

**Lansdowne Partners Submission to DCMS' Call for Evidence
regarding Future Telecoms Infrastructure**

Introductory Comment:

We appreciate the opportunity to submit our views in this call to evidence. Whilst we detail our responses to the questions provided below, we wanted to ensure that our most important observation was not lost in the detail of this document.

There is a clear win-win achievable for investors, Government, regulators and consumers in the deployment of future networks in the UK. Unfortunately however, through a combination of processes (Openreach separation, WLA etc.) the recent regulatory tone and cycle has been one that has significantly increased the uncertainty that investors in UK Telecoms face. That this has occurred at precisely the time network operators need to evaluate a set of investments with a multi-decade deployment and return horizon has been particularly damaging.

More than anything we urge Government to provide the clarity and certainty that can underpin a scaled network deployment and reduce risk perception. Ultimately we think this in and of itself will promote a more material improvement from today's starting point than any individual item of detail in the discussion below.

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?*

Prior to the intervention of the most recent regulatory cycle, our view on what the current market structure would deliver was reasonably clear. Infrastructure competition would ultimately govern the development of services on offer to consumers.

Virgin, as a cable operator, has a natural advantage in bringing 1 Gig speeds to market. Upgrading to the standard known as "Docsis 3.1" requires relatively little incremental capital (c.£100 per home), and is capable of such speeds. The global leading cable operator (Comcast) will finish deploying Docsis 3.1 across its footprint this year¹, and in the past we have observed up to a two year lag before similar innovations are implemented in comparable cable networks around the world.

This in turn would pressure Openreach to not fall behind in being able to market higher speeds than currently available. We would expect Openreach to deploy a mix of solutions absent a pre-determined technology preference that would prioritise both not having a speed differential to Virgin that a customer would notice, and pace of deployment (requiring a national marketing message that could compete with Virgin). This would include everything from G.Fast to FTTN/FTTP and even Fixed/Wireless 5G deployment. It would also likely see a more incremental approach to deployment, matching capital expenditure with demand across the breadth of the country at once rather than focusing on local markets. One could envision waves of investment that pulled fibre closer and closer to the customer home over time.

¹ Comcast Q4 2017 Earnings Call, 24th January 2018: *"We continue to differentiate in broadband with the deployment of Docsis 3.1, enabling gigabit speeds... We head into 2018 offering nearly 80% of our footprint gigabit speeds enabled by Docsis 3.1"*

The second competitive force that would likely drive network competition over time is fixed-mobile convergence. In the long run, in our view, Virgin will require a fully owned mobile network in the UK. Our observation of markets such as Germany and Spain where converged bundles are the norm would be that cable assets with a less-than-national footprint are at a disadvantage in marketing converged mobile products in territories where they lack a fixed footprint. 5G would accelerate this issue as mobile networks will increasingly rely on a dense, owned fixed fibre footprint, and Virgin would suffer coverage gaps if it didn't build out further.

As such, over time we would expect a converged cable competitor to Openreach to build out to around 80% of the country. In effect extending "Project Lightning" by a further 3-4m homes. Outside of these areas, we would expect rural areas with strong demand to be well-served (either Openreach will build to them, or smaller FTTP overbuilders will), with remaining households likely best served with fixed-wireless deployments, and require regulatory solutions such as the USO.

We would note that the regulatory discourse over the past two years may have served to delay or encroach upon this vision. In our view it is not coincidental that in prioritising a decline in wholesale prices for FTTC, we have seen Virgin retrench somewhat from their Project Lightning ambitions, and scepticism from providers of capital to the UK Telecom sector apply greater scrutiny over whether deployment of substantial capital in higher speeds is something that will earn a return.

We would note that the narrative above is technology agnostic. To address the question fully, the current framework does not align incentives for a national "full-fibre network". Rather it will deliver highest average speeds to the most of the country as soon as possible. We would argue the current policy framework is not compatible with a policy that moves away from technological neutrality. Once that *political* decision has been made, in our view the only ways to achieve it are full deregulation, or guaranteed returns to capital employed in the telecom network. This is discussed further below.

We would refer to Exhibit A in the Appendix below to demonstrate how technological neutrality delivers higher average speeds sooner than an overt technology choice in the medium term. In depicting a case where Openreach doesn't invest beyond its current disclosed plans, one can see how the competitive gap between Openreach and Virgin becomes very wide, and is ultimately an implausible outcome as a result. Further, in the chart provided by Telecom Italia in the Exhibit, one notes that an approach that deviates from technological neutrality (France), can create issues in terms of speed of deployment.

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)?

- *What effect do existing revenue streams have on investment plans?*
- *What effect do visibility and predictability of returns have on investment plans?*
- *What is the effect of current infrastructure deployment models?*
- *What impact do current infrastructure sharing arrangements have on investment?*
- *What is the impact of the existing relationship between wholesale and retail markets?*
- *What changes to spectrum licensing and sharing could foster greater innovation and investment in 5G?*

We think the Government and OFCOM have made good progress in finding practical barriers to network deployment that can be eliminated or alleviated. Similarly, it is clear that Openreach has made considerable progress in bringing down the cost of FTTP deployment. For all the public

discourse around different approaches to network deployment and regulation, what we have often found is lost is the stark reality that FTTP could be a £15-30bn project in the UK, and the only scale investors in fixed telecom infrastructure in this country are BT and Virgin.

Combined they have an annual budget of >£5bn for investment and as a result, we think significant progress is most likely to be achieved by focusing on fostering an environment that gives them the prospect of a return on new capital deployed.

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?*
- *What have been the impacts of fibre roll-out models in other countries on competition dynamics, consumer bills, and risk allocation?*
- *To what extent can the fibre that has been rolled out internationally be used for mobile backhaul, and what lessons can the UK learn?*

We have seen a wide range of different network deployments across both Europe and the rest of the world. Fundamentally, across all of them, economic reality dictates that network topographies reflect cost per home passed of deployment relative to current retail prices. Exhibit B demonstrates this, by normalising European Telecom Incumbents for their domestic capital expenditure, one observes very similar spend per capita, but widely different technology choices.

It is wrong therefore to assume that differing network deployments are a function of contrasting views on investment appetite, or a lack of belief in a specific technology. Spain for instance has seen substantial deployment of “full fibre”, but in reality, this has come at a lower cost than Fibre to the Cabinet in markets such as Germany. Recent discussions we have had with Spanish Telecom Executives pointed to costs of as low as €150 per home passed to deploy FTTH.

There is very mixed evidence of consumers paying a premium for higher speeds across Europe. In some markets (Spain for instance), Fibre commands a reasonable premium above Copper access. However, in France where costs to build Fibre are higher than in Spain, there is effectively no retail premium achieved.

The UK starts from a difficult position of a relatively high cost to build, relatively low retail pricing, and low incumbent market share – limiting likely take-up penetration assumptions absent a pre-agreed migration strategy, see Exhibit C for data reflecting this.

Broadly, where Fibre has been deployed, the economics of doing so have either been compelling (Spain, aided by deregulation), or the alternative incremental approach has not been possible (France, where average distances between households and cabinets are approximately 1Km rendering advancements in copper technology difficult to achieve.)

With regard to mobile backhaul, it is clearly the case that as mobile and fixed networks converge, delivering improved performance on mobile will require a more density in the fibre network. There is synergy here from stimulating fibre build. To date the economic case for building fibre to large cell towers is justifiable on its own merits, and the more well-invested mobile operators have largely deployed this. The incremental synergy will relate to densification efforts of urban and suburban areas.

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

In our view, at the point at which a policy decision has been made to favour one technology over another, there are only two viable regulatory models that can achieve this: a) full deregulation, or b) underpinning certain returns via a Regulated Asset Base (RAB).

In effect, the political decision to prioritise Full Fibre is in our view an approach that seeks to de-risk the nation from network provision falling short of demand at some unknown future date. It amounts to pulling forward the provision of supply well-ahead of likely utilisation in order to do so. Given the strategic importance of digital communications infrastructure we sympathise with this approach and think it prudent. However, absent the two regulatory models mentioned above, this merely removes a supply risk to the nation at the expense of transferring demand risk to the Telecom operator.

Model A) Full Deregulation where there is Infrastructure Competition

This approach amounts to igniting “animal spirits” from capital providers who seek out the potential excess returns from owning assets with pricing power. Demand risk stays in place, but the potential for a return is deemed great enough to build. This tends to create an environment where competing networks race to deploy assets and is the surest way of ending up with infrastructure competition. In Spain a version of this approach has led to three competing networks in much of the country. At its logical conclusion this tends to end in overcapacity, and duplicate networks, however we would note that it was exactly this process that led to what is Virgin today being built – something that never would have occurred without hubristic assumptions of forward returns.

The benefits of this approach include a real efficiency motive, where technical solutions and innovation are incentivised through competition. Without being prescriptive about which technology deregulation would apply to, it won’t necessarily result in FTTP deployment everywhere. Finally, here one could see more innovative commercial pricing strategies to drive penetration of Ultrafast services. It would be logical for instance for an incumbent to increase the price of copper access and decrease the price of FTTP to avoid the situation we observed with FTTC deployment where even today take-up outside of BT Retail stands at only 30%.

Model B) RAB Approach

This approach seeks to remove the risk transfer of demand to the incumbent by underpinning a low but certain rate of return on incremental investment on top of what they earns today. In this case one can be entirely prescriptive with the desired technology outcome, with the only restraint being that retail prices need to be low enough for mass take-up of new services such that the guaranteed return can be amortised over a wide rather than narrow base of consumers. This socialises the cost of new networks over all users of Openreach, and per our analysis can deliver FTTP to the UK via moderate revenue growth at Openreach².

² Openreach is currently forecasted to decline in revenue terms at c1-2% p.a. At an incremental return on FTTP consistent with current allowed regulated returns in Openreach, we estimate that FTTP can be deployed to 1-2m homes a year with Openreach revenue growth of 2-4%. We would note that this level of inflation is broadly consistent with other Utilities and the Transport sector over time, and in this cases finances a fundamental overhaul of the network rather than maintains the status quo (as is the case in those industries). This is a unique feature of the Telecom industry given the benefits of technological advancement.

The RAB model in underpinning low returns likely reduces incentives for competitive overbuild, it will also likely remove the incentive to innovate as quickly technologically. However assuming high take-up of new services it likely delivers the least retail price volatility, and avoids a situation where there is lots of competition in areas with low cost to build and high demand but little network deployment outside of those.

We think the choice of Model A or B is a political one to make, but feel strongly that anything between these two models on the regulatory spectrum results in the unfortunate situation we find ourselves in today – an unduly high cost of capital for network investment in the UK due to a regulated maximum return, and no risk mitigation from potential losses.

With regard to migration, we think that FTTP presents an opportunity to address a failure of the FTTC investment cycle, namely a lack of interest in promoting faster services from Openreach LLU operators. Per Exhibit D below one observes penetration levels outside of BT Retail that are surprisingly low, reflecting more of a “customer pull” than “provider push” approach taken by non BT Openreach CPs.

As a consequence, there remains an opportunity to drive volume on next generation networks in the UK, and returns on marginal capital need not be reliant on price. If one is able to achieve full penetration of FTTP deployment, one wouldn't need to assume retail prices need be much higher than is the case for FTTC today in order to deliver consistent returns. As a result, there is significant benefit (in lower retail prices) to be had from the combination of RAB regulation, and high levels of copper migration to Ultrafast services.

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

- *Are consumers (residential and business) willing and able to pay for new digital infrastructure, given its expected benefits?*
- *What could incentivise investors and shareholders to make long-term investment decisions in telecoms infrastructure?*
- *What is the potential role of government in stimulating demand or otherwise de-risking new infrastructure investment?*

Our frustration as it relates to network investment has been that in our view there is substantial alignment of interest between providers of capital, Government, regulators and consumers in delivering next generation network investment for the UK. This has been muddied by a regulatory narrative that has injected an unnecessary level of uncertainty and risk premium into the discussion and ultimately delayed the pace of deployment. The great shame here is that prior to the current review cycle, the BT / OFCOM relationship and speed at which it delivered superfast broadband to the UK was hailed as industry leading in a way that benefitted all of the constituents above. It now feels as though there is a credibility deficit that needs to be rebuilt for capital to return to the UK market.

Investing in Fibre is a long term proposition, and the investment case based on current demand and retail prices is stretched. This is truer of the UK than other geographies due to a relatively high cost to deploy, and a relatively cheap and good alternative for consumers. As a consequence it is imperative that a regulatory framework with extended duration is agreed up front, and that there is limited scope to change the “rules of the game” in the same fashion we have observed with the FTTC investment cycle. This is in contrast to OFCOM's current brief and requires new thinking around

regulatory models and time horizons and from our perspective such a change can only come from Government.

Today, the UK has a moderate retail premium for faster speeds. As of January 2018 for instance Virgin offers incremental increases in speed from a base tier of 50Mbps for £5 up to 300Mbps³, with 300Mbps likely the limit of most in-house Wi-Fi systems today and therefore the upper end of what is achievable to devices in a wireless environment. Both BT and Virgin today have a £15 retail premium of their fastest package over their slowest offer⁴. We would observe a similar maximum pricing umbrella across most of the geographies we look at, but with varying “base” price anchors.

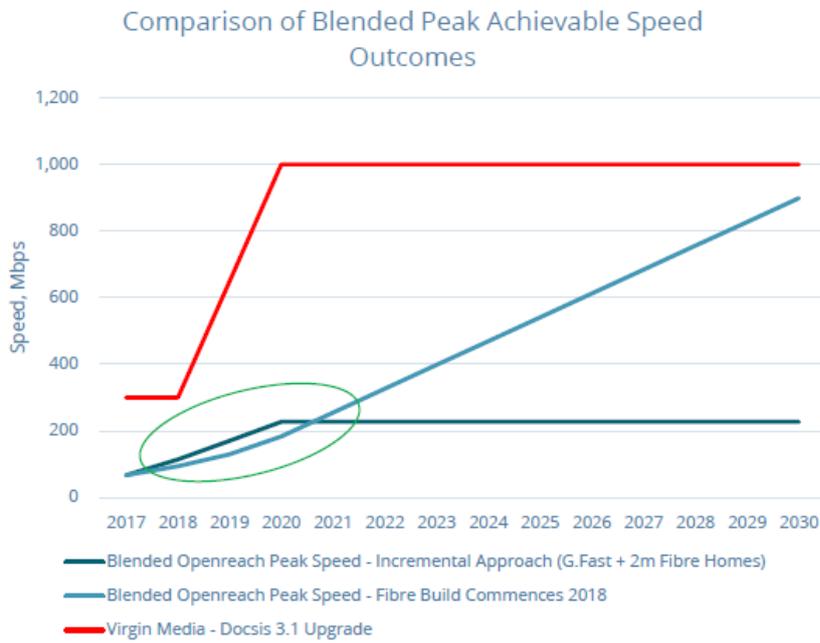
The UK today has one of the lowest base prices of broadband, and our current regulatory path is pursuing further deflation for mid-tier products (i.e. the lower end of what FTTC is capable of) over time. In our view this does shift the ultimate nominal monthly revenues that Ultrafast can achieve lower, as we don’t think it is likely that over the medium term one would see significant demand for FTTP at a price premium above what is currently in place for “faster” services.

³ As of 30th Jan 2018, per month costs for broadband over 24 months including setup fees for Virgin Media are as follows: £31 for 50Mbps, £36 for 100Mbps, £41 for 200Mbps and £46 for 300Mbps. Per Virgin website.

⁴ As of 30th Jan 2018, per BT and Virgin websites. Compares BT’s 76Mbps offer to their 17Mbps offer and Virgin’s 300Mbps offer to their 50Mbps offer.

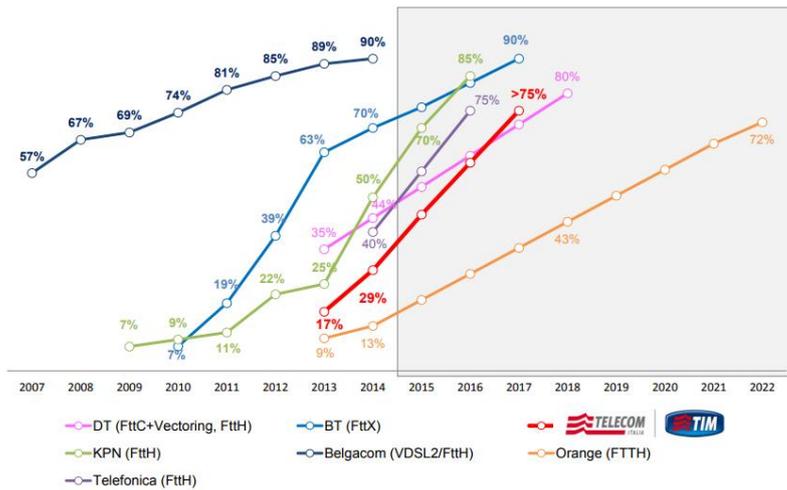
Appendix

Exhibit A – Achievable Network Speeds with Different Technologies and Infrastructure Plans



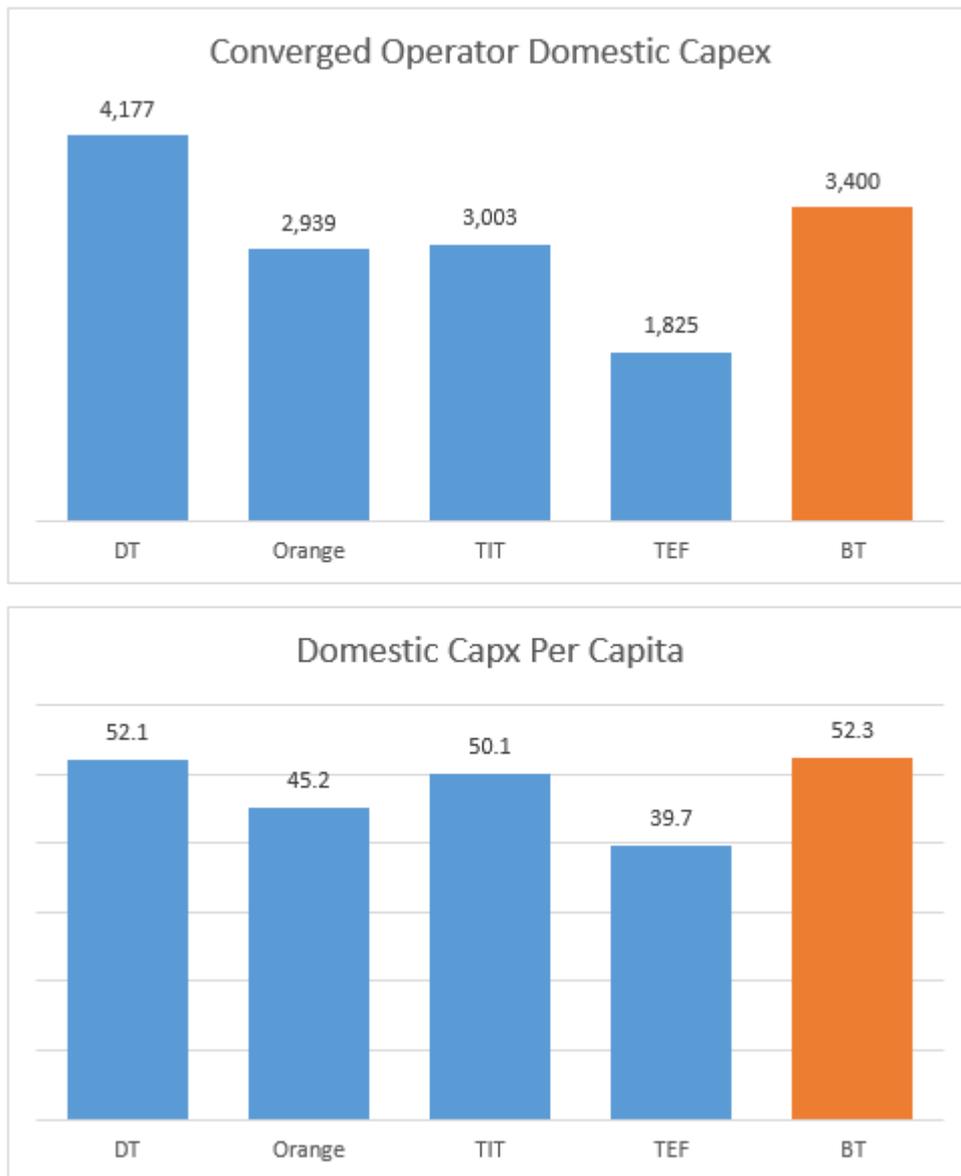
Source: Lansdowne Analysis

NGN coverages across Europe: TI is driving Italy to pick-up



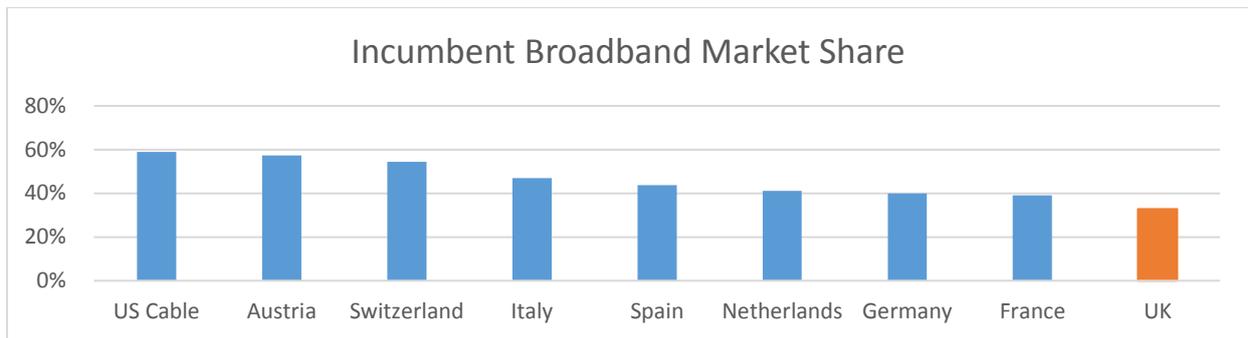
Source Telecom Italia

Exhibit B – Comparison of 2016 Absolute and Per Capita Capital Expenditures Across Europe

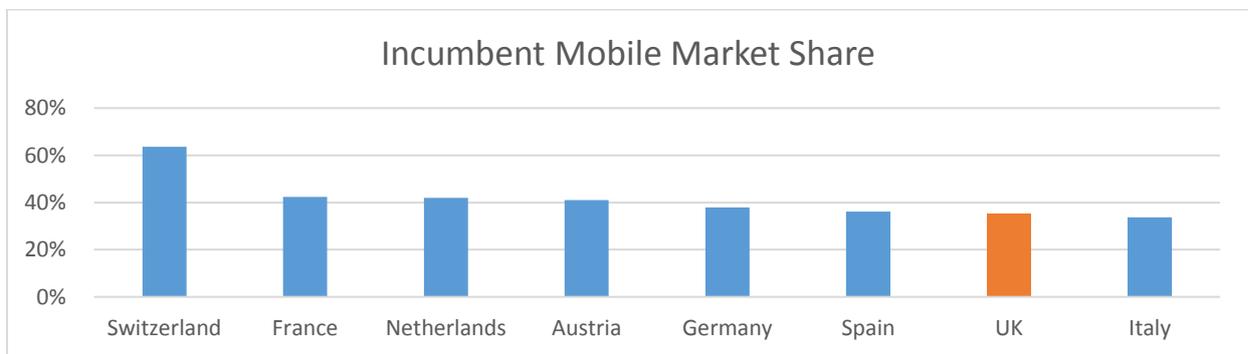


Source: Company filings and Lansdowne Analysis, figures adjusted for inclusion of Global Services equivalent into domestic reporting unit

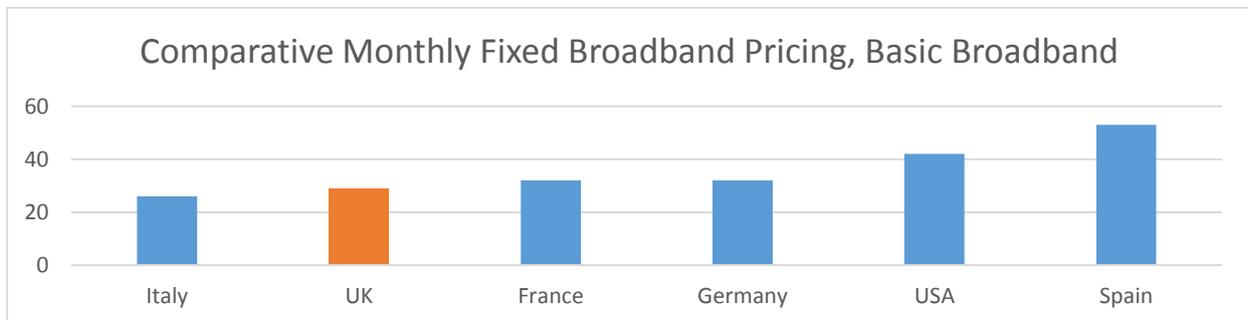
Exhibit C – Incumbent Market Shares and Retail Pricing



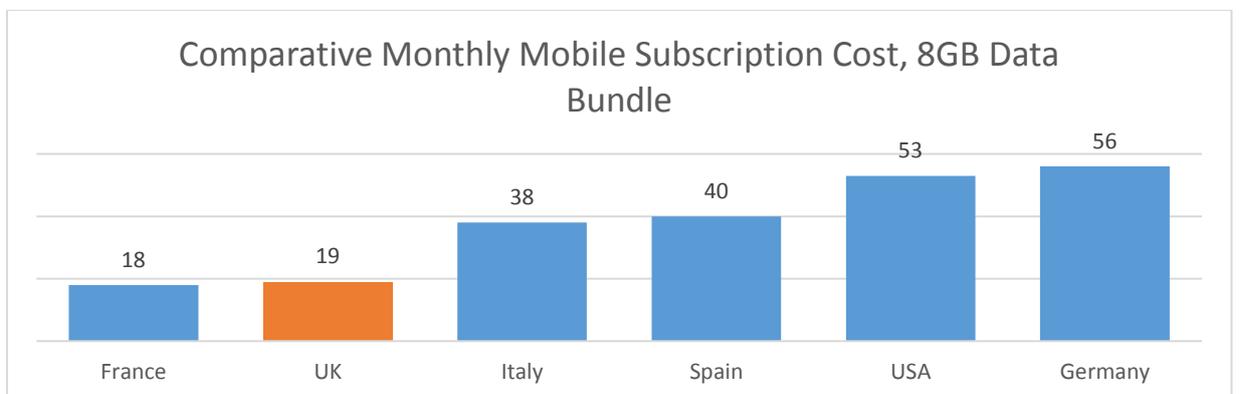
Source: New Street Research



Source: New Street Research



Source: OFCOM



Source: OFCOM

Exhibit D – Customer Penetration of FTTC on Openreach’s Networks

