2nd December 2008

# BT's response to Ofcom's Consultation document:

# *Delivering super-fast broadband in the UK*

BT would welcome any comments on the contents of this document which is also available electronically at http://www.btplc.com/responses

Comments should be addressed to Alan Lazarus, BT Group Regulatory Affairs Department, pp C8, BT Centre, 81 Newgate Street, London EC1A 7AJ, or by e-mail to alan.lazarus@bt.com.

## 1. Executive Summary

- BT welcomes this Ofcom consultation document as part of a series of publications in September designed to move forward the public policy and regulatory debate on Next Generation Access (NGA). This follows the Caio Review, the ongoing work of the Broadband Stakeholders Group (BSG), (including their recent costing report), Ofcom's own New Build Statement and the European Commission's Draft Recommendation. NGA is also, we understand, part of the scope of the Government's new Digital Britain initiative.

- In understanding the public policy context, it is important to note that things have started to change in the period since Ofcom's last NGA consultation in September 2007. BT announced in July this year that it was prepared to spend £1.5bn on deploying NGA, reaching up to10 million homes in the UK by the end of 2012. There have also been announcements from other companies at varying levels of scale.

- The response from the regulator to these developments needs to be practical and enabling and reflect the need for pragmatism and flexibility, not prescriptive and theoretical. In particular, the regulatory framework needs to recognise the economic realities of NGA investments and support the way industry wants to take forward NGA deployments. We welcome the fact that this document is a move in this direction, but more clarity is required to give investors certainty about Ofcom's policy direction. This is why BT's deployment plans are conditional on there being an acceptable regulatory framework. We look forward to Ofcom's Statement, in response to this consultation, giving this clarity so that expenditure decisions can be made with confidence.

- This is particularly the case given that, despite the announced plans to begin to deploy NGA, demand remains uncertain. We have not yet seen the new applications that drive people to want very high bandwidth nor do we yet know how much premium people will be prepared to pay for very high speeds. We do not believe this will start to be proven until several years into NGA deployment, emphasising why decisions to invest in NGA are bold and carry risk. This is particularly so in the current economic climate.

- The scale of NGA investments, and the length of pay-back periods, means that it is vital that regulatory certainty is given, such that investment decisions are not undermined. This is an overarching requirement and it is important that individual policy positions are set within an overall policy framework long enough to give confidence to investors. We would suggest a 10 year horizon, with a presumption of no changes in direction unless evidence definitively suggests the need for change, an approach which we believe can still be accommodated within the EU framework of regular market reviews. Although Ofcom

make a number of references in the document to the need for regulatory certainty, it is disappointing that there are no proposals to address this and BT urges Ofcom to focus on this area in its Statement.

- BT agrees with much of Ofcom's overall approach to regulating NGA, as set out in the document. The stress on providing flexibility for trialling and piloting and the support for experimentation is welcome. However it should be noted that, to minimise costs for both Openreach and Communications Providers (CPs), the focus needs to be on providing regulatory certainty for the long term model and clarity on the path to full roll-out.

- We welcome Ofcom's discussion of equivalence in this document – whilst we share Ofcom's view that the Undertakings remain relevant to NGA, we believe the concept of equivalence can be developed to accommodate a range of pricing and product offerings. Going forward, it is possible to envisage Openreach offering a number of different NGA products to CPs on an equivalent basis. It is not appropriate nor was it ever intended in the Undertakings that there should be multiple EOI products in a single value chain.

- We also welcome the fact that Ofcom acknowledge that technology choice is best left to the market and that industry discussions are the best way of taking forward the development of the appropriate wholesale products. We believe that the Openreach product consultation process with its industry customers will provide the necessary clarity as to which wholesale products are required; Ofcom should support the outcome of this consultation and not seek to second-guess what the market wants.

- Competition should be at the deepest level that is *effective and sustainable* and hence it is important that the debate about wholesale products is not a theoretical one, but one which is based on economic realities. It is important that those products that can be economically-delivered are encouraged. We welcome Ofcom's recognition that the choice between active and passive remedies is not as 'black and white' as is sometimes portrayed but more of a continuum. The Active Line Access (ALA) approach (which is being supported in the UK through Openreach's Generic Ethernet Access (GEA) product) offers significantly better economics of deployment for all parties in the value chain, and, as acknowledged by Ofcom in this document, can still deliver significant capability for innovation and competitive differentiation. It is also more likely, we believe, to support downstream competition. Passive remedies are particularly unsuitable as a basis for delivering services from CPs focussed on the business market.

- This leads to some important conclusions for the regulatory approach required. If it is important for regulation to promote a wide and varied choice of CPs for consumers and businesses; to support consumers

being able to switch between these CPs easily and at low cost; to prevent undesirable consumer outcomes such as the creation of 'technology' or vertically integrated 'single CP' islands; then the key regulatory imperative for passive remedies is not *how to make the economics work*, but rather *how to maintain them as regulatory options* without undermining the economics of NGA infrastructure deployment and the inherent consumer benefits of active NGA remedies.

- BT's investment case for widespread NGA infrastructure deployment is underpinned by the efficiencies and economies of scale of active remedies, which also enable us to support an open wholesale market (and the vibrant downstream market that this generates). This can be put at risk by giving an inappropriate weighting to the as yet unproven arguments for unbundling the passive elements of NGA networks.

- This is emphasised by the fact that we have still not seen any evidence of significant scale demand for passive remedies such as sub-loop unbundling (SLU) and duct-sharing, and hence cannot, at this time accept that they warrant large scale investment. In reality, these remedies should only be considered and mandated if there is clear effective demand, and not on the basis of any theoretical competition models. As stated above the economics of NGA deployment are very fragile and therefore obligations to support both active and passive remedies in parallel will risk making any NGA investment uneconomic, particularly if complex internal consumption models are mandated. It is worth emphasising that all other national scale NGA deployments have been predicated on the basis of either state aid and/or a vertically-integrated incumbent; delivering scale NGA deployment on a competitive wholesale basis remains a significant challenge.

- Joint investment models, as discussed in this document, do in theory offer opportunities for risk-sharing but these should not be assessed solely on the basis of helping 'fix' the economics of passive remedies; much depends on the specifics of the model, and the detailed contractual arrangements which would support such a venture, as some approaches can actually increase rather than reduce financial and operational risk. Critical to the appropriate nature of this type of approach is the understanding of the impact on the market. For example, the potential creation of a single fully-integrated vertical competitor to the rest of the market brings with it its own concerns. Ofcom must ensure that should this model evolve, it does not destroy effective competition.

- While BT believes that Ofcom should leave the details of product specifications to industry discussions, we do believe it has a role in promoting the development of industry standards. We welcome the work Ofcom have done to date on ALA standards, both in the UK and in Europe, but we also believe there is a wider role to be exercised, in conjunction with existing standards bodies, in promoting standards in the home environment (e.g. CPE and home-wiring) to ensure the end-

customer experience is prioritised and the take-up of NGA services encouraged. Similarly, BT agrees with the need to focus on migrations processes at an early stage; again we believe this area should be led by industry.

- Ofcom's promotion of ALA standards underpins an 'open access' approach in relation to new build developments, such that all builders of NGA infrastructure are encouraged to offer wholesale access. This is welcomed but BT would like to see the need to offer access placed on a more formal basis, with reciprocal obligations placed on all owners of NGA assets, not just in relation to new build sites. In particular, there is asymmetry with the cable industry. We are disappointed that this issue has not been addressed in this document and we would look to Ofcom to cover this aspect in its Statement. Similarly, in considering the appropriateness of current regulation to NGA, Ofcom fail to consider BT's Universal Services Obligation (USO). We feel it is time for a fundamental review of the traditional concept of universal service and a need to revisit scope, form and funding.

- BT agrees with Ofcom that the pricing of overlay active products can and should be left to the market, given the constraints imposed by competition, including the continued existence of copper-based broadband services, and on the basis that we intend to provide these on a non-discriminatory and equivalent basis. Clearly, thought has to be given, though, to pricing regimes when and if copper is replaced by fibre. The pricing of passive products should reflect risk and a full apportionment of fixed and common costs, including where costs are shared between passive and active products. It is also important that the cost-plus pricing approach fully reflects the likelihood of high development costs and low volumes. There are substantial risks for infrastructure investors if such products are regulated using inappropriate assumptions or prices are set in way which artificially promotes passive investment or arbitrage opportunities compared to active investments

- There is also clearly a need to consider how the transition from copper to fibre networks should take place. As take-up increases, it will make economic sense to avoid the costs of running parallel networks and, as this may start to happen on a geographic basis in the short to medium term, it is important that there is early certainty as to what such a transition process should look like. BT believes it is important that notice is given in advance of any fibre 'cut-over' and that there should be sufficient consultation with all stakeholders, including industry, on replacement products. However, there should be no requirement to replicate existing copper-based products over fibre, nor should there be scope through the consultation process, for any stakeholders to block reasonable change-out plans. We also welcome Ofcom's general position that it is not the role of regulation to protect existing technologies and business models from innovative market developments. Industry has strong incentives to manage the transition

efficiently, both to avoid cost duplication and to ensure a smooth customer experience for wholesale and end-customers

- We support Ofcom's view that new business models, potentially involving content owners, should be encouraged. Appropriate consumer safeguards, including through improved transparency, may be necessary but it is important that any regulation of the Internet, should be 'light touch'. In that context, BT agrees with Ofcom's position in relation to Net Neutrality. Additionally, given that IPTV has been one of the main drivers of NGA investment (and source of revenue) in many other countries, Ofcom and other regulatory authorities should focus on ensuring that there is a level playing field as regards access to key content.

- With regard to the role for the public sector, BT agrees that it is premature to speculate on the limits of commercial roll-out and hence it is too early to think in terms of a next-generation digital divide that needs to be addressed in advance of commercial deployment actually taking place. However, there may be some areas, which would generally meet state-aid criteria, where there could be earlier action taken if funding sources are available. With uncertain demand, there is also a role for the public sector, particularly at regional level, in stimulating local demand and encouraging NGA take-up. In general, we believe that the public sector should focus on demand-side activities rather than replicating infrastructure. We are always keen to work in partnership with Regional Development Agencies, the Devolved Administrations and other local bodies, and both Ofcom and Government should actively facilitate this collaboration.

- Finally, Ofcom's framework for action is a helpful categorisation of the activities that Ofcom are undertaking in relation to NGA and those that are being undertaken elsewhere. Given that NGA is likely to remain the focus for public policy debate (indeed this may even increase as deployments begin), it will be important to have clarity over the various initiatives. We look forward to understanding more from Government on the NGA aspects of the Digital Britain initiative, which will subsume the Government's response to the Caio report. In terms of Ofcom's role going forward, as indicated elsewhere in this response, we believe it is important to be clear where Ofcom should have a direct role and where industry should lead. We also look to Ofcom publishing the NGA Statement as soon as possible in the New Year in order to offer greater regulatory certainty to investors.

## 2. Super-fast broadband services will soon be a reality for the UK

BT welcomes this Ofcom consultation document as part of a series of publications in September designed to move forward the public policy and regulatory debate on Next Generation Access (NGA). This follows the Caio Review, the ongoing work of the Broadband Stakeholders Group (BSG), (including their recent costing report), Ofcom's own New Build Statement and the European Commission's Draft Recommendation. NGA is also, we understand part of the scope of the Government's new Digital Britain initiative.

These publications are highly relevant but, in understanding the public policy context, it is important to note things have started to change in the period since Ofcom's last NGA consultation in September 2007.

BT announced in July this year that it was prepared to spend £1.5bn on deploying NGA, reaching up to10 million homes in the UK by the end of 2012.

Openreach has since launched its FTTC product consultation with industry and announced that two exchanges - in Muswell Hill, London and in Whitchurch, Cardiff – will run operational pilots of FTTC in summer 2009. Up to 15,000 customer premises - homes and businesses - will be involved in the pilot at each exchange area and customers will have headline speeds of up to 40Mb/s. At the same time, BT's first FTTP deployment, a fibre-only new-build development at Ebbsfleet Valley in Kent, is now live and occupants are able to download at speeds of up to 100Mb/s - the fastest headline speed available to residential customers in the UK. There have also been announcements from other companies at varying levels of scale.

BT is also continuing to roll out copper-based next generation ADSL2+ broadband services (giving download speeds of up to 24Mb/s) as part of a nationwide programme, this is all part of BT's 'mixed economy' approach to meeting the needs of end-users and it is important to recognise that NGA means more than just fibre networks. As Ofcom indicate, the role of wireless, both now and as technologies develop, is also relevant and hence Ofcom's ability to enable wireless broadband through expediting the spectrum auctions, is also important.

The response from the regulator to these developments needs to be practical and enabling and reflect the need for pragmatism and flexibility, not prescriptive and theoretical. In particular, the regulatory framework needs to recognise the economic realities of NGA investments and support the way industry wants to take forward NGA deployments. We welcome the fact that this document is a move in this direction, but more clarity is required to give investors certainty about Ofcom's policy direction. This is why BT's deployment plans are conditional on there being an acceptable regulatory framework. We look forward to Ofcom's Statement, in response to this consultation, giving this clarity.

As Ofcom indicate, this consultation builds on Ofcom's previous consultation documents of November 2006 and September 2007. Given the widespread responses to the last consultation in particular, it would have been hoped that Ofcom could have given certainty on some issues in this document rather than consulting again. We agree with Ofcom that the regulatory principles set out in the September 2007 document are still relevant, namely:

- contestability
- maximising potential for innovation
- equivalence
- reflecting risk in returns
- regulatory certainty

If NGA deployment is to be encouraged, Ofcom need to be clear what these principles mean in practice so that investors can make assumptions in business cases with confidence.

Ofcom rightly note the publication of other relevant documents. We welcome the pragmatic tone of Ofcom's own New Build statement, which has given some clarity on the regulatory framework for new fibre-only sites. We also agree with Ofcom in welcoming the Caio Report. We support Caio's overall conclusions that the market is well-placed to deliver NGA in the UK and look forward to seeing the Government's response to the report, including on those recommendations that go beyond Ofcom's remit. We also await greater clarity on the extent to which NGA will form part of the consideration of the Government's new Digital Britain initiative.

Ofcom also note the EU Commission's consultation on its draft NGA Recommendation, to which we and other stakeholders have recently responded. BT welcomes the Commission's intention to adopt a Harmonising Recommendation on NGA but believes that such a Recommendation should focus on general principles such as maintaining a competitive supply of services to end-users and encouraging efficient and economically sustainable investment in new infrastructure. The Commission rightly stresses the importance of recognising and rewarding risk and the need for regulatory certainty, but BT agrees with the published view of the European Regulators Group that the current draft Recommendation is overly prescriptive, especially in respect to potential remedies with the particular stress on duct-sharing. BT looks forward to working with other interested parties to ensure that the final Recommendation gives national regulators flexibility to tailor regulatory approaches to national circumstances.

Given that NGA is likely to remain the focus for public policy debate (indeed this may even increase as deployments begin), it will be important that stakeholders have clarity over the various initiatives, from Ofcom, Government and at EU level.

## 3. What will super-fast broadband mean for consumers and businesses?

Ofcom are right to say that the NGA debate should not just be focussed on technical issues but should stress consumer and citizen interests. BT has always believed that the debate should be about services not networks. Hence it is important to understand both the nature of the services and applications that will drive the demand for NGA and what can be done to ensure that the customer experience is paramount. It is clearly important to consider consumer protection from the outset, albeit without stifling necessary experimentation and innovation as new applications (and potentially new business models) emerge.

*Question 1 - Is there further evidence available on the applications and services or consumer benefits that may be supported by next generation access?*

We agree with Ofcom's position that whilst NGA has the potential to bring about significant change it is difficult if not impossible at this stage to predict exactly what form this will take and at what pace. Despite the announced plans for NGA deployment, demand remains uncertain. We have not yet seen the new applications that drive people to want very high bandwidth nor do we yet know how much premium people will be prepared to pay for very high speeds. We do not believe this will start to be proven until several years into NGA deployment, emphasising why decisions to invest in NGA are bold and carry risk. This is particularly so in the current economic climate.

Potential applications include the delivery of high definition content in competition with other platforms such as satellite and DTTV. Fibre networks may have an advantage over these platforms in terms of interactivity and on-demand services; however these platforms have a significant advantage for broadcast services. Moreover to compete in these areas it is imperative that players have access to attractive content on a viable, wholesale basis; for example, most incumbent offers are predicated on the basis of IPTV, usually including live football. Even then, it is not clear whether TV-like services will sufficiently drive demand for NGA: IPTV can run on 2 Mb/s and HD TV only requires circa 8 Mb/s, which can be met by copper. It will take sufficient demand for simultaneous multi-user HD VOD or IPTV services and/or growth in interactive entertainment services to drive NGA demand.

There clearly are other applications that will emerge including two-way video communications and other enhancements to video conferencing and home-working for businesses. There will also undoubtedly be a number of applications in health and education that will provide increased 'public value' but the challenge will be to monetise these such that network operators can be recompensed. In this regard, BT is looking to work with RDAs etc to help identify and stimulate local demand, particularly from local businesses and public sector bodies.

It is therefore at this stage highly uncertain how the market for very high bandwidth applications will develop. It is almost certain that applications requiring higher speeds, particularly those involving more interactivity, will emerge but there is currently no one 'killer' application that can be predicted; hence the uncertainty.

The other key uncertainty is around the development of the overall value chain in the context of ensuring there is a fair return on investment to players providing infrastructure/connectivity service (see also later section covering possible new business models). In this context we agree with Ofcom's observation that the speeds that end users receive is subject to other factors in the ISPs' networks or on the internet itself as well as the access infrastructure. The future evolution of the value chain is the key to this aspect being properly addressed. Providing greater customer transparency on broadband speeds may help to unlock a greater willingness to pay for higher bandwidths, as Caio suggested, but this may not be sufficient to fund new network investment.

BT does support Ofcom's view that consumer and business markets will demand different requirements in service and functionality at the wholesale level and will continue to demand these with existing and future access technologies. Openreach have also recognised that the FTTP GPON technology can be applied to meet the needs of different segments, and have launched a consultation on a GPON-based Dedicated Ethernet Access (DEA) product to complement its existing access portfolio.

*Question 2 - Who should lead on defining and implementing a process for migrations to and from next generation access networks? What roles should industry, Ofcom and other bodies play?*

BT agrees that effective migrations processes are essential to protect end-users and enable them to switch to, from and between super-fast broadband services provided over next generation access networks. Openreach is actively identifying migrations scenarios and end-user protection issues and ensuring they are firmly on the NGA agenda. This is evidenced by the focus that is being placed on migrations in the ongoing industry debate on Openreach's FTTC consultation and via the Openreach Next Generation Access Forum.

We believe that the industry itself, working through this Forum, should play the lead role in defining and implementing the required migrations processes. Ofcom's role should be to ensure that all industry players adopt and abide by the agreed migration principles and to ensure that all end-users, irrespective of platform or infrastructure, are protected effectively against mis-selling, if necessary through enforcement mechanisms in General Conditions.

To ensure that end-users are protected, we believe the migrations processes that are adopted for NGA must adhere to the following general principles:

1. customer consent to a transfer must be given and validated;

2. before any transfer becomes effective, customers understand its full implications (e.g. termination charges payable to losing providers) and have an opportunity to consider alternatives; and
3. consumers' cancellation rights, particularly under the distance and doorstep selling regulations, must be fully reflected within the retail process.

In our view, the MAC-based process reflects these principles and has the added advantages that it is familiar and mandated for current broadband: clearly it would be confusing and costly if super-fast and current broadband used different migrations processes. For these reasons, BT believes a MAC-based process should be used for superfast broadband.

There is still some way to go in finalising the technical specifications and commercial arrangements for products to be delivered over NGA and in understanding the costs associated with deployment and inter-product churn. These factors will need to be taken into account when wholesale charges for NGA-related end-user migrations are set.

.

## 4. Our vision for the future and the role regulation should play

In discussing its regulatory approach to NGA, Ofcom rightly set this in the context of a 'mixed economy' of provision. There is a need to recognise that future broadband needs will be satisfied by a variety of means: different fibre technologies (FTTP and FTTC), enhanced delivery over copper; wireless solutions. New business models will also develop involving industry players of different sizes; there are likely to be niche, geographic as well as national deployments. Ofcom clearly need to balance objectives to encourage investment and innovation with the need to safeguard competition, including in current-generation services. It is important to understand when the role of the regulator is to intervene and when the market should be left to find the appropriate solutions.

We agree with Ofcom's overall approach to regulating NGA, as set out in the document, particularly the stress on providing flexibility for trialling and piloting and the support for experimentation, including recognising that NGA is a 'mixed economy'. We particularly support Ofcom's view that it is not the role of the regulator to pick one single technology or even indicate a preference between technology options.

*Question 3 - What role is there for Ofcom in the ongoing debate on next generation access versus industry's role in progressing this debate through multi-lateral and bi-lateral discussion?*

We clearly do see a role for Ofcom in the ongoing debate around Next Generation Access. However, Ofcom must be wary of extending into areas which are properly those of infrastructure investors and hence inadvertently attempting to make commercial and investment decisions on behalf of private shareholders without bearing any of the attendant risk.

We therefore welcome the fact that Ofcom acknowledge that technology choice is best left to the market and that industry discussions are the best way of taking forward the development of the appropriate wholesale products. We believe that the Openreach product consultation process with its industry customers will provide the necessary clarity as to which wholesale products are required and which functionality is to be prioritised as part of the product development programme. We now believe significant progress has been made in understanding industry's requirements for the new GEA based FTTC product. Additionally Openreach will be looking to find ways of gaining credible commercial commitments from industry customers prior to large scale investment. These discussions are likely to take place multi-laterally (through industry fora and sub-groups) and bi-laterally. Ofcom clearly have a role in tracking the progress of such discussions and, as indicated later, in facilitating more general discussions over technical standards.

It is also important that Ofcom do not overstate the importance of theoretical models of competition at this stage of market development, which may undermine the delivery of services which can be of benefit to the vast majority

of CPs and end-users. Ofcom should support the outcome of industry consultations and not seek to second-guess what the market wants. Ofcom should not mandate or otherwise support a competition model which is at odds with that arising from industry discussions, and hence may be uneconomic or impractical.

*Question 4 - How far does current regulation, including market definitions, equivalence and BT's Undertakings, need to evolve as result of next generation access deployment?*

In looking at regulation in an NGA world, it is appropriate that the starting point is to consider market definitions and market power. With technology-neutral markets defined at EU level, the prevailing assumption at the outset is likely to be that the existing fixed access markets are applicable and that this will determine views on SMP and where enduring economic bottlenecks exist. This assumption will need to be critically challenged as NGA deployment continues to ensure that the market definitions remain appropriate and that any finding of SMP is derived from a proper and current assessment of market conditions.

Within any market definition framework, it may be that remedies are not needed in all markets. Remedies should reflect the nature of fibre technology; for example, it may not be necessary to have remedies in both any local access and any wholesale broadband access markets of which NGA is a part. We believe that the GEA/ALA products effectively straddle the market boundaries at these two levels and that only one point of network access is appropriate for regulation of NGA networks. It will be important to understand how Ofcom will address such issues in its next round of reviews of markets at these two levels; the approach taken then clearly needs to be consistent with the policy framework adopted through this NGA consultation process.

It is also important to consider the place of existing 'copper-based' remedies. BT believes the GEA product addresses the pro-competition regulatory objectives that regulated products such as CPS, WLR and IA were previously designed to address. Ofcom have to an extent recognised this in the pragmatic positions taken in the New Build statement and we would want to see this approach carried forward more widely when considering remedies required as part of any transition to fibre-only networks.

Additionally, the NGA 'mixed economy' is likely to give rise to new sets of market conditions, both national and geographic and across technologies. It is welcome that Ofcom recognise in this document that market power (and economic bottlenecks) can equally apply to new entrants and other industry players. It is likely that Ofcom will need to look more specifically at this area in the next round of market reviews. In particular, if existing market definitions prevail, Ofcom's next review of the Wholesale Broadband Market will need to take into account the existence of NGA services, both provided by BT and others. It will clearly be necessary to review the position of cable.

Equally, an ‘open access’ approach is likely to require reciprocal obligations on all owners of NGA assets, not just in new build sites (though we do welcome the emphasis on this in Ofcom’s New Build Statement). It is important for end-customers that downstream competition is supported by all infrastructure providers providing non-discriminatory access. However, BT would like to see the need to offer access placed on a more formal basis, with reciprocal obligations placed on all owners of NGA assets, not just in relation to new build sites. In particular, there is asymmetry with the cable industry. We are disappointed that this issue has not been addressed in this document and we would look to Ofcom to cover this aspect in the NGA Statement

It is also important to recognise that downstream markets are increasingly blurring and new technology upstream will accelerate these trends. We believe that, consistent with the principles underpinning the Undertakings and the creation of Openreach, there should be sufficient downstream deregulation to allow BT to offer the same sort of bundles of calls, lines, broadband etc to our retail customers that our competitors offer and our customers expect. Whilst we are looking for this deregulation as an outcome from the forthcoming Retail Narrowband Market Review (and hence reflecting the current competitive nature of retail markets), the likely convergent nature of downstream NGA services increases this imperative.

In considering the appropriateness of current regulation to NGA, Ofcom fail to consider BT’s Universal Services Obligation (USO). We feel it is time for a fundamental review of the traditional concept of universal service and a need to revisit scope, form and funding.

Ofcom rightly identify regulatory certainty as a key issue. The scale of NGA investments, and the length of pay-back periods, means that it is vital that regulatory certainty is given, such that investment decisions are not undermined. This is an overarching requirement and it is important that individual policy positions are set within an overall policy framework long enough to give confidence to investors. We would suggest a 10 year ‘policy framework’ horizon, with a presumption of no changes in direction unless evidence definitively suggests the need for change, an approach which we believe can still be accommodated within the EU framework of regular market reviews. Although Ofcom make a number of references in the document to the need for regulatory certainty, it is disappointing that there are no proposals to address this and BT urges Ofcom to focus on this area in its Statement.

We welcome Ofcom’s discussion of equivalence in this document. We share Ofcom’s view that the Undertakings remain relevant to NGA and we believe they do not require updating since the principles are now fully embedded with equivalence at the heart of these. However, as Ofcom indicate, the concept of equivalence can and should be developed to accommodate a range of pricing and product offerings. As Ofcom state, the overarching principle is one of non-discrimination and there is no reason why Openreach should not be able to respond to its CP customers with product and pricing variants provided they are offered to all. This could include innovative pricing options involving up-front commitments and subsequent discounts, which could have a valuable

role in sharing risk and incentivising take-up. Going forward, it is possible to envisage Openreach offering a number of different NGA products to CPs on an equivalent basis. It is not appropriate nor was it ever intended in the Undertakings that there should be multiple EOI products in a single value chain.

In general, BT believes the Undertakings are ‘future proofed’ in relation to NGA. The existing information-sharing restrictions are still valid and there is no need for any new requirements in respect of NGA services given the Undertakings already provide for any new Openreach services to be provided on an equivalent basis. Ofcom also note the issue of the Openreach ownership of ‘active’ electronics (for example, electronics in street cabinets); we are separately discussing with Ofcom the need for a variation to the Undertakings to allow this change, which is essential to enable Openreach to offer the active FTTC product currently being discussed via the industry consultation process.

## 5. Regulatory policy can influence incentives for investment

Ofcom consider the various drivers and incentives for investment in next generation networks. Ofcom generally believe that it is possible to secure investment while at the same time safeguarding competition. BT generally agrees with this approach; we have strongly opposed those incumbents in other EU member states who claim 'regulatory holidays' are necessary to incentivise investment. At the same time, BT's own NGA investment plans are clearly predicated on the basis of offering equivalent, wholesale access products and this creates a different dynamic. A level of regulatory certainty is required at the *wholesale layer*, as it is these revenues that need to be secured to support the infrastructure investment.

It is important to recognise that the competition model needs to be appropriate and reflect the current economic realities of network deployment; regulatory support for a perhaps idealised market structure and product consumption chain may have the effect of chilling investment, particularly if it creates uncertainty as to future policy directions. This is discussed further in the context of active and passive remedies in the next section. Similarly, there may need to be a point where the regulator withdraws support from the existing current generation competition model in order to allow the transition to next generation networks to take place; this again is discussed later in this document.

Ofcom also consider the opportunities for cost reduction and efficiencies as drivers for investment. One should be wary of ascribing too many cost savings to new networks. Firstly, cost savings will not be realised until new networks are in place so the investment challenges in terms of capital funding remain. There will be benefits in terms of cost savings and efficiencies but investment is required first and this is likely to mean additional costs and risk to be recovered in the short-term. Secondly, it is unlikely that cost savings on their own will make the case for NGA investment; customers' willingness to pay a premium for higher speeds and/or new business models with additional streams will also be needed. However, it is important to recognise that for these future cost savings to be fully realised, there will come a point, as Ofcom note, where parallel networks cannot be maintained. At that point an inflexible and prolonged transition process will impose additional costs.

## 6. Competition remains key to delivering the benefits of next generation access

Competition should be at the deepest level that is *effective and sustainable* and hence it is important that the debate about wholesale products is not a theoretical one, but one which is based on economic realities. It is important that those products that can be economically-delivered are encouraged. We welcome Ofcom's recognition that the choice between active and passive remedies is not as 'black and white' as is sometimes portrayed but more of a continuum. The Active Line Access (ALA) approach (which is being supported in the UK through Openreach's Generic Ethernet Access (GEA) product) offers significantly better economics of deployment for all parties in the value chain, and, as acknowledged by Ofcom in this document, can still deliver significant capability for innovation and competitive differentiation. It is also more likely, we believe, to support downstream competition.

This leads to some important conclusions for the regulatory approach required. If it is important for regulation to promote a wide and varied choice of CPs for residential and business customers; to support consumers being able to switch between these CPs easily and at low cost; to prevent undesirable customer outcomes such as the creation of 'technology' or vertically integrated 'single CP' islands; then the key regulatory imperative for passive remedies is not *how to make the economics work*, but rather *how to maintain them as regulatory options* without undermining the economics of NGA infrastructure deployment and the inherent consumer benefits of active NGA remedies.

BT's investment case for widespread NGA infrastructure deployment is underpinned by the efficiencies and economies of scale of active remedies, which also enable us to support an open wholesale market (and the vibrant downstream market that this generates). This can be put at risk by giving an inappropriate weighting to the as yet unproven arguments for unbundling the passive elements of NGA networks.

This is emphasised by the fact that we have still not seen any evidence of significant scale demand for passive remedies such as sub-loop unbundling (SLU) and duct-sharing, and hence cannot, at this time. accept that they warrant large scale investment. In reality, these remedies should only be considered and mandated if there is clear effective demand, and not on the basis of any theoretical competition models. As stated above the economics of NGA deployment are very fragile and therefore obligations to support both active and passive remedies in parallel will risk making any NGA investment uneconomic, particularly if complex internal consumption models are mandated. It is worth emphasising that all other international scale NGA deployments have been predicated on the basis of either state aid and/or a vertically-integrated incumbent; delivering scale NGA infrastructure deployment on a wholesale basis remains a significant challenge, and requires regulatory policy which does not undermine such a market structure going forward.

In this respect regulatory policy also needs to be clearer in identifying the outcomes it is hoping to achieve. Statements which assert that passive remedies are superior to active remedies 'because of the greater scope for competition that they offer' are at best contentious. If the economics of passive remedies are improved by regulatory intervention or through market or technological innovation there is a need to understand what the effect might be on the competitive landscape both at the infrastructure layer and further downstream. Our work (referenced below) and work by the BSG point to powerful scale economies at play in NGA and the application of passive remedies by vertically integrated companies with downstream market power (as opposed to a functionally separated company) does not necessarily alleviate competition problems for the regulator - rather it may heighten the forward looking risks.

We also have great difficulty in accepting at face value the often asserted and unsupported phrase that passive remedies are better for innovation. Again this deserves significant further analysis. Perhaps the most obvious example of a passive remedy in the copper network is the MPF product. A fuller analysis would conclude that this is an unbundled element taken from an integrated and efficient access network design after it was designed and built to fulfil the function of delivering voice services on a mass scale to end-users.

This is not the situation we face with NGA at the current time. A network architecture is required that is capable of efficiently carrying large volumes of 'video-grade' data on a mass consumer basis. Any regulatory intervention should not inadvertently (or intentionally) impair the ability of a next generation access network to carry out this task efficiently and with an appropriate design. The economies of scale and scope which are inherent in such designs point to new points of access where 'effective and sustainable' competition can exist and regulatory intervention should not undermine these.

In our own internal work and in analysis we have commissioned from Analysys Mason we have explored the investment cases for single and multiple/parallel local NGA infrastructures. The analysis shows that although the investment case for an NGA wholesale network (e.g. from Openreach in the UK) is challenging, it can be viable under certain conditions, whereas the case for multiple or even a second parallel fixed network deployment is unlikely to be viable in any but a very small proportion of target areas. It is also important to take due account of the fact that existing cable networks are being incrementally upgraded to DOCSIS 3 and this means that many areas (including around 50% of the UK) may soon have two fixed operators providing next generation access services.

It is also often cited that because fixed costs are a very high proportion of investment costs for NGA an assumption is made that duct/cabinet sharing will necessarily transform the investment case for a second operator. We do not accept this view and note that the independent research report by

Analysys Mason for the UK Broadband Stakeholders Group[1], which showed that that duct and civil works are only part of the fixed costs. Thus the potential benefit from access to infrastructure is far less substantial than implied. BT believes such access is unlikely to transform the investment case.

In any investment case, the cost per household (and hence likely price per household) is closely related to the percentage of passed households that subscribe. The Analysys Mason work for the BSG shows that cost per household is still falling when there is >40% take-up of a single network. In our view this must raise doubts about the viability of multiple networks in many areas and shows why the case for NGA investment by telecoms operators is even more challenging where a cable network is already present.

Similarly the recent WIK study for ECTA[2] also questions the viability of second-mover investments. The study indicates that potential VDSL replicability by a second mover varies from 0% in France and Spain through ~18% in Italy and Germany to a high of 39% in Portugal. Potential FTTH replicability however is less than 2% in all but France (due to sewer availability in Paris). BT believes that since further infrastructure competition is unlikely to be feasible in large areas, the prominence given to passive remedies such as duct and cabinet sharing is disproportionate and potentially highly damaging to the industry and its customers.

*Question 5 - How important are passive products such as forms of sub-loop unbundling and duct access? Can the economics of these products support the promotion of effective and sustainable competition at this level? Which passive products should Ofcom pursue?*

Each type of passive remedy needs to be assessed on its own merits in terms of the economic and operational effects that it would have on NGA investment and competition in the UK.

*Duct Access*

It is BT's view that at this current stage of NGA market development, there is no economic case to support the widespread introduction of duct access in the UK. This view is supported by much analysis already in the public domain, and also by work which we have commissioned and previously shared with Ofcom.

It is also true that should the economic case ever be made to introduce such a remedy, significant operational and legal obstacles remain to be overcome. These challenges have been well documented in our previous submissions. We continue to be very supportive of Ofcom's ongoing duct survey project and look forward to publication of the final results in due course. In the

[1] The Costs of Deploying Fibre Based Next Generation Broadband" – Report for the Broadband Stakeholders Group by Analysys Mason

[2] The Economics of Next Generation Access" – Study for the European Competitive Telecoms Association

meantime our understanding of the interim findings is that they have usefully informed the debate on many of the significant operational challenges facing duct access.

The results also appear to point to material variations in the availability of duct space both between regions and on a local level which would also be a significant challenge to the effectiveness of the remedy. At this stage we believe this supports our view that such a remedy could only have limited benefit and hence limited demand. In this respect we support Ofcom's stance to consult on the real level of demand for duct access amongst CPs rather than to pursue such a remedy on the basis of principle.

If eventually mandatory duct access were deemed to be a necessary remedy in the UK then in our view it would be disproportionate and inequitable that it should only be applied to BT's network. The most appropriate approach at such a time and in those circumstances would be to take full account of the availability of all telecoms and utility duct and the contribution that it could make to such a proposal. Reciprocal unbundling obligations should certainly be placed on all telecoms operators, including cable.

*Sub-Loop Unbundling (SLU)*

BT will continue to support the SLU product. In our view it should continue to be made available under broadly similar terms and conditions as currently exist. We consider that this is the appropriate approach to support a CP that effectively wants to 'build' its own deep access network infrastructure.

This is to be contrasted with the Openreach model which involves investment in upgrading the access network for all CPs that want to use it. Such an investment has to look to efficient deployment methods, efficient design and economies of scale in order to drive down costs and drive up end-user and hence wholesale market take-up. This is of key importance to the investment case.

The new access investment will also face real competition from other fixed platforms (such as cable and new entrant fibre networks) and mobile and satellite services which do not have physical unbundling obligations at any level; hence there is little or no commercial scope to intentionally engineer a new fixed platform in a statically inefficient way.

The initial investment case which supported BT's announcement in July 2008 and which underpins the Openreach investment in NGA continues to be reviewed and refined as the development and initial deployment plans progress. As part of this, we have explored the various issues around internal consumption of passive remedies and how inappropriately timed or specified interventions can undermine such an NGA investment case. BT would be happy to discuss this further with Ofcom, subsequent to this submission.

However, we do recognise that there may be new, as yet undefined, passive options[3], that could emerge at some stage in the future development of the market, and that these will clearly need to be addressed by infrastructure players such as Openreach at the time. However we do not accept that it is the correct approach in the short to medium term to prejudge such market outcomes by imposing regulated internal consumption models at this stage. As explained earlier it is likely to be particularly damaging if inappropriately imposed simultaneously and in parallel with initial NGA investments. Part of regulatory 'certainty' in our view would ideally be agreeing a period of time or non-damaging terms and conditions which apply before unbundling can take place where 'open' fixed platforms (on an active basis) have been put in place.

This would also help to alleviate the uncertainty that exists around incentives to 'game' such arrangements without any investment commitment. For example, potential entrants may be waiting for BT/Openreach and/or other infrastructure investors to prove the market first and then to pursue forms of unbundling or marginal cost supply at a later date without having taken any of the initial investment risk.

Additionally, in our view any regulatory policy which unquestioningly supports scale use of SLU or other passive remedies as 'good for competition' suggests an incomplete analysis, which is unclear in its medium to long term goals. Where there are, in reality, only a very small number of companies with the potential to invest in the activation of cabinets for the provision of NGA services, then the likely market structure that would arise is much more analogous to duopoly or oligopoly than a fully competitive environment.

Such a scenario would be challenging in competition terms and particularly if only one party was strictly regulated at the wholesale layer but other(s) remained vertically integrated, unregulated and with strong positions in downstream markets. Analysing such a situation on a forward looking basis, which is the focus of SMP and *ex ante* competition regulation, such use of SLU or other passive remedies does not present a resolution of competition issues, it fact it leaves significant questions unanswered and in need of further action.

In our view, the analysis of the potential downsides of a potentially very limited competitive landscape based on underlying passive remedies has not thus far been given the weight it deserves in the debate. The potential for inappropriately imposed passive remedies to undermine the business case for high quality and efficient active remedies, and the possible reintegration of the functionally separate (at present) access network into vertically integrated companies should be central to the regulatory debate and treated with foresight.

[3] As part of Openreach's consultation process with CPs (referenced under Question 6 below) Openreach have already started to explore alternative NGA deployment models (where commercially and operationally viable).

It is also important to note that in the provision of services to business customers, there are significant issues raised by the geographic diversity and heterogeneous nature of the customer base. The CPs who focus on this sector will not find passive remedies effective, nor would they form a basis for sustainable competition.

Finally, the feedback that Openreach have received from the vast majority of CPs is that they support active remedies (and this is also the perception of BTGS as a new entrant in overseas markets). This is because they see benefits in an efficiently designed NGA network. Network and scale economics are key; the ability to be able to interconnect efficiently and gain access to large numbers of customers; the benefits to CPs (and end-users) of the automation of many migration and upgrade processes; the support for new entrants to enter the market; the potential for the next step to FTTP (as cited in the recent BSG report) are all made more difficult by inappropriate passive obligations.

In our view, statements in the consultation document such as '*the potential benefits* [of passive access] *to competitive operators and ultimately consumers are so large*' do not give a balanced view of the possible effects on competition and appear to lend no weight to the many and significant consumer and CP benefits discussed above.

*Question 6 - What are the characteristics of high quality, fit for purpose active wholesale products? How far can active products with these characteristics support effective and sustainable competition?*

BT and Openreach have contributed extensively to discussions with Ofcom and other industry standards bodies around the characteristics of 'fit for purpose' active NGA wholesale products. We feel we have made significant progress in recent months in promoting understanding of the economics and end-user benefits of such an approach. We have also submitted detailed comments in response to Ofcom's parallel technical consultation on Ethernet Active Line Access.

If Active Line Access (ALA) is standardised appropriately, then service providers will be able to exert significant control over the nature and characteristics of the services provided as well as the price and product packages available. Additionally the bit rates available for 'active' access products are anticipated to be higher than mass market consumers will require for some time to come, and hence the scope for service innovation up to those bit rates is in fact unconstrained. In any case, further unbundling is unlikely to offer competing infrastructure operators significant scope for network innovation given the probable purchase of the same or similar standardised network equipment and the physical limitations which are being reached for the existing copper infrastructure.

Hence in our view the key enabler for innovation which is relevant to end-users is likely to be identifying the right ALA characteristics and then ensuring

appropriate support in standardising. In the UK the evolving debate around this subject already recognises the importance of features which allow and promote innovation at the service levels above the 'Ethernet' layer. In our view there is a material difference between the 'one size fits all' perception which exists around the IP-based 'bitstream' products available via the current generation of DSLAMs and the potential for a wide variety of offerings via Ethernet.

As indicated above, we have worked extensively with Ofcom on the suggested key requirements for an innovation-friendly ALA standard, (including: Security Enablement, QoS Enablement, Multicast Enablement, Flexible Customer Premises Equipment (CPE) and Flexible Interconnection and Aggregation); and look to continue to support Ofcom's work with industry in this respect.

One important distinction that has been particularly useful and has recently emerged from the Ofcom/industry workshops is that at this early stage of NGA development the key focus needs to be on standards which ensure that future functionality is not precluded in the higher layers or at a later stage in development rather than requiring ALA itself to actively *provide* them. For example, at least some aspects of security and tagging are end-user specific and need to be provided by the owning CP. Hence it is the role of ALA standards to ensure that this can continue to happen in a non-vertically integrated model.

It is also become important to consider where the boundary should be drawn between the ALA infrastructure service and the downstream CP. For example the current Openreach GEA proposal (and those of other 'active' providers) is based around an active Ethernet termination/interface both at the point of handover and in the home. This would simplify the migration process between services and/or CP, support easier fault finding, repair and maintenance and processes and potentially take a step towards an access technology independent interface in the home (eg an Ethernet interface). However, alternative proposals have been discussed where there may be possibilities of stripping away parts of the active service at some point in the future (eg so called 'wires only'). Such options may be possible (or even preferable) for some NGA architectures at some point but will require careful consideration by both the infrastructure providers and downstream CPs as they are not without repercussions for access service levels and end-users.

We also note that the debate around active products can very easily be drawn into focussing solely on technical functionality when the issues around product development are much more varied. The most primary and perhaps most important of these is the commercial consideration; do end users want to buy the service, can parties in the value chain afford to invest, and make a reasonable return, can end-users easily swap between providers and access a wide choice of CPs and services over their infrastructure? In our view these are at least as important as some of the five characteristics listed above to an end-user. This is where we believe active products score highly over passive alternatives.

In addition to Ofcom's ALA workshops, Openreach has also been consulting extensively with its customers, the UK CPs, to refine its views on NGA Ethernet products and to develop an indicative evolutionary path for its GEA products both for new build scenarios but also more recently for brownfield FTTC/GEA deployments. The initial GEA consultation process began in Spring 2007 following Openreach's commitment to develop a fibre-only FTTP network for Land Securities in Ebbsfleet Valley in Kent (which culminated successfully in the provision of both voice and broadband services over GEA to the first end-users on target in September 2008).

Openreach launched its GEA/FTTC consultation in August 2008 following BT's major announcement in July. There has been considerable customer (CP) engagement activity since that time as well as major project planning and product development activity. For example, Openreach received ten detailed responses to the FTTC/GEA consultation from all major CPs and held sixteen bi-lateral meetings with CPs plus many subsequent follow ups, including a two day 'Open House' session in October at Adastral Park for all interested CPs where detailed joint working methods were discussed and product proposals debated and prioritised in both open forum and using a confidential ballot. This was followed up by the publication of an amended product proposal, taking into account new priorities raised and other issues. For example, as a result of CP feedback the FTTC pilot was extended to two exchange areas rather than the one initially proposed. Details of the FTTC/GEA product, including the latest views on the product specification and the product evolution roadmap can be found on the Openreach external web-site.

This industry consultation process has been exceptionally informative. In our view it is essential that Ofcom give this process a chance to reach maturity, and not to attempt to prejudge the market and the products that it requires, particularly at this stage of development. Ofcom's recent ALA workshops have been useful in this respect and as mentioned earlier now seem to have started to develop a useful distinction between what needs to be left 'open' in a standard and not precluded from future product developments and what can actually be delivered in phases of product deployment because of technological or commercial restrictions.

For Openreach, GEA development is anticipated to be an iterative and evolutionary process particularly over the next 18 months as the specification of the products, pricing and phases of release trial, pilot and launch are worked through. Openreach is putting significant resource, both people and finance, into all phases of development to achieve a final product that the market will want to buy.

The feedback from CPs indicates that they agree that this is a bold initiative and an unproven market. They want the Openreach product to enable them to maintain and develop abilities to differentiate their offerings. They also agree that getting to market and proving the case through appropriate trial and pilot phases is very important, and hence Openreach is trying to be as

flexible as possible in this respect. Obviously, the commercial model will be absolutely key and hence Openreach is looking to engineer the network design to be as efficient as possible.

In this respect it is also important to remember that product specification is not only about bandwidth/speed but critically that such infrastructure provides a robust and stable service which is 'video-grade'. For Openreach, with its extremely varied and nationally-distributed CP customer base, it is also about providing a product which downstream CPs can use with their existing infrastructure, and to this end they are looking to develop the service to support WLR, SMPF and MPF. Openreach will also need to try and accommodate CPs that want to move at differing speeds, but without holding up the project.

In answer to the second part of Ofcom's question, in our view it is only by allowing sufficient time and a supportive regulatory environment for active wholesale products to be developed and implemented that we will get a clear answer to whether they can support 'effective and sustainable competition'. We would emphasise that it is the prospective market for active wholesale products (GEA) that currently underpins the Openreach business case to invest in both FTTP and FTTC deployments. Openreach want to move the situation forward and invest in NGA infrastructure and a business model which is not only capable of supporting the existing levels of choice for end-users, but will also offer new high speed services and simplify the mechanics of choice by removing many of the manual stages in the service and inter-CP migration process.

In contrast to this we have seen no evidence that there is an opportunity for Openreach (or other infrastructure players) to invest in a wholesale business model based on the supply of passive products. As indicated above, our recent analysis, which we have presented to Ofcom and others, found no evidence to support such a view. We can also confirm that we do not have a viable business case for NGA deployment on the basis of providing passive remedies. In fact, from the viewpoint of an infrastructure provider (such as Openreach) it is becoming increasingly difficult to comprehend the continual regulatory pressure to unbundle further and further into the physical domain, when in fact technological evolution is moving in exactly the opposite direction (i.e. it is now more economic and efficient to take a single physical medium and provide greater bandwidth, multiple services, and multiple providers than ever before).

*Question 7 - Are there other options for promoting competition through regulated access that have not been considered here?*

Ofcom appear to have covered the majority of potential options that could be available in the short to mid term. There will inevitably be other technological options or alternative business models which evolve in due course and Ofcom may need to assess these as appropriate. However the key regulatory issue for BT both as an infrastructure investor (through Openreach) and retail

operator through its downstream divisions is that regulation is flexible in its approach to these innovative products and services and is supportive of new market developments and decisions. There is a real risk in assuming regulation is the answer and a need to be wary of theoretical 'market-making' which could lead to unsustainable business models dependent on regulation.

It is also important that regulation is supportive of initial investors in these new markets who have been exposed to real investment risk, and takes account of this as required in assessing appropriate terms or rights to any new types of regulated access.

*Question 8 - How far may options for joint investment provide greater opportunities for competition based on passive inputs? Are there lessons that can be learned from similar ventures in other industries? What are the risks and advantages of such approaches?*

As indicated in Section 6 Openreach has begun to explore alternative commercial models as part of its FTTC consultation. However it is too early to say at this stage whether there are any options which will be commercially or operationally viable for Openreach, but further work will be carried out to assess any specific and tangible proposals.

More broadly, and as indicated in the consultation document the term 'joint investment' can cover a number of different deployment scenarios, some of which may be potentially beneficial for end-users and investors, and others which can pose a variety of different competition-related risks. Hence, in our view, it is not possible to reach a generic conclusion that joint investment based on passive inputs is good or bad *per se* for competition and/ or stimulation of NGA investment. We have also addressed further issues related to this point in Section 6 of this response.

From a regulatory perspective, there would obviously be a need to assess the risks associated with joint investment schemes and how they might affect market structure and the incentives to invest; particularly the balance between incentives in vertically-integrated businesses and those of a regulated and functionally separated business such as Openreach. In our view a regulator would need to consider possible future outcomes from such models, how they might affect downstream competition, and the need that this might generate for continued further regulatory intervention. More broadly it is worth noting that such schemes can still create the risk of network fragmentation.

As Ofcom suggest, such investment models do in theory offer opportunities for risk-sharing but these should not be assessed solely on the basis of helping 'fix' the economics of passive remedies; much depends on the specifics of the model, and the detailed contractual arrangements which would apply to such a venture. It is possible to conceive of a wide variety of different investment models ranging from consortium-owned infrastructure to models involving jointly- funding but entirely separate ownership and operation. Some of these approaches can actually increase financial and/for

operational risk for individual parties rather than reduce exposure, and as stated above it all depends on the terms and conditions of the deal.

As indicated earlier, BT's recent NGA announcement and Openreach's current plan for deployment does not at this stage factor in a specific approach to joint investment in order for the project to proceed. However we do want to consider innovative approaches to pricing and funding and have acknowledged that this is part of the Openreach NGA customer engagement/ consultation process. Such approaches are still being considered for the pilot phase of the project but are more likely to be viable for early phases of roll-out. Openreach will continue to investigate/consider any tangible schemes which are proposed and will pursue as appropriate through bi-lateral meetings and the NGA forum.

*Question 9 - What should be the respective roles of Ofcom and industry in defining and implementing product standards?*

While BT believes that Ofcom should leave the details of product specifications to industry discussions, we do believe they have a role in promoting the development of industry standards. Ofcom have already been doing very useful work on ALA standards, both in the UK and in Europe, but we also believe there is a wider role to be exercised, in conjunction with existing standards bodies, in promoting understanding of the increasing complexity of, and therefore the need for, standards as well as industry 'norms' in the home environment (e.g. CPE and home-wiring) to ensure the end-customer experience is prioritised and the take-up of NGA services encouraged.

BT welcomes Ofcom's willingness and efforts to engage industry and provide both context and some direction setting to allow proper consideration to be given to the appropriate technical capabilities and functionality of access products and interfaces for NGA. The series of ALA workshops in particular have been well conceived with some good research material provided to stimulate debate.

Ofcom clearly have a role to ensure that the wider industry and new players and stakeholders are given the broadest opportunity to identify the current status of standards work. It is also heartening to note that Ofcom fully recognise the importance of global standards efforts and the need to avoid 'UK specials.'

In the accompanying technical discussion paper (to which we will be responding separately) Ofcom indicate a process through which standards may be defined and product specifications meeting such standards could thus be developed. The process indicated serves well to identify the remit of Ofcom and BT agrees in particular with the view that Ofcom's remit stops short of standards (and indeed products) definition. It is also important to remember that significant standards work has already begun so we are not starting from scratch. It is important too that Ofcom remain mindful that the

‘technical requirements’ with which it should they should be concerned are those which demonstrably support competition and to ensure that any which may prevent competition are not built into the standards. Beyond this, in our view Ofcom’s role should be to encourage stakeholders (particularly those who may be currently on the periphery of telecommunications standards setting, for instance developers and solutions managers) to engage appropriately. Having identified the technical requirements Ofcom need to beware of falling into the trap of defining how these parameters are incorporated into the standards themselves and in particular refrain from determining product characteristics.

There is already a multi-national process in place for agreeing standards that Ofcom are well aware of and which must be seen as a central part of this process if the UK is not to find itself with significantly higher costs than elsewhere and increasingly stranded (at both the network *and* manufacturing level) in terms of future development paths.

Detailed product specification must and should be customer led, as should the characteristics of standards requirements. Having once set the requirements which support competition (or do not preclude it) Ofcom must allow the normal process of customer and end user engagement to set the priorities for development. Openreach have introduced a new strategic product development process that balances need for customer consultation with ensuring timely product introduction together with an appropriate feedback loop to inform standards developments.

As indicated above, in BT’s view Ofcom have initiated some useful research and thinking into the characteristics of ALA standards and in general we recognise the validity of the 5 specific technical characteristics which are identified in the discussion document (namely: Security Enablement, QoS Enablement, Multicast Enablement, Flexible Customer Premise Equipment (CPE) and Flexible Interconnection and Aggregation). Work is already progressing in standards bodies on all of these aspects and it is important to ensure that none of them are precluded.

We recognise and support the need to ensure that switching and migration are facilitated as far as possible, and that, especially in an environment where there may be multiple different infrastructure providers and therefore network architectures emerging across the country, it will be particularly important that consumers and end-users do not find themselves either tied to a single provider or required to acquire a new set of CPE if they move between such providers. As indicated above, we believe that in addition to the useful work which Ofcom have commenced, there is a further and important category of activity which needs to be simplified and codified in the context of the home environment and structured wiring.

We are less convinced that all of these attributes need to be available to the degree described in the discussion paper, at day one, and in particular would emphasise that multi-casting especially was identified as a fairly low priority at the recent Openreach industry workshops, whereas the need for an

Intermediate Agent facility was considered a high priority by a number of stakeholders, although it did not feature in Ofcom's work. In our view this highlights the need to ensure that that Ofcom's role is more focussed on not precluding competition, while the industry and users determine *how* they wish to compete and enjoy the freedom to develop their own models.

It is notable that Ofcom concentrate in their descriptions on achieving 'core and minimum' functionality commensurate with the desire to see the ALA product develop as close as reasonably achievable towards being a passive product. We believe this is the right approach and in particular this will go some way to ensuring the minimum level of 'lock-down' of products and artificial constraints on innovation. Looking at additional characteristics as *possibilities not to be precluded* rather than as definitive *requirements* miminises the risk of inadvertently closing avenues of future innovation and development.

## 7. Key to delivering effective competition and investment is pricing

*Question 10 - How far do stakeholders consider the pricing approach outlined here of pricing flexibility for active products and cost orientation plus considerations for risk is appropriate at this stage of market development?*

We strongly agree with Ofcom's conclusion that the pricing of active products in an overlay scenario should not be price regulated at this stage of market development, In our view pricing flexibility for active products at both the wholesale and retail layers is essential for operators to be able to test market demand, deliver new functionality and respond in ways which can both stimulate sufficient take-up by end-users and enable more flexible approaches to cost-recovery; hence supporting the long term nature of the NGA investment case.

More generally, we recognise and agree with many of the arguments Ofcom puts forward in support of its proposed pricing approach; not least that prices will be constrained by the continued existence of copper-based broadband services in the overlay scenario; that there is very real uncertainty of demand that exists for new active services such as Openreach's GEA product, and on the basis that we intend to provide these services on a non-discriminatory and equivalent basis. We also support Ofcom's view that:

- where levels of investment risk are high, the pricing approach should be one which allows scope for investors to earn higher returns.
- it is important for Ofcom to commit to a consistent pricing approach and indicate its likely duration in order to provide as much regulatory clarity as possible.
- in 'cut-over' or fibre only scenarios there are ways to minimise consumer protection interventions through mechanisms such as "anchor pricing" which can still enable a large degree of pricing freedom for active products.
- a variety of marketing strategies are likely to be required to stimulate both end-user and wholesale take-up, for some time to come until there is some form of stability both in demand and supply side conditions.

Openreach is addressing many of these real issues first hand as it continues to make progress with its FTTC/GEA business case, and, as indicated in Section 6, have started to explore alternative commercial models for active pricing as part of its FTTC consultation. Although it is too early to say at this stage whether any of these options will be commercially and/or operationally viable or offer opportunities to reduce the investment risk, further analysis will continue to assess the suitability of specific and tangible proposals. In this respect, the freedom to continue to explore new and innovative ways to price active services is proving to be a positive and helpful feature of the current regulatory environment.

The reality of the Openreach NGA business case also informs our view on passive pricing. As stated previously we do see a number of significant risks with inappropriate regulation of passive remedies (please also see Section 5)

Broadly speaking we do agree with a cost-based approach for passive products. However, it is very important that if there is mandated pricing of any passive products it should be on a full cost-plus basis and that this should include a rate of return to reflect risk. Such products should be costed on a CCA basis and pricing should reflect a full apportionment of fixed and common costs, including where costs are shared between passive and active products. It is also important that the cost-plus pricing approach fully reflects the likelihood of high development costs and low volumes.

There are substantial risks for infrastructure investors if such products are regulated using inappropriate assumptions or prices are set in way which artificially promotes passive investment or arbitrage opportunities compared to active investments. This applies generally, but is of particular significance where investments have been made (or have been committed) to provide NGA platforms supporting 'open' active network access. Any regulatory intervention to either change existing passive pricing or introduce new passive or unbundling obligations would need to ensure that the pricing of any subsequently unbundled products would be set at a level which enables the original investment in active products to be recouped. If active products are successful in terms of industry take-up, then this investment needs to be protected; this is a fundamental element of regulatory certainty.

Establishment of such a principle would also help to alleviate the uncertainty that exists around incentives to 'game' such arrangements without any investment commitment. For example, potential entrants may be waiting for Openreach and/or other infrastructure investors to prove the market first and then to pursue forms of unbundling or marginal cost supply at a later date without having taken any of the initial investment risk.

*Question 11 - Will indirect constraints allow for an approach based on more price flexibility for active products? How will such an approach affect the incentives of different operators to invest and deliver super-fast broadband services to end customers?*

BT agrees with Ofcom's conclusion that indirect constraints do permit more scope for pricing flexibility for active products. This will clearly improve investment incentives for infrastructure providers but, as recognised elsewhere in the document, this does not in any way guarantee a return for the investor. Investors will still need to reach price points and develop product specifications capable of stimulating end-user demand and hence achieving the buy-in of downstream CPs.

As Ofcom recognise, the underlying rationale for any intervention through price regulation must be clearly identified and understood. That is, that the regulated supplier has a position of significant market power (i.e. the ability to set and maintain profitable prices above a competitive price level). At this stage it cannot be said that such a description applies to overlay NGA upgrades. In fact, as discussed in previous submissions, inappropriate price regulation (or even its possible introduction) can lead to a reduction in the *ex-*

*ante* Net Present Value of an investment project, and for marginal and/or highly uncertain business cases, could cause the investment not to go ahead or restrict the extent to which funds are committed.

Our position is therefore that price regulation ought to only be deemed appropriate where unconstrained returns are anticipated to be excessive and there is an underlying market failure. In the overlay scenario, the parallel and continued regulation of substitute services will maintain a constraint on prices of non-price regulated services (as will alternative commercial offerings such as cable or mobile broadband). Hence, in such circumstances, we consider price regulation to not only be unnecessary, but that it has potential to be detrimental to investment incentives by restricting (or preventing) the normal business strategies and responses required for new services and/or new markets.

The situation is different where there is a cut-over to a wholly fibre-based service, and we recognise that customers may not have the immediate protection of being able to choose from the existing portfolio of access services (although there may be sufficient pricing constraints from other offerings such as cable or mobile broadband). However as Ofcom acknowledge there are ways in which a proportionate degree of price protection can still be offered – for example, via the provision of a basic service at prices consistent with those offered in other areas where the current portfolio of access services is provided; in other words some variant of the 'anchor product' approach identified by Ofcom in the consultation.

Under such an approach, operators would be able to earn freely-determined market prices for the incremental services they are providing, whilst consumers would be protected by being at least no worse off than they would be without the investment. The operator's task, either as a downstream supplier itself or as an active infrastructure supplier to another retail operator, would be to demonstrate that the incremental value of the new NGA service was greater than the incremental cost to the consumer. An approach that would mimic the dynamic found in any competitive and unregulated market, and as identified by Ofcom such an approach would align a number of important incentives.

*Question 12 - What period of time would be appropriate for such an approach to ensure a balance between the need for longer term regulatory certainty with the inherent demand and supply side uncertainty in super-fast broadband and next generation access?*

Pricing flexibility for active products should remain as long as these are overlay products. When there ceases to be an indirect pricing constraint through the existence of copper products, there is then a case for reviewing this position in the light, of course, of an assessment of market power. As indicated above, this should take into account the availability of alternatives such as cable or mobile broadband.

However, the inescapable fact is that NGA upgrades are large scale long-term investments. Regulatory certainty is ideally needed for a period commensurate with the timescale of the pay-back period for the investment, and we have discussed this point in detail in a number of places in this response. If sufficient certainty cannot be given for such a period - and significant changes in regulation are not ruled out within such a period – the investor will continue to face regulatory risk in addition to the ever-present commercial risk.

In this respect it is vital that regulatory certainty (including price regulation) is given, such that investment decisions are not undermined. This is an overarching requirement and it is important that individual policy positions are set within an overall policy framework long enough to give confidence to investors. As we have indicated earlier in this response, we believe that a 10 year horizon, with a presumption of no changes in direction unless evidence definitively suggests the need for change, is an approach which can still be accommodated within the EU framework of regular market reviews.

*Question 13 - What are the key factors that could make a review of any pricing approach necessary?*

As indicated above, when there is a cut-over to fibre-only networks, where pricing constraints of copper broadband products no longer exist, there will then be a need to consider whether a change in the approach to the pricing of active products is required. The need for price regulation will need to be justified with reference to any competition issues and the likelihood of any potential abuse of market power. It may be that the natural constraint of 'willingness to pay' is sufficient to keep prices low (and also to avoid any possibility of 'margin squeeze') combined with the existence of alternative sources of supply and there will therefore no need to change the approach. Alternatively, some form of 'anchor product' approach might be considered necessary to provide consumer protection. When/if fibre replaces copper as the prevailing access technology, the basis of the Openreach financial framework will need to be reviewed.

## 8. Eventually there will be a transition from copper to fibre

There is clearly a need to consider how the transition from copper to fibre networks should take place and we welcome Ofcom's recognition that it is an inevitable and important stage which needs to be considered carefully and should not face unnecessary regulatory barriers. We agree with Ofcom's view that as take-up increases, it will at some point make economic sense to avoid the costs of parallel networks and, that as this may start to happen on a geographic basis in the short to medium term, it is important that there is early certainty as to what such a transition process should look like. We also agree that it is important that notice is given in advance of any fibre cut- over and that there should be sufficient consultation with all stakeholders, including industry on a number of different matters, including appropriate replacement products. We also recognise Ofcom's role in consumer protection and would want to work with Ofcom and other stakeholders to ensure that end-users (particularly vulnerable groups) receive appropriate consideration.

However, it is important to recognise that there is likely to be a point where economics will dictate that maintaining a parallel copper infrastructure becomes untenable for an infrastructure provider and therefore they will need to pro-actively plan for transition. Hence we would require that after the due process is followed there should be no requirement to maintain copper; or to replicate existing copper-based products over fibre; nor should there be scope through the consultation process for any stakeholders to block reasonable and suitably notified change-out plans.

*Question 14 - How far can the generic model for transition outlined here deliver both incentives to invest in next generation access while ensuring existing competition is not undermined?*

BT agrees, in principle, with the generic transition model proposed by Ofcom in the consultation document. We believe that it could help support incentives to invest in NGA if it matures into an agreed process which allows for efficient and timely transition from overlay copper networks. We agree with Ofcom's view that the removal of parallel legacy networks does in theory provide additional economic incentives to invest but recognise that there is significant operational detail (amongst other factors) which needs to be worked through before such savings could be realised.

We also believe that such a transition would not lead to competition being undermined. Openreach's plans to move forward on NGA and any future thoughts of transition are firmly rooted in an open consultation process with CPs and in further understanding their requirements for access infrastructure. Issues such as end-user take-up, price and specification of replacement wholesale products are all of central importance to the Openreach business model. Hence it would be impossible to pursue a transition process without taking account of the significance of consultation, notice periods and an understanding of the migration processes and economics of its downstream customers, the CPs.

However as Ofcom acknowledge, there are still many aspects of NGA deployment which are yet to be resolved and much to be explored before firm deployment plans can be finalised, and further thoughts on these matters are expressed in answer to Questions 15, 16, and 17. In addition to any competition issues raised, we recognise that if/when copper is withdrawn in the future, then issues around resilience and powering will need to be addressed by CPs and end users taking services over FTTC, similar to those currently faced in FTTP only deployments, with potential changes required to CPE and home wiring. The overall key objective must be to try and reasonably balance CP and end-user considerations with what may actually become an economic imperative to transition for the NGA infrastructure provider/investor. Hence, whatever process is eventually put in place it must be practical, clear and decisive in its application and must not allow parties to block transition from happening once due process has been followed. As Ofcom also acknowledge with many issues of this nature there are network benefits which can only arise (e.g. potential reductions in costs, improvements in network performance etc) once all parties are able to share a common platform.

In BT's view, for transition issues relating to Openreach infrastructure, it would be appropriate for Openreach and industry, in the first instance, to work through the detail together to better understand the potential transition scenarios and how they might be addressed. This could be taken forward though the Openreach NGA forum and consultation process and when plans are more advanced through bi-lateral customer meetings or other suitable means. However, as stated previously, we strongly support Ofcom's work in trying to establish clarity around such an important process, and look forward to working with all our stakeholders to achieve a suitable outcome as and when more information becomes available.

*Question 15 - What triggers would be appropriate for the commencement of any transition process?*

As indicated in answer to Question 14 there are still a number of significant issues (including commercials, product specification and regulatory environment) to be determined before large scale NGA deployment commences for BT. We therefore expect Openreach to continue to consult with its customers, the CPs, for some time to come, and recognise that all of Ofcom's possible transition 'triggers' are reasonable and likely to be candidates for discussion.

For Openreach (and for downstream operators) we see the likely key trigger as being a combination of product/technology evolution and end-user take-up. When the network operator is able to offer the prospect of providing all of the major mass markets end-user services over fibre (or perhaps the key services – consumer/business voice and broadband) and users demand them, then the economics of supply and the prospects of operational cost savings will take over and make the transition inevitable. This affects both the retail and

wholesale markets and is not unlike the dynamic which occurs in any competitive retail market – taste and demand shifts consumption towards a new technology, scale economies kick in and supply of the old technology ceases or becomes a niche market. The key for any regulatory intervention in the transition process is to recognise such a tipping point in advance and not to put unnecessary regulatory hurdles in place.

However, as stated, the reality at this time is that further experience of the NGA related markets is required before firm transition plans can be proposed. Hence in principle we accept that the 'triggers' proposed by Ofcom need to be considered and are pleased that Ofcom recognise the underlying network economics. We also agree that the period of 2-5 years seems a reasonable first estimate of when such transitions may start to occur, although as mentioned below there may be a need for a more responsive mechanism if demand or deployment plans accelerate faster than anticipated, driving an earlier transition.

We also recognise the importance of customer protection issues to Ofcom but would caution against inadvertently extending end-user protection in NGA transition beyond what is already covered by the USO and standard consumer regulation. For Openreach (and BT) there are significant incentives to avoid alienating CP customers or end-users at a major transition point like this, not least in generating voluntary migration to the new platforms, and as explained earlier, in the end it is the economics of supply and the balance of services demanded which are likely to dictate the eventual outcome. This is unless regulatory intervention creates barriers to the process or alternative methods of funding such legacy services materialise.

As Ofcom are aware we are currently focussing on the initial trial and pilot phases of NGA in the UK. One of the key objectives of the pilot phase is market testing, which will also be an essential element of the early deployment phases. Hence such market information will be key to informing initial determinations of the period when transition might be possible. Information gathered from initial deployments will also help inform the debate around other linked matters such as how quickly CP migration plans could progress, acceptable notice periods etc.

A final point to note is that although we are currently focussed primarily on the trial and pilot phases information from those phases may yet indicate the need to make firmer plans for transition in order to support the business case and further deployment and in that case it may be necessary to reach more detailed agreement on transition rules before significant roll-out can progress.

*Question 16 - Once triggers or circumstances for transition are achieved, what would be an appropriate period for the various phases of transition (consultation, notice period, transition)?*

As stated above it is difficult to judge at this stage how exactly product take-up and timing of events will play out. Although it is certainly conceivable that

given the importance being placed on NGA deployment by BT (and many others) that significant advances could be made in retail applications and products over the next two to three years which drive demand and broader support for products over fibre; hence accelerating the need for transition.

As stated previously the network operator (and end-users) will inevitably have to take account of costs of supply, and as take-up increases, it will make economic sense for all parties to avoid the costs of parallel networks. Therefore any such process proposed must recognise that not all factors are entirely controllable and discretionary. The process must recognise the possibility of high or accelerated consumer demand.

Once planning for transition is commenced, our approach would be to develop detailed operational plans to provide appropriate resource to support cut-over, and to align such plans with the resource and capabilities of our CP customers so that service impact to end-users is minimised. Openreach have not yet started to work through such issues with its customers and would need to do further work internally and gather experience from the pilot phase before initiating detailed dialogue. But at that point open consultation with their customer base would be the essential next step.

Hence there is limited benefit in speculating in detail on exact timings for consultation, notice periods and transition at this time. However, it is worth noting that transition might be expected to be aligned (at least in some way) with the process underpinning the initial roll-out plan. That is if area X is enabled for FTTC/GEA before area Y then it is likely that area X is a candidate for earlier transition.

Given these uncertainties and dependencies on a number of factors it is difficult to argue for a definitive notice period at this stage, but we would be aiming to target something of the order of six months - perhaps on an exchange by exchange basis - with lower level detail identifying individual cabinet related dates. As stated above this would almost certainly have been trailed as part of a larger regional or national roll-out plan, which in effect would be the initial ‘notice’ that transition may occur in that area. In addition we would also consider a period of overlap for both technologies (e.g. where possible to leave overlay copper services in place for a period of perhaps three months from transition to facilitate migration and fallback arrangements).

As part of this, CPs would start to get advanced notice of those areas where FTTC is to be activated, followed by a period of consultation, followed by individual notice periods by exchange area, and finally a period of overlap ( at least in initial deployments). On a first pass this type of process would appear to provide a substantial period in which CPs can plan for future deployments and transition, allowing them sufficient notice to ensure rearrangements, but also has potential to provide a clear transition path for the infrastructure owner.

Over time one would expect transitions to potentially require less notice and/or less of a requirement for parallel running. Therefore it would be

important for any regulatory intervention (if required) to provide sufficient flexibility to allow procedures and processes to evolve and meet the market and end-user needs.

*Question 17 - Over what geographic area should any process of transition be managed, for example region by region or nationally?*

Openreach is still in the early phases of project planning for the NGA roll-out. The major focus remains on the initial phases of operational deployment (trial and pilot) and on product related issues (such as specification, 'roadmap' development and pricing). Hence it is not possible to provide a definitive answer to this question at this stage.

However, the reality is that roll-out (and subsequently transition) has to start with the identification of specific cabinets in specific exchange areas for upgrade. This then needs to be aligned to the needs of downstream operators to be able to communicate and target customer groups of a critical mass in a marketing campaign.

Transition, like roll-out, is likely to be targeted in some sense to exchange areas (and potentially down to individual cabinet groupings – preferably covering contiguous areas) and Openreach will need to carry this out in consultation with its downstream customers. As above the expectation for initial phases is that they may need to be more tightly focussed perhaps in a small number of exchange areas but that as learning progresses both Openreach, its customers, and end-users may be able to deal with transitions on a broader basis going forwards.

## 9. Regulation can play a smaller role in increasing revenues

*Question 18 - What actions, if any, should, Ofcom undertake to support new revenue models from next generation access?*

We support Ofcom's view that new business models, involving content commissioners, owners and packagers, are an important element of the economic and business landscape for network operators considering investments in next generation access.

This is particularly the case for video traffic. By 2012, it is expected that 70% of all traffic carried over broadband networks will be video. To put this in context, 30 minutes of video distributed across a network requires the same amount of bandwidth as 78,000 emails. Between January and September 2008, the total monthly downloads from BBC iPlayer more than doubled - from 11.2 million to 22.8 million. Usage on an average day has grown from a base of 361,000 to 759,000 downloads. During the Olympics alone, the use of BBC's iPlayer grew 140%.

BT does not look to Ofcom to develop or comment formally on prospective business models, since these are judgements for commercial actors to make and are not within the regulator's remit. Instead, we expect Ofcom actively to avoid and to caution against the imposition of new regulatory constraints on service providers or network operators which will inhibit innovation in this area. This includes net neutrality provisions and mandatory requirements regarding traffic filtering or monitoring in support of copyright holders or other interest groups. The network needs to be able to control the quality of service of its delivery of video content in order to monetise the value of carrying such traffic.

New business models develop best when economic actors are able to innovate and invest in response to consumer demands and technical innovations, in a competitive environment with effective access to bottlenecks in the value chain. This holds as true for the next generation of access networks as it does for the present generation.

Additionally, given that IPTV has been one of the main drivers of NGA investment (and source of revenue) in many other countries, Ofcom and other regulatory authorities should focus on ensuring that there is a level playing field as regards access to key content. This means allowing open access to public service content, not unduly circumscribed by brand standards of the content owners, and allowing fair access to all public service archive content. In relation to pay-TV content, this means mandating wholesale access to premium content (Sky's premium channels) and prohibiting restrictions in agreements relating to on-demand content.

We are not averse to Ofcom playing a supporting role in the development of user confidence in new business models around Internet access and content (as suggested in paras 9.26 to 9.32). We suggest though that the provision of

guidance from a regulator in relation to a new business model may not always be appropriate:

- it may suggest to users and service providers that the particular business model is a risk rather than an opportunity;
- guidance delivered in respect of an immature business model risks doing more harm than good - it may prevent that business model maturing appropriately and therefore stymie innovation.
- the growth of Internet access and use demonstrates user confidence and demand can be achieved without a regulatory guiding hand
- there are many other authoritative ways in which users can be informed about new service propositions

That said BT agrees with Ofcom and the Caio Review's conclusion that further developments in transparency would be of value for users and service providers alike. Providing greater consumer transparency on broadband speeds may help to unlock a greater willingness to pay for higher bandwidths, as Caio suggested, although this may not be sufficient to fund new network investment. We look forward to taking dialogue on this part of the agenda forward with Ofcom and as part of the Digital Britain review.

## 10. New build fibre policy

BT welcomes Ofcom's pragmatic approach to regulation in the New Build statement; in particular the way Ofcom has balanced the need to ensure competition with fostering innovation through flexibility, including clarifying that there is no requirement to replicate existing copper-based wholesale products (LLU, WLR, CPS). We would want to see this approach carried forward more widely when considering remedies required as part of any transition to fibre-only networks.

We welcome Ofcom making it clear to *all* new infrastructure providers that wholesale access should be built into their offerings especially where it is clear that there will, at least initially, be no competing infrastructure. Going forward, is important that this approach is applied to all infrastructure builders, including those who do not traditionally operate as telecoms providers.

We endorse Ofcom's desire to see the industry working together to define a set of common criteria and wholesale standards to support interoperability (Ofcom's Active Line Access approach) and have responded separately to the discussion document published alongside this consultation. We will continue to fully participate in ongoing discussions both with industry through Openreach's consultation and CP engagement process and through Ofcom's workshops.

We believe that Ofcom have taken the right approach in respect of the provision of uninterrupted access to emergency services, allowing flexibility in how this requirement is met by CPs rather than mandating battery back-up.

BT notes that, as elsewhere, Ofcom continue to express a preference for passive infrastructure competition, however, as indicated elsewhere, we continue to believe that the economics for New Build are likely to prove as challenging as in brownfield scenarios. Whilst it may be possible and desirable for duct-sharing to take place during the new-build construction phase, operational and legal problems are not completely resolved and issues around areas such as control of access to ducts will still occur once construction has been completed. Additionally it is still the case that the economics of parallel multiple networks and the limited addressable market for new build may lead economies of scale to dominate and hence limit the possibility of competition at the infrastructure layer. This does not preclude alternative supply in areas where Openreach is not present.

## 11. What role can the public sector play in next generation access deployment?

*Question 19 - What role should public sector intervention have in delivering next generation access?*

Public sector intervention can take a number of forms including: awareness raising, facilitating, gap funding and finally direct delivery/direct funding. These different types of intervention could occur on both the supply and the demand side of the equation. National Government also obviously plays a critical role with respect to setting policy, including fiscal policies that can influence NGA investment.

A number of players in the NGA discussion seem now to be proposing that intervention is required at the deepest level of these options in some areas. Indeed there appear to be a number of proposed programmes that require direct funding of network build underway at the moment, particularly at regional/local government level. This reflects a desire to anticipate the limits of commercial NGA deployment.

BT considers that it is generally premature to speculate on the limits of commercial roll-out at this time and would highlight that similar discussions were proposed at the time of the roll-out of current-generation broadband. Availability levels of 99% plus were not then envisaged to be likely via commercial deployment. Hence it may be premature to think in terms of a next-generation digital divide and areas that need to be addressed in advance of market failure. Attempts to identify such areas for direct public funding of network build at this early stage also risk such areas not being targeted for commercial roll- out. However, regional/local government do have a legitimate interest in the timescales of commercial roll-out in order to support current enterprise and economic agendas.

However, there may be some areas that would generally meet the criteria for state aid approval, where there could be earlier action taken if funding sources were available. Direct capital contributions to a company's network build costs are likely to amount to state aid and, as such, must be notified to and approved by the European Commission before they are granted. Any Commission approval will be conditional upon the funding being provided to the winner of an open and technology neutral competitive tender. Approval will also be conditional upon wholesale access to the subsidised infrastructure being provided on a non-discriminatory basis to all communications providers.

Precedent indicates that, subject to the market economy investor principle, the Commission will not approve public funding for broadband in areas where one or more operators already provide broadband because it would be unnecessary and disproportionate to do so. A consistent application of this rule means that state aid is unlikely to be available in areas where BT and cable or LLU operators provide present generation broadband and already have or would be likely to roll out next generation infrastructure.

Commission support is most likely in areas where there is currently no next generation broadband supply and unlikely to be any in the future. But there are few such areas in the UK and so at first pass there seems little opportunity for state funding to drive NGA.

However, the position on public funding of NGA may not be immutable. We suggest that Ofcom and the UK Government could seek EU support for a more extensive use of public funds, where budgets exist and local and regional authorities judge this to be a priority. The present 30% ceiling for interventions could also be reviewed. The Commission would need to be satisfied that the funding would meet a well-defined objective of common interest, and that the private sector would not be investing on a commercial basis in the areas concerned. We look forward to receiving further information from the EU on their recent announcement as to whether this will take the form of additional financial support for the regional structural funds or be via another financial vehicle and whether or not they are also considering a revision of the current 30% intervention rate to take into account changing market needs

However, it should also be remembered that the roll out of NGA is still at a very early stage. This roll out is happening on a commercial basis with a number of companies and organisations, in addition to BT, making announcements and now actively deploying capacity. This was recognised in the recent Caio report on NGA which said:-

> ‘The high costs of NGA, and high expectations of what it can deliver, tend to raise expectations in some quarters that the Government should make a major intervention – such as a large subsidy or structural change to regulation – to support the market. However, it is the conclusion of this review that the case for such a major intervention is weak at best. ‘

If this diagnosis is correct therefore, whilst there may well be wider societal benefits from NGA that could be encouraged by the public sector stimulating or supporting NGN deployments, such intervention would need to be done carefully if it were not to lead to potential distortions in the market, and the potential waste of public money. This public sector role could take a number of potential forms.

*Supply-side interventions*

Supply-side intervention by the public sector in particular needs to be considered carefully. Local and devolved governments who are anxious to see SFBB deployed in their geographies, particularly on key regeneration and housing sites, may wish to make capital investments within their overall infrastructure envelope. Any investment in passive infrastructure (e.g. ducts) needs clear guidance and clarity as it may well impact on the economics of any future investment (by making a direct market investment less attractive to a commercial provider).

Any deployment of duct by the public sector, or indeed private sector developers acting on its behalf would need to provide infrastructure which is future-proofed and which complies with the correct technical standards/specifications in order to support downstream service provision on a competitive basis. This is complicated, and there would be a risk it would not be achieved, despite best intentions. It is therefore crucial, that the practical considerations surrounding passive remedies are clearly understood and communicated.

If the public sector does want to make supply-side interventions, then there may be opportunities to contribute, within state aid rules, to the costs of providing active solutions, for example, NGA infrastructure offering open-access wholesale capabilities. However, we do generally believe that demand- side support, rather than supply-side interventions, aligns better with Ofcom's overall objectives of supporting a market-led approach.

*Demand-side interventions*

There are other options for public sector contributions to NGA outside contributions to investment costs, such as demand generation or aggregation. Regional and local authorities could play a role in helping CPs to identify where demand exists, or in stimulating demand where a focussed NGA deployment may be feasible. A demand- led model formed a successful part of the roll-out of current generation broadband.

There may also be a role for the public sector as a driver of demand. If local or regional authorities chose to move extensively to, for example, home-working and called for very large numbers of high speed lines in a particular locality that demand could provide the critical mass for deployment. Increased availability of Government services online could also drive demand. Local and devolved authorities have already responded positively to BT's announcement of 15 July 2008 and offered particular support and help. Those responses include a desire to support demand side activities such as acquiring NGA services for their own use, providing support for SMEs to encourage them to take up SFBB services from all CPs, and practical support on way leaves and road works.

Demand aggregation models such as the one adopted by North Yorkshire Networks (NYNET) where the local authority effectively becomes an ’anchor tenant’ for the network can also help with establishing a positive business case that serves to benefit all users, not just the anchor tenant, in areas where this might not otherwise be possible.

*National Government Policy*

National government could also contribute to NGA deployment by creating a favourable taxation regime. Favourable VAT treatment could be granted for NGA services. This would allow lower end-user charges and thus stimulate accelerated take-up. However any such approach would need EU agreement.

Government could in addition allow favourable treatment of NGA costs in terms of abated corporation tax. There are two possible approaches, which could be combined. Government could allow accelerated recovery of NGA expenditure or could allow in excess of 100% of NGA costs to be treated as capital allowances. The first improves the rate at which costs are allowed to be offset against tax; the second reduces the corporation tax burden. There are precedents for both – for example some aspects of R+D are assessed in excess of 100% as capital allowance. Such an initiative would, unlike a VAT change, feed directly into the business case for NGA build. Refinements such as limited time horizons or cut-off points at particular levels of penetration could serve to further incentivise deployment and cap public cost.

Government, and the public sector generally, will need to be clear on what they may require in terms of universal access to broadband as appears to be envisaged by the recent ‘Digital Britain’ announcements, and similarly any commitments that may be envisaged on so-called ‘not spots’. The NGA debate has frequently been characterised by confusion between next generation and current generation broadband issues and indeed discussions about the need for and scope of a possible broadband USO. A lack of clarity in this area risks compromising the commercial roll-out plans already underway and their subsequent development.

## 12. A proposed framework for action

*Question 20 - Are these the right actions for Ofcom and other stakeholders to be undertaking at this time? What other actions need to be taken or co-ordinated by Ofcom?*

Ofcom's framework for action is a helpful categorisation of the activities that Ofcom are undertaking in relation to NGA and those that are being undertaken elsewhere. Given that NGA is likely to remain the focus for public policy debate (indeed this may even increase as deployments begin), it will be important to have clarity about the various initiatives. We look forward to understanding more from Government on the NGA aspects of the Digital Britain initiative, which will subsume the Government's response to the Caio Report.

In terms of Ofcom's role going forward, as indicated elsewhere in this response, we believe it is important to be clear where Ofcom should have a direct role and where industry should lead. We also look to Ofcom publishing its Statement as soon as possible in the New Year in order to offer greater regulatory certainty to investors.