



Zayo's response to

Future Telecoms Infrastructure Review

Call for Evidence by

Department for Digital, Culture, Media & Sport

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1 Introduction

- 1.1.1 Zayo is pleased to contribute to the Future Telecoms Infrastructure Review (FTIR) consultation process. Zayo believes that this review is timely and critical to ensure that the UK's telecommunications infrastructure is fit for purpose to deliver the connected Britain that will enable the UK to remain a leading global economy.
- 1.1.2 By launching the FTIR, the Government recognises that the current industry model may not be able to deliver that fit-for purpose infrastructure and takes a step back to review alternative models. Zayo welcomes this initiative and will contribute actively in the forthcoming consultative process.

About Zayo

- 1.1.3 Zayo Group is a global provider of communications infrastructure services, including Dark Fibre, Wavelength, Ethernet and IP services. Zayo operates in the United States, Canada, France, Germany, Netherlands, Belgium, Switzerland, Italy, Ireland and the United Kingdom. Zayo was founded in 2007 and is headquartered in Boulder, Colorado, with European headquarters in London and Paris.
- 1.1.4 Zayo's UK network spans more than 450,000km of fibre strands and connects over 130 data centres via unique routes including alongside national gas pipelines and within London's sewer system. Zayo provides many customers with dedicated fibre connections utilising a combination of on-net, new construction and off-net leased fibre. Zayo extends its network to customer premises with a combination of purchased dark fibre as well as self-installed new-build fibre.
- 1.1.5 As a supplier to national broadband service providers, Zayo maintains a strong interest in the competitive broadband market.

2 The current UK market model

- 2.1.1 The UK market model is to a certain extent dictated by the European Union's regulatory framework for electronic communications, but there is clear evidence from other countries within the EU that there is sufficient scope for adopting a more pro-investment and infrastructure competition approach within that framework, than has so far been implemented by Ofcom.
- 2.1.2 Ofcom is an experienced and respected sector regulator and, in many cases, the UK has set the precedent for the developments in the rest of Europe and beyond. An example of this is the initiative taken by Ofcom to implement functional separation of Openreach from the remainder of BT Group to reduce the level of discrimination between how Openreach treated its internal downstream BT customers and other operators.
- 2.1.3 The approach adopted by Ofcom to regulating access to the BT (Openreach) network, however, has consistently been to maximise short term consumer benefits through the reduction of prices.

- 2.1.4 Whilst the objective of regulation should always be to serve the interests of consumers, it is not always the case that short term price reductions will in fact achieve that. If, for example the needs of consumers in the medium to long term can only be effectively and efficiently served through a new type of infrastructure, then it is important that regulatory actions seek to encourage the necessary investment in time for the infrastructure to be ready when the legacy infrastructure is no longer suitable.
- 2.1.5 Additionally, whilst in older network architecture and technologies, an operator would have largely separate networks for serving different markets (for example the broadband market for homes and SMEs and the market for point-to-point connections to larger business and public authorities and ultrahigh speed broadband connections to large organisations) today's technology allows an operator to serve all of those markets from a single network. This is because the service-specific applications sit on the edge of the network, rather than being hard-coded in the network itself. This means that the traditional regulatory model of regulating different downstream markets separately is no longer appropriate as the investment case for a new network will typically depend on serving several downstream markets. Different regulation of downstream markets that rely on the same physical network can in fact cause increased regulatory risk and deter investment.
- 2.1.6 Ofcom's continued contradictory investment signals in the business connectivity market (BCM) and the wholesale local access market (WLAM) is directly damaging to investment incentives and, if nothing else, the outcome of the FTIR should require that consistent network infrastructure investment incentives are provided across the relevant downstream markets.
- 2.1.7 An important example of Ofcom's inconsistent regulation is that duct and pole access is available to builders of new fibre infrastructure in the WLAM but not in the BCM. Although the network is largely the same, the access to BT's ducts when building new network depends on which downstream market will be served first by that network. This is further exacerbated by the fact that services that are considered part of the BCM are critical inputs to the WLAM – this includes fibre links to connect local access networks to the internet.
- 2.1.8 Additionally, Ofcom is aggressively forcing the price levels down in the BCM, to a level where only an incumbent with sunk investments and very large market shares can cover its costs. The absence of duct and pole access increases the costs for investors in new fibre networks and, at the same time as denying that access to networks serving the BCM, Ofcom is forcing the pricing down to a level only supportable by a dominant incumbent. Those actions amount to active obstruction to investment in new fibre networks.
- 2.1.9 The remainder of this response is structured to reply to the specific questions posed in the FTIR. Given the relatively short time to prepare this response, combined with the effect of several concurrent Ofcom consultations and that the response period included the Christmas and New Year holidays, Zayo is not able to respond to all the questions posed, nor to provide supporting data. Zayo is however committed to ongoing participation in the FTIR process and would be pleased to meet with representatives from DCMS or to supplement this response, should the need arise.

3 Responding to the FTIR questions

Question 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 [certain] 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?

- 3.1.1 The current UK market structure and policy framework is designed to drive efficiency improvements in BT and to encourage competition with BT where a new competitor can deliver the same or better services at the same or lower cost/price than BT. This means that the vast majority of competition to BT is dependent on wholesale access to the BT network, with only Virgin Media as a large infrastructure-based competitor to BT in the mass market for broadband services and a number of companies (including Zayo) competing with BT in the high-speed connectivity market (which is an important input to the broadband market).
- 3.1.2 That approach has driven investment at the service layer and a certain level of investment in infrastructure, including use of BT's local loop unbundling service, although even that form of competition most often relies on leased capacity (from BT and a small number of infrastructure providers including Zayo), and not actual infrastructure investment by the broadband providers themselves. The UK market model is therefore one that is extremely dependent on BT's physical infrastructure.
- 3.1.3 Due to the lack of infrastructure competition, BT has very little incentive to invest in new future-proof infrastructure and technologies and, whilst BT is presently making public statements of plans to deploy fibre to the premises (FTTP) to 10m premises by 2025¹, this is understood to be a reaction to altnets including Virgin Media and CityFibre deploying FTTP (or other ultrafast technologies in the case of Virgin Media) in towns and cities across the UK.
- 3.1.4 The policy implemented by Ofcom as described above, is however likely to limit the FTTP roll-out by altnets and thus the investment incentives by BT. Unless robust competition safeguards, and a change from the focus on reducing prices as much as possible as quickly as possible, are implemented, then BT may not deliver on those plans. This is because as soon as the competitive pressure reduces (partially caused by regulatory actions) this would naturally cause BT to focus on maximising the return on existing assets rather than invest in new assets.
- 3.1.5 When considering the current industry model and regulatory policies, it is important to recognise that the business customers and private consumers are served by physical networks that overlap substantially. It is therefore important to ensure consistency in investment incentives across all markets that rely on new fibre infrastructure, not just narrowly on the broadband market. Consequently, Zayo considers that the scope of the FTIR needs to broaden. The current focus on 5G and ultrafast broadband risks the continuation of Ofcom's current inconsistent and investment-dissuading silo-approach which encourages investment in WLAM but states that no investment is required in the BCM. Investors in new

¹ <https://www.ispreview.co.uk/index.php/2018/01/openreach-set-boost-uk-ftp-full-fibre-broadband-rollout.html>.

fibre networks need access to the same economies of scale and scope as BT has, but Ofcom is regulating the price levels in the business connectivity market down to a level that cannot support a reasonable return on investment for new fibre network operators.

Question 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?

- 3.1.6 BT has a natural incentive to protect its existing revenue stream and therefore has very little incentive to deploy fibre unless compelled to do so by competition. Whilst it is possible that some consumers will pay a premium for ultrafast fibre-based broadband services, it is also very likely that large numbers either will not or cannot pay a premium. The way price changes typically happen in broadband markets, is that consumers get more for the same price – that is a consumer on a package of 10Mbps speed broadband would be offered a service of 20Mbps speed broadband at the same or a very similar price. It is rare for prices to go up substantially.
- 3.1.7 BT can therefore reasonably expect that it would not earn large amounts of incremental revenues as a result of investing in new fibre infrastructure, and therefore BT has very little incentive to make such investments. The only real incentive for BT to invest in new fibre would be if it thinks that it will lose substantial market share to competing networks, that offer the higher speeds and improved quality services that can only be delivered on fibre.
- 3.1.8 For Altnets the situation is the opposite: incremental investment leads to incremental revenues. Altnets have strong incentives to invest if the commercial and regulatory conditions are sufficiently supportive. As mentioned above, Ofcom's recent actions in the BCM (not offering duct and pole access and imposing severe price reductions) deter investment instead of encouraging it. In the WLAM, Ofcom is in the process of potentially doing something very similar. The WLAM review is near its conclusion and all signs are that Ofcom will impose significant price reduction on current broadband products, which will be the reference point for customers evaluating whether to move to ultrafast fibre-based packages. This will have a significant dampening effect on investment incentives.
- 3.1.9 Further, Ofcom's proposal to impose no regulatory constraints on BT's new fibre-based services to prevent exclusionary pricing will substantially increase the risk of BT setting these new prices at a level that deters investment in competitive networks. BT can afford to launch the services at low prices and then increase the prices once competition has been squeezed out of the market. Once investors have been 'frightened off' a market, it takes a long time before they are willing to take the risk of returning to that market.
- 3.1.10 The uncertainty of BT's pricing levels, and lack of any transparent regulatory constraints on those prices, means that operators cannot with confidence offer investors a reasonable rate of return on investment in new fibre networks, and that constitutes a significant deterrent to investors.

What is the effect of current infrastructure deployment models?

- 3.1.11 BT currently only invests when it receives public subsidy or is under significant competitive pressure. Altnets deploy new infrastructure in a reactionary manner, subject to the effects of Ofcom's ad-hoc and inconsistent regulatory interventions. It is not feasible for altnets to embark on long-term infrastructure deployment programmes as the viability of the investment remains subject to Ofcom's interventions and BT's potential exclusionary behaviour².
- 3.1.12 Large long-term infrastructure deployment programmes require a predictable framework in which to make those investments. The UK does not offer that today.

What impact do current infrastructure sharing arrangements have on investment?

- 3.1.13 Infrastructure sharing can take many forms. Zayo considers the use of existing ducts and poles as a form of regulated infrastructure sharing which helps to level the playing field between the incumbent (which naturally already has access to its own passive infrastructure) and altnets which (in the absence of duct and pole access) would have to replicate that passive infrastructure. This form of infrastructure sharing has proven effective in other countries including France, Spain and Portugal.
- 3.1.14 Infrastructure can be a commercial arrangement, as has to a large extent happened in Spain, where fibre infrastructure operators offer reciprocal access to each other's networks (although it will often require regulatory 'blessing') or it can be imposed by regulation (such as regulated duct and pole access). Reducing the cost of new fibre infrastructure by using existing or sharing access to new passive infrastructure, removes substantial barriers to investment and enables providers to offer competitively priced propositions to end consumers (whether business or private). Presently, infrastructure sharing for fibre networks in the UK is significantly hampered by Ofcom's inconsistent application of the duct and pole access remedy and BT's apparent unwillingness to enter into commercial sharing negotiations.
- 3.1.15 Network sharing by mobile operators for 3G and 4G has proven successful and reduced network deployment costs substantially. However, as 5G will be very dependent on fibre connectivity, the success of 5G will largely depend on the availability of working infrastructure sharing for fibre networks.

What is the impact of the existing relationship between wholesale and retail markets?

- 3.1.16 The current regulatory model targets regulation at the wholesale level, but the markets are defined according to downstream retail (or active wholesale) markets. This has resulted in inconsistent regulation in markets that use the same infrastructure, with Ofcom actively discouraging investment in the BCM but (supposedly) seeking to encourage investment in the WLAM. This is despite the two markets relying on fibre networks that overlap substantially and that the investment in new fibre networks requires access to both downstream markets in order to deliver a reasonable rate of return to investors.

² Virgin Media is the only exception to this. Its ability to commit to Project Lightning is largely a result of it already having sufficiently large market share to be able to substantially replicate BT's economies of scale and scope.

- 3.1.17 Zayo believes that regulation should focus at the furthest upstream level (typically passive infrastructure such as ducts, poles, base stations, etc.) and should be consistent regardless of the downstream application.

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

- 3.1.18 Zayo believes that, spectrum sharing should be actively explored. Spectrum sharing would enable more efficient use of available spectrum and could also reduce overall 5G deployment costs, including potentially reducing the number of small cells required.

Question 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?

- 3.1.19 A number of factors influence the level of fibre investment. These include: where regulatory intervention is focused – active layer, dark fibre, or duct can pole access - and; the level of price regulation at the active layer.
- 3.1.20 If regulatory focus is on the active layer or on dark fibre, then there are lower investment incentives in new infrastructure upstream as the downstream layers are subject to aggressive regulatory intervention. If however, regulation is primarily focused at the furthest upstream level (with lighter touch or no regulation at active and dark fibre levels) then altnets have the advantage of regulated access at the passive infrastructure (duct and pole) level and competition will deliver innovation and competitive pricing further downstream.
- 3.1.21 If downstream regulation focuses on short term price reduction then that removes value from the market and it acts as an investment deterrent. Price reductions will be a natural consequence of effective competition, but while investment is underway, price regulation should focus on safeguard measures rather than actively driving prices down.
- 3.1.22 As examples of the above, France introduced duct and pole access but no dark fibre access in the BCM. As a consequence, several parties have invested in new fibre networks and a competitive market for dark fibre has emerged.

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

- 3.1.23 The UK currently leads Europe in the availability of super-fast broadband services. This is because BT's focus has been on sweating its existing copper assets and the roll-out of copper-based superfast services is much faster and lower cost than fibre-based ultrafast services. Thus, superficially it seems that the UK is ahead of other countries.
- 3.1.24 There is no evidence that price levels in countries with higher level fibre investments are significantly higher than in the UK³, although Ofcom's proposed significant price reductions

³ https://www.ofcom.org.uk/data/assets/pdf_file/0032/108896/icmr-2017.pdf - page 42.

in the WLAM would result in the UK's broadband prices for standard and superfast broadband being substantially below those in other EU countries.

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

3.1.25 It is Zayo's understanding that that the fibre deployed in all or most EU member states can be used for mobile backhaul.

Question 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? How might these vary in different geographic areas of the UK, including urban and rural areas? Over what timescale could market models be changed, and what policy conditions would be necessary to enable this? Are the current arrangements for BT legal separation working effectively?

3.1.26 Zayo includes responses (where appropriate) to the questions above under each market model below.

- *Infrastructure competition between different network providers wherever possible*

3.1.27 In theory, it would be attractive to simply allow infrastructure competition wherever possible, letting the market determine where the conditions warrant investment in competing infrastructure. That however, would almost certainly lead to operators all crowding in to the most commercially attractive locations. This may in turn, result in subsequent consolidation, as no one provider can get sufficient scale to justify the investment.

3.1.28 Further, this model would likely deter operators from investing in markets that would only be commercially attractive, if no more than one or two fibre networks were present, as operators would consider the risk of overbuild too great thereby deterring investment in such areas. Inevitably, in any model, there will be areas where no commercial case can be made for fibre investment, but in Zayo's opinion this model could expand this category, rather than reducing it to a minimum.

3.1.29 Zayo considers that this model would reduce the benefits from investments made and also reduce the overall parts of the UK where competitive investment in fibre networks would take place.

- *Collaborative models at an infrastructure level*

3.1.30 There are a range of potential collaborative models, but at their core is the principle that only one physical access infrastructure is constructed in any one place, and operators then provide access to each other across their networks⁴. This means that new networks would

⁴ Whether this is reciprocal or for commercial consideration would depend on the model adopted.

be build with sufficient duct capacity to ensure that several operators can run fibres through a single duct and pole infrastructure, thus ensuring competition at the dark fibre level and in downstream active wholesale and retail markets.

3.1.31 Zayo considers that collaborative models could significantly expand the areas where operators can justify commercial fibre network investment. Additionally, the total investment required to cover the majority of the UK population would be substantially lower than if duplicate infrastructures were built. This should mean that the cost levels of the UK electronic communications sector should be competitive, which (in a competitive downstream market) would be passed on to consumers through lower prices and aid the UK economy.

3.1.32 It is important to recognise that, whilst the collaborative models would be attractive for provision of mass-market broadband services, there will still be the need for individual operators constructing bespoke connections for large organisations and business that run their own networks or that depend on extremely fast low latency connections to (for example) the financial markets. There should therefore not be a prohibition from building bespoke network segments to meet these needs, as not doing so would damage the UK's attractiveness as a location of such organisations.

3.1.33 There are also risks associated with collaborative models. For example, models that result in a tiered approach. Although those operators that invest in infrastructure should enjoy benefits from taking that risk, operators that are not part of the collaborative network construction 'club' should be able to access the new infrastructure in a manner that does not foreclose downstream competition. This may therefore need some level of ex-ante regulation to be imposed to ensure transparency and consistency of access terms. It would by far be preferable for the incumbent to form part of the collaborative model, as this means that the existing duct and pole infrastructure would be available and it also removes (or reduces) the incumbent's incentives to lever its dominance and act in an anticompetitive manner.

● *Regulatory asset bases, franchise models, cap and floor regimes, a diversified model to account for geographic variation, and/or gainshare models for infrastructure provision*

3.1.34 The models in this category all tend to focus on access to the incumbent's network. Whilst Zayo considers that duct and pole access to BT's network would be a significant enabler of new network investment, it has concerns with regards to models that have at their core, the maintenance of single dominant network operator. Despite the argument that static economic benefits are maximised in a single infrastructure model, as discussed earlier in this response, the incumbent does not have any natural incentives to invest in new fibre infrastructure and in the absence of competitive pressure, Zayo considers it unlikely that BT would deliver the infrastructure required to support the UK's digital economy. A collaborative model could also achieve the same maximisation of static benefits.

3.1.35 That said, a cap and floor regime at the active services level could co-exist with a collaborative model and could provide an important framework to prevent the incumbent from engaging in exclusionary or excessive pricing. It is important, though, that regulated prices are set to reflect the costs of a reasonably efficient competitor, rather than an

incumbent benefitting from substantial economies of scale and scope which cannot be replicated.

- *Risk sharing models between infrastructure providers and retail providers*

3.1.36 The concept of anchor tenancy, whereby a downstream retail provider commits to the use of infrastructure deployed by an Altnet can be extremely helpful. It should be recognised that the incumbent has a built-in anchor tenancy agreement with its own downstream retail businesses, which substantially de-risks investments by the incumbent. Recent proposals by Openreach that other downstream retail providers commit to the exclusive use of a potential new Openreach FTTH network are not pro-competitive. If large retail providers were to sign up exclusively to use the Openreach fibre network, then that would cause significant harm to the investment case for competitive fibre investment and likely result in a reinforcement of BT's dominance in the fixed access market.

3.1.37 Zayo does not consider that the legal separation of Openreach provides the necessary incentives for BT to invest if not under competitive pressure.

3.1.38 Zayo would welcome a more active role by central and local Government in anchor tenancy roles.

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

Over what time period could migration occur? What phases might migration be required to go through? What would be the pros and cons for markets and competition? What would the implications be for different groups of consumers?

3.1.39 Zayo considers this to be an issue that requires a substantial amount of analysis in order to provide insightful contributions. There has not been sufficient time to perform that analysis since the publication of the FTIR just before Christmas and Zayo is therefore not offering a response to these questions at this time.

Question 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?

3.1.40 Zayo considers it likely that the investment in fibre access networks across the majority of the UK can be financed through commercial retail charges. It is likely that a portion of the market will be willing to pay a premium for ultra-high speeds and the more reliable service that can be supplied via fibre networks, but a significant part of the market will not be willing or able to pay a significant premium for fibre connections over and above the charges for superfast broadband delivered on BT's copper access network.

3.1.41 It is, however important for fibre providers to achieve a minimum economic scale to ensure the rate of return required to attract investors. Operators of fibre networks will therefore need to offer an ultrafast broadband service at or near the price of BT's superfast broadband services in order to obtain minimum efficient scale. It is therefore important that the pricing for superfast broadband services are not regulated down to a level so low that it could not

support the fibre investment business case. There is a real risk that Ofcom's current WLAM proposals will reduce the basic superfast price to a level below what can sustain fibre investment. A price left at current levels or subject to a more moderate reduction would likely be able to support a fibre investment case. This is supported by the broadband pricing analysis in Ofcom's recent report which shows that price levels in countries with substantial fibre investment are similar to those in the UK today⁵.

- 3.1.42 Short term actions by Ofcom will therefore determine whether commercial fibre deployment could be successful in the UK, or whether substantial financial Government support will be required. It is inevitable that some parts of the country will require financial support, but Zayo considers that appropriate regulation and the deployment of a collaborative industry model could reduce that to a small part of the country.

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

- 3.1.43 To take the risks of long-term investments in new fibre networks, investors need regulatory certainty and transparency and a policy that has as its clear objective to encourage investment⁶. A market model that encourages maximum utilisation of the infrastructure deployed (as would be the case in a collaborative market model) would further reduce risks and encourage investment.

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

- 3.1.44 A recent study published by Ericsson⁷ shows that an active lead by Government is important to the investment in and adoption of advanced broadband facilities and services. The Study indicates that the UK is not amongst the countries where the Government is playing an active role, to the extent that happens in the other countries in the study. Zayo would welcome more active Government support and involvement to make Digital UK a reality.
- 3.1.45 Government can also determine the policy that the sector regulator should implement. Zayo encourages Government to specify clearly to Ofcom that it must focus on long-term investment incentives and reduce its focus on short term price reductions.

⁵ https://www.ofcom.org.uk/data/assets/pdf_file/0032/108896/icmr-2017.pdf - page 42.

⁶ Such a policy is, for example, in operation in France. See <http://streaming.arcep.fr/img/WEB-REG-Pro-Investissement-120118.pdf>.

⁷ <https://www.ericsson.com/en/news/2014/12/15-nations-15-ways-the-many-roads-to-the-networked-society>.