the stated ambitions of different suppliers.

	Stated Ultrafast ambitions
Openreach	3m FTTP by 2021 10m FTTP by 2025, if conditions right
Virgin Media	17m footprint by 2020
City Fibre	5m by 2025
Hyperoptic	5m by 2024
Gigaclear	350k by 2021

Source: internal Ofcom analysis of most recent public statements by selected network builders; we have not allowed for any analysis of progress against announced ambitions and whether build of this scale is likely by the dates shown.

36. There will clearly be scope for *some* overbuild of different ultrafast networks – e.g. FTTP networks deployed in Virgin Media areas - in the above numbers, but also scope for many geographic areas to have only one ultrafast network competing against Openreach copper/FTTC.

37. Ofcom therefore needs to clarify how its categorisation methodology would take account of differences in capability and/or how this would shape its approach to imposing remedies.

Ofcom's approach should capture the extent of current and future competition in the supply of access services to business customers

38. Ofcom recognises that its categorisation methodology would not capture specific, targeted competition for the supply of business connectivity services and notes that it would therefore need to separately consider competition in the supply of services to business premises based on leased line networks targeted at business customers with high demand for higher value, very high bandwidth connectivity. However, it is not clear how any headline findings relating to the finding of SMP across the proposed wholesale network services market and/or categorisation of postcode sectors into areas 2 or 3 would actually be reconciled with evidence about the scale of competition in the supply of business connectivity services.

39. We would be concerned if the blanket finding of SMP across the proposed wholesale network services market left the provision of all and any business connectivity access lines within the scope of the SMP market, even if Ofcom felt it could limit remedies in some way[11]. As set out in the consultation, in fact, such an analytical framework would not provide an adequate basis for assessing existing competition or the scope for future competition to emerge. Specifically:

   a. Ofcom acknowledges that the Connected Nations data which it proposes to use would not count the existence of 'leased lines networks'. So the presence or absence of such networks would have no bearing on Ofcom's assessment of competitiveness by postcode sector.

   b. Even if leased line networks are included in the network presence data, the focus on the percentage of total premises passed within postcode sectors and the proposed 65% threshold figure would provide no insight into the reach of these leased line networks into areas where there is a higher density of business premises.

   c. It does not appear that Ofcom has taken account of any plans to extend leased line networks in designating areas as potentially competitive, nor has Ofcom separately assessed the scope for such networks to be extended to serve business customers utilising DPA, given the proposal to make DPA available on unrestricted terms to such network providers.

   d. It is not clear how Ofcom would expect to assess the competitiveness of Inter-exchange Connectivity services within the categorisation methodology and therefore how the SMP designations proposed in the recent BCMR consultation would be reviewed moving forward.

40. As we set out in our recent response to Ofcom's Business Connectivity Market Review, we believe that there is a high level of competitiveness in the supply of access services for business connectivity purposes, particularly at very high bandwidths (i.e. at above 1Gb/s) and on Inter-exchange Connectivity routes. If unrestricted DPA is made available on regulated terms, as proposed, the scope for competitive supply will increase further and the case for removal of SMP in areas outside the Central London Area and even nationally will be stronger still by 2021. Consequently, Ofcom's proposed approach in this consultation should not result in this evidence being relegated as of secondary relevance in considering remedies.

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[11] We have similar concerns here as expressed in context of ultrafast services to residential customers as Ofcom may look to impose remedies it considers 'light' or 'lighter' touch given the finding of SMP, but these could still restrict commercial freedom to design innovate technical and commercial access solutions for our customers as the market evolves and competitive dynamics change.

41. We would be particularly concerned if Ofcom effectively identified that *additional* remedies – e.g. an extension of dark fibre obligations into certain access routes – might be required to support competitive supply of access to business connectivity services on the basis of its assessment that there would be limited competition from the fibre rich ultrafast networks in defined category 3 areas. The categorisation methodology would not be focussed on the provision of business connectivity services and would not, therefore, provide a sufficient basis for justifying specific forms of regulation aiming at facilitating competition in the supply of such services.

42. We would suggest that further work is required to assess the competitiveness of business connectivity services. This should build on the analysis completed for the recent BCMR consultation so that Ofcom has a clear view of:

   a. The start point for competitive build of leased line networks to areas of high business density.

   b. An updated view of the extent to which the existing reach of these networks could be extended to supply services economically given the availability of DPA on unrestricted terms.

   c. Measures of competitiveness and contestability for the delivery of business connectivity, including market/service shares, detail on significant bids, technical innovation, pricing, etc.

43. This would provides Ofcom with an understanding about the extent to which any regulation downstream of DPA may be required to support competition in the supply of active business connectivity services at higher bandwidths. We believe there is a strong case that no further interventions and restrictions on Openreach's activity would be necessary to protect consumers' interests.

Ofcom's approach should allow for consideration of demand-side factors

44. Ofcom makes reference to Fixed Wireless Access (FWA) networks in paragraph 2.6 of the consultation document, but is not clear whether/how its analysis would consider impacts on competition arising from the availability of 5G mobile services. Under existing market reviews, Ofcom's assessments of product market definitions and/or SMP (through direct and indirect constraints) allow for consideration of the extent of current and future substitutability between fixed and mobile solutions – whether for voice services, broadband, etc. A focus on the availability of fixed networks in an area as a start point for an assessment of competitiveness does not preclude consideration of additional data on competitive constraints from mobile networks impacting behaviour[12] and in fact is required to ensure Ofcom has taken account of all relevant constraints.

Ofcom should take a pragmatic and flexible approach to measuring boundaries between categories with a focus on the policy intent driving this exercise

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[12] In this regards, see Oxera report *Regulating oligopolies in electronic communications markets: supplementary discussion paper (2018)*: "*Any forward-looking market review should consider that there is likely to be increasing infrastructure competition from the development of 5G networks, the increasing coverage of cable networks and alternative FTTx networks, and the deployment of fibre networks utilising the passive infrastructure of utility providers … These rapidly changing market and technological developments mean that, from a forward-looking perspective, structural market conditions are also expected to evolve, .. The roll-out of 5G networks is particularly relevant.* Available at *https://www.oxera.com/wp-content/uploads/2018/07/Regulating-oligopolies-in-electronic-communications-markets-%E2%80%93-supplementary.pdf.pdf*

45. Ofcom's illustrative assessment defines:

    a. Postcode sectors as the geographic unit for assessing competition;

    b. 65% as the coverage threshold for network presence; and

    c. 'urban clusters' as a contiguous set of postcodes smaller than 100,000m^2 that pass at least 20,000 premises.

46. Changing any of these measurements and thresholds would change the size of category 1, 2 and 3 areas to some extent. We have therefore considered whether alternative measurements and/or thresholds might provide better indicators of the competitiveness of an area.

47. In **Annex A**, we produce analysis showing how well the specific approach used in the illustrative assessment captures premises where there is current Virgin Media network build – so where there is at least one other current network provider alongside Openreach. Ofcom's approach in the illustrative assessment is not designed to map precisely onto Virgin Media build, but our analysis suggests that as many as **[confidential]** premises served by Virgin Media could still be counted as falling inside category 3 areas based on the network presence criteria alone and therefore be at risk of being treated as 'non-competitive'. This figure would clearly reduce if Ofcom conducted its analysis against smaller geographic units (e.g. 500m grids) or used lower coverage thresholds (e.g. 45% rather than 65%). We note that Ofcom's approach would also place many premises within competitive or potentially competitive areas where there is no current Virgin Media build, but given the wider scope of factors used to assess whether areas are competitive or potentially competitive, we do not believe it is appropriate to 'net off' what we label type 1 and type 2 errors in Annex A. Instead, Ofcom should focus on assessing the reasonableness of its approach against the policy intent driving the categorisation exercise.

48. To this end, we would note:
    a. It is impractical to adjust regulatory remedies at the level of individual premises so Ofcom's analysis should be focussed on some aggregated level of geographic unit.
    b. To the extent network presence is a relevant consideration in assessing whether an area might be fully competitive, it is not the only measure that would be applied. It is therefore unnecessary and potentially unhelpful to apply a rigid threshold for network coverage within a geographic unit as a trigger to even consider the strength of competitive pressures in that area. As already noted above, Ofcom should, in any event, take a more forward-looking and holistic approach to considering market dynamics (considering different factors in the round).
    c. The key question for whether an area should be categorised as 'potentially competitive' or 'non-competitive' should be whether alternative ultrafast build is considered viable and the level of actual or planned coverage of an area would not be determinative of this.
    d. We agree with Ofcom's suggestion that it should err on side of counting areas as 'potentially competitive' where it is making a judgement. In category 3 areas, Ofcom is proposing to set remedies to support investment by Openreach in ultrafast networks. This could include allowing Openreach to set prices for network access across the "wholesale network services" market that allowed for investments to be financed over a reasonable period. While we reserve our position on the suitability of such an approach, Ofcom's objectives could be undermined if there was scope for competitive ultrafast networks to be built within areas that might be designated as category 3 areas under a more formulistic approach.

49. This suggests that Ofcom does not need to rely on a single threshold measure to assess coverage within the chosen geographic unit and supports a more flexible approach that focusses on the sensitivity of outcomes to assumptions used and is focussed on the policy aims of the categorisation exercise.

50. Rather than be prescriptive at this stage about the best approach to defining the metrics for categorising areas, we see merit in Ofcom adopting a flexible and pragmatic approach. This should use all information available to consider the reasonableness of the outputs of any categorisation exercise based on a particular set of measurements/thresholds. We would suggest Ofcom is transparent about its findings to show:
     a. Further detail on the sensitivity of outcomes to the changes in the measurements and/or thresholds applied;
     b. how many proposed category 2 areas may have at least some network build by 2 operators alongside Openreach;
     c. how many proposed category 3 areas may have at least some build by 1 other operator;
     d. the total number of premises in proposed category 3 areas with some choice of network supplier.

51. Ofcom could then use this and other information to adjust its approach and ensure the overall shape and size of different categories looked sensible.

52. This exercise should also give weight consider to the practicability of applying different remedies in different areas. For instance, we would normally expect to have requirements to produce financial data at the level of defined product and geographic markets. Currently, our records will reflect the way infrastructure has been designed to radiate from exchange buildings to homes and businesses so any reporting requirements for alternative geographic units to exchange areas will inevitably raise issues of practicality. We would be happy to discuss these issues with Ofcom to ensure remedies are set at level of disaggregated geographic unit that strikes a balance between practical implementation issues that may arise and can be considered early on in the process.

Annex A: Assessing existing network presence

Summary of Ofcom's approach to assessing network presence

54. In this Annex we comment on Ofcom's proposed method of measuring the geographic extent of existing networks.

55. Ofcom considers that either postcode sectors or Openreach exchange areas would be among the best candidates for carrying out a geographic analysis. Ofcom favours these geographic units because they are considered sufficiently granular to identify significantly different competition conditions, but not so small as to make the analysis unmanageable.

56. Ofcom believes competitive conditions will not vary significantly within a postal sector because '*once a network operator starts a network rollout, their plan is likely to cover an area larger than typical postcode sectors in the areas where build is attractive, so the deployment will cover the entirety of several postcode sectors. However, at the edge of the deployment, there could be postcode sectors that are only partially covered.*'[13]

57. Ofcom considers that Openreach exchange areas would be less granular than postcode sectors but would still provide a manageable and reasonably granular set of geographic units for analysis.

58. Ofcom requests views on what proportion of the premises within a postcode sector or exchange area would need to be covered for it to count a network as present in that area. Ofcom acknowledges that coverage short of 100% could still be sufficient to provide a competitive constraint. It uses a coverage threshold of 65% for illustrative purposes.

59. Ofcom acknowledges that neither postcode sectors nor exchange areas will precisely align with all network deployments and therefore that '*our overall approach will need to take this into account.*'

Our comments on Ofcom's proposed assessment of network presence

60. We agree with Ofcom that it should identify a unit of measurement in which the conditions of competition are not likely to vary significantly.

61. We agree that network deployments will not match precisely to postcode sectors or to exchange areas, and that there may be particular issues in postcode sectors which are partially covered. Specifically, there is scope for two kinds of error:
    a. Type 1 errors where alternative ultrafast network has been built or is planned within an area or where build in the area is within a contiguous urban cluster, but actual or expected coverage across the geographic unit falls beneath the 65% coverage threshold, so the area is counted as non-competitive.
    b. Type 2 errors where alternative ultrafast network has not been built or is not planned within an area and where the area is outside a contiguous urban cluster, but actual or expected coverage

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[13] Consultation, para 3.15.

across the geographic unit is above the 65% coverage threshold, so the area is counted as competitive or potentially competitive.

62. We investigate the potential magnitude of these errors in two cases.

63. Firstly, we look at cable franchise areas where we know cable coverage to be a very high percentage of premises covered and see how well cable presence is identified using postcode sectors with a 65% coverage threshold.

   a. We find that, as Ofcom suggests, using postcode sectors (with a 65% coverage threshold) performs well in measuring network presence in more central parts of conurbations. But they perform less well for sectors which radiate out from the centre (which are partially covered).

   b. We note that the errors can be significant even for areas which high cable coverage (following the original franchise areas where incentives to reach all economic areas were high). We expect greater errors in the event that network rollout is more targeted and selective (which is feasible with modern mapping techniques and access to ducts and poles)

64. Secondly, for the Virgin Media footprint as a whole, we compare the performance of Ofcom's two preferred methods in accurately capturing premises covered by Virgin Media:

   a. Based on our modelled footprint assumptions, we have estimated, in the case of postcode sectors, that **[confidential]** premises that are supplied by cable would be categorised as having no alternative network supply and that **[confidential]** homes would fall within areas that categorised as having alternative network supply.

   b. Using exchange areas (with a 65% threshold) we find approximately **[confidential]** premises are categorised either way.

65. As acknowledged by Ofcom, a more granular unit of measurement would reduce these errors. We agree that an analysis at the individual premise level would not be feasible.[14] An alternative would be to use a 500 square metre grid. Using our modelled Virgin Media coverage, we have estimated that the classification errors fall from **[confidential]** and **[confidential]** when using postcode sectors to **[confidential]** and **[confidential]** for 500m grids. Whilst there are reductions in classification errors, these may not be large enough to justify a move from postcode sectors or exchange areas which may be more manageable.

66. If Ofcom does proceed with postcode sectors or exchange areas, it should, however consider lowering the coverage threshold below 65% (e.g. to 45%) in light of the classification errors we have found, for the following reasons:

   a. First, it is important that Ofcom should define non-competitive areas cautiously as the remedies which Ofcom may be minded to impose in these areas are contingent on non-contestability (i.e. allowing Openreach to spread higher build costs across uncontested volumes). Using a lower threshold may define some areas that are ultimately non-competitive as being potentially

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[14] It would, however be possible to analyse actual circuit ends for businesses as set out in our response to the BCMR 2018 Consultation.

competitive but there is scope for re-definition further down the line. The alternative – identifying potentially competitive areas as uncompetitive – may result in unforeseen overbuild in non-competitive areas which would reduce the ability of the single operator in the non-competitive areas to deploy widely across this area.

b. Second, although a lower threshold would count networks as present at lower levels of coverage and therefore result in areas being considered as effectively competitive earlier, Ofcom intends to look at wider metrics in these areas in any event to determine whether alternative networks do indeed make those areas effectively competitive. The risk of mis-classifying effective competitive areas by using a lower threshold are low in this context.

67. We conclude, therefore, that a lower coverage threshold should be used in conjunction with either postcode sectors or exchange areas. As the pattern of roll is observed going forward, a more granular approach is likely to be preferable if roll-out is more targeted than currently envisaged.

68. The remainder of this Annex sets out the detail of our analysis of the performance of postcode sectors and exchange areas in measuring the presence of the cable network.

Our analysis of the performance of postcode sectors and exchange areas in measuring the presence of the cable network

Performance of postcode sectors in measuring cable presence in certain local areas

69. We use examples of how the cable TV networks were deployed in the 1990s, and compare the areas that were deployed to the associated postcode sectors.

70. To encourage costly network build, the individual cable companies were offered exclusivity in a given area. In the early franchises, companies were encouraged to commit to relatively high coverage levels and to prevent companies from "cherry picking" the most economic small areas across a wider region. This, in turn, meant that the franchise areas were very closely defined around the areas where companies thought it would be economic to build. Figure 1 shows the Perth and Scone franchise area and Figure 2 shows the Norwich franchise area.

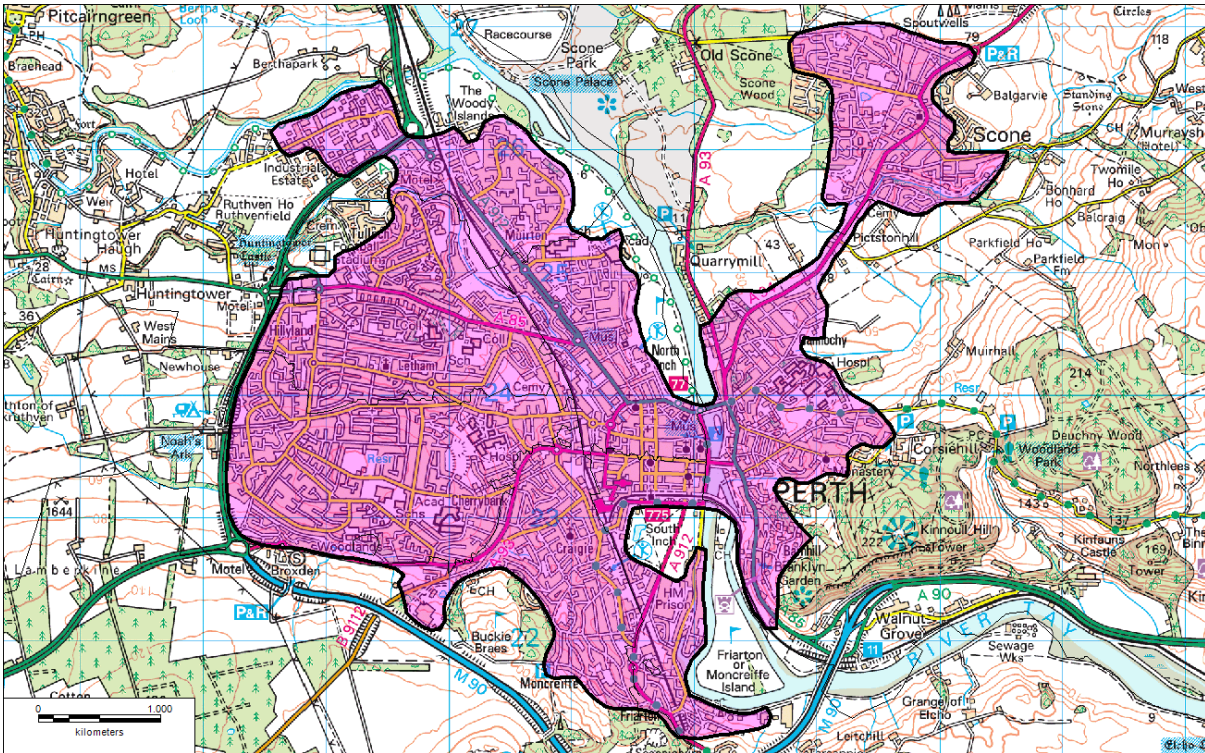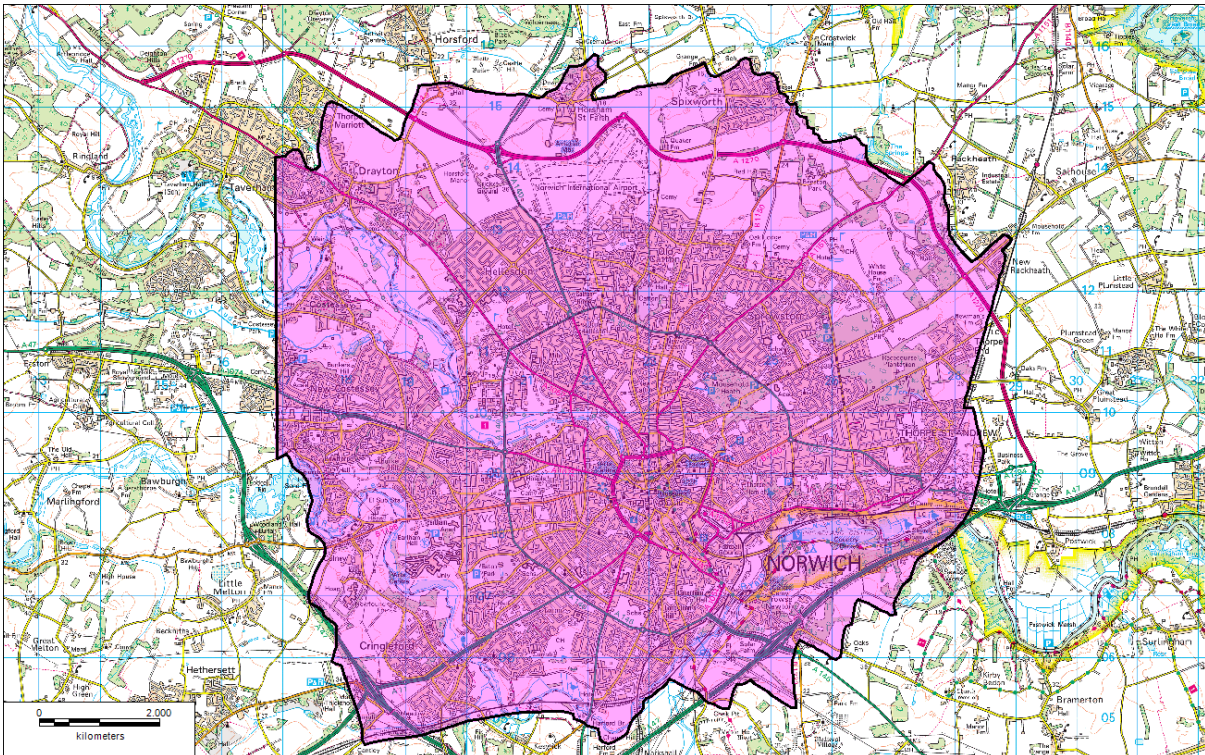**Figure 1: Perth and Scone CATV franchise area**

Figure 2: Norwich CATV franchise area

71. Table A provides some key statistics for these two areas.[15]

Table A: Some key statistics for two cable franchise areas

Franchise Area	Perth and Scone	Norwich
Date Awarded	January 1990	July 1989
Date Build started	August 1995	April 1990
Homes in Area	19,049	79,000
Homes Covered by April 1998	18,728	66,761
Coverage of area in April 1998	**98.3%**	**84.5%**

72. By April 1998, Perth had near universal coverage (98.3%) and Norwich shows very high coverage which rose in later years.

73. Figure 3 shows the postcode sectors around Perth and Scone.

Figure 3: Perth and Scone Postcode Sectors surrounding the CATV franchise area

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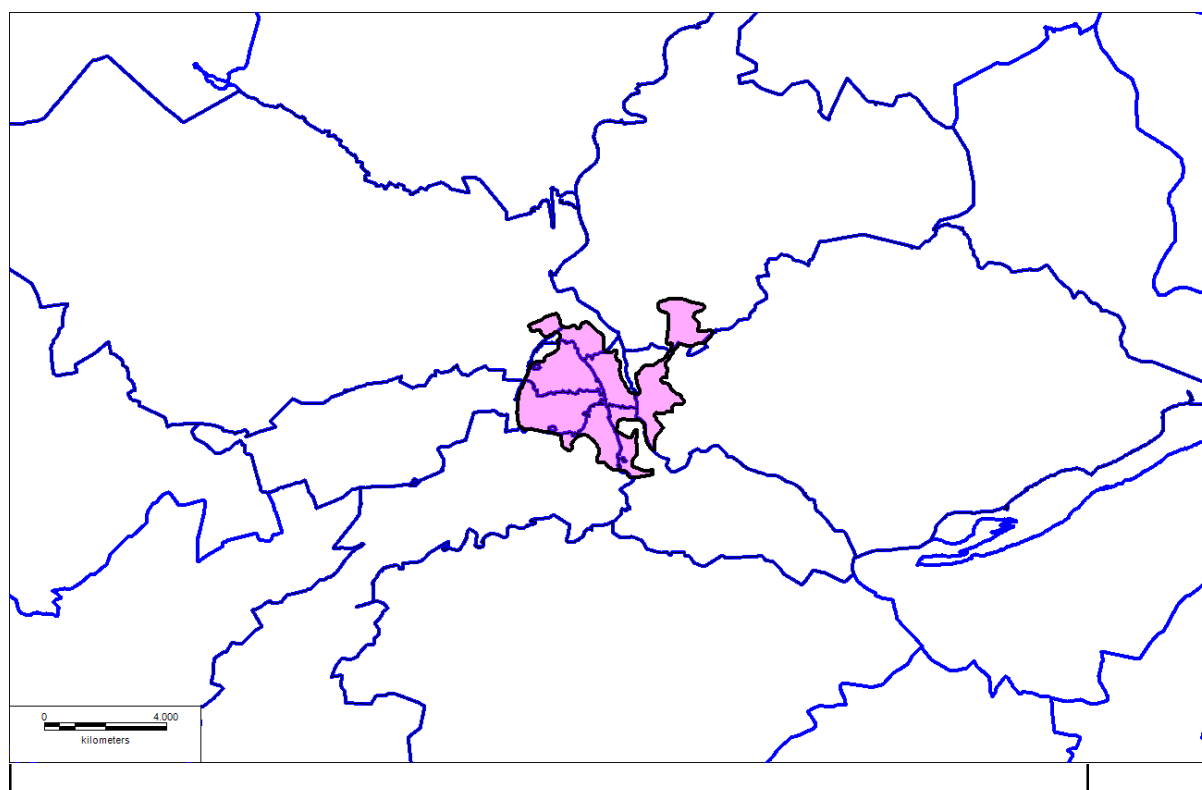
[15] Source: Who's Who in Cable and Satellite, Edition 25, July 1998

74. In Perth, there are two postcode sectors in the centre of the town, almost entirely within the CATV franchise area. There are then six postcode sectors radiating out from the centre. This type of layout of postcode sectors is common for towns where the centre is covered by individual sectors and then each subsequent sector is a "logical" delivery direction, picking up the outer areas of the town and the areas along that route out of the town.

75. Whilst there was near universal coverage built within the purple franchise area, this does not align with the postcode sectors. Using data published by Ofcom[16] we can select the postcode sectors that Ofcom has classed as covered by Virgin Media using the 65% WBA coverage threshold. These are shown in red in Figure 4.

Figure 4: Perth and Scone Postcode Sectors surrounding the CATV franchise area, with postcode sectors meeting a 65% Virgin coverage threshold highlighted in red
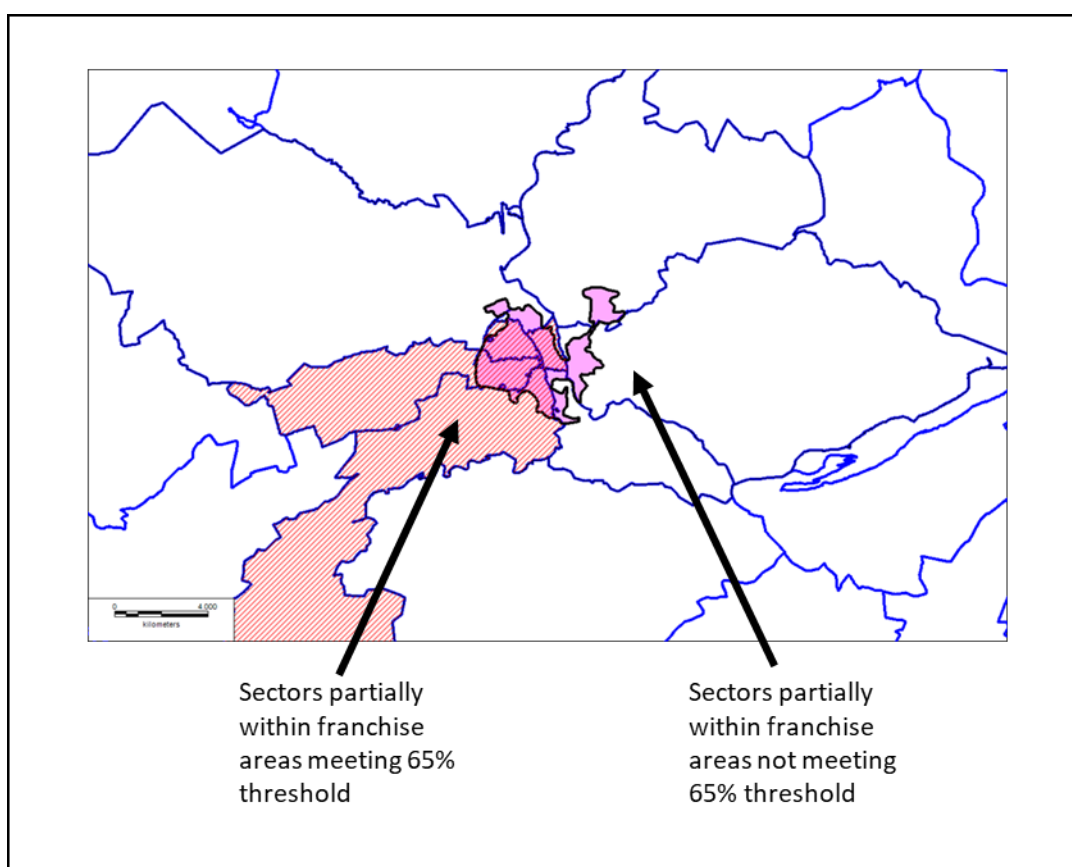

76. As would be expected, the two town centre sectors meet the coverage threshold. In addition, two of the radiating sectors also meet the threshold, but the remaining four, all of which have some cable coverage do not meet the coverage threshold.

77. There are over 8,500 homes in the four sectors that are within the franchise area, that must be covered, but are not counted as covered, presumably as they do not meet the 65% threshold of all premises in the sector i.e. they form a Type II error in that they are presumed not covered but they actually are. The four sectors that are selected cover about 19,000 premises, almost exactly the same the number of homes that were reported covered by 1998.

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[16] Postcode sector list published with PIMR, using the same methodology for measuring existing network coverage

78. Therefore, in this example we estimate that there are:
    a. 10,500 homes covered that are counted as covered.
    b. 8,500 homes covered that are NOT counted as covered when they are Type II error.
    c. 8,500 homes NOT covered that are counted as covered i.e. Type I error.

79. In this example, coverage is uniform across franchise areas (a good proxy for economically viable build) but this is not measured accurately by using postcode sectors because the 'radial' sectors (i.e. out of the town centres) are wide and only partially covered. Put simply, postal sector capture delivery routes, not viable build of telecoms infrastructure.

80. The following Figures 5 and 6 show corresponding maps for the Norwich franchise area. The postcode sectors show a similar radial pattern, but due to the larger size of Norwich there is an inner set dividing the areas within the ring-road into segments, and then an outer ring of segments. This area also shows there is a significant mis-match between the coverage area and the postcode sectors.

81. In this case, there are a number of postcode sectors entirely within the franchise area, but surprisingly, given a franchise-wide coverage now in excess of 85%, they do <u>not</u> all meet the required threshold. It appears that these have a high proportion of business premises. There are also many sectors which are partially within the franchise area, which do not meet the coverage threshold.

82. It is not possible to accurately estimate the extent of the classification errors as we cannot identify the 15% of homes within the franchise area that were not covered. It looks likely that, in this example, there are more homes that are served that are not counted as covered than un-served homes that are counted as covered i.e. a greater preponderance of Type I over Type II errors.

Figure 5: Norwich postcode sectors surrounding the CATV franchise area
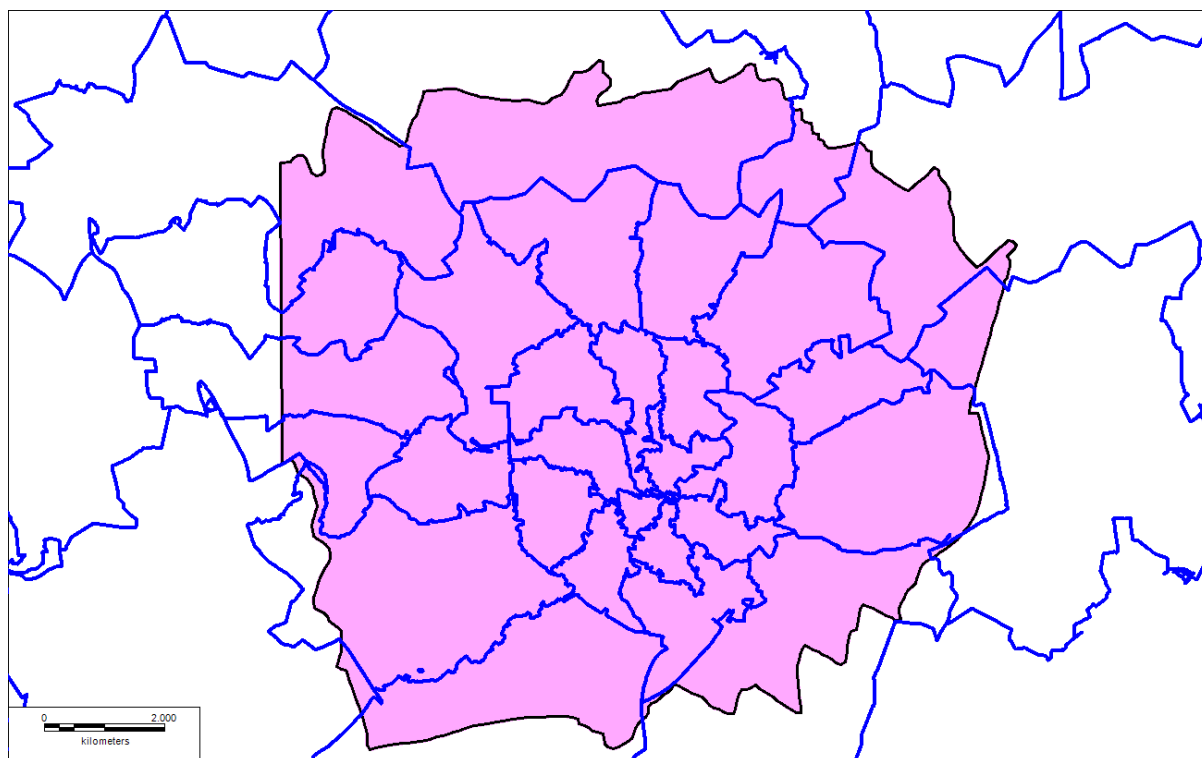
Figure 6: Norwich Postcode Sectors surrounding the CATV franchise area with postcode sectors meeting a 65% Virgin Media coverage threshold highlighted in red
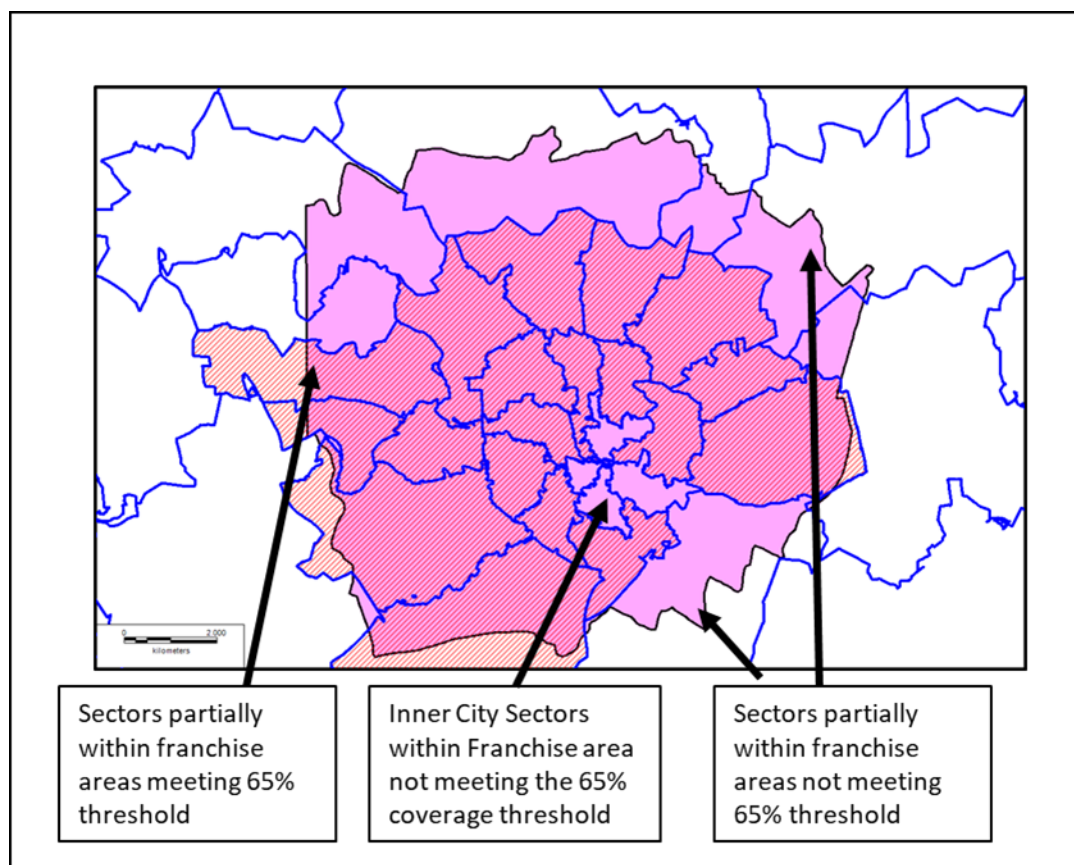
83. These two examples have been chosen as they are areas where the franchise area was selected so that a high coverage could be reached. Later franchise agreement do not put as much emphasis on near "universal" coverage of an area and the networks were built in a more selective way, allowing much more granular selection of exactly which premises were covered, based on the cost to build. We expect, therefore, that the issues seen in Perth and Norwich will be greater in many other areas.

84. New infrastructure providers, using modern mapping and targeting capabilities, would be more capable of focussing new network build more accurately for example down particular streets.

Performance of postcode sectors and exchange areas in measuring cable presence across the entire cable footprint

85. Although we do not have precise data on the actual Virgin Media footprint, we have used a modelled footprint and estimated that **[confidential].**

86. We have done a similar estimation based on BT copper Exchange boundaries. We believe that using the same threshold of 65%, the errors are more balance than is seen with Postcode Sectors. The total volume of errors is also comparable to postcode sectors with approximately **[confidential]** premises misclassified either way. These results are based on a modelled Virgin Media footprint and could be verified by Ofcom who has access to the actual coverage footprint.

87. Ofcom only appears to be considering either postcode sectors or Openreach exchange areas. Smaller geographic units, however, will result in fewer classification errors, especially in the future where targeted roll-out may be at a smaller scale than postcode sector.

88. To examine this, we have undertaken an initial analysis based on 500m square grids. These have the benefit of being relatively simple to analyse.[17] We have calculated that there are approximately **[confidential]** grids in the UK which contain premises. Using our modelled Virgin Media coverage model, we estimate that the classification errors fall from **[confidential]** when using postcode sectors to **[confidential]** for 500m grids.

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[17] In contrast to complex postcode shapes, once the eastings and northings are known, it is mathematically simple to allocate a location to a grid square.