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SCOTTISH FUTURES TRUST

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Dear Clive,

SCOTTISH FUTURES TRUST – RESPONSE TO OFCOM'S STRATEGIC REVIEW OF DIGITAL COMMUNICATIONS

With apologies for the delay in responding, Scottish Futures Trust ('SFT') is pleased to be able to offer the attached response to the public consultation process by Ofcom regarding the Strategic Review of Digital Communications ('SRDC').

The consultation is well timed in terms of our efforts to deliver the digital infrastructure Scotland needs for it to be a world class digital nation and likewise enable its vision of ubiquitous telecommunications coverage. As you know, we are working closely with Scottish Government ('SG') to develop an implementation strategy to deliver the vision. As a key strand of the strategy, we believe that it is imperative that both consumers and businesses in Scotland have unfettered access to digital services and mobile connectivity to enable connection, content and commerce. This requires an infrastructure footprint which will provide:

- Seamless delivery across fixed and wireless platforms to provide ready and reliable access;
- A quality of service and experience commensurate with other leading and modern digital economies; and
- Investment into Scotland's digital infrastructure to enable future competitiveness, as well as its ability to provide enhanced public services and opportunity for its citizens.

Our response contains:

1. An Executive Summary, capturing our key findings and suggestions to Ofcom.
2. A detailed response to the Consultation questions.

We are more than happy to discuss any aspect of our response, and indeed we would welcome the opportunity to present our findings to you and discuss how best to take these forward; we believe that by working in partnership we can inform, influence and change the telecommunications sector in both Scotland and the wider UK.

Yours sincerely

Tony Rose
Infrastructure Director
Scottish Futures Trust

PART 1: Executive Summary

Introduction

Scottish Futures Trust ("SFT) is an independent, limited company owned by Scottish Ministers, established in 2008 to focus on developing and delivering a commercial approach to investment in infrastructure in Scotland. It is working with Scottish Government ('SG') to develop an implementation strategy to deliver Scotland's world class digital vision as described in SG's 'Scotland's Digital Future - Infrastructure Action Plan'. For this vision to be delivered, it is imperative that both consumers and enterprises in Scotland have access to digital services and mobile connectivity to enable connection and content. This requires both infrastructure and devices to achieve:

- Seamless delivery across fixed and wireless platforms;
- A quality of service and experience commensurate with other leading and modern digital economies; and
- Investment into Scotland's digital infrastructure that will guarantee the country's future competitiveness, as well as its ability to provide enhanced public services and opportunity to its citizens.

SFT is supporting Scottish Government to establish a roadmap for delivering the world class infrastructure needed to underpin the SG vision. A key aspect to this work is to assess the wide range of potential interventions that could be considered to enhance the opportunity for investment in digital infrastructure across Scotland. This includes UK and Scottish Government policy and regulation as well as establishing the drivers that will stimulate efficient and effective private and public sector investment.

We welcome the opportunity to respond to the DCR, with the response split as follows:

Part 1: An Executive Summary, capturing our key recommendations to Ofcom.

Part 2: Our response to the specific questions set out in the Consultation Briefing Document.

In support of our response, we would also welcome the opportunity to discuss it with Ofcom, and accordingly will liaise with Ofcom officials to arrange this.

Background to the review

The last Strategic Review undertaken by Ofcom in 2005 established a number of key principles, namely:

- That competition should be promoted by regulation "as deep into the network as competition is effective and sustainable ", supplemented by an undertaking by BT regarding equity of access and supported by organisational change within BT.
- Regulation should support consumer switching between suppliers.
- Regulation should incentivise timely and efficient investment in infrastructure particularly in relation to copper switch and development of NGA infrastructure, which was deemed as more risky than conventional investment.

These principles have underpinned the regulatory framework over the last 10 years. In 2013[1], Ofcom stated that:

[1] Ofcom: The Consumer Experience of 2013, July 2013

- Fixed Telephony providing a 64Kbit voice service is subject to universal service obligation and therefore is available across almost all of Scotland;
- Digital Terrestrial Television is similarly available across all of Scotland;
- The availability and speed of fixed broadband internet/data access is subject to much greater variation; and
- Mobile Services coverage for both voice and data has similar challenges.

In the period since 2013, the demand for data has increased significantly and with it the demand for seamless broadband connectivity. Anecdotal evidence, together with Ofcom and other studies[2], indicates that the customer quality of experience is one of unreliable broadband and mobile connectivity services in many parts of Scotland. This experience is replicated in both the consumer and business connectivity markets. Therefore there is a strong case to ascertain whether adequate investment and innovation has been delivered into those, primarily regional markets. In addition, the period since 2013 has seen considerable developments in telecoms with the emergence of 'quadplay' and structural consolidation across wireless and fixed platforms. For some there has been significant improvement in terms of superfast broadband and 4G coverage, alongside growth in the number and types of connected devices. Convergence has also changed how people access services, and indeed OTT content has grown exponentially over the last few years[3].

It is recognised that Ofcom has applied certain remedies, but based upon consumer outcomes we suggest that there is significant scope for Ofcom to be increasingly proactive as regards regulation of the market and how this will apply over the next ten years. We believe such remedies should be part of an overarching UK Regime, but should also address the needs and requirements of regional businesses and consumers. Building upon this locational regulation, Ofcom should also consider what additional powers and approaches it needs to enhance and strengthen its regulation role, and indeed it may wish to look more widely at regulation of other sectors across the UK (e.g. water, electricity, gas, rail) for comparison and potential adoption of elements of these.

The ability to deliver an efficient, competitive telecommunications market for all will deliver significant benefit. To assess these potential benefits, SFT commissioned Deloitte[4] to consider the impact of Scotland achieving its world class digital vision. The findings of the report captured the potential of such a vision in fiscal, economic and social terms. The report found that the potential benefits arising from achieving such a vison were significant in economic, fiscal and inclusion terms. Achieving a world class digital vision also improves a number of social dimensions: access to public services, greater social cohesion and inclusion and a reduced cost of living, amongst others. This includes looking at the potential benefits of increased digitalisation on services such as healthcare and education provision and services. As highlighted, the 'prize' of enhanced digital communications offers significant benefit, and indeed has the potential to significantly improve competitiveness, productivity and innovation.

[2] Example studies include: Ofcom: SRDC Discussion Documents, July 2015; Business Connectivity Market Review, May 2015; Ofcom Analysis of Operator Data, May 2015 (as detailed in the SRDC 16 July 2015; Communications Market Report: Scotland, August 2015; Jigsaw Research: SME experience of communications services – a research report, October 2014; Infrastructure Report 2014, December 2014; Saville Rossiter-Base: Quality of Customer Service Report, December 2014; Which?: Broadband Advertising speeds not up to speed; Broadband Services for SMEs: assessment and action plan, June 2015; Federation of Small Businesses: The fourth utility, July 2014; and Ofcom presentation: Ofcom's Strategic Review of Digital Communications, October 2015.

[3] Ofcom: Strategic Review of Digital Communications, July 2015

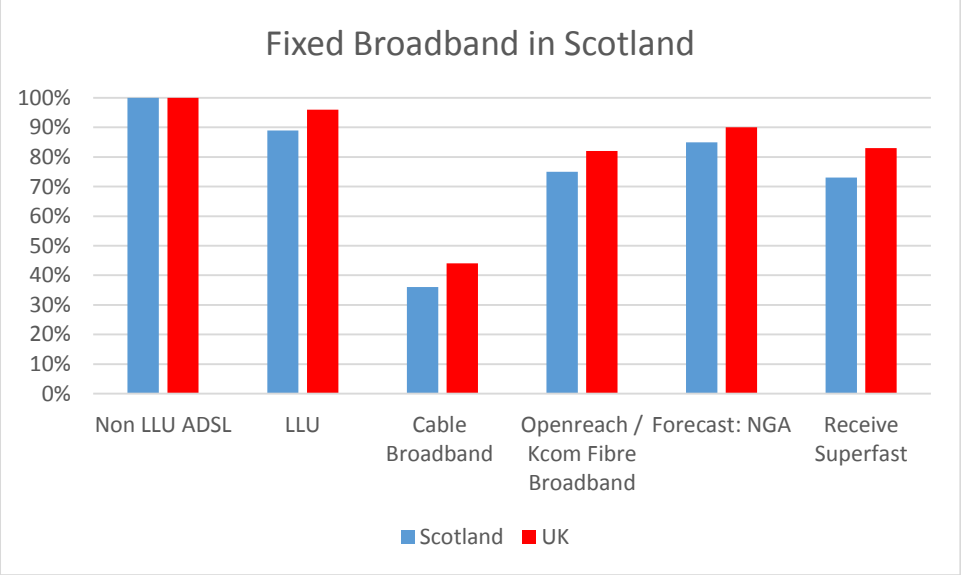
[4] Deloitte: The economic and social impacts of enhanced digitalisation in Scotland, July 2015

The Current Performance of Digital Communications in Scotland

The current performance of digital communications also underpins our response. To date, there have been a number of analyses and assessments of the performance of Scotland's digital networks, including the capture of the related user experiences (some of which are highlighted amongst the references above). This has seen output from both the UK and Scottish Government, industry bodies like the Federation of Small Business, Chambers of Commerce and mobile and fixed network providers, amongst others. The key source of information and analysis on telecommunications, however, is Ofcom. Ofcom measures and provides key data for governments, industry and consumers, amongst others, alike. Therefore, to demonstrate the performance and underlying satisfaction of Scotland's telecoms market, we have drawn upon the recent Ofcom Communications Market Report: Scotland (August 2015) to capture the outline position. However, it should be noted that even where there is an assessment of competitive and efficient markets, anecdotal evidence suggests there are still challenges in commercial areas, as well as non-commercial areas.

Fixed Broadband in Scotland

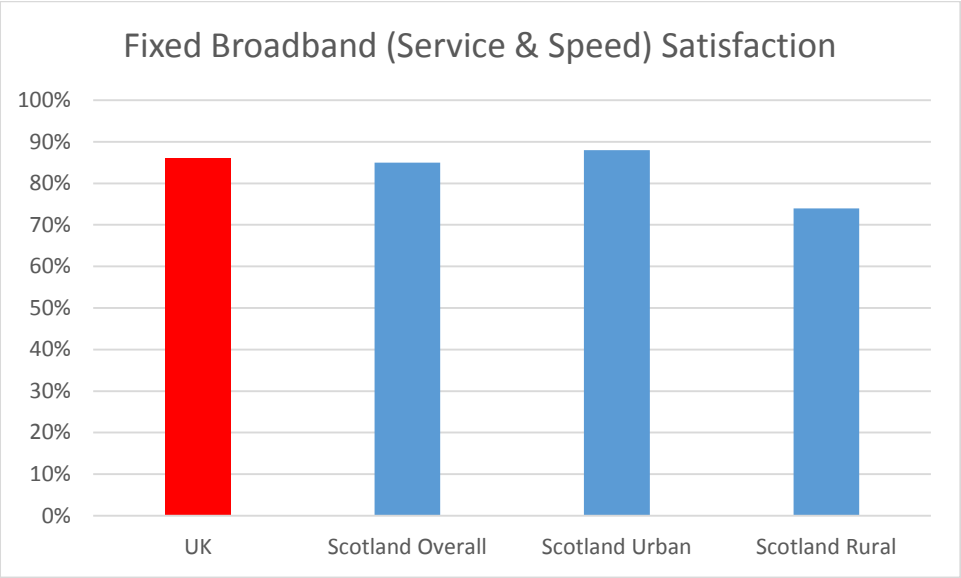
The following graphs demonstrates that on the face of it, Scotland is well served by fixed broadband infrastructure:



The Digital Scotland Superfast Broadband programme, when combined with current commercial roll-out plans, is targeting that around 95% of premises in Scotland should have access to fibre broadband by the end of 2017, with 85% by the end of 2015. The figures for fixed mobile, however, show that Scottish investment has largely lagged behind the UK across the different fixed sources – possibly understandably given the geographic and demographic challenges of the country. This deficit, however, manifests itself in a number of ways: economic, social and telecoms infrastructure deficit. It also impacts upon the workings of the digital market in Scotland.

Infrastructure analysis is only one aspect of demonstrating digital availability. Satisfaction with services is also a key component. Ofcom should ask: 'are consumers getting the speeds and services they expect, and ultimately, what is the quality of their experience?' The following demonstrates that overall Scottish satisfaction may be in line with the wider UK as regards fixed broadband, however, this belies the fact that even within urban areas there are significant pockets where fixed broadband services underperform, or superfast and beyond products are not available. Ofcom needs to

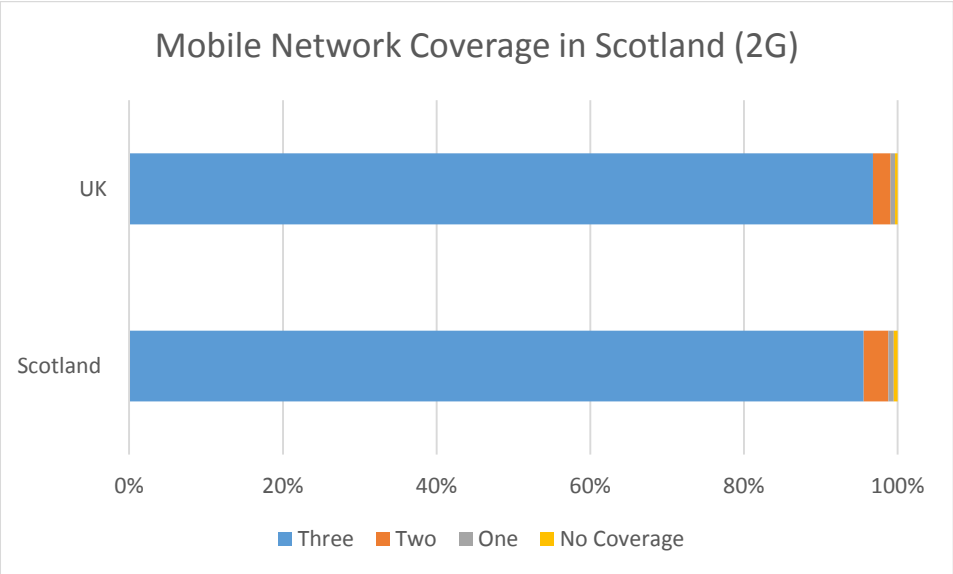
understand how far this issue pervades in areas previously classed as commercial and / or competitive. For rural communities, there significantly lower levels of satisfaction with fixed broadband in Scotland. As highlighted earlier, both aspects have a material impact upon wider economic and social impact.

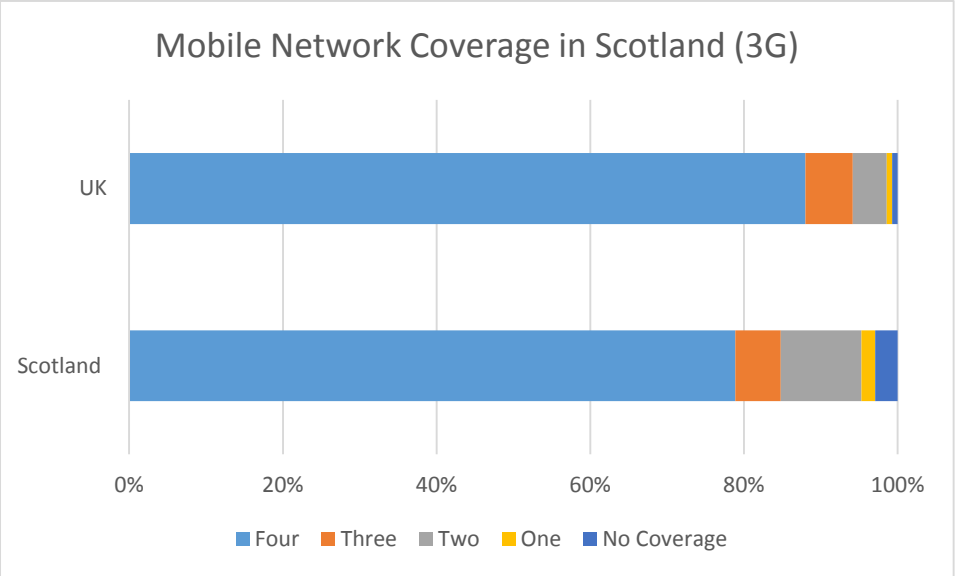


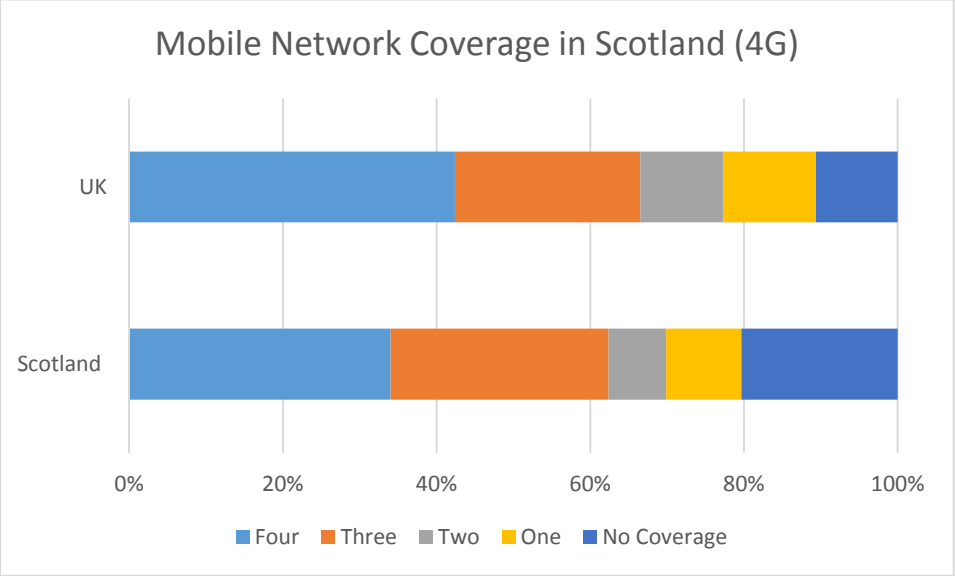
Our response to the SRDC considers the above, and how both the understanding and resolution of fixed broadband issues could be addressed. Ultimately, Ofcom is best placed to consider this and indeed work with industry and the wider public sector (including Sg and SFT) to deliver future proofed networks to support Scotland's growth. Failure to do so will result in ongoing market failure across many regions of the country.

Mobile in Scotland

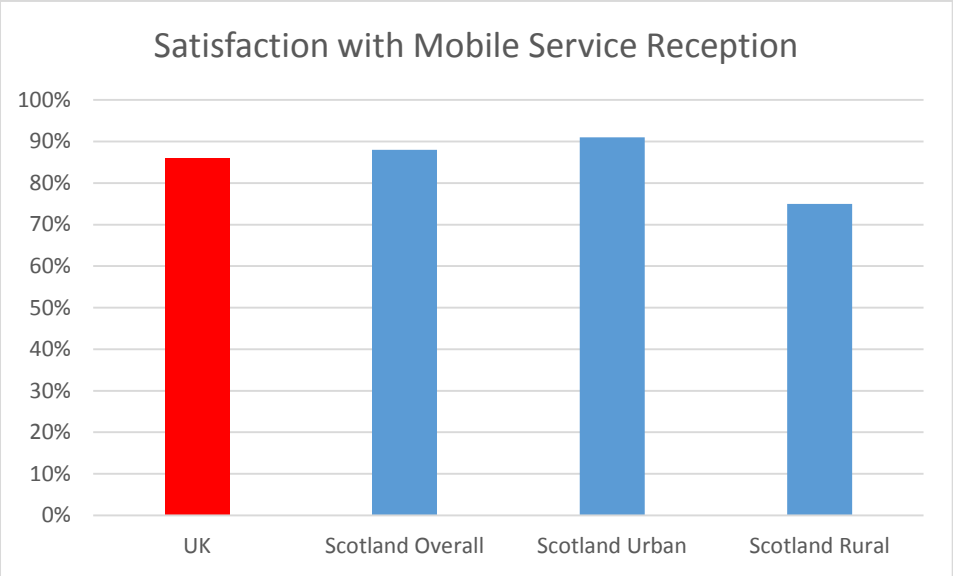
In relation to mobile coverage, Scotland is well serviced by 2G services, however, it lags significantly behind the rest of the UK as regards 3G and 4G connectivity and coverage. Ofcom's recent analysis captures this current position. The following graphs show the number of mobile network operators who provide different services across Scotland.

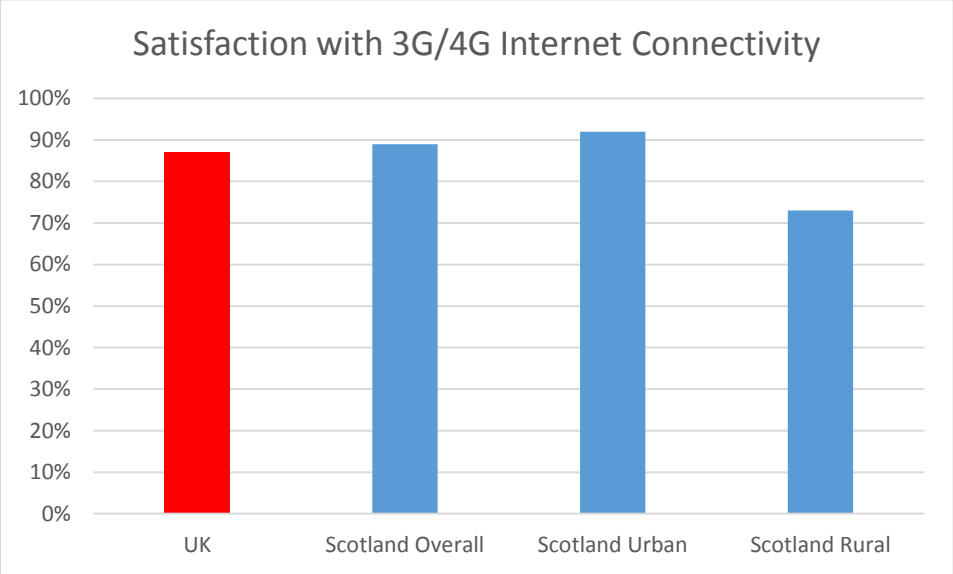






The above graphs demonstrate that 3G and 4G connectivity nationwide lags significantly behind the wider UK, with a larger number of 'not-spots' and less overall choice. Satisfaction with mobile services breaks this picture down further, with urban areas showing high levels of satisfaction, likely reflecting recent investment by MNOs, with rural areas showing much lower levels of satisfaction as regards reception and 3G/4G internet connectivity.





Whilst there are different public sector programmes underway, alongside significant provider investment (primarily commercially driven) and the coverage obligations agreed by network operators, which will make a difference, there is still a question as regards the future performance of and satisfaction with mobile networks, particularly in rural areas. Without ubiquitous mobile coverage, Scotland's economic performance will lag behind the wider UK, and those living, working and visiting will find that services taken for granted in populated areas will not be available: this will very much create a two tier user experience.

Anecdotal Evidence

In addition to the Ofcom data, through SFT's workstreams, anecdotal evidence also indicates that some of the tacit general competition and performance assumptions merit further analysis. Such evidence includes a lack, or 'underperformance', of fixed broadband connectivity and poor mobile services within areas classed as competitively served, seeing performance well below that suggested. Likewise, this anecdotal evidence also captures the sub-standard performance of providers in terms of resolving issues and complaints, as well as initiating or delivering orders. It maybe there is a belief that such issues should be dealt with by complaints, however, many consumers may be unaware of

this, accepting below par performance. To this end, Ofcom may want to consider how it supports and encourages consumers to take up issues and concerns with their providers or Ofcom: something that for many is not currently happening.

Conclusion

Based upon the data above (as taken from Ofcom's 2015 Communications Market Review: Scotland), Scotland's digital infrastructure broadly lags the rest of the UK in many ways, particularly as regards quality of experience and services. Ofcom should undertake analysis to determine the exact position and the spread of such issues, undertaking that at a local level. This information in turn will inform how the industry is performing and how it needs to be regulated and managed in future, for, ultimately without change and a drive to improve the position, then Scotland's infrastructure deficit will have a direct impact upon its economic performance and social inclusivity.

Key Findings and Recommendations

The second part of of the response captures our response to the specific strategic review questions. By way of summary of our proposed approach and recommendations to Ofcom for regulation, we have mapped these against the main strategic challenges outlined in the Consultation brief.

Investment and Innovation

It is crucial to provide the right incentives for the private sector to invest, but as Ofcom recognises, they must also ensure that services are available in areas that are not deemed to be commercially viable. There are a number of aspects to regulation that we would wish Ofcom to consider as part of the current review in relation to Investment and innovation:

- Require infrastructure providers to develop and publish longer term investment plans. In particular, where a company has significant market power and represents an economic bottle neck then it is crucial that there is a requirement to understand the investment profile in those economic areas. This avoids a "two speed " state and would provide Ofcom with a baseline against which to assess the level of investment made to maintain and future proof networks in both Scotland and the rest of the UK and enable industry to establish a clearer and more coherent approach to investment.
- Whilst we recognize that particularly for mobile services, user experience (as well as geographical coverage), are being increasingly modelled, there is an acute need for Ofcom to actively track the actual Quality of Service and user experience for broadband connectivity – both fixed and mobile - and also monitor that innovation is delivered to the whole of the UK, rather than focused on commercial areas. We believe that this shift in the burden of proof from users to providers/Ofcom would help deliver more customer focused services and increase the transparency of delivery quality in both "commercial" and "non-commercial" geographies.
- Investing in competing passive network infrastructure may not create an efficient approach in non-commercial and underserved areas, and therefore an approach to the regulatory framework that is focused on passive network infrastructure (ducts, mast, fibre and power) could be encouraged to stimulate local service competition.
- We believe a reformed Openreach taking a long term infrastructure view based on long term asset investment returns, combined with reinforcement of existing and new regulatory remedies could provide a good basis for future passive infrastructure provision and investment.
- Ofcom policy should consider driving investment, alongside policy makers looking at other levers to do likewise, through a cost plus approach to determining appropriate returns from digital infrastructure with any post-return surpluses to be re-invested. It may also wish to direct how those surpluses and other investment is allocated, considering a locational based approach.
- Whilst an area of policy that sits primarily with government we would encourage Ofcom to press for a review of the state aid rules to enable and provide greater flexibility as regards future investment, including the basis and location of where investment can be made, the solutions and technology which can be supported and the choices available to the public sector to shape the digital market.
- In relation to spectrum, Ofcom should consider (and guide and advise UK Government) how licensing conditions can be used to drive investment, alongside considering how spectrum sharing, leasing and subleasing may again impact and how spectrum secondary markets could be formed and encouraged. We welcome further discussion on these issues and will provide a more detailed response through Ofcom's ongoing spectrum consultation process.

Sustainable Competition

This is an important component for ensuring delivery of service choice, quality and affordable prices, however the regulatory regime recognises that some areas of the UK cannot sustain a "healthy competitive market", particularly at the access layer; and that, both consumers and enterprises in these areas cannot be, and must not be disadvantaged, nor left behind.

- The Competitive environment has delivered for both consumers and business in parts of the UK. However, there are regional economic bottlenecks and market failure and we suggest that Ofcom apply remedies based on geography. In addition, Ofcom should undertake a more robust role in monitoring actual and not just modelled market performance and customer service experience, shifting the burden of proof of performance from consumers.
- There is a very strong case to apply locational remedies to address local markets within the overall UK competitive framework. We would encourage Ofcom to consider:
    - In those areas where competition is deemed to be working Ofcom could adopt a more robust approach to track actual rather than modelled performance. Service quality and adequate investment could be part of Ofcom's market performance measurement to establish where the anticipated customer experience is being delivered.
    - In those areas where Ofcom recognises that there is a market failure, it should consider how the remedies applied could be monitored more effectively and proactively and implement a more streamlined complaints process to address customer issues.
    - In those areas where competition has failed and where national remedies do not work, then there is a persuasive case for locational remedies to deliver wireless or wireline broadband connectivity.

Empowered Consumers and Businesses

This is an important component to regulation, however, there are areas across Scotland where one operator has significant market power and therefore there is no or limited opportunity for "consumer empowerment", or indeed betterment. Therefore, there is a need to consider how best to address this position.

- We support the recent moves by Ofcom to facilitate "consumer switching", however for those areas of Scotland and UK where the levels of competition do not make this possible, there is need for an even more streamlined complaints process with swift decision making and sanction. Such a remedy could also incorporate the direction of investment to be targeted in areas of significant underperformance.
- Sharing of network data, information and performance is critical to making more informed decisions by government, regulator, industry and consumers. Regional market analysis should be underpinned by a greater understanding of what infrastructure exists, informed by sharing of network and performance data. Ofcom, as highlighted earlier should also look to undertake analysis and review itself rather than relying on, or requiring others, to do so.

Targeted Regulation

SFT fundamentally supports the need for targeted regulation, based upon a clear understanding of local markets. Ofcom's desire to implement targeted regulation indicates that there is already an acceptance of the fact that certain economic regions cannot support competing infrastructures and there is therefore a need to implement locational remedies to promote investment in such areas. Ofcom must understand the reasons for poor service availability and QoE and QoS, and seek to use targeted regulation to address these bottlenecks. Failure to address this acute need with targeted and locational remedies will reduce the ability for Ofcom to implement its strategy to deliver good consumer outcomes based on Quality of experience as well as coverage.

Role of BT Openreach

Central to the need for investment and innovation is the role of Openreach. It was established by the Telecommunications Strategic Review in 2005, whereby BT gave a broad range of undertakings in lieu of referral to the Competition Authority. Currently, Openreach is operating as a functionally separate entity within a wider BT Group. The wider group has a primary focus on shareholder value, focussing on the following key elements: a national market, commercial areas and its content offering. This means it has had limited capacity to address the needs of wider Scotland, and indeed many of the UK regions, for bespoke services or investment. This position needs to be balanced with the fact that, as highlighted, it has significant market power over large areas of Scotland. There is therefore a need to consider the future workings of Openreach and the wider BT Group going forward as highlighted by the review: from continuing as present to strengthened functional separation to structural separation. Ofcom also needs to consider the Openreach business value chain and how changes, or otherwise, could seek to address access and economic bottlenecks and a lack of competition and choice for consumers in some areas.

It is recognised that Openreach has significant business challenges in seeking to invest in infrastructure and service provision in all the different economic regions of the UK. It is inevitable that it will ultimately consider the basis and timing of investment in those areas where it is difficult to make an economic return. However, to plot the way forward for BT Openreach, as the primary provider of the UK access network, and overcome the unseen challenges created in 2005, there must be recognition that over the last ten years the company may have delivered corporate and shareholder objectives, but it has not fully generated "investment and innovation" or "empowerment of consumers".

To address this position, there are a number of possible options which Ofcom can consider to determine the future structure and workings of Openreach. The options range from "do nothing" to enhanced functional separation (based upon strengthened regulation and governance), targeted functional separation focused on passive infrastructure, to full organisational structural separation either through a JV approach or full demerger. Each option has a number of potential benefits and implications, and ultimately, any option needs to address the following requirements:

- Enable investment and address market failure in access infrastructure in non-commercial markets;
- Enable Openreach to be able to make the necessary future proofed investment in the passive network e.g. ducts, masts, poles and fibre (as a minimum);

- Enable more local downstream services competition, through providing equitable access to this future proofed network; and
- Enable Ofcom to use its powers to drive rectification and / or investment in commercial areas where the quality of experience and service is limited or not available.

Full structural separation whilst potentially attractive to many as a strategy, may be difficult to implement and the outcomes remain uncertain and unpredictable. Therefore we would suggest that the following range of options to deliver the remedies identified above be fully considered prior to any decision to opt for full structural separation:

- Functional Separation: Strengthen Regulation;
- Functional Separation: Strengthen Regulation and Governance;
- Targeted Functional Separation: Standalone passive infrastructure; and
- Structural separation: Joint Venture approach.

A more comprehensive assessment of the options available is contained in Part 2 of this response in relation to Q14-16. As emphasised throughout our consultation response, the key aim of any Ofcom intervention and / or remedy in relation to the future of Openreach should be to address market failure and any lack of competition in regional telecommunications markets (through a focus on passive network infrastructure (ducts, mast, fibre and power) to stimulate downstream competition), encourage investment and ensure a high quality of service and experience for consumers and enterprises regardless of where they are located..

The EU Digital Single Market

It is also important to view the SDRC 2015 alongside the European Commission ('EC') desire to create a Digital Single Market ('DSM'). The 3 pillars of the DSM, which includes creating a level playing field for digital networks and innovation, are driving towards the growth of Europe's digital economy to deliver pan-European benefits. The commission has gone out to consultation on the Electronic Communications Framework with the objective to overhaul EU Telecoms rules. The aspiration is to create an "effective institutional framework". In Scotland, the vision looks to achieve similar outcomes: economic, social and other benefits.

PART 2: Response to specific Consultation Questions

Introduction

This section ("PART 2") captures Scottish Futures Trust's ('SFT') response to the questions identified in the Ofcom Strategic Review of Digital Communications 2015 ('SRDC') Consultation, and should be read in conjunction with PART 1 of our response. In some instances we have chosen to answer a series of questions together. Where we have done this, we have highlighted it at the start of any question(s).

In support of our response, we would also welcome the opportunity to present our findings to Ofcom, and accordingly will liaise with Ofcom officials to arrange this.

Q1: Do stakeholders agree that promoting effective and sustainable competition remains an appropriate strategy to deliver efficient investment and widespread availability of services for the majority of consumers, whilst noting the need for complementary public policy action for harder to reach areas across the UK?

We agree that promoting effective and sustainable competition remains an appropriate strategy to deliver efficient investment and widespread availability of services for the majority of consumers. However, there is strong evidence, both anecdotal and commissioned[5], that in non-competitive areas of Scotland and other parts of the UK, the regulatory strategy driven by competition, has not delivered positive consumer outcomes, nor the necessary investment to maintain and upgrade network infrastructure to support a digital economy. This has a detrimental impact upon the economic performance of such areas. Given the growing pervasiveness of digital services, the requirement is for seamless access with a usable Quality of Service, however as demonstrated this is not necessarily happening.

There therefore needs to be an overarching regulatory strategy and framework that seeks to (i) understand local markets and economic conditions and (ii) endeavours to meet the digital aspirations of all communities. Within this framework, Ofcom's focus should therefore be on local economic bottlenecks, rather than a national assessment of bottlenecks. Such an approach will have different effects on competition, and likewise, delivery. It may see deregulation in some local markets. It will also recognise where competition is limited or market failure is present and indeed suggest different approaches to addressing this. Where there is also a dominant infrastructure provider - delivering an appropriate passive access market will be key. This will 'feed' the creation of competition in downstream markets, which will bring an element of choice and the sought for competition to Scotland and will lead to the tackling of both economic deficits and social exclusion across Scotland.

Ofcom is therefore encouraged to establish a regional market understanding which will in turn enable it to apply local remedies that will ensure positive consumer outcomes. At the heart of understanding regional markets, Ofcom should consider the development of comprehensive consumer metrics, for regional coverage, availability (both geographic and population based), as well as other aspects such

[5] Example studies include: Ofcom: SRDC Discussion Documents, July 2015; Business Connectivity Market Review, May 2015; Ofcom Analysis of Operator Data, May 2015 (as detailed in the SRDC 16 July 2015; Communications Market Report: Scotland, August 2015; Jigsaw Research: SME experience of communications services – a research report, October 2014; Infrastructure Report 2014, December 2014; Saville Rossiter-Base: Quality of Customer Service Report, December 2014; Which?: Broadband Advertising speeds not up to speed; Broadband Services for SMEs: assessment and action plan, June 2015; Federation of Small Businesses: The fourth utility, July 2014; and Ofcom presentation: Ofcom's Strategic Review of Digital Communications, October 2015.

as customer satisfaction, quality of experience, contention and resilience. A good example of Ofcom seeking to understand a local market is its undertaking of the analysis of the WECLA market segment. Such analysis should be undertaken for Scotland (and the wider UK) on a local basis (with the basis of local to be agreed with Ofcom) to understand the telecommunications market in more detail from consumer and enterprise perspectives. This analysis is needed at a detailed level to determine if these markets are working effectively as measured by investment and consumer outcomes. This will form the basis of better targeted regulation and intervention to ensure the quality of experience expected by consumers, businesses and the public sector.

By way of background, the Scottish telecoms market is characterised by a diverse range of users: consumers (residential), a large number of SMEs (99% of business in Scotland are SMEs) and by the public sector and a smaller number of large corporates. The market is then further divided by location and geography, which again sees challenges arising for delivery and quality of service. Understanding this diversity helps to inform, explain and formulate the basis of competition in different parts of Scotland, and how investment has and may occur going forward.

As a wider comparator, Ofcom should also seek best practice in other regulatory environments (e.g. water, gas, electricity and rail). For example, Ofgem's approach to investment and its recent review of competition in the UK energy markets (in partnership with the The Office of Fair Trading and the Competition and Market Authority).

The role and emphasis of Ofcom should be underpinned by a need to regulate for future investment, in addition to regulating for current customer needs. Actions taken now will have an impact upon the future telecoms capability of Scotland, and therefore we strongly believe that Ofcom should develop an approach based upon an informed view of a future technology implementation roadmap to enhance regulatory strategy and policy thinking going forward. Therefore when considering effective and sustainable competition and investment, Ofcom needs to think about how the sector is and / or may develop, and how this impacts upon investment or indeed whether action or alternative approaches may be need to be adopted to deliver for all, and ensure Ofcom's overarching regulatory framework is delivered.

Ofcom may also wish to consider the relationship between price and investment. The UK has some of the lowest priced broadband and mobile packages in Europe, however, this has an impact upon several providers by weakening their balance sheets and their ability to invest. When this is combined with spectrum and licencing costs, it could curtail the level of investment available. Consequently, non-commercial areas are left out of providers' investment plans. As discussed later and whilst also the responsibility of government, thought should be given to factors such as spectrum auctioning and licencing processes and whether UK Government wishes receipts or investment and availability? This is against a backdrop of the likely importance of mobile going forward as networks converge and the lines between fixed and mobile access blur. Therefore a discussion is needed about how greater levels of telecoms investment are delivered at government policy levels.

By following the above, the drive is to ensure that Ofcom is a proactive, flexible organisation, capable of understanding and addressing local issues and utilising both ex ante and post ante measures to deliver a difference. For some areas this will lead to deregulation, whilst for others appropriate protections and interventions.

Q2: Would alternative models deliver better outcomes for consumer in terms of investment, availability and prices

10 years ago, the last strategic review set the basis of the telecoms market today, however there has been a radical shift in the way consumers and enterprises now interact. The growth in data traffic reflects that shift and furthermore, emphasises the change in business value with new market entrants addressing the communication needs of consumers. In shaping the next ten years, Ofcom needs to address how regulation will enable consumers to be able to access such services which are dependent upon connectivity. We believe therefore that Ofcom's approach, based upon competition, forms a solid base to address the market. However the overall approach needs to be balanced by giving consideration to the quality of experience and service received by all consumers, everywhere, rather than price being used as a barometer for successful competition. Ofcom should also be mindful of the fact that by lowering technical design objectives and requirements, the quality of consumer services may be impacted, however, operators will be able to meet factors such as their coverage obligations. This is an example of why Ofcom needs to focus on service experience as well as coverage obligations.

A large part of Ofcom's focus has also been on consumers and large businesses as end users and as a result (and Ofcom has recognised this) there has been a dearth of focus, solutions and protections for the SME business market. Such considerations should include: development of products, service level agreements and guarantees and so on. The Scottish Economy is driven by SMEs for the main part and to remain competitive, they have to 'digitise'. That requires a reliable and fit for purpose service. Given the cost to serve the SME sector is higher, it therefore tends to be ignored by the main operators. Ofcom needs to address the enduring economic bottlenecks in the SME market (as it has recognised).

Alternative approaches, as highlighted above in regards to Q1, should focus on local conditions, with regional and local models for delivery used to support national policy. Such an approach would look at local analysis, market reviews and locational remedies, which will drive better levels of competition and outcomes (where needed).

A vital component of delivering positive outcomes is having business processes that are customer responsive together with a complaints process that address services challenges promptly and efficiently. Effective business process will help in creating confidence and credibility. Ofcom does, and needs to continue doing so, playing as vital role in ensuring such process are implemented and working effectively, and where they aren't assess the level of intervention needed.

Q3: We are interested in stakeholders' views on the likely future challenges for fixed and mobile service availability. Can a 'good' level of availability for particular services be defined? What options are there for policy makers to do more to extend availability to areas that may otherwise not be commercially viable or take longer to cover?

We believe that a good level of availability (both mobile and fixed) can be defined, however, this needs to recognise change may occur and indeed that conditions differ locally. For instance, rural communities depend on broadband connectivity for access to a range of services. The more remote a community the greater the dependence on wireless communications for access to these services. Service availability has historically been defined by voice coverage however, the shift in consumer and enterprise demand for content and data has focused the requirement on broadband service availability. This has a proportionality greater impact upon remote, rural and semi-urban locations

(although the same can be seen even within the most populated areas) of Scotland, where a lack of infrastructure and / or underinvestment in infrastructure has left a large part of the population unable to access content and services. A summary of the current market coverage and provision has been provided in earlier in our response.

The primary challenge for both fixed and mobile providers is therefore their roll out to non-commercial areas i.e. the provision and siting of infrastructure: masts, backhaul, ducts, etc, and making such a requirement attractive for investors. Ofcom has recognised and described the economic barriers to investment. However public policy in Scotland can also be used to reduce the barriers to investment, subject to the consideration of state aid. There therefore is a case to seek relief from these rules, as proposed in the EU framework consultation. The more specific Scottish challenges include the assessment of the market as part of a wider 'rest of the UK'. Under such an approach investment and performance will be limited, with potential little improvement in many areas. As highlighted, Ofcom therefore needs to re-assess how it assesses local market conditions, including such aspects as geographic and population coverage, roads and rail coverage, indoor coverage, etc. The key driver has to be Quality of Service including the potential for a minimum standard provision. There may also be a requirement for a set percentage of any investment annually to be made in hard to reach, non-commercial locations. This would ensure a degree of infrastructure investment in non-commercial areas.

Another key challenge is regards OTT content and how the value for this is captured in delivering and investing in telecommunications infrastructure. This is discussed in more detail later, however, we would encourage Ofcom to consider ways in which OTT providers can contribute to infrastructure investment to ensure the future capabilities of networks.

Ultimately, converging fixed and wireless infrastructure (as highlighted earlier) will be the platform that enables digital services access for all. This availability needs to be underpinned by usability and quality of experience as measured and assessed by Ofcom, rather than just price and high level achievement of targets. It also needs to be recognised that by driving investment and access, downstream competition will be enabled, on high quality networks, which will again deliver downstream quality.

In relation to the options available for policy makers to extend coverage and availability, the underpinning tenet of the telecommunications sector should be that the private sector should be the default for delivery. Where there is a need (after exhaustive analysis) that the public sector requires to intervene, there are a number of strands which the public sector can use, whether individually or as a spectrum of choices, which together may make a cumulative impact.

This could use the application of a universal service obligation ('USO'). Historically the USO was a national obligation which figured around the availability of 999 calls and phone line availability. Given the USO is a national obligation, it will provide a minimum level of guaranteed service. That said, the existing USO will need to be considered in future as technology such as VOIP and OTT providers provide complimentary and substitute products. Alongside this there have also been calls for a broadband USO. With a USO, you need to consider the fiscal and economic cost of delivering against the potential outcomes.

Given that returns for providers should be directly linked to greater levels of investment, as well as service standards and quality It may also be worth considering whether designated investment requirements could be used as a lever to drive service quality and coverage in certain circumstances..

Other elements for public policy makers to consider in tandem with regulatory measures include:

Civil works: Focusing legislation such as the Electronic Communications Code and the New Roads and Street Works Act, to maximise investment and roll out into commercial and non-commercial areas alike.

Planning: The planning regime could be supportive of telecoms infrastructure. Scotland has different planning rules to the rest of the UK – for instance, there are no height restrictions detailed in planning policy for masts – but such policy can be used, amended and developed to support roll out.

Taxation levers: Such levers could be used to encourage investment. For instance, corporation tax or business rates could be reduced or foregone for infrastructure delivered in remote and / or non-commercial areas. This could be extended, as for enterprise zones, for preferential capital allowances treatment. Whilst there is a financial impact from this, it may be offset against other fiscal income streams created through business and job creation, savings for the delivery of public services, etc. it is also not upfront funding – allowing the public sector to manage this in the current economic environment.

The use of public sector buildings and, land and other assets to site infrastructure: This could be provided on an open basis, with an appropriate charging mechanism developed at a local level. This may include lower / nil charges for remote and rural locations to bridge the economic assessment of rolling to infrastructure.

Use of wider public sector telecommunications infrastructure: This includes understanding how existing public sector telecommunications infrastructure can be shared and / or made available for commercial use in hard to reach areas. This also includes understanding and assessing how assets such as the Network Rail fibre backbone can be freed up for delivery and driving competition and investment.

Forward funding and capturing benefits: A number of wider regeneration and economic growth initiatives have developed in Scotland whereby the public sector through funding infrastructure investment create the right conditions for the private sector to invest, with the public sector capturing the resultant fiscal benefits to finance the enabling assets. Such approaches can incorporate digital infrastructure, or could be solely focussed on such infrastructure.

Re-visiting the basis of State aid: Whilst not within the gift of Ofcom solely, the telecoms state aid rules need to be re-visited. The rules are currently too prohibitive and undermine the importance and delivery of digital infrastructure. They also act as a significant barrier to growing competition, protecting incumbent positions. The ability to do more is needed, and Ofcom could consider and publish guidance on what potentially could be delivered by the public sector, discuss further with Europe. Therefore if there was greater flexibility around the basis and location of where investment can be made, the solutions and technology which can be supported and the choices available to the public sector in doing this would be increased.

Direct investment: This should be seen as a last resort and only used where there is evidence that the private sector will not invest in the medium term. The basis of this should then be considered as to how competition can be driven and to ensure the 'same old' ways are not rolled out again. It should also be a condition of any public sector investment into private sector networks, that such an approach should enable more cost effective access to assets. Ultimately investment has the ability to increase

the return on investment and reduces the overall WACC of organisations; such benefits should be shared.

Delivery constructs and support: This includes bodies such as Community Broadband Scotland to deliver in remote and rural locations. This looks at delivering NGA in areas where Digital Scotland Superfast Broadband may not reach. It is essentially not about duplicating infrastructure, and so, again works at driving access for downstream competition.

Pilot projects and technology demonstration: such as the Demonstrating Digital programme (and Community Broadband Scotland) that seek to establish technology pilot projects that act as test beds for scalable investment in Scotland. Further encouragement by Ofcom of this type of approach, akin to that developed for TV Whitespace would be welcome, to support a clear programme of initiatives to be developed and implemented.

Q4: Do different types of convergence and their effect on overall market structures suggest the need for changes in overarching regulatory strategy or specific policies? Are there new competition or wider policy challenges that will emerge as a result? What evidence is available today on such challenges?

Q5: Do you think that current regulatory and competition tools are suitable to address competition concerns in concentrated markets with no single firm dominance? If not, what changes do you think should be considered in this regard and why?

Q4 / Q5. Questions 4 and 5 are the subject of a combined response.

Convergence, as Ofcom has identified, is happening at several levels and layers of digital connectivity: this includes the convergence of fixed and mobile networks, convergence of services and also convergence of retail packages. As highlighted by Ofcom, the emergence of quadplay is increasingly important for providers, and this importance will increasingly grow going forward. Regardless of the 'type' of convergence, Ofcom needs to ensure that the benefits of convergence are open to all, and as discussed, may have to mandate infrastructure investment and availability to achieve this. This would mean that regardless of location, users will be equally able to access content, services and apps, whether connected through fixed or mobile technology. As well as by regulation and investment, Ofcom could consider how the spectrum licencing and sale process (through licence obligations) could deliver required (and needed) infrastructure in the right places, alongside spectrum sharing and subleasing. New technologies, such as white space, may also provide a platform to drive the convergence, use and the delivery of services, and so we welcome the continued encouragement of this technology by Ofcom. Access to backhaul and core networks will also be key to the wider roll out of quadplay, and future connectivity, and again regulation may be needed to deliver both access and pricing, and indeed investment, around open and fair access.

An important part of convergence, and indeed consolidation in the market, is to ensure that appropriate regulation is applied that further enhances customer choice and competitive supply. This includes considering how vertical integration and end to end competition interact, and indeed are also separate. Different approaches may be required from Ofcom and competition regulators to ensure different parts of the supply and delivery chain work appropriately. So for instance, if BT/EE merge, the two key businesses: mobile and fixed, may require to be regulated in different ways from within one organisation, but where there is a link, for example, core network roll out decisions and the

location of mobile mast investment, appropriate measures may be needed to ensure the market is not skewed to favour the new wider entity.

Ultimately, a key part of assessing convergence, regardless of its nature, would be for Ofcom to analyse the market at different levels: nationally, regionally and locally to understand the challenges and opportunities for the telecoms sector and what convergence would mean for consumers. It should then develop appropriate regulation, or apply deregulation, where appropriate. Another key aspect for convergence will be linked to the EU Single Digital market framework, particularly around content and its carriage. This will develop over time. As highlighted earlier, a key consideration is how value is captured for investment from content providers. Likewise the EU framework will see markets internationalise as barriers to cross European digital trade are removed. This will provide opportunity for the UK, and Scotland, and drive competition delivering economic benefit. Ofcom therefore needs to recognise, as European trade services converge, that appropriate infrastructure will be needed to access the opportunity. If not, the UK will become economically challenged and lag behind other European nations.

In terms of the different types of convergence, the following specific elements need to be considered.

Network convergence: Regardless of the nature of this convergence, it will need to be underpinned by appropriate core networks / backhaul. Without this, the quality and usability of networks will be undermined. Ofcom therefore needs to ensure that in different parts of the country that appropriate conditions and infrastructure are in place to deal with this. This also links back to the analysis of quality of experience in local conditions.

Service convergence: Linked to the above, and this is dealt with in greater detail later in our response, convergence can also relate to services, particularly those of OTT providers. This service convergence, however, is equally dependent upon access convergence and availability.

Retail convergence: Retail convergence will be very much about protecting end users. Quadplay and bundling will likely become more predominant (more so if ubiquitous infrastructure and capability can be built). However, this will give rise to the need for consumer protection, for instance, as regards complaints, unbundling and portability.

Whilst competition will still underpin convergence, it may reduce choice and / or act as a further barrier to new entrants and the efficient working of the market, performance and investment. Regulation needs to ensure that consumers are protected. Ofcom will need to develop rules to deal with such a position, and this should likely be the topic of a future consultation.

Linked to this is the provision of information from Ofcom to understand the likely performance of bundles and convergence i.e. ‘what sort of service will I get overall?’ This will include regulation for where all or any part of the bundle does not live up to expectation. Breaking a bundle or contract should also not see excessive fees, penalties applied or disproportionate price increases for any remaining products. Ofcom needs to develop a management approach for such a position.

From a competition perspective, Ofcom may want to encourage virtual bundling competition, by allowing organisations to select different bundle elements / options at agreed prices from different end to end providers. This would see value driven through the supply chain, and indeed allow bundles to be developed which deliver the best solutions at a local level.

Ofcom may wish to ensure competition in the event of convergence, likewise where it has done before, through minimum numbers of competitors in different parts of the market. This could be

achieved through spectrum licencing obligations. Such approaches could include: no provider may hold greater than x% of a market (and this could be considered at different spatial levels) and / or a back stop number of providers e.g. there will always be a minimum of three or four national MNOs. Other remedies could include the sale of customer portfolios, the requirement to start up new standalone businesses and / or greater regulation as regards MVNO access and rights.

Q6: What do you think is the scope for sustainable end-to-end competition in the provision of fixed communications services? Do you think that the potential for competition to vary by geography will change? What might this imply in terms of available regulatory approaches to deliver effective and sustainable competition in future?

Q7: Do you think that some form of access regulation is likely to continue to be needed in the future? If so, do you think we should continue to assess the appropriate form on a case by case basis or is it possible to set out a clear strategic preference for a particular approach (for example, a focus on passive remedies)?

Q6 / Q7. Questions 6 and 7 are the subject of a combined response.

End-to-end competition will continue to be a key strand of the telecommunications market going forward, however, the impact of such a position needs to be considered for Scotland, and likewise other regions of the UK. Consolidation and mergers in the market will likely take place, both at a UK and cross-European level, therefore it is important to ensure there is competition and availability for consumers in different parts of the country. Ultimately, end-to end competition is more likely to deliver for commercial areas, however, in non-commercial areas there will a different outcome – essentially monopoly provision or an SMP position. That said, and discussed earlier, with the right regulation and access, this could be mitigated.

The duplication of assets is also potentially not the most efficient use of investment resources. The question therefore needs to consider local conditions and outcomes (as highlighted earlier). The basis of the industry in Scotland will also need to largely based on delivering an appropriate passive access market (where for much of the country there is only one major infrastructure provider). This will then 'feed' the creation of competition in downstream markets. This passive access market should also be seen in areas where there is end-to-end competition to provide greater choice and innovation. For downstream competitors, the development of products and services will be key in differentiating them. They are also more likely to target niche areas of the market, areas which may be too small or insignificant for the end-to-end competitors. Regulation will therefore need to work at two levels.

As highlighted earlier, end-to-end competition will deliver for some, however, there are many parts of Scotland, where it will not deliver and where Ofcom will need to continue to regulate the market, and indeed develop new regulation and approaches to ensure that a two tier digital market does not become the norm. This includes considering, alongside, how services are provided, quality of service and equivalence of inputs. To date this has not always been the case. Therefore in many parts of Scotland, there is limited choice, competition and appetite from new entities to enter. Ofcom needs to consider in these areas, how any SMP provider, can provide better service and products to enable wider competition. This may include all products and services being similarly available to all. This will drive equality of inputs for the access market.

For those outwith BT there should be a degree of protection around new product development, introduction and innovation. This is currently inhibited as has to be an open process, therefore external competitors are effectively discouraged from looking at new solutions, knowing they are unlikely to gain a market advantage. They will not hold the IPR either. In the long term, this acts as a barrier to change and innovation. To encourage greater innovation periods of exclusivity could be trialled; for example, Openreach itself could be limited to a number of generic wholesale products and services for the wider BT Group, which it would offer at set price points set by Ofcom. By essentially building upon open access at the base infrastructure layer and access layer, competition and innovation can be driven within Scotland. This may also act to open up an SME market, providing appropriate products and services backed by SLAs and SLGs, for example.

In terms of whether regulation will be based upon a case by case basis or set out with reference to a clear strategic preference for a particular approach (for example, a focus on passive remedies), there is probably a starting mid-point. As proposed earlier, Ofcom should conduct a series of local analyses to determine the base picture of digital provision in Scotland and the issues / challenges faced by different parts of the country. This could result in both case-by-case regulation and a series of generic remedies. Ofcom, however, has to undertake the initial analysis to determine the base digital position in Scotland and build from there.

Q8: Do you agree that full end-to-end infrastructure competition in mobile, where viable, is the best means to secure good consumer outcomes? Would alternatives to our current strategy improve these outcomes, and if so, how?

In terms of mobile, again end-to-end competition will be important to consumer outcomes, however, as with fixed infrastructure, the key element will be delivery across Scotland and not just the commercial areas. Alongside this, Ofcom may wish to consider the impact of any approach, such as licence obligations, from both an economic perspective and a wider public policy angle, such as the delivery of social benefit.

In seeking to ensure investment and consumer empowerment in Scotland, it is suggested that Ofcom needs to reconsider the network value chain and then determine if end-to-end competition can deliver sufficient economic return in delivering fit for purpose customer service. Separate investment into competing mobile and fixed networks may not be the most efficient use of investment funding, particularly where the result is continued poor customer service. In commercial areas, end-to-end competition may well secure adequate consumer outcomes, provided there is sufficient competition. Where this limited choice, then end-to-end competition may not provide the best consumer outcomes and may result in limited investment into support quality of service and experience.

For non-commercial areas, end-to end competition may be less of a consideration, compared to actually the availability of a service which allows similar connectivity and use as commercial areas i.e. the availability of 4G services. Presently, in some non-commercial areas there may be limited mobile choice, which may even be limited to 2G outdoor coverage only or emergency calls. Ofcom needs to therefore understand and consider how it can oversee and enable the roll out of mobile further, alongside wider policy interventions, to ensure the full economic and social potential of Scotland is achieved.

In more rural and remote locations, sharing of spectrum, masts and technology may be an important step to delivering change, coverage and availability. Spectrum subleasing or secondary sales, may also

assist in the wider role out of mobile, where end-to-end competition does not exist. This is linked to the future proofing of infrastructure more broadly and the development of 5G technologies that could see wireless as a more fundamental solution to rural connectivity and broadband. Under the sharing arrangements (which could be confined to the last 5% or below), providers could be allocated a part of the country to develop the infrastructure, thereby limiting investment and also possibly leaving an ongoing cost neutral outcome. Coverage obligations also need to be considered in light of both population and geographic coverage. The current approach does not always ensure wider investment and coverage. Likewise, Ofcom may wish to consider the protections afforded to consumer in areas where competition is limited. This could be addressed through elements such as pricing and quality of service. The role of MVNOs will also be important going forward, both as a provider of choice, but it may act as competition to push the end-to-end providers.

Q9: In future, might new mobile competition issues arise that could affect consumer outcomes? If so, what are these concerns, and what might give rise to them?

In considering the impact of new mobile issues, it needs to be recognised that consumers are becoming ever more dependent on being able to access services wirelessly, when and where they are wanted. Mobile competition therefore has to ultimately deliver this consumer outcome regardless of location or use. This will shape how network technology needs to be deployed and the role wireless networks have to play in rural areas. Wireless access could provide an economically viable method to provide last mile broadband access, but will need to be supported by backhaul capacity which will require investment in fibre, ducts and masts. If there is insufficient investment within this passive layer, then this will result ultimately in poor consumer outcomes. It is therefore recommended that consideration is given to driving investment into the passive network.

In commercial areas this can be driven by competition, in non-commercial areas, where there is evidence of market failures despite licence conditions, there are a number of potential options to promote such investment. These options could include regulation, investment requirements, spectrum sub leasing and spectrum sharing and spectrum use incentivisation models in non-commercial areas. Once again, these options need to be considered to ensure the provision of broadband connectivity outside well-functioning markets.

The current wave of proposed consolidation and / or mergers may bring both advantages and disadvantages. Ofcom will need to consider and develop an appropriate way of dealing with such change, should it arise. We would encourage it to assess the impact on the efficient functioning of the market and the potential impact on service quality and investment. For Scotland and other UK regions we would encourage Ofcom to consider:

- Mobile investment plans to be submitted by MNOs. This provides transparency and allows Ofcom (particularly where there is consolidation) to understand how network provider convergence is impacting upon the competitiveness and investment decisions of the market.
- Coverage obligations: In addition to population and geographic coverage requirements, these should also include quality of experience metrics that encourages a balance of upload/download speeds and contention.
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Q10: Does the bundling of a range of digital communications services, including some which may demonstrate enduring competition problems individually, present new competition challenges? If

so, how might these issues be resolved through regulation, and does Ofcom have the necessary tools available?

Reference was made to bundling earlier. Bundling produces a new challenge for Ofcom, which the current regulation framework does not fully address. Whilst bundling will drive value for customers and some competitors, it may not necessarily deliver better outcomes and quality of experience. This needs to be assessed and considered at a local level, with the trends looked at overtime. Ofcom will require further tools and approaches to consider how it manages such a sector, as we believe the current model does not completely address bundling.

Q11: What might be the most appropriate regulatory approaches to the pricing of wholesale access to new and, risky investments in enduring bottlenecks in future?

Q12: How might such pricing approaches need to evolve over the longer term? For example, when and how should regulated pricing move from pricing freedom towards more traditional charge controls without undermining incentives for further future investment?

Access to wholesale products is key to enabling downstream competition, assuming that products provided are fit for purpose and at a competitive price point. In terms of new build private sector delivery, recent more 'risky' investment has been confined to commercial areas, where the capex risk has been mitigated by a revenue commitment by an anchor customer (be that public sector or business), or targeted programmes to build on existing networks in core geographies.

A modern portfolio of wholesale products will depend upon adequate infrastructure investment; if such infrastructure investment is not being made, then Ofcom should consider a remedy that provides for regulated returns on wholesale products, based on the asset investment return.

Wholesale services are usually based upon infrastructure that have got a book value of 25+ years. Pricing therefore needs to reflect this asset life rather than driving super profits as Frontier Economics [6]have identified. As highlighted earlier, this approach could be supported by the submission of investment plans to understand where coverage will be enhanced or delivered. Investment plans should be monitored and measured to ensure that such activity has occurred and that the costs (and returns) have been reflective of those forecast. This will also cut down on moves to invest in areas to block competition. The electricity sector looks at investment plans of 5-7 years, depending upon the segment of the market and looks at performance against this, progress, spend, and so on, and consequently how this factors into returns.

Timing-wise, wholesale pricing control should be a priority for Ofcom for non-commercial areas. As highlighted earlier, it is access that will drive competition. Likewise (and as discussed elsewhere in this response), Ofcom needs to use its regulatory base to drive investment, alongside wider public policy, to ensure the roll out of future proofed networks to protect the economic position of Scotland, and the UK.

[6] Frontier Economics, The Profitability of BT's Regulated Services: a report prepared for Vodafone, November 2013: https://www.frontier-economics.com/documents/2013/11/the-profitability-of-btsregulated-services-frontier-report.pdf. Also see Frontier Economics, The relationship between BT profitability and charge controls: a report prepared for Vodafone, November 2014: http://www.vodafone.com/content/dam/group/policy/downloads/the-relationship-between-BTprofitability-and-charge-controls.pdf.

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Q13: Are there any actual or potential sources of discrimination that may undermine effective competition under the current model of functional separation? What is the evidence for such concerns?

There are a number of potential sources of discrimination that may undermine competition under the current model of functional separation. As a backdrop, Ofcom has introduced regulation in relation to business markets, wholesale pricing and VULA, as a remedy to address an enduring economic bottleneck. As identified in many of the sources referred to in our response to Q1, there is a growing body of evidence that Service providers in Scotland have experienced significant challenges in the delivery of wholesale connectivity to meet end user contracted requirements, and further evidence may also be provided as part of this consultation process. Nevertheless, we believe that a more comprehensive and systematic approach to assessing discrimination in relation to the current model of functional separation should be considered, with the burden of proof being shifted to providers rather than the customer; and Ofcom has a critical strategic role in seeking to collect its own "customer experience" evidence (and not only modelled data) in this regard. Locational analysis will also capture many of the aspects above, and again it is recommended that Ofcom consider such analyses at different levels. This is explored in more detail in our response to Q14-Q16.

Q14: Are there wider concerns relating to good consumer outcomes that may suggest the need for a new regulatory approach to Openreach?

Q15. Are there specific areas of the current Undertakings and functional separation that require amending in light of market developments since 2005?

Q16. Could structural separation address any concerns identified more effectively than functional separation? What are the advantages and challenges associated with such an approach?

Questions 14 to 16 are the subject of a combined response.

Introduction

As emphasised throughout our consultation response, the key aim of any Ofcom intervention and / or remedy in relation to the future of Openreach should be to address market failure and the lack of competition in regional telecommunications markets (through a focus on passive network infrastructure (ducts, mast, fibre and power) to stimulate downstream competition), encourage investment and ensure a high quality of service and experience for consumers and enterprises regardless of where they are located.

Background and context

Openreach was created in 2005 through agreement between BT and Ofcom to address the local loop access economic bottleneck. Ofcom agreed to a series of undertakings given by BT in lieu of a referral to the Competition Authority. As part of these arrangements, governance was to be provided by the Equivalence Access Board (EAB), which remained an internal board, whilst The Office of the Telecommunications Adjudicator ('OTA') was created to resolve disputes between BT and other operators seeking to deliver services over LLU (local loop unbundling). Openreach itself, continued to manage and operate the local access network on behalf of the BT Group and the rest of the industry.

As part of the 2005 agreement, Openreach was required to ensure that it did not discriminate between the internal BT customer and other external customers – essentially Openreach operations was based on a principle of the "equivalence of inputs". Openreach was further required to support new product and service innovation and was responsible for providing business connectivity.

In reality, the performance of Openreach has not reflected the original intentions of functional separation as laid out in 2005. This is partly driven by the operational approach of Openreach and the underlying regulatory environment established by Ofcom. For example:

1. Openreach has been shown to have an inconsistent record of service delivery over the last ten years[7] (including quality of service and experience issues in both commercial and non-commercial areas);
2. Oversight by the EAB has not been obvious, nor has it been transparent;
3. The regulatory framework is driven by a price based competitive approach that is primarily targeted at the service provision layer, and has not sought to insure that there adequate infrastructure investment in the access layer; and
4. In a Scottish Context, whilst fibre has been deployed to cabinets in many commercially viable urban areas, the issues identified in 1. above would indicate that there has been under investment in both maintaining and / or upgrading the access network, both in non-commercial and commercial (e.g. Edinburgh and Glasgow) residential and business areas that can only get partial BT performance. These areas are considered competitive and serviced from an Ofcom point of view, however, in reality many are not.

It is also in part driven by the way the digital infrastructure market has developed across different geographies of the UK in the period since 2005. Broadly speaking, BT Openreach is the primary provider of the access layer infrastructure in Scotland, with relatively few areas of Scotland with an alternative infrastructure provider in place for example: Virgin in Edinburgh, Glasgow and Dundee and other locations and emerging providers such as CityFibre in Aberdeen and Edinburgh. Despite this additional investment by other providers, the vast majority of ISP services in Scotland are provided on BT Openreach infrastructure, be that FTTC or FTTE, supported by copper infrastructure to the home; much of the transmission capacity for mobile operator is also based on this provision.

Ofcom has, in the consultation documentation, recognised that BT is driven by shareholder return, which in turn influences such factors as operational and maintenance costs and capital investment into the network. BT's content strategy also makes significant demands on its free cash flow. This has seen relatively limited amounts of investment in large parts of Scotland (outwith the DSSB programmes in the rest of Scotland and the highlands and Islands where the public sector has made a significant investment), and sees the 'sweating' of its existing copper based network. Whilst BT has been developing its G.fast product, there is limited evidence as yet to suggest that such a product will deliver significantly enhanced provision based on the technology's dependence on quality of copper and the distance from the premise. There is also a belief that BT may be deferring some investment

[7] Example studies include: Ofcom: SRDC Discussion Documents, July 2015; Business Connectivity Market Review, May 2015; Ofcom Analysis of Operator Data, May 2015 (as detailed in the SRDC 16 July 2015; Communications Market Report: Scotland, August 2015; Jigsaw Research: SME experience of communications services – a research report, October 2014; Infrastructure Report 2014, December 2014; Saville Rossiter-Base: Quality of Customer Service Report, December 2014; Which?: Broadband Advertising speeds not up to speed; Broadband Services for SMEs: assessment and action plan, June 2015; Federation of Small Businesses: The fourth utility, July 2014; and Ofcom presentation: Ofcom's Strategic Review of Digital Communications, October 2015.

in its core infrastructure, until it understands the likely shape of the market over the next few years i.e. the evolution of 5G/LTE. Where it has announced investment, there is little information as regards where that investment will be delivered and when.

Whilst it is difficult to secure a detailed understanding of the specific investment in Scotland, recent data suggests that across Scotland levels of NGA and Superfast penetration are lower than the UK average[8]. It is, however, recognised that the investment needed is significant and therefore the business model and focus of Openreach should seek to enable long term infrastructure investment in addition to the requirements to support the wider BT Group. Therefore to secure adequate investment into the access network infrastructure to meet the digital dependency of consumers and enterprises, requires Ofcom to consider the current operational model of functional separation, and assess the extent to which additional measures are required to deliver future infrastructure for the needs of the next 10 years across the UK. In establishing a way forward, it is also necessary to consider the Openreach value chain to consider which aspects of this can and should be regulated through a competitive framework and where a more asset based regulatory framework may be more appropriate. In addition, given the localised nature of some of the investment challenges, there is also a need, to develop a regional and local approach to understanding and regulating Openreach's performance and service quality.

The Future Options for Openreach

There are a number of possible options which can be considered to determine the structure and workings of Openreach to enable it to be more effective and responsive in delivering network investment and service performance. The range of options are described in the table attached, outlining the impact of each in terms of potential benefits and implications. The options range from "do nothing" to full organisational structural separation.

[8] Ofcom: Communications Market Review: Scotland, August 2015.

Do Nothing: The 'status quo'

- **Benefits**
  - Continued operations and business process
  - Basis of market is known and understood
- **Implications**
  - No improvement in investment and / or service quality
  - Sector faces same challenges
  - Enduring bottlenecks remain
  - No new focus on infra investment
  - No drive to future proof networks
  - Ongoing service dissatisfaction

Functional Separation: Strengthened Regulation

- **Benefits**
  - Strengthen the regulatory capability of Ofcom to address bottlenecks and industry practice / performance
  - Continued operations without interuption
  - No need for large scale reorginisation of indutsry
  - Can focus on change at a regional and local level
  - Can develop approaches and tools to look at commercial and non-commercial areas
- **Implications**
  - If not 'structured' prperly, then may be limited impact upon Scotland
  - Enahnced regulation on its won may not deliver change
  - Period of flux to embed new regulation
  - Potnetial push bakc from industry: time lost impact
  - Ability to change industry behaviours

Functional Separation: Strengthened Regulation and Governance

- **Benefits**
  - As Functional Separataion: Strengthened Regulation
  - Greater separation of Openreach from wider BT Revised governance structure: more independence and scrutiny
  - Embedded revised monitoring and eprformance regime: develop key metrics
  - Can include caps on return for wider BT and investment requirements
  - Pension liabailities issues do not impact upon approach
  - Simpler in comparison and cost to full structural separation
- **Implications**
  - If not 'structured' properly, then may be limited impact upon Scotland
  - May be period of flux as change embedded
  - Challenge from BT
  - Wider impact upon BT group: content capability and for other operators

Targeted Functional Separation: Standalone Passive Infrastructure

- **Benefits**
  - As Functional Separataion: Strengthened Regulation and Governance
  - Except separates out passive infrastsructure to deliver wholesale change rather thna ll of Openreach: greater independence / separataion of key infrastructure
  - Negates potential pensions laibility impact, which may materialise under structural separation
  - Ability to secure external funding based upon future performance: standlaone approach
  - BT retain passive infrastructure body within wider group
- **Implications**
  - As Functional Separataion: Strengthened Regulation and Governance

Structural Separation: Joint Venture Approach

- **Benefits**
  - Creation of an industry owned and led organisation
  - Indepedence from any one operator, backed by strong governance
  - Embedded monitoring and performance regime: develop key metrics
  - Can include caps on return and investment requirements
  - Ofcom can evolve how regulates to fit new body
  - Ability to access own funding / finance
- **Implications**
  - Cost, time and flux caused by separataion
  - Level of Scottish focus (may need to enshrine national metrics / requirements)
  - Wider impact upon BT Group: content capability and for other network operators

Full Structural Separation: Private Openreach Body outwith BT

- **Benefits**
  - Creation of an independent organisation, backed by strong governance
  - Embedded monitoring and performance regime: develop key metrics
  - Can include caps on return / regulated asset base
  - Ofcom can evolve how regulates to fit new body
  - Ability to access own funding / finance
  - Essentially creation of a focussed, open infrastructure provider
- **Implications**
  - Cost, time and flux caused by separataion
  - Level of Scottish focus (may need to enshrine national metrics / requirements)
  - Wider impact upon BT Group: content capability and for other network operators
  - May limit ability to influence technology evolution and drive e.g. 5G

The above is against the backdrop of the last ten years, which have demonstrated unequivocally that UK citizens and businesses need broadband connectivity. It is not sufficient to provide a minimum or 'business as usual' approach – that is arguably a race to the bottom. The requirement is to enable the future and ubiquitous connectivity as a must. Above all there is an overwhelming need for Ofcom to be more proactive in enforcing and using existing powers so that the digital infrastructure can deliver the economic needs of Scotland.

Openreach the Next Ten Years

As highlighted above, the next ten years will be exceptionally important for the UK in terms of preparing the ground work for a future proofed, fit for purpose digital infrastructure which will drive productivity and economic and social benefits.

Therefore any option followed by Ofcom needs to have the following requirements:

- Enable investment and address market failure in access infrastructure in non-commercial markets;
- Enable Openreach to be able to make the necessary future proofed investment in the passive network e.g. ducts, masts, poles and fibre (as a minimum);
- Enable more local downstream services competition, through providing equitable access to this future proofed network; and
- The ability of Ofcom to use its powers to drive rectification and / or investment in commercial areas where the quality of experience and service is limited or not available.

Whilst the long list of options above highlights a number of different possible approaches, we intend to focus on three specific approaches (particularly as the 'business as usual' option is not considered a credible option):

1. Functional Separation: Strengthened Regulation and Governance – addressing the economic bottleneck.
2. Targeted Functional Separation: Standalone Passive Infrastructure - recognising the value chain and enabling downstream competition.
3. Structural Separation: Joint Venture Approach

We have not sought to assess full structural separation in detail here, as it is considered that the practical implementation of such a significant corporate restructuring and the uncertainty this may cause for many years, could actually hinder additional investment into critically needed access infrastructure required to deliver Scotland's world class vision. Nevertheless we do believe change is required. The options assessed are considered to be incremental, and more practical to deliver, and could, if implemented relatively quickly and successfully achieve much of the potential benefit provided by full structural separation; and whilst full structural separation may not be achievable at present, it may logically follow over time through change arising from the 2015 SRDC, or indeed become a necessity if the outcomes of some of the other options do not deliver change..

We will consider each in turn:

1. *Functional Separation: Strengthened Regulation and Governance*

Under this approach it is expected the following would underpin the regulation of Openreach (and the wider BT Group):

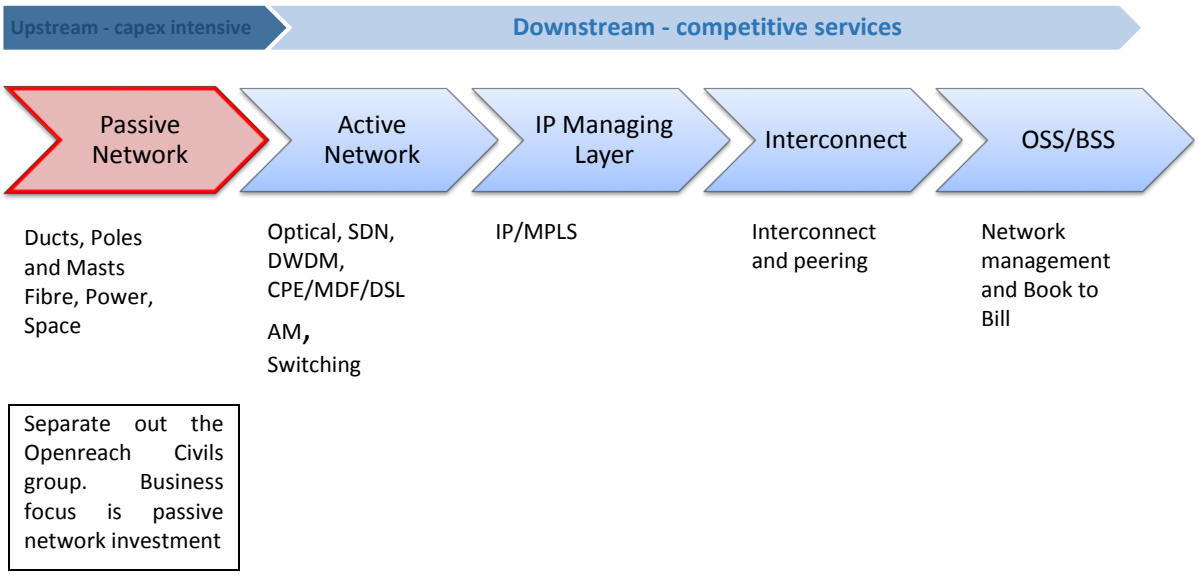
- EAB's independence: a separate board with external representation (possibly from wider industry) would be set up to oversee the operations and performance of Openreach. Such an approach would see Openreach having its own constitution;
- Openreach would be required to present an investment plan for the regions, which would be published. The EAB and Ofcom would then monitor performance against plan;
- Develop metrics and provide the EAB with the powers to enforce implementation and address poor performance;
- A return based upon a cost+ basis in relation to the network build out;
- Ring fenced capex for investment which could possibly be linked to regulatory relief in competitive markets; and
- Ofcom ensuring that it polices passive remedies robustly.

Such an approach would still see Openreach being part of the wider BT Group, however, with a focus of greater independence and enforcement.

2. *Targeted Functional Separation: Standalone Passive Infrastructure - recognising the value chain and enabling downstream competition*

Building upon the above, it may be that resolution of many issues in the digital sector could be addressed by the greater functional separation of Openreach. This would enshrine many of the principles outlined above, however, it would focus upon separating out the civils grouping within Openreach and creating a business focussed on delivering a passive network and associated investment.

The following diagram describes the Openreach business value chain, which captures the key components that require ongoing investment, based upon a long term investment horizon. The downstream components, however, could form part of a competitive services market, as highlighted through the consultation response.



It is evident that in a number of significant regions the market cannot support competing local access networks. Therefore the creation of an open, passive infrastructure network, that includes duct, fibre, poles and masts, that can deliver wholesale products, that in turn would support vibrant and competitive downstream services markets, could address national and regional requirements. As a comparator, challenges faced by communication providers in Scotland seem to reflect the BT experience in the US, where Bas Burger, president of BT Group's Americas operation, observed

"Verizon and AT&T control about 80% of the US's "special access network", the telephone and broadband lines used to carry data to homes and offices. The companies charge relatively high prices to their competitors for use of the network". In the UK, and in Scotland, it will therefore be necessary to address both the operation and governance of Openreach to enable positive consumer and enterprise outcomes and address a similar position to the US. The strategic requirement is ultimately to enable investment into the passive access networks, in a cost effective manner, which is key to delivering both fixed and wireless broadband connectivity to consumers and enterprises.

3. *Structural Separation: Joint Venture Approach*

This approach again recognises the Openreach value chain, however, it considers this in full and where it would 'reside'. It also recognises that the capital intensive passive network requires a funding / financing capability that is more relevant to the investment profile of assets that have an asset life of 25 years.

This approach would be based on a standalone joint venture business, which would see the wider BT Group retain an interest in Openreach, alongside a consortium of industry service providers and operators. Again, it would enshrine many of the principles outlined in 1. and 2. above of strengthened regulation and governance. This would likely still leave a situation where market dominance of the passive network would sit within a single economic entity, however, it is one which could be managed through the greater separation and aforementioned regulatory measures. This could create a more balanced and appropriate standalone asset based investment vehicle. Such a joint ownership and investment approach has been successfully applied in the aviation sector in terms of air traffic control, albeit the circumstances of its creation and nature of the shareholders is different.

One of the key benefits of such an approach is that it would be capable of attracting external investment and finance that would be based more on the nature of the assets being developed i.e. long life assets with the potential to create long term stable returns, thereby negating some of the investment funding issues currently encountered in the wider shareholder requirements of BT Group.

Q17: What do stakeholders think are the greatest risks to continuing effective consumer engagement and empowerment?

Consumer engagement is currently being driven by two key factors: demand for data and quality of experience.

As highlighted earlier, Ofcom needs to understand locally how these different elements are being delivered, or not. A good example of this is the WECLA analysis undertaken by Ofcom. There are a number of risks, however, that currently exist, and which will continue to do so, unless action is taken to remedy the situation. These include:

- The ability to understand likely speeds and services.
- Expectations on performance and coverage, and how actual performance compares.
- Misleading advertising - lack of knowledge.
- Understanding of choice (where available), and an understanding that whilst switching may provide price benefits, it may not improve performance.
- Unawareness of company and Ofcom complaints procedures, and how to get issues resolved.
- Technology gap.
- Contention and resilience i.e. how will any network perform under different conditions.

Concerns about participation are also strong, in that there are large proportions of Scotland which cannot gain digital access for a variety of reasons: whether pricing, availability or lack of understanding or knowledge; be that individuals or businesses. Whilst resolving many of these factors, sit at a wider public policy level, elements do impact upon Ofcom's sphere of activity.

For some, price may not be the primary measure of effective regulation with a potential to a willingness to pay for quality; we believe this merits further consideration byt Ofcom. . Therefore service issues, rather than price issues drive dissatisfaction. Ultimately, it may therefore be that to drive infrastructure investment, levies similar to the electricity sector could be applied.

Q18: What indicators should Ofcom monitor in order to get an early warning of demand-side issues?

There are a number of indicators, which should build upon existing Ofcom analysis. This analysis should be at a local level and also consider quality of experience as a key part of any indicators. Such elements could include (but not be limited to):

- Quality of experience: drive testing.
- Speeds: uploads and downloads. We understand that Ofcom has such data and would be interested to understand how this is used, or how it could be used.
- Comparison of services against Ofcom mapping data e.g. mobile information.
- Comparison of tariffs with other providers.
- Calls dropped, calls connected and call quality.
- Coverage on transport.
- Contention.
- Resilience / outage.

Regardless of the indicators employed, these should reflect quality of experience elements, and should look more carefully at a granular performance level. They should also consider consumer demand and what different segments of the market want and get.

Ofcom should also measure investment and the impact of investment. As highlighted earlier, Ofcom should seek to introduce a system whereby providers detail their projected and planned investment and Ofcom should then monitor the delivery of such plans. Whilst this sits outwith demand side measures, it can be monitored to see what the impact of investment in non-commercial areas does in terms of satisfaction, speeds and experience and other indicators.

Related to this, Ofcom should maintain, and providers be compelled to provide network investment plans as well as information regarding existing infrastructure provision. Such information will allow Ofcom to assess future bottlenecks and demand side issues.

Q19: What options might be considered to address concerns about consumer empowerment at each stage of the decision-making process (access, assess, act)? What more might be required in terms of information provision, switching and measures to help consumers assess the information available to them? What role may Ofcom have to play compared to other stakeholders (including industry)?

The basis of this question builds upon the elements outlined previously in this response. This includes:

- Switching – for poor performance where a providers doesn't provide contracted services. This would incorporate the portability and transfer of number, email addresses and any other pertinent information.

- Mapping of actual not modelled availability and coverage, so consumer decisions can be made on an informed basis. There may also be benefits in including information regarding the provider of the underlying infrastructure, so that genuine service provision alternatives can be identified. Whilst it is recognised that mechanisms to switch do exist, it would be beneficial to consider enhancements in terms of more localised reporting ranking providers to drive investment and performance.
- Simplification of packages and method of advertising – if there is too much choice and different options, sometimes it is hard to compare and select required components.

Q20: Are there examples in competitive or uncompetitive sections of the market where providers are not currently delivering adequate quality of services to consumers? What might be causing such outcomes?

As identified in response to previous questions, there appears to be evidence where providers are not currently delivering adequate quality of services (and reasons for this), and is anticipated that additional evidence will be provided as part of this consultation process.

Q21. What further options, if any, should Ofcom consider to secure better quality of service in the digital communications sectors?

We believe that the response to this question has largely been highlighted earlier, through several questions. By way of summary it primarily relates to local conditions, experiences and monitoring to understand what is happening in different parts of the country and locations. This in turn drives thoughts as regards regulation (where needed) to address issues. Ofcom could also consider:

- Improved market surveys.
- Local customer groups: Ofcom ability to inform local surveys.
- Set metrics for analysis.
- Ordering, installation, etc. monitoring, standards, etc.
- Cabinet exchange performance by area – details of whether fibre, etc. – ties back to mapping of assets.
- Performance penalties
- Coverage vs. Quality of service / experience
- New build requirements: emphasis on fibre rather than copper.
- Measurement and analysis of forecast and actual investment.
- Focus on contention as a well as coverage.

Q22: Might there be future opportunities to narrow the focus of ex ante economic regulation whilst still protecting consumers against poorer outcomes?

There may be scope to narrow the focus of ex ante economic regulation, however, this needs to be concluded against the following framework:

- Ex ante economic analysis is currently on a national basis;
- This national basis won't protect more rural / remote areas, as it does not collect details of significant variations;
- Therefore it is essential that local Scotland analysis and understanding is undertaken;

- This then drives outcomes for those areas;
- Where it is deemed in commercial areas that ex ante economic regulation may be narrowed, this should always be on the basis that such regulation may be introduced for material changes in the relevant local market. Ofcom would need to keep these elements under review as part of its wider local analysis.

Q23: Where might future network evolutions, including network retirement, offer opportunities for deregulation whilst still supporting good consumer outcomes?

There is a need to recognise that OTT services are changing the nature of the internet and delivery of services. This is also guiding and driving future network evolution. This points the way to network retirement (particularly as regards copper), where existing networks cannot handle the required data demand from consumers. This may not lead to de regulation, however it does offer the opportunity for regulation to drive investment to replace aging infrastructure and redundant / inefficient copper strands.

There may also be a difference between urban and rural Scotland. Again in the rural areas, these will need open wholesale access, flowing down to access competition and therefore retail. This will cover access and investment in passive infrastructure.

As an aside, the role of 5G/ LTE will become clearer in the next few years, however, one element that is certain, is that there will be a greater need for the backhaul network to be in a position to deliver such change. Ofcom needs to consider the likely basis and asks of future networks, to ensure economic bottlenecks are not magnified or created. This futurology piece should also consider the future retirement of networks and technologies, and again the ability to deregulate.

Q24: What are the potential competition and consumer protection implications of the rise of OTT services? Might the adoption of such services enable future deregulation without raising the risk of consumer harm?

Value is shifting to OTT, rather than networks. Therefore, as highlighted earlier, need to ensure both adequate infrastructure investment to meet demand, whilst also developing an appropriate charge mechanism for OTT providers (see earlier). The rise and abundance of the OTT providers is a naturally competitive environment. They also raise revenues in different ways: fees, advertising, cross selling, and so on and an element of these should be captured to drive investment.

Failure to address the infrastructure investment need will mean that networks will struggle and so the quality of experience degrades, and consumers suffer. Ultimately we want to ensure an ability to access OTT services regardless of connection (fixed or mobile) and location in Scotland.

As highlighted earlier, however, OTT services should provide a contribution to ensure future networks are capable of meeting demand and consumer benefits are continued; how this can be achieved merits further consideration by Ofcom.

Such an approach may provide an opportunity to deregulate in the future as significant investment may be created in networks, which alongside the basis of access, may offer opportunities to deregulate against a backdrop of a high speed, quality networks being in place.

Q25: Are there any areas where you think that regulation could be better targeted or removed in future? What would be the benefit of deregulation as well as the main risks to consumers and how these could be mitigated? Please provide evidence to support your proposals.

Please see response to previous questions.