

Agenda

Advancing economics in business

Battle in the trenches? The future of ultrafast broadband roll-out in the UK

The UK government is finalising its review into the future of telecoms infrastructure, which has included a call for evidence on market and policy models to support the necessary investment. Simon Pilsbury, Regulation Director at TalkTalk Group, one of the UK's largest broadband providers, looks at the policy agenda that the government and Ofcom should adopt in order to stimulate ultrafast broadband investment across the UK. This follows an *Agenda* article in April 2018 on the same topic from BT's perspective

TalkTalk has an optimistic view of the forthcoming transition to ultrafast broadband via fibre to the premises (FTTP). We are a challenger brand which aims to be one of the drivers of FTTP investment, and are already building out an FTTP network in York as a trial for our wider ambitions.¹

FTTP investment is vital for the future of the UK. It enables much faster speeds than the prevalent fibre to the cabinet (FTTC) 'fibre';² it effectively means that the network will never require upgrading; and it significantly improves reliability. At the moment, though, Great Britain lags behind almost every other developed country in FTTP roll-out, with only around 2% of premises having an FTTP connection, compared with 63% in Spain, 58% in the Netherlands, and 32% in Germany.³

As this article shows, no major new government or Ofcom policy measures are required to stimulate FTTP investment. Rather, the government should focus on measures which reduce build costs and increase the speed of roll-out. Indeed, government intervention risks increasing barriers to entry, weakening Openreach's incentives to roll out FTTP and entrenching Openreach's dominant position across the country.

The economics of new-entrant FTTP

In order to think about what market failures there might be in the roll-out of FTTP networks, it is helpful to consider the economics of investing in FTTP as a non-incumbent. As with all investments, in order for investment in FTTP to take place

the incremental returns from investment must be equal to or greater than the project's cost of capital.⁴

As such, to enhance investment in FTTP, either costs need to be reduced, or the expected revenue needs to be increased.

The costs of competitive FTTP investment are related to a number of factors, some national and some local:

- base costs of roll-out, including the cost of experienced labour and the business rates regime for FTTP;
- housing density in the area—higher housing density implies less duct per home passed;
- whether the houses have front gardens and the distance to dig across them;
- the local authorities' commitment to future-proofing digital connectivity—a supportive, collaborative council can reduce costs through progressive highways and planning policies;⁵
- availability of access to existing duct, either via a mandatory duct and pole access (DPA) remedy on a dominant incumbent, or via a commercial agreement with other providers.

Revenue from a new FTTP network is substantially driven by how quickly uptake increases. Uptake will be quicker

where there are no other FTTP networks in the local area; where the investing firm has a sizeable customer base that it can migrate to the new network; and where it can quickly win wholesale contracts with other (non-BT) Internet service providers to serve their customers, which can be migrated to the new network. Overall, the significant economies of density mean that a high market share is needed to make the investment viable.

FTTP—more than just speed

An assertion often made is that consumers already have the broadband speed they need for the things they need it for. It is then argued that this will mean that take-up of FTTP will be limited, as for the average consumer it will offer few advantages over FTTC or cable connections. At present, broadly speaking, many consumers do indeed have access to adequate speeds. Few residential consumers currently require more than 80Mbps, a speed which can be reached by Openreach's current GEA-FTTC products,⁶ at least for homes close to the cabinet.

Despite this, there are considerable advantages for consumers in using a new FTTP network rather than FTTC or copper-based services. Most importantly, FTTP networks are significantly more reliable than the Openreach copper network that FTTC relies on. Copper-based networks are highly vulnerable to water ingress, whereas water has little impact on pure fibre. This creates a strong advantage for FTTP over FTTC: faults are one of the most important drivers of customer dissatisfaction and churn. Fewer faults mean fewer customer calls and engineer visits and lower churn, reducing the operating costs of an FTTP operator. These OPEX savings can be passed on to consumers, offsetting any increase in wholesale charges for using the new network.

FTTP networks are also future-proofed, as maximum speeds are essentially unlimited. At present, customer demand for bandwidth is increasing rapidly—Ofcom has reported that consumers' data usage rose 36% during 2016,⁷ and TalkTalk expects strong growth to continue for the foreseeable future. Even the average customer will soon have demand beyond the levels that FTTC lines can service. From such a customer's perspective, FTTP will cope with all their demand in perpetuity, irrespective of how many 4K cat videos they want to watch.⁸

Entry is coming, but will take time

The commercial and financial environment is currently supportive to the construction of FTTP networks in the UK. This has been shown by the substantial number of third-party announcements of investment in FTTP, including the CityFibre/Vodafone roll-out; the TalkTalk/InfraCapital heads of terms; and existing roll-outs from Gigaclear and the latter phases of Virgin Media's Project Lightning.⁹ Indeed, BT—which has announced very limited ambitions to roll out FTTP to around 3m homes by the end of 2020, fewer than 2m of which will be existing homes being offered a new

connection—appears more negative on FTTP than most other major market participants.¹⁰

However, it will take some time for FTTP roll-out to occur. It takes time to scale up network roll-out; there may also be labour shortages as multiple operators attempt to simultaneously construct their networks.

One option that has been suggested by BT to stimulate competitive investment in fibre networks is the deregulation of Openreach legacy products. However, in our view, such a policy would have the opposite effect. Rivals currently have sufficient incentive to invest, as evidenced by recent announcements. Rather, deregulating Openreach's legacy products will undermine the scale that is critical to the viability of investment while at the same time resulting in excessive consumer prices.

The implication for regulation is that any changes will have to proceed very incrementally—regulation cannot be relaxed until new FTTP networks have been constructed. FTTP markets are not contestable—construction lead times are several years from the decision to enter. Relaxing price regulation prior to entry therefore ensures excessive prices to consumers for an extended time period.

The economics of constructing new FTTP networks are finely balanced, and depend upon both the maximum market share that a network will obtain, and the speed at which that maximum share will be reached. It is therefore considerably more profitable, and less risky, to invest in the construction of an FTTP network when an operator has a significant customer base which can be migrated to this new network. The cutover of this base provides near-guaranteed early uptake of the network, bringing revenues earlier in the project and increasing the project's internal rate of return,¹¹ while at the same time reducing cyclicity of revenues early in the project lifecycle.¹²

Deregulation will therefore need to be a process where each locality is separately assessed to determine whether entry will impose an effective competitive constraint on the Openreach network.¹³ Where such a constraint is in place, there should be a process of deregulation, over a timescale sufficient to allow operators to migrate off the Openreach network before they are subject to higher prices and lower quality of service.

Government intervention should focus on lowering build costs

In April's *Agenda*, BT's Chief Economist, Emily Clark, set out BT's view of the policy agenda that government and Ofcom should adopt in order to stimulate ultrafast broadband investment across the UK. Clark's article suggests that 'the current regime could usefully:

- support a comprehensive switchover of all Openreach's wholesale customers to the enhanced network within a certain period to reduce demand risk by accelerating migration;

- allow flexibility for Openreach to offer products and prices on the new network to recover costs and to reflect enhanced services, albeit within the constraints exerted by Virgin Media (and subject to appropriate protections for certain customer groups);
- provide greater clarity upfront on the terms of any “fair bet” (which would determine if—and when—price regulation might be imposed further down the line).¹⁴

The third of these points is unobjectionable, and may provide additional clarity for market participants. Indeed, in its most recent Wholesale Local Access Market Review, Ofcom has already gone some way in that direction, indicating that it does not envisage regulating Openreach products with speeds faster than Openreach’s 40/10 FTTC product.¹⁵

However, the combination of a forced migration to the new FTTP network and unregulated FTTP pricing would, in TalkTalk’s view, raise competition concerns, and be in line with the standard approach of dominant incumbents seeking regulatory measures to protect and enhance their dominance, particularly through vertically leveraging their market power. Communications providers such as Sky, TalkTalk and Vodafone would be forced to leave the regulated FTTC products which underpin competition today, and, in areas with no rival FTTP networks, to use a network for which Openreach would have the incentive and ability to set excessive prices designed to margin squeeze BT Consumer’s downstream rivals.

Virgin Media’s pricing poses little constraint on Openreach; only around a third of customers on the Openreach network could switch to Virgin Media, while the remaining two-thirds would have no choice but to receive fixed-line communications from Openreach.¹⁶ Indeed, if Openreach adopted geographically disaggregated prices, there would be no constraint at all in the half of the country where Virgin Media is not present. Effectively, government intervention along these lines would be a recipe for Openreach to earn supernormal returns, and for BT Consumer to re-establish its dominant position in the retail broadband market.

Having BT designated as the sole national provider of FTTP would be more harmful still, particularly when combined with deregulation and forced migration to the new FTTP network. This would amount to permanently entrenching Openreach’s monopoly, with all the concomitant costs in terms of lost dynamic efficiency and the low quality which is provided by a firm with no competitors. It is hard to think of a policy which would more greatly diminish static and

dynamic efficiency. It would exclude even existing providers, such as Virgin Media and Gigaclear, from being able to expand their networks.

Rather than engage in a scheme such as this, which would harm consumers and result in the market being re-monopolised, the government should ensure that competition is not undermined. As set out above, there is considerable investment in FTTP by third parties; government policy should be to support that investment and ensure it can go further. The government’s focus should therefore be on the unflashy but necessary work of developing a blueprint to optimise local councils’ highways and planning policies to bring down the costs of deployment, and on engaging in targeted reforms in areas such as wayleaves and access to new-build properties.¹⁷ To the extent that there is any direct government funding, it should largely be targeted on deep rural areas where it is clear that FTTP is not commercially viable.

A particularly important policy intervention in this regard is DPA, which Ofcom has been developing in recent years. This will allow other operators to use Openreach’s passive assets (ducts and poles) to install their own lines; it should lower the cost of rolling out FTTP, and increase alternative FTTP investment. In order to maximise investment, it will be crucial for the DPA product to be radically improved to support scale use, following Ofcom’s decision in the 2018 Wholesale Local Access Market Review to enhance DPA remedies.

Conclusions

TalkTalk—and, we expect, the other non-incumbent operators planning to roll out scale FTTP—is positive about the economics of investing in FTTP. We do not see a need for regulatory measures to artificially inflate returns, whether by leaving a network that holds significant market power unregulated, or by forcing migration to the new network.

Rather, the government and Ofcom should focus on detailed measures (quite literally down in the trenches) which would lower the cost of rolling out FTTP networks and make it quicker to do so. The focus should be on improved DPA, wayleaves reform, and creating a blueprint to help councils to streamline their highways and planning processes to support efficient roll-out. These measures may not be sexy or high profile—but they are what will really drive a UK broadband network fit for the 21st century.

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¹ On 8 February 2018 TalkTalk announced that it had signed heads of terms with InfraCapital to form a joint venture company with the aim of rolling out FTTP to around 3m homes. See TalkTalk Telecom Group plc (2018), 'Q3 Trading Update – Continued Strong Net Adds and Full Fibre Plan ("FTTP")', 8 February, <http://bit.ly/2N5HJyU>.

² What is generally termed 'fibre' in current marketing is actually FTTC.

³ Ofcom (2017), 'International Communications Market Report', Figure 8. Figures are comparable as at end 2016. The figure has since increased to around 4% in the UK, and will also have risen in other nations over the same period.

⁴ The project cost of capital (as per the Modigliani–Miller theorem) cannot be affected by funding choices, but is instead related to the underlying cyclical risk of the specific project in question.

⁵ See Analysys Mason's report for Broadband UK on lowering barriers to ultrafast broadband roll-out: Analysys Mason (2017), 'Lowering barriers to telecoms infrastructure deployment', report for the broadband stakeholder group, May, <http://bit.ly/2KfVloc>.

⁶ Generic ethernet access fibre to the cabinet.

⁷ Ofcom (2017), 'Communications Market Report 2017', 3 August, p. 146.

⁸ Oxera (2018), 'How did cats get the cream of the Internet?', *Agenda*, January, <http://bit.ly/2nlo6b5>.

⁹ See respectively CityFibre Infrastructure Holdings plc (2017), 'CityFibre signs strategic FTTH partnership with Vodafone', 9 November, <http://bit.ly/2N3Y7A1>; and TalkTalk Telecom Group plc (2018), 'Q3 Trading Update – Continued Strong Net Adds and Full Fibre Plan ("FTTP")', 8 February, <http://bit.ly/2N9YHwm>.

¹⁰ 1m+ of Openreach's FTTP connections are expected to be new-build properties which are being connected to the Openreach network for the first time, some of which will in any case be part-funded by the property developer.

¹¹ For an exhaustive review of the importance of the internal rate of return in economic analysis, see Oxera (2003), 'Assessing profitability in competition policy analysis', OFT Economic Discussion Paper 6, June, <http://bit.ly/2tByMp0>.

¹² Effectively, reducing the beta within the CAPM framework.

¹³ Deregulation will probably, as in wholesale broadband markets, be on an exchange-by-exchange basis. The extent of competition will not generally be driven by how many new FTTP networks there are—it is unlikely that there will be more than one additional network in any area—but rather by what proportion of an exchange area has access to a network other than that of Openreach or Virgin Media.

¹⁴ Clark, E. (2018), 'How best to create an enduring framework for investment in world-class broadband connectivity in the UK?', *Agenda*, April, <http://bit.ly/2N5Gpfq>.

¹⁵ Where FTTP is available, but FTTC is not, a 40/10 FTTP regulated product exists, but faster FTTP products are unregulated.

¹⁶ At present Virgin Media is available in just under half the country and has around a 50% market share in areas where it is present, with an overall market share of around 25%. That leaves Openreach with a 75% market share, 50% of which is in areas where Virgin Media is not present, and 25% of which is in areas where Virgin Media is present. Hence, one-third of Openreach customers, at most, could switch to Virgin Media. It is also important to note that as Virgin Media does not supply third parties with wholesale broadband, the constraint which it imposes on Openreach is indirect.

¹⁷ A wayleave is the right to build cable across privately owned property. The wayleaves regime is infamously complex and slow.