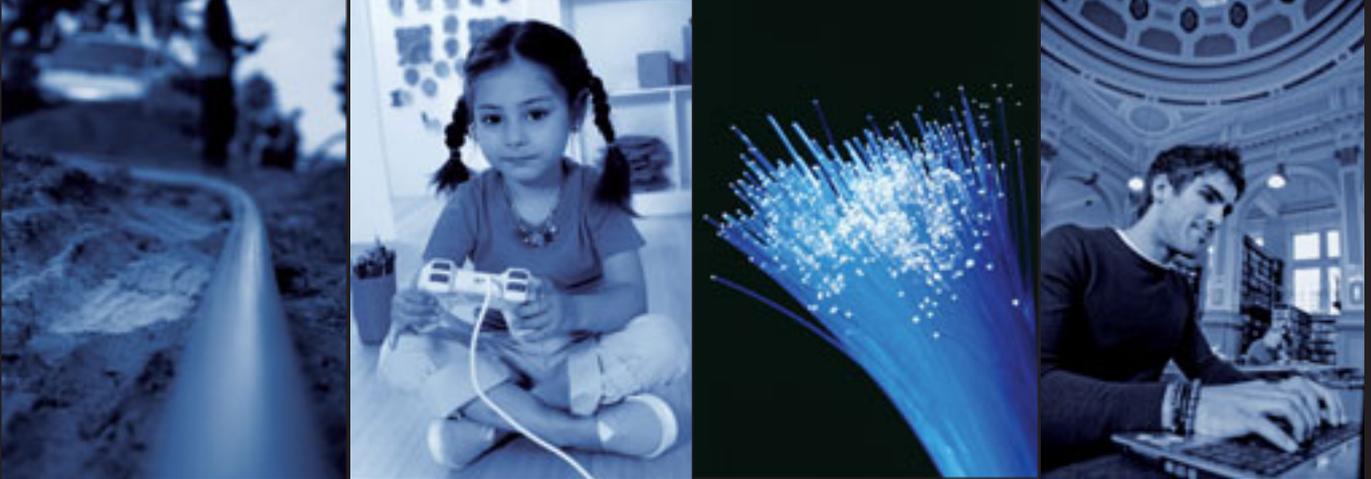


# Scotland's Digital Future A Strategy for Scotland



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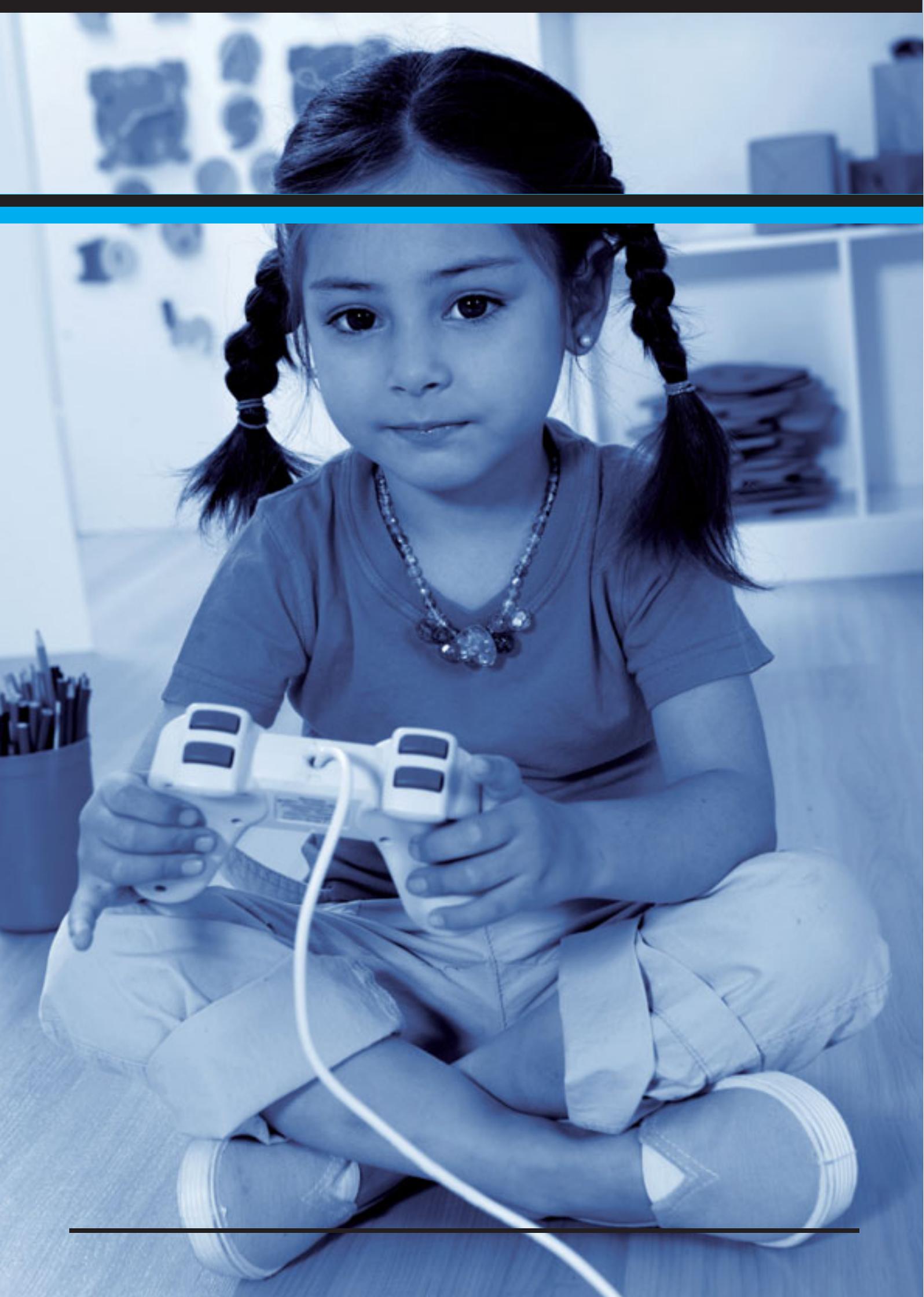
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# 1 Ministerial Foreword



In October last year we set out the Scottish Government's *Digital Ambition for Scotland*. Our ambition is:

- That next generation broadband will be available to all by 2020, and significant progress will be made by 2015; and
- That the rate of broadband uptake by people in Scotland should be at or above the UK average by 2013, and should be highest among the UK nations by 2015.

*Scotland's Digital Future: A Strategy for Scotland* sets out in more detail how we intend to achieve our digital ambition. It summarises what we are already doing, and what further actions we propose to take, in the four key areas of public service delivery; the digital economy; digital participation and broadband connectivity. In doing so, it proposes a co-ordinated and comprehensive approach to ensuring that Scotland is positioned to take full advantage of the opportunities offered by the digital age. It will also help us build the solid infrastructure, skills and competitive base which is an essential element of the *Economic Recovery Plan* that we published on 24 February 2011.



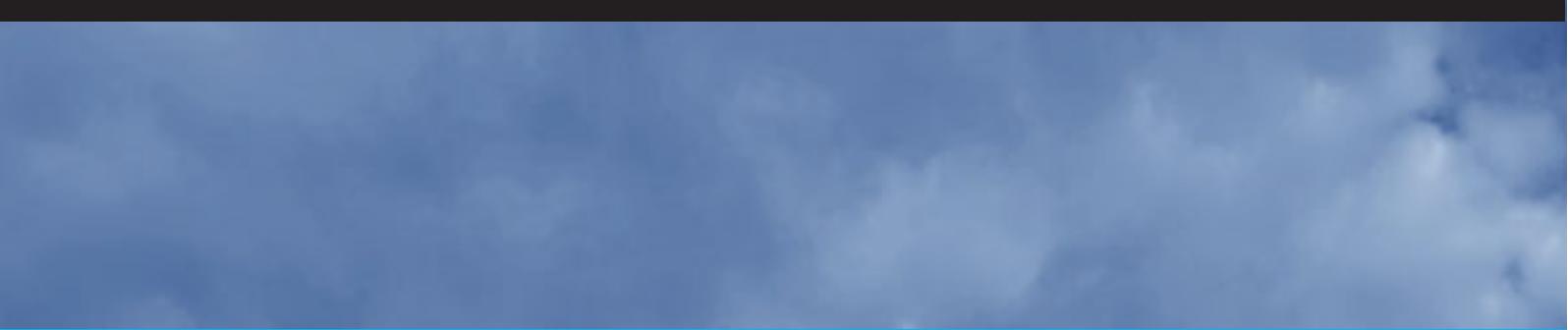
**Fiona Hyslop**

Minister for Culture and External Affairs

As *Digital Ambition* made clear, I welcome the fact that a range of organisations have recently contributed ideas for how Scotland should take advantage of the digital world. I would like to thank the Royal Society of Edinburgh, Reform Scotland, Consumer Focus Scotland, Ofcom in Scotland and the Scottish Parliament, all of which have made significant contributions to the discussion. Many other individuals and organisations have also contributed towards our thinking in producing this strategy.

The breadth of discussion on the topic reflects the fact that achieving our digital ambition will not just be for the Scottish Government. It will require co-ordinated action and support from partners across Scotland. We will work constructively with those partners at every stage throughout the delivery of this strategy, and will engage in ongoing dialogue with relevant stakeholders at every stage throughout the delivery process.

Scotland already has world-class strengths in many areas relating to digital technology – its digital media industries, its higher and further education facilities and its telecare services. This strategy sets out how we can build on those strengths to ensure a fairer and more prosperous digital Scotland.



# 2 Delivery of Public Services

New ways of delivering and improving public services will develop and expand in coming years. Expectations of public services are being transformed as access to and use of the internet is growing across all age and social spectrums, the number of UK households using mobile phones exceeds those with land lines, and growing smart phone ownership has produced a whole new demographic of customers whose preferences are to access and receive information and services “on the move”. Technology not only allows greater scope for people to do things themselves, but also to contribute opinions, access information and interact with others.

Technological change can make contributions to both improving outcomes and reducing costs. There is significant potential to completely transform public services, by making entirely new services and products possible. For example, it is already clear that technology will play a key role in delivering health and social services in many countries throughout the world in the 21st century. It will deliver better care for all, integrate services more cost-effectively and efficiently, and gradually become part of everyday life.

As importantly, the online delivery of public services will also provide services which are easier, quicker and more convenient for people to use, and at a lower cost than other methods allow<sup>1</sup>.

A range of programmes are already underway to achieve this. In all of them, we are committed to focussing on public need and working in collaboration with local authorities, health boards and other public sector partners, including the UK Government, to deliver services which are efficient, effective and responsive.

We are also committed to data protection compliance as enshrined in the recent publication of our Identity Management and Privacy Principles.

The public sector in Scotland is committed to respond to the changing expectations of our customers by realising the opportunities that technology provides and delivering an increasing proportion of services online. Our plans must be flexible enough, therefore, to seize opportunities for service delivery which are not apparent now, but which will arise in the near future.

## CASE STUDY Christie Commission

**In November 2010 we established the Commission on the Future Delivery of Public Services, chaired by Campbell Christie CBE.**

**As the remit of the Commission makes clear, we are ambitious for Scotland’s public services and the Commission has been asked to identify the opportunities and obstacles that will help or hinder progress towards improving the delivery of public services in the future.**

The sections below set out how we use new technology to simplify and co-ordinate public sector work, to deliver services directly, and to inform and engage with the public.

**Expectations of public services are being transformed in the internet age where access to and use of the internet is growing across all age and social groups**

<sup>1</sup> Although the savings delivered through online transactions vary according to the nature of the transaction, it is worth noting that one report has estimated the average cost of an online transaction as being £0.08, as opposed to £10.53 for a face-to-face transaction, £3.39 for a telephone transaction and £12.10 for a postal transaction. See McNish J, *Customer Contact Profiling Report - ESD Toolkit*, Aston Campbell Associates 2008, [www.esd.org.uk/esdtoolkit/Documents.ashx?doc=61149&agency](http://www.esd.org.uk/esdtoolkit/Documents.ashx?doc=61149&agency), cited in The Champion for Digital Inclusion, *The Economic Case for Digital Inclusion*, October 2009, [http://raceonline2012.org/sites/default/files/resources/pwc\\_report.pdf](http://raceonline2012.org/sites/default/files/resources/pwc_report.pdf), p46

## 2 Delivery of Public Services

### Simplifying public services

There is great potential for us to work with other public sector organisations to deliver improved public services through digital technology.

A good example of this is the Scottish Government-backed Customer First programme. The programme aims to deliver better quality public services, faster service response times, lower costs and wider coverage for services. The shared national investment in ICT for Customer First has released benefits of more than £30 million per annum by allowing customers to make secure online transactions and to access services from anywhere, at any time.

It has been developed in partnership with local government and the Society of Local Authority Chief Executives (SOLACE), and is being taken forward by the Improvement Service, the body which improves advice, consultancy and programme support to local authorities in Scotland. By using the Customer First Platform, valuable time and money has been and will be saved in key areas. The public sector can collaborate to deliver better services and products, reduce costs and thus improve the quality of life of many people in Scotland.

Highlights of the Customer First programme include:

- By using modern communication channels and encouraging online service delivery, Customer First, in conjunction with lead councils and public sector partners allows customers to make secure online transactions and access services from anywhere, at anytime. This transforms the user experience and brings significant benefits for councils and partner organisations. Scottish local government and its partners could remove further cost and demand - moving just 20% of the top 20 transactions online could save over £60 million
- The National Entitlement Card (NEC), a smartcard for people to access services conveniently, which replaces the numerous other card schemes in Scotland. There are 1.6 million NEC customers using the card as a vital part of the national bus travel

concession scheme for older and disabled people. And 360,000 Young Scot NEC Card holders for a bus and rail concession scheme for young people, and the Young Scot scheme. The card provides proof of age and is now accepted by the Scottish Committee of Clearing Banks as proof of identity for opening a basic bank account

- The One Scotland Gazetteer, a complete database of 3.2 million property records for all Scottish councils and other public sector departments. This is used by the national ePlanning service which now receives 900 online planning applications each month
- A secure authentication service that allows councils to keep accurate up-to-date records of their customers, supports the issue of entitlement cards and helps local authorities and partners to offer a wider and better range of online services. For example, this model is being piloted to allow diabetes patients to view their health information and share progress with professional support staff within NHS Tayside. It is hoped there will be 5000 online users by March 2012 with the opportunity to extend this self-management model to patients with other chronic conditions
- Development of mobile application for reporting graffiti; litter and fly-tipping; dog-fouling; and road and lighting faults to provide flexibility and convenience to the growing band of smartphone users. In other jurisdictions, including America, the deployment of mobile apps has led to reduced cost and led to a difficult-to-reach demographic becoming engaged

The **myjobscotland** site ([www.myjobscotland.gov.uk](http://www.myjobscotland.gov.uk)) is a national shared recruitment portal for Scotland's 32 local authorities and other public sector bodies, such as fire and rescue, and police services.

Funded by the Scottish Government, it is designed to carry over 30,000 vacancies, and process around 250,000 applications every year. It is a UK and international first for public sector recruitment websites in terms of scope and

## 2 Delivery of Public Services

scale. The service advertises job vacancies online through a single website, allowing public sector employers to recruit from a wider pool of candidates, support more effective recruitment practices, and reduce advertising expense.

For candidates, the portal allows them to view vacancies in any location and submit applications online. Candidates can also register to receive e-mailed job alerts. By moving to a new advertising model and simplifying recruitment processes, councils will make collective savings of between £3 million and £4 million each year.

### By simplifying recruitment processes, councils will make collective savings of between £3 million and £4 million each year

**E-procurement** is another area where digital technology makes public sector co-ordination easier. Procurement Scotland has run three online auctions for IT hardware for the wider public sector and, in doing so, has achieved savings of around £24.4 million.

### Improved service delivery

#### Telehealthcare

We are supporting the development of telecare in Scotland. These services help people to live with greater independence and safety in their homes through a range of devices, sensors and services.

Many devices trigger a response from a call centre, such as falls monitors, medication monitors and motion sensors. Responses may range from a phone call to the person, to alerting local carers or the emergency services, if required.

We have invested £16 million in the Telecare Development Programme (TDP) since its launch in August 2006. All 32 health and social care partnerships across Scotland are now in receipt of funding from the programme to develop local telecare services.

This funding should enable 13,000 people to receive telecare services at home, and 21,000 hospital admissions days being avoided.

A Telecare Action Plan covering the period to March 2012 encourages local partnerships to use technology to improve falls prevention, and the management of long term conditions such as COPD (Chronic Obstructive Pulmonary Disease), chronic heart failure and dementia.

As a result of all this, supporting frail people at home effectively has become an increasingly viable alternative to hospital or care home admissions.

This is backed up by independent evaluation of the Telecare Development Programme, showing that between 2006 and March 2009 in Scotland:

- 16,482 people had received a telecare service as a result of TDP support
- £7.4 million of TDP expenditure had resulted in measured (gross) efficiencies worth £23.2 million
- Survey data showed that over 60% of telecare service users felt their quality of life had improved as a consequence, while over 90% felt safer and 70% felt more independent. Three-quarters of carers felt less stressed as a result of telecare provided to the person they cared for

We are working closely with the Scottish Centre for Telehealth to integrate approaches to telecare and telehealth – this integration is described by the term “telehealthcare”.

A further £4 million of Scottish Government funding (2010/11) aims to expand telehealthcare through wider use of technology across health and care services in all local partnerships. This will help to further build on technology-enabled services which support:

- a shift in the balance of care from institutional to community settings
- improved outcomes for service users and carers
- the delivery of key health and care performance targets

## 2 Delivery of Public Services

It is already clear that telehealthcare will play a key role in delivering health and social services in many countries throughout the world in the 21st century. It will deliver better care for all, integrate services more cost-effectively and efficiently, and gradually become part of everyday life.

We and our stakeholders – in particular, the Scottish Centre for Telehealth (part of NHS24) – will collaborate to deliver better services and products, thus improving the quality of life for many people in Scotland.

Scotland is very well placed to market its telehealthcare expertise to other countries. With our internationally renowned and varied research capabilities, there are also opportunities for Scotland's technology businesses to respond to the challenges and opportunities of an ageing population, by developing advanced technologies and innovative service delivery to promote independent living.

We are committed to driving this important agenda forward by stimulating economic activity in relation to telehealthcare. This can be done, for example, by stimulating smart procurement of innovative technologies.

### Telehealthcare will play a key role in delivering health and social services in the 21st century

### Supporting frail people at home effectively has become an increasingly viable alternative to hospital or care home admissions

**Action 2.1 – We will establish governance and accountability structures for telehealthcare development by July 2011 which reflect the sector's importance to public service reform and economic development, and which ensure the Scottish Government continues to take a strong leadership role in the sector**

### Rural payments

The Rural Payments and Inspections Directorate (RPID) is one of the few parts of the Scottish Government which handles large-scale transactions with customers on a day-to-day basis. The Directorate provides a range of support to over 20,000 farmers, crofters and land managers across Scotland, mostly in the form of agricultural subsidy payments.

RPID has developed a system for agricultural subsidy claimants or their agents to electronically submit claims for payments online. 40% of Single Application Forms (SAF) (the main claims for subsidy) are now submitted electronically via Rural Payment Online (RPO). This not only provides cost savings, but is much more convenient for many claimants and agents.

RPID has seen a steady increase in the number of online SAF submissions, from 1,200 in 2005, to 8,600 in 2010. This increase has mainly been achieved by promoting the benefits of online submission for claimants themselves, rather than concentrating on improved efficiency.

Nearly all claimants of agricultural subsidy payments work in rural areas. However, the ability to expand online submission is hindered by the lack of fast broadband access in many of these areas.

This illustrates two issues which regularly arise in relation to the use of digital technology. First, the fact that issues of broadband infrastructure, public service delivery, and public skills and training are interconnected. Secondly, many people who could benefit most from digital technology are least able to access and use it.

Similarly, applications for Rural Development Contract-Rural Priorities annual recurrent options require to be submitted online. However, the speed of broadband in rural areas may be a disadvantage to some potential applicants. Action to address rural connectivity is described in more detail in Chapter 5.

### Public information

We have provided funding to the Improvement Service and the Convention of Scottish Local Authorities (COSLA) to

## 2 Delivery of Public Services

develop an online portal to help people gain access to, and interact with, public information.

Launched in December 2010, [tellmescotland \(www.tellmescotland.gov.uk\)](http://www.tellmescotland.gov.uk), advertises public information notices such as planning applications, road closures and licensing applications. This allows people to engage with public services seamlessly as they might do with, for example, online banking services.

Councils will make savings by streamlining their current business processes in a number of ways, for example, by using standard advertising templates, reducing printed advertising, having more efficient search and retrieval of public information notices, and reducing the number of citizen enquiries by having all information in one location.

We are currently exploring how to bring together information about public services most effectively. Our DirectScot portal aims to improve access to public services and information by providing a single convenient access point. The project is currently in a prototype phase, with a beta-site launch planned for 2011.

### CASE STUDY What is DirectScot?

**DirectScot will be similar to Directgov, the UK Government's services and information website.**

**The website will contain strongly branded information on Scotland's public services and will be used by public sector departments and other organisations to post their content or share marketing campaigns. People will also be able to carry out online transactions such as those developed through the Customer First Programme. Syndicated content from Directgov with UK-wide relevance will also be featured.**

Improved single website access will be particularly beneficial for people to source information on justice and the legal system. Scotland does not currently have a single site where people can access comprehensive information on rights.

In its January 2011 report, the Civil Justice Advisory Group recognised this and recommended that *"A web-based system should be created, bringing together information on rights, responsibilities, sources of self-help and advice and options for dispute resolution, which would guide people through the dispute resolution process."*<sup>2</sup>

A single public service website would be an obvious location to host such a system – helping to deliver a key aim of the Making Justice Work programme of creating "legally empowered citizens".

**Action 2.2 We will take forward options for developing an online portal for Scottish public information and services, and launch prototype (beta) site for testing in first half of 2011**

Any website must be clear and easy to navigate to provide the information and assistance that people need. It must also be completely inclusive, so that people with disabilities (eg. visual impairments) are not disadvantaged.

We need, therefore, to be flexible in determining what type of communication approach is best suited to the needs of the people we are trying to reach, as simply providing information on a website will often not be sufficient.

### Social networking

The popularity of social networking sites shows how methods of communication which were new five or six years ago have quickly become part of mainstream culture.

We have already recognised this, and Civic, the Scottish-based digital agency, has been commissioned to revamp our website [www.scotland.gov.uk](http://www.scotland.gov.uk). This will make the site more interactive, allowing us to get more public feedback and integrate other social media platforms. We will also continue to adapt the site to incorporate new social media trends as they develop.

An example of the use of social networking is "Scotland Exchange", a new social network which will promote

<sup>2</sup> The final report of the Civil Justice Advisory Group, 18 January 2011, pp35-38, <http://www.consumerfocus.org.uk/scotland/policy-research/legal/civil-justice-advisory-group>

## 2 Delivery of Public Services

engagement with Scotland's Diaspora. The exchange is still in development, but demonstrates how new communication tools provide an opportunity to engage more deeply with audiences who would previously have been difficult to reach.

### CASE STUDY Engage for Education

**Engage for Education** ([www.engageforeducation.org](http://www.engageforeducation.org)), launched in 2010, is an online project for Scotland's education community to engage directly with the Scottish Government about the issues important to them. The site allows people across Scotland to speak out and share their thoughts and ideas on the issues that matter to them: by reading blogs from Ministers and guests, posting comments and getting involved in workshops on important education issues; and through social networking platforms like Facebook and Twitter. The result is also an opportunity to influence decision making, where the Scottish Government is turning feedback, concerns, suggestions and ideas into action. Engage for Education was a finalist in two categories for the e-Government National Awards 2010.

### Cultural content

Two cross-cutting initiatives in the cultural sector illustrate how digital access can reach new audiences and combine information sources to add value to content:

→ **ScotlandsPeople.gov.uk** gives access to the main official records for family history, has a million customers worldwide and helps to drive ancestral tourism visits to Scotland. It is operated by the General Register Office for Scotland, the National Archives of Scotland (NAS) and the Office of the Lord Lyon

→ **ScotlandsPlaces.gov.uk** allows users to combine digital content drawn from two different organisations' data. It is operated by NAS and the Royal Commission on Ancient and Historical Monuments. The National Library of Scotland (NLS) has just joined the consortium and will shortly be contributing content

### CASE STUDY Gaelic goes global

In October 2010, the National Library of Scotland (NLS) added over 400,000 pages of material from prominent Gaelic book collections to [www.nls.uk](http://www.nls.uk). The Early Gaelic Book Collections include text and illustrations in Gaelic and other Celtic languages about the Gaels, their languages, literature, culture and history. All 400,000 pages are available online enabling people all over the world to discover the Scottish and Gaelic culture in full colour, from illustrated nursery rhymes to critical essays on the Ossian controversy. This was made possible through a large-scale digitisation project which increased by tenfold the amount of online content available from NLS.

In December 2010, the Tobar an Dualchais/Kist o Riches website (<http://www.tobarandualchais.co.uk/>) was launched. This was a major collaboration between the National Trust for Scotland, the School of Scottish Studies at the University of Edinburgh, and Sabhal Mòr Ostaig, the Gaelic college on Skye. It makes available thousands of hours of recordings of stories, songs, music, poetry and factual information which have been recorded from more than 10,000 Scots over seven decades.

### CASE STUDY Digitised Scotland

**scotlandsimages.com** is an extensive picture library containing digitised works from Scotland's national collections, many of which are unique. Selected images from the site are available for licensed reuse. The library was developed by The National Archives of Scotland, in partnership with The National Library of Scotland, National Museums Scotland, The National Trust for Scotland and The Royal Commission on the Ancient and Historical Monuments of Scotland.

(May use visual here <http://www.scotlandsimages.com/ResPages/Search.aspx?stype=1>)

<sup>3</sup> Monthly reports of the Scottish Government's expenditure can be found here: <http://www.scotland.gov.uk/About/Directorates/expenditure/reports>.

## 2 Delivery of Public Services

A challenge facing the public sector in Scotland is how to preserve the immense and growing investment in digital assets over the long term. Much data is transactional and short-lived, but much public business is now carried out in digital form only.

Scotland needs an overall strategy for ensuring that the digital content, whether from official records, or from publications, remains accessible. NAS has created a digital data archive using recognised international standards and protocols. This will shortly incorporate a fully digital public record, the Register of Sasines (property transactions). NLS is working on a similar trusted digital repository for library publications.

### A challenge facing the public sector in Scotland is how to preserve the immense and growing investment in digital assets over the long term

**Action 2.3** The National Archives of Scotland will work with the General Register Office for Scotland and Registers of Scotland, in co-operation with the National Library of Scotland, to develop long term preservation solutions for public digital assets. A key aim is to develop a national digital asset strategy, which will formalise work in these areas and establish best practice approaches by February 2012

### Making government data more accessible

We also recognise the potential value in making public sector data more accessible and transparent. We have already taken significant steps to achieve this (eg, by publishing all government expenditure of more than £25,000<sup>3</sup>) but more can still be done.

Freeing up public information can serve several purposes, many of which may not be apparent until the information is released. It can improve democratic accountability by providing better information on how public resources are allocated or on service delivery performance. It can better inform people about the availability of their public services and, in so doing, improve the usefulness of those services. There may also be new commercial uses for information held across the public sector. It is often difficult for people working in government to imagine what those uses might be, so freeing up public data can prompt individuals and companies to develop their own innovative uses.

**Action 2.4** We will develop proposals with partners for releasing more government information and data for use by the public. Initial proposals to be developed and implementation to begin by end of July 2011. We invite suggestions for areas where the greater availability of public data could lead to new services or innovative applications



# 3 Growing a Digital Economy

## We want Scotland to be at the forefront of the digital economy

Digital technologies are widely recognised as an enabler of productivity and a driver of innovation and international trade, helping to boost jobs and export income. They will underpin growth and help all of Scotland's industries to transform and prosper, while enabling greater engagement from remote communities.

Our "Low Carbon Economic Strategy" (published in November 2010)<sup>4</sup>, sets out how Scotland can secure the transition to a low carbon economy. Digital technologies will be an integral part of that transition by, for example:

- replacing goods and services with virtual equivalents
- allowing more efficient use of energy
- offering virtual technologies that allow online shopping, teleworking and access to online public services

## Digital technologies will be an integral part of our transition to a low carbon economy

The European Union recognises the importance of a flourishing digital future, and its commitment to supporting member states and local authorities with its roll-out is welcomed. The Digital Agenda<sup>5</sup> is one of the flagship initiatives of the EU 2020 Strategy. Its overall aim is, by 2020, to deliver sustainable economic and social benefits from a digital single market, based on next generation broadband networks and fully integrated ICT (information and communications technologies).

The UK Government recently published its broadband strategy "Britain's Superfast Broadband Future"<sup>6</sup> which outlines the positive impact of UK-wide next generation broadband on gross value added to employment and the overall economy. We are working closely with the UK

Government to ensure that Scotland achieves the best outcomes from this strategy.

**Action 3.1: We will continue to ensure that action taken in Scotland builds on, and adds value, to that carried out at a UK and European level**

### Maximising future economic opportunities for Scotland

Scotland's enterprise agencies, Scottish Enterprise (SE) and Highlands and Islands Enterprise (HIE) will play a critical role in helping us to deliver a world leading digital economy.

Current and future digital opportunities for businesses in Scotland must be fully understood and realised.

We are gathering views from a wide range of sources, for example, through the Industry Advisory Groups, consultation with key players and workshops with businesses. SE and HIE have recently undertaken a series of workshops with senior business leaders from across Scotland. These workshops are helping to identify strengths and opportunities, future job prospects and potential skills needs.

In October 2010, the Technology Strategy Board (TSB) published a Digital Strategic Update<sup>7</sup>. This outlined how the TSB will help business unlock economic potential by addressing digital challenges and helping to bridge the gap between people, processes and technology. We are keen to see greater buy-in to TSB opportunities and encourage more Scottish partners to get involved. To achieve this, Scotland hosted a visit of the TSB's Digital team in November 2010 and a number of priority actions have been identified.

## Scotland's enterprise agencies will play a critical role in helping us to deliver a world leading digital economy

<sup>4</sup> <http://www.scotland.gov.uk/Publications/2010/11/15085756/0>

<sup>5</sup> [http://ec.europa.eu/information\\_society/digital-agenda/index\\_en.htm](http://ec.europa.eu/information_society/digital-agenda/index_en.htm)

<sup>6</sup> Department of Business, Innovation and Skills (2010), "Britain's Superfast Broadband Future": <http://www.bis.gov.uk/policies/business-sectors/telecommunications/broadband>

<sup>7</sup> Technology Strategy Board (2010), "Digital Strategic Update":

<https://ktn.innovateuk.org/web/digital/articles/-/blogs/digital-strategic-update;jsessionid=0AF2C23E8A009DDCBD7EC0132FD462AD.ColsAnobron7>

## 3 Growing a Digital Economy

### Role of Scotland's Colleges and Universities

Scotland's colleges and universities have a vital role in stimulating and supporting the digital economy. Through the Scottish Funding Council (SFC), we support colleges and universities by:

- ensuring Scotland has the right skills needed by industry, and by inputting courses to the curriculum. This includes programmes such as Digital Media and ICT Vendor Alliance (DIVA), and the E-Skills Placement Programme where we will place 750 students from universities and colleges across Scotland in IT companies
- the exchange of research, development and knowledge with business and industry through, for example, the Digital Design Studio at Glasgow School of Art. Joint ventures include the "Scottish Ten" an ambitious 5 year project in partnership with Historic Scotland to create digital models of heritage sites.

**Action 3.2: Working through Scottish Enterprise, Highlands and Islands Enterprise, and other partners, we will undertake development work to map and understand future priorities for Scotland in relation to the digital economy and develop an aligned action plan on how to take this forward, including potential opportunities from the Technology Strategy Board during 2011**

### CASE STUDY 3D Digital Design

The Digital Design Studio (DDS) is a postgraduate research and commercial centre at Glasgow School of Art. It focuses on the interface between science, technology and the arts to explore imaginative and novel uses of advanced 3D digital visualisation and interaction technologies.

In 2007, collaboration between Glasgow City Council and the DDS produced the Glasgow Urban Model, a unique 3D online tool mapping the city centre and River Clyde corridor down to a scale of just 20 cm. A world-first when launched, the model presents a wealth of practical applications for urban planners and emergency services as well as architects and developers. For tourists and students across the world, the model provides a showcase for the city's world-famous architecture and heritage and demonstrates the city's potential to business investors. The model also offers a way of generating income, with developers and architects able to obtain licenses from the City Council to use the data.

Application of digital technologies are a significant driver of innovation in Scotland's creative industries and are also creating new markets. Scotland's creative industries have significant strengths and are one of the key sectors of the Scottish economy under the Scottish Government's Economic Strategy. They account for 3% of Scotland's employment (63,000 jobs in total) and 4% of its GDP.

### Application of digital technologies are a significant driver of innovation in Scotland's creative industries and are also creating new markets

As well as being economically important in their own right, the creative industries have "spillover" effects as catalysts for growth in other areas. For example, they prompt technological innovation and new thinking in areas

### 3 Growing a Digital Economy

such as design or computer games manufacture. A strong cultural and creative sector can also help to make regions more attractive places to live for highly skilled workers in other sectors of the economy.

Virtually all sub-sectors of the creative industries are affected by technological change, and some, such as publishing, may be transformed by it. Individual companies will need to seize available opportunities. But it is equally important that the public sector offers an aligned and supportive approach to help them to do this, for example, through skills development or targeted investment.

For this reason, the Scottish Creative Industries Partnership (SCIP) co-ordination group has been established. The group is chaired by Creative Scotland, and brings together COSLA, SE, HIE, Skills Development Scotland (SDS) and the SFC. SCIP has also established industry-led reference groups to inform its thinking on the challenges and opportunities facing different sub-sectors within the creative industries.

**Action 3.3: We will shortly publish our Creative Industries Strategy, which has been developed in collaboration with the SCIP co-ordination group. The Strategy will be consistent with the aims of this Digital Strategy, and will emphasise the importance of ensuring that the creative industries are equipped to prosper in a period of rapid technological change**

The Digital Media Industry Advisory Group published its Digital Inspiration report in December 2009<sup>8</sup>. This outlines recommended actions for the public and private sectors to develop Scotland's digital media industries, for example digital content producers, distribution platforms or networks. The report focusses on encouraging innovation,

promoting the development of interactive platforms, putting in place the right physical infrastructure, supporting internationalisation and seeking to boost investment for the sector.

Since then, Scottish Enterprise has established Interactive Scotland, a new service to provide expert support for digital media companies to help turn their ideas into business opportunities. Interactive Scotland has managed or supported many events since it was founded, on themes such as music business innovation and social media.

A recent Interactive Scotland<sup>9</sup> event explored how social networking such as Twitter, Facebook and LinkedIn could be used to help businesses give an edge over competitors and build a powerful online presence to communicate directly with clients, potential clients and end users.

#### Business use of broadband

The Scottish Government's new research<sup>10</sup> on the use of broadband by Scottish businesses is being published alongside this strategy. This work includes a survey of 1,000 SMEs (small to medium-sized enterprises) and micro-businesses (businesses with 0-9 employees).

A striking statistic is that around 25% of those businesses surveyed do not use the internet at all, with most of this 25% showing no intention of doing so in the next three years, believing the internet to have little relevance to their business. One reason given by survey respondents for non-use relates to lack of adequate IT skills. Cost was not cited as the main barrier.

Of the 75% who do use the internet, it tends to be mainly for email and web searching. And whilst the report indicates that more advanced use of the internet is taking place, these users are in the minority. Examples of more advanced use include social media, access to remote file systems and cloud computing.

<sup>8</sup> The Scottish Digital Media Industry Advisory Group, (2009), "Digital Inspiration": <http://www.digitalinspiration.org.uk/content/default.asp>

<sup>9</sup> <http://www.scottish-enterprise.com/microsites/interactivescotland/is-knowledge-centre/is-event-reviews/social-networking-for-business.aspx>

<sup>10</sup> Scottish Government (2011), "Research on Broadband and Businesses in Scotland": <http://www.scotland.gov.uk/Publications/2011/02/23091236>

### 3 Growing a Digital Economy

This apparent under-use of the internet could be seen as a missed opportunity in driving innovation, increasing productivity and, ultimately, contributing to sustainable economic growth in Scotland. We acknowledge that some businesses may not need to use the internet. However, we firmly believe that better use of the internet and the opportunities it presents can improve business productivity and profitability.

**Around 25% of SMEs do not use the internet at all, with many of these believing it to have little relevance to their business**

**Under-use of the internet is a missed opportunity in driving innovation and, ultimately, contributing to sustainable economic growth**

The survey also highlights that businesses with stronger growth ambitions are more likely to view reliable high speed broadband as very important, indicating that digital technologies could help boost global exports through online marketing and trading.

The Boston Consulting Group recently reported<sup>11</sup> that online sales for SMEs grew at a faster rate for larger companies over the period 2004-8 and those companies that are selling their goods and services online are seeing overall sales growth significantly higher than those that don't.

In the retail sector, the Scottish Government is undertaking research (publication expected in March 2011) assessing the contribution of retailing to the Scottish economy. One specific area is the importance of e-commerce to the retail sector.

SDS will publish a report in March 2011 looking at the supply and demand for e-commerce skills in Scotland. We will be examining the report's outcomes and exploring with SDS and other partners how any skills gaps identified could be addressed. More generally, as part of our work on action 3.4, we will ensure that the value of e-commerce is fully recognised by Scottish business.

**Action 3.4: We will work in partnership with Business Gateway, Scottish Enterprise and Highlands and Islands Enterprise to explore how we might best encourage the 25% of Scottish businesses currently not online, to get online, and to support the 75% already online to make better use of the broadband that is available to them**

#### CASE STUDY [britishbusiness.co.uk](http://britishbusiness.co.uk)

The Getting British Business Online (GBBO) initiative is a collaboration between Enterprise UK, Google, BT, and e-skills UK, with support from the Department for Business, Innovation and Skills. GBBO's aim is to help SMEs create their first website and help them understand the opportunities offered by the Internet. GBBO estimates that there are at least 1.5 million businesses in the UK that don't yet have a website. Following a campaign during 2010, GBBO achieved its target of helping 100,000 UK SMEs get their first website by the end of 2010.

#### Scottish Business Portal Programme

The Scottish Business Portal Programme will deliver a primary portal for Scottish business, offering easier online access to relevant UK and Scottish business transactions, regulatory information and other guidance and services through the Business Gateway website. These improvements will start taking place during the course

<sup>11</sup> Boston Consulting Group (2010), "The Connected Kingdom": <http://www.connectedkingdom.co.uk/the-report/>

### 3 Growing a Digital Economy

of 2011. We are developing this in partnership with our public sector partners, particularly local government, and in collaboration with business organisations to ensure that the website meets the needs of businesses of all sizes and in all sectors across Scotland. This work takes advantage of investment by the UK Government in the BusinessLink website, including the provision of online tax, VAT and Companies House transactions.

The Business Portal Programme will deliver both cost savings and productivity benefits to business and public sector efficiency savings.

#### Rural economic growth

We recognise that good broadband connectivity is an enabler of economic growth in rural areas. However, we are aware that parts of rural Scotland are not able to exploit or benefit fully from digital opportunities.

The combination of poor connectivity and limited ICT skills can lead to digital exclusion for many people. It can also increase the “digital divide” and lower opportunities for learning, reduce access to public services and inhibit business growth. In turn, rural areas may lose their competitive advantage and be seen as less attractive places to do business. The recent “Speak Up for Rural Scotland” consultation<sup>12</sup> highlighted broadband as the key issue, recognising broadband as a vital measure to support economic growth in rural areas. The Scottish Government’s response to the consultation will be published in March 2011. Action to address rural connectivity is described in more detail in Chapter 5.

During 2011, HIE is looking to provide additional support in the highlands and islands region to:

- Improve connectivity (including the Highlands and Islands next generation broadband project (described in more detail in Chapter 5)

- Provide ICT business and community support
- Develop ICT skills and digital participation
- Grow the ICT supply chain consistency

#### Flexible working

Broadband and ICT are crucial for flexible working practices such as home working or working remotely. These technologies can increase participation in the labour market and change various aspects of working life. These developments (coupled with changing attitudes amongst workers and employees, and requirements on employers to consider flexible working arrangements) continue to make working remotely more feasible and widespread.

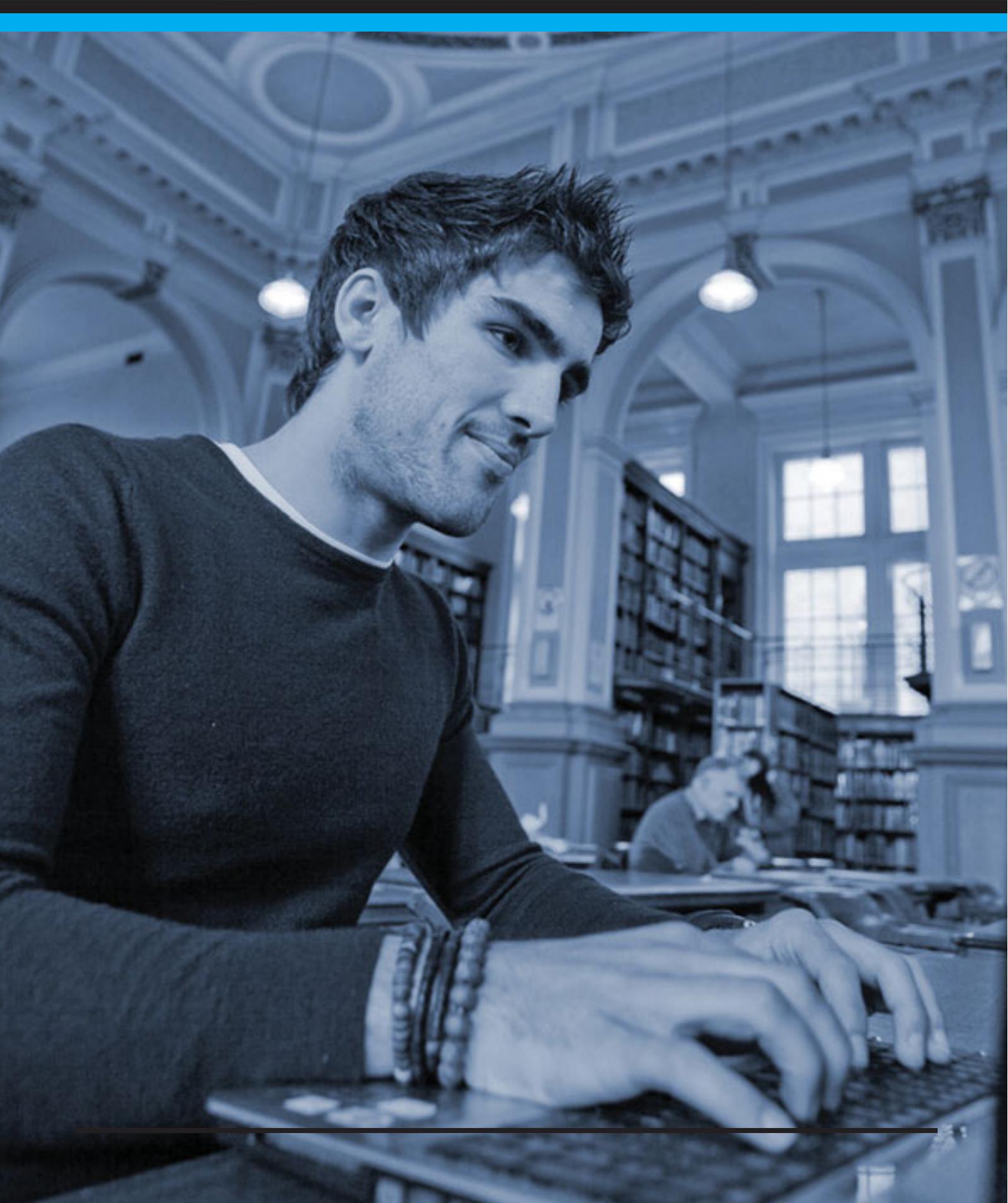
A report on home businesses published by Enterprise Nation in 2007<sup>13</sup> showed that over 60% of all new businesses were started from home, and that out of the 4.5 million SMEs in the UK, 2.1 million were home-based. The fastest growing homeworking sectors were in the business/professional areas, online trading, personal services, food and domestic energy. The 2008 National Centre for Social Research Omnibus Survey and the National Travel Survey indicated that 3% of workers always worked from home and 7% did so at least once a week.<sup>14</sup>

The Scottish Government has a progressive scheme on flexible working which covers all its staff, not just those with children. Many large organisations actively promote flexible or home working and we would encourage all organisations to consider it. Both SE and HIE provide advice on the use of ICT for remote and home working, as part of a wider package of advice they offer to Scottish businesses.

<sup>12</sup> <http://www.scotland.gov.uk/Topics/farmingrural/Rural/speak>

<sup>13</sup> Enterprise Nation (2007), “Home Business Report”: [http://www.scribd.com/doc/43354992/Home-Business-Report-2007?in\\_collection=2728400](http://www.scribd.com/doc/43354992/Home-Business-Report-2007?in_collection=2728400)

<sup>14</sup> <http://www.dft.gov.uk/pgr/statistics/datatablespublications/trsnstatsatt/homeworkinginternet>



# 4 Digital Participation

Digital participation describes people's ability to gain access to digital technology, and understand how to use it creatively. Increased digital participation can improve people's quality of life, boost economic growth and allow more effective delivery of public services.

Many people in Scotland already use digital technology regularly and confidently. However, there is clearly more that can be done to improve and increase usage.

Figures from Ofcom show that the level of broadband uptake in Scotland is 61% of the population. This is the lowest of any nation in the UK, and 10 percentage points below the UK average of 71%.

This is not an issue which is directly related to broadband infrastructure – uptake of broadband in rural Scotland, at 60%, is almost identical to that of urban Scotland. Furthermore, areas which have good broadband infrastructure, such as Glasgow, have relatively poor levels of broadband use. Indeed, broadband uptake in Glasgow, Clyde and Lanarkshire at 53% is among the lowest anywhere in the UK and 20 percentage points below the average uptake in England.<sup>15</sup>

Unsurprisingly, given that broadband use is lower than in the rest of the UK, people in Scotland also use the internet for key services less than in other parts of the UK. In Scotland, 29% of people use internet banking services (as opposed to 43% UK-wide), and 13% use the internet to access local government websites (26% UK-wide).<sup>16</sup>

Broadband use is lowest among older people, those with health difficulties, and those on low incomes. For example, 33% of UK citizens over the age of 65 have an internet connection at home, as opposed to the UK-wide

average of 71%. Only 48% of the DE social category have an internet connection at home.<sup>17</sup>

Figures published in 2010 indicate that, across the UK, broadband use by people with visual impairments (42%), a hearing impairment (32%) or a mobility impairment (36%) was significantly below the UK average of 70%.<sup>18</sup>

Therefore, many people who would potentially benefit most from digital technology – whether it is online shopping, accessing public services such as telecare, or simply to increase employability and confidence – do not have the inclination or opportunity to use it.

We know that this must change. For that reason, our Digital Ambition paper set out a commitment to ensure that broadband uptake in Scotland should be equal to, or above, the UK average by 2013.

Research shows that the main reasons why people do not go online<sup>19</sup> are (in order of priority):

- lack of interest
- financial considerations
- lack of access to a computer
- lack of confidence or knowledge<sup>20</sup>

Care needs to be taken in interpreting this data, since Ofcom has suggested that people who are financially excluded from using broadband may sometimes cite other factors, such as lack of interest.

However, it is unlikely that any digital participation strategy will be fully effective unless it addresses these three key barriers: access, confidence and inclination.

<sup>15</sup> All statistics in this paragraph relate to 2009, and come from Ofcom's Communications Market Report for Scotland, published on 19 August 2010 (<http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr10/scotland/>). See in particular Section 4.1.2 (pp 96-98) and Figure 5.12 9p 117)

<sup>16</sup> Ofcom's Communications Market Report for Scotland, section 4.13 (pp 99-102)

<sup>17</sup> UK Adults' Media Literacy, published by Ofcom on 17 May 2010, Figure 12, p 21.

<sup>18</sup> <http://stakeholders.ofcom.org.uk/market-data-research/media-literacy/medlitpub/medlitpubrss/adultmedialitreport/>

<sup>19</sup> "Use of the Internet by Disabled People", Consumer Expert Group report, p14, Figure 1. Report can be found at <http://raceonline2012.org/research/156>

<sup>20</sup> In addition to the Ofcom and Glasgow City Council reports cited below, a number of useful reports are collected here: <http://raceonline2012.org/research/156>.

<sup>21</sup> See for example UK Adults' Media Literacy, published by Ofcom on 17 May 2010, Figure 11, p 20. <http://stakeholders.ofcom.org.uk/market-data-research/media-literacy/medlitpub/medlitpubrss/adultmedialitreport/>. These findings are largely substantiated in Glasgow City Council's Spring 2009 Household Survey, Figure 22, p 40 ([http://www.glasgow.gov.uk/gccorpsite/templates/homepages/channel\\_home\\_a.aspx?NRMODE=Published&NRORIGINALURL=%2Fen%2FYourCouncil%2FCustomerInvolvement%2FCorporate%2FGlasgowHouseholdSurvey%2F&NRNODEGUID=%7B0A455F51-0948-413C-BD85-B0EE4A3003CD%7D&NRCACHEHINT=Guest](http://www.glasgow.gov.uk/gccorpsite/templates/homepages/channel_home_a.aspx?NRMODE=Published&NRORIGINALURL=%2Fen%2FYourCouncil%2FCustomerInvolvement%2FCorporate%2FGlasgowHouseholdSurvey%2F&NRNODEGUID=%7B0A455F51-0948-413C-BD85-B0EE4A3003CD%7D&NRCACHEHINT=Guest)).

## 4 Digital Participation

The level of broadband uptake in Scotland is the lowest of any nation in the UK, and 10 percentage points below the UK average of 71%

Lack of interest is the most commonly given reason for not going online

Increased digital participation can improve people's quality of life, boost economic growth and allow more effective delivery of public services

### Access

Cost is not the most commonly cited reason for people choosing not to use broadband, but it is named by a significant number of people. People in Scotland are more likely than elsewhere in the UK to cite "involuntary" factors, such as accessibility or the cost of hardware or broadband access, when explaining why they have chosen not to use broadband<sup>21</sup>. There are limits – especially in the current public spending climate – to what can be done to make broadband access more affordable. However, there is scope for action in some areas.

One of these is by making re-used computers available at a low cost. Race Online 2012, which estimates that there are 30 million used computers available in the UK, is working with Age UK and Microsoft on a scheme where unused computers – which would otherwise be thrown out or kept in storage – are donated to centres across the UK. They are then "cleaned" (so that all personal data relating to the previous owners is removed), equipped with new software and made available to help train people to use computers.<sup>22</sup>

### CASE STUDY Re-use and re-boot

Other re-use schemes in Scotland have included the Wise Group, which has worked with Microsoft to make PCs available to people who are seeking employment, and Pass IT On, which makes computing equipment available to people with disabilities in the Edinburgh area.

For schemes of this kind to be successful, they require a supply of hardware, and a means of "cleaning" PCs and installing new software. They also need an effective way to distribute them to people or organisations with a proven need. Where equipment is being given to individuals, issues surrounding access to, and the cost of, broadband packages may also impact on the scheme's effectiveness. Despite these potential difficulties, we believe it is worth exploring options for making schemes of this kind more widespread.

**Action 4.1 We will work with established suppliers and community organisations to investigate options for recycling computer equipment and making it available at lower cost to individuals and community centres. Options analysis to be completed by end of July 2011**

Even if home access to digital technology can be made more affordable, it is still important to maintain free access to computers and the internet in certain settings, in particular, schools and educational facilities, workplaces, and public spaces such as libraries.

Scotland's libraries have a crucial role to play in delivering access to IT, and in developing the skills and confidence of people who do not currently use the internet.

<sup>21</sup> Ofcom, Communications Market Report for Scotland 2010, pp98-99, Figure 4.5

<sup>22</sup> For more detailed information, go to <http://www.ageuk.org.uk/work-and-learning/technology-and-internet/donate-a-pc/>

## 4 Digital Participation

### CASE STUDY Scotland's libraries – reference section

- 49%<sup>23</sup> of the Scottish population use their local library\*
- Most people use the library for borrowing books
- 14%<sup>24</sup> of library users are using it for computer/internet access; this number is growing
- This figure is highest amongst 16-24 year olds where 40%<sup>25</sup> use the library to access a computer/internet, perhaps demonstrating a changing expectation from library services
- From 2006-08, internet terminals in libraries increased from 3826 to 4106
- Scottish libraries provide 8 million hours of free internet access a year; this has risen by approximately 25% year on year<sup>26</sup>
- In Glasgow, 1.2 million sessions of internet access are provided each year

\* for 2007/08 percentage of the Scottish population who have visited a library in Scotland in the last 12 months (not including paid work or academic study)

The responsibility for public library provision lies with local authorities, who have a statutory responsibility to provide an "adequate" service. The Scottish Government provides the Scottish Library and Information Council (SLIC) with a grant to facilitate good practice in the library sector and to support improvements to library services in Scotland.

Through SLIC, we provide the Public Library Quality Improvement Matrix Fund (PLQIM).<sup>27</sup> This is an annual fund of £500,000 for libraries to make improvements or provide additional services based on the findings of their PLQIM self-evaluation, such as increased WiFi Access, more PCs, and new training programmes for excluded groups.

Access also relates to other technology, not simply computers. The increasing popularity of online television over the next two years may mean that a significant minority of the population has access to internet content (which will not solely be conventional television programmes) through their television screens. For some viewers, this could help to reduce costs, as the internet will be available from a set-top box, rather than a computer.

The increased use of tablets and smart phones has also made mobile devices a popular means of accessing digital content. As this trend continues, more people may choose to benefit from internet content and web 2.0 platforms, without paying for home broadband connections.

Because Scotland's uptake of home broadband is lower than other parts of the UK, broadband is a significant issue and a key focus of this strategy.

However, our strategy is not solely about computers and broadband. It is about ensuring that all people in Scotland are able to benefit as fully as possible from the use of digital technology.

We must, therefore, recognise that people's different technological preferences mean that mobile devices, internet-enabled television and future, unforeseen, devices and applications will play an increasingly important role in how people choose to access the internet.

**Scotland's libraries have a crucial role to play in delivering free access to IT**

**The increased use of tablets and smart phones has made mobile devices a popular means of accessing digital content**

<sup>23</sup> Source: Scottish Library Information Council (<http://www.slainte.org.uk/index.htm>). Figure refers to percentage of the Scottish population who have visited a library in Scotland in the last 12 months (not including paid work or academic study)

<sup>24</sup> Source: Scottish Household Survey 2008

<sup>25</sup> Source: Scottish Household Survey 2008

<sup>26</sup> Source: Scottish Library Information Council (<http://www.slainte.org.uk/index.htm>)

<sup>27</sup> In the Response to the Literature Working Group Report the Scottish Government announced that it would further consider the need for a wider review as to how the funding to SLIC can be best used to support the needs of the library sector: <http://www.scotland.gov.uk/Publications/2011/02/07094111/0>

## 4 Digital Participation

### Confidence

#### Adult learning

In addition to having access to digital technology, people also need to have the confidence and skills to use it. Libraries, in particular, play an important role, not only in providing physical access and an increasing range of online services but by having library staff on hand to provide advice and support to new computer users.

Many libraries offer training courses to help people develop their IT skills. For example, Edinburgh City Council runs IT classes for beginners in 14 of its libraries.

This work of libraries complements other work underway to promote IT awareness in adult learning across a range of sectors, such as local authority community learning and development, Scotland's colleges and the voluntary sector.

#### Evolving literacy

In the "Adult Literacies in Scotland 2020: strategic guidance"<sup>28</sup> digital technology is recognised as important for increasing the frequency of learning.

The guidance also stresses the importance of practitioners improving their own IT skills: *"Adult literacies providers must ensure their services are adaptable as the use of literacies change and evolve. Online and blended learning should continue to be developed in order to reach more learners, offer alternative modes of learning and provide the learner with increased opportunities to access learning outwith face-to-face tuition. This is particularly important for those in remote and rural areas, shift workers and those who may face other physical or time barriers."*

Trade unions also play a crucial part, and are supported by the Scottish Government to deliver adult learning opportunities and learning in the workplace.

Scottish Government money, which attracts European Social Fund matched funding, supports thousands of learning opportunities for often low-paid and low-skilled workers across Scotland. For the year 2009-10 our contribution of £1.4 million provided around 15,000 learning opportunities at an average cost of around £100 each.

**Action 4.2 We will work with learning providers to ensure that delivery of adult learning takes full account of the importance of digital participation. We will produce a summary of actions to achieve this by the end of July 2011**

#### School education

Technology, social trends and economic developments continue to transform our global society, fuelling a knowledge-based economy and enhancing social cohesion. Equally, our education system must look forward and embrace innovation if it is to meet the current and future needs and aspirations of our children and young people. Technology plays a crucial role in achieving this.

We have already delivered Glow in Scotland, the world's first national intranet for schools. This provides a powerful set of integrated online tools and resources, from virtual learning environments and content delivery systems to email, video conferencing, Blogs, Wikis and discussion forums, all accessible in a safe and secure environment.

Glow can be accessed at any time from anywhere, and is now available to all 32 local authorities in Scotland. It serves a potential user base of some 1.5 million individuals (including teachers, students and parents), almost 3,000 schools (including nurseries, primary and secondary schools) and a wide range of associated

<sup>28</sup> <http://www.scotland.gov.uk/Publications/2010/12/21112151/0>

## 4 Digital Participation

interests such as Scottish Qualification Authority, Her Majesty's Inspectorate of Education and Learning and Teaching Scotland (LTS).

Glow has been embraced by all 32 local authorities in Scotland and through their active participation it is being used on a daily basis by teachers, students and parents to learn, create, share, collaborate and showcase – in the classroom, in community centres, at home, in a library or abroad.

For examples of how Glow is being used to enhance learning and teaching go to <http://cookbooks.glowscotland.org.uk/>.

### CASE STUDY Homework Glows

**Wendy Lee teaches class P7B at Forthill Primary School in Dundee. Dundee City Council was an early and enthusiastic adopter of Glow. Wendy was keen to find out if the Glow tools and functionality would help improve pupil attitudes towards homework. Most of Wendy's pupils have access to the internet at home, but she ensured that they also had access to computers during the school day to complete Glow tasks, if required.**

To further increase pupils' use of Glow, she allowed her pupils to post material themselves to the class Glow Group and encouraged them to post items of interest (new addition to the family, school football results, theatre visits etc) on the News page. These topics were then discussed as a class activity, first thing Monday morning. Parents were also encouraged look at their children's contributions to the Glow site. Wendy then created a Parents Page, posting items of interest and encouraging parents to submit their own stories onto a Discussion Board.

For examples of many other ways in which Glow is being used within and across local authorities to enhance learning and teaching, go to reference: <http://cookbooks.glowscotland.org.uk/blog/2010/06/22/developing-home-and-school-links-through-glow/>

While technology can provide unparalleled opportunities in learning it is imperative that the learning community understands how to use these ethically, safely and responsibly.

To do this, Learning and Teaching Scotland's (LTS) on-line service features dedicated web pages with resources on internet safety and responsible use.<sup>29</sup> LTS is also working with the Centre for Child Exploitation and Online Protection to digitise its Think U Know training course so that it is available through Glow. There is also a Glow group about these safety topics.

Underpinning Glow is our investment in the Interconnect 2.0 – the high speed education broadband infrastructure linking all 32 local authorities and key educational sites.

This will enable our schools to be amongst the early beneficiaries of next generation broadband. If our students are to benefit from the learning opportunities and expectations brought about by the global knowledge society it is essential that their access to those opportunities is not compromised.

We are developing a Technologies for Learning strategy (due summer 2011). An integral part of this strategy will be introducing the next generation of Glow by September 2012.

**Our education system must embrace innovation if it is to meet the current and future needs and aspirations of our children and young people**

<sup>29</sup> <http://www.ltscotland.org.uk/usingglowandict/internetsafety>

## 4 Digital Participation

**Action 4.3** We will ensure that the *Technologies for Learning Strategy* takes full account of the aims of this digital strategy. We will also ensure that there is effective co-ordination of work on delivering broadband to schools and delivering it for the wider public sector

### Inclination

The biggest challenge in encouraging people to go online is likely to be persuading them that it is worth their while to do so, and that the benefits to their quality of life will significantly outweigh the cost (either in time or money) of using digital technology.

People are much more likely to do this if they can see how technology directly relates to their own interests, whether these are family history, sports information, online shopping or keeping in touch with distant friends and relatives.

They are also more likely to respond if they are encouraged to pursue their interests by people they already know and trust. This suggests that any drive to increase digital participation cannot rely purely on awareness-raising at a national level. It will also require a willingness and capacity from individuals and organisations at a local level to encourage the use of technology.

This is why the Race Online 2012 team uses digital “champions” within organisations as part of its approach to encouraging digital participation<sup>30</sup>. There is clearly an important role for champions, whether it is trade union learning representatives or helpers in day care facilities.

Broadcasting also has a significant role to play in the drive towards increased digital participation in Scotland. The BBC, for example, played a major part in Silver Surfers’ day in April 2010, running a number of features to encourage older viewers and listeners to explore the

internet. Its First Click campaign provides information and materials which help people of all ages to go online. BBC Scotland has a memorandum of understanding with libraries in Scotland, which ensures that they are able to anticipate additional demand which may arise as a result of its campaigns.

In addition, technological convergence means that television sets will increasingly be enabled so that they are able to receive broadband.

Although this already happens (eg. many games consoles allow online content to be viewed on television screens), online television is likely to become significantly more common during the next 18 months with the proposed launch of services such as Youview, a partnership between the four UK-wide public service broadcasters and BT, Arqiva and TalkTalk.

### CASE STUDY You view...I view...

**Youview and other similar services will make a wide range of online content and applications available on people’s television screens. It will potentially make online technology less intimidating and more desirable for people who trust television, but are wary of the internet. For that reason, Mark Thompson, the Director-General of the BBC, noted in his 2010 Mactaggart Lecture that online television was “one of the key ways in which we can help deliver universal broadband take-up in the UK”.**

We do not see the BBC as being the only broadcaster which can help drive digital participation. STV’s hyper-local websites are an example of content which could prove attractive, and Channel 4 has contributed to the development of digital media companies. Sky, meanwhile, as a partner in the UK Government’s Race Online 2012 initiative, has pledged to encourage digital participation in

<sup>30</sup> <http://raceonline2012.org/manifesto>

## 4 Digital Participation

its workforce, a significant proportion of which is based in Scotland.

Our chief objective in relation to broadcasting is the establishment of a Scottish Digital Network with a public service remit, to provide a secure and sustainable source of competition to the BBC for Scottish public service broadcasting.

### CASE STUDY Scottish Digital Network Panel

The Scottish Digital Network (SDN) Panel's report to the Scottish Government stated that a public service remit could reasonably be expected to include a "responsibility to use the broadcast and broadband platforms in pursuit of social inclusion in the digital age and a truly connected society in Scotland". The panel noted that "New and attractive forms of Scottish content could drive take-up just as the Scottish Government is seeking to drive availability and to lead the UK in connectivity. We have a problem currently with social exclusion and geographic exclusion and a range of attractive content and services linked to the SDN will help to get all of Scotland connected and participating in the benefits of the digital age".

**Action 4.4** We will continue to pursue the establishment of a Scottish Digital Network, in line with recommendations made in the final report of the Scottish Digital Network Panel. We will seek to ensure the importance of encouraging digital participation is enshrined in the remit of a digital network when it is established

We will also explore whether there is scope for using the network of community organisations being used to help to promote awareness of the digital television switchover in central Scotland during 2011, in order to promote awareness of digital technology more generally later in the year.

We also want to explore opportunities presented by other projects and events, such as the 2014 Commonwealth Games in Glasgow. Awareness-raising activity will be planned during the second half of 2011, and we will consult widely with external stakeholders to ensure that activities are as co-ordinated as possible.

### Broadcasting has a significant role to play in the drive towards increased digital participation in Scotland

**Action 4.5** We will establish a project team to take forward planning for an awareness raising campaign for the benefits of digital technology. Options for the campaign to be assessed by the end of July 2011, and the campaign to commence during the second half of 2011

## 4 Digital Participation

### Working with the UK Government

In July 2010 the UK Government appointed Martha Lane Fox as UK Digital Champion. This followed her appointment as Digital Inclusion Champion by the previous UK Government.

Martha Lane Fox published the “Manifesto for a Networked Nation” in July 2010, which sets out the UK Government’s aim to get millions more people online by the end of 2012.

Although many parts of the manifesto apply only to England, there are some recommendations which cover reserved issues, and will therefore have implications for Scotland. For example, the manifesto envisages placing local digital champions in all Jobcentre Plus offices. Race Online is discussing with Scottish libraries how the work of Jobcentre Plus champions can be co-ordinated with the learning opportunities offered by libraries. This is a good example of how reserved and devolved activities can be link together to provide better opportunities.

Martha Lane Fox’s office has also been engaging companies and organisations as partners in its digital participation activities. Many of these (eg. the Post Office Ltd, McDonalds and BT) are major UK organisations whose activities should benefit employees and customers in Scotland, as well as the rest of the UK.

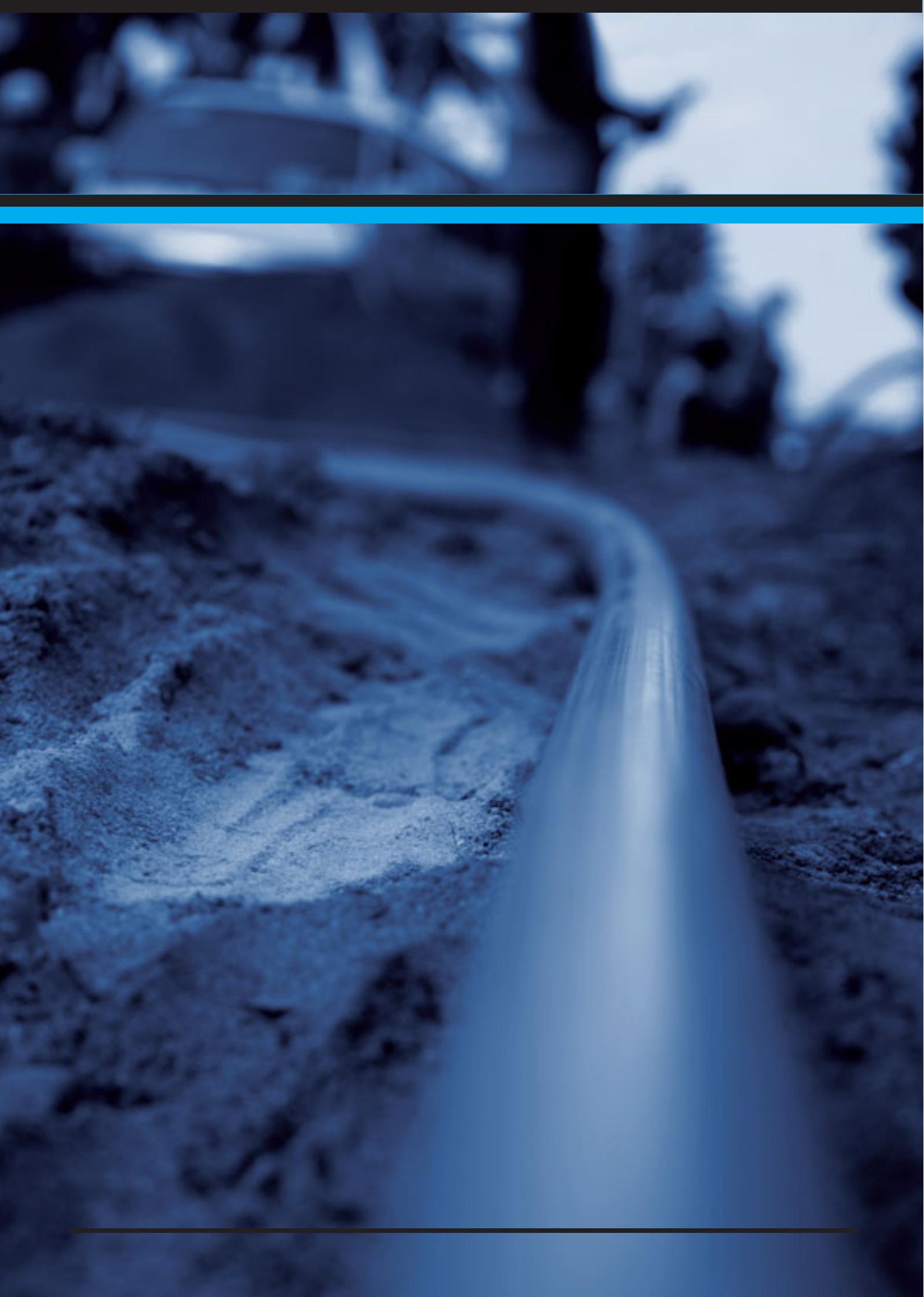
For these reasons, we will ensure that the Scottish Government works constructively and collaboratively with the UK Government on digital participation issues whenever it is appropriate to do so. The Minister for Culture and External Affairs has met Martha Lane Fox and discussed areas for co-operation in more detail.

## 4 Digital Participation

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**Action 4.6** We will work with Race Online 2012 programme and UK Government to ensure co-ordination between Scottish Government's digital participation initiatives and relevant Race Online UK-wide initiatives.

**Action 4.7** We will work closely with partner organisations signed up to Race Online 2012 to ensure that they are able to deliver or contribute to digital participation initiatives in Scotland



# 5 Building Digital Connectivity Fit for the Future

**Our ambition for Scotland's digital future is that next generation broadband will be available to all by 2020, with significant progress being made by 2015.**

Achieving this ambition is not just for the Scottish Government. It will require co-ordinated action and support from partners across Scotland, including the public sector, industry, communities, individuals, MSPs, the UK Government and Ofcom.

**Action: Working with our partners across Scotland, we will, during 2011, develop a strategic plan for the roll-out of next generation broadband across Scotland.**

Our key aims for broadband in Scotland are related to, or aligned with, other major digital strategies such as:

- the European Commission's Digital Agenda for Europe which has a target of broadband coverage at a speed of 30 Mbps (Megabits per second) to all by 2020
- the UK Government's strategy "Britain's Superfast Broadband Future" which aims for the UK to have the best next generation broadband network in Europe by 2015

## Current generation broadband

A 2007 report<sup>31</sup> published by the Scottish Government fully recognises the importance of broadband availability to economic growth, and significant progress has already been made in the provision of basic broadband services.

Our Broadband Reach Project has now provided basic broadband (defined as 512 kbps – kilobits per second) to over 99% of the Scottish population – a figure comparable with UK coverage levels. This is a major increase from only 43% availability in 2001, when Scotland lagged behind the UK level of 63%.

In terms of broadband speeds currently available, Ofcom's 2010 research on Broadband Speeds<sup>32</sup> reports that average UK speeds for consumers in urban areas were 5.8 Mbps, whilst the average speed in rural areas was lower at 2.7 Mbps.

## Next generation broadband

There is no fixed definition of what speed constitutes next generation broadband, however, the European Commission's Digital Agenda sets 30 Mbps as a minimum target. The UK Government has not yet set a target speed, rather it aims to achieve the best next generation broadband network in Europe by taking into account four key indicators: speed, coverage, price and choice.

Our ambition is that next generation broadband will be available to all by 2020, with significant progress being made by 2015. This must take account of speed, coverage, price and choice.

Next generation broadband will be an enabler of much of the ambition and actions contained within this Strategy. It will help drive the digital economy; encourage greater public sector efficiency; improve access to public services; minimise geographic exclusion and provide an enhanced entertainment experience. It allows film, television, music, computer games and other applications to be downloaded in a relatively short period of time, or streamed directly from a remote source. It also allows the internet to be used on multiple devices simultaneously, such as PCs, laptops, smartphones and games consoles.

<sup>31</sup> Scottish Government (2007), "Next Generation Broadband in Scotland": <http://www.scotland.gov.uk/Publications/2007/01/09153006/0>

<sup>32</sup> Ofcom (2010), "UK Broadband Speeds": <http://stakeholders.ofcom.org.uk/market-data-research/telecoms-research/broadband-speeds/broadband-speeds-2010/>

## 5 Building Digital Connectivity Fit for the Future

### What the research said...

Scottish Government research (2011) on broadband and business amongst 1,000 SMEs and micro businesses in Scotland reveals that:

- over a third (36%) report that they feel constrained, or significantly constrained, by the broadband speed currently available to them
- almost two thirds (61%) believe that they will use broadband or broadband-enabled applications to a greater extent over the next five years
- almost half (45%) believe that they will require faster bandwidths in the next five years

### Roll-out of next generation broadband

Current and planned services from BT and Virgin Media will see access to speeds of 40 Mbps and upwards delivered to over 50% of the UK population by 2012<sup>33</sup>, and 65% by 2015<sup>34</sup>.

The level of coverage expected in Scotland is not yet fully understood, however, parts of the Central Belt are already benefiting from BT's "Superfast Broadband" service, with more Scottish locations to follow.

Virgin is currently rolling out its ultra-fast broadband product (100 Mbps) which aims to reach 50% of the UK population by 2012. Virgin is also trialling an even faster service (200 Mbps) in Kent.

### CASE STUDY Innerleithen Races to Infinity

The first rural part of Scotland expected to benefit from BT's Superfast broadband is the town of Innerleithen in the Scottish Borders. Innerleithen was one of six winners, and the only one in Scotland, of BT's "Race to Infinity"<sup>35</sup> campaign, which invited communities to vote for their exchange to be upgraded. Innerleithen now looks forward to broadband at a speed of 40 Mbps by early 2012.

Resident Brian McCrow, who headed the community's campaign in the BT "Race to Infinity" said:

'Access to superfast broadband is at the heart of plans to revitalise the area. With this, we can enhance our local businesses and make Innerleithen more attractive to new enterprises. Local students, who might have to move away or make a lengthy and costly commute, can use distance learning more effectively to complete their coursework. Being able to use online services will make a real difference to everyone's lives, whether it's older residents being able to access healthcare, people being able to use on-demand TV or keeping in touch with family and friends across the world through video conferencing'.

A number of technologies have the potential to deliver next generation broadband in Scotland. Fibre optic technology is likely to play a fundamental role, but alternatives such as wireless, satellite and mobile, are also able to offer next generation broadband. Indeed, alternatives to fibre are likely to be important when rolling-out next generation to the most rural locations.

The use of alternative technologies in closing this gap has already been demonstrated through the Broadband Reach Project<sup>36</sup>, where broadband services to mainly rural areas are being delivered by satellite and wireless technology.

<sup>33</sup> Department of Business, Innovation and Skills (2009), *Digital Britain Impact Assessment Report*, p38.

<sup>34</sup> <http://www.btplc.com/News/Articles/Showarticle.cfm?ArticleID=4C5AFFB0-EB60-4171-B43F-FFBA68646870>

<sup>35</sup> <http://www.racetoinfinity.bt.com>

<sup>36</sup> <http://www.scotland.gov.uk/Topics/People/BroadbandforScotland/SEBroadbandInitiatives/LatestNewsAnnouncements>

## 5 Building Digital Connectivity Fit for the Future

### CASE STUDY At a glance: Next Generation Broadband Technologies

#### FIBRE

Fibre broadband is delivered through thin glass pipes known as fibre optic cable, using waves of light. This technology is generally regarded as the successor to DSL broadband, which is delivered over the copper telephone network. DSL broadband speeds are limited to around 24 Mbps. Fibre to the cabinet (FTTC) and Fibre to the home (FTTH) are the two main methods of fibre broadband deployment in the UK. Current fibre services on the market offer speeds ranging from 40 Mbps to 100 Mbps, with faster services being trialled.

#### WIRELESS

Wireless broadband is delivered through radio waves. Developments in fixed wireless access are concentrated on WiMax (Worldwide Interoperability for Microwave Access) technology. WiMax technology is currently capable of speeds up to 75 Mbps, whilst the latest versions under development could offer even faster speeds.

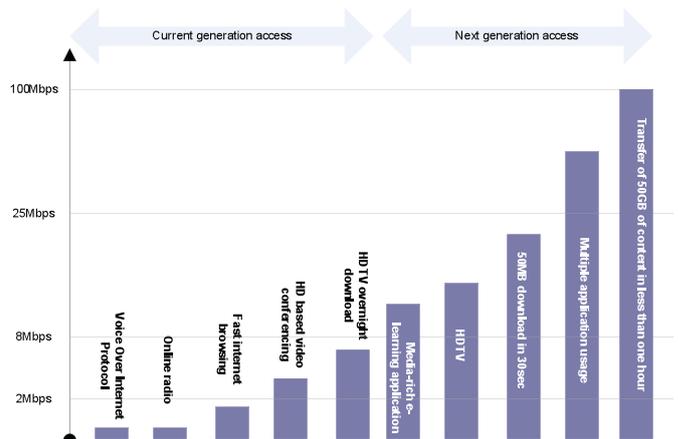
#### MOBILE

Mobile broadband is delivered through the mobile phone network. Current mobile broadband services (3G) offer broadband speeds broadly comparable with current fixed-line services – around 7 or 8 Mbps. The fourth generation of mobile broadband technology, (4G), is currently being developed. It is also known as LTE (Long Term Evolution) and can provide bandwidth of up to 100 Mbps.

#### SATELLITE

Satellite broadband is delivered by a satellite in orbit around the earth which communicates with a computer via a satellite dish on the person's premises. The capability of current satellite broadband services is around 10 Mbps, however, the next generation could potentially deliver speeds of up to 50 Mbps.

### Bandwidth requirements of different applications



Source: Scottish Government (2011) Research on Broadband and Businesses in Scotland.

### Developing a Scottish plan fit for the future

We recognise that we need to develop a robust plan for the roll-out of next generation broadband across Scotland. This plan will not just reflect the infrastructure investments needed now, but will set a longer-term vision for future broadband requirements.

Before we develop a plan, we need to understand the current extent of the fixed and mobile broadband network. We are discussing with industry where next generation broadband investments have already taken place. This information, together with recent UK Government research<sup>37</sup>, on likely future 'not-spots', will help us to predict areas where the market might not deliver.

**Action 5.1: We will work with industry to carry out more detailed analysis of the extent of the current and planned next generation broadband network across Scotland to identify priority areas for future intervention**

<sup>37</sup> Department for Communities and Local Government (2010), "An assessment and practical guidance on Next Generation Access (NGA) risk in the UK": <http://www.communities.gov.uk/publications/communities/assessmentngafinalreport>

## 5 Building Digital Connectivity Fit for the Future

We know that rural areas will suffer if left to the market alone. This is because the commercial case often doesn't stack up – up-front costs for rolling-out next generation broadband can be high with little or no commercial return on that investment.

### The costs of deploying next generation broadband in rural areas will far exceed the costs in urban areas

We don't currently have a robust analysis that details how much it will cost to roll-out next generation broadband across Scotland. Some recent reports have estimated upwards of £200 million<sup>38</sup> in Scotland, compared to UK reports which estimate a UK figure of between £5.1 billion (for FTTC) and £28.8 billion (for FTTH), with the likely figure around £24.6 billion (depending on the technology used)<sup>39</sup>.

**Action 5.2: We will continue to build a deeper understanding of the costs of rolling-out next generation broadband across Scotland**

We are clear that we expect the majority of next generation broadband deployment in Scotland to be market-led. There could a role for government in helping to raise demand for broadband services in areas that are not commercially viable to a level that will trigger industry investment. We are currently working with the industry to better understand how demand for broadband services (including public sector demand) could be aggregated to help prove the commercial case. This could involve consumer and business awareness campaigns, utilising existing public sector infrastructure, the aggregation of public sector services or a bottom-up approach, incorporating community models, or, indeed, a combination of all.

**Action 5.3: We will work with industry to assess the potential for a range of different demand stimulation models and how they might achieve greater private sector investment in next generation broadband**

#### Mobile technology

Improved mobile broadband coverage in Scotland is critical, particularly in light of recent research that indicates 29% of UK internet users use mobile to access the internet at home<sup>40</sup>.

Ofcom's report on mobile broadband (November 2010)<sup>41</sup> also highlighted:

- 60% of people use mobile as their main method of internet connection at home (compared to 41% in 2009)
- Internet access via mobile is expected to outstrip fixed PC access within five years<sup>42</sup> according to a report by Morgan Stanley (2009)
- the UK saw the highest growth in smartphone take-up, with a 70% rise in subscriber numbers between January 2009 and January 2010
- the UK has the third highest take-up of smartphones in Europe (after Italy and Spain) with 18 subscribers for every 100 people

Ofcom's Communications Market Report for Scotland (August 2010)<sup>43</sup> describes 3G coverage in Scotland at 41% geographic coverage and 66% population coverage. This is well behind the UK average levels of 76% and 87% respectively. The corresponding coverage map in the same report indicates that, outwith the Central Belt and the Scottish cities, 3G coverage in Scotland is poor, with very little in rural areas. The Scottish Government wants to see significant improvements in rural 3G coverage.

<sup>38</sup> Reform Scotland (2010) "Digital Power": [http://www.reformscotland.com/index.php/publication/view\\_details/847/](http://www.reformscotland.com/index.php/publication/view_details/847/)

<sup>39</sup> Broadband Stakeholder Group (2008), "The costs of deploying fibre-based next-generation broadband infrastructure": [http://www.broadbanduk.org/index.php?option=com\\_content&task=view&id=303&Itemid=7](http://www.broadbanduk.org/index.php?option=com_content&task=view&id=303&Itemid=7)

<sup>40</sup> <http://media.ofcom.org.uk/2010/12/02/uk-consumers-revealed-as-early-adopters-of-new-technologies/>

<sup>41</sup> Ofcom (2010), "Mobile Broadband Research Summary": <http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-10/mobile-broadband.pdf>

<sup>42</sup> Morgan Stanley (2009), "The Mobile Internet Report": [http://www.morganstanley.com/institutional/techresearch/mobile\\_internet\\_report122009.html](http://www.morganstanley.com/institutional/techresearch/mobile_internet_report122009.html)

<sup>43</sup> Ofcom (2010), "Communications Market Report: Scotland": <http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr10/scotland/>

## 5 Building Digital Connectivity Fit for the Future

### We want to see significant improvements in rural 3G coverage across Scotland

Our forthcoming work aimed at stimulating greater demand for broadband (see action 5.3) will include exploration of barriers affecting the mobile broadband sector.

One potential barrier is how the forthcoming spectrum auction for the 800 Mhz and 2.6 GHz spectrum bands will be designed. Both bands are suitable for the deployment of the post-3G generation of mobile services (4G) which are capable of delivering bandwidths of 100 Mbps. As spectrum management is a reserved issue and falls under the responsibility of Ofcom, we will press for the design of these auctions to be conducive to widespread 4G roll-out throughout Scotland – especially rural Scotland.

**Action 5.4: Over the course of 2011, we will work with industry and Ofcom to identify barriers to increased mobile coverage and assess how these may be overcome. We will make appropriate representation to the UK Government and Ofcom to ensure that forthcoming spectrum auctions maximise the potential impact on future mobile broadband coverage in rural Scotland**

#### UK Government Broadband Strategy

“Britain’s Superfast Broadband Future” sets out the UK Government’s strategy to deliver the best next generation broadband network in Europe by 2015.

The UK Government has an important role in helping us meet our Digital Ambition for Scotland, and we will continue to work closely with them. Productive engagement between the Scottish and UK Governments continues, and Scottish Ministers recently met with UK Ministers (February 2011) to discuss how the UK Government’s Strategy can have maximum impact in Scotland.

<sup>44</sup> Reform Scotland (2010), “Digital Power”: [http://www.reformscotland.com/index.php/publication/view\\_details/847/](http://www.reformscotland.com/index.php/publication/view_details/847/)

<sup>45</sup> The Royal Society of Edinburgh, (2010) “Digital Scotland”: [http://www.royalsoced.org.uk/enquiries/Digital\\_Scotland/index.htm](http://www.royalsoced.org.uk/enquiries/Digital_Scotland/index.htm)

Crucially, £530 million has been allocated by UK Government to help deliver its Strategy (up to 2015, which could rise to £850 million by 2017 if needed). We are working with the UK Government to develop a strategic national broadband plan for Scotland that will benefit from a share of this funding.

### We are working with the UK Government to develop a strategic national broadband plan for Scotland that will benefit from a share of UK Government funding

Scotland is already set to reap early benefits of this funding through the Highlands and Islands broadband pilot – part of the wider strategic plan we are developing – announced in October 2010. This project marks the first step in delivering next generation broadband throughout the Highlands and Islands. It will lever EU funding and industry investment, and aims to cover around 40 population centres throughout the region.

The project will consider providing improvements to the core broadband network which is currently a critical weakness of the region. This is exactly the type of backbone network infrastructure advocated by both the Royal Society of Edinburgh and Reform Scotland in their respective recent reports<sup>44, 45</sup>.

Potential wider benefits of the Highlands and Islands project include the growth of key industries and businesses dependent on good digital connectivity. The project will build partnerships across the region and support opportunities for greater collaboration across the public sector which will, in turn, help deliver our Digital Scotland ambition. The project will be led by HIE and is expected to begin delivering connectivity improvements within 12-18 months.

## 5 Building Digital Connectivity Fit for the Future

We aim to secure the best possible share from the UK Government's £530 million funding package by developing an ambitious and strategic national broadband plan for Scotland. In recognition of the vital role that the enterprise agencies and local authorities have in the development and delivery of the broadband plan, we will work with these organisations to explore how this can most effectively be achieved. We are now working with partners in the South of Scotland to develop a local broadband plan for the South of Scotland region – this plan will seek to build a critical mass of demand for next generation broadband services. We believe that generating such demand is vital for the long-term sustainability of any regional rural broadband plan.

We are holding a Rural Broadband Summit in March to discuss how we can work with the enterprise agencies, local authorities and industry to develop and progress rural broadband plans for Scotland's regions.

### We are holding a Rural Broadband Summit in March to discuss how we can work with the enterprise agencies, local authorities and industry to develop and progress rural broadband plans for Scotland's regions

**Action 5.5:** In order to secure the best possible share from the £530 million allocated at UK level for broadband delivery, we will work with Scottish Enterprise, Highlands and Islands Enterprise, local authorities and other partners to collectively develop a national infrastructure strategy for Scotland which will comprise regional broadband plans

### Building on current public sector broadband infrastructure

We have already made significant investment in high-speed broadband across the public sector in Scotland with the Pathfinder, Interconnect and JANET networks. We are investing £90 million in Pathfinder alone. Public sector partners must now work together to maximise the potential impacts of these networks in delivering next generation broadband across the wider community, particularly in rural areas.

### We are investing £90 million in Pathfinder alone

#### CASE STUDY Pathfinder, JANET and Interconnect

**Pathfinder:** The Pathfinder network provides broadband connectivity to over 1,200 public sector sites (including schools, council offices and libraries) in seven Scottish Local Authority areas: Scottish Borders, Dumfries & Galloway, Highland, Moray, Argyll & Bute, Orkney and Shetland. The primary objective of Pathfinder is to deliver high quality, scaleable broadband to significantly improve connectivity for Scotland's most rural regions.

**JANET:** Initially a university network, JANET now provides high bandwidth connectivity to education, research and training institutions throughout the UK. In Scotland, this includes all of our colleges and universities.

**Interconnect:** Serving over one million users, Interconnect provides dedicated high bandwidth connectivity between all 32 Scottish local authorities, the Glow datacentres and other national bodies such as Learning and Teaching Scotland and the Scottish Qualifications Authority. The Interconnect and JANET networks integrate at five sites in Scotland: Glasgow, Edinburgh, Dundee, Aberdeen and Inverness.

## 5 Building Digital Connectivity Fit for the Future

An evaluation of Pathfinder is also being published alongside this strategy<sup>46</sup>. The evaluation assessed the procurement approach, value for money and whether the public sector is optimising its use. The findings show that public sector sites now have significantly higher quality bandwidth, and that the aggregated procurement approach has resulted in a reliable service.

In terms of public sector delivery, there is a general consensus that Pathfinder has enabled the delivery of strategic initiatives. For example, in the case of education service delivery, the roll-out of Glow (discussed in more detail in Chapter 2) across school sites in rural areas has relied on the connection speeds provided through Pathfinder.

It was initially hoped that Pathfinder would also provide wider benefits to rural and business communities. This has not yet been achieved, however, this is due to procurement, contractual and state aid issues, and is not a failing of the Pathfinder networks themselves.

We are keen to explore how Pathfinder can play a part in fulfilling our digital ambitions. It is clear that wider community and business benefits must be given greater focus at the design stage of any future procurement. The Highlands and Islands broadband pilot will provide an opportunity to explore the potential use of the Pathfinder North network, as well as other utilities infrastructure, in helping to deliver next generation broadband in rural areas. We will also explore how the Pathfinder South network may be utilised for wider benefit.

**Action 5.6: We will work with Pathfinder partners to design and implement a pilot project by March 2012 to explore how Pathfinder might be utilised to deliver next generation broadband to rural communities**

We have also commissioned a review of the strategic management of investment in Scottish public sector

ICT infrastructure (the McClelland Review). Reporting to the Public Procurement Reform Board in March 2011, the McClelland review provided a number of recommendations on how best to deliver improved value for money, and support multi-agency working and shared services. As a major public sector broadband infrastructure project, Pathfinder has been highly relevant to this work.

**Action 5.7: We will work with public sector partners and industry to improve our understanding of the scope to maximise the benefits of existing public sector infrastructure. We will commence discussions by May 2011 and we will take full account of the recommendations from the McClelland Review, the work being carried out at UK level through the Public Service Network Strategy and we will learn lessons from good practice being carried out elsewhere e.g. the PSBA (Public Sector Broadband Aggregation) Network in Wales**

### Procurement and Financing Models

The RSE and Reform Scotland reports both outline possible procurement and financing models that could be utilised to deliver a next generation broadband network in Scotland. Further work is needed to understand the potential feasibility of these models and the role of various partners. We will further explore and assess the potential options for financing and delivering next generation broadband in Scotland.

**Action 5.8: We will explore the feasibility and appropriateness of potential procurement and financing models, taking into account all of the work described in this section including cost analysis; UK Government and EU funding; existing infrastructure investments; possible public sector aggregation work; and potential for community models**

<sup>46</sup> Scottish Government (2011), "Pathfinder Evaluation Study - Final Report": <http://www.scotland.gov.uk/Publications/2011/02/23091038>

## 5 Building Digital Connectivity Fit for the Future

**We will focus on sourcing the best private sector investment, and on collaboration across the public sector, to obtain best value for money and wider community benefits**

### Sharing infrastructure

Significant cost savings could be achieved through sharing infrastructure with other utilities. We welcome the UK Government's commitment to further explore this issue as we believe it may be particularly beneficial in rural areas where the costs of rolling-out next generation broadband will be highest.

Scottish Water is already leading the UK in opening up the sewer network to build new communications capacity. This approach is cost-effective, has a lower environmental impact during installation, is less disruptive to the local area and needs no expensive road digs. Scottish Water is currently developing an accreditation process to approve providers who wish to use the sewer network for telecoms services.

Scottish Water has also given exclusive access to its mast sites to the Wireless Infrastructure Group, a leading commercial provider of site infrastructure to wireless operators. Its portfolio of over 1,000 active sites (150 in Scotland) makes it the second largest tower company in the UK.

We also recognise the potential synergies that exist with energy infrastructure, in particular, future opportunities for integrating broadband deployment with new grid infrastructure developments. Our "Low Carbon Economic Strategy" sets out the opportunities for Scotland. New low carbon energy generation and the development of smart grid architecture could offer opportunity for mutual benefit.

**Significant cost savings could be achieved through sharing infrastructure with other utilities**

**Action 5.9: We will work with Scottish Water, its partners, and other utilities providers to understand opportunities for infrastructure sharing and how this might help drive roll-out of broadband in rural areas by September 2011**

### CASE STUDY Underground digital highways

Spanning over 200 km, Geo's London Metro network is constructed in the roof of London's deep sewer system, over five metres underground. A key advantage of this is that the network does not have to share congested space just below the surface with other utilities such as electricity, gas, water and other telecoms carriers.

Many different industry organisations have seen the benefit of the sewer network, including leading banks, insurance companies, financial information providers, Internet service providers, mobile telephone networks, government departments, and a major hospital.

The most recent acquisition for Geo is a University which uses the sewer network to connect campuses in different parts of the city.

The Scottish Government welcomes Ofcom's recent regulatory obligation (October 2010)<sup>47</sup> imposed on BT to open up its ducts and poles to allow wholesale access by other providers. We look forward to seeing how BT will implement this ruling, as it could offer opportunities to other providers in deploying broadband in rural areas.

<sup>47</sup> Ofcom (2010): "Review of the wholesale local access market - Statement": <http://stakeholders.ofcom.org.uk/consultations/wla/statement>

## 5 Building Digital Connectivity Fit for the Future

### Planning

Legislation and regulation of electronic communications, including telecommunications, broadband and digital infrastructure, is reserved to the UK Government. However, the physical development of networks, particularly the siting and design of equipment, is a matter for the planning system in Scotland.

The Scottish Government's Planning Policy (2010)<sup>48</sup> states that:

"Planning authorities should support the expansion of the electronic communications network, including telecommunications, broadband and digital infrastructure, through the development plan and development management decisions, taking into account the economic and social implications of not having full coverage or capacity in an area."

The choice of connectivity beyond basic telephone equipment is, therefore, a matter for developers and communications providers. There is limited evidence that developers' plans include provision for delivery of next generation broadband. This must change and we support the recent move by UK Government and the British Standards Institution to provide best practice guidance and advice to developers about the need to install digital infrastructure into all new build domestic dwellings (Publicly Available Specification 2016)<sup>49</sup>

This advice complements the ducting guidelines published by the Department for Communities and Local Government<sup>50</sup>.

**We want to see greater deployment of next generation broadband in development plans and support the UK Government's new guidance**

### Rating of the telecommunications network

In England, rateable values are set by the Valuation Office Agency; in Scotland rateable values are set by the Scottish Assessors. Decisions of both of these bodies are made independently of the respective Ministers. The UK Government's broadband strategy highlights the fact that at UK level, there have been calls to make changes to the business rates on telecommunications networks. The document goes on to state that business rating of telecommunications is a complex issue which is often misunderstood by the industry and commentators. The issue has also been extensively litigated in both UK and European courts. However, attempts by the industry to challenge the business rates regime on telecommunications networks have proven unsuccessful to date.

### The power of the community

The success of Innerleithen winning BT's "Race to Infinity" campaign has already demonstrated the power of community support and commitment in delivering truly impressive results.

Recognising this, we want to encourage sustainable community-led initiatives, which could provide opportunities for testing alternative technologies and business models for improving local connectivity, and for increasing digital participation, particularly in rural areas.

The Scottish Government recently announced funding of approximately one million euros to support rural broadband projects<sup>51</sup> in a one-off funding stream in the LEADER<sup>52</sup> programme, part of the Scotland Rural Development Programme<sup>53</sup>. This new investment will support small-scale, community-driven projects to improve coverage and bring faster broadband to rural communities. Five LEADER Local Action Group areas – Forth Valley and Lomond, the Outer Hebrides, Orkney, South Lanarkshire and the Scottish Borders – will each take a share of funding under the LEADER Broadband Challenge Fund.

48 Scottish Government (2010), "Scottish Planning Policy" <http://www.scotland.gov.uk/Resource/Doc/300760/0093908.pdf>

49 Department of Business, Innovation and Skills (2010) "Publicly Available Specification (PAS 2016) Publicly Available Specification (PAS 2016)": <http://www.bis.gov.uk/assets/biscore/business-sectors/docs/p/10-1339-pas-2016-next-generation-access-new-build-guide.pdf>

50 Department for Communities and Local Government (2008), "Data Ducting Infrastructure for New Homes: Guidance Note" <http://www.communities.gov.uk/publications/planningandbuilding/dataductinginfrastructure>

51 <http://www.scotland.gov.uk/News/Releases/2010/12/17112822>

52 <http://www.scotland.gov.uk/Topics/farmingrural/SRDP/LEADER>

53 <http://www.scotland.gov.uk/Topics/farmingrural/SRDP>

## 5 Building Digital Connectivity Fit for the Future

### CASE STUDY A local LEADER

The Forth Valley and Lomond Local Action Group will receive nearly £200,000 to pilot a powerful wireless connection for businesses and communities in areas where lack of broadband, unreliable broadband or slow connection speeds are severely hindering economic activity. This is the first such project of this scale in the UK. In future it could be extended to the entire Forth Valley and Lomond area and replicated in other parts of rural Scotland. An estimated 100 new jobs will be created as a result of the funding.

### CASE STUDY Following the community energy example

The Scottish Government's flagship scheme for promoting community ownership of renewable energy - [Community and Renewable Energy Scheme \(CARES\)](#) is delivered by Community Energy Scotland, part of which includes free independent advice via a network of development officers, who are located across Scotland. The development officers have a wide range of experience and skills. Over the last 2 years CARES has allocated around 500 grants worth over £10.4M to support renewable projects.

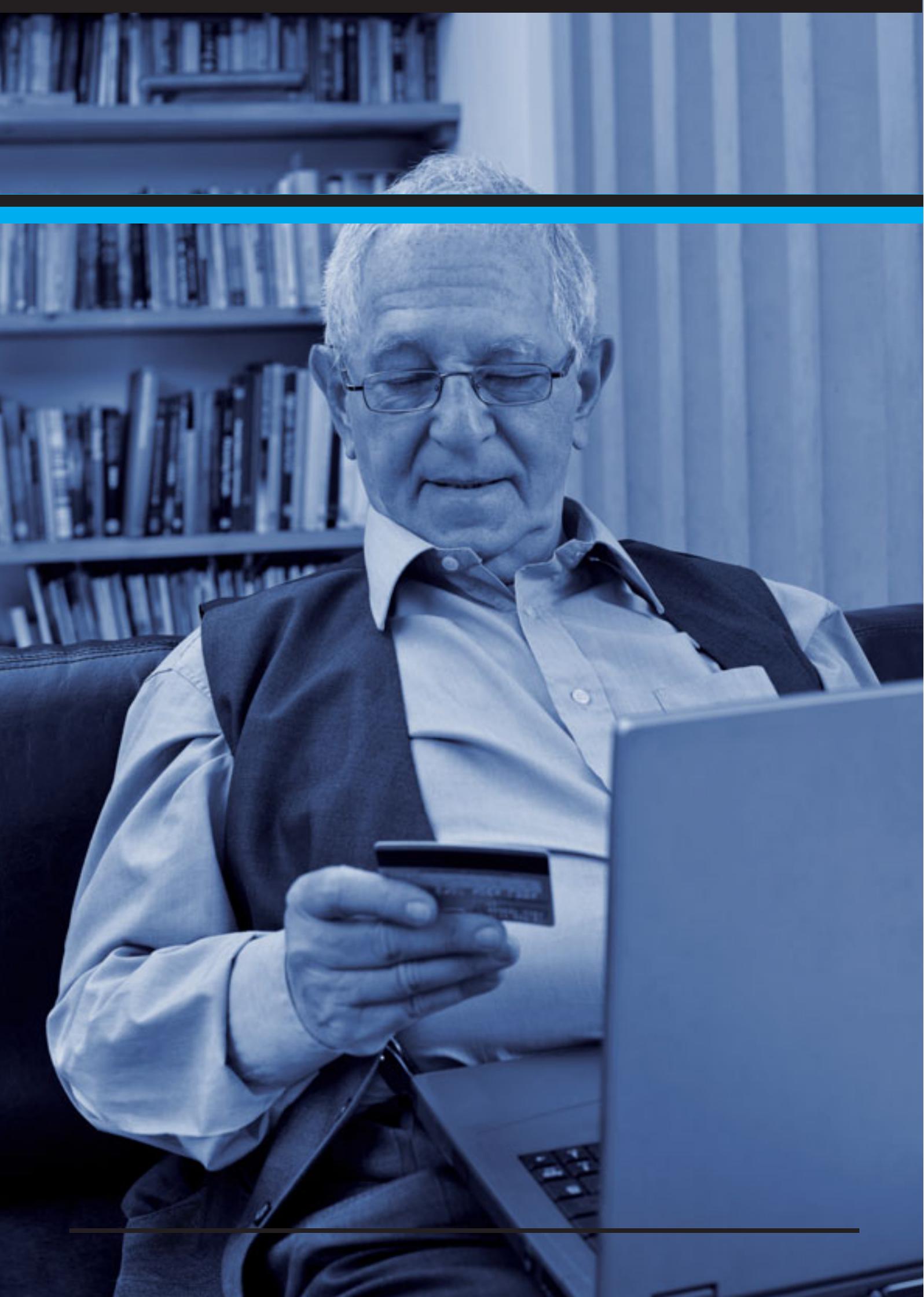
One community group that has benefited from the support that CARES offers is the An Talla Group in Tiree. It was formed to establish a community hall and secured funding for the installation of a 6kW wind turbine to provide heating and lighting for the building.

The benefits to the community are a saving on their electricity bill, as well as providing a central hub for the community. The community has since secured support from the Big Lottery Fund to install a larger turbine and it is now financially benefitting by selling the generated electricity back to the grid.

## 5 Building Digital Connectivity Fit for the Future

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**Action 5.10:** We will explore how we can further support rural communities to develop sustainable models for delivery of broadband infrastructure and services. We will look at areas where we have already made significant impact in communities e.g. renewables, and outline how we plan to take this forward by July 2011



# 6 Governance and Next Steps

This strategy sets out what the Scottish Government will do to secure Scotland's digital future.

In many areas we must do more work and consult more widely to identify options, before we can take forward and deliver specific actions. In delivering the strategy, we also recognise that it is essential to ensure that we are flexible enough to react quickly to new demands arising from technological change, and changes in people's expectations.

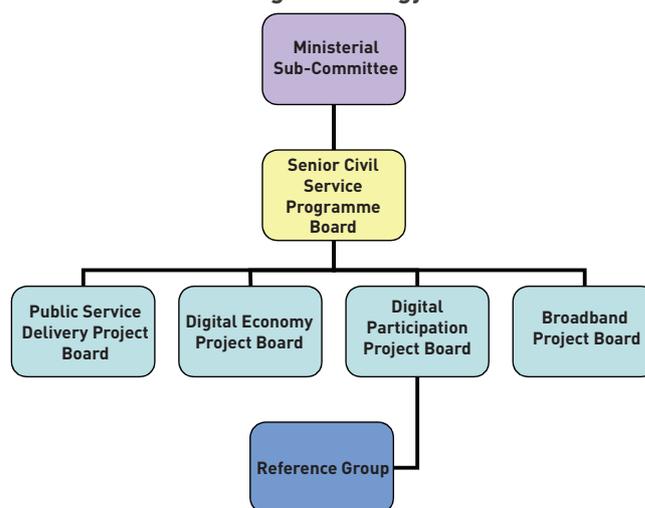
To oversee this work we will establish a Programme Board, at a senior level within the Scottish Government, to oversee delivery of the 28 actions set out in this strategy. This board will report to a Ministerial sub-committee chaired by the Minister for Culture and External Affairs who has assumed the lead co-ordinating role for the Scottish Government's Digital Strategy.

Four sub-groups will be responsible for delivering the actions within the strategy. We also intend to establish a reference group of external stakeholders which will meet quarterly to discuss issues relating to digital participation.

In addition, we understand that the Royal Society of Edinburgh is planning to establish a group to provide an independent source of expertise and information on issues relating to the digital economy and, in particular, the development of Scotland's broadband infrastructure. We welcome the establishment of this group and anticipate that it will make a constructive contribution to the ongoing digital debate and discussion in Scotland.

We intend to publish annual reports on our progress in March 2012, 2013 and 2014. In these, we will consider whether our ambitions and objectives are still appropriate. The annual reports will also include an assessment of whether each of the actions is still appropriate, and whether any new actions are required.

## Proposed governance structure for delivering the actions set out in the digital strategy.



**Action 6.1** We will establish a Ministerial sub-committee, chaired by the Minister for Culture and External Affairs and including the Cabinet Secretary for Finance and Sustainable Growth, the Cabinet Secretary for Education and Lifelong Learning and the Minister for Enterprise, Energy and Tourism, to take responsibility for delivery of the Scottish Government's digital strategy.

**Action 6.2** We will establish a programme board, chaired by a senior civil servant at director level, to drive forward implementation of the actions set out in this strategy, and to report on progress to the Ministerial sub-committee. We will also establish two new project boards specifically to take forward work on broadband infrastructure and digital participation.

**Action 6.3** We will publish on our website a report on our progress in delivering the actions set out in this Strategy during March 2012, 2013 and 2014. These reports will include an assessment of whether each of the actions is still appropriate, and whether any new actions are required.

# Summary of actions

To improve the speed and responsiveness of public services		
2:1	We will establish governance and accountability structures for telehealthcare development by July 2011 which reflect the sector's importance to public service reform and economic development, and which ensure the Scottish Government continues to take a strong leadership role in the sector.	July 2011
2.2	We will take forward options for developing an online portal for Scottish public information and services, and launch prototype (beta) site for testing in first half of 2011.	First half of 2011
2.3	The National Archives of Scotland will work with the General Register Office for Scotland and Registers of Scotland, in co-operation with the National Library of Scotland to develop long term preservation solutions for public digital assets. A key aim is to develop a national digital asset strategy, which will formalise work in these areas and establish best-practice approaches by February 2012.	February 2012
2.4	We will work with our partners to develop proposals for releasing more government information and data for use by the public. Initial proposals to be developed and implementation to begin by the end of July. The Scottish Government invites suggestions for areas where the greater availability of public data could lead to new services or innovative applications.	30 June 2011

To position Scotland at the forefront of the digital economy		
3:1	We will continue to ensure that action taken in Scotland builds on, and adds value to, that carried out at a UK and European level.	Ongoing
3.2	Working through Scottish Enterprise, Highlands and Islands Enterprise and others, undertake development work to map and understand future priorities for Scotland in relation to the digital economy and develop an aligned action plan on how to take this forward, including potential opportunities from the Technology Strategy Board.	During 2011
3.3	We will shortly publish our Creative Industries Strategy. The Strategy will be consistent with the aims of Digital Strategy, and will emphasise the importance of ensuring that the creative industries are equipped to prosper in a period of rapid technological change.	March 2011
3.4	We are working in partnership with Business Gateway, Scottish Enterprise and Highlands and Islands Enterprise to develop a programme to encourage the 25% of Scottish businesses currently not online, to get online, and to support the 75% already online to make better use of the broadband that is available to them.	During 2011

<b>To increase the rate of broadband uptake by people in Scotland</b>		
4.1	We will work with established suppliers and community organisations to investigate options for recycling computer equipment and making it available at lower cost to individuals and community centres. Options analysis to be completed by end of July 2011.	31 July 2011
4.2	We will work with learning providers to ensure that delivery of adult learning takes full account of the importance of digital participation.	Ongoing
4.3	We will ensure that the Technologies for Learning Strategy takes full account of the aims of this digital strategy. We will also ensure that there is effective co-ordination of work on delivering broadband to schools and delivering it for the wider public sector.	31 July 2011
4.4	We will continue to pursue the establishment of a Scottish Digital Network, in line with recommendations made in the final report of the Scottish Digital Network Panel. We will seek to ensure the importance of encouraging digital participation is enshrined in the remit of a digital network when it is established.	Ongoing
4.5	We will establish a project team to take forward planning for an awareness raising campaign for the benefits of digital technology. Options for the campaign to be assessed by the end of July 2011, and the campaign to commence during the second half of 2011.	31 July 2011, then ongoing
4.6	We will work with Race Online 2012 programme and UK Government to ensure co-ordination between Scottish Government's digital participation initiatives and relevant Race Online UK-wide initiatives.	Ongoing
4.7	We will work closely with partner organisations signed up by Race Online 2012 to ensure that they are able to deliver or contribute to digital participation initiatives in Scotland.	Ongoing

To deliver next generation broadband availability to all		
5.1	We will work with industry to carry out more detailed analysis of the extent of the current and planned next generation broadband network across Scotland to identify priority areas for future intervention.	October 2011
5.2	We will carry out a more detailed financial analysis to understand better the costs of rolling out next generation broadband across Scotland.	August 2011
5.3	We will work with industry to assess the potential for a range of different demand stimulation models and how they might achieve greater private sector investment in next generation broadband.	September 2011
5.4	Over the course of 2011, we will work with the industry and Ofcom over 2011 to identify barriers to increased mobile coverage and assess how these may be overcome. We will make appropriate representation to the UK Government and Ofcom to ensure that forthcoming spectrum auctions maximise the potential impact on future mobile broadband coverage in rural Scotland.	During 2011
5.5	In order to secure the best possible share from the £530 million allocated at UK level for broadband delivery, we will work with Scottish Enterprise, Highlands and Islands Enterprise, local authorities and other stakeholders to collectively develop a strategic infrastructure plan for Scotland which will comprise regional broadband strategies.	During 2011
5.6	We will work with Pathfinder partners to design and implement a pilot project by March 2012 to explore how Pathfinder might be utilised to deliver next generation broadband to rural communities.	March 2012
5.7	We will work with public sector partners and industry to improve our understanding of the scope to maximise the benefits of existing public sector infrastructure. We will commence discussions by May 2011 and we will take full account of the recommendations from the forthcoming McClelland Review on this issue, the work being carried out at a UK level through the Public Service Network Strategy and we will learn lessons from elsewhere e.g. the PSBA (Public Sector Broadband Aggregation) Network in Wales.	May 2011 and ongoing
5.8	During 2011, we will explore the feasibility and appropriateness of potential procurement and financing models, taking into account all of the work described in this section including cost analysis work; UK Government and EU funding; existing infrastructure investments; possible public sector aggregation work; and potential for community models.	During 2011
5.9	We will work with Scottish Water, its partners, and other utilities providers to understand opportunities for infrastructure sharing and how this might help drive roll out of broadband in rural areas.	September 2011
5.10	We will explore how we can further support rural communities to develop sustainable models for delivery of broadband infrastructure and services. We will look at areas where we have already made significant impact in communities e.g. renewables, and outline how we plan to take this forward by July 2011.	July 2011

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### To achieve our digital ambition

6.1	We will establish a Ministerial sub-committee, chaired by the Minister for Culture and External Affairs and including the Cabinet Secretary for Finance and Sustainable Growth, the Cabinet Secretary for Education and Lifelong Learning and the Minister for Enterprise, Energy and Tourism, to take responsibility for delivery of the Scottish Government's digital strategy.	July 2011
6.2	We will establish a programme board, chaired by a senior civil servant at director level, to drive forward implementation of the actions set out in this strategy, and to report on progress to the Ministerial sub-committee. We will also establish two new project boards specifically to take forward work on broadband infrastructure and digital participation.	June 2011
6.3	We will publish a report on progress in delivering the actions set out in this Strategy during March 2012, 2013 and 2014. These reports will include an assessment of whether each of the actions is still appropriate, and whether any new actions are required.	March 2012

# References

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The Scottish Government welcomes the fact that many external organisations and individuals have expressed their views on Scotland's digital future during the last year. Although footnotes are given in this strategy when appropriate, it is worth noting some of the key reports on this issue which have been published in recent years.

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# Contributors

The Scottish Government would like to thank the following organisations and individuals which have contributed to the development of this strategy. Contributions were received in a variety of ways, including formal meetings and written evidence.

3 UK

Aberdeen City and Shire Strategy Development Planning Authority

Avanti Communications

BBC Scotland

BT Scotland

Business Gateway

Cable & Wireless

Consumer Focus Scotland

Edinburgh Libraries

Everything Everywhere

Glasgow Libraries

Geo

Highlands & Islands Enterprise

Rhoda Grant MSP, Peter Peacock MSP and David Stewart MSP

Members of the ICT Forum

Mr Iain A Macdonald

O2

Ofcom

Race Online 2012

Reform Scotland: Mr Stuart Gibson

Royal Society of Edinburgh: Professor Michael Fourman

Scottish Enterprise

Scottish Funding Council

Scottish Futures Trust

Scotland IS

Scottish Trade Unions Congress

Scottish Water

Trade Unions Congress

Virgin

Vodafone

Wireless Infrastructure Group

Wise Group

# Glossary

3G	The third generation of the mobile telephone network, capable of delivering broadband equivalent speeds to mobile telephones and smartphones, laptops and handheld/tablet computers.
4G	The fourth (and future) generation of the mobile telephone network, currently undergoing trials in the UK. 4G is likely to be capable of speeds of up to 100 megabits per second.
BBC	British Broadcasting Corporation
Broadband	High-speed internet connection typically capable of speeds ten times greater than dial-up.
Broadband Reach Project	A Scottish Government-funded delivering a basic broadband connection to premises unable to receive broadband by any other means.
BT	British Telecommunications plc.
Cloud Computing	Location-independent computing, whereby shared servers provide resources, software, and data to computers and other devices on demand.
COSLA	Convention of Scottish Local Authorities
DDS	Digital Design Studio
Digital Ambition	A summary of the Scottish Government's plans and ambitions for the digital economy, published 22 October 2010.
DIVA	Digital Media and ICT Vendor Alliance
DSL	Digital Subscriber Line
E-commerce	The buying and selling of products or services over electronic systems such as the Internet and other computer networks.
ESF	European Structural Funds
EU	European Union
Fibre network	A communications network using fibre optic cable that is capable of delivering very high-speed internet connections.
GBBO	Getting British Business Online
GDP	Gross Domestic Product
GLOW	The Scottish Schools Intranet
GROS	General Register Office for Scotland
HIE	Highlands and Islands Enterprise

# Glossary

HMIe	Her Majesty's Inspectorate of Education
HMT	Her Majesty's Treasury
ICT	Information and Communication Technologies
IT	Information Technology
JANET	UK-wide network dedicated to education and research.
kbps	kilobits per second
LEADER	An EU-financed part of the Scotland Rural Development Programme delivering support for rural development (Liaison Entre Actions de Développement de l'Économie Rurale).
LTE	Long Term Evolution (see 4G)
LTS	Learning and Teaching Scotland
Mbps	Megabits per second
Micro-business	A business with fewer than ten employees.
MSP	Member of the Scottish Parliament
Mobile Broadband	Internet access over a mobile phone network achieved by either plugging a small device into a computer or by connecting the computer to a suitable mobile telephone.
NAS	National Archives of Scotland
Next generation broadband	High speed broadband which exceeds the capabilities of copper-based (or similar) broadband infrastructure. Speeds will vary dependent on the technology used.
NHS	National Health Service
NHS24	A web and telephone-based health care advice service delivered by the National Health Service.
NLS	National Library of Scotland
Ofcom	Office of Communications – the UK's independent telecommunications regulator and competition authority.
PLQIM	Public Library Quality Improvement Matrix
PC	Personal Computer
PAS	Publicly Available Specification
RCAHMS	Royal Commission on Ancient and Historical Monuments
RDEH	Rural Digital Economy Hub
RSE	Royal Society of Edinburgh
SCIP	Scottish Creative Industries Partnership

# Glossary

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SDN	Scottish Digital Network
SE	Scottish Enterprise
SG	Scottish Government
SLIC	Scottish Library and Information Council
SME	Small to Medium-sized Enterprise
SOLACE	Society of Local Authority Chief Executives
SQA	Scottish Qualification Authority
STV	Scottish Television
TDP	Telecare Development Programme
THC	Telehealthcare
TSB	Technology Strategy Board
TUC	Trades Union Congress
WiFi	Wireless Fidelity – a technology enabling home computers, smartphones and handheld/tablet computers to access the internet when within range of a wireless network connected to the internet.



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