



Telefonica UK Ltd response to the Future Telecoms Infrastructure Review: Call for Evidence – 19 December 2017

Telefonica UK Ltd (“Telefonica”) is grateful for the opportunity to respond to the Government’s call for evidence on the Future Telecoms Infrastructure Review¹.

Although investment in fibre infrastructure is often seen through the lens of improved fixed broadband services brought about by FTTP, there is more to it than that. Improving backhaul capability (connecting base stations to mobile networks) through investment in fibre is a pre-requisite for the continued improvement in mobile capability and capacity that is necessary to meet the UK’s growing demands.

Mobile communication is part of the UK’s critical infrastructure and is integral to people’s lives. At the end of December 2016, there were 92 million mobile customers (including 52.4 million 4G mobile subscriptions). 94% of the adult population has a mobile phone.

The mobile sector had made great progress in improving coverage. 90% of UK premises have indoor telephone call coverage from all four mobile networks, while 85% have indoor coverage for mobile data services. These figures are up from 85% and 80% respectively last year.

The increase in coverage, capability and capacity of mobile networks has led to an explosion in demand for mobile data. 4G is driving greater volumes of data usage. A total of 156 petabytes was sent over all mobile networks in June 2017, a 47% increase over the previous year. The average volume of data consumed per subscriber now stands at 1.9 gigabytes per month up from 1.3 gigabytes in 2016.

Improved 4G services, and the rollout of 5G has the potential to increase this demand further. It is expected that 5G will form the critical backbone of many of the UK’s key services such as e-health, the internet of things and connected vehicles. Mobile networks are the modern-day highways and are critical to the nation’s economic wellbeing.

Mobile data use has tripled in the last three years and is forecast to increase by a further 700% by 2021. Average mobile subscriber use is predicted to grow to 18 gigabytes per month by 2021 (up from 2.5 gigabytes now).

Mobile operators have played a central role in driving this progress by continually investing in their networks, value added services, and subscriber acquisition. In the current cycle, mobile operators are investing around £2 billion per annum in new coverage, capacity and capability. In turn, business and consumer customers have shown extraordinary ingenuity in harnessing the power of mobile, to be more creative and productive, to offer new services, and to improve lives.

In Telefonica’s view, this is the context in which the Government should conduct its Future Telecoms Infrastructure Review.

Our responses to relevant questions are set out below.

¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/669136/20171218_-_FTIR_call_for_evidence.pdf



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?*

5G is not a technological revolution, but an evolution of fixed and mobile networks. To this end, operators are already making investments to make their networks 5G ready, but as part of the constant investment cycle. In order to increase the incentives to invest in 5G, the Government should:

- Release further spectrum on an exclusively licensed basis, particularly in the pioneer bands 700MHz, 3.4-3.8MHz and 26MHz. The UK is also well placed to develop fixed wireless access systems arising from the US deployment of 5G at 28GHz.
 - Remove any remaining regulatory uncertainty regarding revenue opportunities in the 5G business. Consumer prices and behaviour are poor economic tools to adequately influence the efficient use of network assets by service providers. Net neutrality ("NN") regulation should not restrict the application of innovative (including two-sided) business model; allowing investments in new infrastructure to be partially funded by the services that are fuelling the growth in data traffic. It is neither efficient nor in the public interest for consumers to shoulder all the burden of funding future networks.
 - In addition, any contradiction between NN regulation and Ofcom's duties, in particular with regard to efficient use of spectrum, should ensure that when spectrum is deployed, it can be assigned flexibly to different network slices, including internet access services, based on developing (and uncertain) demand. An overly prescriptive interpretation of NN regulation risks removing the operational and efficiency benefits of many services sharing the same platform, rendering 5G investment a pointless exercise.
- *What will this mean for roll-out of these technologies and for competitive models in different geographic locations?*

Telefonica believes that the model adopted in the 2013 auction, in which a coverage obligation was included in a single 2 x 10 MHz 800 MHz lot, has worked well in practice. It has resulted in an aggressive and comprehensive 4G network rollout by Telefonica (the licence holder), which, in turn, has provided a competitive incentive on other mobile operators to achieve similar levels of coverage.

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)?

In our experience, there are conflicting interests between different tiers of Government, and these are creating barriers:

- Central Government's public position has been set out clearly in its Digital Strategy and 5G Strategy policy papers;
- Local Government, however, appears to be more concerned with short term revenue challenges. Access to infrastructure is typically auctioned as a revenue opportunity for local authorities, creating monopolies for infrastructure players who win concessions. This results in artificial price hurdles for access to street furniture, potentially making a large number of assets uneconomic for use in 5G



deployment. In many cases, additional street furniture is not favoured; however, this also limits the ability for sharing arrangements, preventing opportunities to drive down deployment costs for operators.

Further, the domestic rates system appears to distort investment and cost incentives of potential fibre providers

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

Telefonica and Vodafone operate a mobile network sharing arrangement which has resulted in quicker network rollout, a more extensive network, at a lower cost, than would otherwise have been the case. Consumers have benefitted from this arrangement through better coverage and lower prices (reduced costs being passed through to consumer in the form of lower prices, as a result of the extensive competition in the mobile retail sector).

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

There remains a lot of under-used licence exempt spectrum and we see this as having a continued role going forwards. However, we see little need for further spectrum to become licence exempt, in part because of the artificial scarcity that would create for licenced or shared spectrum.

Telefonica recognises that decisions about exclusive spectrum licensing are becoming increasingly difficult for NRAs, as demand for spectrum increases. However, we see a continued role for exclusive licensing, in order to manage interference. There has been some discussion about reserving 5G spectrum for verticals, i.e. users other than the MNOs. We are concerned that such approaches create regulatory arbitrage opportunities and will lead to inefficient assignment. At this early stage the important objective must be to develop the technology ecosystem. If spectrum is not available to MNOs on an exclusive basis, then the ecosystem will not be developed – there will be no volume. It is only once the ecosystem develops that alternative licensing schemes for verticals might become tenable; using the equipment developed for the MNO deployment.

Spectrum sharing potentially presents an opportunity to change the use of spectrum over time, but this should be evaluated on a band by band basis. Importantly, we see a clear distinction between:

- (1) Bands where there are a small number of users, where commercial arrangements can be used to incentivise movement of users – as we have seen in the US.
- (2) Where there are a large amount of users and a large aggregation / organisational problem. there may be a role for regulators to facilitate re-organisation of spectrum bands through its spectrum management powers. However, we see this as a solution to be used sparingly and retain a strong preference for the commercial approach.

Separately, it is possible that, in time, reassigning spectrum in the 3.4 – 3.8 GHz bands to create more extensive contiguity, might generate consumer benefits. Ofcom should be mindful of this as it considers forthcoming awards.



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?*

Spain has in a relatively short period moved from being a laggard when it comes to super-fast broadband networks, to become the reference case for infrastructure based competition in Europe. It is the only country in the region in which the three main fixed network operators cover at least 50% of the households with their own infrastructure. Telefonica Spain and its competitors deployed fibre-optic cables covering more than 31 million premises, far more than France, Germany, the UK and Italy combined.

Whilst there are aspects of the UK and Spanish markets that differ significantly there are important learnings that can be drawn from the Spanish experience:

- (1) Unlike the UK, in Spain there was no street cabinet infrastructure, all lines were directly connected to the exchange. So Telefonica Spain was not faced with the economic choice of whether to deploy FTTC or FTTH. It would have cost more to install a cabinet infrastructure and deploy FTTC than go straight to FTTH.
- (2) When Telefonica Spain, as the incumbent, began its FTTH deployment, it industrialised a duct access remedy, clearing, replacing and accurately mapping the street infrastructure – both for its own benefit and for other users of the duct infrastructure under a Duct Access remedy imposed by CNMC, the Spanish regulator.

This second aspect is perhaps the most relevant to the UK market, particularly given the scheme established by Ofcom following its strategic review in 2016, under which Openreach must treat all of its customers, including downstream BT businesses, on an equivalent basis.

If Openreach deploys BT's FTTH service, Openreach needs to do so on an equivalence basis. That is, the duct network needs to be cleared, repaired and accurately mapped so that other competing providers can use the same ducts on an equivalent basis. Similarly, if third parties request duct access from Openreach, then a truly equivalent service should be provided.

The acid test for the equivalence of inputs under Openreach's new separation is that BT must be required to use the same Duct & Pole Access remedy as its competitors. If that remedy does not work for BT's competitors, yet in some way Openreach can service BT alone with FTTH then there is something very wrong with the current legal separation imposed on BT/Openreach.

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

In Spain, access to Telefonica Esp's ducts and poles have coincided with an increase in investment by Telefonica Esp and other operators in fibre and a reduction in the market share of Telefonica Esp. The Spanish fixed broadband market benefits from a high degree of competition between infrastructure providers



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

To maximise the potential benefits of 5G, MNOs will need to deploy higher bandwidths to more sites, at cost. In principle, fibre rollout that could enable the required deployment costs to be shared amongst multiple uses (including FTTH and mobile backhaul) must be beneficial. The key issue is that it is the deployment of *fibre* rather than any *specific technology*, such as GPON (proposed by Openreach in its consultation in the summer of 2017), which is relevant; GPON might limit flexibility and would seem to favour certain downstream providers, such as BT.

Openreach's fibre deployment has followed the traditional distribution approach used by copper and hence today's fibre services are very much point to point services routed over tree and branch structures radiating from BT's exchanges. Architectures that are likely to be needed by MNOs in the future to join small cells to macro cells (for centralised RAN purposes, for example) can only be achieved in such a fibre network by using multiple point to point connections back through to a BT exchange. Alternative fibre network providers tend to promote ring architectures featuring cables with high fibre counts. Such architectures allow "any to any" fibre connectivity and can offer resilience and low cost breakouts to small cell locations (i.e. lamp-posts) along the cable routes. Fibre capacity for such deployments should be based on the assumption of dedicated fibre per macro or small cell location.

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

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

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

Telefonica believes that the correct policy prescription is to seek to promote upstream competition, by allowing access to Openreach's ducts and poles, at cost. Within that context, the Government's role is to ensure that providers are not inhibited from adopting different business models and market structures, subject only to competition law.

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

As regards geographical requirements for mobile, we see the rollout of additional fibre as a priority in dense areas of London and other major cities where high speed digital connectivity on the move is a requirement and spectrum, heavily utilised. In these areas, deploying dense small cells and advanced radio techniques and capabilities to maximise use of scarce radio spectrum, drives the need for radically different transport approaches. In contrast, GPON deployment, supporting perhaps largely residential demand across urban and also suburban areas, would likely have a differing, and more extensive geographical demand footprint.



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

Telefonica agrees with the approach set out by Ofcom in its strategic review of communication in 2016. Specifically, competition between three or more fibre network infrastructure players is best designed to maximise consumer welfare; and access to BT's duct and poles at cost is best designed to maximise the prospect of such competition.

Telefonica appreciates that Ofcom has not yet implemented all of the proposals set out in its strategic review. However, we see little evidence of the change in behaviour and outcomes that the review had anticipated

As regards mobile, we favour a "host-neutral" solution for small cell deployment. Access to Openreach ducts would reduce cost and speed to deploy fibre and provide other benefits (less disruption caused by roads which would otherwise need to be dug up).

However, this is one of a number of important changes that need to be implemented. As noted above, central Government's policy objectives, set out in the Digital and 5G strategies, must be implemented at a local level. Our experience is that local authorities are often motivated by short-term revenue objectives, and these can create artificial infrastructure monopolists which result in street assets being uneconomic to use.

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?*

Business cases for services typically associated with 5G technology have yet to be determined and we welcome the 5G test-beds which could help demonstrate such business cases.

Regardless, it should be noted that over the last five years, demand for mobile data has grown at a cumulative annual rate of more than 50%. The broad consensus is that mobile data consumption will increase sharply over the next decade – potentially by a factor of 10 to 100. Mobile operators' transmission (backhaul) needs will need to accommodate this growth in traffic. Competitively priced fibre based backhaul will be vital.

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

Telefonica is firmly of the view that a stable, predictable regulatory regime is of primary importance to long term decision making. Post Brexit, the UK must continue to benefit from such a regime, including the maintenance of a well-funded and independent regulator. Any temptation by the Government to compromise Ofcom's operational independence through amendments to primary legislation, or otherwise to meddle in matters properly the domain of the regulator, should be resisted and will be closely watched by inward investors, which abhor regulation by administrative fiat.



Brexit also offers the opportunity to review regulatory policy. In particular, it might be appropriate to review the markets Ofcom is required to assess, if the current system results in Ofcom not being able to pursue policy objectives such as access to Openreach's dark fibre and ducts and poles.

To the extent that Government is concerned that its objectives for digital infrastructure might not be met under the current regulatory regime, then one approach could be to amend the statutory duties of Ofcom, to prioritise investment objectives. At the moment, Ofcom's relevant principal statutory duty is to further the interests of consumers in relevant markets, where appropriate by promoting competition. Inevitably, this requires Ofcom to balance competing objectives; incentives to invest being one of many other statutory duties. A change to the statutory scheme to promote infrastructure investment as a primary objective, is likely to result in regulatory decision making that favours investment (whilst also preserving Ofcom's independence).

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

In addition to maintaining a stable and predictable regulatory regime, Government has a major role to play in the sense that it is able to introduce incentives to invest, for example, in the form of tax reliefs; and create a straightforward planning and licencing regime.

Telefonica acknowledges and welcomes the fact that the Government has earmarked an additional £1.1bn to stimulate further fibre roll-out and future 5G communications across the country, within the next five years. A new 100% business rates relief, although only applicable to new full-fibre infrastructure, was a welcome addition to this set of measures.

Recent legislative reforms, designed to reduce the costs of deploying and upgrading telecoms networks, including changes to the Electronic Communications Code and the implementation of the EU Broadband Cost Reduction Directive, have been also been positive changes.

However, other barriers to telecoms infrastructure deployment remain. Access to infrastructure is still covered by a wayleave regime which is cumbersome. In addition, specific practical issues surrounding the planning process of deployment across the country have led to delays in households and businesses being connected. The Government needs to address all of these issues and introduce reform where necessary.