The Impact of Broadband-Enabled ICT, Content, Applications and Services on the UK Economy and Society to 2010

1 Broadband's Impact

1.1) Introduction

Broadband[i] provides the opportunity to do things differently, to achieve better outcomes for our people and our country, and to ensure the continued success of our economy through the second half of this decade and beyond.

The BSG believes the full exploitation of broadband-enabled ICT, content, applications and services can help the UK to become a truly competitive knowledge-based economy and can be leveraged to help the UK's citizens become healthier, better educated and more engaged in their communities and society.

1.2) The Vision

Broadband is a powerful enabler and a catalyst for accelerated change for consumers, companies, organisations and nations. It disrupts existing processes, business models and industry value chains. When fully absorbed, broadband changes people's behaviour and drives much more intense and productive use of ICT and online content applications and services[ii]. We believe that societies that adopt, adapt and absorb the benefits of broadband-enabled ICT, services and applications quickly and deeply will achieve significant benefits in terms of productivity, innovation, growth and quality of life as well as significant competitive advantage over societies that don't.

To remain competitive in a globalising world and to ensure the delivery of world-class public services we believe it is vital that the UK exploits the broadband opportunity to the full. Our global competitors are raising their game and we need to as well. [iii]

1.3) Delivering Economic Value

The importance of broadband to future economic development is widely understood and recognised by international economic bodies (incl. OECD, ITU, EU) and national governments, some of which have taken an early committed,[iv]decision to invest directly in their broadband infrastructure (particularly: South Korea, Japan, Sweden and Canada[v]). Recent research supports the assertion that new communication services can lead to very large increases in consumer welfare and GDP growth in the US[vi] and UK[vii].

Achieving these economic benefits will be critical in a world economy that is becoming more competitive. Globalisation is a long standing trend, but the rapid deployment and take-up of business broadband around the world has accelerated this process, leading to the outsourcing of business service and process operations. This is now extending across national economies, for example: SMEs with broadband now - for the first time - have the communications capacity to outsource business processes, such as accounting, overseas. [viii]

Driving Innovation and Productivity

In this context of increasing global competition it is critical that the UK achieves increased innovation to drive the creation of new economic sub-sectors and improved productivity to make UK firms more competitive and therefore at less risk to being outsourced. Broadband

can be a driver for both increased productivity[ix] and innovation in both in directly related sectors and across enterprises in general.

For example: the UK has real strengths in creative media and software development, very often at the SME level. As broadband take-up continues to grow rapidly around the world, there is a major opportunity for UK companies and UK talent to exploit this new global market for broadband-enabled media, content and applications. However, the development of a strong domestic broadband market in the UK will be essential for UK companies to develop new innovative products and services for the emerging global market.

Looking more widely across the economy, we believe that almost all improvements in service delivery over the last 10 years have been driven by the exploitation of ICT. A recent OECD report shows that ICT is having far reaching impacts on economic performance and the success of individual firms, in particular when it is combined with investment in skills, organisational change and innovations[x]. This trend will continue and the transformation of any organisation, be it public or private, will depend upon the exploitation of ICT and broadband in particular[xi], e.g.:

- Broadband provides a step-change in the communications capacity of SMEs opening up new commercial opportunities and providing a catalyst for change in the way businesses are organised and operate. Adopting broadband is only the start. The real benefits accrue when businesses adapt and ultimately absorb broadband into their operations and so improve their productivity and competitiveness.[xii]

- For larger companies, broadband can deliver significant supply chain efficiencies[xiii], as well as new more efficient ways to interact and transact with customers (for example through online retailing)[xiv]. The exploitation of home working can also significantly reduce the requirement for and cost of office space for companies large and small[xv].

1.4) Delivering Public Value

At some stage, somewhere in the world a country will get e-government right. They will exploit the full potential of ICT to improve the quality of their public services while also driving down the cost of delivery. This will enable them to either plough the savings back into the public sector to deliver even better outcomes in terms of health, education etc, or to reduce the tax base to increase the competitiveness of their economies. As noted above there are many examples of private sector companies transforming their competitiveness through the full exploitation of ICT. There is no fundamental reason why government cannot do the same[xvi].

IPPR has recently undertaken research using the concept of public value to examine the existing and potential benefits of broadband enabled ICT[xvii]. As outlined by the Prime Minister's Strategy Unit, these benefits fall into three categories: outcomes, services and trust.[xviii] Effective public services should lead to better outcomes for citizens: this means making people healthier or better educated. In both cases there is already evidence to show how the use of broadband enabled ICT can deliver these benefits. Public value is also derived from services being delivered more efficiently and effectively. Perception of services is also important, with high levels of satisfaction creating additional public value by increasing trust and confidence in government and the role it plays in society. The following examples point to the potential public value that could be achieved:

- *Improving education*: The exploitation of ICT in general[xix], and broadband in particular[xx] can lead to better educational outcomes, e.g. helping excluded teenagers return to formal education[xxi].

- *Empowering patients:*[xxii] Data from the Department for Health's Digital Interactive Television (DiTV) Pilots shows that over 60% of users of the information and transactional services available through DiTV believed there had been a beneficial impact on their health.

- *Better use of Patient Records:* Evaluation of the Electronic Records Implementation and Development (ERDIP) programme suggests that use of electronic care records will lead to improved health outcomes once in full operation[xxiii].

- *Keeping Patients out of Hospital:* Broadband-enabled tele-monitoring health applications have been shown to improve health outcomes and saves money[xxiv].

- *Increasing trust:* There is evidence that the enhanced delivery of better public services can increase people's trust and confidence in those services and in the Government and the State more widely[xxv].

Imagine if these benefits were extended across the whole of the education and health sectors and weren't simply limited to pilot projects.

1.5) Improving peoples' lives – four short examples

Children

- Children growing up with broadband will take e-learning at home and at school as a given. As a result this generation will be more likely to see education as a lifelong process and will expect to have access to online interactive educational resources throughout their lives, when and where they need them. They will also have the skills and familiarity with technology demanded by employers when they enter the workforce.

Working People

- People will be able to achieve a better work / life balance through flexible working. Many people and companies are discovering that broadband enables them to work just as effectively from home when they need to. People feel more empowered, more in control, less stressed and more productive. They need to travel less frequently or are able to avoid travelling at peak times – reducing the stress on public transport infrastructures and reducing traffic congestion. Broadband can also give people more choice about where they live and work. Broadband will enable regional economies to diversify, enabling wider employment opportunities, putting less pressure on our cities.

The Elderly

- Broadband will facilitate the delivery of better, more personalised care to the elderly. Providing them with the support they need to live at home, rather than in hospital or care homes. From tele-monitoring of health conditions, booking care appointments and ordering groceries to be delivered online. The underlying technology could be invisible to the user or even completely automated requiring no special skills.

The Excluded and Marginalised

- Access to broadband-enabled ICT through innovative public and private sector programmes will provide educational uplift opportunities and delivery of public services, in appropriate languages and through targeted delivery mechanisms, to groups that have been traditionally excluded.

1.6) Delivering Efficiencies in the Public Sector

Following the 2004 Spending Review the Government faces the challenge of reengineering a great deal of the process of delivering public services if the savings identified by the Gershon.

Review. ICT investment was given a high profile in the Chancellor's Spending Review announcements, in July and indeed the Chancellor made a direct link between the government's ICT investment and its ability to deliver efficiency savings in government[xxvi].

Following the Gershon Review and the 2004 Spending Review key government departments are now committed to making far more effective use of transactional e-government services to achieve efficiency targets and improve service delivery to the end user. The widespread availability and take-up of broadband will be critical to the government's aspiration for e-government as broadband users have a much higher propensity to transact online. Meanwhile we believe there is a major opportunity for the government to give more visibility to the scale of public sector investment in such services through to 2008 and that this has the potential to pull through additional private sector investment in broadband over this period.

Each government department now has e-government targets built into its financial settlement. They will also have a CIO responsible for delivering those targets. The e-Government Unit in the Cabinet Office will provide a central resource to advise the departments and provide centres of excellence on Service Transformation and IT Efficiency and Effectiveness. Again the Government has the opportunity to leverage its plans for the benefit of the economy as a whole.

The widespread use of broadband in public sector delivery mechanisms, increasingly "next generation broadband", constituting a step change on existing plans, will require a continuing improvement in broadband infrastructure, the development of appropriate applications and the raising of ICT skills, all of which can be managed in such a way as to provide wider benefit and to maintain and improve the competitiveness of the economy as a whole.

Primarily, the objective here is to support the government's ambition to make much more effective use of e-government and to ensure that the market delivers the investment in new facilities necessary to enable citizens to access and engage with these new services. This is an area where government implementation and the market evolution must go hand-in-hand.

2) Challenges to achieving the vision

Significant progress has been made on this agenda since the publication of the DTI White Paper on Building the Knowledge Driven Economy in 1998. Including the work undertaken by the Office of the e-Envoy; the creation of OFCOM; the Gershon Report; the broadband aggregation programme, etc. We now need to build on this positive platform and move to the next level.

The first generation of broadband services are now available to more than 90% of the UK population and near universal availability of the first generation of broadband services will be achieved by the middle of next year. However, we are only at the 'end of the beginning' of the journey. There is still a long way to go to maximise the opportunities available and mitigate the predicted threats.

Opportunities

- Transform delivery of public services
- Increase levels of trust in public sector institutions
- Build a thriving content and media applications industry in the UK
- Make the UK more attractive for inward investment
- Boost education and the ICT skills base
- Increase levels of innovation, enterprise and productivity

Threats

- Fail to create new jobs to compensate for off shoring
- Fail to create national infrastructure required to attract foreign investors
- Limited opportunities for infrastructure competition
- Fail to capitalise on efficiency and productivity gains
- Other economies succeed where the UK fails (Asia, the Nordics, Benelux, North America)

2.1) Barriers

The Booz Allen Hamilton Report on 'International e-economy benchmarking – the world's most effective policies for the e-economy' identified the following strengths and weaknesses in the UK[xxvii].

Strengths

- Market environment
- Political environment
- Business readiness
- Government readiness

Weaknesses

- Citizen uptake
- Government uptake
- Infrastructure
- Skills and IT literacy

In order for the UK to be a leading connected and online economy in the G7 by 2010, the stakeholders need to address these weaknesses together in partnership.

Citizen Uptake

- Although increasing rapidly, only about 12% of households and about 22% of SMEs have so far taken up broadband. For the full societal benefits to be achieved, the UK needs to rapidly achieve the levels of broadband take-up achieved in South Korea today (which has probably now reached market saturation at approximately 70% of households).

Government Uptake

- The public sector needs to exploit the full 'public value' benefits of broadband-enabled ICT. This will require a move from providing informational services to full transactional services online.

Infrastructure

- Further investment will be required to complete the upgrade of the UK's fixed and mobile infrastructure. This investment will be required ahead of demand, however the amount of capital available for communications investment globally is limited[xxviii]. The issue is the risk that companies perceive in making these large-scale investments. The challenge is to find efficient means to reduce the uncertainty on the likely returns in order to reduce the risk and bring forward the investment.

Skills and IT literacy

- Ensuring that new technology does not open up new digital divides is a key policy concern for government. A Digital Inclusion Panel was set up by the Cabinet Office to address this issues and is due to publish its report shortly. (The BSG participated in the work of the panel). Increasing the UK's ICT skill base will be critical. The BSG can support the on-going work on digital inclusion and the DIP by seeking to improve the broadband value proposition and maximising market driven incentives for people to engage. The more the market can do to make broadband services attractive to consumers, the less intervention will be required from the public sector to drive their take-up. However, there is also an opportunity for a virtuous circle to operate here with broadband enabled e-learning providing in incentives and mechanisms to improve the skills base.

Endnotes

[i] BSG Broadband Definition: 'Always on access, at work, at home or on the move provided by a range of fixed line, wireless and satellite technologies to progressively higher bandwidths capable of supporting genuinely new and innovative interactive content, applications and services and the delivery of enhanced public services.' Ultimately this should enable users to access any service, over any device or platform from anywhere.

[ii] For the impact on Consumer behaviour see Fat Pipes – Connected People iSociety 2003. For businesses, broadband enabled ICT provides opportunities for radical cost reduction, streamlined processes and re-configured organisations. Broadband also reduces the importance of geography, creating export opportunities for businesses regardless of location. To a certain extent it is only the degree of business creativity that will limit the benefits to be derived.

[iii] Achieving a knowledge economy is a key theme in the EU's Lisbon Strategy to make the EU the world's most dynamic and competitive economy. However, four years on, there is an undiminished need for reform according to the European Commission. It is already clear that EU will miss its mid-term Lisbon targets in 2005. In its recent Spring Report the Commission called for much more action by the Member States. The Commission's first priority for 2004 is more investment in networks and knowledge.

[iv] Several countries around the world have taken the decision to make large-scale public sector investments in the development of their national broadband infrastructures, for example through the provision of soft loans or direct subsidies. These investments were made on a 'leap of faith' rather than on the basis of hard economic evidence, largely because the evidence base simply didn't exist at the time. They were justified on the intuitive case that such a step change in the communications infrastructure would inevitably lead to increased innovation and improved productivity and would deliver significant economic and public value.

[v] See international case studies prepared for the ITU's Broadband Workshop in April 2003 and the subsequent report entitled the Birth of Broadband. http://www.itu.int/osg/spu/ni/promotebroadband/

[vi] Crandall, Jackson and Singer (2003) estimated that the total annual consumer benefit from broadband in the United States would be between US $ 64 and 97 billion per year if 50% of US households adopted broadband and could be more than US $ 300 billion if broadband were to achieve universal diffusion in the United States. The authors also found that ubiquitous adoption of broadband would increase total US GDP by US $ 180 billion and create 61,000 new jobs per year. See Competition in Broadband provision and its implications for regulatory policy', DotEcon and Criterion Economics, (page 10)

[vii] In November 2003, CEBR (Centre for Economics and Business Research ltd) produced a report for the Broadband Industry Group entitled "The Economic Impact of a Competitive Market for Broadband". Its key findings on the economic benefits of broadband, were that due to the growth in the number of broadband connections, by 2015: annual UK GDP could be up to £21.9bn higher than it would otherwise have been; annual UK fixed investment is likely to be around £8bn per annum higher than would otherwise have been the case; annual government borrowing is likely to be around £13bn per annum lower.

[viii] The industry expects that exploitation of broadband connectivity will accelerate the 'off shoring' of many more service sector jobs from the UK A 2003 report from the Institute of Business and Economic Research, Berkley CA, estimated that 11% of all occupations (14 million jobs) were at risk to outsourcing in the US.

[ix] Non-farm business output per hour worked increased in the US by 5.4% in 2002 and by 6.8% in the second quarter of 2003. Although it is difficult to separate the impact of technology upon productivity from other factors the positive link between investment and ICT and productivity in the US seems clear. There has been continued strength in US productivity growth in 2001-2002, which is widely attributed to US firms making more effective use of ICT. There is a lag between investment in ICT and its economic impact. This can be explained by the need to change business processes to effectively

exploit the deployed ICT and the time required to put these changes into effect. A valuable summary of research findings is contained in New Research on ICT investments, workforce skills and industrial performance in the UK: key findings and policy implications by Geoff Mason and Mary O'Mahony January 2004 National Institute of Economic and Social Research, London.

[x] OECD (2004) The Economic Impact of ICT: Measurement, Evidence and Implications. (http://www1.oecd.org/publications/e-book/9204051E.PDF)

[xi] The potential of broadband lies in how it can transform the operations of an enterprise, not just its transactions. Analysis of Office of National Statistics micro-data suggests that firms with automatic links between their e-commerce networks and operating business processes enjoy higher labour productivity. Productivity gains are evident in both the production and service sectors but depend upon the use of specific applications appropriate to the firm. Firms that enjoy better performance will be those that select appropriate technology, integrate the processes most relevant to their operation and implement the organisational change necessary to make it work. In other words the exploitation of broadband enabled ICT will help to make good firms better. Goodridge and Clayton: E-business and labour productivity in manufacturing and services; ONS Economic Trends 609, August 2004 (http://www.statistics.gov.uk/cci/article.asp?id=945)

[xii] T-Plan (www.T-Plan.co.uk) provides an excellent case study of the way in which an SME can harness broadband to drive innovation, productivity and growth. T-Plan is an SME providing test management solutions. The availability of broadband in Cornwall enabled T-Plan to relocate out of the South East to take advantage of lower costs and improved lifestyle available in Cornwall and to create new high value jobs in a rural location. T-Plan has a dozen virtual offices across the UK with all staff connected using broadband. T-Plan believes that broadband enabled ICT makes the company more productive, allowing it to take on more business and grow. Broadband has enabled T-Plan to reduce its turn around time on projects from 5 to 1.5 days. It enables faster more effective research and easier competitor analysis. It is also being used to transform client training operations, eliminating the need to run expensive courses at physical locations. Broadband has become critical to T-Plan "without it we'd have to review our entire operation … that's not really an option." T-Plan was recently recognised by Deloitte & Touche' as one of the fastest growing technology companies in the South East and gained a place in Deloitte & Touche's Technology Fast 50. According to Deloitte "The Fast 50 Programme has always been a reliable indicator of whether British innovation is leading to more growth and wealth creation. These companies have demonstrated how to survive and thrive in today's market by helping their customers reduce their costs and improve their performance." For further data on the impact of Broadband on SMEs see British Chamber of Commerce Survey on Broadband and SMES and Intellect Survey on Broadband and ICT SMES.

[xiii] The Aerospace industry clustered in the South West is seeking broadband enable the entire value chain to enable more efficient collaborative working. The application of collaborative engineering techniques is a significant requirement for projects in the Aerospace industry. INBIS and Diamonite have created a collaborative engineering live link via broadband. Aircraft interior design used to be a slow and linear process with teams working one after another rather than together. Concurrent engineering and product teams improved things but small businesses still had problems. Broadband has enabled small businesses to play a role in IPTS. Design speed has increased enormously. Live Link makes it possible to work through the consequences of change.
See http://www.broadbandshow.org/aero_case_studies.asp

[xiv] Forrester Research estimates that 5.8% of sales in the UK will be online in 2004, while IRMG estimated that 20 million UK consumers will shop online in 2004. – this growth underlines the point about the ability of broadband to enable the change of business models. For example, Thomas Cook's broadband site allows users to view videos of holiday destinations and hotels, which has shortened the consumer buying cycle. Users are able to do the bulk of their research at home or at work, via broadband connections, and may not have to visit the travel agent to purchase a holiday at all. Online retailing. We expect this trend to be reflected in certain other retail sectors such as insurance, music and mobile phone sales, possibly making these high street networks obsolete. The stores that will remain will be those that offer an experience. Sectors such as fashion and electronics will focus less on price and will highlight what you can get from visiting the store. We have already started to see this happen with bookstores, which house coffee bars.

[xv] Broadband-enabled Home and Flexible Working – BT's experience: BT has approximately 8,500 home workers. On average they each save the company accommodation costs of circa £6k per annum, they have an increased productivity rate averaging at 20% but recorded between 15% and 31%, they have on average only 3 days sick absence per annum against an industry average of 12 days. We also know through individual comments that a significant number of them have turned down job offers which offer better packages in exchange for retaining the flexibility which we offer. This makes an important contribution to our retention capability in critical skill areas. All of this adds up to an annual saving of in excess of £60m per year. BT has also extended flexible working arrangements to its 'blue collar' field force. This is called the Field Reward Scheme. Here the latest figures from a trial of 3,000 engineers show increased productivity of 5%, quality of service of 8%, engineers working on average 2 hours less per week but earning more and BT making further savings through the elimination of overtime payments.

BT also has 70,000 flexible workers, the majority are nomadic or occasional home based workers. This has enabled us to move to trust-based relationships, which see the modern BT manager in the role of coach and a focus on output/outcome management rather than assessment of performance by attendance or conformity. One other example of how this is contributing to the bottom line is that BT now has a 98% return rate after maternity leave. The national average is just under 75%, given that BT has approximately 2,000 women pregnant during any one year and that conservative replacement costs are circa £10k per person. This saves BT £2m every year on the additional 500 which we retain above the average. BT's home based workers also report that they are 7% happier than their office based colleagues. It is reported that this translates to a 14% increase in customer satisfaction.

Flexible working has also allowed BT to make efficiency savings, to cut down on travel for example in 2001 BT saved £10m in reduced expenditure on fuel (12m litres of fuel saved) through the use of tele and video conferencing. Obviously there are also time saving costs. The positive impact that this has on the environment in terms of reduced emissions and congestion fits within BT's goal of being a responsible business and has a positive effect on the health and well being of people such as children with asthma.

[xvi] The City of Liverpool recently won Beacon Council Status for Social Inclusion through ICT. This is the second year that the City Council has won this Beacon Council Status "the highest recognition for quality in public services." The City of Liverpool is at the leading edge of new and innovative projects that enable customers to contact local government easily and receive professional advice and assistance. Liverpool has a vision of becoming as well known for electronic service delivery as it was for its seaport in the early 20th century (their seaport to e-port strategy).

Local Government Minister, Nick Raynsford, praised the city council for winning the award, "The authorities achievement is a real example of how a good service can make a real difference to people's lives. Liverpool City Council's Beacon award marks the authorities achievement and recognises the hard work of the staff at the frontline of delivering services. But just as importantly the City Council will now help other authorities learn from it's experience so that other authorities from across the country might provide services that meet the standards of the best."

[xvii] See Public Value and Electronic Government, Institute of Public Policy Research (IPPR)

[xviii] Creating Public Value – An analytical framework for public services reform (www.number10.gov.uk)

[xix] One of the key pieces of evidence of ICT impact on educational outcomes in the UK comes in the form of the IMPACT 2 study, commissioned by the Department for Education and Skills, and carried out by the British Educational Communications Technology Association (BECTA). This study, one of the most comprehensive of its kind, was carried out between 1999 and 2002 and involved 60 schools in England (30 primary schools and 25 secondary schools). One of the key aims of the study was to analyse the relationship between the pupils' use of ICT and their performance in national tests. "In every case except one the study found evidence of a positive relationship between ICT use and achievement and in no cases was there a statistically significant advantage to groups with lower ICT use."

[xx] The Cambridgeshire Schools Broadband Project found that the use of broadband in the classroom resulted in better outcomes for teachers and learners. Classroom time was used more efficiently, attention and confidence levels improved, and the level of educational attainment increased.

[xxi] The Notschool.net project looked at ways of re-engaging with young people who had been out of the traditional educational systems because of phobia, illness, disaffection, pregnancy or exclusion. Notschool.net provided an online learning experience that proved highly effective, with 50% of the teenagers achieving a formal accreditation.

[xxii] Empowering patients: There is interesting data available on what patients think the health effects of the new e-services might be. This is possibly connected to the fact that very large numbers of users also believe that the new services make them better informed about their own conditions and with this new informed status comes an increased capacity to improve it through self help. Moreover, users also believe that the service makes them better prepared for encounters with health professionals. See Nicholas, Huntingdon, Williams and Gunter (City University) (2002), First steps towards providing the nation with health care information and advice via their television sets.

[xxiii] A GP in Walsall in the Midlands for example, has stated that he was able to beneficially alter the patient care he offered to one patient on the basis of information available on the electronic record which otherwise was not available on a recent hospital discharge note. Pilots run in South Staffordshire also indicated that a positive impact on suicide mortality rates would flow from the shared assessment across mental health and social services professionals which electronic care records would allow See Foord, Mathiesen, Kolind and Owens (PCC Consulting) (2003), Core National Evaluation of the Electronic Records Development and Implementation Sites Final Report.

[xxiv] The TEN-HMS study demonstrated that home telemonitoring significantly improved survival rates for cardiac patients relative to usual care and led to high levels of patient satisfaction clinical. This large scale, randomised prospective telemonitoring trial showed that home based monitoring reduced the number of days in hospital by 26% and led to an overall 10% cost saving compared to nurse telephone support. Treating high risk heart failure patients is estimated to cost 1-2% of the total healthcare budget in the US and Europe.

[xxv] In its forthcoming publication on Public Value Health, IPPR argues that the impact of better service delivery on improving citizens trust, confidence and participation in the State and civic society has not to date been fully understood and that it should be possible to identify and measure such public value.

[xxvi] "It is precisely because the public sector has invested £6bn in new technology, modernising our ability to provide back office and transactional services, that I can announce, with the detailed plans departments are publishing for the years to 2008, a gross reduction in civil service posts of 84,150 - to release resources from administration to invest in the front line." Gordon Brown, 12 July, 2004

[xxvii] http://www.e-envoy.gov.uk/assetRoot/04/00/08/19/04000819.pdf

[xxviii] Global capital flows through the rest of the decade - the rise of China, Japan and the tiger economies with their high GDP growth rates and populations dominance and growth will skew economic activity in that direction. In 2010 the Far East will have 30% of global populations of 6.3bn (40% incl India) as US and European proportion of global populations reduce. This is likely to see investment asset allocation and capital flows biased in that direction and away from Europe. There isn't enough capital in the system do deliver broadband to everyone on the planet. Choices will be made. Source http://www.broadbanduk.org/reports/visions2010/docs/GLOBAL_VILLAGE_BillJones_BSG_Visions.pdf