



FUTURE TELECOMS INFRASTRUCTURE REVIEW

Response from Vodafone

Introduction

As a leading provider of digital services in the UK, Vodafone warmly welcomes this review. As we will discuss below, much has been achieved in terms of building digital infrastructure that has subsequently become crucial to individuals, communities and businesses across the UK over the last decades, including through Vodafone's multi-billion-pound investment. However, if we are to build for the future and keep the UK competitive on the global stage, we need a fundamental rebalancing of the regulatory framework within which we do this. The current regulatory and policy framework risks holding back the investment and innovation that the market is capable of delivering and that the UK needs.

Gigabit capable networks, driven by full fibre and 5G will be crucial in underpinning the UK's ability to grow our economy and compete on the global stage. Leadership in areas such as the Internet of Things, Artificial Intelligence and other parts of the Fourth Industrial Revolution will hinge on our ability to build the networks over which these services are run.

Ultimately, we need a regulatory and policy environment which incentivises investment in infrastructure as well as protecting consumers. It must recognise the particularly high costs of deploying digital infrastructure in the UK as well as the incremental pressure on the ability of many operators to derive profitable income and therefore reinvest in benefits for our customers.

Digital networks have been a critical part of our national infrastructure for over a decade. Access to the internet at home, on the move and at work has become an essential part of our everyday lives. However, the policy and regulatory framework the industry has to work within when trying to invest, build, maintain or repair digital infrastructure, has changed little during the same time period, meaning that policy intended for building mobile voice networks and copper-based broadband still prevail.

The Government has recognised the importance of reform to this framework and has introduced changes, such as planning law reform, which have helped to some degree. However, we need much faster and more radical change.

We are ambitious and optimistic for the UK's digital future. We believe there is huge potential, across the country to bolster the digital economy and infrastructure across the UK, as we outlined in our recent Digital Super Towns report (Annex 2).

This review is a key opportunity to implement policy that underpins a clear ambition to accelerate private sector investment in telecoms infrastructure by ensuring the same policy support is available to the builders of digital networks as Government provides to the builders of more traditional critical infrastructure such as water or energy.

Ultimately, the Government's core focus should be on delivering gigabit capable networks driven by full fibre and 5G. All policy development (including well-intentioned but often adversely impactful consumer regulation) across Government should be checked against this objective.

The market today



Whilst there have been significant improvements in the UK's digital infrastructure, there is a notable disparity between what has been achieved by largely market-driven competition and investment in mobile, where we are currently committed to delivering 4G to 98% of the population and full fibre (or FTTP i.e. fibre directly to homes and businesses) which languishes at around 3%. This is in comparison with other markets where Vodafone is an active fibre investor, such as Spain (over 60% fibre penetration) and Portugal (over 80% fibre penetration).

On mobile, especially given the economic challenges of going further, for example to improve geographic coverage in more remote rural areas where the return on capital is much lower and operating expenditure is much higher, we need policy reform to ensure investment from the private sector goes as far as possible.

On fixed broadband, we need a step change to take us beyond the current model and deliver widespread, full fibre across the country, using competition where possible. By focusing on copper and fibre-to-the-cabinet the UK has hitherto taken the easier option and allowed BT to invest in an existing copper network, using public money, that may be adequate for some of today's uses but will not be good enough for the future. This is the case for domestic consumers but is also crucial for businesses, large and small, across the UK for whom access to high quality digital connectivity is increasingly crucial.

As part of this we need the regulator to take a more proactive approach to ensuring BT's market dominance doesn't undermine investment more broadly, especially given the public acknowledgement that BT is significantly over-recovering. The case Ofcom brought on Deemed Consent, where BT were inappropriately using their ability to "stop the clock" when it was delivering Ethernet services to businesses late, was a very rare example and was driven by Vodafone voicing our concerns rather than proactive regulation looking at the market.

Put simply, the UK has not previously been ambitious enough. The Government's current focus on this area is very welcome as digital infrastructure needs the same policy direction, focus and recognition as more traditional infrastructure, such as roads, rail, water or energy. When major projects in these areas (e.g. HS2) are being considered, a great deal of focus is given to ensuring the policy and regulatory environment helps to deliver them. We need the same for digital.

Key questions:

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

As indicated above, there have been significant improvements in mobile coverage but much of this has been achieved in spite of the very difficult regulatory environment. For example, policy reforms designed to help the rollout of 4G were happening in parallel with the actual rollout of the infrastructure meaning much of the benefit came too late for the majority of the rollout. There are also challenges in going further, especially on geographic coverage in rural areas. Vodafone's 4G rollout has already passed the point where it is economically rational to continue to build. However, we understand the desire of our customers to be connected wherever they are. We need a genuine partnership with national, regional and local government to help deliver further improvements. Intense competition on a single price point creates short term value for customers but risks reducing the potential for investment in the market.



Whilst policy reform to date has been welcome, it has to a degree been piecemeal. We need bigger, bolder, more joined-up reform at national level and more collaborative, strategic working at local level if we are to make the improvements we all want to see.

It is especially important to get this right before 5G is rolled out. For this reason, we are pleased to see that the Government intends to test the deployment of infrastructure as well as the abilities of the technology. This is crucial if we are to learn the lessons of 4G rollout when policy reform only came towards the end of the main investment programmes. On 5G, the focus should be on the customer experience outcome with 5G helping to boost existing 4G and 4.5G coverage in key places to deliver a higher speed, lower latency, data rich mobile experience.

5G standards create opportunities for innovation, new applications for businesses and consumers and increased mobile bandwidth. However, this will require the deployment of new technology and more infrastructure, without the guarantee of increased revenues. In its report on pricing last year, Ofcom found that while data usage increased six-fold from 2012, prices decline by 31% over the same period.¹

On full fibre broadband, the current model has arguably failed. As said above, we only have 3% full fibre in the UK. Given the significant benefits of full fibre when compared to copper based networks (faster, more reliable, more resilient, more future proof), we need a different approach if we are to kick start the investment revolution we need.

In particular, the structure of and regulatory approach to BT Openreach has meant far too much profit being made, with far too little re-invested and not enough transparency over how our biggest competitor is spending the money we and the taxpayer have given it over many years. BT has made around £10bn excess profit over the last decade which we believe should be spent on full fibre before resources are demanded from the taxpayer or industry.²

Legal separation of Openreach from BT is a small step in the right direction but we need to see it delivered, with success being judged on how Openreach treats its non-BT customers.

We have serious concerns that this will not happen and that we will need to go further. For example, Openreach has challenged Ofcom's decision to impose a dark fibre remedy and there is no clear motivation for BT to give Openreach real freedoms. It appears that Openreach will only invest in fibre when facing a competitive threat or with a national subsidy.

In any event, we will not be able to rely on BT to provide the kind of national full fibre rollout that delivers on the UK's ambition to be a leading digital nation and it would be unwise to expect to do so. In order to attract the investment required, a clear plan is required which reflects the policy goal of a Gigabit Britain. In Annex 1 we set out one such plan, based on our view that the UK is not one homogenous investment case. By considering the UK as three zones which reflect that economic and commercial considerations differ by geographic area (urban and rural) and this should be reflected in the supporting policy and regulatory framework. The most direct way of addressing the de facto control BT has on the system is to develop an explicit plan and set of regulations for fibre deployment that removes BT's control and provides it and other operators with the right incentives for fibre investment.

¹ Pricing trends for communications services in the UK, Ofcom, March 2017

² https://www.ofcom.org.uk/data/assets/pdf_file/0018/107118/Vodafone-Frontier-report.pdf



In some areas BT will likely continue to be the dominant provider and in other areas there may be a need for a subsidy of some kind.

However, there will also be areas in which there can be genuine competition for fibre provision and we need a model that helps to generate this, moving us away from our reliance on one company for most parts of the UK.

What barriers exist to long term investment in the UK telecoms market?

The UK is one of the most challenging of the 26 markets in which Vodafone operates. A major part of this challenge is that most of the profit within the industry is concentrated over a very small number of players. For example, BT generates around 60% of all industry profits, with Sky the next most profitable and the other companies such as Vodafone fighting for a share of the rest. BT's de facto monopoly means that Vodafone and others have to pay BT hundreds of millions of pounds to use the national network as well as competing with them. At the same time other market participants such as handset manufacturers and "over the top" providers of services such as messaging and social media platforms leverage our infrastructure to make their own profits. This imbalance in profits accrual is not sustainable over the longer term and will have damaging consequences for both competition and infrastructure investment if left unaddressed.

Another part of the problem is that digital has only recently been seen as critical national infrastructure and policy reform has not kept pace with customer demand. Expectations that the market will deliver what customers want based on the current model are unrealistic. We also need to recognise the significant resources required to make digital infrastructure, both fixed and mobile, as resilient as possible to the increasing number of cyber-attacks we face.

We can only move towards providing pan-UK geographic coverage by bringing the public and private sector together to address the significant barriers that still exist, including:

Mobile:

Removal of the need for full planning permission:

- Our masts are 10m shorter on average than several of our European competitors. Taller masts result in better coverage. A 25m mast could provide, depending on terrain, up to 150% more coverage than a 15m mast. In some cases, we may need to build higher than 25m to achieve coverage.
- We believe we should move towards all mobile infrastructure in the UK being classed as Permitted Development, with Prior Approval in certain more sensitive areas.

Spectrum:

- Hitherto Government has, at least in part, seen spectrum as a revenue-generating mechanism, meaning the money paid by industry for spectrum is not then available for further investments in infrastructure.
- A more considered balance needs to be struck between revenue raised for the Exchequer by the cost of spectrum at auction or via the annual fee.

Reform of property costs:

- We need quicker, cheaper access to land. The reform of the Electronic Communications Code (ECC) is a small step in the right direction but more needs to be done.



- We need a level playing field on costs and access with other utilities such as water and energy companies. Across the industry around 50% of masts don't make a profit. Our industry pays around 30x the rent that energy and water do for equivalent sites.

Emergency services network and infill programmes:

- It is crucial that the ESN network being built by EE (part of BT) and the Home Office is used to also improve geographic consumer mobile coverage in rural areas across multiple mobile networks where this infrastructure is being built with public money. These masts must be built able to be shared by multiple operators at a commercial rate that ensures use. It should not just provide a physical mast large enough to accommodate multiple operators, it should also have backhaul, planning and property permissions in place as well as power. This is a one off opportunity to deliver rural coverage to areas and help deliver the Government's 95% geographic coverage ambitions.
- The UK Government could follow the Scottish Government and explore a mast infill programme to improve coverage in harder to reach rural areas. There are examples from other markets in which we operate, such as Bavaria where they are currently looking at a subsidy model for not spots. The Government could also consider funding for fibre hubs to help with backhaul for sites in rural locations.

Business rates:

- The Scottish Government is piloting an exemption from business rates for new mobile masts in more remote areas, the UK Government should do the same.

Access to public sector sites

- We need a better process to make access to public sector sites easier and more efficient. There has only been limited progress on this to date. This programme should focus on improving coverage rather than returning revenue to the Exchequer.

Fibre backhaul

- Mobile sites need to link back to the fixed network and underinvestment in fixed fibre by Openreach therefore has consequences for mobile connectivity as well. Ensuring the availability of fibre backhaul for mobile mast sites is crucial if we are to deliver the mobile data services of the future
- Access to dark fibre will be key, especially for 5G transmission. We need to ensure timely and efficient access to these assets.

Electricity

- All sites require power to be connected and the costs associated are significant.

Fixed:

BT Openreach

- BT's systematic control of the market means that whilst it may appear that Ofcom has made progress in setting the market conditions for competition, the reality is that those terms are still dictated by BT meaning BT effectively decides the technology for the whole market. BT's decisions to invest in fibre or in copper and its ability to respond to competition have a greater influence over the terms of investment in fibre in the UK than does regulation.
- Public interest objectives must be removed from BT's de facto control in order that public interest is delivered.
- This is discussed further in Annex 1 which sets out a plan that could maximise competition and at the same time deliver the public interest of widespread fibre. Fundamentally, the important issue is not the details of the plan, which rely on the



market to deliver, but the fact that there is a plan and that the plan would remove BT's freedom to dictate what is delivered to UK consumers.

Overbuild

- It is crucial that investment in full fibre by other providers is not undermined by BT using its pricing. Ofcom's move to limit BT's pricing freedom in areas where FTTP is being rolled out is very welcome and the Government should give it strong public support.

Ducts and poles

- We need a regime that allows affordable access to this key infrastructure. Ofcom's Digital Communications review put much faith in competing fibre networks. Following that review much effort has gone into an improved legal framework supporting the obligation for BT to open its ducts and poles to competitors. However, it lacks the full force that true equivalence would deliver if it was to be applied.
- Although a fit for purpose duct and pole remedy will not on its own be enough to stimulate competitive fibre roll out, it could play an important role.
- Any regime should be judged on the number of telecommunications infrastructure providers that use it rather than simply the fact that the process has been changed. Our evaluation shows that effective Physical Infrastructure Access (PIA) access has to be achieved for at least 70% of the network deployment to be considered financially viable.

Streetworks, permissions and lane rental charges

- Bureaucracy needs to be reduced when trying to get permission to close roads or repair infrastructure. Specifically, reforms are needed to noticing, permits, traffic management and lane rental charges for new fibre build.

Wayleaves

- We need simplification of property law and access rights to enable the use of wayleaves under permitted development rights and the introduction of deemed consent in favour of full fibre infrastructure builders.

Broadband Universal Service Obligation (BUSO):

- We support the objective of increasing broadband availability but we believe we need to learn the lessons of the BDUK programme and that BT should use its own funds before any further funding is considered.
- BT has much to gain from the BUSO investment as it will provide many of the services paid for by the funding. Self-funding would provide strong incentives for BT to deliver in the most efficient way possible. Ultimately the cost of delivering the USO should be based only on the extra work required to meet the obligation rather than subsidizing the day-to-day running of BT's business.
- There has been no proper reporting system in place that details how BT has spent BDUK money and what has been delivered, yet BT has reported a surplus of over £500m of BDUK subsidy on its balance sheet. There needs to be greater clarity and more transparency when BUSO is designed and rolled out.

Further challenges to investment come in the form of a significant number of interventions from Government and Ofcom on issues which, while designed to protect consumers, put huge cost pressures on operators. We need a more strategic, joined-up approach which allows industry to innovate and invest in the network and services our customers want. One of the greatest consumer harms is not having connectivity in the first place. As discussed above we need to test consumer policies against the core objective of rolling out gigabit capable networks.

One example of regulation that holds us back is bill capping. Numerous caps are required in order to protect customers from high or unexpected bills. Caps can be from domestic or EU legislation, sector-specific or general, mandatory or voluntary, service-specific or global, determined by



spend or volume of usage, applicable in specific circumstances or across normal usage. Diverse institutions are responsible for each provision and for enforcement.

The result means it can be challenging for consumers to understand how the caps on their bills work, burdensome for providers and unclear in terms of actually protecting consumers from harm. The cumulative effect risks being overly prescriptive and can in fact hamper providers from innovating and competing on the quality of their overall product.

A good specific example of how this can impact us is the new bill capping measures that were part of the Digital Economy Act. These were brought in at very short notice with little consultation with industry or exploration of whether this was the best way of helping consumers. These changes will be costly and resource-intensive to implement, especially if Ofcom requires us to apply them to our business customers as well as domestic consumers.

We currently estimate that the cost of implementing a solution to this will be in excess of £XXXXm as it requires us to implement a solution to real-time rate all voice calls in spite of the fact that most customers have unlimited voice calls included in their bundles. This means we have £XXXXm less to invest in, for example, building more masts to improve geographic coverage. These estimated costs only take into account applying this for domestic consumers, they will therefore rise further if applied to our enterprise customers.

There is also a wider point that regulation by Ofcom results in higher bills for industry as all fines are paid to the Treasury, and yet the cost of regulation is based on revenue of the players in the market.

What can the UK learn from fibre deployment in other countries?

Vodafone has been rolling out full fibre in other markets for some time. An essential part of any rollout is the reuse of existing passive infrastructure. This has been critical in other countries where we have delivered gigabit capable networks. Vodafone has partnered in Spain and Portugal with telecom infrastructure partners and in Italy and Ireland with electricity utility partners to facilitate this. In all these examples the partners can be described as 'willing partners' who share Vodafone's interest in building quickly an effective full fibre (FTTP) networks.

Our rapid rollout in Spain and Portugal has been dependent on our ability to access existing ducts and poles via the PIA regimes and our co-investment schemes with other operators have also helped us increase coverage while avoiding duplication.

An unwilling partner has the ability to frustrate deployment at every turn in the process and therefore in reality could be not much better than no partner at all.

PIA access, including fit for purpose duct and pole access, is critical to making a viable business case and our evaluation shows that effective PIA access has to be achieved for at least 70% of the network deployment to be considered financially viable.

In New Zealand, the benefits of structural separation of the incumbent fixed line operator have been felt since late 2011. This has enabled an intensification of competition in retail broadband, delivered greater investment and innovation and reduced the need for complex regulation.



Structural separation in New Zealand was voluntary. Telecom New Zealand demerged in order to participate in a Government-funded investment programme to connect 75% of the population to full fibre. We talk about how a localised structural separation could work in certain areas in Annex 1.

In New Zealand, this has led to significantly increased investment both by the incumbent and non-incumbent operators.

What different market models might work and what would help migrate from copper to fibre?

There are a number of different models that operate in different markets including self-build, co-investment, partnerships with utility providers such as electricity companies.

In our view, the anchor tenant model we have announced as part of our partnership with CityFibre shows a potential way forward including demonstrating that investment in full fibre is possible in certain areas without subsidy from either Government or the rest of industry. A key part of the model includes exclusivity for Vodafone during the build phase of the project.

We have announced that Milton Keynes will be the first town to benefit from the partnership which will make full fibre available to approximately 1 million homes and businesses across 12 UK towns and cities.

If successful, this partnership will contribute significantly towards the Government's targets for increased full fibre but we will still need policy reform as outlined above to ensure the investment is maximised as well as good joined-up partnerships with the local authorities in the areas in which we are rolling out. Using local public sector assets to create a fibre "metro ring" from which fibre can be taken to homes and premises can be an important part of this model, something which the Government's Local Full Fibre Networks Challenge Fund can continue to help stimulate.

How should new digital infrastructure be paid for?

In terms of funding for new infrastructure, there are distinctions between fixed and mobile. In mobile we need to protect the network-based competition that has delivered the significant improvements we have seen over the last 20 years and improve it by working in partnership in areas which are economically more challenging.

In fixed broadband, it is likely that there will be more than one model for delivering the kind of nationwide fibre we all want to see.

In Annex 1 we discuss the idea of a zoned approach:

- In Zone A, effective competition between rival suppliers of fibre should be possible.
- Zone B is likely to be dominated by BT. In this zone effective retail competition would be likely to be dependent on a wholesale product provided by BT.



- There could also be Zone C, in which no operator is able to rollout fibre on purely commercial basis. In this case public subsidy would be needed to co-fund the investment.

Policy reform both nationally and locally can make private sector investment go further and this should be a key part of the model going forward. This may well look different in rural areas and urban locations as discussed in more detail in Appendix 1. Support, e.g. through reformed PIA to bring down build costs, supporting the building out of the capillary network from already developed trunk networks and ensuring an aggregate wholesale access layer that other networks can plug into can all play a role.

Our CityFibre deal shows that it is possible to raise money for full fibre investment without requesting a subsidy in major towns and cities. What the Government must do is ensure that the regulatory and policy regime supports the transition from copper-based networks to full fibre. The opportunity is for this rollout to prove the case for full fibre network investment in the UK and encourage others to invest.

The funding schemes the Government have announced can play a key role, as discussed above. It is important that any public funding should not distort the market. In Annex 1 we discuss the potential role in some areas for providing funding to a non-commercial enterprise.

On mobile, we need to ensure we use Government intervention to maximise the investment that is already being made. For example, as discussed in part above:

- We need the Emergency Services Network to be accessible by all operators to ensure that the significant opportunity to boost coverage in areas where the economic case for investment is weak is not lost.
- Government should consider fibre hubs in rural areas which could play a key role in providing the backhaul we need to deliver fast mobile internet services, something which is crucial for 4G and will be even more so for 5G.
- The UK Government should consider the kind of “in-fill” programme the Scottish Government is taking forward to bring coverage to areas of Scotland that currently have little or none. In doing this we should ensure we learn the lessons of the Mobile Infrastructure Project which failed to deliver on the scale that was hoped.

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