

UK Broadband's Response to a consultation from DCMS and HM Treasury on a Digital Communications Infrastructure Strategy

Executive Summary

UK Broadband ("UKB") welcomes the opportunity to respond to this consultation.

We believe that the best way to ensure that Britain achieves and maintains leading-edge digital communications infrastructure is to establish the right conditions for investment. UKB is investing in new infrastructure in the UK but we face a number of barriers to competition, including:

- Difficulty in obtaining swift and affordable access to buildings for the installation of radio equipment;
- BT's continuing stranglehold on network infrastructure, which leads, amongst other things, to a lack of competitively-priced backhaul.

In our response below, we have suggested a number of ways to combat these problems, including:

- Placing renewed emphasis on the promotion of competition;
- Reform of the EU Regulatory Framework to place as much emphasis on access to *networks* as access to services;
- Pressing ahead with reform of the Electronic Communications Code;
- Renewed emphasis on collaboration at a local level to get communities engaged in and supportive of the installation of new network infrastructure.

About UK Broadband and Relish

UK Broadband is part of the PCCW Group that includes HKT, Hong Kong's premier telecommunications service provider and largest mobile service operator.

In addition to the 40 MHz of 3.5GHz spectrum identified in this consultation document, UK Broadband holds a further 84 MHz of 3.6GHz spectrum, as well as

licences in several other frequency bands. We are using our significant spectrum holdings to build out combined LTE and microwave networks in cities and towns right across the country with the intention of covering 45% of the UK population over the next few years.

UKB is launching new, innovative services under the brand name Relish. Relish offers superfast fixed wireless broadband to homes and businesses without the need for a landline. Relish also offers very high speed, symmetric dedicated internet services via microwave links.

We have already launched Relish services in central London and will be extending the footprint of that network throughout London and moving to other cities and towns in the near future.

UK Broadband also provides other wireless data capacity, services and solutions to commercial enterprises, public sector organisations and channel partners throughout the UK.

Q1 Views are sought on:

a) Is this an appropriate role for Government?

Yes, we believe it is appropriate for Government to consider the infrastructure requirements of the nation, including those relating to connectivity and digital communications infrastructure. However, we believe that collaboration and engagement at a local level, led by local and city authorities, is as important as, if not more important than, financial subsidy. We discuss this in more details in our answer to Question 23 below.

We welcome the introduction of a cross DCMS-BIS ministerial position to recognise the importance of this sector to the wider economy.

b) What other high level principles might the Government adopt?

In order to support a buoyant market for digital communications networks and services and one that is attractive for investors, we would advocate that Government and Ofcom do more to encourage new market entry by removing barriers to competition and ensuring open access to essential monopoly infrastructure. We believe that the focus in the communications market in the last ten years has been too much on interventionist regulation at the micro level, and not enough on creating a competitive level playing field to encourage participation by a wide variety of suppliers.

Whilst such a shift in focus may, to some extent, require changes to the EU Regulatory Framework from which many of the UK regulations flow, we do not think that the current legal and regulatory framework precludes Government

from undertaking a thorough review of the market, particularly at the network level. We refer also to our answers to Questions 27, 28, 31 and 32 below.

We would also call for more clarity of language in Government statements and indeed procurements. There has been a tendency to gloss over inadequacies of provision and digital inclusion with unnecessarily vague statements on coverage and intentions.

For example, in August 2014 DCMS claimed that "The government's rollout of superfast broadband has reached more than 1 million homes and businesses across the UK." It is unclear what "reached" means. Does it mean that 1 million homes and businesses are connected to a cabinet to which BT has supplied fibre? Can all of those homes receive superfast broadband speeds, or are some of them too far from the cabinet to achieve those speeds? More clarity is required in order that we may understand the challenges facing us and tackle and gaps in provision.

See also our comments at Question 24.

Q2 What potential opportunities are there for Government to leverage its combined buying power to support policy objectives?

Clearly HM Government buys significant capacity in the market and as such should be able to apply the buying power this creates in reducing the cost of services to the public. However, we believe a more significant opportunity lies in the fibre networks owned and controlled by various public sector entities (for example, the Highways Agency and Network Rail Telecom). By configuring these networks for additional traffic it should be possible to route public sector traffic over them.

In addition, this opens the possibility that the capacity of these networks could be available (on appropriate 'arms-length' terms) to support commercial traffic – creating revenue to offset the cost of these networks and possibly produce profits. The location of these networks may also mean that they pass through areas ill served by existing commercial networks which could support Government initiatives such as BDUK.

Finally, it is worth noting that these networks have pervasive fibre which is independent of other operators. This could create the possibility of using these networks to support national resiliency. A resilient national network carrying Public Sector and commercial traffic would be a very attractive business with the possibility that such a valuable national asset could be monetised at some point, should that be Government policy.

Q3 If migration to IPv6 is required, are there any barriers to that migration and if so how might these be addressed?

Because of the way in which internet traffic relies on end to end connectivity and global interconnections, migration to IPv6 only is problematic until all other parties, worldwide, have also migrated to IPv6, or at least are running IPv4 and IPv6 on a "dual stack" basis.

Migration to IPv6 in some corners of the globe is unlikely to happen unless it becomes mandatory or necessary for practical reasons. This might be, for example, if all new equipment to be purchased were required to support both IPv4 and IPv6.

We expect that growth in M2M and IOT will go some way to encourage take-up of IPv6.

We therefore recommend that UK Government works with other Governments around the world, perhaps under the banner of the ITU/IETF or even the World Trade Organisation, to agree a path to mandatory adoption of IPv6 standards and a suitable declared "switch-over" period, after which public IPv4 addressing would not be guaranteed, similar to the 6th June 2012 date for IPv6 launch.

Q5 How symmetrical will digital communications networks have to be in the future? Will this differ across user types? What implications does this have for fixed and wireless broadband provision?

The directionality and up/down balance of IP traffic is constantly changing, with some of this variation dependent upon on the location of the originator of the traffic, for example upload heavy for such events as music festivals and download heavy for IP media playing. It is hard therefore to be sure how symmetrical general usage will be in future at the node aggregation level. At the moment, TV and video are driving the greatest data consumption levels, so downstream usage is outweighing upstream usage. On the other hand, uploading requirements are increasing all the time and upstream speeds are, to a large extent, insufficient at present for uploading large files in a timely fashion – documents, video, photos and so on.

Developed traffic areas of a few years ago were showing a download/upload ratio of 10:1, whereas today this imbalance has reduced to 4:1 at the main aggregation layer.

Ideally, networks should be designed so that they can flex to adapt to user demand for upload and download. UKB's 3.5 GHz and 3.6 GHz spectrum lies in bands internationally designated for LTE-TDD. The advantage of TDD over FDD (typically used in bands identified originally for voice services) is that the uplink

and downlink ratios can be dynamically adjusted within the frequency band according to usage patterns.

Some networks are being proposed as “download only” which would partition the medium to a narrow customer group unless there is a parallel network which is “upload only”. This reduces the efficiency of a single medium which could do both and be dynamic in how it allocates traffic resources based on demand.

Our expectation and hope is that, as new fixed and wireless networks are designed with all traffic types (including voice) being carried as data, then a greater awareness of upload requirements will be designed in to the networks. It is unlikely in dense networks that long-term symmetry will exist in any layer but what is highly likely is that the upload/download imbalance will change by location, time of day and connection layer.

Q6 Which countries should be our benchmarks on communications infrastructure to ensure that businesses remain in the UK and continue to invest?

If the UK is to be truly ambitious and aspirational, then we must compare ourselves to those countries who have demonstrated the best use of digital communications infrastructure. UKB’s own benchmark is Hong Kong, where our parent company, PCCW, and its subsidiary Hong Kong Telecom (“HKT”), are based.

In Hong Kong there are five LTE networks and mobile penetration is more than 220% in terms of mobile subscriptions. It also has the world’s highest IPTV penetration rate, at over 60% of households.

HKT has been migrating customers from VDSL to FTTH. Its FTTH subscriber base is growing at a rate of 28% year on year and they are well on their way to ubiquitous “ultra-broadband” coverage (i.e. over 100 Mbps). HKT’s FTTH customers were achieving average peak connection speeds of 106.7 Mbps as at Q3 2013. HKT’s FTTH service supports speeds of up to 1Gbps, as does the “Fibre to the Yacht” service provided by HKT in Hong Kong’s marinas.

In Hong Kong we have found that premium content, such as the English Barclays Premier League, has been the driver for take-up of the FTTH service. HKT’s experience is that within six months of a building being upgraded from VDSL to FTTH, more than half of the residents of the building have requested a service upgrade. This is a useful benchmark for business planning and capex cost justification.

Q7 What metrics do you think should or will become relevant in comparing network performance in different countries? Which metrics should most appropriately be used as the basis to set objectives for government policy?

The Government's goals in this area have not always been clearly identified. Targets such as "the best broadband in Europe" and "a transformation in broadband" do not come with a measure of what success looks like. The Mayor of London has now added an ambition for London to become the "most connected city in Europe". Such lack of measurable targets can lead to sub-optimal delivery of policy aims.

We suggest that "Homes Passed" is not a useful metric or benchmark as it does not necessarily translate to lead times for delivery or quality of service available – particularly if a conduit into the building would need to be established in order to provide service. More meaningful is to provide information as to which services are available (FTTH, Fixed Wireless Access or FTTC, for example) within what lead-times (number of days). UKB's sister company, HKT, provides data of this nature in Hong Kong.

Mobile coverage should be benchmarked against technology and speed as well as geographic coverage. It should not be measured on population coverage alone, because that is a fixed statistic and, as we know, consumers complain when their mobile device does not work when they are out of the home. This is also pertinent in relation to M2M communications which do not centre around residences (agricultural machinery and other automotive technology, for example).

Network reliability and customer installation and maintenance times should also be measured and benchmarked.

We believe that it is important to keep in mind how consumers and businesses *use* data services in the more countries where the maximum speeds and capacity are available. What applications do people use their data connectivity for? How much data do they consume when there are no perceptible limits. This will inform as to whether there are natural limits on consumption or whether more advanced networks and services should be an aspiration.

Q23 Are there factors, for example technical or unrelated to the regulatory framework, that could create bottlenecks and delay future infrastructure deployment in the UK in this timeframe, that would result in demand not being met or the UK not being seen as a leading digital nation?

There seems little doubt that demand from consumers for mobility will increase in future and expectations of what is possible will grow. It is therefore important

that every effort is made to facilitate investment in new wireless infrastructure where this is needed.

The biggest impediment to new infrastructure deployment that UK Broadband faces is the issue of site acquisition. Getting a lease agreement from a landlord typically takes many months and frequently takes up to a year or more. This is partly because it is difficult to get landlords in London and other major cities to engage in a timely manner with a commercial proposition which will earn them relatively little, in comparison with their income from other sources.

The Code Powers as currently drafted are of no practical assistance for the following reasons:

- they do not place a strong enough presumption of access in favour of the Code Operator;
- the process of enforcement through the courts would likely cost more in time and money than pressing ahead without them;
- they create the risk of antagonising the landlord.

We believe Government can help in this area in two ways:

- 1) By encouraging city authorities, such as the GLA in London, to work closely with landlords to explain the benefits to their tenants and to their communities of permitting the installation of telecoms infrastructure and thus enabling improved connectivity to the local citizens. Telecoms operators need to be recognised as providing an essential utility (in the same way that private sector energy and water companies are), rather than seen as profiteers.
- 2) By pressing ahead with much needed reform of the Electronic Communications Code to create a legislative presumption of access, whilst continuing to consult with industry on the most appropriate and effective way of doing so.

Q24 Do you expect commercial providers to deliver future infrastructure and meet demand on a purely commercial basis, or is some form of public intervention likely? If public intervention is likely how might that work with the commercial provision of infrastructure? What form might that intervention take?

One of the problems with public intervention under the BDUK scheme was the fact that the subsidy was applied from the "inside out", i.e. the funding was given to BT to extend their fibre network from their core out towards their cabinets and from cities into the suburbs and, to some extent, villages.

This has meant that the areas that are the last to be served are those that are the least economically viable to serve. This therefore makes it extremely difficult for anyone other than BT to serve those remaining communities and premises.

For those alternative network operators who do choose to enter into underserved areas, the fact that BT's use of public subsidy has enabled it to get *closer* to those unserved communities makes it easier for BT to get to the area with their own funds to compete with a new entrant. The "inside-out" subsidy has therefore given BT a competitive advantage in the hardest to reach areas.

Q25 Which current or draft legislation might prevent or facilitate the emergence of any of the scenarios?

We think it is very important that the government presses ahead with reform of the Electronic Communications Code. It is disappointing that the Law Commission's recommendations have not yet been implemented and this delay is making it harder for fixed and wireless network operators to expand their networks to improve connectivity for consumers and businesses. We look forward to a constructive dialogue with DCMS on how the Law Commission's proposals can most usefully be implemented. We recommend that full account is taken, during this process, of other relevant legislation, such as the forthcoming transposition of the EU Directive on measures to reduce the cost of deploying high-speed electronic communications networks¹.

As discussed below, we also think that the Communications Act should be strengthened to bolster Ofcom's duty to promote competition.

Q 27 How might efficient investment in communications infrastructure be supported, for example by changes in the regulatory framework?

We note that the question itself contains a qualification – not encouragement of investment but encouragement of *efficient* investment. We note also that alternative network operators are described in paragraph 1.29 of the document as "niche" when they are merely relatively new to the market place. This seems implicitly to question their credibility, legitimacy and sustainability. And yet, many so-called niche network operators have ambitious plans for growth.

Since the Strategic Review in 2005, Ofcom has espoused the principle that "regulation should promote competition at the deepest level of infrastructure at

¹ **Directive 2014/61/EU of the European Parliament and of the Council of 15 May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks, OJ L 155, 23.05.2014, p. 1–14**

which it would be effective and sustainable.” This has occasionally led Ofcom to make decisions based on theoretical and sometimes subjective assessments of the likely long term success and scalability of the business plans of BT’s competitors. For example, Ofcom tends not to intervene to require a particular form of access to BT’s network unless those requesting access can demonstrate significant demand (in terms of order volumes) for the service in question.

This is arguably not how a free market should operate and it should not be for the regulator to pick winners and losers based on theoretical analysis.

As we discussed in our answer to Question 1b) above, we would welcome a greater emphasis on competition (not just where deemed “appropriate”, as it is phrased in the Communications Act) and less on over-prescriptive and complex regulation.

In the early days of local loop unbundling, the LLU product was available in nominal terms, but was not industrialised and therefore not fit for purpose. BT was therefore able to maintain somewhat of a stranglehold on the local access market. It was the prospect of a referral of the market to the MMC, as it was then, that ultimately produced the voluntary “Undertakings”, which in turn saw the introduction of functional separation and the creation of Openreach.

The Undertakings were successful as far as they went, but they are now nearly ten years old and still contain a number of exceptions to which, for example, Equivalence of Input obligations do not apply. With the advent of FTTC-based wholesale products, there are signs that BT is starting to re-assert a position of dominance.

BT continues to hold a dominant position in the backhaul market. Despite the presence of other network operators on the main inter-city trunk routes, only BT has the scale and scope to offer ubiquitous coverage. It is therefore unacceptable that BT still does not offer a dark fibre product. The result of this is that the needs of data-hungry businesses and the backhaul needs of data-hungry mobile and wireless networks are not being met.

In terms of the passive products which industry requires, we would expect that, whilst duct and pole access would potentially be useful for short distance extensions in the access network, dark fibre is absolutely necessary for longer sections, which are sometimes known as backhaul.

We believe it is time for another thorough review of the market as a whole, with the result of either more effective regulation of access to BT’s network, or a referral to the CMA under the Enterprise Act 2002.

The fact that BT remains a vertically integrated operator creates competitive tensions. Ex ante regulation has been used as a proxy for competition law but,

constrained as it is by the EU Regulatory Framework (see below), it is not proving effective.

Q28 Are any further regulatory measures necessary to incentivise the rollout of future mobile infrastructure in currently underserved areas?

Roll-out to underserved areas can be encouraged in the following ways:

- a) By facilitating **access to the passive elements of the backhaul network of BT**. Communities often find that fibre passes close by, but they cannot access it other than by buying a managed service from BT via BT's network nodes.
- b) By facilitating **access to private sector land and buildings**, for the installation of fixed and wireless telecommunications networks. This should be done in a number of ways. Firstly through reform of the Electronic Communications Code. Secondly, through collaboration between local and city authorities and landlords. Inability to access buildings to install radio equipment is the biggest inhibitor UKB faces to further investment and rapid network roll-out in the UK.
- c) By doing more to **encourage national roaming in areas of poor coverage**. We believe that competition in mobile networks continues to be important and yet operators recognise that site sharing nevertheless makes economic sense in many instances. Moreover, UKB has entered into a national roaming agreement with a UK MNO to enable customers of both companies to roam onto the network of the other. As we continue to build out our network we will look to offer more wholesale access to our network to provide much-needed additional capacity to other Mobile Network Operators when and where it is needed. In areas where the economics do not justify multiple network installations and commercial agreements have not been forthcoming, Government might wish to consider mandating national roaming.

Q29 Is there a role for a revised USO or USC to ensure that minimum consumer demand requirements are met and to reduce the potential for a new digital divide? What might this look like?

We would not advocate a revised USO or USC but we note that, despite the initiatives sponsored by BDUK, universal provision of superfast broadband is still some way off and it is by no means clear that it will be achieved under the current schemes. The remaining premises that have not been adequately served either by commercial deployments or subsidised schemes are unlikely to be attractive on a purely commercial basis, so will probably either need financial

support from the communities themselves or proportionately higher subsidies from central and/or local government.

Q 31 Are there changes to the EU Regulatory Framework that the UK might seek to encourage more competition in UK markets? Q 32 Should Government seek changes to the European regulatory framework which put more reliance on competition law and how might this be done?

We have taken questions 31 and 32 together. Our view is that parts of the EU Regulatory Framework, which was originally introduced in 2002, are no longer fit for purpose. The fundamental problem is that they seek to regulate competition in *services*, not in the underlying networks over which services are provided. This has several undesirable consequences.

Firstly, it leads to NRAs prescribing remedies which may be applied in one services market only. The well-documented example of this is Passive Infrastructure Access which, according to Ofcom's regulation, could only be used by BT's competitors to provide services in the market downstream from that in which the remedy was prescribed, i.e. it could only be used for the provision of mass market residential broadband services. This put BT's competitors at an immediate disadvantage because BT itself is able to use its ducts and poles howsoever it chooses. BT is able to apportion the cost of the duct and the cable within it across its leased lines service and also the services it provides to connect wireless network equipment. It is non-sensical and inequitable that BT or Ofcom should "police" the use to which passive infrastructure is put.

Secondly, it forces industry to move at the pace of the incumbent. By examining the level of competition in certain services markets only, the Framework effectively stifles the ability of competitors to innovate and requires all operators to move in the market at the pace of the dominant operator.

For example, in the market for business connectivity services, Ofcom examines competition in the market for very high bandwidth services. However, this overlooks the fact that a market cannot develop effectively if providers themselves are limited by the prescribed services they can buy from BT. If, on the other hand, they were given access to the underlying fibre (in the form of "dark" fibre) then they'd be able to develop products and services which didn't simply mimic those offered by the incumbent.

Regulating markets for existing services serves to promote the agenda of the incumbent. UKB would therefore advocate a less prescriptive, less silo-based form of economic regulation, and a greater emphasis on competition in the broader sense. We urge Government to engage at EU level during the next review of the Framework.

Q 33 In what ways can you see competition driving technological change in the UK in the future?

Competition is, in our view, the best and most effective way to drive technological change. We recall, for example, that Virgin was the first to offer “next generation” broadband speeds to the mass market, and this was the catalyst for BT to extend fibre to its street cabinets.

We therefore consider (as discussed above) that relying largely on regulating access to *services* rather than *networks* is not sufficient to enable competition to flourish and drive innovation and disruptive change.

Q 34 How can the regulatory framework keep up to date with new business models and changes in technology?

The regulatory framework can only keep up to date with the pace of change and remain fit for purpose if it is designed so that it does not function so as to perpetuate the status quo. We do not think that it is necessarily the job of the regulator to “keep up”, but rather to stand back and allow the market to function in a way that is not distorted.

Q35 Are there any changes to legislation other than the Communications Act 2003 that would incentivise the provision of communications infrastructure?

As we have mentioned above, we would welcome urgent reform of the Electronic Communications Code to enable faster site acquisition for the installation of radio equipment.

We also find the regime for business property rates to be cumbersome and somewhat archaic. We do not think it is fit for purpose in respect of telecommunications networks and would hope that the government’s current review of the administration of business rates in England will conclude that the regime is due for reform.

Q36 Would there be benefits to investment from a focus on broadband only services? Are there any barriers to the emergence and adoption of broadband only services, whilst still providing necessary access to emergency services?

We believe that competition in the market will eventually drive the development of more “broadband only” products. The fixed wireless broadband service offered by Relish does not require a landline and we have found that this aspect of the service is proving very popular with both business and residential consumers.

We think that services like that offered by Relish will drive others to develop broadband-only products. We note, for example, that Openreach is currently consulting on development of a product called Single Order GEA-FTTC which we understand is intended to support VoIP products on its FTTC lines.

Q38 Views are sought on whether there are any additional actions the Government should consider to ensure:

a) That the provision of all areas of the UK's digital communications infrastructure remains competitive in order to ensure that the UK can take full advantage of growth opportunities in the Digital Age;

b) Aside from legislation and adapting the regulatory framework in the broad sense which other actions should the Government take to encourage investment in communications infrastructure?

c) That potential investment in the provision of digital communications infrastructure offers a suitable risk and reward profile to ensure that they can be financed by the private sector.

The UK has a liberal environment which, on the whole, encourages inward investment such as that being undertaken by UKB and its parent company, PCCW.

As explained above, the biggest risk we face is not the cost of deployment or a lack of take-up but the risk caused by impediments to deployment, such as delays in site acquisition. So, in terms of additional actions that the Government could take, we repeat our request that Government should devolve powers to and duties on local and city authorities to ensure that those seeking to deploy vital digital communications infrastructure are not hampered, but that installation of infrastructure is facilitated.

UK Broadband
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