ONE-Manchester Digital Challenge Partnership, coordinated by the Manchester Digital Development Agency (MDDA), in collaboration with the Digital Challenge 10 (DC-10) Network – Next Generation Connectivity Working Group and the Community Broadband Network (CBN)

Response to the Ofcom Consultation on "Future Broadband – Policy Approach to Next Generation Access"

Question 1: When do you consider it would be timely and efficient for next generation access investment to take place in the UK?

1.1 Investment needs to take place now

There is wide-ranging consensus from the partners and stakeholders of the ONE-Manchester partnership, the DC-10 Network and CBN that the time to start the deployment of Next Generation Access (NGA) is now and that any further delays will cause detrimental impacts on local, regional and national competitiveness resulting in adverse effects on growth, employment and inward investment, especially in key sectors such as the creative and digital sectors. The challenge is to find ways to make this happen using innovative investment and business models which recognise the inevitability of NGA being based on 'disruptive technologies'.

This means that these investment and business models need to take account of the new realities of the digital 'paradigm shift' based on "Web 2.0"[1], "Wikinomics"[2] and the "Long Tail"[3] of the digital economy. Many traditional technological and investment models may no longer be relevant to investing, and staying, "ahead of the curve". We believe that more emphasis should be put on supporting more flexible and proactive responses to future demand, with policy approaches that enable stakeholders to develop imaginative new ways of pre-empting and aggregating demand and developing investment models which support this.

This response is produced not only on behalf of the local and regional partnership work that is being undertaken by ONE-Manchester, coordinated by the MDDA (part of Manchester City Council), but also on behalf of the Next Generation Connectivity workstream of the Digital Challenge 10 (DC10) network and the Community Broadband Network – CBN (see Annex 3).

1.2 International comparisons

Importantly, NGA investment and development is already accelerating in the Asia-Pacific Region, especially in Japan and Korea, in the US and in European city-regions, such as Amsterdam and Paris. As the Ofcom consultation document highlights, Fibre to the Home (FTTH) already accounted for 31% of the Japanese broadband connections (7.9m subscribers at the start of 2007 and in July 2007 new figures showed this rising above 10m subscribers, with more than 250,000 FTTH subscribers being added each month) and in Korea there are 3.4m Ethernet LAN and FTTH subscribers (not including VDSL). In the US as of April 2007 there were 1.3m FTTH subscribers which represented a 99% growth in a year. Fibre to the Business (FTTB) subscribers are also increasingly significantly.

[1] Tim O'Reilly, "What is Web 2.0?", www.oreillynet.com (Sept. 30th 2005)
[2] Don Tapscott and Anthony D. Williams, "Wikinomics" , Portfolio, 2006, www.wikinomics.com
[3] Chris Anderson, "The Long Tail", Hyperion, 2006, www.longtailbook.com

In a press release the OECD in October 2006[4] stated:

> *"Fibre to the home is becoming increasingly important for broadband access, particularly in countries with high broadband penetration."*

On July 5th, 2007, Point-topic published a new edition of its Global Quarterly Broadband statistics:[5]

> *"During the first quarter of 2007, FTTx continued to out-perform cable modem in terms of quarterly growth. By the end of Q1 2007, the world FTTx subscriber base had reached 31.4 million lines, with a growth of 46% in the past year.*
>
> *Although the overall market share of FTTx is still very low (10.7%), compared to DSL (66.1%) and cable modem (20.3%), FTTx is gradually gaining ground in market share terms. From the beginning of 2005 until the end of 2006, the number of FTTx subscribers has been increasing at a rate of over 10% every quarter. In Q1 2007 this growth has slowed down by 5%, down to 5.8%. Of the seven global regions, North America (primarily the USA), and Asia-Pacific have displayed the most impressive growth rates above the average of 17.3% and 8.3% respectively during Q1 2007.*
>
> *One of the drivers for this continuous growth is the increasing popularity and demand of Value-added-Services (VAS) such as IPTV and, in Japan, Video-Conferencing. They consume a large amount of bandwidth for delivering video content and TV channels over broadband connections. As a general requirement, TV-over-Broadband (TVoBB) needs at least 3Mbps bandwidth in order to deliver a seamless service. High-Definition (HD) TV can require up to 8Mbps of bandwidth, so conventional ADSL services are unlikely to be able to accommodate this bandwidth hungry service.*
>
> *Some migration of DSL customers to FTTx can be observed in Japan, South Korea and Taiwan. Taiwan presents the most interesting case with the incumbent Chunghwa posting a growth in FTTx of 31.3% and only a growth in DSL of 0.52% in Q1 2007. In the previous quarter the FTTx saw a growth of 109.74% and the DSL had even posted a loss of -0.80%. (…)*
>
> *The growth of FTTx has been significant in the Asia-Pacific region. With the subscriber base growing twice as fast as that of cable modem, the market share of the FTTx continues to out-perform cable modem in the region. As reviewed in our Q3 2006 report, the market share of FTTx in the Asia-Pacific region (20.4%) was a tick higher than that of cable modem (20.2%). By the end Q4, the gap between the two increased by more than 2%. By the end of Q1 2007, the figure increased further to 23.7% for FTTx services compared to 19.9% for cable modem services.*
>
> *In regions where the broadband market is dominated by DSL and cable modem, the increase in FTTx market is slow but steady. For instance, in North America (primarily the USA), the market share of FTTx services has increased from 1.4% of the total broadband share in Q1 2006 to 2.3% in Q4 2007. Although the growth is slow, it is beginning to gain market share. In addition to the USA, Taiwan, France, Japan and Italy also report robust growth rates for their FTTx services of between 31.3% and 8.3%."*

Recent analyses of these developments (taken from "An Overview of Fiber: European (Muni and other) Fiber to the Home and Fiber backbone projects", Dirk van der Woude, City of Amsterdam, Nov. 2007) demonstrate that there are likely to be more FTTH connections

[4] http://www.oecd.org/document/9/0,2340,en_2649_37441_37529673_1_1_1_37441,00.html
[5] http://point-topic.com/home/press/dslanalysis.asp (obligatory free subscription)

in Japan than DSL as soon as Spring 2008 when FTTH will have more than 12m subscribers. Closer to home European city-regions, such as Amsterdam, Cologne, Milan, Paris and Vienna, are already implementing investment plans to deploy FTTH/B and just these five alone will account for FTTH/B going to more than 2.5 million residential and business buildings by 2010. Other networks are developing rapidly at regional level in Sweden, France and Spain for example. In the past it has been argued that the Asia Pacific Region cannot be seen as comparable to the UK given the different societal, regulatory and business structures. The rapid, and accelerating, development of FTTH/B projects on the Continent and in North America cannot be dismissed in the same way.

1.3 Creating exemplars for NGA as soon as possible

It is clear, therefore, that the technologies and the business models already exist to demonstrate what is possible with NGA and provide ample opportunities to learn not only from best practice but also from the barriers and challenges faced by those implementing FTTH and other NGA solutions. This means that we can access this experience and then utilise the knowledge gained to support a broad range of local trials in the UK. These would enable us to gain valuable user feedback of extended usage, assess potential user demand and test out innovative business models, including those which would help to build and aggregate consumer demand.

Once such trials were underway this experience could again be aggregated to support further and larger scale trials for NGA deployment where innovation should be directly encouraged via more flexible regulatory and financial procedures in both urban and rural contexts. By creating new and innovative environments for such development then it is more likely that new players and investors will be encouraged to enter the market providing for the contestability principles discussed in the document. This approach is already well established in many other parts of Europe through the “Living Labs” concept. Manchester was the only UK participant in the first wave of “Living Labs” established in 2006, as a founder member of the European Network of Living Labs (ENOLL) and is now working with the DC-10 partnership to develop a UK Network of Living Labs. NGA ‘Living Labs’ across the DC-10 network, linking to other local initiatives that wished to join, could provide precisely the large scale test bed required to act as a national exemplar network for NGA deployment. The DC-10 Network intends to bring forward more detailed proposals for this in the new year.

Local Strategic Partnerships are about places and creating sustainable communities. It is this that underpins the focus of the DC-10 on digital inclusion and sustainable digital competitiveness. The ‘sense of place’ is about being proactive, determining what a particular place (whether an neighbourhood, an area or a region) needs and what kind of infrastructure and investment is required to meet those needs. This is our approach to NGA. As places we want NGA, on the one hand as advanced and future-proofed as possible, and on the other as accessible, affordable and inclusive as possible. We want NGA because it provides us, as places, with the ability to compete in the growing digital market place on more effective and equal terms. It is about us, as places, ‘staking our claim’ to be up there with the emerging ‘premier league’ of cities and regions that are using this as their USP for investment and innovation.

This is given additional impetus by the recent Cushman and Wakefield study[6] which highlighted the importance of the availability of digital connectivity as a key factor in influencing corporate investment and location decisions. This is now the third most

[6] Cushman and Wakefield, “European Cities Monitor”, 2007

important factor, behind the availability of staff and markets, ahead of office space and transport. No UK cities other than London were in the top 10 of “best cities in terms of quality of telecommunications” and all the other UK cities listed had fallen in the rankings between 2006 and 2007.

While we recognise that it may be more costly for the UK to implement NGA compared to many of our global competitors, we do however believe this is essential investment for maintaining the UK’s globally competitive position, especially in terms of the key growth sectors mentioned earlier, i.e. creative/digital. As we increasingly operate as a knowledge and service based economy such investment will be vital not only in order to maintain our competitive position again other advanced economies but also in order to compete with the BRIC economies (Brazil, Russia, India and China) where investment is likely to ‘leap-frog’ over “2nd generation broadband” and go directly to ‘3rd generation’ FTTx solutions. Already St. Petersburg in Russia has announced plans to transfer DSL subscribers to FTTH by 2011.

It is for all of these reasons that we are so concerned by the very cautious and risk-averse approach taken by some players, as exemplified by recent statements that the “push” for NGA is “premature” and that few people are “constrained by their bandwidth”. This demonstrates a negative and uncooperative starting point which does not exactly inspire confidence that we are able to aspire to be a global leader. It is why the many partners working at local and national level, through the DC-10 network, believe the time is right for more dynamic and imaginative approaches to be taken based on global best practice and a commitment to create ‘connected places’ which are able to show the way forward and demonstrate proofs of concept and exemplar models.

We are already seeing the very first signs of small scale pilot projects of NGA deployments in the UK, e.g. the Ebbsfleet Valley project, and this is very much to be welcomed but these are currently very isolated and would benefit by being part of a much larger network of deployment projects. This would enable a much more open and transparent approach providing results which could be compared and contrasted across a wide range of socio-economic environments and have much more relevance for the digital inclusion agenda. There are also concerns about the use of “traditional” technological models primarily based on PON (Passive Optical Network) technology which we believe could limit the options for creating competitive markets at multiple levels.

Ofcom should play its part in the active support and promotion of NGA exemplar projects as part of the process of unlocking investment in NGA. We believe that there is scope for Ofcom to influence positively the actions of Government at national and regional levels in developing such exemplars for the UK.

1.4 Creating a ‘level-playing field’ for innovation

We have had technical advice from a number of the dynamic new players in this emerging market place and they believe that there is not a ‘level paying field’ being proposed which would enable them to bring forward more innovative applications and solutions. This includes the dominance and encouragement of PON based solutions for NGA, which, they believe, gives unfair advantages to incumbent operators. The main issue is that PON is designed with contended services in mind, this is a physical trait whereby an optical signal is split and shared among a number of subscribers, typically 32. While this reduces the installation cost of the network, it permanently removes any chance of offering low contention and uncontended services. Similarly each member of the “PON family” is geared towards a particular next-layer architecture, e.g. EPON favours Ethernet. This limits future

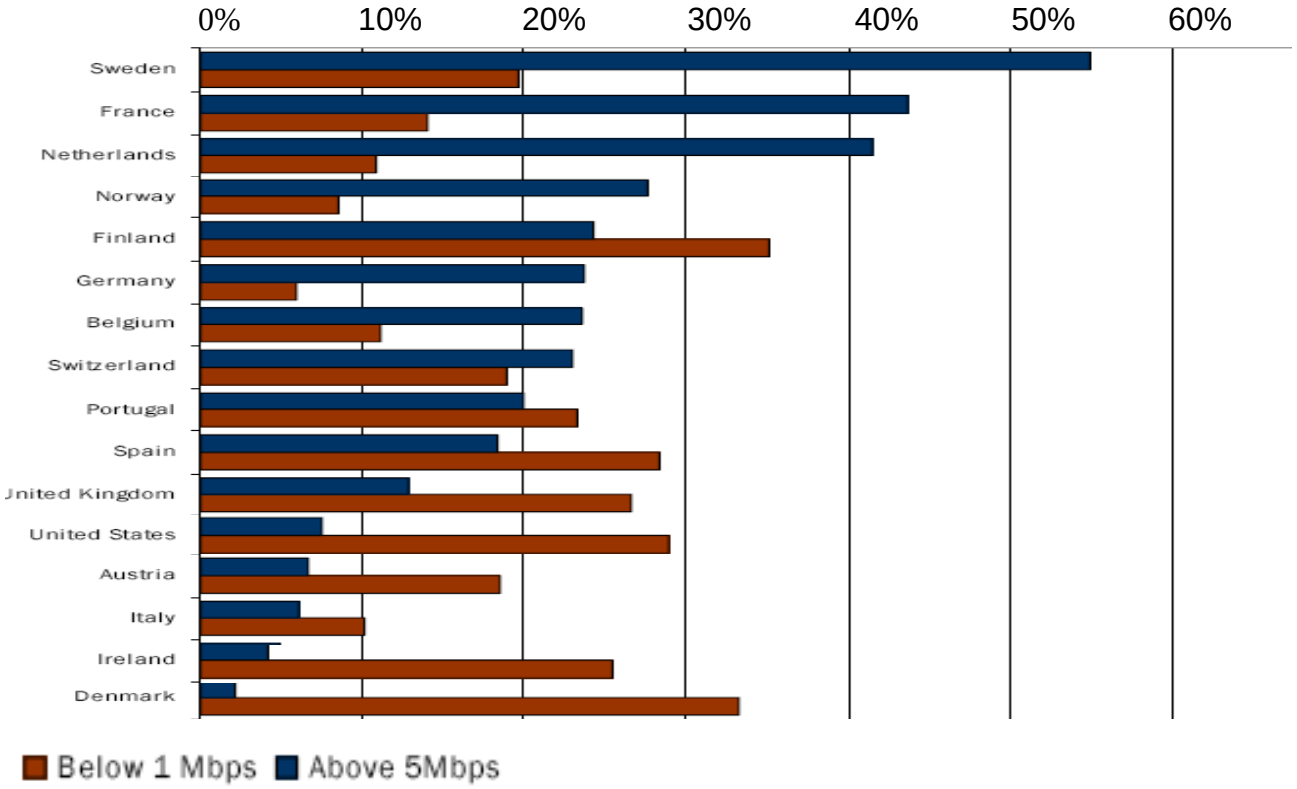
technology choices and may leave future performance of the network solely in the hands of the fibre operator, recreating the same market conditions which led to DSL being the dictated choice for first generation broadband, with any new broadband offering having to work with the legacy of the circuit-switched network specified by the incumbent many years before, thus reducing the scope for innovation and consumer choice. It is interesting to note that when faced with the decision, incumbent operators tend to opt for PON-based network architectures whereas new entrants generally favour active infrastructure solutions such as Active Ethernet FTTH.

This is why we believe that, while some of these opportunities for innovation may not be commercially viable at the start of new NGA/FTTH project, it is essential that contract offerings permit their evolution in the future. Today, wave division technology is expensive and can require careful handling but it should be expected that during the lifetime of the fibre, optical technology will be dramatically improving. If contracts are offered to providers which give them universal and exclusive access to a subscriber, then it limits future opportunities for competition and may repeat the mistakes of the past, limiting technological innovation in the local loop. Without care there is a danger of shifting “the incumbent problem” from the first mile to other parts of service delivery.

1.5 UK performance – some international comparisons

We believe that greater efforts should be made at international benchmarking to understand the barriers and challenges that the UK may face in implementing NGA. Recent OECD studies, complemented by related private studies, provide a starting point for this. Table 1 demonstrates that while some countries, including the UK, Denmark and Ireland, have high levels of broadband usage this is very clustered at the ‘slow end’ with more than 60% of users having speeds of less than 1Mbps. When we focus on download speeds of 5Mbps and above then the UK is very much at a competitive disadvantage when compared to the majority of its main European competitors.

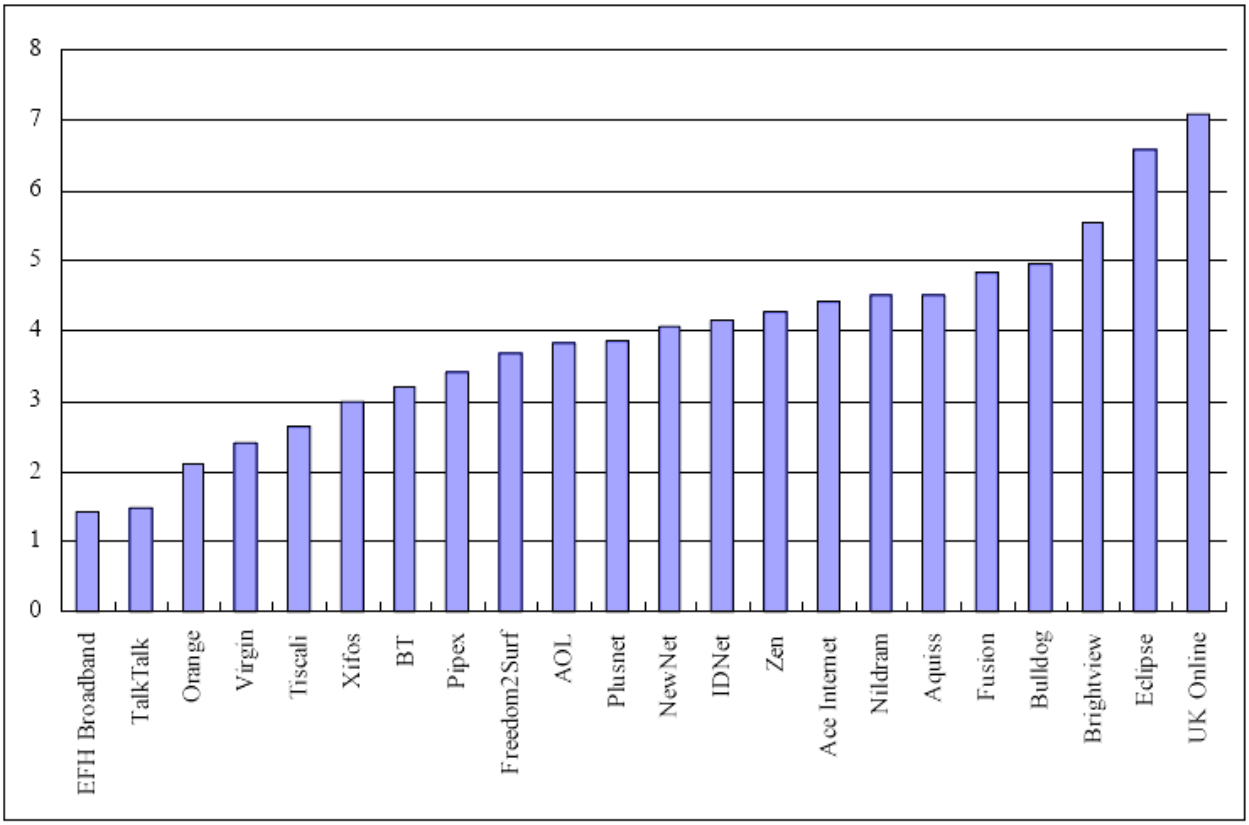
Table 1: % of services with download speed <1Mbps or ≥5Mbps



Source: OECD Broadband Statistics and others

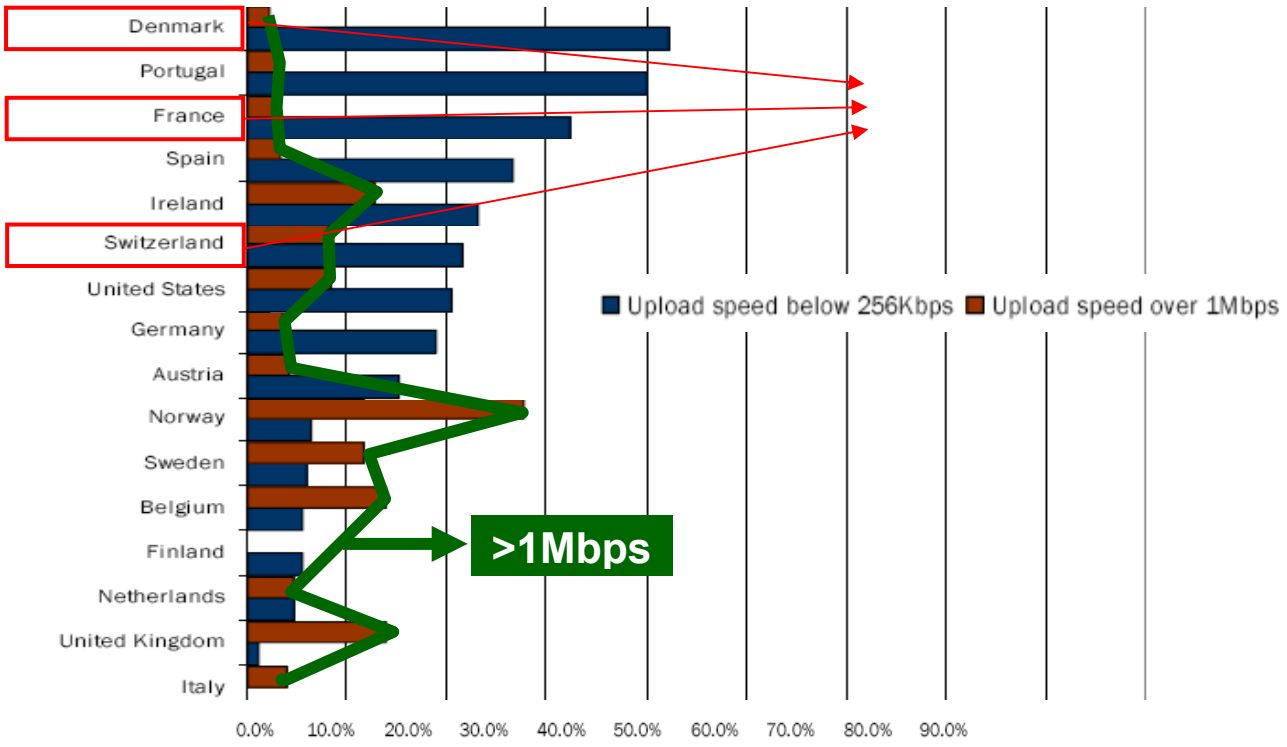
Similarly there are concerns over the reliability of existing DSL broadband offerings which are advertised at "up to 8Mbs" when it is clear that half of those suppliers surveyed could not even provide 4Mbs, see Table 2 below. Another barrier in the increasingly symmetric world of Web 2.0 is that of upload speeds, where all the main EU countries have problems with enabling users to have faster upload speeds, see table 3 below.

Table 2: Real life speeds of 'equal' 8 Mbps DSL in the UK, Sept 06



Source: computeractive.co.uk, www.dslzoneuk.net;

Table 3: % of subscribers with upload speeds <256Kbps and >1Mbps



Source: OECD Broadband Statistics and others

1.6 Broadband 2.0 – digital synchronicity and competitiveness

There is increasing concern that access infrastructure is currently inadequate even to meet the existing rate of demand growth with articles focusing on fears of "Net Gridlock by 2012"[7]. As more and more interactive and media rich applications are being used, the result of "Web 2.0", existing bandwidth will not be able to meet demand and will constrain competitiveness, particularly in terms of provision by UK based service and content providers. At the same time more and more people are thinking of the local loop as the "first mile" rather than the "last mile", so that instead of users being seen at the very end of the supply chain, at the periphery of the network, they are also seen as being at the start of the supply chain, i.e. users as active producers of content not just passive consumers and who can also be seen as being at the centre of the network.

This means that upload speeds will become just as important as download speeds, fuelling demand for symmetric/synchronous bandwidth with little or no contention. When this can be offered now in the streets of Amsterdam and Paris for 30 Euros per month (starting at 10Mbs symmetric and with upgrades available to 100Mbs symmetric at the same cost) it is not surprising that both consumers and businesses believe that paying anything between £3,000 and £10,000 per month to get a similar service in the UK is unfair, uncompetitive and unacceptable.

This is also very relevant to the question of the role of NGA in supporting sustainable communities. If we are to encourage more flexible working, including more people teleworking or developing small office, home office (SoHo) facilities at home, then we also need open networks offering the kind of level and speed of services, on a symmetric and uncontended basis, that are increasingly taken for granted in France and the Netherlands. At the same time we need to think about the sustainability of copper based networks themselves and the ways that fibre based networks can offer a more sustainable basis for NGA in environmental terms as well in social and economic terms.

We recognise that the UK has made significant strides in achieving its current generation broadband penetration levels, with over 52% of households having "1st generation" broadband in the UK, up from 16% three years ago. This was an impressive achievement and enabled a strong and competitive initial broadband market to develop. We must accept, however, that this is rapidly being overtaken by countries very 'close to home', in north and west Europe, who, while they may not all of the advantages of the UK's experience of being an 'early adopter', are focusing and targeting their investment in NGA based on fibre (together with advanced wireless) to such an extent that the UK will simply not be able to compete with these effectively and will lose any existing competitive advantages.

This is why we believe so strongly that, if the UK wants to have a leadership position in this field, which we believe it can because of all of its other strengths – especially in the creative and digital sectors, then it must invest now in new and innovative forms of open networks based on fibre to the home, business and premises (FTTH/B/P). In Manchester we have seen just how important the creative/digital sector is to the over growth and competitiveness and the city-region. Industry leaders in this sector have no doubts whatsoever that the lack of NGA is already a serious impediment to future growth and that this will only get worse until we see widespread NGA deployment based on FTTx. Manchester Digital, the independent sector trade association, which represents more than 200 businesses in the sector, is leading a local industry task force to raise awareness about and to seek action. At its meeting on December 4th 2007 the Manchester Digital Board and Council unanimously

[7] http://news.bbc.co.uk/1/hi/technology/7103426.stm research by www.nemertes.com

endorsed this submission and will be working closely with the ONE-Manchester partnership and other partners to ensure that there is follow up action on its recommendations.

This is the central issue when partners and stakeholders focus on what the digital 'place' which they want to develop should be capable of in the future. There are three guiding principles for this, which also reflect the points highlighted by the Broadband Stakeholders Group (BSG)[8], in terms of the digital infrastructure, and the investment required to develop this, being capable of:

a) supporting improved local and regional competitiveness;
b) tackling market failure including through promoting innovative business models, such as multi-stakeholder co-ownership models;
c) tackling the digital divide and promoting digital inclusion.

This is why there is a need for some bold and dynamic leadership to take this agenda forward at all levels, local, regional and national. The ONE-Manchester partnership and partners within the Digital Challenge 10 network recognise this in terms of their vision for developing their own network of 'digital places' which is why the DC-10 Connected Neighbourhoods Forum has been established, see section 2 below. We hope that Ofcom and Government will now respond equally positively by supporting these approaches.

While this is being done it will be essential to maintain and upgrade any elements of the old copper based networks to ensure that there are no bottlenecks appearing while this is happening. The overall emphasis should, however, be on replacement of copper by fibre everywhere, perhaps eventually being able to follow the lead taken by one of Europe's smallest countries, Andorra, with its commitment to be able to replace, remove and then 'turn off' its entire copper network (in a similar way to the turning off of the analogue TV signal) by 2010.

[8] BSG Report, "Pipe dreams? Prospects for next generation broadband deployment in the UK", April 2007

Question 2: Do you agree with the principles outlined for next generation access?

2.1 Celebrating innovation and open networks

ONE-Manchester partners have very mixed feelings about the principles set out in the Ofcom consultation paper. Overall there is a concern that these principles do not provide an ambitious enough framework for the UK to use in re-asserting a leadership role in developing NGA and supporting innovation, competitiveness and the ongoing growth of the knowledge economy.

Whilst we recognise and welcome the initiative taken by Ofcom in respect of raising the profile of NGA through this consultation, what is really required is a much more ambitious and innovative approach both to stimulating ideas and creativity about how to develop NGA in the UK context and to creating the conditions for new and imaginative business and investment models to deliver on this. Bandwidth simply cannot and must not be a barrier to innovation, a view widely endorsed by the RDAs and one which we believe Ofcom should give much more consideration to.

It is perhaps more that the five principles could be enhanced to include a wider commitment to embracing change and innovation. There could then be more emphasis on promoting initiative and experimentation to test out different possible models for NGA deployment while recognising that this need not necessarily create precedents which could complicate the ongoing process of regulatory reform.

In terms of the five principles set out there are a number of issues which the partners within ONE-Manchester and the DC-10 network are currently considering, including::

a) Contestability: if we focus on the sense of ‘place’ and how this can be enhanced through NGA investment and deployment then it might be possible to think of ways to stimulate investment based on adding value to the land and real estate of that ‘place’ through NGA infrastructure rather than just looking at NGA in isolation from the places wider asset base, this could enable conditions to be created where investment for NGA could be ‘piggy backed’ onto other infrastructure development, including housing, transport, utilities improvements and environmental enhancements.

b) Maximising potential for innovation: innovation should not just be seen as an incremental process or even one that is just about technical processes, rather the wider socio-economic context needs to be considered more fully and opportunities developed for other players to be involved enabling innovation to be applied to business and financial models as much as to technological ones. What potential, for example, is there for housing organisations, social enterprises, regeneration initiatives and other community organisations to be involved in aggregating consumer demand, raising investment and even implementing investment plans, including on a co-ownership basis?

c) Equivalence: as we move into a new connectivity ‘paradigm’ it may be that simply having a regulated wholesale monopoly is not enough to support the emergence of the kind of competitive markets we are seeing develop in France, the Netherlands and Scandinavia. Perhaps it is now necessary to enable new open networks to be developed which provide for genuine competition at the wholesale level? This is an issue which we have been discussing with the Community Broadband Network

(CBN) and we have included some of the issues arising from these discussion in the response to Question 4.

d) Reflecting risk in returns: if NGA is going to be flexible enough to meet the multiplicity of demands of the next generation digital economy then it may well be that different layers and approaches to NGA delivery will mean different levels of risks and returns and that we should steer clear of having a 'one size fits all' approach. If operators and other investors can see that, in the longer term, they will be able to reap larger rewards by taking the bigger risks in the short term than maybe it will be possible to break the current "Catch 22", whereby investors are reluctant to come forward as they are caught by ROI 'short-termism' but they find it difficult to break-out of that because of the lack of longer-term business models. If local 'test-beds' for NGA can have the freedom and flexibility to test and deploy more innovative business models then it would be possible to develop the evidence base for reflecting differential risk in differential returns, for example by sharing risk, and returns, with other infrastructure development.

e) Regulatory certainty: this follows on from the issues raised above where, again, if NGA is going to be developed in a flexible way as possible, in order to reflect the different needs of different 'digital places', then the regulatory framework will also need to be as flexible as possible, recognising that outside of certain 'core principles' that could be agreed upon different business models may require different approaches to regulation.

2.2 Digital divide

The digital divide is, and will remain, a serious issue, not simply in terms of achieving an "equitable distribution of welfare gains" but also in terms of connecting the needs of all of our citizens with the opportunities which are being created by the knowledge economy. We anticipate that these opportunities will increase even further if NGA is properly developed but unless the digital divide is tackled effectively then many people will continue to be excluded from accessing the new opportunities created.

We believe that this is such an important issue, and so central to realising the benefits from the increased competitiveness that we want to see, that we do not want to see any unnecessary barriers being put in the way of well-targeted interventions on the basis that "pre-emptive intervention is risky". This is much too cautious and risk-averse an approach to really enable action to address the digital divide to be taken effectively.

We would like to see a much more innovative approach to be taken whereby Local Strategic Partnerships and sub-regional and regional forums and agencies, including RDAs, would be actively encouraged to develop local intervention plans in clearly designated areas, e.g. regeneration and housing renewal areas, linked to the achievement of Local Area Agreements (LAAs) and Multi-Area Agreements (MAAs). This is one of the key issues being considered as part of the development of the Connected Neighbourhood Forum by the DC-10 Network which include the idea of a Connected Neighbourhood Charter which would include the development of a digital 'blueprint' or 'masterplan' for a neighbourhood – see Annex 1 to this submission.

The idea is that these "local intervention plans" would be able to outline how the planned intervention would fit in with the three key principles of the BSG Report ("Pipe dreams? Prospects for next generation broadband deployment in the UK", April 2007), in terms of:

- Addressing market failure;

- Ensuring that there is an “equitable distribution of welfare gains” addressing digital inclusion;
- Ensuring regional competitiveness.

The plans would need to demonstrate how and why they were “well-targeted” and “innovative” as well as how they would “aid” rather than “distort” competition and incentivise and leverage private investment to come forward to add value to the intervention. We believe that such plans would be able to support “digital masterplanning” at local and regional level in an open and transparent way, providing partners and stakeholders with information, advice and intelligence about NGA planning and deployment. This would, in turn, enable other investors and infrastructure developers to consider how they could integrate NGA deployment into their own plans and create the conditions for much wider partnership development through new investment ‘alliances’, PPPs and co-ownership arrangements.

This is also particularly relevant to the issue of environmental sustainability and the advantages of NGA based on FTTx, including the positive environmental impacts of replacing copper with fibre, reducing the need for continuous upgrading of networks (e.g. reducing the need for street digging) and the ability to support flexible working, intelligent energy management and new mobility solutions.

Consequently we urge that a more imaginative and less risk-adverse approach is adopted that is not afraid to consider and even promote specific policies to address the future digital divide which is already emerging. Continuing to gather evidence is an important part of this but it should inform proactive ongoing policy development and implementation rather than exist in isolation.

Question 3: How should Ofcom reflect risk in regulated access terms?

Much of the discussion about this within the DC-10 network, and at local level, is already covered by the responses to Q4 and Q5. The main points we would highlight here are:

a) we believe that Ofcom should provide operators with maximum freedom to innovate, not just in terms of technical architecture, but also in the development of new business models;

b) we would also suggest the development of a NGA “customer charter” which sets out what users can expect in terms of service levels, their rights and responsibilities and arrangements for support or even compensation if service levels are diminished or withdrawn;

c) network and service providers should be required to demonstrate that they have plans to enhance and upgrade the network/service, with the resources to back this up, by publishing a development plan with targets for 1, 3 and 5 years which would be reviewed on an annual basis;

This is in the context of our wish to see open networks becoming the foundation of the core access level for NGA, thus providing the ‘public (super)highway’ onto which value added services can be provided by the market ensuring that the ‘highways’ are easily accessible, well maintained, integrated into other key services available in that ‘digital place’ and enabling the market to bring forward service offerings, from all-encompassing ‘service malls’ to niche independent traders to collaborative networks of user-generated content and services.

Our conclusion being that Ofcom should reflect risk in regulated access terms by ensuring that all of the above will happen as quickly and effectively as possible with all the scope for imagination and innovation that could possibly be generated.

Question 4: Do you agree with the need for both passive and active remedies to promote competition?

4.1 Mapping what's possible – creating a public 'Broadband Atlas'

The starting point for this is that there should be as few limitations as possible to ensuring that NGA is as widely accessible, and affordable, as can be made possible. This should be based, as far as it can be, on open networks at the core, passive layer and ensuring that 'bottlenecks' can be avoided by lack of access, and/or competition, within legacy networks.

Specific encouragement should be given to providing basic infrastructure in terms of ducting etc. especially where there are related infrastructure projects, e.g. in housing or transport, and local development plans should include tracking and documenting existing ducting and identifying potential sites/tracks for new ducting and access routes.

There is a clear need for this wider 'mapping' work to be done on a more consistent basis in each locality so that local development plans can be based on finding out what is really there already, in terms of broadband connectivity, and how it might be used more effectively, including the networks currently being used by the public sector. Much can be learned from existing methodologies such as the German "Broadband Atlas" initiative – see Annex 2 for more details. Such an approach would enable a publicly available map of everything broadband in every UK local authority area. Local authorities would map where fibre, cable and wireless links are located and where any empty ducting is. They can then ask citizens and businesses to tell them what they need and they try to match the two together.

Every time they find gaps or inaccessible or unaffordable provision they can develop their plans further to extend affordable coverage with incentives for private, public and cooperative investment. In addition every time anyone wishes to dig up the street for anything they could be required to put in empty ducting and inform the local authority where this is as well. Over time authorities will build up the intelligence on exactly how next generation connectivity can be extended on the most cost-effective way with the least disruption in terms of road digging etc. It is proposed that the DC-10 Network be invited to suggest "Broadband Atlas" pilot projects in as many of its partner areas as possible and that additional resources should be provided to support this including the development of interactive, web based services to enhance this.

4.2 Developing competitive fibre in the 'first mile'

In terms of the ongoing discussions between the DC-10 Network and the Community Broadband Network (CBN) we very much agree with their suggestions as to the way forward as outlined below.

There is a real issue with fibre-to-the-premise projects that the level of investment and service opportunity is such that it makes almost no commercial sense to compete in the first mile. With an effective natural monopoly, especially in rural areas, it is essential that forms of competition are enforced and the monopoly regulated. With the market for next generation services beginning to emerge in the UK, now is the time to ensure the right regulatory models are in place - before the build-out begins in earnest.

There are four key levels at which competition can be encouraged and for a truly open market, the more levels of competition the better for both subscribers individually and for the wider economy. Those levels are:

- Network element - a dark fibre;
- Optical - a reserved wavelength;
- Physical - a reserved VLAN;
- Data-link - a reserved PPP tunnel.

Each of these layers has its own characteristics, which in some cases may make then uneconomic to offer today but we should at least be preparing the ground to enable their eventual deployment.

a) Network Element:

Offering dark fibres straight from the frame at the central office permits service providers to offer both their choice of services but also the access technology, CPE, and speed - it generates technological competition in the first mile, preventing a situation occurring as it has with copper in the first mile where the incumbent dictates the technology, making decisions based on retaining market share at the lowest investment level. The one issue with this model is that it gives a supplier exclusive access to a subscriber; once a dark fibre has been rented to a service provider, no other provider can access it, removing an possibility of separating triple-play offerings for example.

b) Optical unbundling:

In the same way that copper frequencies have been unbundled to permit ADSL competition at the exchange, optical frequencies can, conceptually at least, be unbundled. Using simple, passive splitters at the customer-end and couplers centrally, or using wave-division multiplexors, would permit multiple wavelengths to be delivered to subscribers, in the same way that a splitter is used today to separate voice and ADSL signals. For example, an ISP and a cable TV company could offer services to a single subscriber using their own dedicated wavelengths, with each getting exclusive access to the bandwidth; the ISP could offer 1 Gbps Ethernet Internet access on one wavelength, and the CATV company a full multiplex of high-definition video services.

One interesting conceptual model is one where all or a subset of wavelengths might be handed over to the subscriber, giving the customer the right to allocate their channels to whom they like. This is the time a monopoly provider might conceivably be permitted to sell directly to the end-user; a cost-plus service, handing over two or more wavelengths to the end-user, still permits competition in both the service offering and technology elements as, theoretically, two technologies, such as Ethernet and ATM, might co-exist. With multiplexed wavelengths it may permit some competition in the first mile technology, although without universal access to the entire spectrum it may reduce the options.

c) Virtual LANs:

On an Ethernet switching fabric, for example, its possible to allocate a dedicated virtual LAN to a service provider. This gives the provider simple access to what appears to them as their own first mile Ethernet network. While the cost of providing a VLAN is significantly less than, say, an optical wavelength, there are some possible drawbacks. A customer may be free to use VLAN trunking services, permitting them to take multiple services from multiple providers. However the performance is limited to the port speed - two providers vying for a single subscriber will share the port bandwidth, albeit with no sight of each others channel content.

This model permits the service provider to select the optimum middle-mile network for their commercial offering, without investing in first mile technology. However, the reduced investment is likely to attract more competition. While the VLAN dictates the physical layer - Ethernet for example - there is still a opportunity, theoretical at least, for this kind of competition to co-exist with optical unbundling. The fibre owner might offer a VLAN service as a kind of semi-managed offering on one set of wavelengths, while still reselling other wavelengths to other providers.

d) Data-link - IP Access

This is much more akin to today's networks, with a L2P/PPP service offered to service providers. This offers the least level of investment for a service provider, generating the greatest number of competitors - albeit ones with no investment in the future shape of the network. In effect this is as close to a total outsourced ISP service as its reasonable to get. The fibre owner may chose to reserve a single VLAN for this purpose, permitting multiple VLANs per subscriber, and even multiple wavelengths; with the least investment in the infrastructure, service providers at this level may also face the greatest competition from companies offering a wide variety of services, some of which may not deliverable with access to only the IP layer.

By combining several of these unbundling options, it is possible that the L2P provider is not the same as the fibre-owner. For example, a specialist middle mile company may rent a wavelength or a VLAN on which to build a L2P reseller service. This is an interesting possibility since it is highly likely that fibre in the first mile will create regional monopolies; this possibility permits competitive middle mile providers to build seamless national networks across multiple regional infrastructures.

4.3 Future proofing fibre

It is conceivable that operators might permit general IP access to community based, or ‘place based’, networks in the subscriber service charge, giving direct access to on-net services such a telemedicine, and community TV. The consumer then chooses an Internet service on the open market. Since the Internet service is likely to be delivered through a PPP protocol, such as PPoE, there can be a clear separation between on-net and off-net traffic, and a proven model for customer authentication.

In terms of the future-proofing of fibre, a recent encoding breakthrough means that multi-terabit networks could be built using the same single-mode fibre that CBN is planning for some community-based fibre projects:[9]:

So today for a community network:
100 Mbps is cheap
1 Gbps is affordable
10 Gbps makes sense in the core network but is getting cheaper
100 Gbps is under development
And multi-terabit is being discussed in the labs!

In addition this is without using wave-division multiplexers to run parallel networks on the same fibre (like shining different colour torches down the same fibre). Today 8-channel

[9] http://www.tech.co.uk/computing/internet-and-broadband/news/terabit-class-data-pipes-movies-in-an-instant?articleid=1920847255

multiplexers are cheap (available in PC World's business store), and up to 80 channels are affordable if doing long-haul fibre. Better filter materials and new laser types will mean the number of channels will rise as the cost falls. For anyone with the resources it will be possible to install an 8 terabit Ethernet network on a single fibre-pair any day soon using open international standards.

Given that it is unusual to install a single fibre, even to a home, petabit bandwidth will become theoretically possible in the lifetime of the fibres that CBN is planning to install. Bandwidth could almost be irrelevant today, tomorrow it will be meaningless.

This is another reason, with such rapid developments, why there needs to be competition at all the levels possible on a fibre network - to encourage investment in competing architectures so a market is created for this kind of work. Without competition, there is a risk of stagnating at 100 Mbps, whereas this continuing innovation needs open networks if it is to develop and remain competitive.

Question 5: Do you consider there to be a role of direct regulatory or public policy intervention to create artificial incentives for earlier investment in next generation access?

5.1 Organic incentives vs. artificial incentives

The most important area of intervention is in terms of public policy, again focusing on the three key themes we have concentrated on in this submission (as highlighted by the BSG report):

- supporting improved local and regional competitiveness;
- tackling market failure including through promoting innovative business models, such as multi-stakeholder co-ownership models;
- tackling the digital divide and promoting digital inclusion.

It should be a priority for public policy that locally, regionally and nationally we are able to develop a digital infrastructure that can compete in the emerging global 'premier league' as we have highlighted above. This will require intervention as the current state of the market, within the context of the specific historical legacy of the UK marketplace, will not deliver NGA either at the scale or the scope required. This intervention can conform to the key principles which were also highlighted earlier (and in the BSG report), i.e. they can be "well-targeted" and "innovative" and be open and transparent as to how they would "aid" rather than "distort" competition and incentivise and leverage private investment to come forward to add value to the intervention.

We would reiterate that such intervention would be able to support "digital masterplanning" at local and regional level in an open and transparent way, providing partners and stakeholders with information, advice and intelligence about NGA planning and deployment. This would, in turn, enable other investors and infrastructure developers to consider how they could integrate NGA deployment into their own plans and create the conditions for much wider partnership development through new investment 'alliances', PPPs and co-ownership arrangements.

We would prefer to see this as providing 'organic' rather then 'artificial' incentives, encouraging innovation through enabling Local Strategic Partnerships and strategic planning arrangements to add NGA local development plans to their portfolios and be given certain flexibilities and freedoms to incentivise investment. Regulatory intervention would play an important part in this process but it should be subsidiary to the framework of public policy and the interventions guided by this.

5.2 Increasing the value of 'digital places'

We have already outlined the concept of using NGA to add further value to the sum total of the local, regional and national 'assets' that exist in terms of land, real estate and other infrastructures. If, for example, the asset value of the City of Manchester was £50 Billion and this could be increased, according to some estimates by 6%-8%[10], over 10 years through the creation of a ubiquitous fibre based digital infrastructure, then an investment of some £250 Million (the estimated cost to fibre the city) could generate an additional asset value of between £3 and £4 Billion. This could also generate additional leverage from private sector investment into the city that would otherwise not have come without such an

[10] Gillett, S., Lehr, W., & Osorio, C., "Measuring Broadband's Economic Impact", MIT, 2005 (and subsequent OECD studies plus "Fibre to the Home: Advanced broadband 2007", RVA Market research and Consulting, www.rvallc.com/ftth)

infrastructure. ‘Silicon Alleys’ in UK city-regions could be just as powerful as Silicon Valleys in other parts of the world.

As well as the forms of intervention, outlined above, which we would very much support there are also other forms of support that could be provided by public policy. One of these is the concept of accreditation rather than regulation, an approach adopted with great success, for example, in Korea, where real estate is ‘badged’ as being ‘one-star’ to ‘four-star’ depending on the level of NGA connectivity to the home or business. Rental and sale values are higher depending on the star rating.

This is why the DC-10 Connected Neighbourhood Forum is seen as an important focus for coming up with new ways of thinking about ‘digital places’ and the way that ‘organic incentives’ could be developed through an appropriate mix of public policy and regulatory intervention. This is the reason for supporting the idea of local development plans for NGA so that innovation can be encouraged within a mix of ‘digital places’, supporting urban, mixed and rural communities. We believe that the case for this kind of direct intervention is compelling.

5.3 User generated social value from next generation access

We do not agree that “there are few clear consumer applications that may contribute to social value”. The rise of social networking and user generated content may be difficult to fit in to traditional, or (as some would argue) “out-dated”, analytical models of consumers and the good and services that they consume but its impact on the scope and scale of the use of on-line services and the bandwidth available is undeniable. The ‘Web 2.0/Long Tail’ paradigm shift is all about consumers becoming active producers of services and content as well as still being ‘consumers’. Seeing users at the centre of the network, creating the uses for the ’first mile’, and, therefore, creating social value is an important part of this new equation and one which is simply not given appropriate consideration in the Ofcom document.

As we move to IPTV related video streaming services develop, and increasingly go ‘HD’, then their distribution and use will require NGA networks for delivery. Community based media services are growing rapidly in the UK, but nowhere near as rapidly as in the rest of Europe or the US. We believe that these will increasingly have ‘social value’ as they develop and that is quite wrong to dismiss this, especially based on research which really did not address the potential of future development. Similarly the DCMS report evidence referred to in terms of creative industries is quite at odds with DC-10 members experiences with creative industries at a local and regional level who state quite the opposite, that the lack of NGA is a serious constraint on their future growth and competitiveness. In particular vibrant local trade associations, such as Manchester Digital, representing more than 200 local digital sector companies, has gone ‘on record’ to highlight this point many times. On Dec. 4th 2007 the Manchester Digital Board voted unanimously to endorse this response to Ofcom and wanted this point specifically highlighting.

5.4 Evidence from international deployments is increasingly extensive

We were very surprised to see that the Ofcom document largely discounted evidence from international experiences and we would strongly disagree with the view that this evidence is “limited”. There are many well documented examples of the growth of creative industries, new locally specific social networking and user generated content distribution channels which have been directly stimulated by NGA deployment, e.g. SurfNet in the Netherlands

and specific services that have developed from that, such as FabChannel (www.fabchannel.com) winner of a Webby award for best new music site in 2006.

We are concerned that senior decision-makers are not being made aware of this evidence or of the impact that it could have both positively, e.g. good sources of best practice experience, and negatively, e.g. a false sense of security that such competition does not exist and consequently is not (yet) a threat to UK competitiveness, especially in the creative industries. Worse there appears to be a wilful or even deliberate attempt by some players to be 'in denial' about this and even to actively promote 'disinformation' which is likely to have the effect of 'distorting' potential competition and investment even more than the public intervention proposals that they are so keen to attack and undermine.

Through our involvement in European and global cooperation networks, including Eurocities-Telecities, ELANET, ERISA, Global Cities Dialogue and the International Network of E-Communities (INEC), we would be very keen to work with Government and other partners to provide that evidence and ensure that there was a suitable 'level playing field' for this debate to be played out on in the future.

5.5 There are reasons why there may be significant risk from investing later

Even if the UK now took very bold steps in investing in NGA it would not be in a "first mover" position so we fail to see why concerns relating to this are given such a high profile in the Ofcom document. We could, however, be in the 'Top 10' within a relatively short period of time, i.e. it's no good wanting to be top of the 'Champions League' if you're not actually playing in it. The 'first movers' are well established, in Europe, the Netherlands, France (or at least the Paris region), Sweden, Finland and Norway (and not forgetting Iceland) and globally, Japan and Korea, with parts of the US following close behind. Soon the EU list will be joined by other large city-regions in France, key parts of Germany and Austria, Northern Italy, Catalonia in Spain and Slovenia.

Consequently the time for the UK being faced with "the fact that later adoption of a new technology might actually prove beneficial" is now. We can now greatly benefit from the past five years experience in terms of:
"clarity on standards selection, choice of the best available technology, scale economies on equipment manufacture and practical lessons learned from network deployments elsewhere." (Ofcom consultation document, section 7.33).

At the risk of repeating the point we cannot be and will not be a 'first mover', the UK has been and is being beaten to that position over and over again, so if there are any benefits to be gained from the delay to date in developing NGA then we may as well realise them now.

5.6 Direct interventions need not distort efficient investments

We believe that following the principles outlined above would ensure that direct interventions need not "distort efficient investments", that is:

- they are based on well produced local development plans, overseen by Local Strategic Partnerships (LSPs), sub-regional forums and/or related planning arrangements working in collaboration with the RDAs;
- they focus on 'well-targeted' and 'innovative' deployments that directly address the other three key principles:
    i. addressing market failure;
    ii. tackling the digital divide and promoting digital inclusion;
    iii. promoting local/regional competitiveness.

- they demonstrate how they will aid competition and leverage private investment to come forward to add value to the intervention.

Aggregated purchasing is one of the options that we have been considering. In first generation broadband the RABs and ADITs were not hugely successful in purely public sector aggregation but, nevertheless, it is possible to learn the lessons and try to find new and imaginative ways to co-ordinate public sector spend and broaden this in a way that facilitates commercial deployment, including through co-ownership arrangements.

At the same time we need to give much more consideration to aggregating wider consumer demand – and this is where the public sector can play a significant role in encouraging the aggregation of local demand to reduce risk and encourage private investment. As indicated above, ONE-Manchester, other DC-10 partners and CBN are working on a co-operative model for aggregating local demand for exactly this reason - to facilitate NGA investment. As well as working directly with other DC-10 partners CBN is also working on similar projects in other parts of the country.

This would be complemented by direct investment to overcome market failure. The continued existence of first generation broadband gaps, or “notspots” is a demonstration of current market failure. In regard to NGA the BSG report 'Pipedreams' has already indicated the far greater scale of the problem:
"Para 6.15 [The] data suggests that 40 per cent of households will benefit from higher broadband download speeds through the deployment of ADSL2+ (8 Mbps and above). However, only 10 per cent of households would achieve 20 Mbps+. These estimates are close to BT’s own estimate that 50 per cent Mbps+of UK households will be able to access 8 Mbps or more."

The consequences are unacceptable for society and the UK economy as a whole.
With the current lack of appetite for investment exhibited by the private sector, the public sector may have to play a very big role indeed in ensuring the UK has a telecommunications infrastructure fit for purpose in the 21st century. At the same time the public sector is working hard in creating dynamic new partnerships with the private sector and with the voluntary sector to find ways of aggregating and stimulating demand. This should be a key aim of public policy in this area, facilitating collaborative innovation and providing the flexibilities and freedoms to allow local/regional partnerships to deploy NGA as soon as possible in line with the above guiding principles.

5.7 Intervention today is essential and should not be delayed

In the current debate about the commercial viability - or rather the lack of commercial viability - of NGA deployment, the private sector is understandably concerned about how it can generate revenues from the types of service offering that it currently understands and offers i.e. voice, data and TV/video. This has led to a rather sterile debate based only on short-termism, i.e. how can revenues be maximised in the immediate term. There is currently very little consideration being given in traditional industry circles to wider applications of NGA deployment to benefit consumers as citizens, nor the wider benefits to businesses, particularly SMEs, new start businesses and entrepreneurs. The real debate in industry is taking place within the creative industries, property developers, providers of non-telecoms infrastructures and a very diverse range of ‘Long Tail’ players who aim to be key players in the longer term, recognising that there is a need to stimulate demand through innovation, imaginative business models and by stimulating the social networking capacity and the capability to produce user generated content amongst the customer base, both existing and potential.

These players understand why the public sector should be playing a significant role in encouraging NGA deployment, and support such active intervention, so that NGA can be an under-pinning infrastructure for the development of entirely new applications and services developed on a competitive basis, and to encourage the development of new businesses and new forms of economic activity.

We know there is an appetite for this even amongst our most excluded communities. In Manchester we ran a series of courses in our most deprived neighbourhoods on “selling on the Web” and how to become an eBay trader. We expected a few dozen people to sign up. We did not predict that over 800 people would rush to join. The UK needs to encourage more entrepreneurial activity of this type which fully utilises new digital technologies. This means that NGA is not a one way but a two way street, bandwidth needs to be symmetric and fast and (the lack of) bandwidth should cease to be a barrier to innovation.

The public sector can also benefit from NGA deployment through the development of new ways of providing services and interacting with citizens. We are encouraged, for example, by developments in health and social care using new technologies based on fibre to the home networks in the Netherlands and elsewhere - we just wish they were taking place in the UK so that we, including our business partners, could benefit from the same experience of innovation and learning which our competitors are now gaining so effectively.

One regional example of this is in the county of Cheshire which alone spends £60m per annum on residential care for 3,000 people - £20,000 per year per person. If only 25% could remain in their own homes for one year longer the savings would be enormous. In education the opportunities for new ways of teaching and learning offered through high capacity NGA networks are equally revolutionary. In an age when seven year olds have email addresses and know how to create video ‘mashups’ it almost beggars belief that the UK is not investing in an infrastructure that enables them to flourish in a fully connected digital age.

5.8 The danger of complacency – a simple conclusion

To conclude, we believe that there is already “absolutely compelling” evidence to support intervention as outlined above and we cannot accept that such evidence “to date” is “simply insufficient to support” intervention. This is why the Ofcom consultation is right in being “alive to the risk of complacency”. We do, however, need to do a great deal more than simply “closely and carefully monitor developments”. We now need to move to a position of proactive public policy which provides an enabling framework for stakeholders at all levels, local, regional and national, to bring forward innovative proposals for trials, demonstration projects and initial deployments.

The UK has one last chance to play in this emerging ‘Champions League’, it has the players lined up, a collaborative strategy for winning and some great team coaching but the current regulatory approach is so cautious and risk-averse that the ‘players’ are not allowed onto the pitch. Meanwhile the competing teams are winning game after game and, before too long, will probably make a bid to take over the pitch completely and buy most, if not all, of our team players.

This is why action and intervention is needed now and why the potential partners and stakeholders are ready to bring their practical knowledge and expertise to bear on the challenge, creating practical and innovative ways of achieving NGA deployment through a unique “Living Lab” approach based on maximising collaboration and engagement.

ANNEX 1

Digital Challenge 10 (DC-10) Connected Neighbourhood Forum (CNF) – Draft Digital Charter

Please note that this is a work in progress draft but we believe it provides some valuable illustrative material about the issues raised in the Ofcom consultation submission.

Introduction

The Connected Neighbourhood Forum is a forum where stakeholders can discuss and produce strategies, ideas and solutions all relating to digital connectivity technologies and related topic areas. The forum has twin objectives 1) to provide an open knowledge exchange mechanism where practitioners and industry alike can share specialist knowledge, ideas, advise and for them to collaborate with each other, essentially establishing a "community of practice", and 2) to enable the widescale development of a digital framework which can then be used as a basis for developing Digital Blueprints for a region or place. This framework would represent a standard and formal process to enable communities/Local Authorities/Government Offices (GO's) to develop their digital strategies in support of Local and Multi Area Agreements.

The widespread adoption of this charter is seen as an essential precursor to the development of such a framework.

Charter

This charter has been developed to detail what we the CNF see as the necessary building blocks for neighbourhoods, whether rural or urban, to ensure all our citizens and businesses can both benefit from the knowledge economy and improve their quality of life, and that organisations of all types have the ability to deliver relevant services to those who need or want them. The CNF believe the following are the attributes of the minimum service of any Connected Neighbourhood of the 21st Century and that a CNF Accreditation should be developed to distinguish those that meet the minimum level. This could be applied to either a service or an area. Further it needs to be linked to the mapping work of the Digital Inclusion Team.

Connectivity Internet Protocols (IP) will be the standard for all digital communication.	**Green** All households and organisations will have the ability to monitor and adjust their carbon footprint through networks of sensors and actuators.
Inclusion All individuals, households, businesses and organisations in a neighbourhood will be able to access the minimum service level, whether mobile or fixed. In particular, location will not be a determination of the minimum service level.	**Open** Any connectivity must provide equal access to all IP content and services and there must be no vertical integration of applications with infrastructure.
Speed The initial objective is to have a minimum speed of 25Mbps symmetric. However, accredited neighbourhoods/services must have a plan to take them from today's speeds to 25MBps and then 100Mbps symmetric by 2012. Contentions must be 10 to 1 or less.	**Interoperability** Any communications service that receives CNF Accreditation will be based on open standards and protocols and must be interoperable in connectivity terms with other accredited services.
Technology The delivery technology is expected to be fibre optics for fixed connectivity and wireless for mobile or roaming connectivity. However, in the short term the 25MBps target will require a mix of DSL/cable/fibre/wireless.	**New Build** All new housing builds must include the necessary ducting and fibre to support full ftth. New office and other business premises must include a digital connectivity plan as part of their planning application.
Pricing In order to address the inequalities in the UK broadband pricing models, we will set a maximum price and maximum acceptable contention level for 25MBps and 100MBps services based on comparison to similar broadband services offered in other European nations.	**Applications** The infrastructure must provide a platform for the delivery of public services whether local or central. In addition, there must be mechanisms to allow citizens and businesses to participate in local (neighbourhood) decision making.
Integration A connected neighbourhood must not only show how it complies with minimum service availability, but also how it will integrate with wider initiatives. An example might be city congestion charging.	**Architecture** The infrastructure/services must be developed in a way that allows access by multiple devices with the minimum of disruption e.g. PC/Mobile/Thin Client/TV.
Service Map A connected neighbourhood must have a complete mapping of the various connectivity services available across the area.	**Market Map** A connected neighbourhood must have information on the potential users in the area.
Community Governance A connected neighbourhood must include some form of community governance.	

ANNEX 2

THE GERMAN BROADBAND ATLAS – "BREITBANDATLAS"

1. Introduction & background

The Breitbandatlas was launched as part of the "Broadband portal" internet service by the German Federal Government (Ministry for Economy and Technology) in 2005 [http://www.zukunft-breitband.de].

The Broadband portal service is aimed at citizens and businesses providing them with general advice on broadband technologies, including up to date legal and safety aspects of ICT (e.g. data protection, copyright, spam, health concerns vis-à-vis electro-magnetic fields etc). Aimed at lay citizens, the various transmission technologies are explained, but a lot of emphasis can be found on general PR and advocacy of internet technologies and e-government based on their positive impact on the economy and competitiveness, also on better services to citizens.

The Breitbandatlas was specifically developed to provide an overview of the availability of broadband transmission technologies and point out alternatives to DSL in Germany. A comprehensive directory of service providers is also at the heart of the service.

Apart from making it easier for the consumers (citizens and businesses) to seek out information on options available to them as regards accessing broadband, the Breitbandatlas was intended to increase transparency in the broadband supply market and thus create an incentive for businesses to invest, particularly in poorly serviced areas. The ethos of the initiative is to ensure that the whole of Germany is covered by an adequate broadband infrastructure, supporting wider information society/competitiveness objectives.

The data was originally gathered via a voluntary questionnaire sent to all known service providers. Six-monthly updates of the data occur via automated messages to all companies included in the database. New entries can be initiated by filling in a request form via the website.

2. What it does

The Breitbandatlas comprises two main search facilities:

2.1 Available Internet transmission technologies
(information is provided at "township/communal" level, referring to local administrative boundaries ie county/city etc).

A mock search was conducted for a private citizen wanting to subscribe to broadband services using fibre optics ("Glasfaser") in Hamburg (appendix 1).

The search results showed a map with relevant coverage in the locality identified. The map allowed switching between different transmission technologies (DSL, cable, Wi-fi etc) to explore alternative options for that area.

The search also listed all known service providers for the chosen technology with contact details.

The map allowed zooming in and out (NB not to individual streets or even specific parts of the city), however, in comparison with googlemap functionality, it felt a little 'clunky', the map having to refresh every time it was navigated.

Built-up areas were hatched on the map, the requested service availability indicated as percentage (using different colours for various levels of availability).

2.2 Index of Service Providers, indicating contact details and the technologies offered by each company.

The search facility allows searching for companies either by (company) name or by locality/address. A mock search was again conducted for "Hamburg" and "fibre optics" (appendix 2). Interestingly, the service provider that had been identified in the previous search through the availability map did not come up, instead details of a different company were retrieved. This could be explained by the fact that this search is purely based on the company's registered address, instead of where they offer services.

3. Conclusion

The Breitbandatlas seems to be a useful tool although the extent of take-up by individual citizens is yet unclear. Six-monthly updates would seem to guarantee that information is up-to-date, even though relying on "self-certification" of private companies. Whilst offering a reasonably comprehensive package to citizens/consumers, the site could probably be improved by including more information on the costs of broadband use, or providing comparative data between the different services provided by operators in terms of price.

Google searches on "Breitbandatlas" would appear to suggest that it is used by public sector stakeholders to inform strategy and planning. For example, reprsentatives of the Bradenburg State recently made a presentation to a European audience at Brussels on their approach to developing a broadband strategy, quoting heavily the Breitbandatlas.

Whilst parallels can't be drawn between the launch of the Breitbandatlas and the performance of the German broadband market, interestingly EU figures published in July 2007 illustrate that the German broadband market growth rate is the highest in Europe (Germany: 38%; Spain: 29%; France: 25%; UK: 25%). The German government credits this to their regulatory framework, the role of the Federal Network Agency[11] and the degree of competition in the German telecoms market. In terms of DSL-alternative uptake, the number of new connections had become seven-fold in just 12 months, however, Germany with c. 1 M new connections per annum is still some way off the market leaders. All of this should be read in context, the German broadband market only opened up for fair competition in 2006 after Deutsche Telekom was forced to "unbundle" its network following significant political pressure from Europe.

References

[1]The Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway is a separate higher federal authority within the scope of business of the German Federal Ministry of Economics and Technology. On 13 July 2005 the Regulatory Authority for Telecommunications and Posts which superseded the Federal Ministry of Posts and Telecommunications (BMPT) and the Federal Office for Posts and Telecommunications (BAPT), was renamed Federal Network Agency. It also acts as the root certification authority as provided for by the Electronic Signatures Act. Its task is to provide, by liberalisation and deregulation, for the further development of the electricity, gas, telecommunications and postal markets and, as from 1 January 2006, also of the railway infrastructure market. http://www.bundesnetzagentur.de/

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ANNEX 3 – FURTHER INFORMATION AND REFERENCE SITES

ONE-Manchester (Open Network E-Manchester) Partnership: Creating a Next Generation Digital City-Region

The **ONE-Manchester** partnership is about **turning the digital divide into a digital dividend** through new collaborative approaches for delivering digitally enabled services and social networking. ONE-Manchester aims to provide a sustainable digital development model which can be used to create social capital and community cohesion by:

- building on the **'sense of place'** through the development of geographically focused **Digital Action Places;**
- transforming community capability and developing **innovative content** through the **NetStart programme;**
- ensuring **sustainability** through a new **"Matrix" Digital Cooperative** which will coordinate and support local, regional and national initiatives and realise the benefits of the **digital dividend**.

ONE-Manchester is about taking the experience gained on innovative **Digital Inclusion** projects which the partners are involved in, such as Eastserve in East Manchester and eTameside, and using this to create an exemplar to stimulate and support digital inclusion initiatives across the city-region, the region and nationally. **ONE-Manchester** Imagines a city-region in which people have a real personal stake in digitally enabled living and a new sense of pride in their achievements as one of the most connected and cooperative communities in the world.

ONE-Manchester takes the experience gained on innovative Digital Inclusion projects like Eastserve and mainstreams the approach so it can be applied to other locations across the city-region. **ONE-Manchester** brings together local and regional partners from the public, private, education and community sectors across the city-region and is coordinated by the Manchester Digital Development Agency (MDDA). MDDA is part of Manchester City Council and works across the ten districts of Greater Manchester – www.manchesterdda.com

MANCHESTER DIGITAL

Manchester Digital is an independent trade association representing the digital sector in the Manchester city-region. It aims to actively promote Manchester's digital business sector, to attract business and inward investment from the UK and worldwide by:

- Promulgating the excellence and diversity of the sector's leading edge services, products and expertise.
- Communicating members' views to all audiences.
- Encouraging communication and co-operation between members.
- Acting as an information and knowledge source for members.
- Representing members' interests to policy makers and opinion formers.
- Promoting Manchester as the best 'can do' centre for interactive solutions.

Manchester Digital aims to increase the visibility of companies providing digital goods and services, to encourage Manchester based digital sector businesses to buy locally and to increase the flow of new business into the region. www.manchesterdigital.com

Digital Challenge 10 – *DC10* – *www.dc10plus.net*

Who is DC10?

DC10 was founded from ten local authority networks and their partners – finalists in the Digital Challenge - a government-led initiative for a region, city or similar sized area to drive forward the use of technologies to better meet the needs of its local community and individual citizens. DC10 was awarded £2million in March 2007 to drive forward initiatives proposed as part of the Digital Challenge and to form a unit that aims to act as a unique and national exemplar in working towards social inclusion through technology. DC10 is a collaborative body that is dedicated to unravelling social inclusion issues by functioning as one group to promote the effective roll-out of technology-based initiatives. Its overall vision is to drive the digital inclusion agenda forward – underpinned by members' first-hand experience, knowledge and interactions at a local level.

DC10plus

The DC10 are very aware of not being an inclusive 'club' and through their activities will be looking to widen the Digital Inclusion Network. DC10plus is about creating collaborative and learning partnerships, exchange good practice and developing new initiatives with other local authorities, central government, the third sector and industry to achieve common goals.

DC10plus objectives and vision

The DC10plus vision is to be a network for change;helping to empower people and connect communities through innovation and technology. This vision underpins DC10plus main objectives:

- exchange knowledge & jointly develop good practice
- promote digital inclusion to support delivery of LAA's
- jointly develop bids to EU and other funding sources
- identify key social inclusion issues and lobby central government
- advise local authorities (and other organisations) on good and next practice
- organise and attend relevant events/seminars
- act as a national and regional resource for local authorities and their partners looking to address social inclusion issues through innovation

What will DC10plus be doing?

Following on from the Digital Challenge, DC10plus is now a leading authority on digital inclusion issues and how they impact at a local level. Indeed, the projects, pilot programmes and proposed initiatives submitted as part of individual Digital Challenge bids are all examples of how local authorities can reduce cost, tackle social exclusion and attain effective service delivery through the adoption of the innovative use of information communication technologies. DC10plus has identified six key 'work streams' that will now underpin their vision and ongoing strategy:

- next generation connectivity
- independent living
- flexible working for socially excluded groups
- digital communications and environmental impact
- exploiting digital switchover for greater social inclusion
- community cohesion building

The ONE-Manchester partnership is leading on the Next Generation Connectivity workstream in colaboration with Milton Keynes.

About CBN

The Community Broadband Network has a track record of delivering innovative, community-based broadband solutions in areas that are geographically hard to reach (remote, rural areas) that suffer from urban deprivation. In 2006 CBN signed a joint venture agreement with Dutch consultancy 'Close the Gap' which was responsible for conceiving, planning and delivering the Ons Net (Our Net) FttH project in the market town of Nuenen and then in Eindhoven.

CBN was launched in the UK during January 2004 by the then Rural Affairs Minister Alun Michael and Broadband Minister Stephen Timms. CBN is a co-operative of community-run independent broadband operators, and it aims to encourage and support the provision of local broadband services as an alternative to the large national service providers.

At the time of the CBN's 2004 conception, most of the UK's community broadband projects were being established to provide broadband services to homes and businesses that were not being served by any other operator.

CBN member projects typically cover rural countryside, where other forms of broadband can be scarce, or urban areas identified for regeneration where a traditional broadband infrastructure may not fulfil the needs of local people.

Over the past two years, as BT has accelerated its exchange upgrade programme, the focus of the CBN members has begun to shift towards the provision of higher-speed next-generation broadband services, including higher-capacity wireless and fibre-optic networks, and to sharing our experiences internationally.

There is an increasingly important role for community broadband projects even after traditional operators have provided vanilla services into an area. Many member projects give something back to their local community, and are constantly innovating and evolving their service to the needs of their community.

Web: www.broadband-uk.coop

Malcolm Corbett, CEO, CBN and member of the BSG Executive.

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