DIGITAL BRITAIN

The Interim Report

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and
Department for Business,
Enterprise and Regulatory Reform

Digital Britain
The Interim Report

Presented to Parliament by
The Secretary of State for Culture, Media and Sport
and the Minister for Communications,
Technology and Broadcasting.

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Contents

Section 1: Introduction and Executive Summary **3**

Section 2: Digital Networks **14**

2.1: Next Generation Access Networks 17

2.2: Mobile Wireless Networks 25

2.3: Digital Broadcast Networks: Television 30

2.4: Digital Broadcast Networks: Radio 32

Section 3: Digital Content **36**

3.1: The Economics of Digital Content 36

3.2: Investment in Content: Rights and Distribution 39

3.3: Investment in Content: Original UK Content 45

Section 4: Universal connectivity **53**

4.1: Universal Connectivity: Networks 53

4.2: Driving Universal Connectivity: Take-up 59

Section 5: Equipping Everyone to Benefit from Digital Britain **63**

5.1: Education and Skills 63

5.2: Media Literacy 66

5.3: Online Safeguards 69

Section 6: Conclusion **71**

Glossary **74**

The Digital Britain Report is jointly resourced by the Department of Business, Enterprise and Regulatory Reform (BERR) and the Department for Culture, Media and Sport (DCMS) and draws on expertise from across Government, industry and regulators.

The Digital Britain Report benefits from the guidance of a voluntary Steering Board of industry experts. The members of the Steering Board are:

Peter Black – Network technology

Professor Tanya Byron – Online protection

Francesco Caio – Next generation networks

Andrew Chitty – Production/new media

Barry Cox – Digital radio

Matthew d'Ancona – Print media/new media

Robin Foster – Public service content

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Foreword

The digital information and communications sector is one of the sectors in the economy, alongside energy and financial services, upon which the whole of the economy rests. The success and health of this sector is of interest and concern not just to those employed in it but also to the 22 million of us who depend upon it for our daily work, and to the employing organisations for whom effective modern communications is a critical source of efficiency and competitiveness.

It is also a sector that touches all aspects of our lives, at home and at leisure as well as at work. The average British adult spends almost half of all their waking hours using the services of the communications sector or browsing, watching or listening to the audio-visual content it distributes, content that at its best can engage and delight us as consumers and inform us as active citizens in a democracy.

It is a sector where we have international strengths:

- digital satellite
- the development of GSM, the world standard for mobile communications
- public safety networks
- the success of local loop unbundling, for affordable higher-speed broadband
- the development and deployment of universal digital terrestrial television
- the pioneering of digital broadcasting in radio
- our leading position in global entertainment formats, advertising, marketing services and research
- the emergence of internationally-recognised talent in online, and in particular mobile, small screen content development.

But we cannot rest on our past or present successes, not least because other countries are increasingly making the development of a digital, knowledge economy a centrepiece of their own economic development.

Technology change, entrepreneurial and creative imagination and network infrastructure are now coming together in ways that, over the next five years, will transform our living and working patterns; this is convergence. Nowhere is this more evident than in the contribution that information and communications technology, in combination with energy technology, can make in delivering a low carbon knowledge economy.

Much of this change, indeed most of it, must be driven by the market, by innovation and by changing consumer demand. But it should be the market backed by the best of public thinking and clear Government direction.

Government is a major purchaser of digital, knowledge economy services and it uses them increasingly in the wider delivery of public services; the education and skills system influence the capabilities of those entering or working in the sector; regulation can help or hinder investment or innovation; the Government is the guardian of national resources – such as wireless radio spectrum – that are critical to the sector. The Government has legitimate wider public policy interests: the availability of high quality UK content and of impartial news from a wide range of sources; increasing the relevance, accessibility and ease of access to digital services to limit digital exclusion. These are all themes which the Interim Digital Britain Report seeks to address.

At a minimum this Report seeks to bring both focus and stimulus to this sector. If, in the final Report we make the right decisions, we can create an effective programme and partnership for the Digital Economy; one that can drive the upgrading of our digital networks, significantly enhance our national competitive position in these critical markets, secure competition for choice and quality in content, connect with the interests of the rising, digital generation and improve access, affordability and inclusion for all. This is the prize on offer, it will require a common effort to deliver it.

Stephen A Carter
Minister for Communications,
Technology and Broadcasting.

Section 1

Introduction and Executive Summary

Around the world digital and broadband technologies are reshaping our Communications, Entertainment, Information and Knowledge industries, the wider economy, and the way of life for all of us. We are at a point of transformation. The success of our manufacturing and services industries will increasingly be defined by their ability to use and develop digital technologies. A successful Britain must be a **Digital Britain**.

Digital technology has led to a quiet revolution over the past decade in our lives at work, at home and at leisure. Many of us now take for granted a world of constant communication; of large-scale data transfer from home to work and vice versa, leading to new, more transport-efficient and family-friendly patterns of working; hundreds of television and radio channels; user-generated content; instant connectedness with virtual communities of interest and friendship; and keeping extended family networks in touch with images as well as words.

The Communications Sector is one of the three largest sectors in our economy alongside energy and financial services. The UK's digital economy accounts for around 8% of GDP. It has been one of the fastest growing successes of the past decade. We pioneered digital television and radio and have led the way in a national switchover programme. Our take up of first generation broadband has grown faster than that of almost all the other major economies. Britain has the highest proportion of internet advertising of any developed economy. By 2012 £1 in every £5 of all new commerce in this country will be online.

More importantly, the digital economy underpins our whole economy and builds our national competitiveness. Our readiness to adopt digital technology has driven productivity gains throughout our wider economy. Over the last ten years the UK has been consistently closing its historic productivity gap with the other leading European economies, based largely on our take-up and adoption of digital technology.

But our productivity still lags well behind the USA and we face new challenges from the innovative companies of the successful Asian economies. At their best, they combine fierce competition, providing innovation and consumer services, with a

regulatory framework that balances the value of investment in the next generation of technologies against the benefits for the consumer of a competitive market place.

So Britain's competitive position as a user and producer of digital technology cannot be taken for granted. In the USA, the development of the digital economy, deployment of modern networks and universal broadband internet access are a central part of the new Administration's programme. The French Government has launched an ambitious reform strategy for their Communications Sector. The European Commission's global league table of digital adoption, skills and use shows that the UK, having been in the top seven earlier in the decade, has slipped to twelfth place.

Against this backdrop, this report assesses the UK's readiness fully to exploit the dramatic shift to digital technology as the basis of huge parts of our economy and private lives. This revolution is only a decade old - still in its infancy. Our demands and expectations of it will rise at an accelerating pace. Are we positioned to meet those demands and expectations?

The first, crucial conclusion of the analysis we have done shows that, as a country, we must ensure that our wired and wireless communications and broadcasting networks can meet the demands of a modern knowledge-based economy. Much work has already been undertaken, but over the next five years we will need to upgrade these networks in order to maintain our position and meet our ambitions.

This makes the need for an active and strategic approach from government indispensable if we are to close the gap. We need to plan now, identify the market failures that are standing in the way of a full roll out of digital infrastructure in the UK, and act swiftly in Government to help the market in the timely delivery of the high-capability infrastructure we will need. This industrial activism from government will be critical to ensuring that the UK gets the most out of the digital economy.

The growing global focus on digital technology

President Obama's technology-based American presidential campaign changed the face of US elections and the new President has made it clear that he sees both technology and a strong communications infrastructure as vital to economic recovery and growth. This includes a radical approach to the deployment of a modern communications infrastructure, including redefining universal service to extend its scope to broadband and unleashing the power of the wireless radio spectrum.

The President's digital ambition is being replicated across the globe. The French Government has recently launched its France Numerique 2012 plan, an ambitious communications sector strategy designed to strengthen France's digital position and enhance its broader competitiveness at a time of global economic slowdown and crisis. The message laid out in the plan is clear: the digital economy is the most dynamic sector in the world and as the global recession bites, it is essential to nurture those parts of the economy that can generate growth potential and jobs.

This is not simply a question of economic competitiveness, but also of fairness. We are at the point of technology development where we need a programme to ensure that everyone can connect to the digital economy, that its benefits and advantages are available to all. This means ensuring that all have access to the skills to participate effectively; and that the content and services available give everyone a good reason to take part.

The digital society offers us, as citizens, increased access to information, participation and influence, not least in the democratic process – the recent Presidential Election in the USA was the first to be decided as much online as offline. In addition to news and democratic participation, the digital world gives individuals scope for a broader and richer range of public service content than ever before, that truly informs and educates as well as entertains.

The necessary education, skills and media literacy programmes to allow everyone in society to benefit from the digital revolution will be a central part of the Digital Britain work and key to our success. We must ensure that being digital is within the grasp of everyone. If we do not, we risk leaving significant parts of our society disenfranchised and permanently behind the mainstream. In so doing, we would fail to secure the full potential of these technologies for our country.

It is important for the UK that we enjoy content over digital networks that relates to our culture and experiences as a society and informs us as citizens in a democracy. In practice, this means content generated in the UK for UK consumers, and plural sources of informed, accurate and impartial news, as well as of informed comment and analysis. The market will always provide some of this content, but we need to decide what else we require, and make policy decisions to achieve that. What do we, as a society, expect and require, and what institutions and policies will best deliver it?

Today, Britain has a range of institutions and interventions mostly designed for the analogue age. To date, only the BBC has the reach, the strategic and operational capability, and the funding to be a provider of such content at scale across the digital landscape. In this interim report, we examine the scope for other modern interventions that could provide for plural British digital content and the possibility of a new organisation of the scale and reach needed for the multi-media, multi-platform digital world, able to work alongside the BBC but with a distinct role.

At the same time, we need to ensure that Britain is well positioned to take advantage of the opportunities around innovation in new media content. Our track record in creativity and technical innovation in existing media provides an excellent base, but this needs to be married to development of business models that enable content creators to flourish on new platforms. We must also have the research and development programmes that will help us maintain our position.

For us as a society, digital technology also offers the prospect of more *effective* delivery of wider public services in terms of quality of service, connectivity and reach for the individual – as users of online services today, from NHS Direct to the DVLA's Car Tax Renewal Service, can attest.

Equally important, the digital society can offer more *efficient* public service delivery. This will be crucial in an era of very tight constraints on public spending in the years to come, with an additional £5m of efficiences announced in the 2008 Pre-Budget Report. Using the money in the service rather than its delivery is a major benefit for both the user and the taxpayer.

Delivering Digital Britain will require an ambitious and clear strategic vision from Government and a new and stronger sense of co-operation between Government, regulators and industry. We will play our part to ensure open and effective government, including ensuring, through bodies such as the Information Age Partnership, Government and industry have regular, open and constructive fora for discussion.

The Information Age Partnership

The Information Age Partnership (IAP) is a partnership for action between industry and Government, comprising Ministers and Chief Executives of the UK's leading IT, Electronics, Communications and Content companies.

The purpose of the IAP is to ensure that ICT is effectively deployed to accelerate innovation and productivity growth across the economy and to impact directly on the priorities of small and medium sized businesses. This helps the UK to take maximum global advantage of the technological, economic and political developments that characterise the information age and can drive the UK's economic recovery.

We believe that the Information Age Partnership will become an even more important and valuable forum for engagement between Government and industry, with a mission to ensure that the promise of Digital Britain is realised.

We need a comprehensive programme for Digital Britain: a programme that has five objectives for 2012 which drive the analysis and proposals in this Interim Report.

Digital Britain: Five objectives

- Upgrading and modernising our digital networks – wired, wireless and broadcast – so that Britain has an infrastructure that enables it to remain globally competitive in the digital world;
- A dynamic investment climate for UK digital content, applications and services, that makes the UK an attractive place for both domestic and inward investment in our digital economy;
- UK content for UK users: content of quality and scale that serves the interests, experiences and needs of all UK citizens; in particular impartial news, comment and analysis;
- Fairness and access for all: universal availability coupled with the skills and digital literacy to enable near-universal participation in the digital economy and digital society; and
- Developing the infrastructure, skills and take-up to enable the widespread online delivery of public services and business interface with Government.

Readers of this interim report will see that there are varying levels of detail and analysis in the different sections of the report. This is inevitable in an interim report and reflects the fact that there are some areas, where the problems are pressing, where existing knowledge of the issues, informed in particular by previous reviews and the work of Ofcom among others, have allowed us to move forward faster in our thinking and policy development. There are areas where this interim report reflects emerging findings; and those areas where we need to undertake much wider consultation and consideration, including across Government, before we bring forward detailed recommendations to provide a more comprehensive programme for Digital Britain. The process to date has been far from exhaustive. There are many aspects of this vital sector and its wider linkages to our economy and society that we only touch on – from smart grid technology to the links between the Knowledge Economy and a Low Carbon Economy, to the specifics of the next generation delivery of public services online.

Based on the five objectives above the main actions set out in this report are as follows:

Digital Networks

In relation to **Next Generation Access Networks,** we propose a number of specific actions:

ACTION 1

We will establish a Government-led strategy group to assess the necessary demand-side, supply-side and regulatory measures to underpin existing market-led investment plans, and to remove barriers to the timely rollout, beyond those declared plans, to

maximise market-led coverage of Next Generation broadband. This Strategy Group will, by the time of the final Digital Britain Report, assess the case for how far market-led investment by Virgin Media, BT Group plc and new network enterprises will take the UK in terms of roll-out and likely take-up; and whether any contingency measures, as recommended by the Caio review, are necessary.

ACTION 2

Between now and the final Digital Britain Report, the Government will, while recognising existing investments in infrastructure, work with the main operators and others to remove barriers to the development of a wider wholesale market in access to ducts and other primary infrastructure.

ACTION 3

The Valuation Office Agency has provided new, clear guidance which addresses the problem of clarity over business rates identified by Francesco Caio in his report, and will ensure that they respond to any queries from existing and new investors and maintain clear, helpful guidance. For its part, the Government will ensure that the guidance is widely understood by potential investors.

ACTION 4

We will, by the time of the final Digital Britain Report, have considered the value for money case for whether public incentives have a part to play in enabling further next generation broadband deployment, beyond current market-led initiatives.

ACTION 5

The Government will help implement the Community Broadband Network's proposals for an umbrella body to bring together all the local and community networks and provide them with technical and advisory support.

In relation to existing and Next Generation **Mobile Wireless Networks**:

ACTION 6

We are specifying a Wireless Radio Spectrum Modernisation Programme consisting of five elements:

a. Resolving the future of existing 2G radio spectrum through a structured framework, allowing existing operators to re-align their existing holdings, re-use the spectrum and start the move to next generation mobile services. This must be achieved whilst maintaining a competitive market. If this can be done, the economic value of the spectrum would be enhanced. Existing administered incentive pricing (AIP) levels would be adjusted to reflect that enhancement. The Government believes that an industry-agreed set of radio spectrum trades could represent a better and quicker solution than an imposed realignment. There is an opportunity for industry to agree a way forward by the end of April 2009. In the absence of an industry-agreed trading solution by then, Government will support an imposed solution.

b. Making available more radio spectrum suitable for next generation mobile services. Ofcom has proposed the release of the so-called 3G expansion band at 2.6GHz. The Government will support proposals from Ofcom to play a key role in a pan-European alignment of the Digital Dividend Review Spectrum (the so-called Channel 61-69 band), being released by the progressive switchover from analogue to digital broadcasting, pioneered by the UK. This will free up radio spectrum particularly valuable for next generation mobile services.

c. Greater investment certainty for existing 3G operators: The Government wishes to encourage the maximum commercially-sensible investment in network capacity and coverage. But the further into a fixed term licence one goes the greater the disincentive to invest. We want to resolve this issue now as part of the structured framework. As part of the structured trading framework existing time-limited licences could be made indefinite and subject instead to AIP beyond the end of the current term. If this were achieved the Government would look to ensure that the AIP then set reflected the spectrum's full economic value and hence would capture over time the return equivalent to the proceeds that would have been realised in the market from an auction for a licence of the same period.

d. Greater network sharing: the Government and Ofcom will consider further network sharing, spectrum or carrier-sharing proposals from the operators, particularly where these can lead to greater coverage and are part of the mobile operator's contribution to a broadband universal service commitment.

e. Commitments by the mobile operators to push out the coverage of mobile broadband eventually to replicate 2G coverage and mark their significant contribution to the broadband universal service commitment.

In relation to Digital **Television Networks**:

ACTION 7

We will consider at what point and at what cost the standard offer provided by the Digital Television Switchover Help Scheme could have a return path capability, and we will ensure that such capability is available as an option.

ACTION 8

We will examine how the marketing and communications activity around Digital Switchover could be enhanced to use the region-by-region programme of publicly funded information and advice on one form of digital transition to provide impartial information on wider opportunities of digital beyond digital broadcast television.

In relation to Digital **Radio Networks**:

ACTION 9

We will take action to support DAB digital radio in seven areas:

a. We are making a clear statement of Government and policy commitment to enabling DAB to be a primary distribution network for radio;

b. We will create a plan for digital migration of radio, which the Government intends to put in place once the following criteria have been met:

   - When 50% of radio listening is digital;
   - When national DAB coverage is comparable to FM coverage, and local DAB reaches 90% of population and all major roads.

c. We will create a Digital Radio Delivery Group which includes the retailers, the Transmission Networks, the BBC, the Commercial Radio Companies, the Car Manufacturers, consumer representatives and the device manufacturers, whose role would be to increase the attractiveness, availability and affordability of DAB and to advise on the Digital Migration Plan.

d. We will work with the BBC to explore how they could extend their digital radio coverage to replicate at least current FM analogue coverage.

e. As recommended by the Digital Radio Working Group, we will conduct a cost-benefit analysis of digital migration.

f. We will consult on new legislation to allow a one-off five-year extension of existing community radio licences, to bring them in line with other radio licences and recognise the important role they have in delivering social gain. We also intend to re-consider the rationale for the current restriction of 50% of funding from any one source.

g. We will commission an independent expert examination of the economic viability, continuing social contribution of, and most effective delivery methods for, local radio services and the relevance of the existing localness legislation.

Digital Content

In relation to the **Economics of Digital Content**:

ACTION 10

In the final report we will examine measures needed to address the challenges for digital content in more detail, including opportunities for providing further support to foster UK creative ambition and alternative funding mechanisms to advertising revenues.

In relation to **Rights and Distribution**:

ACTION 11

By the time the final Digital Britain Report is published the Government will have explored with interested parties the potential for a Rights Agency to bring industry together to agree how to provide incentives for legal use of copyright material; work together to prevent unlawful use by consumers which infringes civil copyright law; and enable technical copyright-support solutions that work for both consumers and content creators. The Government also welcomes other suggestions on how these objectives should be achieved.

ACTION 12

Before the final Digital Britain Report is published we will explore with both distributors and rights-holders their willingness to fund, through a modest and proportionate contribution, such a new approach to civil enforcement of copyright (within the legal frameworks applying to electronic commerce, copyright, data protection and privacy) to facilitate and co-ordinate an industry response to this challenge. It will be important to ensure that this approach covers the need for innovative legitimate services to meet consumer demand, and education and information activity to educate consumers in fair and appropriate uses of copyrighted material as well as enforcement and prevention work.

ACTION 13

Our response to the consultation on peer-to-peer file sharing sets out our intention to legislate, requiring ISPs to notify alleged infringers of rights (subject to reasonable levels of proof from rights-holders) that their conduct is unlawful. We also intend to require ISPs to collect anonymised information on serious repeat infringers (derived from their notification activities), to be made available to rights-holders together with personal details on receipt of a court order. We intend to consult on this approach shortly, setting out our proposals in detail.

In relation to the provision of **Original UK Content**:

ACTION 14

To inform whether any change to the merger regime is yet desirable or necessary in relation to the local and regional media sector, the Government will invite the OFT, together with Ofcom and other interested parties, to undertake an exploratory review across the local and regional media sector and make appropriate recommendations.

ACTION 15

The existing Terms of Trade between the independent producers and broadcasters have worked well. In light of new entrants to the market, new business models and new distribution channels, it makes sense to have a forward look at how the relationship between independent producers and those who commission their ideas could evolve.

This review will focus on the appropriate rights holding agreements and definitions required for a multi-platform digital future, on the overall health of the sector and on continuing to ensure that viewers, listeners and users get the best and most innovative content and programming.

ACTION 16

In the final Digital Britain Report, we will establish whether a long-term and sustainable second public service organisation providing competition for quality to the BBC can be defined and designed, drawing in part on Channel 4's assets and a re-cast remit. It would be a body with public service at its heart, but one which is able to develop flexible and innovative partnerships with the wider private and public sector. While it makes sense to begin by looking at public sector bodies- Channel 4 and BBC Worldwide- the Government is currently evaluating a range of options and organisational solutions for achieving such an outcome.

Universal Connectivity

In relation to **Network Universal Connectivity** on Digital Networks:

ACTION 17

We will develop plans for a digital Universal Service Commitment to be effective by 2012, delivered by a mixture of fixed and mobile, wired and wireless means. Subject to further study of the costs and benefits, we will set out our plans for the level of service which we believe should be universal. We anticipate this consideration will include options up to 2Mb/s.

ACTION 18

We will develop detailed proposals for the design and operation of a new, more broadly-based scheme to fund the Universal Service Commitment for the fully digital age – including who should contribute and its governance and accountability structures.

In relation to the **take-up of universally available broadband**:

ACTION 19

We will encourage the development of public service champions of universal take-up. The Digital Inclusion Action Plan recommended the appointment of a Digital Inclusion Champion and expert taskforce to drive the Government's work on digital inclusion. Clearly, the work of the Champion will be important in encouraging take-up.

ACTION 20

We are inviting the BBC to play a leading role, just as it has in digital broadcast, through marketing, cross-promotion and provision of content to drive interest in taking up broadband. With other public service organisations, the BBC can drive the

development of platforms with open standards available to all content providers and device manufacturers alike.

ACTION 21

A Public Service Delivery plan: we commit to ensure that public services online are designed for ease of use by the widest range of citizens, taking advantage of the widespread uptake of broadband to offer an improved customer experience and encourage the shift to online channels in delivery and service support.

Equipping everyone to benefit from Digital Britain

In relation to **Digital Media Literacy**:

ACTION 22

The current statutory and specific remit on Media Literacy is contained within s.11 of the Communications Act 2003. As this report makes clear, since 2003 there have been significant market changes in the availability of digital technologies and how they are used. We will ask Ofcom to make an assessment of its current responsibilities in relation to media literacy and, working with the BBC and others, to recommend a new definition and ambition for a National Media Literacy Plan.

This interim report sets out the background to these actions and the analysis on which they are based, as well as providing more detail on how we intend to fulfil them.

I am grateful to the Expert Advisers on the Steering Board and the many stakeholders who have given so generously of their time to produce these emerging findings and proposals and to the project team who have worked tirelessly since last Autumn.

Section 2

Digital Networks

Britain's current network assets are the result of a series of legacy decisions:

- the public asset transfer of the switched fixed network when BT was privatised
- the exclusive geographical franchises of the 1990s for cable investment
- 2G mobile licences issued without charge; auctioned 3G mobile licences; but in both cases, a commercial surplus that was not price-regulated for a number of years, allowing substantial investment to create and roll out those networks
- a regulatory framework that incentivised competitive investment in first generation broadband
- a competitive set of fibre core networks funded mainly by high capacity Business-to-Business voice and data traffic
- broadcasting transmission networks (beyond the BBC) funded through the gifting of additional wireless radio spectrum, and, in the case of Satellite transmission, initial regulatory forbearance, but subsequently wholly- commercially based risk investment.

Unlike much other national infrastructure, Britain's communications networks have been created, in the main, without direct public funding.

The key question now is whether, as a nation, we can improve the capability and quality of our digital networks to meet growing consumer and business expectations, deliver what we need as a society and keep pace with international competitors.

Broadband digital communications are today what electricity was a century ago to our Edwardian forebears. And they are at about the same relative state of development: applications for business and industry are relatively well advanced. Use in the workplace increasingly common; basic uses in a significant and growing number of homes. The far sighted Edwardians knew that electricity in the home would

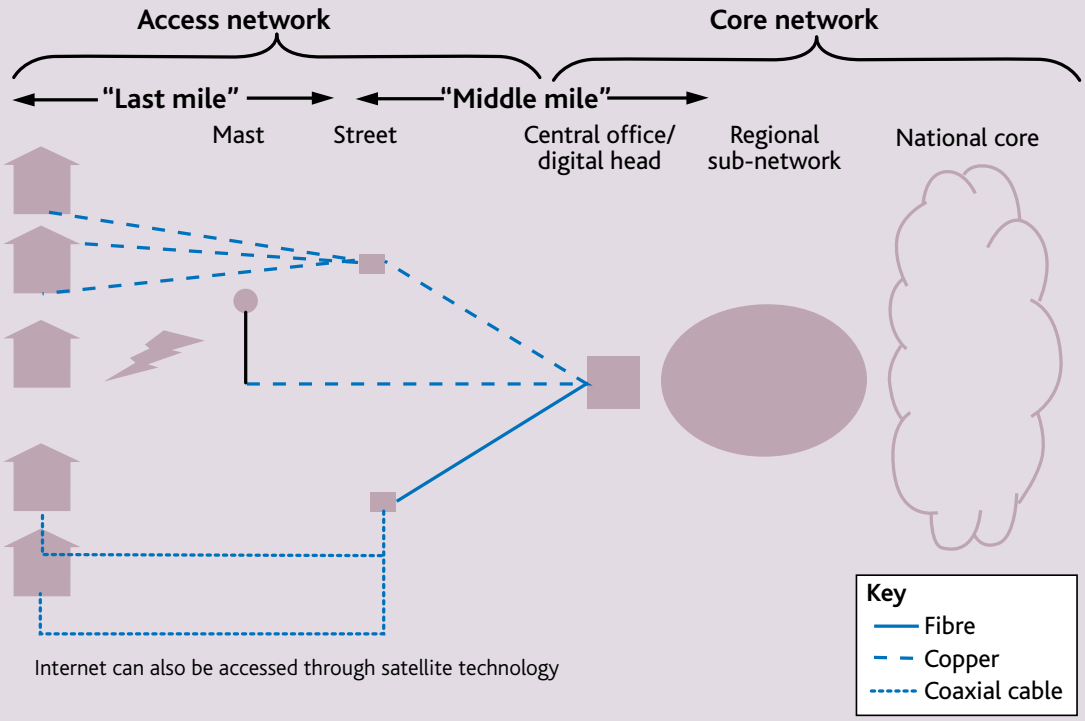
soon go beyond just domestic lighting to be a major power source for new devices, applications and services.

Even so, the extent to which electricity would be ubiquitous today and the revolutionary impact it has had on all aspects of our lives (including of course powering the communications and information revolution) was unimagined. But even within a few years, those countries that had adopted early and built national core and access networks led in innovation. They pioneered the new growth sectors that became the motors of economic prosperity.

Broadband digital networks, carrying very high capacity data and video information, at work, in the home and on the move, will be a major spur to innovation in the economies that adopt it. Available evidence shows that innovation accounts for one third of labour productivity improvements.

How does a broadband network operate?

A broadband network is made up of a number of layers. The capability and performance of each of these layers can affect the service experienced by the consumer.



The access layer of the network is generally the line between the exchange and the premises. Next generation fixed networks tend to replace part or all of the copper connection between those two points. Typically, NGA networks (Next Generation Access – high speed broadband access to the home, usually using fibre optic technology) tend to be 'fibre to the cabinet' (with a copper connection from the cabinet to the premises); or 'fibre to the home'.

Virgin's Media's NGA network is analogous to a 'fibre-to-the-cabinet' solution in that the cable network is typically made up of fibre deployed to street cabinets within 500m of customers' homes, with co-axial cable making the final connection. BT's plans for NGA are for a combination of the two rollout models.

We are already beginning to see the development of new services, such as tele-presence, network computing, iTunes film and distance health and education. An important feature of next-generation networks is that they are substantially better at two- way services, with significant uploading capabilities as well as high download speeds. Two-way video services could transform the delivery of those public services which require true, information-rich interaction between the citizen and the provider- health and education are good examples.

The development and success of first generation broadband in the UK owes much to a vigorous competitive market and investment by new broadband providers such as Carphone Warehouse, Tiscali and BSkyB, as well as BT Group plc and Virgin Media, the companies who have invested in end to end infrastructure as well as a retail offer. We recognise that as important as the development of Next Generation Networks themselves, will be the issue of transition for such competitive providers between first generation and Next Generation Broadband.

2.1 Next Generation Access Networks

Some other countries (notably the developed economies in the Far East, the US metropolitan centres, urban France and the Netherlands) have taken an early lead in the deployment of next generation fibre-based or co-axial cable fixed networks. (Wireless technologies such as Long Term Evolution/ 4G and WiMax are also promising, but, within the constraints of available spectrum and devices are unlikely to be able to provide mass, very-high bandwidth services in the short term).

A number of other governments are including next generation networks in their infrastructure development plans. The further development of next generation digital networks is part of the new US Administration's growth package; Germany has sought to combine a measure of regulatory and fiscal incentives to encourage its main telco to upgrade to fibre. Other governments are adopting innovative financial approaches to bring forward such upgrade investment. The Australian A$5 Billion public broadband development tender includes a public capital instrument with an unspecified interest coupon: bidders for the tender offer their own values for that coupon. The Portuguese government is offering a public line of credit – albeit at commercial rates – to accelerate investment in fibre.

In the UK last year the Government commissioned the Caio Review to consider the UK's relative position and make recommendations.

The Caio Review

In February 2008 the Government commissioned Francesco Caio (Vice-Chairman of Nomura International, and subsequently adviser to the Italian Government) to examine the barriers to investment in NGA in the UK. His six month review was based around discussions with stakeholders and review of existing evidence and analysis, and focussed on three main questions:

1) Is the delay in the development of NGA translating to a competitive disadvantage for UK businesses and UK citizens?

2) Will the market deliver an investment in NGA on its own, or should the Government intervene now through subsidies or a structural change in regulation to get the roll-out of NGA started?

3) Is there a role for the Government to play in the development of NGA infrastructure and, if so, what type of initiatives ought it to pursue?

In summary, the principal finding of the Caio review were that the short term case for a major government intervention was limited. First, drivers for investment in other countries were quite different in that the UK already enjoys high availability of current generation broadband, with good levels of take-up and a highly developed internet economy. Second, there were strong indications that the market was delivering investment in NGA, with Virgin Media and BT announcing plans for fibre roll-out. Third, despite the growth in internet traffic, there was little evidence that UK customers would suffer a short term detriment.

Caio did though warn against complacency, stressing that broadband was important to quality of life and the competitiveness of the country, and that investment was not assured, being vulnerable to economic conditions and other developments. The Government and Ofcom should therefore play an active leadership role in determining the effective deployment of NGA. Caio recommended four sets of actions:

1) Set out a framework for delivery of NGA, by defining the country's ambition and vision of the future.

2) Launch a set of initiatives that do not distort the market but provide further momentum to the deployment of NGA. These included accelerating spectrum release, lowering build-out costs through better streetwork coordination and allowing overhead deployment, and supporting local open access network developments.

3) Establish a structured permanent benchmarking process to monitor the development of NGA in the UK and in relation to other countries.

4) Invest time and resources to identify remedies to adopt in case the market fails to deliver.

During the Caio review and since its publication, consumer and market developments have continued apace. Virgin Media is rolling out its new 50MB/s cable broadband service to 95% of its base during this year (Virgin Media's network passes slightly more than 50% of UK homes). This service is offered to customers at £35 per month plus line rental. In July 2008, the Virgin Media CTO announced the intention to provide 200Mb/s by 2012.

BT Group plc announced in July 2008 its plans to invest £1.5bn in Next Generation Access networks over five years, of which £1bn was incremental to planned investment. (BT is already engaged in a major upgrade of its core network as part of the '21CN' programme). Their announcement promised delivery of download speeds up to 40Mb/s to 10m homes by 2010. BT has stated that the deployment will involve a mix of fibre-to-the-home and fibre-to-the-cabinet solutions. This investment was identified as contingent on certain regulatory decisions, such as the rate of return on capital and rules on network access for BT's competitors.

BT announced in October 2008 that Muswell Hill in north London and Whitchurch in South Glamorgan would be first sites for deployment of fibre-to-the-cabinet, with the trials involving up to 15,000 customers in each exchange. Work in Ebbsfleet, where new-build properties are being equipped with fibre-to-the-home, is ongoing.

In addition there is a new breed of small, entrepreneurial companies offering Next Generation Broadband using a variety of different technology and innovation approaches. They sometimes using primary infrastructure that has not traditionally been used for communications networks (in the same way that Energis, now part of Cable & Wireless, used electricity and railway infrastructure for their core Business-to-Business network).

Competing NGA infrastructures can drive down prices. But they can also drive availability, particularly as mobile operators seeks to offer users the additional benefits of mobility at increasingly higher speeds, and make available national offers which fixed line players have to counter.

If these investments are carried to completion, we can reasonably expect at least half of the UK population to have access to NGA services and possibly a periphery around that- perhaps as much as 60 per cent or even more.

The Government welcomes these initial investments and will continue to look, in turn, at what more can be done with industry to provide a framework that is supportive of those willing to engage their capital to establish enduring networks for the future.

In some countries, regulators and governments have developed NGA strategies based on 'regulatory forbearance'. This means encouraging investment by allowing operators to construct monopoly access networks, with no regulation to allow their competitors access to that network. While we are not persuaded by the case for such absolute regulatory forbearance, the Government firmly believes that, where returns must be regulated, higher risk infrastructure investment justifies higher rates of return. It is welcome that Ofcom recognises that its regulatory framework needs to reflect that principle.

Unlike the current generation of broadband which flows off an already ubiquitous, sunk network (both physically and in cost terms), every additional home or business connected to Next Generation fixed networks represents new network build. This traditionally has a long (7-10 year) payback period, even allowing for uncertainties in the market, competitor decisions, and consumer take-up.

We cannot now know the exact percentage of homes to which the market, with current incentives, will roll out Next Generation broadband. But as a nation the UK will need widespread Next Generation Access networks by the middle of the next decade, even if they do not become universal for some time after that. We should start to plan now and therefore return to this challenge later in this section.

Growing consumer demand requires at least the current level of investment which the market is currently promising to spend on new network capability in core, backhaul and access networks. That demand has accelerated over the past year. The UK's current network infrastructure is beginning to be tested by consumer demand for real-time, streamed access rather than downloads, as shown by the higher than expected use of video sites such as the iPlayer, which went from nothing to 41m programme requests per month within a year[1] .

The UK has enjoyed a sustained period of development of its first generation broadband network, with low prices and investment in the copper network to deliver good levels of service. But the UK might soon reach a stress-point at which the ability of that network to deliver further sustained improvements is strained.

Much of the debate around next generation networks confuses two separate issues. On the one hand, there are apparently exciting maximum speeds of 50 Mbps, 100 Mbps or more, that serve as national or corporate headline symbols in the broadband world. On the other hand, most users experience average speeds that do not match the broadband headline claims. To use an analogy with transport infrastructure, it is akin to the difference between a car's theoretical top speed and the length of time a journey actually takes and whether you encounter any traffic jams on route.

At this stage, demand for services requiring maximum speeds of 100Mbps is very uncertain. But between now and 2012 demand for average speeds of 20Mbps is likely.

There are already the early signs of congestion in first generation broadband, particularly for video use in peak times. This is most noticeable in the shared parts of the fixed networks (in access and backhaul). BT's 21st Century Network programme will play a part in upgrading the network, but it is still reasonable to expect that congestion will become more acute as more people make increasing use of high-bandwidth applications. It will also be particularly acute in small town and rural areas, not served by cable and who already have much lower average speeds than dense urban areas.

These factors have an important bearing on how the market evolves next generation networks. A very high proportion of the costs involved arise from primary

1 BBC figures for December 2008

infrastructure, i.e. digging up the streets to install fibre in existing ducts or creating new ducts where the current network is inadequate.

In some other countries, the emphasis has been on fibre-to-the-home (ftth). In new building developments, this is evidently sensible: essentially the same costs would be incurred whether fibre or copper were installed. But for the majority of existing urban households and small/medium-sized businesses upgrading the network to fibre from the digital exchange to the street cabinet may well be the sensible step for many years to come. It could involve less disruption and substantially lower cost. The Broadband Stakeholders' Group's research shows that this could achieve national coverage of next generation networks that would provide the desired 20Mbps average speeds for about one fifth of national fibre to the home coverage (£5Bn versus £25Bn).

Against this market and consumer backdrop, the Government remains of the view that its key role is in helping the market in the timely delivery of upgraded network capability.

But this should not lead to a sterile debate about intervention versus *laissez faire*. The Government and public policy already intervenes in many ways: through the sectoral regulatory framework, as a purchaser of goods and services, as the ultimate guarantor of the financial and credit system, as a significant deliverer of goods and services to Britain's citizens, and through the incentives or disincentive signals that the tax, rating and wider framework send out.

The developments, both in the domestic UK market and internationally, over the past year since the Caio Review started have tilted the balance between the two strands within the Review's conclusions- watching and leading- towards the latter. The existing network will meet many users' needs for some time to come. But if a substantive planning cycle for material network upgrade is not launched soon, then the UK will not have the necessary infrastructure in place when it needs it.

ACTION 1

We will establish a Government-led strategy group to assess the necessary demand side, supply-side and regulatory measures to underpin existing market-led investment plans, and to remove barriers to the timely rollout, beyond those declared plans, to maximise market-led coverage of Next Generation broadband. This Strategy Group will, by the time of the final Digital Britain Report, assess the case for how far market-led investment by Virgin Media, BT Group plc and new network enterprises will take the UK in terms of roll-out and likely take-up; and whether any contingency measures, as recommended by the Caio review, are necessary.

Secondly, the Government recognises the importance of a regulatory framework that provides predictability and is supportive of investment. Assessment of the right regulatory approach is for Ofcom as independent regulator, but the Government needs to ensure that Ofcom has the appropriate powers and duties to deliver the right balance between investment and competition.

Ofcom has set out clear regulatory principles, consistent with market-led development. Ofcom is also consulting on options for ensuring next generation network competition. Options range from a wholesale product provided by BT to competitors to direct access to the electronic equipment in BT's physical infrastructure or indeed to the ducts themselves. Wholesale Ethernet products allow a much greater degree of product differentiation, and hence competition, than first generation broadband wholesale products.

Ofcom's competitive remedies are focused, in fixed line, on BT in those parts of the network where BT has Significant Market Power. The Government notes that there is a range of other providers who also have ducts and other primary infrastructure.

ACTION 2

Between now and the full Digital Britain Report, the Government will, while recognising existing investments in infrastructure, work with the main operators and others to remove barriers to the development of a wider wholesale market in access to ducts and other primary infrastructure.

Internet Service Providers can take action to manage the flow of data – the traffic – on their networks to retain levels of service to users or for other reasons. The concept of so-called 'net neutrality', requires those managing a network to refrain from taking action to manage traffic on that network. It also prevents giving to the delivery of any one service preference over the delivery of others. Net neutrality is sometimes cited by various parties in defence of internet freedom, innovation and consumer choice. The debate over possible legislation in pursuit of this goal has been stronger in the US than in the UK. Ofcom has in the past acknowledged the claims in the debate but have also acknowledged that ISPs might in future wish to offer guaranteed service levels to content providers in exchange for increased fees. In turn this could lead to differentiation of offers and promote investment in higher-speed access networks. Net neutrality regulation might prevent this sort of innovation.

Ofcom has stated that provided consumers are properly informed, such new business models could be an important part of the investment case for Next Generation Access, provided consumers are properly informed.

On the same basis, the Government has yet to see a case for legislation in favour of net neutrality. In consequence, unless Ofcom find network operators or ISPs to have Significant Market Power and justify intervention on competition grounds, traffic management will not be prevented.

In terms of the wider regulatory framework, the Government accepts the detailed recommendations of the Caio Review.

There is a range of supply side measures recommended by Caio now underway, including:

- Development of a consultation on relaxing constraints on the deployment of overhead lines;

- Ofcom has set out the framework for the deployment of Next Generation Access in new building developments; and
- The Government is working to develop a publicly available specification to facilitate installation of NGA in new build properties as standard.

Caio also noted that Non-Domestic Rates add to the costs of development, but recognised that this would be true of any property tax. He said that lack of clarity about the potential business rates liability could add to uncertainty for new investors. He recommended that the Valuation Office Agency should provide updated and detailed guidance on the application of business rates to fibre. The Government is pleased that this has now been done. The guidance confirms that the pioneering allowance which has been applied for Cable TV networks will be similarly applied to investment in NGA and remain so for the period of the next valuation list (i.e. until 2015).

ACTION 3

The Valuation Office Agency has provided new, clear guidance which addresses the problem identified by Francesco Caio in his report, and will ensure that they respond to any queries from existing and new investors and maintain clear, helpful guidance. For its part, the Government will ensure that the guidance is widely understood by potential investors.

The Government is not persuaded that there is a case now for widespread UK-wide public subsidy for Next Generation Network deployment, since such widespread subsidy could simply duplicate existing private sector investment plans or indeed chill such plans. However, as suggested above, a significant proportion of households will fall into the group between current market-led planned deployment and the 'last few percent' of households. This gap reflects the difference between a widespread next generation broadband network, desirable for national innovation, efficiency and productivity gains, as opposed to, in the very long-term, universal access to the next generation network for reasons of fairness and equity.

ACTION 4

We will, by the time of the final Digital Britain Report, have considered the value for money case for whether public incentives have a part to play in enabling further next generation broadband deployment, beyond current market-led initiatives.

The Caio Report also recognised that localised open-access models of broadband deployment had a potentially important role to play in Next Generation roll-out.

This is particularly true when a defined and relatively stable local community can be engaged in committing to demand for such roll-out. In the Netherlands, the OnsNet project in Neunen has direct commitment from a high proportion of residents in a local community to next generation broadband. This significantly alters the economics by removing uncertainties over take-up. The issue then becomes long-term, stable finance.

A soft version of this model was successfully deployed by BT in the later stages of the roll out of first generation broadband to more rural communities. It has also been successfully deployed by organisations like the Community Broadband Network.

Local Government and Regional Development Agencies too are working on broader roll-out of next generation networks as a central part of local regeneration and economic development strategies.

COMMUNITY BROADBAND

The Community Broadband Network is working with a range of groups across the UK, with a varying degree of regional development agency and local government support. Together, they can provide evidence of useful models for development of broadband beyond the plans of major telcos.

Alston Fibremoor

Alston Cybermoor is a localised community project in Cumbria which aims to provide a fibre-to-the-home network in the most sparsely-populated parish in England. A local project to obtain first-generation broadband led to the creation of *Cybermoor*, among the first community-run broadband projects in the UK. Cybermoor is now looking to maintain their pioneering position by investigating the opportunities for fibre-optic technologies. By taking an intelligent approach to network design, financing and harnessing the power of the local community to drive take-up, Cybermoor can become Fibremoor at a cost well below usual estimates for such rural locations.

Digging started in January 2009.

West Whitlawburn Housing Co-operative

West Whitlawburn Housing Co-operative (WWHC) is a progressive social housing provider on the outskirts of Glasgow. It is embarking on a project to build a further 100 new homes alongside their existing flats, and is keen to offer their tenants the kinds of services being enjoyed by their counterparts in mainland Europe.

WWHC has appointed the Community Broadband Network to design and deliver a solution for new homes with the aim of fitting it to the existing homes soon after the building work is complete. WWHC set up a new co-op, Whitcomm, to organise the services. The fibre installation is a comparatively small percentage of the overall new build costs, funded by a mix of public and private financing.

The first fibre connections go live in February 2009.

The Caio Report rightly pointed out the key risk of such local developments: that we could see the emergence of unrelated and incompatible 'islands of connectivity'. If local developments are to form the nuclei of a connected Britain beyond the point that the market will serve, they need interoperability and common standards.

An established set of standards could also provide ready-made template solutions of best practice, which local communities could adopt off-the-shelf rather than each having to start from scratch. This could, in turn, provide further momentum to local self-help schemes, in which the public sector needs play only a small part.

The Government is committed to working with community and local groups to develop interoperability and best practice standards to unite localised NGA projects.

ACTION 5

The Government will help implement the Community Broadband Network's proposals for an umbrella body to bring together all the local and community networks and provide them with technical and advisory support.

2.2 Mobile Wireless Networks

Britain needs to match the development in its fixed infrastructure with its mobile infrastructure: Nationally, our consumer and content demands are increasingly for data, pictures and information as well as conversation, on the move. The mobile phone has become the one device no digital citizen wants to leave home without.

For consumers, what matters is the service they receive from their phone. Development of user-friendly mass market services such as the text message has done a great deal to help mobiles become the ubiquitous phenomenon they are today. But only a small subset of users – the tech-literate and enthusiasts – recognise or care about the technology that lies behind these services. In order for the innovation and service development to happen we must have in place the right elements, invisible to the user.

The growth of mobile

The growth in use of the mobile phone has been one of the most dramatic of all technologies. Licences were first granted to Vodafone and Cellnet (now O2) in 1983 with One 2 One (T-Mobile) launching in 1993 and Orange in 1994. A fifth operator, 3, began operation in early 2003.

The first UK mobile phone call was made by comedian Ernie Wise. Today 40% of all call minutes are accounted for by mobile. The first SMS message was sent in December 1992, we now send on average 6.5 billion text messages a month and 1.5 million picture and video messages a day. At the end of 2007 there were 73.5 million active mobile subscriptions, around 1.25 connections per head of the population.

New services continue to emerge, the latest being mobile broadband with some half million connections being sold in the period between February and June 2008. There is continued interest in the development of mobile television services, payment services and location based services among others.

The essential element for any wireless service, from the first radio sets to the Apple iPhone, is the ability of the network operator to access and use radio spectrum. Licensed use of frequencies in the radio spectrum is vital for the provision of mobile voice and data services, including increasing levels of mobile broadband. We need to ensure that we have the right framework for accessing and using spectrum.

The prize is significant. The market is approaching an unprecedented technology transition. The industry is only part way through the transition from GSM (the first real mass market mobile phones) to 3G technology (which allows new services such as video calling and internet access). We are about to begin a transition to a 4th generation of mobile radio technology, the so-called Long-Term Evolution (LTE) technology, beginning in earnest as early as 2011. Over an extended period the UK mobile operators are likely to find themselves running three generations of networks in parallel and there will be significant complications for the mobile handset industry. The end game will be well worth the effort. The next generation of broadband mobile networks offer headline data rates of up to100Mbps.

This change will be hugely important for Digital Britain because:

- Mobility is now vital to consumers and business alike. This much prized flexibility will apply equally to mobile broadband.
- Already 20% or more of consumers in some socio-economic groups have "cut the wire", especially in often younger and/or lower income groups in urban areas. They are connected to Digital Britain via their mobile devices. This number is likely to grow as devices improve in terms of easy connection to the Internet and the price of these more advanced devices fall.
- Mobile broadband has an important role to play in stretching the universal coverage of broadband to the extremities of the UK.

It is vital for the UK to be at the leading edge of this change so that people in this country enjoy cutting edge services on the move. Beyond that we must play a leading part in developing a global network of networks, so that the usability today of the mobile for calls around the world can be replicated in allowing users to access high speed data wherever they travel. The long term goal is any content... over any network...on any handset... anywhere. This requires aligned spectrum for mobile broadband across the EU and beyond and a wide industry consensus on the technology road map.

Mobile spectrum allocations in the UK

Licensed use of frequencies in the radio spectrum is vital for the provision of mobile voice and data services, including increasing levels of mobile broadband.

Such licences were until 2003 administered by Government ministers through the RadioCommunications Agency of the DTI; since then, Ofcom has had responsibility for ensuring optimal use of the spectrum. Ofcom has pursued a strategy of spectrum liberalisation:

- release of spectrum for use, primarily by auction;
- liberalisation, meaning that as a general principle the use to which a piece of spectrum is put is determined by the licence holder;
- administrative incentive pricing, which plays the part of an annual rent on the spectrum to promote efficient use by some licence holders;
- trading of licences so that the market can determine the most efficient use and user of the spectrum; and
- a general move to indefinite licences to promote certainty and investment.

Ofcom's policies also necessarily take into account the legacy licences attached to different spectrum bands.

Mobile spectrum licences in the UK were released in three chunks. In 1985, the first licences were granted in the 900MHz band to the companies which are today Vodafone and O2. In 1991, further licences in the 1800 MHz band were granted, and after some industry changes these were re-licenced in 1995 to Orange and One-2-One (now T-Mobile), with the two original operators also receiving some spectrum in that band. These four licences are generally referred to as GSM or 2G licences. All of these licences were granted for free on a comparative selection basis, on an indefinite basis, with annual pricing applied on the spectrum holdings to incentivise use, currently set at over £15m per annum per operator. (There was also a rollout obligation imposed on all the GSM operators, which was met some time ago).

In 2000 the Government auctioned spectrum in the 2100 MHz band for 3G use. All four incumbent operators were awarded a licence along with new entrant '3'. These licences were paid for at the auction on a 20 year licence running to 2021. The total paid at auction was £22.48Bn.

A summary of the operators' spectrum holdings is as follows:

	Licence length	Vodafone (Vodafone plc)	O2 (Telefonica Group)	T-Mobile (Deutsche Telekom Group)	Orange (France Telecom Group)	H3G (Hutchison Whampoa Group)
900 MHz paired	Indefinite	2 x 17.2	2 x 17.2	0	0	0
1800 MHz paired	Indefinite	2 x 5.8	2 x 5.8	2 x 30.0	2 x 30.0	0
2100 MHz paired	Until 2021	2 x 14.8	2 x 10.0	2 x 10.0	2 x 10.0	2 x 14.6
Total paired		2 x 37.8	2 x 33.0	2 x 40.0	2 x 40.0	2 x 14.6
2100 MHz unpaired	Until 2021	0	5.0	5.0	5.0	5.1
Total unpaired		0	5.0	5.0	5.0	5.1

All three of these bands are suitable for delivery of mobile broadband services, using a set of standards which build on the GSM (2G) and UMTS (3G) technologies. They do though have different characteristics which would necessitate different network planning.

In broad terms, the lower the frequency, the further distance they are able to travel and the better the penetration of buildings. This can mean that fewer base stations are needed to provide 3G coverage in lower frequencies. Modelling work done by Ofcom suggested the savings to an operator of being able to provide 3G over 900MHz spectrum rather than 2100MHz could be £1.7bn.

At present, the 900 and 1800 MHz bands are reserved for 2G use, meaning that only the 2100 MHz band is in use for mobile broadband. Ofcom's strategy of spectrum liberalisation has not applied to these bands to date, mainly due to the European legislation, but in part because of the disputes between the various mobile operators and between the operators and the regulator.

A fuller history is contained in the Ofcom document 'Application of spectrum liberalisation and trading to the mobile sector', available at: http://www.ofcom.org.uk/consult/condocs/liberalisation/liberalisation.pdf

In so far as public policy can help to unlock this exciting mobile broadband future the keys are, firstly the re-farming and liberalisation of GSM spectrum, allowing it to be used for 3G or LTE use; and, secondly, the early phased release of spectrum either side of the current GSM/3G spectrum blocks so that manufacturers can rapidly deploy devices that will allow the existing network operators and any new entrants to extend their offering to consumers seamlessly into higher speed mobile broadband with national coverage approaching universal levels. That means putting into use the digital dividend spectrum at 800 MHz (for coverage) and the 3G extension bands at 2.6 GHZ (for capacity).

Unfortunately the UK has hit a temporary road block that is not allowing the release of the spectrum needed to keep us on track towards this important broadband mobile future. It is in the public interest for this impasse to be resolved speedily – either through a voluntary industry wide consensus with Ofcom that respects the principle of an equitable competitive start (the preferred option as it will be the fastest solution) or the Government would support an imposed process. The government believes that time is of the essence.

ACTION 6

We are specifying a Wireless Radio Spectrum Modernisation Programme consisting of five elements:

a. **It should resolve the future of existing 2G radio spectrum through a structured framework, allowing existing operators to re-align their existing holdings, re-use the spectrum and start the move to next generation mobile services. This must be achieved whilst maintaining a competitive market. If this can be done, the economic value of the spectrum would be enhanced. Existing administered incentive pricing (AIP) levels would be adjusted to reflect that enhancement. The Government believes that an industry-agreed set of radio spectrum trades could represent a better and quicker solution than an imposed realignment. There is an opportunity for industry to agree a way forward by the end of April 2009. In the absence of an industry-agreed trading solution by then, Government will support an imposed solution.**

b. **Making available more radio spectrum suitable for next generation mobile services. Ofcom has proposed the release of the so-called 3G expansion band at 2.6GHz. The Government will support proposals from Ofcom to play a key role in a pan-European alignment of the Digital Dividend Review Spectrum (the so-called Channel 61-69 band), being released by the progressive switchover from analogue to digital broadcasting, pioneered by the UK. This will free up radio spectrum particularly valuable for next generation mobile services.**

c. **Greater investment certainty for existing 3G operators: The Government wishes to encourage the maximum commercially-sensible investment in network capacity and coverage. But the further into a fixed term licence one goes the greater the disincentive to invest. We want to resolve this issue now as part of the structured framework. As part of the structured trading framework existing time-limited licences could be made indefinite and subject instead to AIP beyond the end of the current term. If this were achieved the Government would look to ensure that the AIP then set reflected the spectrum's full economic value and hence would capture over time the return equivalent to the proceeds that would have been realised in the market from an auction for a licence of the same period.**

d. **Greater network sharing: the Government and Ofcom will consider further network sharing, spectrum or carrier-sharing proposals from the operators, particularly where these can lead to greater coverage and are part of the mobile operator's contribution to a broadband universal service commitment.**

e. **Commitments by the mobile operators to push out the coverage of mobile broadband eventually to replicate 2G coverage and mark their significant contribution to the broadband universal service commitment.**

2.3 Digital Broadcasting Networks: Television

The UK needs to continue to upgrade our Broadcasting Networks.

The digital television switchover programme in the UK is already underway and will be completed in 2012. It provides a number of transferable lessons: firstly the importance of a strategic direction from Government and regulator, setting clear timetables, planning the radio spectrum and ensuring that the vulnerable are helped through the transition. Secondly, the role of the market in providing innovation and new services, in this case digital satellite, digital cable and IPTV: what were high-end consumer electronics at the start of the programme are now simply inbuilt to television receivers or available as very low cost digital converters. Choice, diversity and range now characterise this market, including devices with storage and more broadband capability. Thirdly, recognising the important role played by Digital UK, the independent, not for profit organisation leading the process of switchover in the UK.

THE DIGITAL TELEVISION MARKET

The growth of digital television in the UK is a good example of the successful interplay between clear strategic direction-setting from government and the dynamism of a competitive market. It has provided a rich, mixed ecology of provision in digital television which has driven take-up well beyond the levels that most expected, at the start of the process, would have been reached without any direct public subsidy. Today, as we enter the first full year of the switchover process, almost 90% of the population have at least one digital television in their homes. There may be transferable lessons here for the migration to similar mass-penetration broadband.

From the launch of digital television services by BSkyB in 1998, consumers have responded with increasing enthusiasm to the increased choice of content and services. Competition between the satellite services from BSkyB, cable services from ntl and Telewest (now Virgin Media), and terrestrial services drove take-up to 50% of UK households in five years – easily more successful than any other country. ITV Digital may have folded in early 2002, removing for a while pay TV services from terrestrial television, but the launch of an expanded range of free-to-view services on the terrestrial platform in October 2002 from Freeview made digital television attractive to a new segment of households.

The Government had set out in 1999 the two criteria – availability and affordability – that had to be met before the full switch to digital television could be completed. In September 2003 it was clear that the market was driving the availability of affordable equipment – consumers were voting with their wallets for the programmes and services that only digital television could offer. With a developing plan for how to ensure that everyone would be able to share in those services, and an understanding that for around a quarter of homes this could only happen by switching off the analogue transmissions, the Government said that switchover was not a question of whether, but when and how. Two years later, in September, we were able to confirm the timetable together with the help that would be available to those likely to face most difficulty with the switch.

Since then BSkyB, Virgin Media, Top-UpTV and other pay TV service providers have continued to compete in innovative services. Sky HD was the first High Definition service in the UK, but services are now available from Virgin Media and Freesat, with plans in place for services on the terrestrial platform from late 2009/early 2010. Virgin Media offers on demand services including making the BBC's iPlayer service available over its cable network. Sky Player provides Sky TV online. The drive for innovation is constantly delivering more benefits for consumers from the digital revolution, and increasingly blurring the distinctions between different technologies.

Today nearly 90% of homes has digital television and around half have chosen pay TV services, often combined in a bundled offering with broadband and telephony. The Government's objectives for switchover may have set the overall direction of travel, but it is the market's response by providing innovative services and products that has made the overwhelming majority of consumers so ready for the end of analogue television.

It is right that people should have the option to take advantage of these market developments and use digital switchover as a means of joining the digital world in broadband as well as in broadcast. The government will also draw on the experience of the digital television switchover, particularly the experience of Digital UK and the Help Scheme in promoting, educating and assisting the public in relation to a major technological change.

ACTION 7

We will consider at what point and at what cost the standard offer provided by the Digital Television Switchover Help Scheme could have a return path capability, and we will ensure that such capability is available as an option.

ACTION 8

We will examine how the marketing and communications activity around Digital Switchover could be enhanced to use the region-by-region programme of publicly funded information and advice on one form of digital transition to provide impartial information on wider opportunities of digital beyond digital broadcast television.

2.4 Digital Broadcast Networks: Radio

In the development and take-up of Digital Radio the UK is a world leader. UK radio stations are already available on satellite and terrestrial TV platforms and around the world via the internet. It is DAB which has led the way in our digitisation of radio. Since the Radio Authority licensed the first DAB multiplex in 1998, DAB has become the platform of choice for digital radio listening. Over this time, while digital radio in other countries has faltered, the UK companies have positioned themselves as market leaders in technological developments and receiver manufacturing. As a result the UK has a significant advantage, one which we must exploit as other countries begin to develop their own digital radio markets.

Radio is an important part of the national discourse and, particularly, an important voice in local democracy. The Government accepts the argument advanced in the Digital Radio Working Group (DRWG) report that radio needs and should continue to have its own dedicated digital platform. The public benefits from having a dedicated medium which offers high quality news, intelligent speech services and local information, as well as music which caters to a variety of tastes, are substantial.

Dedicated analogue radio sets are no longer part of the retail mainstream: analogue continues to be used in bundled products (e.g. radio alarms). But in dedicated radio DAB has become the medium of consumer choice. The Government is prepared to make a commitment to DAB as a primary distribution mechanism for radio.

The rationale for "switchover" from analogue to digital cannot simply be transferred from television to radio. Analogue and digital radio transmissions can co-exist without the mutual interference which limited digital terrestrial television roll-out prior to switchover. The replacement cycle for cars, and the costs and difficulties associated

with retro-fitting existing vehicles with digital radio equipment also points to a more gradual transition process for digital radio. These are all issues which the digital migration plan must address.

The Government and Ofcom will have key roles to play in providing for a digital future for radio, but this in itself will not be enough. The radio industry, manufacturers, car manufacturers, mobile phone providers, transmission providers and retailers have a part to play in the development and implementation of a coherent drive to expand DAB. We will expect the radio industry to strengthen its consumer proposition both in terms of new and innovative content and to take advantage of the technological developments that DAB can offer. We would encourage radio manufacturers to integrate DAB into future devices, such as mobile phones and cars, as standard and to work with industry on their network and content plans.

Interoperability of radio across europe

In September last year, following calls from media regulators and broadcasters in the UK, France and Germany, World DMB published the European 'Digital Radio Receivers Profiles'. These profiles detailed for the first time a set of minimum requirements and features which will ensure the interoperability of all new digital radio receivers across Europe; effectively creating a single digital radio market across Europe. Features and functions for the in-car market are defined including automatic retuning between digital and analogue services and advanced travel and traffic services for real time satellite navigation systems.

The Government will, in line with the DRWG's recommendations, now set out a bold Digital Migration Plan that involves all the parties to take the majority of listening from FM to DAB as soon as possible.

In exchange for a clear plan from industry to drive the migration to digital the Government will:

- Develop a digital migration plan for radio which will migrate to DAB all national radio services and local services, carried on a local multiplex. This plan will include criteria which will need to be satisfied before migration can begin. These should be: that 50% of radio listening is to digital platforms; when national DAB coverage is comparable to FM coverage and local DAB reaches 90% of the population, and all major roads.
- Work with the industry to satisfy the migration criteria by 2015 and where possible identify initiatives which could bring forward the migration timetable.
- Take an early legislative opportunity to address some of the underlying structural problems of the DAB multiplex system, in order to facilitate greater sustainability, and encourage the establishment of more digital radio services. For the time being we reject the proposal for a further extension of the analogue and multiplex licences but will keep this under review if it can be presented as part of a compelling and agreed 'drive to digital' plan by the radio industry.

- Work with the BBC on how they can extend their digital radio coverage at least to replicate current FM analogue coverage.
- Undertake a cost-benefit analysis of digital migration.
- Engage with manufacturers and other European countries to implement the European digital radio profiles agreed by World DMB.
- Explore further, with Ofcom, which of the recommended incentives and investments it would be appropriate to pursue.

BBC NETWORK RADIO COVERAGE (% of population)

Population coverage – %

	Current (May 2008)	Planned
Stereo FM		97.1
Mobile DAB	92.2	97.6
Indoor DAB	82.2	91.7

Road coverage – %

Motorways	98.9	97.1	98.8
Primary Roads	91.4	80.5	90.1
A Roads	88.9	76.2	87.1

Source: Digital Radio Working Group report – Dec 2008
N.B. Comparing analogue FM to DAB coverage is not straightforward due to the individual characteristics of each platform and it is necessary to measure the performance in different ways. Coverage of Digital One (the national commercial multiplex) is similar to that of BBC network radio DAB. The current coverage of DAB on local commercial multiplexes varies considerably.

The DRWG also recommended that the commercial radio sector, Ofcom and Government should look closely at the most effective way to deliver local services in a digital age. The Government believes that radio's ability to deliver localness is a key part of the medium's attractiveness. We need to ensure it continues to meet the interests of listeners, both as citizens and consumers. To that end, we are commissioning an independent expert examination of the economic viability, continuing social contribution of, and most effective delivery methods for local radio services and the relevance of the existing localness legislation.

We also welcome the impact that community radio has had on both the radio sector and the communities they serve. Last year, following on from Ofcom's review of the sector in late 2007, the Government consulted on future funding models, including potential legislative changes in relation to the length of community radio licences. Our conclusion on this issue is set out below.

ACTION 9

We will take action to support DAB digital radio in seven areas:

a. **We are making a clear statement of Government and policy commitment to enabling DAB to be a primary distribution network for radio;**

b. **We will create a plan for digital migration of radio, which the Government intends to put in place once the following criteria have been met:**

   - **When 50% of radio listening is digital;**
   - **When national DAB coverage is comparable to FM coverage, and local DAB reaches 90% of population and all major roads.**

c. **We will create a Digital Radio Delivery Group which includes the retailers, the Transmission Networks, the BBC, the Commercial Radio Companies, the Car Manufacturers, consumer representatives and the device manufacturers whose role would be to increase the attractiveness, availability and affordability of DAB and to advise on the Digital Migration Plan.**

d. **We will work with the BBC to explore how they could extend their digital radio coverage to replicate at least current FM analogue coverage.**

e. **As recommended by the Digital Radio Working Group, we will conduct a cost-benefit analysis of digital migration.**

f. **We will consult on new legislation to allow a one-off five-year extension of existing community radio licences, to bring them in line with other radio licences and recognise the important role they have in delivering social gain. We also intend to re-consider the rationale for the current restriction of 50% of funding from any one source.**

g. **We will commission an independent expert examination of the economic viability, continuing social contribution of, and most effective delivery methods for, local radio services and existing localness legislation.**

Section 3

Digital Content

3.1 The Economics of Digital Content

Digital technology has significantly reduced the cost of producing, distributing, storing and manipulating content. Today anyone can be their own publisher, journalist, programme maker or international e-merchant. It also enables content to be replicated instantly at virtually no cost.

These technology changes bring convenience and enable personalised media consumption. They create opportunities for new formats and more interactive services. They also enable the online environment to be a highly effective price discovery mechanism, improving the efficiency of the market and shortening the supply chain for individuals and businesses alike.

The UK's inherent creative strengths have given us a global advantage in the creation and production of compelling and innovative content, not just in traditional broadcasting, but in advertising, online content, mobile content, music and programme production. These have given this country a cultural significance around the world out of proportion to our relative size.

The audiovisual content production sector in the UK accounts for annual production activity of between £5.5 to £6bn, and exports (according to ONS data) of around £2.3bn.

UK content production is in turn an important part of the overall creative industries sector that in total accounts for more than 6 per cent of UK gross value added, which as a sector is equivalent in scale to the financial services industry. Radio and TV, along with software, computer games and electronic publishing account for around half of this total.

The OECD estimates that the UK cultural sector is relatively more important (at just under 6 per cent of GDP) than its equivalent sectors in the US, Canada, France and Australia. Unesco estimates indicate that the UK is the world's biggest exporter of "cultural goods", surpassing even the US.

In 2008, the Government published a strategy for developing "Creative Britain", which argued that the creative industries must move from the margins to the mainstream of economic policy.

Until 2008, the sector was growing, driven by rising revenues, new consumer demand, and competition for audiences. In online and mobile in particular, growth in content spend has been rising rapidly from a small base. The UK games industry continues to make a significant financial, creative and cultural contribution to the UK, but is facing particular challenges.

Much of the sector's size and growth has been based on revenues in television. Internationally, the UK television content sector is the largest in Europe and the largest relative to GDP in the world, and in export of TV show formats, the UK is by far the largest single source. Overseas sales of UK programmes and formats grew by 23% in 2007, with overseas revenues of UK distributors and producers totalling £663m, producing a net contribution to content creation, after distribution costs and commissions, of around £380m.

This overall growth trend stalled in 2008, however, as the sector has begun to face significant revenue pressures. Predictions for the short term signal a decline in the total value of UK television content production, but with continued increases in new media activity. In the longer term, there are significant structural and competitive challenges, which will change the shape of the sector and its prospects in its home market.

These structural challenges arise from the transition to digital economics and, with that, the dwindling of the advertising pound and the retail margin for physical copies that, in the past, funded substantial parts of both our traditional media and new media.

Since 2002, e-commerce has grown from £19billion to nearly £163 billion a year. Internet advertising has grown with it. Britain has the highest proportion of internet advertising of any developed economy: at 15% of all advertising it already dwarfs the revenue of radio advertising and is on course to overtake press and TV before long. British consumers have a huge appetite for new digital services, with high levels of take-up of new networks and devices. This in turn creates a market environment which unlocks new commercial possibilities and encourages innovation in new content, services and applications.

These changes are challenging the economics of intermediaries of all kinds and more traditional types of content companies – publishers, the music industry, the newspaper industry and broadcasters – in particular.

There are four commercial challenges that need to be addressed to preserve a healthy content market in the digital age.

Firstly, if digital distribution and copying costs are lower so too are digital revenues from the product or the advertising impact; often, in current business models, an order of magnitude lower. New business models need to evolve for that environment. The role for regulation or intervention is not to prevent the emergence of new business

models or to preserve old and unsustainable ones. It is to contribute constructively to the transition.

Secondly, the rapid growth in the number of digital outlets has hugely increased the volume of advertising inventory available. This trend will only increase: unless there is a paid-for product or service for the consumer to own, (e.g. paid-for content or application downloads) internet content is perceived to be 'free'- i.e. if monetised, it is through advertising. This increase in the volume of advertising impacts has a commensurate impact on their price (and hence on the margins of advertiser-funded businesses).

Thirdly, there is the challenge of access to content and the ability to innovate across the increasing range of distribution platforms and digital devices. Convergence has allowed development of bundled packages offering consumers a mix of content and services. Development of business models built around such bundling depends to a large degree on wholesale access to important content to deepen the range of bundles addressing individual consumer preferences.

Fourth, the very ease with which digital content can be distributed and copied also dramatically increases the scope for unlicensed and illegal copying and distribution. At the same time, new technological forms of piracy are being manifested at an increasing pace. Counter-piracy measures and effective rights enforcement are an important element, but only one element and insufficient on their own: new methods of legitimate access, based on new business models and incentive structures will be crucial.

This is placing pressures on professional content, whether in programme-making or in journalism and newsgathering, with significant implications for the future health and growth of the sector. While some traditional audio-visual content is under threat, new media content is in its relative infancy as a possible new generator of economic wealth.

Faced with these challenges and, in particular, the dwindling of the advertising pound in its historic role as underpinning finance for much content creation, the UK needs to consider whether there are other funding streams or mechanisms that would substitute in whole or in part. Several of these, including regulatory assets, industry or equipment levies and contestable funding for content production that meets public purposes, are deployed in varying degrees in other markets.

ACTION 10

In the final report we will examine measures needed to address the challenges for digital content in more detail, including opportunities for providing further support to foster UK creative ambition and alternative funding mechanisms to advertising revenues.

In the remaining parts of this section we address some of the most immediate issues which have an impact on digital content and outline ways forward.

3.2 Investment in Content: Rights and Distribution

The core ethos, and success, of the internet to date lies in its ability to stimulate shared ideas and content. It also promotes participation, pro-activity and creativity. But there is a tension between providing reasonable rewards for creativity, which have historically required a measure of protection for the creator's rights, and the freedom to allow that content to be used to permit further innovation and creativity. In the new digital world, the ability to share content legally, becomes ever more important and necessary. Traditional mechanisms to identify rights-holders and acquire legal consent to share often need radical updating to meet the near-instant demands of this new world. There is a clear and unambiguous distinction between the legal and illegal sharing of content which we must urgently address. But, we need to do so in a way that recognises that when there is very widespread behaviour and social acceptability of such behaviour that is at odds with the rules, then the rules, the business models that the rules have underpinned and the behaviour itself may all need to change.

Across both old and new media, if we have an ambition to be the leading international destination for creative businesses, we need to combine an environment where opportunities abound for rights holders and digital distributors to develop exciting new ways to package and sell the content that people want. It must have a digital content protection framework in which such international businesses can have confidence. This will be increasingly vital in a Digital Britain where everyone has access to video capable broadband and many have access to much higher bandwidths. We must make sure that together we address the threats. But at the same time we must not lose sight of the fact that a truly broadband Britain promises huge opportunities for digital content producers.

The Intellectual Property Office (IPO)

The Intellectual Property Office has launched a debate on the future of copyright building on the recommendations of the Gowers Review, which we will consider as part of our final report. This work aims to build a long term vision for copyright, considering what changes may be required domestically, at EU level and internationally. Although the IPO's work is not limited to digital issues, most of the key issues are highly relevant to the digital environment.

Copyright is vital for our content and communications industries. It is the framework through which people can protect their creations and seek reward. Our aim, in the rapidly changing digital world is a framework that is effective and enforceable, both nationally and across borders. But it must be one which also allows for innovation in platforms, devices and applications that make use of content and that respond to consumers' desire to access content in the time and manner they want, allowing them to use it how they want, and at a price they are willing to pay.

Already the UK has achieved a world-first in this regard: the Memorandum of Understanding between the Internet Service Providers (ISPs) and rights holders to

tackle unlawful file-sharing by consumers – it has shown that these two groups with very different agendas can engage in an intelligent conversation about how to secure action in respect of legal offerings, education and enforcement. We need to ensure that all the work, and the increased understanding it has engendered, is not wasted. Quite apart from the specific work on unlawful file-sharing we need to make sure that there continues to be a space where different interests can come together and talk. If that helps develop new legitimate offerings (being careful to avoid any possibility of anything anti-competitive being discussed) then that is something that Government should be willing to facilitate. It's clearly for industry to do the commercial deals – but Government should smooth the path where it can.

Of course much of the digital content sector still depends on non-digital and long-established business models for the bulk of its revenue, and we should not pretend that adapting to a digital environment will be easy or simple. But there can be little doubt about where the future lies, as an increasing range of content becomes digitised, for example e-books becoming part of the mainstream. What worked in the physical world will often not work online, and rights holders must find new partners, and new ways of creating value from their Intellectual Property.

We need to support rights holders as they adapt their way of thinking and working. This is not to support business models that will become increasingly obsolete, and nor do we want to try and pick *the* new business model – in any case there will almost certainly be many competing ones. But we should look at the environment within which they operate, and for rights holders that means the sea of unlawful activity within which they have to swim.

As well as the Government support for rights holders we need to acknowledge the issues which their customers are raising. Businesses need to understand the best ways of responding to the changing demands and behaviour of potential customers, winning their trust and securing income. Winning the trust of customers will be vital to the success of the sector as it finds a way to seize the opportunities the internet has to offer.

An effective enforcement framework must address both criminal and civil law infringements. In terms of criminal enforcement the Government is already taking a leading role, one that is recognised internationally. Since the launch of the National IP Crime Strategy in 2004 we have continued to increase our capability to rise to the challenges of criminal piracy. The Intellectual Property Office sits at the core of this initiative, leading a co-ordinated response to improve awareness and expertise on IP crime issues within our enforcement agencies and facilitating the sharing of best practice and intelligence. The Creative Britain Report published in February 2008 heralded the creation of a new National Centre for IP Crime to help drive further improvements – which will be up and running later this year. The benefits of this co-ordinated approach are recognised internationally.

More directly, funding has been provided to help trading standards officers tackle IP crime at the local level. In 2008 this funding was over £7million with similar funding for 2009 and 2010. This work is delivering real results.

But it is not only criminal scale copying that poses a threat to our digital future. The copying and sharing of content online has become a commonplace activity for many consumers. Where such activity is unlawful, the tackling of such infringement raises clear challenges, both in terms of the scale of such activity and in the kinds of responses that may be appropriate in respect of individual consumers. We must rise to this challenge and consider what role there is for government in helping industry to address civil infringement in the online world.

The copying of content without permission by consumers is not new – it's been an unwanted companion of creative goods for as long as there have been means of copying material without paying. In the analogue world, though, it is a manageable problem, both in the control of such copies and in terms of consumer demand: there is usually a detectable deterioration of quality – video tapes were never as good as the original, and taping music from vinyl or the radio was a poor substitute. The digital world changes all that: copies are near-perfect and can be shared widely with the online community. Entirely legitimate technologies such as file-sharing can be abused such that millions of people can access material, unlawfully but for free.

This has led to a fundamental change in consumer expectations, particularly among the young. There is now a growing expectation that content can be found and shared for free. There is a corresponding resistance to paying for content, or accepting that an inability to pay means an inability to access the content. The collective impact of small scale individual infringement is considered to be significant while recourse for such infringement is delivered through individual civil court actions which can be costly and time consuming for the rights holder and which are perceived as disproportionate by consumers. This has affected different sectors to different extents; music is most exposed. Film, games, broadcasters and the publishing industry are also increasingly being affected. Indeed, it is a phenomenon all the digital content sectors will have to face sooner or later.

It is clearly in the interests of rights holders to produce the creative products that people actively want to buy in the way they want to buy them, and to ensure people are educated about how digital products can be used and why there may be limitations, we also need to work together to find ways to prevent such infringement and to enable action to be taken against those who insist on infringing copyright. If, we expect the whole value chain to benefit from new ways legitimate content can be accessed and consumed then it is reasonable to expect the whole value chain to work together to tackle unlawful activity.

What will help to deter copyright infringement online by consumers in both the short and longer term is a combination of things. A strong message is needed about the importance of respecting copyright as a necessary part of creating new high quality content. There must be a more intelligent and nuanced appeal to what consumers value – the on-going availability of compelling content.

This needs to be backed up by a substantially higher chance of repeat infringers getting caught. The University of Hertfordshire[2] research into attitudes towards music and copyright by young people showed that only 10% of those surveyed are currently deterred from file-sharing by a fear of being caught. The current approach to civil enforcement is not working as well as it needs to. This may be due to a lack of resource – although many rights holders assign significant sums to tackling copyright infringement. The issue may be one of spending more but it may also be one of working smarter. While there is little if any evidence that the remedies against infringement are themselves outdated, the processes by which those remedies can be reached are the product of the analogue age. They need up-dating to be workable in a digital world; and to enable new business models to get enough financial air to breathe and survive.

Perhaps most importantly the availability of legal content in the forms that consumers want is crucial. In the short and long term, the rights holders must find the innovations that once again enable them and their customers to respect each other's point of view. These are businesses where the customers and content creators alike have been used to paying for and rewarding emotional commitment, enjoyment and admiration. This has been an historic strength and one that businesses need successfully to innovate to recover.

ACTION 11

By the time the final Digital Britain report is published the Government will have explored with interested parties the potential for a Rights Agency to bring industry together to agree how to provide incentives for legal use of copyright material; work together to prevent unlawful use by consumers which infringes civil copyright law; and enable technical copyright-support solutions that work for both consumers and content creators. The Government also welcomes other suggestions on how these objectives should be achieved.

Such an approach would need rights-holders and distributors of all digital material (e.g. music, film, television and radio, software, computer games, e-books) to work together to develop ways of making this kind of piracy more difficult to do and easier to trace and prevent. This could involve working with authorities in other countries to act against damaging sources of infringing material. It could also include the exploration of new technical approaches to the content itself or its transmission, including common standards.

This body could carry on the work started by the Memorandum of Understanding on unlawful file-sharing. It should provide the forum within which all elements in the value chain – content creators, initial aggregators (e.g. studios or broadcasters), theatrical distributors (e.g. cinema chains), networks, ISPs and other parts of the chain – could come together. Within the boundaries of competition law, this could lead to the development of models that provide incentives for all for legitimate downloading and use, a framework of common responsibility to discourage and prevent illicit use,

2 42% of those surveyed admitted to uploading. Of the 68% who did not, only 15% said this was because of the fear of being caught. www.ukmusic.org/cms/uploads/files/UoH%20Reseach%202008.pdf

and to support and legitimise technical solutions that can achieve both. Developing new business models is primarily for industry to do, not for Government or any new body. But working together on enforcement and education mean there needs to be clear advantages to all sides – a win/win/win for rights holders, intermediaries and consumers. Rights holders and intermediaries should each reap the economic benefits of delivering a better service to consumers.

Possible technical solutions

Automated Content Access Protocol is one example of a technical solution. Digital Rights Management (DRM), properly applied, also has a role (i.e. where it allows users to access content on any device that they own, rather than being device limited – which is the paradigm that the film industry has encouraged and one that, in music, Apple's iTunes has now embraced, in a welcome recent co-operation between rights-owners and a device/ distributor). Both can work when they are technical-enabling solutions that match market trends and go with the grain of the market and legitimate consumer demand. But they have yet to command the assent, let alone active support, of all the necessary players along the internet value-chain.

It may be that such an independent, objective body may be better able to surmount the mutual tension between rights-holders, publishers, search engines and other content aggregators, the ISPs and the underlying communications network operators and instead broker technical solutions that can command widespread adoption and support. We also recognise that, while industry co-operation should be at the core of this, such a 'Rights Agency' may need to have the power to act to ensure that enforcement measures are effective and proportionate.

If the UK can develop such a working forum, we will have an advantage over most other countries.

ACTION 12

Before the full Digital Britain Report is published we will explore with both distributors and rights-holders their willingness to fund, through a modest and proportionate contribution, such a new approach to civil enforcement of copyright within the legal frameworks applying to electronic commerce, copyright, data protection and privacy to facilitate and co-ordinate an industry response to this challenge. It will be important to ensure that this approach covers the need for innovative legitimate services to meet consumer demand, and education and information activity to educate consumers in fair and appropriate uses of copyrighted material as well as enforcement and prevention work.

The Government also recognises that there is a more specific problem that needs addressing on unlawful file-sharing, where we have been clear in the *Creative Britain* paper and elsewhere that we would legislate if necessary.

The consultation on how we might tackle this issue closed at the end of October. We have today published a Response to that consultation which can be found on the

BERR website, which sets out our analysis of the responses and how we intend to proceed. None of the options highlighted in the consultation attracted widespread support. Rather there was a marked polarisation of views between the rights holder community, consumers and the ISPs over what action should be taken.

A number of key issues were identified by respondents including copyright protection, protections afforded under eCommerce legislation and the impact on the wider economy. Consumers (individuals and consumer organisations) in particular highlighted concerns over data protection and privacy. The role of technology was addressed by most respondents but there were conflicting views as to whether it could offer all or part of any solution. For almost all the options, questions were raised as to their legality under the existing legal frameworks and again, views varied.

Our preferred option of co-regulation did not attract widespread support. The key problem highlighted was the lack of certainty over the nature of the obligation on ISPs and the resulting legal uncertainty this would create for all parties. There remained major concerns how consumer protection would be properly addressed, while developing the self-regulatory aspect through a code of practice raised significant questions on how to accommodate other rights holders, the smaller ISPs and consumer bodies. This was borne out by the experience of the current Memorandum of Understanding group which showed that despite the best endeavours of all concerned, reaching voluntary agreement where there is little perceived common interest between the various participants is extremely hard.

There was, however, a degree of consensus that any solution must involve the provision of new legal sources of attractive content, and that there is a need for education on the importance of copyright in the wider economy.

ACTION 13

Our response to the consultation on peer-to-peer file sharing sets out our intention to legislate, requiring ISPs to notify alleged infringers of rights (subject to reasonable levels of proof from rights- holders) that their conduct is unlawful. We also intend to require ISPs to collect anonymised information on serious repeat infringers (derived from their notification activities), to be made available to rights-holders together with personal details on receipt of a court order. We intend to consult on this approach shortly, setting out our proposals in detail.

This should provide a good evidence base, to make it significantly easier for rights-holders to take targeted legal action against the most significant infringers. International experience of action of this sort suggests that more than two thirds of infringers change their behaviour when receiving notification. These obligations will form the central elements of a Code on unlawful file-sharing which Industry would be required to have in place, supported by backstop powers overseen by Ofcom. The Code would cover among other issues practical supporting measures, including appeals and standards of evidence. It would also cover cost-sharing.

We think the concept of a new Rights Agency and legislative action aimed specifically at addressing unlawful peer-to-peer file-sharing could be major steps forward. But this

is new and difficult territory, and we want to get it right. So we will review the impact of any new measures, and will not hesitate to examine other options if these do not prove to be effective.

3.3 Investment in Content: Original UK Content

The migration to the new digital world vastly increases the amount of content and applications at our disposal. Digital technology extends choice: wholly-market based operators such as BSkyB offer innovative distribution platforms, aggregating hundreds of digital channels, including their own content across programme areas such as 24-hour news and the Arts that were previously considered the exclusive preserve of public service broadcasters (PSBs). Digital technology also lowers barriers to new providers- the wide range of services now catering to ethnic minority communities and to specialist interest, the development of community services, of user-generated content whether on YouTube or on social networking sites- all testify to the liberating power of digital technology.

For cultural reasons, social reasons and, as citizens in a democracy we want at least some of that rich array of choice to be British content, including impartial British news.

The previous section shows the challenge that digital economics pose to a number of business models that have traditionally supported content creation and aggregation. The huge growth of advertising inventory has produced a parallel reduction in the value of advertising impacts and their ability to fund professional long-form content. Pricing and consumer expectations whether for adverts or subscription to the content itself are a fraction of their analogue value.

The profits that funded high levels of original UK content are diminishing. This change impacts on television and radio broadcasting, and our press among other parts of the sector.

The BBC continues to provide programming of wide range and quality, well-resourced impartial news and is innovating successfully in new forms of content for today's multi-media, multi-platform digital age. The Government is committed to a strong, fully funded BBC at the core of delivering public purposes in Britain's media.

As a nation, we have been very fortunate in having other sources of quality programming, delivering public purposes and impartial, high quality news alongside the BBC. This contrasts with many other countries, even the more developed economies, where there is often only one public service institution. All the evidence suggests that Britain's citizens value this plurality.

But the wide range of sources of news at national, regional and local level, and particularly a range of sources of widely- available impartial news is not something that we can any longer take for granted.

In television and radio, as with news, we may no longer be able to rely on the provision in the future of the wider range of public service programming from varied sources to which we have been used. The BBC will, of course, remain as the guarantor

of a significant level of public service programming and of high-quality news. The Government does not believe that the BBC as the only publicly secured provider will be sufficient.

The research in Ofcom's recent Review of Public Service Broadcasting shows continued public demand both for competition for quality and innovation across a wide range of programming and for a publicly funded plurality of impartial news sources at regional and national levels.

This response by the public shows the continued importance the UK places upon the relationship between impartial news and an informed democratic process. This suggests that we need to be sure of a continued wide range of impartial news sources.

More generally, the Government is clear that a range of different creative sources, commissioners and perspectives is vital for healthy levels of innovation and to ensure that we are developing the talent and voices of all diverse communities. We recognise the need to secure adequate provision of content for Northern Ireland, Scotland and Wales in the context of any new PSB model. For cultural and social reasons, we need at least one other provider of scale as well as the BBC.

We believe that we need to aim for plural public service provision which gives us:

- Sources of high quality impartial news at local, regional as well as national level, including the Nations as well as the UK as a whole.
- Large scale original British content.
- A wide range of voices and talent from across the whole United Kingdom, secured in part by ensuring the continuation and development of creative talent clusters in the regions and Nations, currently guaranteed through regional production quotas on some public service broadcasters.
- Guaranteed levels of investment in independent production to ensure the delivery of the best creative ideas and the healthy development of this vital creative sector, similarly secured through quotas.
- A range of commissioning sources for innovative original production.
- Original children's production for all ages but especially for over 10s.
- The development of plural sources of commissioning for current affairs, international issues and serious factual programmes.

Although we can expect the market to deliver some of these types of content to some degree, it is likely that interventions will be essential to meet the expectations and requirements of UK viewers. Achieving all of this is a significant task, requiring policy decisions across a great number of areas, including balancing some competing priorities. Ofcom's review of Public Service Broadcasting makes a number of recommendations to Government. The Government will set out its detailed reaction to these in the final Digital Britain Report. But we are clear now that the over-riding priority is for investment in UK original content at scale and, within that, high quality

impartial news, both at UK and international level and for the devolved Nations and English Regions. This priority should be open also to content not created solely with the closed broadcasting networks and traditional broadcasting business models in mind.

IMPARTIAL NEWS FOR THE NATIONS, REGIONS AND LOCALLY

At a local level, the challenges for news are intense. These challenges were highlighted in the thoughtful report by the House of Lords Communications Select Committee on '*The Ownership of news*'.

Local media groups are seeking to make the transition to digital business models but argue the need to consolidate in order to have the scale and sustainability to do so. They argue too that the media merger regime does not take account of the potential for competition across boundaries between newspapers and other media. This position, they argue, will become increasingly unsustainable as we move into a fully Digital Britain. Such arguments need to be tested against current evidence.

ACTION 14

To inform whether any change to the merger regime is yet desirable or necessary in relation to the local and regional media sector, the Government will invite the OFT, together with Ofcom and other interested parties, to undertake an exploratory review across the local and regional media sector and make appropriate recommendations.

More widely, many people are beginning to raise questions about the longevity of local content. It is an issue in commercial radio and the newspaper industry. It was one of the factors in the decision by the BBC Trust to reject the BBC management's proposals for new BBC local services. Yet there are also some encouraging signs of community-based ultra-local information and news services, using digital technologies for inexpensive production and distribution. Similarly, there are examples of new partnerships emerging at local level, bringing together local media businesses working with voluntary and public sectors.

In the responses to this interim Digital Britain report, we will be particularly interested in hearing collectively from the local newspaper industry and others, alongside the independent review of local audio services mentioned earlier, about what role local journalism will have in providing impartial news in the digital age.

UK-wide and international news remains relatively well provided for from a range of sources. This contrasts with the position of news at the level of the devolved Nations and the English Regions where the commercial PSBs are facing challenges.

ITV plc and the other Channel 3 licensees are currently the key providers, outside the BBC, of news for the Nations and Regions. Ofcom's work has shown that this service is highly valued by viewers and the Government sees it as central to the ITV companies' identities as public service broadcasters. Ofcom's analysis also highlights the economic pressures on the continued delivery by the Channel 3 licensees of their public service obligations.

There are three broad options to address the issue of providing audiences with regional news beyond the BBC services. These options may, together, form an evolutionary path to a sustainable future, until such time as broadband-delivered local news could become an effective substitute.

The first is the BBC's proposal to enter into news gathering and production partnerships with the ITV companies, which could potentially lead to significant efficiencies in this area; and help sustain their ability to provide well resourced and informative regional news well into the future. This would also mark the beginning of a new phase of partnerships led by the BBC acting as an enabler of the plurality and quality of public service broadcasting. The BBC has proposed a range of partnerships in content, production and distribution which are the subject of engagement with other broadcasters.

Discussions between the BBC and ITV plc are at an advanced stage. This proposal offers a promising but not yet settled route forward. The Government is encouraging the parties to conclude their discussion to provide certainty in this area.

Ofcom has suggested that the current regional news slots in ITV's schedule could be opened to a third party, contestably–funded, news provider or indeed that the whole process, including distribution, could be made contestable. The suggestion has the advantage that it could bring in other news-providers from related media who can offset their news-gathering and production costs across a range of outlets, not just commercial television. It could also provide a clearer route to more broadband-focused delivery at some stage in future. It has the disadvantage that, if adopted wholesale now as the only approach, it may require additional public expenditure, which might be difficult to justify in current circumstances. These ideas should be developed further as a contingency against the risk that the partnership between the BBC and ITV is insufficient to meet the challenge.

In connection with the second option S4C have put forward interesting outline proposals in relation to an English-language news service for Wales. We will work with S4C and other partners to establish whether this proposal could form the basis of a pilot project in Wales.

The Government will also explore with the BBC, STV and UTV as well as other relevant possible partners how far similar pilot proposals could point a way forward for Scotland and Northern Ireland.

We will also consider the wide availability of news within the context of the development of a new and broader, commercially-based, content institution in the UK.

We also recognise the concerns raised by stakeholders, supported by Ofcom's analysis, in relation to the provision of high quality, original UK programming for children. The plural public service provision of original children's production, especially for the over 10s (a group currently underserved by the market unlike older teenagers and young adults) is an area we have identified above as being very important. We will return to this important topic in the final Digital Britain Report.

Support for UK originated content brings dual economic and social benefits. The starting point for both is to ensure a strong home market for investment in content of all types, on which we can build international success.

A strong and innovative BBC, working with the market, will be at the cornerstone of these efforts, currently with more than £3 billion public funding each year.

The BBC also has, in BBC Worldwide, an international rights-exploitation and channel operating entity with revenues of £916m and earnings of £118m. It is one of the more successful UK international media operators. It is well placed in the field of global rights exploitation upon which the strongest growth within the digital economy is based. It also has a portfolio of distribution channels in the UK and around the World which act as a shop window for those rights. Its success over the quarter century it has existed (as BBC Enterprises before becoming BBC Worldwide) has rested in large part on its proximity to the BBC licence-fee funded public services, the BBC brand around the world, and its first-look exploitation relationship of the relevant rights.

Following the BBC's own review of BBC Worldwide at the beginning of this decade, BBC Worldwide has been run as a vigorously commercial entity over recent years. Its contribution in terms of earning for the BBC and its place as a successful rights-exploiter and channel operator domestically and globally are testament to that more vigorously commercial approach. But the evidence suggests that BBC Worldwide may now be testing the limits of what can be achieved commercially within the way that it is currently structured.

Some have suggested that a greater degree of operational and financial flexibility for BBC Worldwide in the future could be better for Worldwide as a business, could be good for the licence payer by enabling it to return more to the BBC itself and could enable it to provide more for the creative system of this country as a whole. There may be a range of possible options and structures for the evolution of BBC Worldwide, That could enable it to meet public purposes while playing a larger part as a successfully commercial British Rights Company internationally. The Government will discuss this issue further with the BBC before the final report.

Changes are needed in the commercial broadcasting sector. The advertiser-funded, free-to-air broadcasters have contributed almost as much to investment in original UK content as the BBC, and more than the rest of the market put together. Recent research suggests that, in 2006, pay TV accounted for 26 per cent of TV income but only 5 per cent of spend on new TV programming – a position which is unlikely to have changed markedly since then. In contrast, around 60 per cent of advertising and publicly-funded income is translated into programme spend. The advertiser-funded broadcasters have been adversely affected both cyclically by the current significant drop in advertising revenues and structurally by the economics of digital.

These changes are putting increasing pressure on their role as investment engines for originated UK content. ITV plc has argued that it needs to be relieved of most of its licence obligations and other regulatory constraints if it is to be able to sustain significant levels of UK production. Indeed, this is the trajectory of a process which has

been underway throughout much of the last decade, as the regulation of ITV has had to adjust to changing market circumstances.

With an increasing pull towards net-based search advertising, and away from traditional broadcast ad sales, the commercial broadcasters are likely to be increasingly unable to develop their businesses to satisfy both their shareholders and our wish for them to continue to generate original UK content at scale and to meet our other public policy demands on them.

We need to recognise that one of the key features undermining the old model is the surplus of advertising impacts. The commercial PSBs are beginning to express concern about the need for scale and efficiencies. Consolidation may become necessary. But how that consolidation occurs is a matter of public interest as well as purely a competition issue. We need to consider how any such consolidation could best meet public interests.

As regards public service obligations, this report offers possible ways forward for Regional News above, and underlines the importance of continuing with Regional production and Independent production quotas as an essential part of the social and economic benefits arising from public service broadcasting.

An important part of the UK's international success in content to date has been driven by a successful and entrepreneurial independent production sector. A new breed of independent production houses of some scale has developed in recent years. The Terms of Trade have played a contributory role, and, nearly six years on from the Communications Act 2003, both the independent sector and wider media industries have been through significant change.

Terms of trade

Under the Framework set out by the Communications Act 2003, the Terms of Trade between broadcasters and independent production companies govern the release of programming into the UK secondary market and new media rights for independently produced programming. The Terms of Trade allow Independent Producers to exploit secondary revenues from the programmes they create once the broadcaster has shown the programme. This has fuelled growth both domestically and internationally, and encouraged innovation as producers look to maximise value.

ACTION 15

The existing Terms of Trade between the independent producers and broadcasters have worked well. In light of new entrants to the market, new business models and new distribution channels, it makes sense to have a forward look at how the relationship between independent producers and those who commission their ideas could evolve. This review will focus on the appropriate rights holding agreements and definitions required for a multi-platform digital future, on the overall health of the sector and on continuing to ensure that viewers, listeners and users get the best and most innovative content and programming.

Channel 4 has been greatly valued as a successful public policy intervention, although one designed for the analogue era of a very limited number of television channels and no internet. Today, while it remains a strong brand and continues to provide distinct content, the multiplicity of different content sources available means that its place in the world has shifted. In the digital world and against the backdrop of falling advertising revenues across the medium, Channel 4 has said that it will find it increasingly difficult, in its current institutional guise, to balance its public purposes and its commercial future effectively.

Many of the public purposes for which it was created remain valuable in the digital age – innovation, diversity, original production from a wide range of independent producers. In a digital age, these purposes need to be re-invented and broadened to provide a strong source of plurality and competition to the BBC. At the heart of this new remit should be strong commitments to international and national news, current affairs, documentaries and film with the prospect of introducing programming for older children and news for the nations.

In the medium term such a role could only be discharged successfully by an institution of sufficient scale and flexibility to sustain a viable commercially funded business model:

- **Scale**: to achieve impact, reach and effectiveness in a globally competitive multi media, multi-platform market place;
- **Flexibility**: to allow it to adapt to a fast changing media environment.

ACTION 16

In the final Digital Britain Report, we will establish whether a long-term and sustainable second public service organisation providing competition for quality to the BBC can be defined and designed, drawing in part on Channel 4's assets and a re-cast remit. It would be a body with public service at its heart, but one which is able to develop flexible and innovative partnerships with the wider private and public sector. While it makes sense to begin by looking at public sector bodies- Channel 4 and BBC Worldwide- the Government is currently evaluating a range of options and organisational solutions for achieving such an outcome.

Channel 4 would continue to be the broadcast licensee within such an entity. For the public the viewing experience would be the same or better than today, but as a sustainable part of a wider whole operating successfully across the whole range of digital devices and platforms.

There is a range of issues that needs to be addressed in achieving such partnership, including the governance and accountability arrangements required for any new structure. We will return to this in the final report.

In summary, we see the BBC as the cornerstone of our audio-visual public services. We could have a vital, second Public Service Content Company, with access to rights and global markets, encapsulating the revitalised remit for Channel 4's public purposes and with the scale necessary to be able to compete in a multi-media, multi platform world. In addition, there would be Five and ITV, focused on original UK content,

but with a continued commitment to news and in ITV's case, regional news; S4C's additional news proposal and desires in Scotland for a stronger, distinctive national voice not limited just to broadcasting. Alongside these institutional developments, there are the public purposes identified earlier, including children's programming, where plurality of output is desirable. In their recent report, Ofcom noted that contestable funding may be a possible or necessary route to secure such plurality.

The BBC partnerships are a potentially helpful step but the challenge remains to secure such plurality of output at scale and in the medium term and beyond. Other options must remain on the table, including exploring the value of any surplus in the licence fee pre or post switchover and top-slicing. It is an issue to which we will return in the final Digital Britain Report.

Section 4

Universal Connectivity

4.1 Universal connectivity: Networks

In a developed country such as Britain, everyone should be able to be part of the digital economy and digital society. The section considers whether there is a policy case for a new universality in relation to broadband.

That involves access, education and understanding, affordability, hence take-up, and connectivity for all.

Broadband today is becoming an essential means of social and economic connectedness, just as the telephone and transport links have been. As with telephone, television or transport, there will be individuals or households who choose to opt out.

Indeed, the recent Ministerial Conference on e-Inclusion held in Vienna concluded:

> *"Broadband is becoming an "essential commodity" like water or electricity. It is today an indispensable service for the effective participation in the global trade, economy, education, culture, politics and society. As new broadband services are developed and new and more capable infrastructures are made available old gaps may get entrenched and new gaps may arise between those who have access and can successfully exploit it and those who do not have access or lack the ability to exploit it. The Commission and the Member States are called upon to put in place measures aimed at ensuring an adequate participation to the information society, by enabling citizens to access and exploit ICT irrespective of location or socio-economic background, in particular in convergence regions and remote and rural areas of the European Union."*[3]

In the UK today over nine in ten households can get first generation broadband. Six in ten households have today already adopted it, a higher percentage than most other major economies. The most recent OECD survey shows the UK take-up to be

3 The Presidency of the Council of the European Union. (2nd December 2008) Vienna "e-Inclusion" Ministerial Conference conclusions http://ec.europa.eu/information_society/events/e-inclusion/2008/doc/conclusions.pdf

well above average but it ranks 11th overall, behind the Scandinavian countries, the Netherlands, Switzerland, Korea and Canada. Small and Medium Enterprise (SME) take-up follows a similar pattern.

Several other countries are now moving to a universal service commitment for broadband. America, France, Australia and Finland have all announced plans for a universal guarantee. The Republic of Ireland is just concluding its government-tendered contract for universal availability.

There might be many different reasons why certain other countries enjoy strong records on take-up and availability, and the benefits they derive might vary. We can say with conviction that the full benefits of the digital economy and enhanced delivery of public services require practical universality – and take-up – particularly for those services directed at sections of society most in need of them. This will be particularly relevant to those on lower incomes, older people or those remote from the physical distribution points for public service and other currently excluded communities and groups.

In some respects the UK is well placed. Technology innovation has taken broadband beyond the PC to other devices, the mobile phone and television set-top boxes, that those sections of society who are not PC-enabled are more inclined to use. Our take-up of commercial online services is high, and judged by the proportion of total advertising now conducted online, the UK online market is ahead of all other major markets. Indeed, public services are widely available online: some 89% of services, compared to around 70% in France and Germany.[4] UK take-up of e-Government by individual citizens is only slightly above the EU average; and take-up by businesses below the EU average.

But if by 2012 we have a society where 50 per cent of the population has very high speed broadband, 40 per cent has first generation broadband but little prospect of market-led upgrade to next generation broadband, and up to ten per cent of homes are still in not-spots, not-a-lot spots or not-at-all good spots, then the gulf in access and connectivity will appear starker than it is today.

We believe we need to do more to drive connectivity, capacity and take-up[5].

On connectivity, the simple, fairness point is that broadband access is already a boundary point of the divide from social exclusion. Today, the broadband-enabled population have easy access to information, education, e-commerce (including special tariff deals), BBC Licence-Fee funded services to which all licence payers contribute and public services, including health and schools, to which the whole public and, locally all council tax-payers, contribute. Efficiency demands easy online access to those services. Fairness demands that all should be able to get reasonable access. Where consumers are already paying for content or services, their access needs are considered by the body which is responsible.

4 Source European Commission 2008

5 As well as the public and social benefits of e-inclusion, high take-up also makes further investment in networks more attractive.

The Government needs to drive to promote the adoption of e-public services by businesses and individuals. This requires careful design of how the services are delivered, but also the right promotion. For example a vigorous information campaign, combined with financial incentives, saw the number of businesses completing their Employer Annual Returns for tax online jump more than ten-fold in a single year, to well over 1 million businesses now.

But in order to maximise the impact of e-government, we also need to ensure universal access to broadband-delivered services at necessary speeds. That means having broadband which supports public services which are inherently information and audio-visual content-rich, such as education and health services.

We propose a Universal Service Commitment in broadband by 2012.

Universal availability of service has traditionally been provided by means of a universal service obligation (USO). The concept of a USO was originally used in the case of the Royal Mail and was implemented in 1840. A USO was imposed on British Telecom at the point of privatisation in 1984, requiring it to provide voice and basic data to any premises in the UK (save for Kingston upon Hull, which is subject to a separate universal service obligation imposed on Kingston Communications (KCom)).

The USO requires BT to ensure that their services are affordable (which it has traditionally achieved through the offering of special tariffs) and that services are offered for people with disabilities. In infrastructure terms, they must secure (and pay for) the provision of a network of public call boxes and ensure that all households and businesses are connected by fixed line capable of supporting voice telephony and functional, narrowband internet access. Where the cost of such a connection exceeds £3,400 the consumer must pay the excess.

The costs of the USO currently fall on BT and KCom, and the proportionality of these costs is assessed by Ofcom in view of the benefits associated with universal service.

The Government remains committed to the principle of universality. We believe that principle can be updated to reflect the changed market and customer expectations in terms of technology.

The existing USO model has been appropriate during a time when the fixed line was the norm for communication and BT held a pre-eminent position in the market. Now that communications for voice and data have become accessible by different means and through a market that is considerably more complex, we need to ensure our ambitions for universality are delivered in a way which reflects reality today.

In considering the desired level of minimum service, we will need to take into account several factors including:

- The levels of broadband speeds most commonly subscribed to in the population as a whole;
- The sorts of online services which consumers want and expect;
- The public services, such as education or remote health, for which delivery depends on a certain speed; and

- The point at which a level of service can be delivered ubiquitously at proportionate and reasonable cost.

We also need to take into account as far as we can the likely evolution of technology and the market, such that we do not lock ourselves into a minimum level which is outdated within a limited number of years.

Our first consideration needs to be the different levels of broadband speed and the services they deliver to consumers. A short summary of the services supported by different speeds is below.

256 kb/s	512 kb/s	1Mb/s	2Mb/s
Basic internet browsing	*As before, plus*	*As before, plus*	*As before, plus*
Instant Messaging	Basic video streaming	iPlayer	Download music album in 5 mins
Email	Tele-health	SecondLife	Long-form video (MPEG4)
VoIP	Faster internet browsing	P2P file-sharing	Video conferencing via TV
Online radio		Fast internet browsing	
Basic video call		Download audio CD in 10 mins	
Network storage & backup		'Near-VHS' PC conf call	

We then need to consider the availability of different speeds via market investment. In Great Britain, the current availability of broadband over BT's network is as follows.

Level of coverage	256 KB/s	512Kb/s	1Mb/s	2Mb/s
Availability	99%	98.5%	97.9%	93%
Approx. unserved households	250,000	370,000	510,000	1,750,000

The table above shows the expected modelled capabilities of BT's current active copper lines to support various downstream data rates using the current DSL max service. With the rollout of the 21CN programme, we expect ADSL2+ technologies to increase the percentage of lines capable of delivering each of these bandwidths, taking the coverage closer to 100%. By 2012 perhaps one third of households not so served today will be within 2Mbps coverage.

The actual data rate achieved by an end user and thus the percentage of lines capable of achieving these data rates, as perceived by customers, may vary from these figures due to a number of factors including the impact of internal home wiring, the capabilities of the customer's router/modem, CP contention, and error limits in the underlying model used to predict network performance.

Additionally, these figures provide a reasonable proxy for overall broadband availability but they are not exact; the BT not-spots will overlap in some areas with cable or mobile availability meaning that the true availability might be slightly different.

Based on these factors, there are a number of practical options as to the choice of speed. For example:

- A 512kb/s universal service commitment would provide a relatively small number of consumers with limited benefits. Market investments are likely by 2012 to have ensured that such a service already reaches a level that many would think of as universal (i.e. it is equivalent to the proportion of households that can receive terrestrial broadcast TV). The disadvantage of this level is that it remains a very basic broadband connection which will be increasingly out of step with the highest speeds available and those to which the bulk of broadband customers subscribe.
- A 1Mb/s universal service would carry greater costs due to the greater number of lines to upgrade, but would support more services. In the short term, speeds delivered by this connectivity would match many consumers' expectations. It does not support long-form video content. Evidence today is that consumers, particularly in 15-24 age bracket, are increasingly using the internet for video content[6], and we can expect this trend to continue.
- A 2Mb/s service would carry further initial costs, but would enable a substantially higher number of households to upgrade to what by 2012 will be in step with standard broadband usage. It might also be future-proofed in that the prospect of requirements for a future upgrade is lower than if the universal service commitment was set at a more basic level.

In making a decision between these levels of service (or any other level of service), there are a number of trade-offs to be made:

a. **the speed chosen**

b. **the absolute number of homes connected** at which universality is considered to be achieved (as noted above, universality in terrestrial broadcast networks is considered to have been achieved at 98.5%)

c. **the type and capability of connection** – fixed and wireless solutions (including satellite) may each have a role to play

d. **the cost**

Our initial assessment, subject to detailed analysis, is that a 2Mb/s universal service commitment could, with careful policy design, strike the right balance between these factors.

6 26% of the 15-24 age bracket used the internet for 'watching TV programmes' in 2008, up by 16 percentage points in 12 months. 51% used it for watching video clips/webcasts over the same period (Source Ofcom). See also statistics on iplayer use.

Before making a decision, though, the Government, its European counterparts and Ofcom will need to do more to assess the ramifications of universal provision at a given speed in light of these factors. We will be inviting further comments and would welcome views on the costs and benefits of connectivity at different speeds.

Once the desired level of service has been established we will need to determine the mechanisms by which it can be delivered. Today only around 60% of households are customers of BT Retail; in broadband that figure falls to around 25%. The case for significant extra costs to fall on BT Group plc alone is a weak one. We expect that the costs of a future universal service commitment could be shared more widely, as it is in other countries, between a range of communications providers, and those who provide communication services over the network.

The contribution could be financial or in kind (for example, if the mobile network operators continued to build out their networks towards near-universal coverage, facilitated by the acquisition of additional wireless radio spectrum discussed earlier). Any new universal scheme design would need to ensure that it did not have negative effects on the market. In order to ensure those contributions remain proportionate to the end benefits, we expect that, as with today's USO, the end consumer should, beyond a certain point, make a contribution to the cost of providing connectivity.

Of course, there have already been steps taken in the UK – as highlighted above – to close not-spots. We intend to work closely with colleagues in the devolved administrations and the English Regional Development Agencies to ensure that their investment in broadband coverage works with our policies and public expenditure is not wasted or duplicated.

In Europe we will work with other member states to update the current universal services framework and to assess the options for provision and funding of such a commitment. This will enable us to modernise our domestic universal service policies to be fit for purpose in the digital era.

We are inviting views on the design and operation of a new, more broadly-based scheme for the fully digital age- how extensive it should be, who should contribute, how far any extension of coverage of other operators' networks (e.g. mobile networks) should already represent their contribution in kind, governance and accountability.

ACTION 17

We will develop plans for a digital Universal Service Commitment to be effective by 2012, delivered by a mixture of fixed and mobile, wired and wireless means. Subject to further study of the costs and benefits, we will set out our plans for the level of service which we believe should be universal. We anticipate this consideration will include options up to 2Mb/s.

ACTION 18

We will develop detailed proposals for the design and operation of a new, more broadly-based scheme to fund the Universal Service Commitment for

the fully digital age – including who should contribute and its governance and accountability structures.

4.2 Driving Universal Connectivity: Take-up

Much of the focus in this interim report so far has been on network capability, resilience and business models. These are necessary elements, but not at the heart of what will impel those who only use digital technology occasionally to make it central to their lives, still less to those who do not appreciate or value why they should adopt it in the first place.

But universal connectivity ultimately is about demand. It is about what it can do for you, not what it is. Lower prices, easier access, user friendly devices, skills and confidence all play a part in helping people to take up and make the most of broadband.

What really matters is great content and services. Much of this is for the private sector and for innovation.

Government can emulate the lead of some other parts of the public sector in leading people to the digital world. Within the wider public sector, the BBC iPlayer, which allows people of any age or background to understand the empowering freedoms of the new technology, is a good example.

The NHS, primary health authorities and the voluntary health and care sectors already provide easy to access health monitoring and information services, which has already shown the potential to innovate and provide new interactive services which can rise to the demands of users.

Government and public sector have begun to explore this enormous potential. The take up of broadband both drives and is driven by the attractiveness and the effectiveness of these innovative services. The Government aspires to be world leading in the creativity and effectiveness of these services, for which the first stage has to be the provision of the networks.

In the UK, an estimated 17 million people over the age of 15 are not using computers and the Internet.[7]

We need to build the awareness of the benefits of internet technology to enhance the life chances of all.

Otherwise inequality in the use and application of digital technologies is potentially a significant new driver of social exclusion in the 21st century, which risks accelerating existing social divides and creating new ones.

The Government has already taken a lead in this area by establishing a Cross-Government Digital Inclusion team under the first Minister for Digital Inclusion, Rt Hon Paul Murphy MP.

7 Dutton, W and Helsper, E (2007) *The Internet In Britain 2007*. (Oxford Internet Surveys)

Digital inclusion team

'The best use of digital technology, either directly or indirectly, is to improve the lives and life chances of all citizens and the places in which they live'.

In 2008 the Prime Minister appointed the first **Minister for Digital Inclusion** the Rt Hon Paul Murphy MP, supported by a **Cabinet Committee on Digital Inclusion** and the Minister's Cross-Government Digital Inclusion Team.

In October 2008 the Minister launched the consultation 'Delivering Digital Inclusion – An Action Plan for Consultation'. The Plan sets out for the first time an agreed cross-Government and cross-sector action plan to support all those not currently realising the benefits of the digital age detailing more than 70 cross-Government activities that build digital inclusion. The Plan also identifies future challenges, opportunities and aims for each policy area – children and families, learning and skills, digital inclusion, health, employment, benefits and pensions, transformational government, Directgov, digital infrastructure and markets, local service delivery, the third sector, innovation, transport, information sharing, citizen empowerment, justice, reoffending, culture, media and sport, internet safety, integrated health and social care, rural communities, environment, social exclusion, regional engagement and financial inclusion.

The **Cross-Government Digital Inclusion Team**, hosted by Communities and Local Government, coordinates this work and seeks to bring coherence to and synergy between digital inclusion and related initiatives across all sectors. For example, it is working closely with departments responsible for the Government's established Service Transformation and Digital Channels Strategy.

A key proposal is to establish a **Digital Inclusion Champion,** supported by an expert Taskforce. This person will be independent of, but very close to, the Government, creating synergies and providing strategic leadership and expert advice across all the sectors involved. It is intended that the Champion will provide a clear channel of communication between central and local government, industry, third and public sectors, and the client group, to ensure all available expertise and resource is harnessed in pursuit of a shared understanding of digital inclusion.

The consultation closed on 19 January 2009, and following analysis of responses, the appointment of the Digital Inclusion Champion is planned for late Spring 2009.

The Digital Britain team will work together with the Digital Inclusion team in Government and, when appointed, with the external Digital Champion to ensure that the Digital Britain project and the Digital Inclusion programme continue to be closely aligned.

To complement the Champion's work, other bodies and institutions have an important role to play.

Since their creation in 2000 UK Online Centres, based in libraries, citizens' advice bureaux, internet cafes and other publicly-available locations, have helped millions of people in England. They have particularly helped the disadvantaged or older people who have not encountered digital technology at work or do not have supportive family networks. The Centres provide a safe and supportive environment, often working well with voluntary and community organisations, to show the practical uses and benefits of the internet and the essential skills to use it. The Government is currently looking at how to harness the potential of UK Online Centres for supporting digital inclusion policies as a whole.

Digital adoption is also a key Charter purpose of the BBC. In broadband the BBC can perform a leading role it has in digital broadcast: marketing, cross-promotion and provision of content to drive interest in taking-up broadband. Public service organisations can also drive the development of platforms with open standards available to all content providers and device manufacturers alike. This open-platform approach has now been extended to broadband enabled TV devices to play a part in driving people towards broadband take-up. This will be closely linked to our work on media literacy or being digital, which we address later.

We will also work towards better services for intermediaries and people who help others, such as benefits advisors and Citizens Advice Bureaux. Many of these people are mobile (e.g. using a 3G card in a laptop in an elderly person's home), so increased mobile broadband coverage will help here too.

ACTION 19

We will encourage the development of public service champions of universal take-up. The Digital Inclusion Action Plan recommended the appointment of a Digital Inclusion Champion and expert taskforce to drive the Government's work on digital inclusion. Clearly, the work of the Champion will be important in encouraging take-up.

ACTION 20

We are inviting the BBC to play a leading role, just as it has in digital broadcast, through: marketing, cross-promotion and provision of content to drive interest in taking-up broadband. With other public service organisations, the BBC can drive the development of platforms with open standards available to all content providers and device manufacturers alike.

ACTION 21

A Public Service Delivery Plan: we commit to ensure that public services online are designed for ease of use by the widest range of citizens, taking advantage of the widespread uptake of broadband to offer an improved customer experience and encourage the shift to online channels in delivery and service support.

This will include working with industry to develop affordable, reliable and easy-to-use IPTV boxes – particularly relevant to those households currently without a PC and,

when a critical mass of digital public service delivery is reached, around 2012-13, there could be a new scheme to assist remaining elderly and disadvantaged households to get online. This would draw on key lessons from the digital switchover scheme in television, notably the vital role of engagement with the third sector in identifying those most in practical need and providing the level of trusted quality contact to demonstrate the practical benefits of the technology and impart the basic skills to use it.

Section 5

Equipping Everyone to Benefit from Digital Britain

We will only reap the benefits of becoming a digital nation if we ensure that everyone has access to the right education, skills and digital media literacy programmes to ensure that being digital is within the grasp of everyone.

5.1 Education and Skills

There is virtually no-one, from young children to the very elderly, who does not engage in some way with digital technologies in today's Britain. The average adult spends almost half of his or her waking hours using the products and services of the digital information and communications industries, whether at work, at home or on the move.

There are three broad categories of skills, which of course overlap and share core competencies.

- **Digital Life Skills – needed by all**
- **Digital Work Skills – needed by most**
- **Digital Economy Skills – needed by some**

More than 22 million in the UK use computers for tasks of varying sophistication in our work every day: these people need digital work skills, which will serve them well also in their leisure and home life. More than 2 million people work directly in creating, providing, maintaining and supporting the systems, network, software applications and content on which the rest of us depend: these people need a higher level of skills, which often draw both upon vital creative skills as well as technical digital skills, alongside the basic competencies of digital work skills.

The education and skills needed to support these categories must be both wide for the many who use the digital technologies for leisure and work (ICT also provides a vital enabling infrastructure in which education and learning take place right across

the curriculum); and deep, for the still very large numbers who design and provide for Digital Britain.

Britain is by no means at the back of the pack globally. But neither do we lead. This country has the potential to become a leader. All the evidence is that effective deployment, understanding and use of digital technologies are crucial to every business's competitiveness. For some it is transforming.

For the supply of high-quality professionals for Digital Britain, the challenges are long-standing and deep-seated: our national willingness to engage in education with the 'hard' subjects- mathematics, technology and the physical sciences; our ability to combine, in those who do, creative and cognitive capability and deep technical competence with interpersonal and business skills; and the relevance of courses to business and the understanding of the career opportunities for students of both sexes.

The simple message at the core of this interim report is that we cannot afford to treat education and training for digital technologies as just another 'vertical' subject area. It underpins everything we do in the 21st Century. Successful, emerging economies have already embraced this message. We must do likewise.

Similarly, in education and training for digital life skills, we need a step change in approach, starting with the youngest. The interim report of Sir Jim Rose's independent review of the primary curriculum is one very encouraging sign. He rightly focuses on the need effectively to engage an entire generation growing up with the internet, multi-media formats and broadband. This starts with inspiring and innovative programmes and initiatives to engage a new generation of students and attract them into technology-inspired and creative careers.

The Government's report on the creative industries, Creative Britain proposed pathways through training, apprenticeships and support for business start up in the creative sector. As part of this strategy, the *Find your Talent* initiative offers young people regular involvement with arts and culture in and out of school to develop their own creative skills. Likewise, the Sector Skills Councils, e-skills UK and Skillset, have recognised the urgent need to change attitudes and stimulate demand among young people for technology and creative media-related degrees and careers. For example, the project *Revitalise IT*, led by e-Skills UK, aims to build on its existing employer-supported education programmes including the Information Technology Management for Business (ITMB) degree course, while the new Diplomas in IT and Creative Media for 14-19 year olds, and Skillset's Digital Media Apprenticeship are also noteworthy.

The first step is to understand the importance of ensuring that all children and young people in education have access to the right level of learning and technical resources to enable them to develop the vital first steps of digital life skills and digital work skills without which they will be unable to play a full part in society. To achieve that, we will also need to ensure that our teachers have the skills and support they require to provide the right level of learning.

The Government is also looking at the ways to ensure that the most disadvantaged young people are not left behind because they lack technical facilities in their homes.

One key initiative in this area was recently launched by the Prime Minister, who in the Home Access programme made clear that every child in England should have access to a computer to enable them to fully engage in their education and through this initiative also be equipped for the contemporary knowledge economy.

The Government must not ignore those adults who are disadvantaged because they lack these crucial digital life and work skills: at the life skills level, we can address these issues through Media Literacy with which we deal in the next section.

At the level of digital work skills, we are working to ensure that education and skills provision is reaching those who need it, offering the right level of support to meet the needs and aspirations of both learners and potential employers. The recently announced initiatives to offer training to job seekers also offers important support. It is also encouraging to see some good examples of employers sustaining and even in some instances increasing their commitment to training and skills development for their workforces, recognising the evidence that investment in the workforce is one of the best strategies for economic development. We will be returning to this important subject in our final report.

The digital economy skills build on the basic competencies and introduce and integrate a wide range of creative, technological and business skills. The digital economy relies upon these hybrid professionals who can bridge technology, creativity and business. It needs leaders and managers throughout business understanding and being able to manage the links between business strategy, innovation and creativity, and technological deployment.

The pathways from education to business are complicated. There is more work to be done to strengthen the understanding of the ways for education and business to work together to create the skilled workers and leaders which businesses need. We make the most of partnerships for research and development and innovation. We will be working with the Sector Skills Councils to develop some practical action points for Government, higher education and work sectors for the final report.

The Government has asked Liam Byrne and Alan Millburn to look specifically at the media in their work on New Opportunities. The country cannot afford for this important area to miss out on the talent of people simply because of where they live or because they do not know the right entry points. We need to make sure that we find and develop all talent.

Within the creative industries, there is still a tendency to regard investment in skills and training as the first area to be cut in hard times rather than the first area for investment.

The Sector Skills Councils have done excellent work in bringing together training provision to support the many small and medium-sized businesses working in the creative industries, and to offer personal development provision within and between different areas of these converging sectors. We will also be asking them to come forward with recommendations on further actions for our final report.

Government already has a significant workplan underway to address skills, including the Skillset Media Academy, the Diplomas in IT and Creative Media, the IT Management and Business degree and the National Skills Academy for IT, which is due to open this year. In line with our recent High Level Skills Strategy, we look to employers and the Higher Education Sector to collaborate effectively around meeting demand for higher level skills, ensuring continuing investment in both the existing and future work force.

In addition, the Government has established the Technology Strategy Board (TSB) to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve the quality of life. Digital Creative Industries have been a priority application area for R&D funding. It has *also* invested in Knowledge Transfer Networks (KTNs) which are national networks in specific fields of technology or business application, e.g. Creative Industries & Digital Communications, which bring together people from businesses, universities, further education, research, finance, the public sector and technology organisations to stimulate innovation through knowledge exchange.

The Digital Britain team will continue to work with other government departments, and agencies including DIUS, Becta, HEFCE and DCSF in taking forward our work in this area. This is an area that requires business, education providers and the voluntary sectors to work together and it is an area where we welcome responses to this interim report.

We will return with recommendations across digital life-skills, digital work-skills and digital economy skills, in the final Digital Britain Report.

5.2 Media Literacy

If we are to maximise the digital opportunity, we will need to ensure a population that is confident and empowered to access, use and create digital media.

Aspects of this are being addressed through the cross-government 'Delivering Digital Inclusion: An Action Plan for Consultation'. There is also a wide range of organisations, both private and public, that are doing some excellent work promoting what is currently called media literacy. The child protection aspects of that work have, following the Byron Review, rightly been brigaded within the recently-established UK Council for Child Internet Safety. The Byron model, which stresses the importance of educating families to navigate the internet safely by a combination of information on content and skills, understandably, focuses on the interests of the child. But it is a good model for wider application.

The Byron Review and the UK Council for Child Internet Safety (UKCCIS)

Professor Tanya Byron was commissioned to lead a review on the risks to children from exposure to potentially harmful or inappropriate material on the internet and in video games. The review was published on 27 March 2008 and Government accepted all Professor Byron's recommendations.

The review found that:

- Digital technologies offer enormous opportunities for fun, learning and development.
- With these new opportunities come potential risks. Parents' general lack of confidence and awareness about new technology is leaving children vulnerable within their digital worlds. Parents need the right support to overcome this 'digital divide' and engage with their children.
- Decisions about what is harmful and inappropriate for children, as opposed to illegal, are largely subjective: what one family feels is unsuitable for their children may not be considered or experienced in the same way by another.
- Keeping children and young people safe from harm must be the priority and responsibility of us all. While children need to be able to learn, have new experiences and enjoy their childhoods, we need to help families strike the right balance between keeping children safe and allowing them the freedom they need.
- There is no silver bullet solution to making our children safer and we need a shared culture of responsibility with families, industry and government all playing their part to reduce the availability of potentially harmful material, restrict access to it by children and increase children's resilience.

In order to improve children's digital safety, the Review made a number of ground breaking recommendations including

- The creation of a new UK Council for Child Internet Safety, established by and reporting to the Prime Minister, and including representation from across Government, industry, children's charities and other key stakeholders including children, young people and parents.
- Challenging industry to take greater responsibility in supporting families through establishing transparent and independently monitored codes of practice on areas such as user-generated content; improving access to parental control software and safe search features; and better regulation of online advertising.
- Developing a comprehensive public information and awareness campaign on child internet safety across Government and industry, and which includes an authoritative 'one stop shop' on child internet safety.

- Setting in place sustainable education and children's service initiatives to improve the skills of children and their parents around e-safety. This includes making sure schools and teachers have the necessary support to be e-safe.
- Specific measures to support vulnerable children and young people, such as taking down illegal internet sites that promote harmful behaviour, such as suicide, self-harm and eating disorders, while at the same time providing the right space and support where at risk people can safely talk.

UKCCIS

The UK Council for Child Internet Safety (UKCCIS) is a central part of the recommendations. It is a forum enabling Government and stakeholders – including industry, law enforcement, and the third sector – to come together and contribute jointly to the development and delivery of the strategy for child internet safety. The Council was officially launched by the Prime Minister on 29 September alongside the formal announcement of the membership of the Executive Board.

The Government will work with partners through UKCCIS to produce a Child Internet Safety Strategy which will be published in spring 2009. The strategy will form part of the Child Internet Safety Summit which will be hosted by the Prime Minister.

The work of UKCCIS will drive the programme for ensuring children, young people and parents have the necessary skills and support to make the most from the internet and video games while minimising the potential risks. It will work with other Government programmes, such as Digital Britain, to ensure a coordinated response across Whitehall to maximising the enormous opportunities and innovation that new technology provides.

Beyond these measures to address child safety and education issues, ensuring a smart, confident and empowered population in a Digital Britain is likely to require a step change in our current approach with such a central focus and clear agenda for delivery.

ACTION 22

The current statutory and specific remit on media literacy is contained within s.11 of the Communications Act 2003. As this report makes clear, since 2003 there have been significant market changes in the availability of digital technologies and how they are used. We will ask Ofcom to make an assessment of its current responsibilities in relation to media literacy and, working with the BBC and others, to recommend a new definition and ambition for a National Media Literacy Plan.

5.3 Online Safeguards

There are many reasons why people choose not to engage with digital technology, but lack of confidence is often a significant factor. As in the case of crime off-line, perceptions and fear of the prevalence of fraud, identity theft and other online crime often run ahead of their actual incidence. Many people lack the knowledge to be sure what to do when something unexpected happens to them online. We need to ensure that UK internet users can operate with security and confidence. The route to achieving this will be through ensuring a partnership approach to strengthening security against online crime and building user confidence. This is important to online business as well – we want to make the UK the safest place to do business online.

A globally connected universal broadband world will bring into sharper focus the balance to be struck between freedom of expression and protection against harmful, offensive and illegal content and information.

We see four tiers of content and information around which policy analysis can be developed:

- material which is acceptable and enjoyed by everybody;
- material that may be offensive to some people or groups.;
- material potentially harmful to vulnerable groups; especially children; and
- material breaching the law.

The internet is by nature global and content originates from millions of different people and organisations. This content is not capable of being successfully regulated in the same way as traditional, national broadcasting. A world of universal broadband will require a new approach to online safeguards.

Such an approach should combine effective enforcement of the law of the land (e.g. as with the Internet Watch Foundation and the work of the Child Exploitation and Online Protection (CEOP) Centre in eradicating the sexual abuse of children), constructive use of technology (e.g. blocking or filtering by software on the user's PC) and self-regulation (e.g. where content aggregators label content in accordance with industry codes of practice). There should be a clearer role for trusted brands that provide a guarantee of the nature of the content that may be accessed through their product (e.g. the approach Apple has taken to making available applications that run on iPhone). This framework, combined with media literacy initiatives, will support the

greater parental and personal responsibility essential to realise safely and effectively the full potential of the online world.

We need a clear set of public policy principles supported by a set of supporting guidelines. The public need to know what they can reasonably expect and have confidence that it will be delivered. Our draft core principles and supporting guidelines are:

PRINCIPLES

- protection for children;
- empowerment for parents; and
- informed consent for adults.

SUPPORTING GUIDELINES

- a safer online experience for children and families on which the UK Council on Child Internet Safety is leading;
- effective removal of illegal content;
- clear information on how personal data is collected, how it is used and where it is shared;
- clear and effective labelling to help people avoid material likely to be harmful or offensive; and
- effective and readily available filters and other software that consumers can use easily to protect themselves and their families.

We will do further work, in conjunction with industry and others, to develop these principles and guidelines in ways proportionate to the challenge, and we will set out the conclusions of this work in the final Digital Britain Report later this year.

Section 6

Conclusion

Digital Britain: from Interim to Final Report

For Digital Britain, the measurable goals are that by 2012 we should aspire to have:

- Universal Participation in the broadband world.
- Highly capable and robust networks.
- A world leading position in the Communications and Creative Industries.
- High quality digital delivery of essential Public Services.

There are many measures that can capture how well we will measure up to this ambition; we will elaborate these in the final Report. But, there are five key measures:

a. **Achievement of universal connectivity:** through delivery of a universal service commitment and world-leading participation rates;

b. **A set of digital networks (wired and wireless):** that are delivering next generation access services to businesses and homes;

c. **A digital economy**: that has become one of the leading destinations for inward investment in the digital and knowledge economy;

d. **Compelling programmes and online content:** that domestic audiences value; and whose quality and innovation is recognised and generates value internationally;

e. **Public service transactions:** delivered in the majority by digital means, giving easier access, greater choice and significantly lower cost for the public, as users and taxpayers.

This document marks completion of the first phase of work in the Digital Britain project. We have carried out an in-depth study of the sector and the policy issues surrounding it. This has had three components:

a. **Research**: original research has been commissioned to provide a study of available market data, and an audit of consumer research has been completed on existing digital communications (these documents have been placed on www.culture.gov.uk). Additionally, we have carried out a cross-check of other existing research.

b. **Evidence and Consultation:** At the start of the project, we engaged all major stakeholders, including the commercial players in the sector (from network operators to content providers), consumer groups, regional development agencies, trade associations, parliamentarians and others, advising them about the project and inviting their participation. Since then, we have had hundreds of discussions with over 50 organisations and received submissions from many organisations.

c. **Analysis**. The policy making process has been informed by steps one and two above. We have also been guided by the Expert Steering Board, which has met weekly at venues hosted by stakeholders, at which we have combined meetings of the Steering Board with presentations of evidence from a number of stakeholders.

February to May: Implementation Responses

The 22 recommendations in this report fall into four categories:

Decisions: where we have outlined specific recommendations and invite discussion as to how to implement them.

Legislative/Regulatory Reform: some of which will be the product of formal Government consultation on a separate timescale. Others where we will invite responses on how either new legislation or amended regulation should be constructed, and ideas for viable alternatives to regulation or legislation.

Detailed Analysis: where we have identified the need for specific and detailed analysis to establish working methods and firmer conclusions.

Initial Assessment: where we have set out initial assessments and invite further discussion.

Interested parties will be interested to know how and when they can input into the Digital Britain Report. They should treat this Interim Report as a formal request for input on implementation and execution. There will be four critical dates.

Firstly, we welcome feedback and comments on this interim report, before 12th March 2009.

Secondly, in April a Digital Britain Summit, an open event on the model of the Technology Entertainment and Design (TED) symposia, an event open to all interested parties to ensure that the process has engagement and inspiration as well as analysis.

Thirdly, focused Digital Britain events in Northern Ireland, Scotland and Wales in April and May.

Finally, the publication of the Final Digital Britain Report which will take place in the early summer.

Organisations or individuals interested in joining the discussion should register their interest at **digitalbritain@berr.gsi.gov.uk.** The Digital Britain team will follow up such expressions of interest.

Glossary

2G Second generation of mobile telephony systems. Uses digital transmission to support voice, low-speed data communications, and short messaging services.

2.5G In mobile telephony, 2.5G protocols extend 2G systems to provide additional features such as packet-switched connections (GPRS) and higher-speed data communications.

3G Third generation of mobile systems. Provides high-speed data transmission and supports multimedia applications such as full-motion video, video-conferencing and internet access, alongside conventional voice services.

3.5G 3.5G refers to evolutionary upgrades to 3G services starting in 2005-2006 that provide significantly enhanced performance. High Speed Downlink Packet Access is expected to become the most popular 3.5G technology (see HSDPA).

3G LTE See LTE.

802.11 see Wireless LANs (WiFi).

Access network Electronic Communications Network which connects end-users to a service provider; running from the end-user's premise to a Local Access Node and supporting the provision of access based services. It is sometimes referred to as the local loop or last mile.

ADSL Asymmetric Digital Subscriber Line. A digital technology that allows the use of a standard telephone line to provide high-speed data communications. Allows higher speeds in one direction (towards the customer) than the other.

AM Amplitude Modulation. Type of modulation produced by varying the strength of a radio signal. This type of modulation is used by broadcasters in three frequency bands: medium frequency (MF, also known as medium wave: MW); low frequency (LF, also known as long wave: LW), and high frequency (HF, also known as short wave: SW). The term AM is often used to refer to the medium frequency band (see MF below).

BERR Department for Business, Enterprise and Regulatory Reform.

Bit-rates The rate at which digital information is carried within a specified communication channel.

Broadband A service or connection generally defined as being 'always on' and providing a bandwidth greater than narrowband.

Communications Act Communications Act 2003, which came into force in July 2003.

Contention ratio An indication of the number of customers who share the capacity available in an ISP's broadband network. Figures of 50:1 for residential broadband connections and 20:1 for business are typical).

DAB Digital Audio Broadcasting. A set of internationally accepted standards for the technology by which terrestrial Digital Radio multiplex services are broadcast in the UK.

DCMS Department for Culture, Media and Sport.

Digital switchover The process of switching over the current analogue television broadcasting system to digital, as well as ensuring that people have adapted or upgraded their televisions and recording equipment to receive digital TV.

Directgov The official UK Government website for citizens, providing access to a wide range of public services.

DIUS Department for Innovation, Universities and Skills.

DMB Digital Mobile Broadcasting. A variant of the DAB digital radio standard for mobile TV services, and an alternative to DVB-H (see DVB, below).

Dongle A physical device, attached to a PC's USB port, which adds hardware capabilities.

DRM A family of technologies and protocols used to limit duplication of digital media.

DSL Digital Subscriber Line. A family of technologies generally referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as 'twisted copper pairs') into high speed digital lines, capable of supporting advanced services such as fast Internet access and video-on-demand. ADSL, HDSL (high data rate digital subscriber line) and VDSL (very high data rate digital subscriber line) are all variants of xDSL).

DTT Digital Terrestrial Television, currently most commonly delivered through the Freeview service.

DVB Digital Video Broadcasting. A set of internationally accepted open standards for digital broadcasting, including standards for distribution by satellite, cable, radio and handheld devices (the latter known as DVB-H).

DVD Digital Versatile Disc. A high capacity CD-size disc for carrying audio-visual content. Initially available read-only, but recordable formats are now available.

DVR Digital Video Recorder (also known as Personal Video Recorder and Digital Television Recorder). A digital TV set-top box including a hard disk drive which allows the user to record, pause and rewind live TV.

EPG Electronic Programme Guide. A programme schedule, typically broadcast alongside digital television or radio services, to provide information on the content and scheduling of current and future programmes.

Fibre-to-the-cabinet Access network consisting of optical fibre extending from the access node to the street cabinet. The street cabinet is usually located only a few hundred metres from the subscriber premises. The remaining segment of the access network from the cabinet to the customer is usually a copper pair but could use another technology, such as wireless.

Fibre-to-the-home A form of fibre optic communication delivery in which the optical signal reaches the end user's living or office space.

Fibre-to-the-building A form of fibre-optic communication delivery in which an optical fibre is run directly onto the customers' premises.

FM Frequency Modulation. Type of modulation produced by varying the frequency of a radio carrier in response to the signal to be transmitted. This is the type of modulation used by broadcasters in part of the VHF (Very High Frequency) band, known as VHF Band 2.

Format The type of programme service broadcast by radio stations. Also, the part of a radio station's licence which describes the programme service.

Free-to-air Broadcast content that people can watch or listen to without having to pay a subscription.

GDP Gross Domestic Product.

GPRS General Packet Radio Service, a packet data service provided over so-called 2.5G mobile networks.

GPS The GPS (Global Positioning System) is a 'constellation' of 24 well-spaced satellites that orbit the Earth and make it possible for people with ground receivers to pinpoint their geographic location.

GSM Global Standard for Mobile Telephony, the standard used for 2G mobile systems.

HDTV High-Definition Television. A technology that provides viewers with better quality, high-resolution pictures.

Headline connection speed The theoretical maximum data speed that can be achieved by a given broadband. A number of factors, such as the quality and length of the physical line from the exchange to the customer, mean that a given customer may not experience this headline speed in practice.

HSPA Jointly, downlink and uplink mobile broadband technologies are referred to as HSPA (High Speed Packet Access) services.

International roaming A service offered by mobile operators that allows customers to use their phone abroad. The home operator has agreements with foreign operators that allows customers to make and receive calls, send and pick up text messages, and use some of the other mobile services (such as access to voicemail or topping-up

credit on pre-pay phones). The exact services available and the charges for their use vary between operators.

Internet A global network of networks, using a common set of standards (e.g. the Internet Protocol), accessed by users with a computer via a service provider.

Internet-enabled mobile phone A mobile phone which allows its user to access the internet via in-built access technology such as GPRS or WCDMA.

IP (Internet Protocol) The packet data protocol used for routing and carriage of messages across the Internet and similar networks.

IPTV Internet Protocol Television. The term used for television and/or video signals that are delivered to subscribers or viewers using Internet Protocol (IP), the technology that is also used to access the Internet. Typically used in the context of streamed linear and on-demand content, but also sometimes for downloaded video clips.

ISDN Integrated Services Digital Networks. A standard developed to cover a range of voice, data, and image services intended to provide end-to-end, simultaneous handling of voice and data on a single link and network.

ISP Internet Service Provider. A company that provides access to the internet.

KTNs (Knowledge Transfer Networks) Groups bringing together communities of shared interest around emerging technologies, established and funded by Government, industry and academia, to facilitate acquisition and sharing of knowledge.

LAN (Local area network) A network for communication between computers covering a local area, like a home or an office.

Leased Line A transmission facility which is leased by an end user from a public carrier, and which is dedicated to that user's traffic.

LLU (Local Loop Unbundling) LLU is the process where the incumbent operators (in the UK it is BT and Kingston Communications) make their local network (the lines that run from customers premises to the telephone exchange) available to other communications providers. The process requires the competitor to deploy its own equipment in the incumbent's local exchange and to establish a backhaul connection between this equipment and its core network.

Local Loop The access network connection between the customer's premises and the local PSTN exchange, usually a loop comprised of two copper wires.

LTE (Long Term Evolution). Part of the development of 4G mobile systems that started with 2G and 3G networks.

MMS Multimedia Messaging Service. The next generation of mobile messaging services, adding photos, pictures and audio to text messages.

Mobile Broadband Various types of wireless high-speed internet access through a portable modem, telephone or other device.

MP3 (MPEG-1 Audio Layer-3) A standard technology and format for compressing a sound sequence into a very small file (about one-twelfth the size of the original file) while preserving the original level of sound quality when it is played.

MP3 Player A device that is able to store and play back MP3 files.

MPEG Moving Picture Experts Group. A set of international standards for compression and transmission of digital audio-visual content. Most digital television services in the UK use MPEG2, but MPEG4 offers greater efficiency and is likely to be used for new services including TV over DSL and High-Definition TV.

Multichannel In the UK, this refers to the provision or receipt of television services other than the main five channels (BBC ONE & TWO, ITV1, Channel 4/S4C, Five) plus local analogue services. 'Multichannel homes' comprise all those with digital terrestrial TV, satellite TV, digital cable or analogue cable, or TV over broadband. Also used as a noun to refer to a channel only available on digital platforms (or analogue cable).

Multiplex A device that sends multiple signals or streams of information on a carrier at the same time in the form of a single, complex signal. The separate signals are then recovered at the receiving end.

MVNO An organisation which provides mobile telephony services to its customers, but does not have allocation of spectrum or its own wireless network.

MW See AM above.

Narrowband A service or connection providing data speeds up to 128kbit/s, such as via an analogue telephone line, or via ISD.

Next generation core networks (NGN) Internet Protocol based core networks which can support a variety of existing and new services, typically replacing multiple, single service legacy networks.

Next generation access networks (NGA) Broadband access networks that connect the end-user to the core network capable of with a bandwidth quantity and quality significantly in excess of current levels (a benchmark of 20 Mbit/s or more is often used).

Ofcom Office of Communications, the converged regulator established by the Communications Act 2003.

Oftel Office of Telecommunications, whose functions transferred to Ofcom on 29th December 2003.

PACT Producers Alliance for Cinema and Television, the UK trade association for independent film, television, animation and interactive media companies.

Paired Spectrum Radio spectrum allocated in pairs, ie with one channel at a lower frequency and another at a higher frequency, such that one channel is received by the mobile phone and the other is used to transmit. Paired spectrum is used in certain mobile technical standards.

Pay-per-view A service offering single viewings of a specific film, programme or event, provided to consumers for a one-off fee.

Peak time The period during which: a radio station broadcasts its breakfast show and, on weekdays only, also its afternoon drive-time show; a television station broadcasts

its early and mid-evening schedule, typically used by Ofcom to refer to the period between 18:00 and 22:30 each day (including weekends).

Peer-to-peer distribution The process of directly transferring information, services or products between users or devices that operate on the same hierarchical level.

PSB Public Service Broadcasting, or Public Service Broadcaster. The Communications Act in the UK defines the PSBs to include the BBC, ITV1, Channel 4, Five and S4C.

PVR See DVR.

Service bundling (or multi-play) A marketing term describing the packaging together of different communications services by organisations that traditionally only offered one or two of those services.

Service provider A provider of electronic communications services to third parties whether over its own network or otherwise.

SIM-only a monthly mobile contract which is sold without a handset.

Share (radio) Proportion of total listener hours, expressed as a percentage, attributable to one station within that station's Total Survey Area.

Share (TV) Proportion of total TV viewing to a particular channel over a specified time, expressed as a percentage of total hours of viewing.

Simulcasting The broadcasting of a television or radio programme service on more than one transmission technology (e.g. FM and MW, DAB and FM, analogue and digital terrestrial television, digital terrestrial and satellite).

SME Small to Medium sized Enterprise. A company with fewer than 250 employees.

Spectrum Radio spectrum, ie the range of electronic frequencies suitable for communication, different frequencies of which are used in broadcasting, mobile communications, satellite communications and certain other activities, either under licensed use or where licence exemptions are permitted.

Streaming content Audio or video files sent in compressed form over the internet and consumed by the user as they arrive. Streaming is different to downloading, where content is saved on the user's hard disk before the user accesses it.

Telecommunications, or 'Telecoms' Conveyance over distance of speech, music and other sounds, visual images or signals by electric, magnetic or electro-magnetic means.

Transmitter A device which amplifies an electrical signal at a frequency to be converted, by means of an aerial, into an electromagnetic wave (or radio wave). The term is commonly used to include other, attached devices, which impose a more simple signal onto the frequency, which is then sent as a radio wave. The term is sometimes also used to include the cable and aerial system referred to above, and indeed the whole electrical, electronic and physical system at the site of the transmitter.

TV over DSL/TV over Broadband A technology that allows viewers to access TV content – either in a linear programme schedule, or on-demand – using Internet Protocol via broadband services, either on a PC or (via a set-top box) on a TV set.

TVWF Television Without Frontiers. A range of provisions designed to achieve coordination of the legal, regulatory and administrative frameworks of European Union member states with respect to television broadcasting, adopted by the European Council in 1989 and amended in 1997.

UMTS Universal Mobile Telecommunications System. The 3G mobile technologies most commonly used in the UK and Europe.

Usage caps Monthly limits on the amount of data which broadband users can download, imposed by some ISPs.

UWB Ultra-wideband A technology developed to transfer large amounts of data wirelessly over short distances, typically less than ten metres.

VHF Very High Frequency The part of the spectrum between 30 MHz and 300 MHz. FM radio is broadcast on part of this band (87.6 MHz to 107.9 MHz) and DAB digital radio is broadcast on another (Band III: 217.5 MHz to 230 MHz in the UK, and over a wider range, but shared with TV services, elsewhere in Europe).

VoD Video on Demand A service or technology that enables TV viewers to watch programmes or films whenever they choose to, not restricted by a linear schedule. Also Near Video on Demand (NVoD), a service based on a linear schedule that is regularly repeated on multiple channels, usually at 15-minute intervals, so that viewers are never more than 15 minutes away from the start of the next transmission.

VoIP Voice over Internet Protocol. A technology that allows users to send calls using Internet Protocol, using either the public Internet or private IP networks.

Web 2.0 A perceived second generation of web-based communities and hosted services - such as social-networking sites and wikis, which facilitate collaboration and sharing between users.

WiFi hotspot A public location which provides access to the internet using WiFi technology.

WiMAX A wireless MAN (metropolitan area network) technology, based on the 802.16 standard. Available for both fixed and mobile data applications.

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