DCMS Future Telecoms Infrastructure Review: Call for Evidence, BT's response (January 2018)
Annex 1: Referenced responses to DMCS Questions

1 What is the existing UK telecoms market structure and policy framework able to deliver?

- When will it deliver, and how certain can we be that it will fulfil the Government's ambitions for full fibre networks and 5G deployment?
- What will this mean for roll-out of these technologies and for competitive models in different geographic locations?

1. To date, fixed-access markets have seen primarily commercial investment. Progressive upgrades to cable and copper/fibre hybrid networks have been driven by competition between these networks. In mobile, there is effective infrastructure competition in wholesale markets between four mobile network operators (MNOs) with a degree of network sharing. Further detail is available in our main response and in Annex 3 on market models.
2. Going forward, Openreach and BT's ambition is to deliver more full fibre (where economics permits) and to lead the UK market with 5G, in both timing and scale. Our current plan is to deliver full fibre to 3m homes by 2020, with an intent to pass 10m homes by 2025 with the right conditions[1]. However, there are significant challenges involved and Openreach is seeking to address these through consultation with its wholesale customers.
3. As set out in the main response and in Annex 3 on market models, the current policy framework, while potentially delivering commercial and competitive full fibre deployment in densely populated areas, might not deliver widespread deployment of full fibre. Depending on how the current model (see Model 1 in Annex 3) evolves, the more densely populated urban areas could benefit from competition between several networks, while the scope for commercial deployment in rural areas might decrease and consumer prices increase.

2 What barriers exist to long term investment in the UK telecoms market (beyond work underway by the Local Full Fibre Networks programme to stimulate demand, and by the Barrier Busting Taskforce to reduce build costs)?

1. The key barriers are set out in the table below; these are addressed in greater detail in Annexes 3 and 4.

Table 1: Barriers to long term investment and possible policy measures to address them

Barrier	Possible policy measure	Response reference
1. Lack of demand and demand uncertainty	• Measures to stimulate demand (eg, public sector anchor tenants; eGovernment initiatives, fostering wide participation in the digital economy) • Subsidy e.g. voucher schemes and similar • Evolution of the DDT and IPTV platforms	Annex 6

[1] https://intra.bt.com/news/Pages/Openreach-programme-aims-to-build-ultrafast-Britain.aspx

2. Lack of long-term policy certainty for investors	• Create enduring, transparent and clear regulatory framework with regard to future FTTP investment • Make consideration of consistency over time intrinsic part of every regulatory decision	Main response & Annex 3
3. Level playing field between utilities and telecoms sectors	• Reduce VAT • Relief from Cumulo increases • Adjust and enforce building regulations	Annex 6
4. Currently proposed anchor product regulation discourages migration to full fibre	• Ensure any anchor regulation does not limit ultrafast investment. • Provide support for and help with a switchover process to maximise the benefits of the platform	Main response & Annex 3
5. Access regime does not strike appropriate balance between investment and low prices	• Deregulation in prospectively competitive markets; • Tilting incentives towards investment (or supporting investment) away from taking access to the incumbent's network	Annex 4 (competition models)
6. Regulate on a geographically disaggregated basis	• Reflect different competitive conditions by geography in the way regulatory remedies are applied • Distinguish at least between competitive, prospectively competitive and non-competitive areas	Main response and Annex 3
7. Playing field not level for BT where markets are prospectively competitive	• Free and fair competition means BT must be allowed to respond to competition (mindful of its position as a dominant firm where that is the case)	Main Response & Annex 3

- What effect do existing revenue streams have on investment plans?

2. Openreach's investments reflect the following sources of value: lower Openreach operating costs enabled by the new platform; incremental revenue per line from Openreach's wholesale charges to CPs; and the benefit to Openreach from a more competitive network. All three sources of value are needed to secure acceptable returns.

3. Existing revenue streams (and the way they are regulated) do affect incentives to invest. As explained below, investors require clarity that there is an opportunity to earn returns that fully reflect the risk taken at the time of investment. The way in which this issue is assessed (and determined) in relation to past investments, therefore, will affect how investments in the future are viewed. There is a need for a predictable, consistent and enduring regulatory framework in this regard.

- What effect do visibility and predictability of returns have on investment plans?

4. Predictability, transparency and consistency of the regulatory framework over time are extremely important for investment decisions, particularly for investments that are inevitably large scale, sunk and long term in nature. This is because they affect the certainty of future returns to investment.

5. Where an infrastructure provider has been found to have significant market power (SMP) in legacy markets, the regulator faces potentially conflicting objectives of protecting consumers from high prices in the short run while allowing the provider a fair return on investment in the long run.

6. The 'Fair Bet framework' Ofcom has used to date might in principle satisfy this condition. However, it was not clearly articulated at the outset. As a result, investing firms (both the incumbent and also new entrants) now face uncertainty that, once an investment has been made, regulatory actions may be taken subsequently which potentially deny investors the opportunity to earn a fair return given the risks taken.

7. A transparent and clearly articulated framework governing future investments by Openreach is needed to provide greater clarity around the fair bet framework to ensure that initial and subsequent rounds of investment have the opportunity to earn returns that fully reflect the risk taken at the time of investment**.**

8. The options for providing a long term framework which is conducive to investment are discussed in our main response, as well as Annex 3 and include RAB models or multi-period charge controls, as well as the fair bet framework.

- What is the effect of current infrastructure deployment models?

9. See main document and Annex 3.

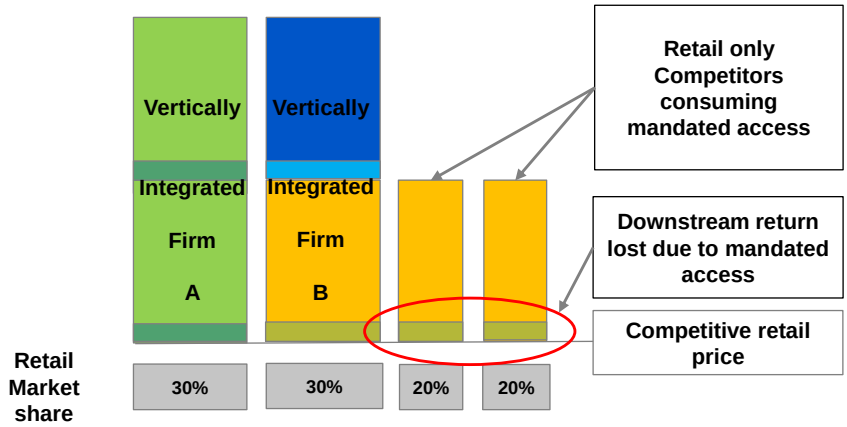
- What impact do current infrastructure sharing arrangements have on investment?

10. In mobile markets, market-driven infrastructure competition has already delivered strong outcomes, particularly in combination with arrangements allowing certain fixed costs to be shared. Options for similar market-led collaborative solutions in fixed might emerge over time, but (as things stand) duct and pole access already facilitates asset sharing, and applications beyond this, which would retain the benefits of competition, are not obvious. See also main response and Annex 3.

- What is the impact of the existing relationship between wholesale and retail markets?

11. In fixed markets, access regulation determines how downstream benefits generated by Openreach investment are captured, where Openreach has been demonstrated to have significant market power (SMP).

12. The figure bellows illustrates the impact. Firm A is able to realise <u>all</u> of the benefit from retail sales that it generates. The vertical structure also helps to mitigate demand risk because the downstream business is implicitly committed to support investment. Firm B, however, cannot realise all the retail benefit from an investment because some is captured by downstream providers who buy regulated access to the network. Equally, implicit commitments to support investment must be replaced by contractual commitments which may be difficult to secure.



13. As set out further in our response to question 2 above (and expanded on in Annex 3), the approach a regulator takes to access pricing may impact the balance between rewarding investment on the

one hand and fostering downstream competition, on the other. In doing so the regulator has to consider the impact of any particular approach on competition, choice and price for consumers.

14. In mobile markets there is effective competition (nationally) between four network operators (at the wholesale level) and no provider with SMP. There is no wholesale access regulation and such a model has not been used. Introducing regulation of this type (in particular access regulation) would likely be harmful to investment incentives in mobile, while not bringing material benefits to consumers in terms of lower prices.

- What changes to spectrum licensing and sharing could foster greater innovation and investment in 5G?

15. The current framework whereby MNOs have the opportunity to acquire national, exclusive licences, is broadly appropriate for fostering investment in 5G although there are some areas where more could be done. However, the recurring threat of potential policy intervention to mandate national roaming notionally to address partial not spots creates regulatory uncertainty that undermines investment in extending geographic coverage and capacity.

16. MNOs continue to invest in infrastructure to offer services to customers knowing the interference management framework (a co-operation system between MNOs) and in the future this may be combined with licence-exempt spectrum in licence-assisted, access-type solutions. Ofcom has pipelines of both licences and licence-exempt spectrum.

17. However, 5G is being standardised and designed around 100MHz spectrum blocks, and that size of contiguous spectrum provides the biggest performance improvement over 4G (capacity, speed, and latency). Therefore using fragmented spectrum will reduce the 5G performance to be more like 4G, which the current policies appear to be leading to.

18. The Radio Spectrum Policy Group, which advises the European Commission, has identified 3.4-3.8GHz as early 5G bands and developments will now focus on these bands. We have expressed concerns about the fragmented approach Ofcom is taking to the auction of 3.4-3.8 GHz spectrum. We have argued (unsuccessfully) that the auction of spectrum for 5G should bring together 3.4-3.6GHz, 3.6-3.8GHz and 700MHz into one, single auction in order to allow for more effective planning for all operators and a stronger 5G platform for the UK.

19. We still think there is merit in avoiding spectrum fragmentation and narrow assignments for 5G in the forthcoming 3.6-3.8GHz and mmWave 26GHz spectrum auction. Depending on the 3.4-3.6GHz auction outcome there may, for example, be benefit in requiring Three's existing assignments to be re-allocated to allow larger, contiguous blocks of spectrum to be assigned. Larger blocks should give rise to lower end users prices, as well as enabling better speeds to be delivered.

20. We are also concerned that the Annual Licence Fee regime, as interpreted by Ofcom, places undue additional financial burden on spectrum holders (beyond what is required to ensure efficient use of spectrum) at a time when they face significant 5G investment costs. The annual fees imposed in the UK on 900/1800MHz spectrum (and in the future on the 2.1GHz spectrum) are extremely high and unprecedented in Europe. This issue might be addressed by annulling the Wireless Telegraphy Act (Directions to Ofcom) Order 2010.

21. With regard to a potential renewed debate about national roaming we consider this would run counter to commercial infrastructure as set out in model 3 (market driven) and take the UK a step closer to model 1 (regulated infrastructure competition) in mobile. We see mandated national roaming as very harmful to competitive network investment incentives as the MNO with the widest geographic network coverage would be unable to market this to customers as a unique selling point.

22. As regards innovation much of this is driven by equipment vendors like Huawei and Ericsson with MNOs adopting the innovative products and deploying them on the basis of spectrum licences.

23. Annex 5 provides further detail on all of the above.

3 What can the UK learn from the widespread deployment of fibre networks in other countries?

- What factors have led to higher full fibre investment in other countries and how applicable are these to the UK?

24. There are lessons to be learnt from other countries but a simple comparison is not possible and Ofcom has agreed that there is no "simple read across." The main factors leading to higher full-fibre investments in other countries are as follows (i) the degree of Government funding (ii) network topology and housing density (ii) regulatory model (iv) market structure and (v) demand side factors. The presence of cable stimulates investment in FTTx but this can take the form of FTTP or FTTC.

- What have been the impacts of fibre roll-out models in other countries on competition dynamics, consumer bills, and risk allocation?

25. See Annexes 3 and 4. While pure reseller models are less common in countries using the *market driven model* to facilitate FTTP deployment, competition and consumer choice appear to be maintained. However, it appears that consumers pay a premium for a faster and higher quality service.

26. Commercial risk-sharing models between the investing operator and access seekers have helped foster investment in countries including Germany and France (see Annex 4).

- To what extent can the fibre that has been rolled out internationally be used for mobile backhaul, and what lessons can the UK learn?

27. In some countries (including Germany, France, Spain and Portugal) commercial arrangements between fixed operators and MNOs have allowed deployment to be coordinated as well as a degree of sharing of some upfront costs and risks.

4 The Government wants to consider all market models that will facilitate the next generation of technologies.

- What different market models* might work in the UK in the longer term, and what risks and opportunities do they present?

1. The response to this question is provided in the main response and further detail in Annex 3 on market models.

- What consequences could different market structures, including ones which support longer pay-back periods, have on the investment environment, competition and outcomes for consumers?

1. See above.

- How might these vary in different geographic areas of the UK, including urban and rural areas?

2. See above.

- Over what timescale could market models be changed, and what policy conditions would be necessary to enable this?

3. The market models set out in Annex 3 would involve different degrees of change from the current model and hence timescales. Model 1 is essentially the status quo.

4. Model 2 (nominated regulated provider) might require several years to implement depending on whether it requires an explicit legal designation, for example, through a national licence.
5. Model 3 (market-driven) could be implemented under the current policy framework, perhaps with adjustments and may be quicker to implement.
6. Model 4 (franchising) would involve a protracted process over many years to design and specify the franchise regime and appoint the franchisees.
7. Model 5 may be implemented in different ways. See Annex 3.

- Are the current arrangements for BT legal separation working effectively?

8. See page 12 in the main response.

5 What should Government consider when assessing the potential for migration from copper to full fibre networks?

9. As set out in the main response and in Annex 2, widespread full-fibre deployment requires substantial investments ahead of demand. As a result, we anticipate that unless consumers are switched over to the new technology soon after it becomes available, migration could take many years and Openreach would need to run two technologies simultaneously for many years.
10. Therefore Openreach has consulted with communications providers (CPs) to understand their views on switchover and how migration might be achieved when this ultimately becomes required to maximise the benefits of an FTTP platform.

- Over what time period could migration occur?

11. Under current arrangements, migration to full fibre will occur as and when additional value is available to customers relative to existing copper-based products. Ofcom does not anticipate significant take up within the next three years.
12. Switchover would accelerate this process significantly. Risk sharing arrangements between infrastructure providers and retailers may also accelerate migration. As indicated in our main response, an advantage of the market-driven model is greater flexibility for network rivals (including incumbents) to develop products, pricing, switchover models and risk-sharing deals to promote migration and mitigate investment risk.

- What phases might migration be required to go through?

13. A market-led migration where there is commercial flexibility to switchover (with wholesale customer support) or otherwise share the risks of migration with wholesale customers might accelerate the migration process.

- What would be the pros and cons for markets and competition?

14. Competition would be enhanced with greater commercial flexibility as described above.

- What would the implications be for different groups of consumers?

15. Any process of migration must consider the interests of all customers and be responsive to their needs.

6 The Government wants to achieve its digital infrastructure goals at the least additional cost. How should new digital infrastructure be paid for?

16. The main trade-offs between the different proposed models are set out in the main narrative and in Annex 3.

- Are consumers (residential and business) willing and able to pay for new digital infrastructure, given its expected benefits?

17. See Annex 2.

- What could incentivise investors and shareholders to make long-term investment decisions in telecoms infrastructure?

18. See evaluation main response and our evaluation of market models in Annex 3

- What is the potential role of government in stimulating demand or otherwise de-risking new infrastructure investment?

19. See Annex 6 on possible ways of stimulating demand and Table 1 in our response to question 2 above (anchor pricing; switch-over to encourage migration; re-balancing access regime to reward investment; geographic deregulation, free and fair competition in a level playing field).