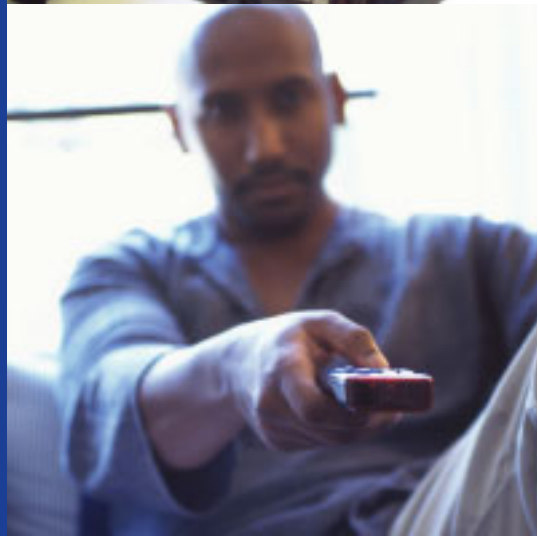


Enabling a Digitally United Kingdom

A Framework For Action



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Foreword



Andrew Pinder

When the Office of the e-Envoy was created in 1999, we were charged with driving the Government's e-agenda across UK society, by putting technology right at the heart of British business, by transforming public services through electronic service delivery and by making it easier for people to access the internet and digital technology.

Since then, we have worked hard to embed a digital culture and a reliance on technology into UK society. In 1999, the UK was one of the most expensive places in the world to go online – only one in ten households had internet access, our broadband market was virtually non-existent, and less than a third of government services were online. Today, we have some of the lowest broadband prices in the world, and home access has increased five-fold, with over 12 million households now online. We have over 70% of government service online, and through the DirectGov website we have a world-class service that offers a customer-focused route into online government.

Since 1999 the Government has also successfully rolled out a major system of public access points through the UK online centre network, and through its ICT Skills for Life programme has helped drive a sense of digital understanding and engagement to large parts of society. The UK is now a global force in the international hierarchy of digital economies, and through a combination of innovation and investment from both government and industry we have developed an advanced digital society that is well equipped to face the economic and social challenges of the future.

But despite our progress, the opportunities that digital technologies offer are still not being embraced by some areas of society. With 74% of public services now online, government has to ensure that those people who need these services the most are able to access and use them through digital channels. We want technology to combat social exclusion, not reinforce it.

Digital inclusion is not about computers, the internet or even technology. It is about using technology as a channel to improve skills, to enhance quality of life, to drive education, and to promote economic well-being across all elements of society. Digital inclusion is really about *social* inclusion, and because of this, the potential for technology to radically improve society and the way we live our lives should not be underestimated.

This work has been conducted to look closely at the issues surrounding digital inclusion, and to plot a clear roadmap for future government, industry, and voluntary sector work in this area. So much has been achieved in a comparatively short time and the UK now has a world-class digital infrastructure to make use of. But we must make sure that that this infrastructure and the products and services it delivers are easily available to all areas of society.

This report sets out how we are going to achieve this. I think there are some really positive ideas that have come out of this work, which has been conducted by my office in collaboration with over 30 industry and

voluntary sector partners. The recommendations for industry and government clearly articulate a vision for a future society that will be able to offer digital technologies to all. We know why digital engagement is important, now we have to go the last mile to ensure opportunities to encourage use for all.

My thanks go to those who participated in the preparation of the report, but more widely to all those in public, private, and voluntary sectors organisations who have helped create such a big improvement in the UK's performance in this area. I hope that we will continue to make even greater progress in the near future. Lastly, a personal thanks to all those in and around the Office of the e-Envoy for all the support they have given me over the last four years.

Andrew Pinder
e-Envoy
from January 2001 to August 2004

Executive summary

The UK's e-marketplace is one of the most diverse and vibrant in the world. By March 2004, 53% of UK households had digital television, up from 50% in the previous quarter. 53% of UK adults now have internet access at home, up from 50% in November 2003; and 25% of these adults now connect to the internet using broadband. By the end of April 2004, the UK had reached almost 4 million broadband users, with over 40,000 new connections each week.



Significant business innovation and investment, combined with public investment, has helped to put the UK firmly on the road to becoming a *digitally United Kingdom*. Opportunities to get online are almost universally available: 96% of Britain's population are aware of a place where they can readily access the internet, whether at home, at work, through mobile technology, or at a public access point (including over 6,000 UK online centres). The UK's knowledge economy infrastructure now ranks alongside global leaders, with a recent independent study placing the UK second worldwide in terms of e-readiness, just behind Denmark, but ahead of the United States and Japan.

The UK market has grown so quickly and so strongly because of the many benefits that being digitally engaged delivers for:

- **individuals:** e-skills for employment, new forms of communication, access to shopping online, enhanced daily living, improved health and social care, active citizenship;
- **business and industry:** innovation and wealth creation, improved corporate social responsibility;
- **the voluntary sector:** innovation and enhanced service delivery; and
- **government:** delivering public service reform, encouraging innovation, promoting civil society, maintaining global leadership.

Despite this clear success, a significant number of UK citizens remain digitally unengaged. In the UK, as in other developed countries, the rapid rate of growth in internet adoption, for example, has slowed. In order to encourage further digital take-up, the extent of the challenge needed to be assessed. In early 2004, therefore, the Government established a Digital Inclusion Panel (DIP) by bringing together stakeholders from the public, private and voluntary sectors to:

- identify groups most at risk of digital exclusion;
- identify future actions that might encourage digital take-up; and
- make recommendations about how industry, government and the voluntary sector can work together to drive a digitally United Kingdom.

This report, which has been prepared by e-government officials, reflects the work of the DIP. This work examined how best to advance the opportunity for digital engagement for all. In keeping with the diverse interests of the participants in the DIP, a variety of views on the benefits of, and barriers to, digital engagement were expressed. The report does not represent all the views of all the participants in the DIP. The report does outline general principles and recommendations that were widely viewed as a good way forward.

New annualised data from the Office for National Statistics (ONS) allowed levels of digital access and use across segments of the population to be mapped by e-government officials. Drawing on this information, the DIP discussed a number of possible ways in which to engage those segments of society who have so far remained digitally unengaged. The following principles were used to take this work forward:

1. A digitally United Kingdom will deliver benefits for individuals, business and industry, the voluntary sector, and government.
2. Digital engagement looks beyond access and includes use, and is therefore important to achieve realisation of benefits.
3. Digital engagement will be a natural, market-driven process for many, but specific actions may be required to ensure that everyone who wants to be engaged can have the opportunity.
4. Government, industry and the voluntary sector recognise the importance of digital inclusion and are committed to working to make the UK one of the most digitally engaged societies in the world.
5. The complex nature of the challenge to enable a digitally United Kingdom can only be addressed through action on the part of government, industry and the voluntary sector.
6. Where appropriate, industry, the voluntary sector and government should collaborate to facilitate digital engagement.

The DIP research confirmed the importance of having an ONS dataset so that the non-internet contributions to digital engagement delivered by interactive digital TV (iDTV) and mobile technology are included.

The data analysis revealed that a large percentage of the UK population do not use the internet. People most likely to be digitally unengaged are those aged 65 and over, and those with a low income. Of people who are not engaged, 65% have never considered using the internet. Cost and lack of access to technology are major barriers to internet take-up for older people and people on low income.

The DIP discussion reinforced early findings reported from the Office of the e-Envoy's summer 2003 campaign: government action alone will not be able to encourage full digital take-up. **The DIP again confirmed that investment in innovation and enterprise across government, industry and the voluntary sector offers the best opportunity for enabling digital take-up for all.**

A framework for action was discussed by the DIP which could provide the necessary conditions to develop both the supply-side digital opportunities and the demand-side capacity for people to exercise their option to become digitally engaged. The framework includes the following elements:

- **Commercial innovation and enterprise.** This is a key driver to increase and accelerate digital take-up in the UK. Because very significant commercial opportunities remain, business and industry are likely to place even greater emphasis on creating products, services, and business models that are compelling for people who are digitally unengaged, as well as on retaining those already engaged.
- **Social innovation and enterprise.** In the form of corporate social responsibility initiatives, social innovation and enterprise represent a powerful vehicle to enable people and communities to become stronger and more digitally connected. An effective way of engaging often hard-to-reach groups is through those with whom they are already in regular contact. This could mean relatives, friends and neighbours, carers and health professionals, or trusted organisations such as registered social landlords. Through innovative service delivery, such community points of contact have the potential to be used more routinely as a basis for enabling digital engagement.
- **e-Government service delivery.** Transformation of government services presents a significant opportunity to improve services that are important to people who are currently unengaged, such as healthcare, education and social benefits. Government needs to design digital services around the needs of the user, making it simple to find and access government information and services electronically. Research shows that citizens want a single point for the delivery of e-government. It is essential that people are able to access e-services when, where and how they want. To meet this need, the Government should seek ways to deliver services across a portfolio of traditional and digital channels. This would require government working in an innovative way, and in partnership with industry and the voluntary sector.
- **Lifelong learning opportunities.** The Government and organisations such as e-Skills UK and the Learning and Skills Council provide vital resources that enable people to develop their capacity to become digitally engaged.

The DIP's work makes clear that the UK already has a significant amount of capacity and capability to innovate and generate compelling propositions for people who are currently unengaged. What the UK has lacked, until now, is a user-centred framework for action that provides market intelligence to enable government, industry and the voluntary sector to work collectively in order to encourage a digitally United Kingdom. A sustained and long-term approach to the development of cross-sector partnerships will contribute to progress. Three key recommendations have been made for industry, the voluntary sector, and government:

Recommendations

- 1) Government should support commercial and social enterprise, delivery of e-government services, and development of strategic lifelong learning opportunities by providing key stakeholders with ongoing demand and supply market intelligence based on the Digital Engagement Framework. The sharing of this research evidence should be supplemented with cross-sector meetings to encourage collaborative innovation and ongoing progress.

Through service transformation and improved IT efficiency and effectiveness, government should continue to join up services around the needs of citizens via DirectGov and via the enhanced role of the new e-Government Unit, which will have greater involvement in formulating cross-departmental take-up strategies. Customer-focused propositions that enable easy access and use of local services such as healthcare, social benefits and employment services should continue to be developed and evaluated to ensure the realisation of benefits for all, including those who are currently not digitally engaged.

The national network of 6,000 UK online centres is an important resource that has the potential to encourage digital take-up across a wide range of government services. It is also recognised that trusted intermediaries that have a deep understanding of their client group are often better equipped than government to deliver services for hard-to-reach groups. UK online centres are also an important community resource, providing the necessary lift to enable often hard-to-reach groups of people to become digitally engaged. Innovation in these areas should continue.

Response from the Government

The Government recognises the important contribution that the DIP report makes to advancing digital take-up in the UK. It is clear that government, industry and the voluntary sector must work in partnership to ensure that the UK continues its global leadership position in digital engagement.

The Department for Education and Skills will continue to lead on improving ICT skills and overseeing investment in the public access networks through cross-government collaboration, working in partnership with organisations such as e-Skills UK and the Learning and Skills Council. The Department of Trade and Industry (DTI) will play an appropriate role reflecting its interest in working with the business community. The e-Government Unit will take forward work to transform services to deliver benefits to the citizen, and to improve the efficiency and effectiveness of service delivery. As set out in the 2004 Spending Review, the e-Government Unit and the Treasury will issue guidance that details the essential elements of a high-quality plan to drive take-up of e-services, and Departments will be required to develop plans that meet this benchmark for all their key e-government services. This benchmark will include strong focus on ensuring digital engagement. For people who are currently not digitally engaged, customer-focused propositions that enable easy access and use of services such as health, social benefits, education, employment, and leisure resources will continue to be developed.

2) The UK would benefit from the establishment of an industry-led body that focuses on encouraging digital take-up through social enterprise, supported with corporate social responsibility initiatives. Local, sustainable and scalable innovations work best. Such an organisation should aim to act as a broker between suppliers and customers who are currently not digitally engaged; it should exploit market intelligence to encourage rapid innovation, scaling-up and sustainability; and it should provide leadership and strategic vision to promote a *digitally United Kingdom*. The organisation should build on the many different projects that exist regionally and locally, and should create new partnerships and joined-up initiatives within existing organisational frameworks.

Response from the Alliance for Digital Inclusion

Many businesses represented by the DIP see a clear need to encourage digital inclusion through social enterprise and corporate social responsibility programmes. In order to generate scale and to focus effort, major industry players, in conjunction with the charity Citizens Online, have established the Alliance for Digital Inclusion (ADI) – the founder members are AOL, BT, Intel and Microsoft (all of whom were members of the DIP).

The ADI will promote the use of information and communication technologies (ICT) for social benefit. It is independent, but is supported by and seeks to work in partnership with government, as well as industry and the voluntary sector.

Individuals and communities who are not making use of ICT are likely to be increasingly marginalised and excluded because of the pervasiveness of these technologies and the fact that ICT (along with literacy and numeracy) is a basic 'skill for life'. ICT can also be used proactively to promote social inclusion and community regeneration. Digital inclusion is the promotion of the individual and community benefits of ICT engagement.

The role of the ADI is to:

- create an industry-led umbrella initiative that will encourage collaboration;
- provide targeted, scalable and sustainable solutions;
- encourage new players to become involved; and
- engage with and influence government on key policy issues.

The ADI, which will be launched in October 2004, will build on the findings of this report by working in partnership with all levels of government and accessing the resources needed to achieve a UK-wide impact.

3) Government should encourage Intellect, the trade body, to convene a new cross-industry, fully representative group that focuses on the implications for digital engagement in the UK of the convergence of broadcasting, telecommunications, broadband and the internet. This group should look at the scope for investment, innovation and enterprise to fulfil government's objective for digital engagement.

In particular, the group should focus on the various opportunities for meeting the desires of content providers who seek to provide content across multiple platforms and devices. In this context, the group should also consider the content needs of all user groups.

Response from Intellect

This DIP report sets out why digital inclusion is a key issue for the UK and provides a constructive framework for understanding the nature of this complex, multidimensional issue. The report contains some useful ideas and constructs for moving forward, and outlines some key principles for enabling a digitally United Kingdom.

But this is just the beginning. The challenge now is to turn these ideas and principles into well defined and targeted actions. This must be a collaborative effort, and we welcome the recommendation that Government can also play a lead role to inform, engage with and bring together the various stakeholders. We look forward to implementing the framework proposed and working in partnership to help increase digital engagement in the UK. We would welcome the opportunity for key stakeholders to review progress on an annual basis.

Innovation in platforms, devices and services will be a major driver to further digital take-up. For its part, Intellect will establish a new cross-industry group focusing on communications convergence and interoperability in the UK. This group will seek to inform further the digital inclusion debate now going forward.

Overview

We define **'digital engagement'** as **'access to digital technology to enable people to communicate in new ways, access interactive content, or transact electronically'**. Digital technologies include interactive digital television (iDTV), internet-enabled PCs, and mobile phones.

Digital engagement is important because it can improve people's lives, opening doors to things that really matter, such as education, jobs, entrepreneurial innovation, entertainment and making contact with family and friends.



In a digitally engaged society all people will be able to connect with whomever they want, whenever, however and wherever they want. People will be able to use different technologies to enable different levels of access and use at home, at work, in the community, and when on the move to:

- send and receive voice messages, e-mails, photo-mails, video-mails or any other type of e-message;
- access, consume and produce multimedia web content, ranging from informational and educational to entertainment; and
- carry out transactions ranging from shopping to accessing government services.

Internet-enabled PCs, iDTV and mobile devices are key tools in our information society. As shown by the early examples of analogue telephones and television, along with the universal availability of utility services, the overall quality of life and the economic well-being of the country benefit from the introduction of such technological improvements.

Significant innovation and investment from industry – along with investment and support from government – have enabled the UK digital sector to grow very quickly, delivering a wide range of benefits for:

- individuals;
- business and industry;
- the voluntary sector; and
- government.

Although digital engagement will be a natural, market-driven process for many, specific actions may be required to ensure that everyone who wants to be engaged can have the opportunity. For some people with disability, for example, being connected in itself may be insufficient. New product innovations, support provided by intermediaries, and community-based learning opportunities have been shown to promote digital take-up for groups of people who are not currently digitally engaged.

This report provides an overview of the current state of digital engagement. The report begins with a description of the demand side by outlining how individuals are currently benefiting from being digitally engaged. It then describes the supply side, and outlines how industry, the voluntary sector and government are currently benefitting from the increase in digital engagement. The current challenge for digital engagement is outlined, including a description of the clear knowledge gaps which need to be filled in order to understand how best to enable people who are not currently digitally engaged to become engaged.

To meet this challenge, the DIP Working Group developed a unique research methodology that was supported by new ONS annual data. The results from this research led to a clearer understanding of how best to approach and accelerate digital take-up in the UK. The methodology, results and discussion are presented in this report, which finishes with recommendations for future action.

How individuals benefit

Individuals who are able to access digital technology to communicate in new ways, to use interactive content, or to carry out transactions are realising many new and very important benefits, as detailed below.

e-Skills for employability

The employment market is changing. Our society is rapidly shifting from a manufacturing and service-based economy to a high-earning, knowledge-based economy. An estimated 60% of existing and 90% of new jobs require some form of information and communication technology (ICT) skills.¹ People who are ICT-literate – which includes digital awareness, knowledge and skills – are well positioned in the knowledge economy.



The way in which people find jobs is also changing. Job vacancies are increasingly advertised on the internet; for example, the Jobcentre Plus website is one of the most popular government websites,² and 22% of the internet population use it to look for work and apply for jobs.³ Many employment websites provide the user with personalised services, such as sending e-mail alerts of job opportunities that meet the user's requirements. This resource saves the job-seeker time and money. It also opens up new networks that enable job-seekers quickly to match their skills and aspirations with the needs of employers. The new potential to integrate different digital devices is encouraging innovation in job-finding services, such as the Employment Cafe.

The Employment Cafe in Brixton, South London, has been effective at communicating with diverse communities and demonstrating the socially inclusive benefits of integrated technology. Through the Cafe, job-seekers register their personal details and preferred employment sector in an online database. Employers contact the job-seeker using a pre-defined text message routed through a messaging centre. In automating the service, the administrative burden on the Cafe is reduced and job-seekers can still be contacted irrespective of potential restraints such as the location and opening hours of the Cafe.

¹ DfES (2002) *Get on with IT*.

² www.jobcentreplus.gov.uk

³ ONS Omnibus Survey: www.nationalstatistics.gov.uk/StatBase/Expodata/Spreadsheets/D6932.csv

New forms of content and communication

New forms of content and communication are driving take-up of digital television, mobile phones and the internet. By March 2004, 53% of UK households had digital television, up from 50% in the previous quarter. Of UK adults, 53% now have internet access at home, up from 50% in November 2003; and 25% of these adults now connect to the internet using broadband. At the end of April 2004, the UK had reached almost 4 million broadband users, with over 40,000 new connections each week.⁴ Mobile phone penetration had reached 75% by November 2003.⁵

Using these technologies people can access new interactive services. For example, by using the 'red button' on BSkyB's remote control, people are able to get easy access to a wide range of applications, including:

- enhanced entertainment (eg voting on *Big Brother*);
- enhanced information (eg *Sky News Active*);
- electronic commerce (eg shopping, banking, etc); and
- electronic government services.

The internet and mobiles are also changing the way people get information and communicate. Among internet users, 85% regularly use e-mail, 78% find information about goods or services, 19% use chatrooms and 7% use internet-based telephone or video conferencing.⁶ Mobile users send 69 million text messages every day across the UK.⁷ Both e-mail and text messaging are truly compelling applications, providing exciting and economical ways for friends, families and work colleagues to stay in contact. Both forms of communication are especially useful when people:

- are a long distance apart;
- have different hours of the day free to keep up contact;
- wish to send short messages; and
- want privacy.

⁴ www.ofcom.org.uk/media_office/latest_news/nr_20040602?a=87101

⁵ Ofcom (2003) *Strategic review of telecommunications, Phase 1 consultation*. London: Ofcom

⁶ ONS Omnibus Survey: www.nationalstatistics.gov.uk/StatBase/Expodata/Spreadsheets/D6932.csv

⁷ Mobile Data Association (2004) *UK mobile data*. April.

Age Concern helps 'silver surfers'



Cathie Stemp is a real-life example of how the internet is reaching new users in everyday situations. Cathie used to be terrified of computers, but through Age Concern's Intergenerational Computer Club in Portsmouth she was able to reinvigorate her life through learning about the internet. After some initial tutoring Cathie bought a home computer and was quickly able to get to grips with surfing and chatrooms, soon talking to her son in South Africa via a webcam.

Cathie's experience and confidence increased to the point where she felt comfortable enough to shop and bank online. The final step in Cathie's entry into the digital age has now begun, as she is starting to teach others at the Age Concern centre where it all began for her. The key to getting online, she says, is "about getting over the fear".

Cathie is the 2003 Silver Surfer of the Year. This annual campaign is run by Hairnet Computer Training under the auspices of the lifelong learning charity NIACE. See www.hairnet.org

Recent innovations have extended the benefits of both e-mail and text messaging. The variety of handset designs has dramatically expanded in the past few years as phones with colour screens and built-in cameras have become more popular. In 2004, around 70% of handsets sold will have colour screens and 44% will have built-in cameras – up from 38% and 17% respectively in 2003.⁸ With increasing multimedia capabilities, people are now able to use mobile phones to:

- send and receive e-mails;
- take, send and receive photographs;
- record and listen to music;
- organise their diary;
- play games;
- tune in and listen to digital radio; and
- browse the internet.

Broadband: enhancing the user experience

Our desire for ever-improved ways to communicate is reflected in the substantial growth of broadband in the UK. Starting from a very low base, the UK is currently experiencing a 200% annual growth in the level of broadband take-up.⁹ Much of this growth has been bolstered by significant decreases in price, improved availability, enhanced product propositions and significant investment by government in key broadband-enabled public services such as education and the NHS. At the end of April 2004, the UK had almost 4 million broadband users, with over 40,000 new connections each week.¹⁰ In the main, this growth has been driven by users who upgrade from dial-up/narrowband to broadband.

⁸ *Economist* (2004) Shape of phones to come 12 June, p.3.

⁹ Broadband Stakeholder Group (2004) *3rd annual report & strategic recommendations*.

¹⁰ Ofcom (2004) *The Ofcom internet and broadband update*.

The UK is not alone in its experience of growth in broadband take-up. In the 30 countries that make up the OECD area, there were more than 82 million broadband subscribers at the end of 2003 – up from only 3 million four years earlier.¹¹

The reason for this growth is clear: compared to dial-up connections, broadband delivers a qualitatively different and much enhanced user experience, and at a price that is becoming increasingly agreeable to the consumer. Broadband connections are:

- **fast:** people with a broadband connection no longer have to wait, and wait some more to get a connection to the internet. With broadband, the user can quickly send, receive and trade data-rich content, such as music files, video files and photos; and
- **'always on':** a broadband connection means that people no longer have to keep turning their internet connections on and off throughout the day, and that users can simultaneously use the internet and the telephone if they wish. This 'always on' potential makes the technology ever more 'invisible', enabling a significantly improved user experience.

Broadband: a definition

'Always-on access, at work, at home or on the move provided by a range of fixed-line, wireless and satellite technologies to progressively higher bandwidths capable of supporting genuinely new and innovative interactive content, applications and services and the delivery of enhanced public services.'

– Broadband Stakeholder Group (BSG) (2004): *3rd annual report & strategic recommendations*.

The BSG recommends that, as a starting point, this would include higher bandwidth services (defined as >256 Kbit/s by the OECD). The BSG anticipates progressive development through to the next generations of broadband.

At present, around 84% of UK homes and businesses have access to broadband.¹² Although the distribution is not currently uniform – which results in inferior services for rural areas of the UK^{13,14} – BT's plan to speed up the delivery of broadband services to rural communities should bring near-universal coverage across the UK by summer 2005.

People currently access broadband via PCs; but in the near future 'third generation' (3-G) phones will extend the benefits of broadband to mobile communication devices in the UK. Already in Japan – where the 3-G market is comfortably the most advanced in the world – 3-G mobiles deliver a wide range of added-value benefits to the user.¹⁵ In Japan, 3-G phones:

- serve as 'swipe cards' to get through ticket barriers on the East Japan Railway;
- enable people to pay for products at vending machines;
- provide easy access to video conferences;
- translate to and from foreign languages; and
- take very high-resolution pictures and videos.

¹¹ *Financial Times* (2004) Pipeline points way to profits, *FT IT review*, 9 June, p.6.

¹² Ofcom (2004) *The Ofcom internet and broadband update*.

¹³ Broadband Stakeholder Group (2003) *The impact of public sector interventions on broadband in rural areas*.

¹⁴ Countryside Agency (2003) *Broadband in rural areas*. Wetherby, West Yorkshire: Countryside Agency Publications.

¹⁵ *The Times* (2004) Power to go: mobiles that do it all. 5 June, p.3.

The UK digital communications market is highly competitive and innovative. Broadband is increasingly being bundled with a number of 'added-value' services to meet user needs. For small and medium-sized enterprises (SMEs), where convenience and concern over viruses are important, operators have met the needs of industry by providing integrated virus protection software, websites, and e-mail addresses. In the residential market, operators are looking to provide added-value services such as video-over-broadband, enabling consumers to watch live or download video to the TV. A second added-value service for the residential market will be voice-over-broadband, which will deliver competitive voice calling and potential for live video calls.¹⁶

Convergence: integrating the digital world

The potential to integrate various digital devices enables people to use and switch between different devices to meet their own particular needs. For example, when on holiday a person may take photos using their mobile phone or digital camera. These images may then be sent to others via a mobile, or they may be transferred and stored temporarily on another mobile device, such as a music player. On return from holiday, the person may decide to place all their data-rich media – sound, images, videos – on a home PC, where such content may be:

- stored securely in a family archive to be viewed on a PC or digital television;
- used to create a family web page;
- e-mailed to family and friends; or
- copied to CD-ROM and then posted to family and friends.

In addition to enabling high-quality multimedia internet access and use, many people find the PC to be an invaluable tool to help them create a wide range of content, ranging from written documents to music. Increasingly, the PC is being positioned as the home's digital pantry – the place where people store and retrieve their digital content, whether from a camera, mobile, music player, palmtop, laptop, or other digital device.

DTV is now used in combination with mobile phones for text voting (eg *Pop Idol*), text messaging (eg *Question Time*), and teletext shopping (eg booking holidays). Such innovations will continue, driven on by support from industry and the sheer ingenuity of consumers. This market dynamic is illustrated by a WAP-based browser developed by BSkyB, which enables content makers to render their internet-based content suitable for display on iDTV. And in the British club scene such innovation is illustrated by performing artists, who are exploiting the potential of digital convergence to advance video disc-jockeying, which is an emerging market in popular culture.

Like many successful industries, the Government has recognised the potential of digital convergence to develop better public services tailored to the needs of the citizen and business. The e-Government Interoperability Framework (e-GIF) defines the essential prerequisites for digitally joined-up and web-enabled government.¹⁷ As a cornerstone policy in the overall e-government strategy, e-GIF adopts internet specifications for all government services.

Digital convergence offers the potential for new and significant opportunities for consumers. With such increasing complexity and choice, people will need to take more responsibility for what they and their children see and hear on screen and online. Media literacy will provide some of the tools they need to exploit the opportunities offered, to manage their expectations and to mitigate some of the risks involved.¹⁸

¹⁶ *Financial Times* (2004) Pipeline points way to profits, *FT IT Review*, 9 June, p.1.

¹⁷ Cabinet Office (2004) *e-Government Interoperability Framework*, Version 6.0.

¹⁸ Ofcom (2004) *Ofcom's strategy and priorities for the promotion of media literacy: a consultation document*.

Shopping online

After the dot.com bubble burst in 2000, many companies carried on developing online transactional services, bolstered by the steady growth in take-up of the internet, iDTV and mobile phones. Real profits are now being earned, resulting in transformational changes in both online and offline commerce.

When digitally engaged, people are able to transact in a number of areas, including:

- electronic banking, finance and insurance;
- food and clothing;
- holiday and travel;
- books, CDs and DVDs; and
- utility bills.

In 2002, over a quarter of the population said they had shopped on the internet in the previous year.¹⁹ Of these, 34% bought books; other popular items were hotels and travel (33%), music/CDs (30%) and clothes (17%). One in five people in the UK said they were likely to use the internet to buy from abroad in the next 12 months, with the most common sources France, Spain and the USA.

E-purchasing patterns of consumers show that many people start by buying products that are predictable, such as books and CDs, before moving on to buy products that are more personal, such as clothing. The internet allows people to make more informed choices: they can compare product, price, and performance online – and then take more time to reflect if they wish.²⁰ When e-shopping, people will often use knowledge gained from harvesting product reviews on the internet to:

- buy online and have the product delivered to their home; or
- buy online and then collect the product at an offline shop.

The most successful companies operating in the online market recognise that the internet is, by its very nature, inclusive and consumer-empowering. And the informed customer is having a significant impact on commerce. For example, half of the 60 million consumers in Europe who have an internet connection have bought products offline after having investigated prices and details online.²¹

In response to this consumer movement, companies continue to innovate through the development of fully integrated online and offline portfolios, communicating the same message to consumers via a wide range of digital (eg PC with iDTV, mobile) and traditional (eg newspapers, magazines, in-store) media. This multi-channel approach, the customer perspective is placed at the heart of business, with companies giving people what they want, when they want it, and in a user-friendly and personalised way.

In addition to the many benefits which current users are deriving from facilities such as online grocery shopping offer great potential to support people who are often not engaged due to lack of mobility, such as older people and people with disabilities. From an e-commerce perspective, digital engagement matters because it provides an opportunity for all people to access:

¹⁹ DTI (2002) *Internet and cross-border shopping*.

²⁰ *The Economist* (2004) A perfect market: a survey of e-commerce, 15 May.

²¹ *The Economist* (2004) A perfect market: a survey of e-commerce, 15 May.

- a greatly expanded range of goods, services and information;
- increased price transparency, with the ability to compare and make choices across goods and services offered by a very wide range of suppliers over a wide geographic area;
- goods and services delivered locally, which may not otherwise have been available where the user lives; and
- a higher quality of goods and services, at better prices.

The biggest threat to future growth of e-commerce is user concern about online security, particularly fraud. The MORI 2002 study revealed that 32% of adults had expressed concern and 1% had reported experiencing fraud,²² suggesting that the fear of fraud is disproportionate to what people actually experience. The 2002 study revealed lower consumer concerns about fraud than in 2001, although the reasons for this reduction were not explored.²³

The Government is committed to promoting good information security practice as part of efforts to make the UK the best place for e-business. *The information security breaches survey* was published recently by the Government,²⁴ and gave a significant boost to the understanding of information security issues. The results of the survey will inform the Government's continuing promotional effort, which is aimed in particular at supporting SMEs. The Government is also working with business on a number of security initiatives, including promoting the use of the British Standard on information security. Internationally, the UK has played a major role in the production of the OECD guidelines for the security of information systems and networks.

It should be recognised that illegal and socially distasteful online activities also put off a significant number of people either from using the internet at all, or from using it with quite the frequency or ease which one would hope for. Parents are the most obvious and largest group, while among certain religious and other cultural groupings the internet is viewed with misgiving. It is clear that the internet industry has a great responsibility to help solve this problem, and indeed it is doing a great deal. Yet more effort is needed. For its part, the Home Secretary's Internet Task Force on Child Protection has put together safety guidelines and published a code of practice for the internet industry. The task force includes representatives from other sections of government, children's charities, the police and the internet industry.

²² MORI (2002) *What are the main disadvantages of shopping via the Internet?*

²³ DTI (2002) *Internet and cross-border shopping*.

²⁴ DTI (2004) *The information security breaches survey*.

Safer Internet campaign

Safer Internet is an awareness campaign promoted under the SafeBorders project, which is partly funded by the European Commission under the Safer Internet Action Plan. There is general agreement about the possible risks associated with internet use by children and teenagers. The Safer Internet awareness campaign believes that the answer to these possible risks includes education and prevention.

This work is being carried out with partners at national and European levels, addressing various target groups: not only educational institutions, parents, social workers, librarians, consumer associations and children, but also industry, government and the media. The Safer Internet campaign is working towards creating tools that will offer advice, and raising awareness to empower and educate people towards a safer information society.

The campaign also works closely with two other awareness projects that are supported by the European Commission. Although all three have different approaches, they have the same goal – internet safety. The other projects are:

- SAFT (Safety, awareness, facts and tools); and
- Educaunet.

Daily living

Lifelong learning and e-skills development

A vibrant educational marketplace puts the learning needs of users first. Digital communications now play an important role in supporting informal, work-based and formal learning opportunities for people of all ages.

Informal learning

Lack of confidence is often a major barrier to becoming digitally engaged, and may be associated with other barriers such as lack of physical access, inaccessible websites and lack of assistive/adaptive technology. The use of existing community settings, organisations and networks that are part of the lives of people who are not digitally engaged has considerable potential to encourage digital take-up.^{25,26} Examples of informal learning strategies include:

- **peer-to-peer:** people learn about the benefits of digital communication in community venues across the UK, ranging from pubs to local churches to town halls;
- **local champions:** from housing estates to cafes, community leaders are playing an important role in supporting internet take-up for hard-to-reach communities;
- **intergenerational:** schoolchildren are working with a range of voluntary sector organisations to teach older people how to send e-mails and surf the internet;
- **trusted intermediaries:** in England, the 6,000 UK online centres serve a hugely diverse client group of all ages, often working in partnership with trusted local community groups such as Age Concern and Citizens Advice. Throughout Scotland, meanwhile, WRVS volunteers help home-bound people learn about the internet while conducting other support services in the client's home;

²⁵ Loader, B and Keeble, L (2004) *Challenging the digital divide? A literature review of community informatics initiatives*. York: Joseph Rowntree Foundation.

²⁶ Harris, K (2000) *Everyone gets hooked: Exploring ICTs in low-income neighbourhoods*. London: Community Development Foundation.

- **self-directed:** the Scottish Executive has produced and freely distributed over 400,000 CD-ROMs in community settings throughout Scotland. The CD-ROM, called *Internet made easy*, provides a user-friendly guide to help people who have access to a PC to take the first steps to get started on the internet; and
- **digital helpdesk:** the government-supported Cybrarian initiative will provide an online resource to enable people who feel excluded from the internet to overcome barriers such as lack of confidence, lack of skills and/or lack of motivation in using the internet.

Getting online: the gateway to a better life

In 1990, mother of two Habiba James received the unwelcome news that she was suffering from ME and fibromyalgia, a chronic condition of muscular fatigue. She was forced to give up her job and then her university degree as travelling and everyday chores became a struggle. Two years ago, Habiba decided to visit her local UK online centre in a bid to improve her life by getting online. The 45-year-old now shops, studies and socialises on the internet – and was recently reunited on the web with her best school friend after more than 30 years without contact.

“I had always led a normal life before I became ill, working as a busy housewife and bringing up two young kids. My life was challenging but never overtiring, and I had never had any problems balancing the demands of being a mum with putting food on the table. I later got myself a good office job, but the combination of fibromyalgia and ME soon made it impossible for me to stay in full-time employment, as I lacked the stamina to continue the daily grind of nine-to-five, week in, week out. I also began to find shopping an increasing strain, but paying for taxis to pick up my groceries was expensive. As my children got older, I began to rely on them to do supermarket runs. A brief flirtation with a sociology degree was unsuccessful, as carrying books to lectures became a real problem.

“Then, two years ago, I attended a basic internet skills course at Residents Online, a local UK online centre. It was here that I learnt how to send my first e-mail and how to use the web as a way to make life more convenient. While I was determined to make the internet work for me from the first session, I would never have guessed that it would have such a huge impact on my everyday life. Discovering how to buy goods online was a revelation, as it meant I could have almost anything I needed delivered directly to my door without the hassle of calling on others or the strain of venturing out myself. I now order in food shopping from www.ocado.com, and was delighted to find a website that sends me the organic vegetables I need to maintain my health (www.abelandcole.co.uk). The time saved on shopping has enabled me to return to studying – but on my own terms this time. I have enrolled on a sociology degree through the Open University, which provides a special chatroom on the web for the exchanging of ideas with other students. I have become a completely self-sufficient student, and don’t have to cope with the pain of carrying heavy books home. I let www.amazon.co.uk worry about that!

“Although I love being a student, I still need to find a way of paying the bills (which, incidentally, I pay online). With this in mind, I recently returned to Residents Online to take a course in website design. The excellent support of the UK online centre has given me the confidence to set up my own web-based business, for which I personally designed the website. If you are thinking of taking a well-earned holiday but are worried about your pets, look no further than www.thecatnanny.net! Learning to use the internet has transformed my life, from shopping to studying. My greatest experience, however, has been the chance encounter with an old schoolfriend, whom I had not seen or spoken to since I was 12 years old. We did everything together, but due to our different paths in life seemed fated never to meet again. He discovered my details recently on www.friendsreunited.co.uk and got in touch. We are now inseparable. It is the things like this that are most important in life.”

Work-based learning

The workplace is often the first place where people become aware of and use the internet. Both formal and informal work-based learning provide a tremendous opportunity for people to develop knowledge and skills to use the internet. There are a growing number of union- and employer-managed e-learning centres in the workplace, and more than 200,000 SMEs took learndirect e-learning courses last year.

The workplace serves as a key catalyst to enable migration to home use. To encourage such migration, the government-supported Home Computing Initiative provides a tax advantage to employers who loan computers to their employees.

Dixons Computers@home

With leading ITC industries and high-street stores participating, the Home Computing Initiative has achieved some considerable success. For example, the Dixons Computers@home scheme has so far launched 40 schemes available to 400,000 employees from a wide range of companies, and currently has approximately 30,000 participants.

Benefits of the Home Computing Initiative

For business

- Improved competitiveness
- Reducing staff turnover
- e-Learning vehicle
- Improved morale
- Easy to administer
- Cost-neutral or cost savings

For employees

- Affordable PCs for the home
- Easy payments
- No credit charges
- Personal and family education
- Internet access
- Engagement in the knowledge economy

One of the benefits of the initiative is that it enables home-based learning. Working in partnership with learndirect, participants are able to gain instant access to hundreds of online courses in computers, office skills and self-development, designed so users can learn at a time, place and pace to suit individual needs. The service also provides impartial information and advice on over 600,000 courses from providers throughout the UK.

Formal learning

With technology so commonplace in today's society, people who have not yet acquired basic ICT skills will be excluded from the knowledge economy, and much that it has to offer. Formal, structured learning opportunities provide an opportunity for learners of all ages to acquire relevant life skills.

From a demand-led perspective, existing private- and public-sector providers of educational services have an opportunity to innovate and develop services that enable citizens flexibly to develop skills needed to excel in the knowledge economy.

Government investment in broadband connectivity in schools, public libraries, and further education and higher education settings across the United Kingdom has released the potential for increased levels of interactive and immersive learning. The possibility to create new kinds of learning experiences has emerged as a result of this investment in broadband connectivity; and many of these opportunities have been taken up by UK educational publishers, who are global leaders in developing digital content to support learning.

Health and social care

Launched by the Prime Minister in December 1999, NHS Direct provides people with quick, safe and reliable access to health information to help them manage their health. With a clear focus on the citizen, NHS Direct is a multi-channel service – each month the website receives nearly 500,000 visitors and the telephone helpdesk receives 100,000 telephone calls. This example illustrates the potential of access to health information and health services as a catalyst for patient and citizen adoption of the internet. Digital services would enable the provision of a wider range of personalised services that allow individuals to remain in their own homes and within their own communities for longer before being admitted to hospital or residential care, and to be more effectively engaged in managing their own conditions.

Recent investment in the NHS National Programme for IT will significantly increase the capacity and capability of the NHS to deliver health services online, including the ability of patients to:

- view and interact with their own health records online;
- add information they regard as relevant to their care; and
- book and track appointments online.

The recent procurement of enhanced connectivity for the NHS will make the NHS one of the largest broadband customers in the UK. This investment is being leveraged through the Regional Aggregation Boards, which the Government recently established to aggregate local public-sector demand in order to improve availability and use of broadband services across the country.

The focus on chronic disease management that forms part of the Government's new goals for the NHS provides a unique opportunity to design internet-enabled support services to assist patients and their carers to manage more effectively long-term conditions such as asthma, AIDS, diabetes and coronary heart disease. These digital services could provide patients with easy access to:

- personalised, disease-specific advice;
- online communities for self-help and support;
- multimedia educational components; and
- real-time access to specialist support through internet protocol voice and web-video devices.

The addition of digital monitoring devices using the internet to pass information back to the care record will give patients and clinicians near real-time access to report cards on compliance and condition progress. Pattern recognition software will be used to analyse trends in the data, which will be matched against a significant database of other users. This intelligence will help forecast potential adverse events, and will trigger an alert to patients and clinicians in order to enable appropriate responses. Anonymous aggregation of such intelligence will also advance medical and scientific knowledge, which will benefit all.

Citizenship

Seventy-four per cent of government services are now e-enabled,²⁷ making it easier for citizens to communicate and conduct transactions with government when and where the user chooses. Around half of the internet population now visit government websites (nearly 30% of the adult population), and some online services – such as university applications and driving test bookings – are rapidly achieving high levels of use.

Being online encourages participation in local democracy. For example, 75% of adults living on the digitally connected Carpenters Estate in East London recently participated in a vote for estate management. Looking ahead, the Government aims to hold an e-enabled election some time after 2006, and there has been an extensive programme of pilots at local elections in preparation for this.

Digitally uniting communities

Across the UK, local communities – rural, suburban and urban alike – are choosing to use the internet to promote greater community cohesion through information sharing and networking activities. It is now clear that the internet can be a powerful catalyst to encourage people who live in the same local community to meet and begin communicating offline in their local community.

The capacity to integrate digital devices has encouraged the development of community-led innovations, including those developed as part of the Wired-Up Communities initiative, which started with support from government. In addition to connecting geographic communities, the internet connects people who have similar interests, forming 'communities of interest' around topics ranging from hobbies such as gardening to mutual support for people caring for others at home.

Carpenters Estate, East London

Through a reconfiguration of TV technology and use of cabling, the Carpenters Estate in Newham, East London, has developed a unique service to connect the local community. All 540 households in three high-rise and six low-rise buildings have TV access via a set-top box to the internet, e-mail and PC with Microsoft Office, plus online games, video on demand and government services. The service incorporates Home-2-Home, an estate-based TV production company and TV channel. Newham.net – a social enterprise that acts as broadcaster, internet service provider and telecommunications company – runs the service. Moving forward, the service is developing an open-source product to drive further innovation.

For many people, the internet has proved to be an extremely valuable tool to help reduce feelings of isolation. This is especially important for people who are geographically isolated or who have mobility problems, such as older people and people with disabilities. Some communities may be characterised as one-dimensional and intolerant of differences and diversity; in this context, the internet may be the only source of escape from a geographic community, and may provide liberation into a virtual community of people who share similar interests.²⁸

²⁷ e-Government Unit (2004) *ESD Returns*.

²⁸ Joseph Rowntree Foundation (2004) *A literature review of community informatics initiatives*.

Recognising the potential of the internet to improve people's lives, government has invested to make physical access to the internet available to all, by means of 6,000 UK online and learndirect centres. In order to support the most socially excluded, the centres operate in all 88 Neighbourhood Renewal Areas and in 2,000 deprived wards. Twenty-two per cent of learndirect and 27% of UK online centres are located within voluntary-sector organisations. Strategic partnerships with such organisations provide an ideal opportunity to access existing networks, where intermediaries can offer hard-to-reach people opportunities for personalised internet learning and support within the course of other regular activities.

learndirect and UK online centres bolster existing community resources. The UK online centre network includes the People's Network, which connects every public library in the UK to the internet. With over 30,000 PCs now installed in libraries – an average of over seven per branch – the People's Network provides an important community resource to enable people freely to access and use the internet. For many of the most vulnerable in our society, having access to such a community resource, supported by trained staff, provides an important opportunity to increase awareness and confidence in their use of the internet – a key stepping-stone to higher levels of use in future.²⁹

²⁹ New Opportunities Fund (2004) *Call ICT: Learning centres year one evaluation findings*. London: NOF.

CommaNET, the community archive network

CommaNET was set up in 2000 to support local communities who want to create their own archives and make these available in digital form. Using basic IT equipment and COMMA, an easy-to-use database software package, groups can digitise and store photographic and video images, text and sound recordings. These fully searchable databases are then published in CD-ROM format and on the CommaNET website (www.commanet.org).

Bournemouth Peer Support Groups



In Bournemouth there are seven Peer Support Groups where older volunteers guide and support older people in the use of computers. Some of the users have never used a computer before and feel that a formal training course would be too intimidating. As the Peer Support Groups often work on a one-to-one basis, the users feel that they can work at their own pace without holding anyone up. Bournemouth Libraries run many free computer courses. One lady who had attended a course found that the peer support she received after the course was invaluable. "Being older means that I am not always able to retain all the information I am told, so having a volunteer to re-explain things to me is brilliant." The volunteers too get a great deal of satisfaction in being able to help others and often learn more themselves.

The library staff are always on call if needed but they do find that having volunteers within the library means that they can get on with the job in hand. One staff member said: "I would love to be able to spend more time helping the users of our services but it is not always possible. By having the volunteers here it means that we can offer that little extra that can only enhance what we can provide."

Many of the benefits to individuals outlined above rely on access and use of internet-enabled PCs. The content and interactive services provided by iDTV and mobile devices are also important and may, in fact, represent more attractive alternatives than the PC to population groups that are often digitally unengaged.^{30,31} Because of familiarity, a broadcast-led medium such as iDTV may enable rapid digital engagement among older people. By contrast, younger people on low income may more readily become digitally engaged by using pay-as-you-go mobile devices, which at present offer largely communication services (eg voice, text, photo), but which will increasingly enable internet access to content and transactions.

³⁰ Ofcom (2003) *Strategic review of telecommunications, phase 1 consultation*. London: Ofcom.

³¹ ONS Omnibus Survey: www.nationalstatistics.gov.uk/StatBase/Expodata/Spreadsheets/D6932.csv

How suppliers benefit

The complex nature of the challenge to enable a *digitally United Kingdom* can only be addressed through action on the part of government, industry and the voluntary sector, driven by investment in commercial and social innovation and enterprise, and supported by lifelong learning. In order to optimise the potential network effect of a *digitally United Kingdom*, the supply side also needs to be fully digitally engaged.

This section outlines how each sector is benefiting, separately and collectively, from digital engagement.



Business and industry

Digital engagement is providing industry with opportunities to innovate and generate wealth, and to contribute to corporate social responsibility.

Innovation and wealth creation

Innovation – the generation of new ideas – is required to ensure ongoing prosperity in the UK. Innovation leads to new products and services which improve our quality of life. In a global market innovation makes an important contribution to sustainable employment.³²

Companies that develop compelling propositions do well in the digital age. But knowing exactly what products and services people want is not a simple task. As the experience of broadband illustrates, the market dynamics are complicated and users are more than just consumers of content. Valuable propositions for broadband users in the digital age are often centred around communication, contribution and community.³³

The BBC

Within its public service remit, the BBC has been at the vanguard in the development of digital innovations that enable the citizen to participate, interact and create. The BBC's Internet Media Player will allow people to download whole TV programmes over a seven-day window after broadcast. The BBC's Creative Archive will host a library of 'clips' that will be available to use for new creative work.

³² DTI (2003) *The innovation report*. London: The Stationery Office.

³³ Broadband Stakeholder Group (2004) *3rd annual report & strategic recommendations*.

The digital marketplace is very competitive. Many companies seek market growth by encouraging more use by existing customers, which is usually supported with new product and service innovation. In the mobile market, for example, Orange shop assistants take on the role of a 'trainer', and provide personalised instruction to customers on how best to use the full multimedia capabilities of a phone. Encouraging such extended use of technology can be profitable: 7% of mobile customers are using new services such as GPRS, picture messaging and video services.³⁴ Along with increasing average call and SMS usage, these innovations have led to higher average revenues for mobile operators.

Yet the biggest wealth-generating opportunity exists through full digital engagement. A better understanding of the currently unengaged market is clearly needed. Empowered with market knowledge, UK industry will be well placed to innovate and develop compelling propositions, some of which will target individuals, while others may target communities or business service redesign.

Corporate social responsibility

Companies are increasingly judged by investors, customers, possible partners and potential employees on how well they treat their employees, and by the impact their policies have on wider society. With this in mind, many successful companies are realising significant benefits by aligning digital corporate social responsibility programmes with their business model. This strategy delivers the dual benefit of increasing the ICT skills of potential employees and broadening the number of people who can access and use the company's digital services.

BT and EverybodyOnline

In partnership with the charity Citizens Online, BT has established a socially innovative project, EverybodyOnline (EOL), to provide a holistic solution to digital inclusion for communities in disadvantaged areas. Ward-sized areas were chosen to target a cross-section of UK geography, ranging from inner-city to rural communities. The aim of EOL is to increase access to ICT and the internet by removing the barriers to adoption. The promotion of internet access is based on the interests of individuals, their needs and the issues within a community (such as employability, communication and community involvement). A partnership approach is taken with local service providers, in order to make as large a sustainable impact as possible. The first projects have now been running for two years and are showing real benefits by:

- encouraging collaboration through brokering business support for ICT in community venues;
- engaging children to help their grandparents and parents to get involved through 'Grandparent to school' days;
- developing local content – establishing community group websites;
- establishing partnerships – working with groups such as Citizens Online;
- encouraging the reluctant to 'have a go' through taster sessions in venues where they already meet (eg community centres);
- targeting the less advantaged – groups such as older people, disabled people and unemployed people; and
- providing pathways – working with local stakeholders to develop relevant progression routes and build in sustainability.

³⁴ Oftel (2003) *Market information mobile update*, December.

A series of hard and soft measures have been taken to demonstrate impact. A fourfold increase has been found in internet usage in EOL project areas, compared to national benchmarks from the Office for National Statistics. BT has played a key role in the project as well as being the major corporate supporter. The partnership has been of great value to the project in adding weight, credibility and resources of various types (eg volunteers, equipment, PR support, management input, etc). The independence of Citizens Online as a charity has been key in reassuring communities that this is not an attempt by business to sell them things that they do not want or need. BT and Citizens Online are working together to bring in other partners from government and the private sector to help grow the initiative: Microsoft recently became involved and other local authorities are considering running their own EOL.

AOL and Citizens Online

AOL UK and Citizens Online launched the AOL Innovation in the Community Awards in 2003. Thirty awards of £2,000 are offered to community groups and charities across the UK, with the aim of enabling people who are digitally excluded to take up the internet. The recipients of the awards, which are an important recognition of community-based innovation and enterprise, have ranged from an internet café for blind and visually impaired people in Berkshire to a web-based radio station for young people in South Wales.

Cisco Networking Academy Programme

An excellent example of successful integration of corporate social responsibility within a corporate business plan is the Cisco Networking Academy Programme. This public-private partnership between Cisco, governments, educational institutions, voluntary sector organisations and industry was created to teach students how to design, build and maintain computer networks. The programme follows an e-learning model that includes web-based, media-rich educational content, online testing, student performance tracking, and instructor training and support, as well as hands-on laboratories. With a curriculum developed collaboratively by education and networking experts, the programme has demonstrated a highly successful alliance between industry (in this case Cisco), educators, governments and international organisations that helps prepare the workforce as a whole for the demands and opportunities of the new global economy.

Hewlett-Packard: Digital Villages and I-Communities

Recognising the importance of innovation in the development of business models as well as in technology, Hewlett-Packard (HP) has established over 100 e-engagement projects in 13 countries across 4 continents. Designed to empower disadvantaged communities in both developed and developing countries, HP provides the technology required to give people access to the internet through a wide range of devices. The services are technology-neutral and support convergence of IT, communications and broadcasting technologies. HP's flagship programme is Digital Villages, which provides a range of HP resources to enable development of digital capacity within local community networks. I-Communities – which are the next generation of HP's e-engagement initiatives – provide solution innovation and socio-economic development through technology access and training. All HP e-engagement projects are based on three principles:

- **People first:** It's not just about technology; it's about people having access to information and social and economic opportunities.
- **Partnership:** HP recognises the need for extensive partnerships between private, public and voluntary sectors, rather than simple unilateral action.
- **Sustainability:** If the solution is not sustainable, it's not a solution. Sustainable solutions respect culture and preserve and enhance the environment.

Voluntary sector

Voluntary-sector organisations that are digitally engaged are gaining significant benefits. Financial sustainability is often a pressing issue for the voluntary sector; therefore, improvements in income generation and efficiency through service redesign are critically important.

Income generation

Many voluntary-sector organisations need project funds in order to continue with their vital work. A growth in the number of funding schemes made available only to consortia makes digital engagement by the voluntary sector a necessity.³⁵ Many leading UK voluntary organisations – ranging from Oxfam, to Mencap, to the RSPB – use their websites to encourage industry and the public to donate funds.

Service redesign

Digital engagement provides an opportunity for the voluntary sector to innovate and transform how it delivers services. Organisations that focus on campaigning and influencing decision-makers benefit greatly from the internet because they can send targeted messages quickly and efficiently. With few resources and little formal power, local groups campaigning on local issues can amplify their voice. It is clear that e-democracy often encourages active participation, often on single issues that are important to people (see, for example, www.north10.com).

Many voluntary-sector organisations provide health, education and social care services to support some of the most vulnerable people in the community. Both the internet (eg using websites) and iTV (eg using community channels) provide these organisations with a way to connect with client groups at home and in the community.

A service innovation that has been found to be particularly useful for helping people who are not digitally engaged is the development of 'trusted intermediaries'. Working in well-regarded voluntary sector organisations such as Citizens Advice and Age Concern, trusted intermediaries provide support skills and resources to help others gain benefits from digital services. Such resources have the clear potential to open up routes to e-government services for many people who are currently not digitally engaged.³⁶

Increasingly, health and social care services are being co-ordinated across communities, with digital technologies used as key communications tools. Organisations that are digitally engaged are able to connect and collaborate with other health and social care providers from the voluntary sector, government, and the private sector.

³⁵ Ticher, P, Maison, A and Jones, M (2002) *Leading the way to ICT success*. London: The Baring Foundation.

³⁶ Wheatley, J (2004) *The CAB service as intermediaries*. www.electronic-Government.com/John%20Wheatley.ppt

NCH: Access to IT – bridging the digital divide

'Access to IT' is a consortium of seven companies working in partnership with NCH to provide best practice examples of how to improve ICT access for disadvantaged children and young people. The members of the Access to IT consortium are: AOL UK, BAE Systems, BT, Cable & Wireless, Hewlett-Packard Limited, Microsoft and the Worshipful Company of Information Technologists. The mission of this service is to bring the ICT industry, voluntary organisations and government together to ensure equal and safe access to ICT for all children regardless of their circumstances. The objectives of the key stakeholders are to:

- identify best practice and relevant standards through the implementation of a number of 'beacon' projects;
- disseminate experience and guidelines about practical access to ICT to all voluntary and statutory authorities working with children; and
- influence government to provide funding and support for equal access to ICT for identified groups of marginalised children in the UK.

Beacon projects

Warren Park Children's Centre

Warren Park is a purpose-built centre in Kingston, Surrey, which provides a range of high-quality services to children with a range of learning or other disabilities and their families. These include longer-term residential care, respite/short break care, and variable daycare-based activity. Warren Park will provide ICT for 66 children and young people aged between 8 and 20 years. For children and young people with profound disabilities, having access to ICT is not only crucial to achieving a step-change in skills development, learning and communication, but also improves their quality of life and opportunities on a daily basis. Due to the nature of their disabilities, some of the children may, for example, be able to use the specially adapted hardware and customised software to communicate with family members, perhaps for the first time ever.

Coventry Aftercare

Coventry Aftercare supports and promotes the development of key life skills for 141 young people aged between 12 and 24 years, as they move towards leaving the care system and beginning to live independently for the first time. Coventry Aftercare will use ICT in a range of innovative ways in order to help the young people with training, education, and communication with each other or with their personal advisers.

Bayswater Families Centre

Bayswater Families Centre delivers a wide range of services in the Bayswater area of London. The centre currently supports 576 people from a range of minority ethnic backgrounds.

Through Access to IT the centre will complement its existing service provision by launching computer classes for children and adults to develop skills and provide access to new information and support channels.

Government

To realise the full potential of e-government, it is important that such services are designed to meet the needs of the citizen. With this in mind, the Office of the e-Envoy recently launched DirectGov.

Available via the internet and iDTV – on BSkyB, ntl and Telewest – DirectGov enables people to find resources that are relevant to them by presenting information in a consistent and usable way. Instead of expecting users to appreciate the structure of government when trying to find the information and services they need, DirectGov clusters resources around audience groups (eg motorists, parents, carers for disabled people) and topics (employment, health and well-being, home and community, learning). Navigation on DirectGov is designed to be simple and easy. Over time, DirectGov has the potential to become the single site for all government services, and the primary means by which the citizen and government communicate with each other electronically.



The challenge for government will be to capitalise on the potential of ICT to transform service delivery and achieve a step-change in operational efficiency across the public sector. To help achieve this, support from central government will now focus on the business transformation of government itself. Emerging from the Office of the e-Envoy, the newly created e-Government Unit in the Cabinet Office will give strategic leadership and drive to the application of ICT within government in order to support the reform and modernisation of public services. The e-Government Unit will be responsible for delivering the target for e-government, and will play a pivotal role in supporting the Prime Minister's vision for public service reform.

Key areas of government activity include delivering public service reform, encouraging innovation, promoting civil society and maintaining global leadership.

Delivering public service reform

There are three core areas where digital engagement will have an impact on the performance and overall efficiency of government. A digitally connected society will enable government to improve:

- **transactional services:** transactional services direct to the public, such as the payment of over £100 billion of benefits and the collection of billions of pounds of tax revenues, have the potential for complete transformation of service delivery;
- **procurement:** online procurement of goods and services from third parties will enable government and suppliers to save money and time; and
- **back-office functions:** back-office functions (such as human resources, finance, ICT, and estate management) are essential to support frontline staff, who themselves will need digital skills to work optimally in a digital environment. A digitally connected and skilled workforce will mean that many back-office government processes can become automated. This will free up staff and other resources so that they may provide enhanced direct services to the citizen.

Improved multi-channel services

Electronic service delivery of core public services has the potential significantly to improve the efficiency, convenience and quality of government services. The primary benefit of e-government services is expanded information flows between government and citizens. There is much to learn from the experience of the USA, where many citizens say the internet helps in conducting their business with government.³⁷ The US study revealed that people with internet access were much more likely to contact government than non-internet users, showing that internet users had strongly embraced a new communications medium to contact government. The conveniently available information offered on government websites makes it easier for people to conduct their business with government by whatever means they choose. The ease of e-mail makes it possible for citizens to fire off a missive to express a view about policy or highlight a problem with neighbourhood street lighting. The upshot is that internet users say that e-government improves their relationship with government.

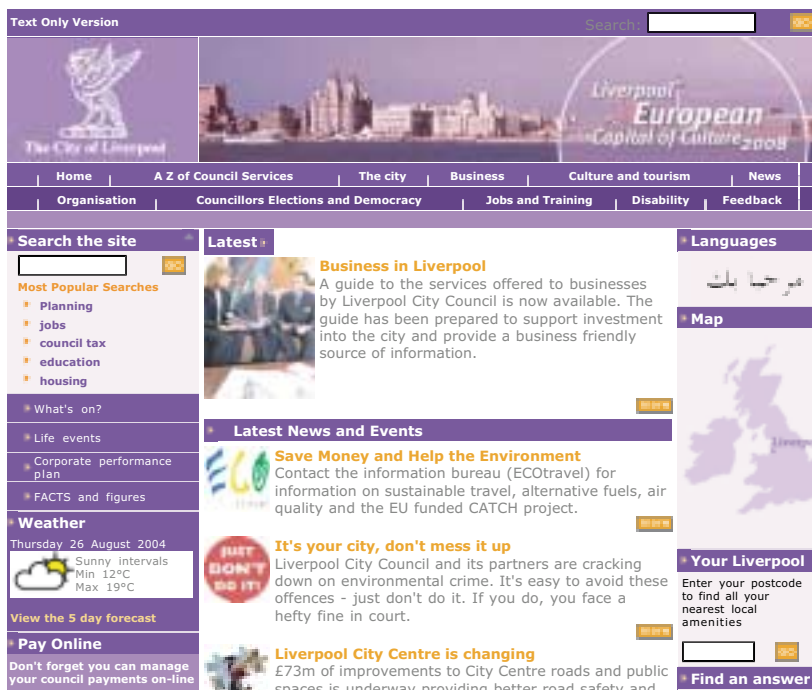
As also confirmed by the US experience, there are important limits to e-government. Lack of access is a common problem, while not all problems lend themselves easily to e-government solutions. When people have urgent or complex problems to sort out with government, they prefer telephone or in-person visits; conversely, when people want to get quick access to reference information or want to complete a transaction that offers a clear-cut conclusion – such as getting a licence, completing a tax form, or applying for benefits – then e-government provides an invaluable communications channel. The US experience suggests that e-government should be seen as a helpful tool among several options for connecting to government: it should not be seen as the only option.

In the UK, the House of Commons Public Accounts Committee recently reported that although it is important to encourage take-up of ICT by older people through new and innovative ways of delivering services, the public sector should not lose sight of the importance that older people place on traditional forms of communication, such as face-to-face contact, letters and home visits, which need to be maintained and improved.³⁸ It is clear that in order to achieve best value, both offline (eg in-person visits) and online (eg information and transactions via a range of devices including the internet, iDTV and mobile) channels of communication need to be advanced in a coherent way in order to increase integration and generate best use of resources.

³⁷ Horrigan, J (2004) *How Americans get in touch with government*. Washington: Pew Internet and the American Life Project.

³⁸ House of Commons Committee of Public Accounts (2004) *Improving public services for older people*. London: The Stationery Office.

Local government provides approximately 80% of services to citizens, and therefore plays a significant role in the overall improvement of government services. Many local authorities have taken leadership positions in delivering online information and transactional services.³⁹ In Liverpool and Islington, for example, people can go online and get easy access to a wide range of useful and relevant information and transactional services.



³⁹ IDeA (2003) *Local e-government now*. London: IDeA.

Encouraging innovation

Countries around the world recognise that success in the future will come from businesses and industries that are able rapidly to develop and exploit ideas that deliver added-value products, processes and services. As made clear in the DTI's *Innovation report*, the UK intends to be a key knowledge hub in the global economy.⁴⁰ A comprehensive strategy to achieve this leadership position was outlined in the *Science and innovation investment framework 2004–2014*.⁴¹ Lasting success will be achieved through a combination of reform and investment.

Launched in November 2003, the award-winning government website www.businesslink.gov.uk is the business equivalent to DirectGov. It provides UK businesses with easy access to interactive tools and jargon-free content about regulation and support, to promote innovation and enterprise.



Our most important national resource is, without question, people. Innovation and enterprise will more likely flourish if people have ICT knowledge and skills, and the means to develop their creative and entrepreneurial capacity. It is for this reason that – in addition to investment in ICT infrastructure – government has invested significantly in lifelong ICT learning. As stated in *Opportunity for all in a world of change*, the government's aim is clear: the UK intends to be the global leader in the supply of ICT skills.⁴²

Investment in both infrastructure and people will encourage the development of knowledge-based manufacturing in the UK. It will also encourage inward investment, a vital stimulus for further growth and development for every region in the UK.

An important prize to be won through ongoing innovation in ICT is the development of new and services that help protect and preserve the environment. The growth of video conferencing for example, already reduces the need for business travel. Future innovations in internet-based healthcare delivery will similarly reduce the need for patients and doctors to travel.

⁴⁰ DTI (2003) *Innovation report: competing in the global economy: the innovation challenge*. London: Department of Trade and Industry.

⁴¹ HM Treasury (2004) *Science and innovation investment framework 2004–2014*. London: The Stationery Office.

⁴² DfEE/DTI (2001) *Opportunity for all in a world of change*. London: HMSO.

Promoting civil society

Digital connectivity is not just about technology, software, and connection speeds: it is primarily about helping to improve quality of life through delivery of new forms of communications and transactions that release benefits to all users. As digital communications and transactions become commonplace in many areas of daily life, people who are digitally engaged will more likely be socially engaged, and vice versa.

A well-educated population is associated with higher levels of civic participation, and this participation can be effectively supplemented by the internet.⁴³ The key to increasing civic participation and community involvement is education. Lifelong learning that includes development of e-skills, identity and cultural heritage promotes a healthy civil society.

The Knowledge Web

Museums, libraries and archives are at the forefront of new technology and already play a key role in developing and enhancing the position of the UK as one of the world's leading knowledge societies. The Knowledge Web is a new initiative designed to increase significantly public access to culture and knowledge in support of learning, education and creativity.

The Knowledge Web will seamlessly link collections distributed across the country, giving easy access by users to millions of digital content items. Knowledge will be extracted, reassembled and presented as personalised answers to specific questions. A comprehensive public infrastructure including wireless and cellular technologies will allow easy access to the Knowledge Web when and where required.

Being developed by the Museums, Libraries and Archives Council, the Knowledge Web will build on the unique strengths of the sector to create a personalised information gateway that will transform people's access to knowledge and to culture.

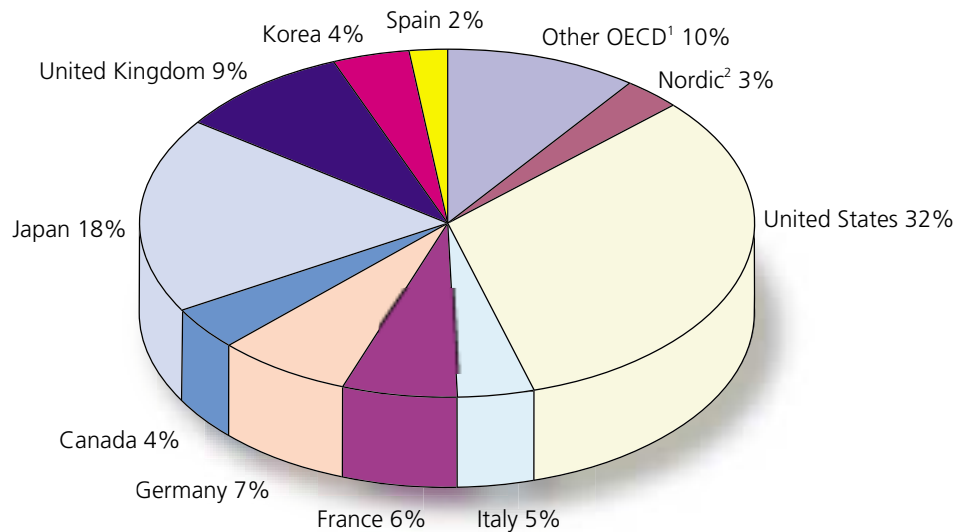
Maintaining global leadership

The UK is a recognised global leader in ICT. Since 2000, the Economist Intelligence Unit has published an annual e-readiness ranking of the world's 60 largest economies. A country's 'e-readiness' is essentially a measure of its e-business environment, and consists of a collection of nearly 100 factors that indicate how amenable a market is to internet-based opportunities. In its most recent survey, the UK was rated second globally in terms of e-readiness, just behind Denmark. The USA was rated sixth, Singapore seventh, Germany fourteenth, France eighteenth, and Japan twenty-fifth.⁴⁴ This high ranking for the UK is important, as the list provides companies that wish to invest in online operations with an overview of the world's most promising investment locations. Reflecting this strength, the OECD recently rated the UK first in Europe and third globally in terms of the percentage share of all ICT jobs (see Figure 1).⁴⁵ This represents a quite remarkable achievement.

⁴³ Loader, B and Keeble, L (2004) *Challenging the digital divide? A literature review of community informatics initiatives*. York: Joseph Rowntree. Foundation.

⁴⁴ *The Economist* (2004) *The 2004 e-readiness rankings*. London: The Economist Intelligence Unit.

⁴⁵ OECD (2003) *OECD Science Technology and Industry Scoreboard 2003*. www.oecd.org/document/21/0,2340,en_2649_33703_16683413_1_1_1_1,00.html

Figure 1: Employment in the ICT sector, selected OECD countries, 2002

1. 'Other OECD': Australia, Austria, Belgium, Czech Republic, Hungary, Mexico, the Netherlands and Portugal.
2. 'Nordic': Denmark, Finland, Norway and Sweden.

Source: OECD STI Scoreboard 2003
www.oecd.org/publications/e-book/92_2003_04_1_7294/b.6.2.htm

A recent report by the OECD on the development of broadband access in rural and remote areas predicts that the UK will lead the G7 group of leading industrial countries in terms of DSL broadband availability at the end of both this year and 2005.⁴⁶ This success is due to BT's investment in rolling out broadband, encouraged by the phenomenal effect that hundreds of thousands of local campaigners have had in stimulating demand for broadband services right across the UK. The report predicts the UK will have 95% coverage by the end of this year, a full 5% ahead of its nearest rival in the G7. In fact, BT has announced plans to bring DSL broadband to exchanges serving nearly 100% of UK premises by summer 2005. This move will allow the UK to extend its lead even further.⁴⁷

The UK also leads the world in digital TV, driven originally by the investment and innovation of players such as BSkyB, BBC and ntl. Consumers have responded favourably to the substantial choice of content available, adopting a technology which gives them access to interactive services also.

Despite the UK's early success, there is much scope for further improvements. For its part, government needs to continue joining up services, for example developing the next generation of DirectGov and Businesslink.gov services to enable more online transactions.

⁴⁶ OECD (2004) *The development of broadband access in rural and remote areas*.
www.oecd.org/document/43/0,2340,en_2649_34225_31718315_1_1_1_1,00.html

⁴⁷ www.btplc.com/News/Pressreleasesandarticles/Corporatenewsreleases/2004/nr0421.htm

Government is the single most significant customer for ICT services and systems in the UK – accounting for 55% of all purchases.⁴⁸ As such, government is well positioned to flex its procurement muscle to encourage development of ICT innovations that are likely to result in digital engagement. Government can encourage innovation in other ways too, such as by providing targeted tax relief to support activities that address the challenge of digital engagement, and by working with all key stakeholders to ensure that the regulatory environment is enabling for online content and service providers who wish to expand services for individuals and consumers.

It is important not to lose sight of the fact that the 'digital society' is not just about the delivery of government services. Already there is a wealth of enhanced programming from the private sector, covering entertainment, information and other content which brings added benefits to UK citizens. A stable regulatory environment is a necessary underpinning for the continued development of this vibrant digital marketplace.

Maintaining global leadership in ICT will require vision and action. It is clear that ICT is sufficiently important in our society and economy that no area of policy-making can afford to ignore the implications of the changes that it brings. The rapid diffusion of ICT offers new political choices at a rate that can be disconcerting; yet, properly understood and exploited, ICT can be channelled towards tremendous human benefits. The Institute for Public Policy Research – a leading UK think-tank working in the field of the digital society – will contribute to the collective knowledge base by hosting a series of events and debates leading to the spring 2005 publication of the *Manifesto for a digital Britain*.⁴⁹ In order for ICT to become a mainstream concern, technological concepts and choices will need to be translated into political concepts and choices to inform future innovations and service improvements. The *Manifesto* will aim to drive digital issues into mainstream political discussions by acting as a bridge between the technology and policy communities.

⁴⁸ HM Treasury and Office for National Statistics (2003) Public expenditure statistical analyses, May. www.hm-treasury.gov.uk/documents/public_spending_and_services/public_spending_data/pss_pss_pesaindex.cfm

⁴⁹ IPPR (2004) *The digital manifesto*. London: IPPR. www.ippr.org

Digital engagement today

Our current picture of digital engagement reveals that we have made some considerable advances, particularly with migration from narrowband to broadband, and with take-up of mobile and iDTV across most groups in society. Yet, in February 2004, 42% of the adults in Great Britain – approximately 19 million people – had not used the internet in the three months to interview and were therefore not able to benefit from much that the knowledge economy has to offer.⁵⁰ To put the scale of digital disengagement into context, 19 million people is equal to the entire combined populations of London, Brighton, Bristol, Birmingham, Nottingham, Manchester, Leeds, Liverpool, Newcastle, Cardiff, Glasgow, and Edinburgh, plus another 6 million people.



Of the remaining 58% who had used the internet, benefits realisation was variable. Individuals who used the internet just to send e-mails were able to realise such benefits as low-cost, fast and convenient communication, while others gained additional benefits because they used the internet to gain access to information on a range of topics. The individuals who were able to extract the most benefit from the internet were those who had the potential to use broadband connections to buy, sell and trade. Industry, voluntary sector and government suppliers of products and services are also realising significant benefits from digital engagement. A brief list of consumer and supplier benefits, based on a recent government report on benefits realisation,⁵¹ is provided in Table 1.

⁵⁰ Office for National Statistics (2004) *February 2004 National Statistics Omnibus Survey*. www.statistics.gov.uk/CCI/nugget.asp?ID=8&Pos=&ColRank=1&Rank=374

⁵¹ HM Treasury (2003) *Measuring the expected benefits of e-government*. www.ogc.gov.uk/sdtoolkit/workbooks/

Table 1: Benefits of digital engagement

Individual consumers	Industry, government, voluntary sector
Financial savings <ul style="list-style-type: none"> • price reduction of charged-for service • reduced cost of transmitting information • reduced travel costs 	Improved service delivery <ul style="list-style-type: none"> • greater take-up of entitlements • improved user satisfaction • improved communication • improved reputation, increased user trust • enhanced customer service • improved service consistency and equality
Time savings <ul style="list-style-type: none"> • reduced user time • reduced need for multiple submissions of data for different services • reduced travel time 	Time savings <ul style="list-style-type: none"> • reduced processing through common standards such as databases • employee time savings • reduced error rates • reduced need for multiple collection of data from same customer • more flexible working hours
Value-based benefits <ul style="list-style-type: none"> • improved information • improved reliability • improved choice and convenience • improved access to premium services 	Resource efficiency <ul style="list-style-type: none"> • reduced systems redundancy through integrated systems • more effective use of existing (electronic and non-electronic) infrastructure, reduced wastage of capacity
	Improved security

Older people, people with disabilities, and people on low income shoulder most health, educational, social and economic challenges; are the heaviest users of public services; and would potentially gain significant value from digital engagement. These groups are also the most likely to be socially excluded and, by extension, digitally unengaged.

Social exclusion has complex and multi-dimensional causes and consequences, creating deep and long-lasting problems for individual families, for the economy, and for society as a whole.⁵² The Government has invested in a wide range of areas targeted to empower people who are disadvantaged. Particular emphasis has been placed on tackling the economic causes of social exclusion during early childhood, with a clear aim of strengthening the capacity and capability of individuals, families and communities through investment in education and other support services. Some significant gains have been made. Yet it is clear that some groups are more difficult to reach and the last to benefit from policies designed to tackle social exclusion.

As a society we share the need to develop a more socially inclusive – and, by extension, a digitally engaged – United Kingdom. A failure to engage all will result in consequences that will be felt by all. Ongoing lack of digital engagement on the part of large numbers in our society will risk exacerbating family, economic and social problems; a more inclusive society, by contrast, offers the opportunity to build a stronger, wealthier,

⁵² ODPM (2004) *Tackling social exclusion: taking stock and looking to the future*. London: Social Exclusion Unit.

and more equal United Kingdom.⁵³ Specifically, lack of digital engagement on the part of individuals and communities as result of age, ethnicity, disability or income means their identities and cultures remain largely invisible. In this regard, the ‘network’ effect of communications technology is important. For example, the more people who use the internet – and the more diversity that people bring with their participation – the more valuable the internet becomes for all.

Delivering compelling propositions

We define ‘a compelling proposition’ as ‘an offer that is attractive enough to encourage a person to become digitally engaged’.

To be successful, online propositions – just like any marketing proposition – must be seen by the consumer to be meaningful and valuable. A vibrant and informed market has the potential to digitally engage many – but not all – of the UK population.⁵⁴ For people who are unmoved by market forces alone, corporate social responsibility-type innovations that bring together business, the voluntary sector, and government have the potential to encourage further digital take-up.⁵⁵

It should be recognised that supply-side solutions alone will not successfully shift the entire UK population to digital engagement – no matter how hard we try. Very simply, some people will make a rational decision to remain digitally unengaged, while others may not be able to be engaged because of their own particular circumstances: such people may prefer instead to use traditional channels of contact. However, certain characteristics of many people who are digitally unengaged suggest that innovative digital services have the potential to deliver benefits if developed and marketed appropriately. Older people, for example, often:

- **are less mobile due to lack of money, illness or disability:** call centres and interactive services may help them handle their affairs without having to travel;
- **need information on a wide range of issues and are unsure how to find it:** internet portals and electronic kiosks could enable people to gain information on health, consumer rights and benefits from a single source such as DirectGov, saving them time and inconvenience;
- **live alone or are far from relatives:** some 60% of women and 33% of men over 75 live alone. E-mail can keep them in touch with family and friends easily;
- **wish to maintain their independence:** technology exists for people to consult doctors and monitor their health using telephone and video links, so avoiding the need to move into a care home; and
- **wish to be informed and consulted on issues relevant to them:** e-mail, discussion groups and websites can be valuable, low-cost resources for staying in contact and staying informed.⁵⁶

Older people – particularly those on low incomes, with a disability or from ethnic minorities – can be very hard to reach but may be the most in need of assistance.⁵⁷ Government is a major provider of housing, travel, leisure, health, education and social services needed to support the most vulnerable in society. Service transformation and improvements in IT efficiency and effectiveness have the potential to deliver public services in a joined-up

⁵³ Booz-Allen and Hamilton (2000) *Achieving universal access*. London: BAL.

⁵⁴ Boston Consulting Group (2002) *Options on the future: the role of business in closing the digital divide*. London: BSG.

⁵⁵ Business in the Community (2003) *Digitally included: business-community partnerships to promote the use of information and communication technologies*. London: Business in the Community.

⁵⁶ Comptroller and Auditor General (2003) *Progress in making e-services accessible to all – encouraging use by older people*. London: The Stationery Office.

⁵⁷ Comptroller and Auditor General (2003) *Developing effective services for older people*. London: The Stationery Office.

way that can deliver tangible benefits to many hard-to-reach people. Service transformation to meet the needs of such groups may include the use of trusted intermediaries from the voluntary sector, and new forms of joined-up and multi-channel (ie digital and traditional) service innovations, particularly in partnership with GP surgeries, district nurses, local shops and community groups.⁵⁸

To support people on low incomes, service transformation may include the development of multi-channel and cross-sector services that meet the most pressing needs of users.

A West London homeless shelter

A small West London shelter for young homeless mothers and babies provides access to an internet-based tracking system which empowers women in a number of important ways. Women live in the shelter while awaiting their offer of permanent housing from the borough, a process which can now take up to two years. During this time, the borough provides women on the housing register with access to a secure website from which they can bid for new properties as they become available. But the website also keeps track of each woman's housing register points, and this feature has proved to be the most compelling proposition for shelter residents. Because women accrue points on a predictable basis, the online points-tracking feature allows women to check up on the borough's own records. Often, the borough's point tally is incorrect and this prompts residents to make the necessary enquiries and press for the necessary changes. The online points-tracking feature, although technologically simple, affords a measure of knowledge and control to these very young women and new mothers, thrown suddenly into a large and complex bureaucratic social system. Most of the women at the shelter have had little experience of using computers or the internet – the points-tracking features motivates them to get online by providing a measure of self-determination. It provides residents with a small insight into where they stand in relation to an enormous and depersonalising social system, and a small but important capacity to speak proactively on their own behalf.⁵⁹

This research was funded by Sapiento.

Despite the UK's early success in building a digital society, it is clear that there is potential to do much better. The challenge of full digital engagement is complex: the strategic solution will need to deal effectively with such complexity.

The knowledge gap

To date, much attention has focused on developing the supply side of the digital market. Major suppliers, such as BT, BSkyB and Vodafone, have a great deal of knowledge about what their existing customers want and use. This intelligence informs ongoing innovation and service improvement, to the benefit of both the consumer and the supplier.

Given this, there is a surprising lack of knowledge among suppliers about people who are currently unengaged. To understand more clearly the demand side, we need to develop a much better understanding of what potential users want and need. This knowledge can trigger innovation and enterprise, opening up possibilities for new products, services and business models that drive digital take-up.

⁵⁸ House of Commons Committee of Public Accounts (2004) *Improving public services for older people*. London: The Stationery Office.

⁵⁹ Cohen, K and Wakeford, N (2004) *Mobility, technology and translation in a London homeless shelter for women*. Guildford: University of Surrey.

Work undertaken

Objectives

In order to develop a *digitally United Kingdom*, there was a need to create a composite picture of who is digitally engaged, their patterns of use, and the benefits that they are extracting from such use.

There was also a need to understand more clearly who is not digitally engaged, and why. In addition, there was a need to develop an understanding of what types of e-proposition would be seen by non-users as compelling and relevant enough to encourage their internet take-up.

This information, in turn, would give suppliers in industry, the voluntary sector and government insight into whether or not their current strategies to encourage digital take-up are likely to be effective, or if new strategies are needed.



Methodological process

To meet the above objectives, a Digital Inclusion Panel (DIP) of key leaders from industry and the voluntary sector was assembled (Appendix A). The Panel was supported by a DIP Working Group (Appendix B), which consisted of experienced practitioners working in the area of digital engagement across government, the voluntary sector and industry.

The following principles were used to take this work forward:

- 1 A *digitally United Kingdom* will deliver benefits for individuals, business and industry, the voluntary sector, and government.
- 2 Digital engagement looks beyond access and includes use, and is therefore important to achieve benefits realisation.
- 3 Digital engagement will be a natural, market-driven process for many, but specific actions may be required to ensure that everyone who wants to be engaged can have the opportunity.
- 4 Government, industry and the voluntary sector recognise the importance of digital inclusion and are committed to working to make the UK one of the most digitally engaged societies in the world.
- 5 The complex nature of the challenge to enable a *digitally United Kingdom* can only be addressed through collaborative action on the part of government, industry and the voluntary sector.
- 6 Where appropriate, industry, the voluntary sector and government should collaborate to facilitate digital engagement.

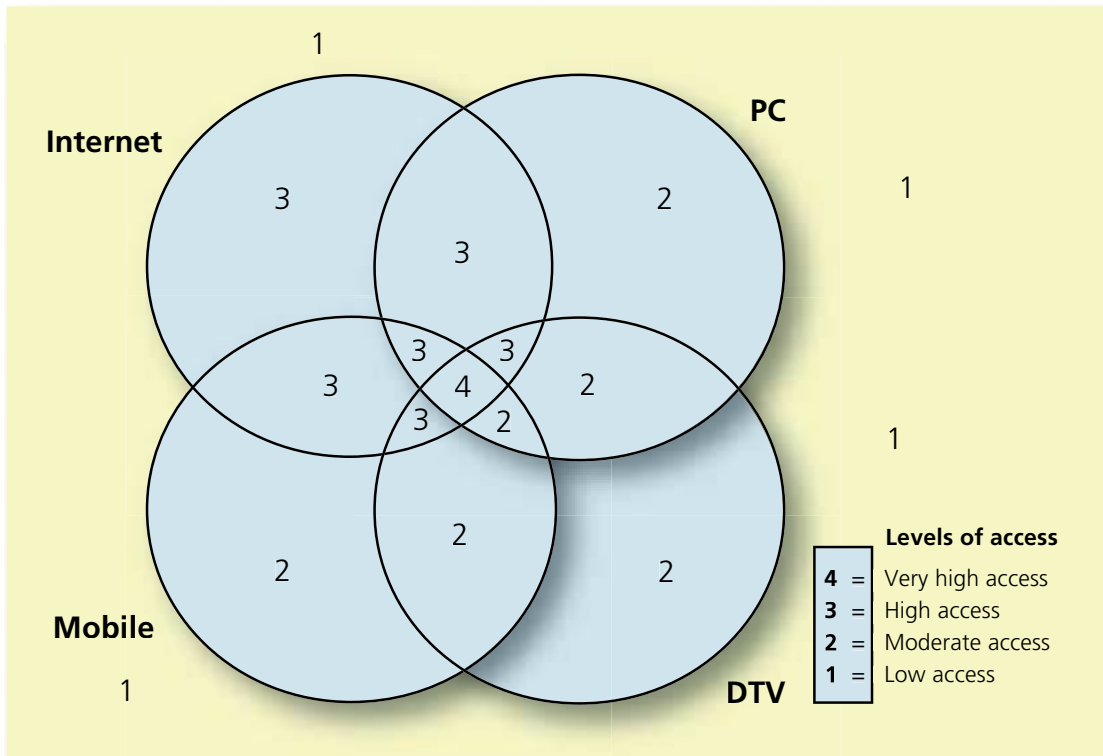
The Digital Engagement Framework

Following a review of the literature and extensive discussion, the DIP Working Group developed the concept of a Digital Engagement Framework, which provides a framework to position all people in the UK in terms of their digital engagement – ranging from low levels of access and use, to very high levels of access and use.

Segmentation by access

As illustrated in Figure 2, four levels of access were used to describe the concentration of home and community access to internet, plus home access to three technologies: PC (ie desktop, laptop and palmtop), mobile phones, and DTV.

Figure 2: Levels of access by technology type



- **Very high access:** home and community internet access. Home access to all three technologies.
- **High access:** home and community internet access. Home internet access via at least one technology.
- **Moderate access:** no home internet access, but community internet access. Home access to at least one technology.
- **Low access:** no home internet access, but community internet access. No home access to technologies.

Segmentation by use

An ordered scale of four levels of use was defined in the following terms:

- **Unengaged:** those who have never been digitally engaged or who have not been digitally engaged in the last three months;
- **Digital Communicators:** digitally engaged to communicate in new ways (eg text messaging, e-mail);
- **Digital Harvesters:** digitally engaged and use interactive content, plus all activities of Digital Communicators; and
- **Digital Transactors:** digitally engaged to transact, plus all activities of Digital Harvesters and Digital Communicators.

The Digital Engagement Framework, which combines both access and use, is illustrated in Figure 3.

Figure 3: Digital Engagement Framework

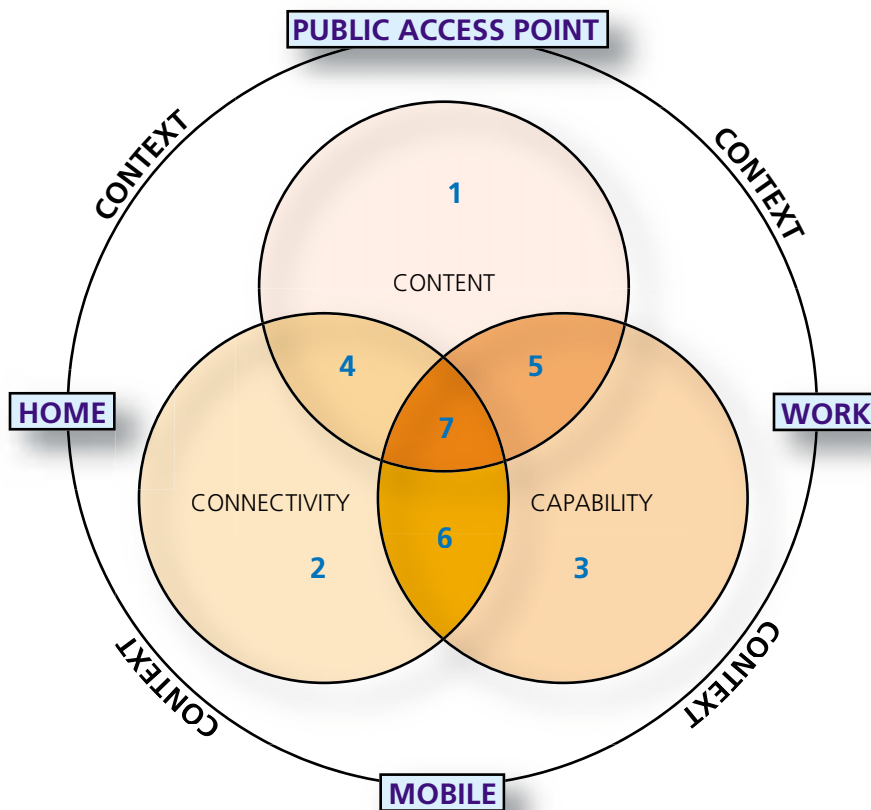
	Unengaged	Digital Communicators	Digital Harvesters	Digital Transactors
Very high access				
High access				
Moderate access				
Low access				

The Benefits Realisation Model

In response to contributions from the DIP, a model was created to aid understanding of factors that influence digital take-up. As indicated in Figure 4, digital engagement is very much influenced by context, and the interrelationship between connectivity, content and capability within home, work and community environments is often complex and ever-changing. These factors, in addition to the ability to access and use a range of digital devices, influence where people are able to position themselves on the Digital Engagement Framework. A fully digitally engaged person would be able to navigate to high-level digital transaction sections of the framework, where user participation and benefits realisation opportunities are greatest.

Contributions from the DIP indicated that most of the barriers and opportunities related to digital engagement occur at the intersections (segments 4, 5, 6, and 7) shown in Figure 4. This suggests that the current challenges related to digital engagement are often complex and dynamic. For example, a major barrier to internet use for some people who have a physical disability is difficulty using a PC mouse to navigate around the internet, combined with poorly designed websites that make content harvesting and transacting problematical. A possible solution to this challenge would be to design devices and interfaces that are more inclusive, and to provide support services such as access to learning opportunities and intermediaries.

Figure 4: Benefits Realisation Model



Context refers to how people live their lives at home, at work, in the community, and while mobile. Context is dynamic and ever-changing, and it is an important influence on access and use. People adopt, then adapt, and finally absorb technology if it adds value to their life.⁶⁰ Device switching and context switching are closely linked. People who have access to multiple digital devices – such as a PC and a mobile phone – will switch and combine use of such devices according to their individual needs within any given context.

Connectivity refers to the way in which people access the internet, iDTV, mobile devices and digital networks.

⁶⁰ Crabtree, J and Roberts, S (2003) *Fat pipes, connected people: rethinking broadband in Britain*. London: iSociety.

PCs, mobiles, and iDTV enable people to get access to interactive content. Optimal use of each of these devices is influenced by context. For example, although it is possible for one to browse the internet while using a mobile, the browsing experience is often better using a PC; yet, if the user is travelling and does not have ready access to a PC, then the convenience of downloading information on a mobile may well be worth the effort to the user. iDTV is an ideal medium for viewing rich media, such as films and documentaries, but the capacity for interactivity on iDTV is more limited than the PC and access is often restricted to home environments.

Connectivity also refers to the technology needed to connect to digital networks, which may be fixed line technologies, cable or wireless. An important quality of internet-enabled PCs is that they enable users to get access to fast and relatively inexpensive communication, including one-to-one one-to-many, many-to-one, and many-to-many options. An important quality of iDTV is that the technology enables people to view rich media, supported with some interactive elements; while an important quality of mobile phones is that the technology enables people to migrate and communicate between contexts, supported with some interactive elements.

Content refers to what people engage with when they use the internet, iDTV and mobiles. Content is always digital, and may be presented in a variety of formats, including text, audio, images, moving images, and multimedia. Content may serve many purposes, including communication; information, education and entertainment; and transactions. Content also refers to online services. When using digital devices and networks, individual users may be both consumers and makers of content. Even if users have access to a digital technology, they are unlikely to continue using the technology if it does not deliver content that they want, when, where and how they want it.

Capability refers to the knowledge, attitudes, and skills of the user. The quality of support and reinforcement provided by others, including friends, peers, family, and work environment, influences take-up and use. Other factors include access to the internet, time and money, and access to teaching and learning activities. Activities that reduce barriers and increase benefits are more likely to facilitate digital take-up.

Data collection

The Office for National Statistics (ONS) conducts its survey of adults in Great Britain on a quarterly basis. Recently, ONS created an annual dataset based on aggregating four quarterly surveys. This annual dataset has increased the sample size, which has enabled a more detailed analysis of users and non-users of technology.

Analysis of the data for this report involved profiling the population within each section of the Digital Engagement Framework. For example, each section of the Digital Engagement Framework was described in terms of the following groups of factors:

- demographics (eg age, socio-economic classification);
- connectivity (eg PC, mobile, iDTV);
- content (eg harvesting, transacting); and
- capability (eg awareness, knowledge, skills, cost, time).

Some sections of the Digital Engagement Framework were combined if they shared a similar profile.

Data analysis

At an e-government workshop on 18 June 2004, members of the DIP, the DIP Working Group, and other key informants (Appendix C) were presented with the ONS evidence and asked to work in groups to analyse it and to generate a list of actions most likely to encourage internet take-up. Output from the workshop informed the final recommendations and actions noted in this report.

Data constraints

Data for this analysis was sourced by interrogating the pre-existing ONS dataset created over the past year.

Note that the framework measures DTV and mobile access but does not currently include 'non-internet' related use of these technologies, eg use of text messaging on mobiles, red button services on iDTV, etc. This is not due to limitations of the framework, but rather results from not asking the relevant questions in quarterly surveys. It should also be noted that ONS data for this study did not differentiate between one-way and two-way (ie interactive) DTV. **The upshot of these limitations is that:**

- **the framework is conservative as regards the 'use' dimension and may currently over-report the digitally unengaged; but**
- **the framework is less conservative as regards the 'access' dimension. It may slightly over-report the proportion of people in the moderate access group, who would more likely be positioned in the low access group because they have one-way DTV.**

These limitations have recently been addressed and it is therefore expected that ONS will be able to provide more detailed analysis for future updates.

Aside from the above limitations, the annual ONS dataset that was available for analysis was robust and suitable for measurement of internet access and use as outlined in the framework. To achieve maximum value, the ONS dataset has been extended to include:

- use of iDTV and mobile devices;
- access and use among people with disabilities; and
- benefits realisation.

ONS standards have been applied to the presentation of all data. Where a data point had 50 or fewer matches, the sample size was too small to receive a statistical treatment.

Results and discussion

Due to limitations in the ONS data, as noted on page 46, the following results and discussion focus on access to and use of the internet. In future, data analysis, results and discussion will be extended to include access to and use of iDTV and mobile technologies.



The ability of individuals to extract benefits from the internet is associated with their location on the Digital Engagement Framework (see pages 42–45). People who are able to navigate to the upper right-hand section of the Digital Engagement Framework are best positioned to extract the most benefits from the internet; conversely, people who are not able to navigate beyond the lower left-hand section extract little or no benefit from the internet. Conducive content, connectivity, and capability make it more likely that a person will be able to realise benefits from the internet; the converse is also true.

Demographic profile across Digital Engagement Framework

Figure 5 shows the distribution of the British population on the Digital Engagement Framework.

Figure 5: British adult population distribution on Digital Engagement Framework

	Unengaged	Digital Communicators	Digital Harvesters	Digital Transactors	Total
Very high access	3%	Sample size too small	6%	16%	26%
High access	4%	1%	7%	12%	24%
Moderate access	28%	Sample size too small	5%	3%	36%
Low access	13%	Sample size too small	Sample size too small	Sample size too small	14%
Total	48%	2%	18%	31%	

Sample size = 6,932
Figures rounded.

Note that 48% of the population reported not being digitally engaged. The percentage of people who reported being exclusively Digital Communicators was relatively small, suggesting that many people migrate very quickly from e-mail to internet-based activities such as browsing, information gathering and communications. Such rapid migration is not surprising given that most web browsers have integrated e-mail, with navigation between internet content and e-mail made relatively simple through easy-to-use interfaces. Therefore, for the purposes of further analysis, Digital Communicators were combined with Digital Harvesters (Figure 6).

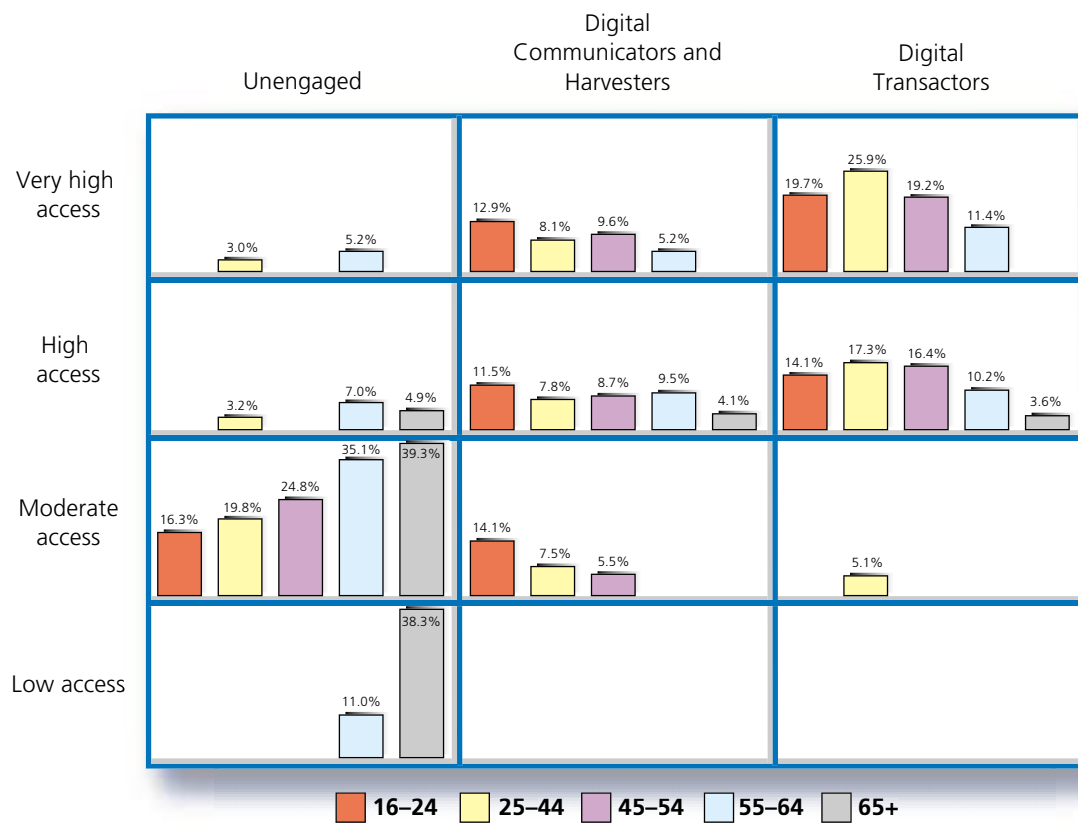
Figure 6: British population distribution on Digital Engagement Framework

	Unengaged	Digital Communicators and Harvesters	Digital Transactors	Total
Very high access	3%	7%	16%	26%
High access	4%	8%	12%	24%
Moderate access	28%	5%	3%	36%
Low access	13%	Sample size too small	Sample size too small	14%
Total	48%	20%	31%	

Sample size = 6,932
 Figures rounded.

Figure 7 shows the distribution of each age group across the Digital Engagement Framework. Note that over 75% of people aged 65+ were in the low or moderate access, unengaged groups. In contrast, people in the younger age groups are more likely to be digitally engaged and transacting.

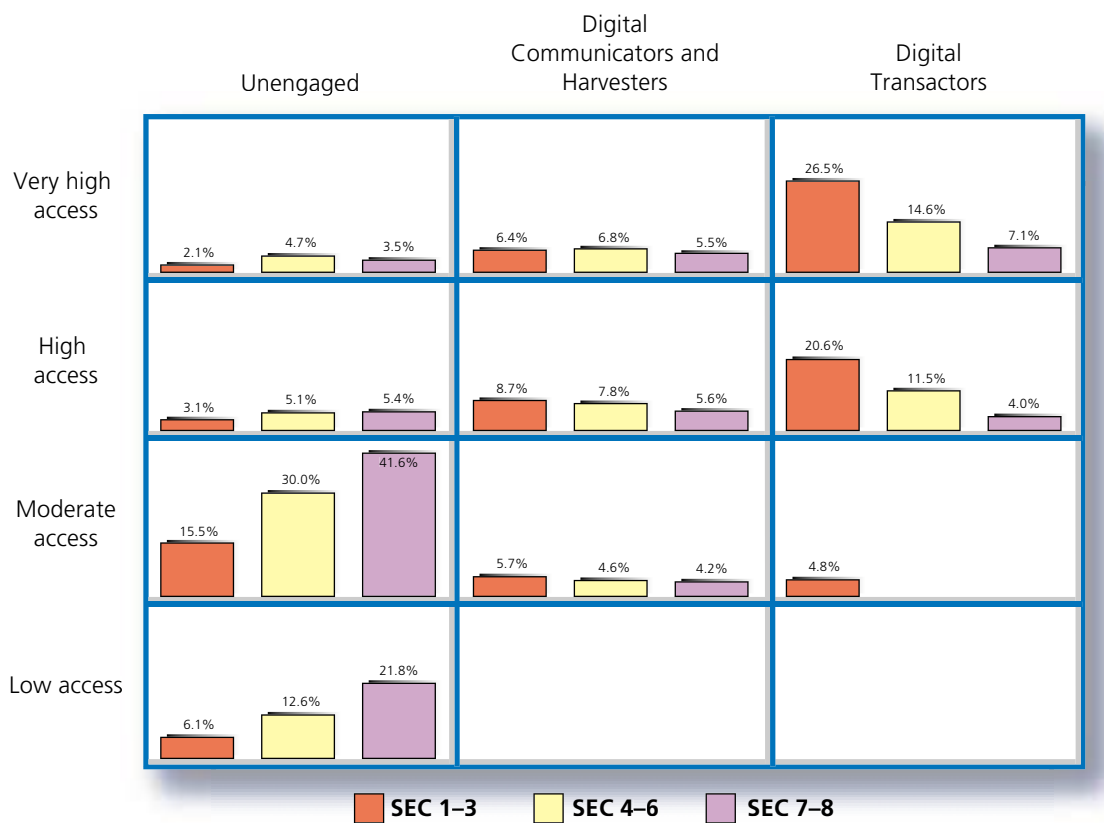
Figure 7: Age distribution on Digital Engagement Framework



Sample size = 6,932
 Figures rounded.

Figure 8 shows the distribution of adults across the Digital Engagement Framework by their socio-economic classification (SEC). People who are in SEC groups 1–3 tend to be well-paid, well-educated professionals or senior managers, people in SEC groups 4–6 are largely in skilled occupations, and people in SEC groups 7–8 are largely in unskilled occupations. Note that SEC groups 7–8 are over-represented in the Unengaged with moderate and low access sectors; in contrast, SEC groups 1–3 are more likely to be Digital Transactors.

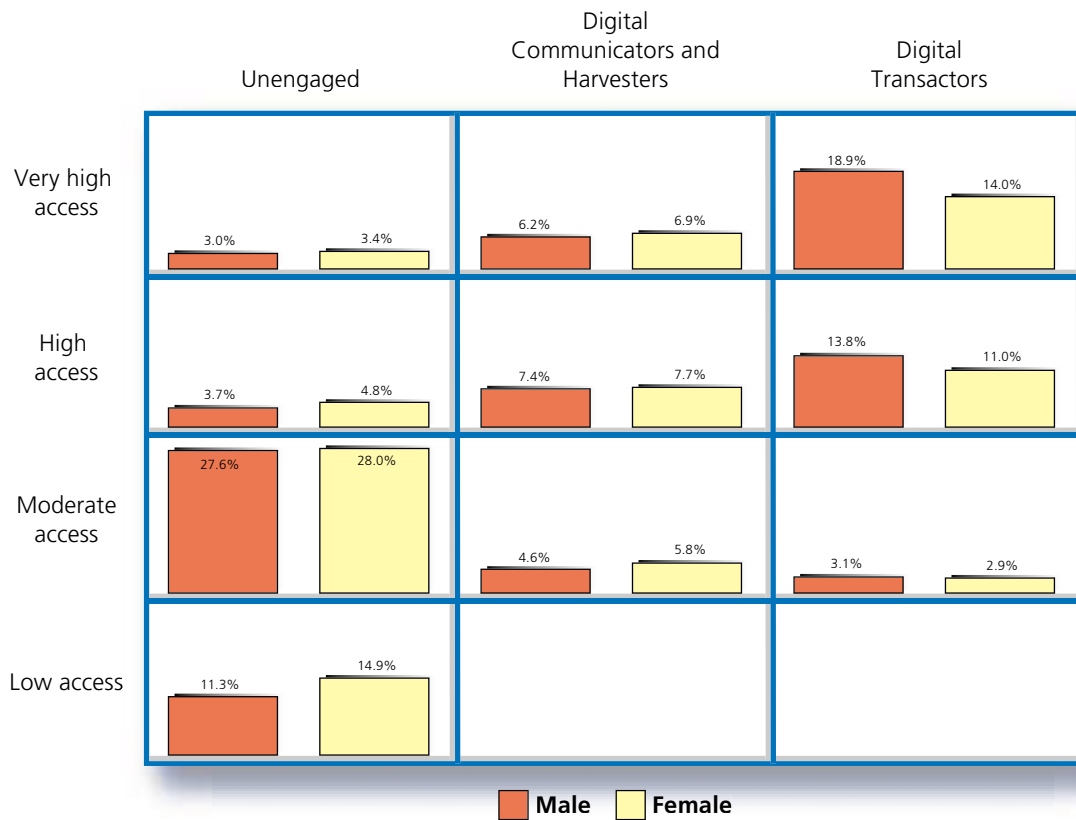
Figure 8: Socio-economic classification distribution on Digital Engagement Framework



Sample size = 6,932
 Figures rounded.

Figure 9 shows the distribution of all men and women across the Digital Engagement Framework. Note that women are over-represented in the Unengaged segments, and under-represented in the higher-access Digital Transactors segments.

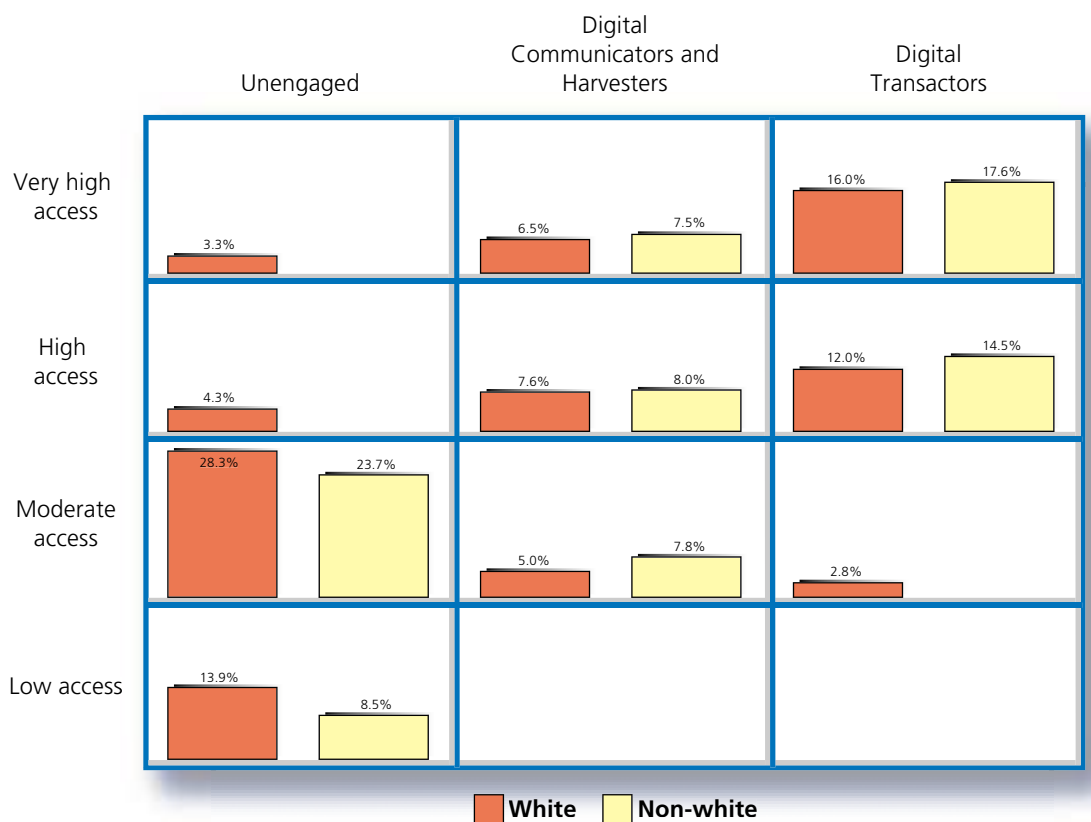
Figure 9: Distribution by gender on Digital Engagement Framework



Sample size = 6,932
 Figures rounded.

Figure 10 shows the distribution of all adults who describe themselves as either white or non-white across the Digital Engagement Framework. Note that white people are over-represented in the Unengaged segments and slightly under-represented in the higher-access Digital Transactors segments.

Figure 10: Distribution of ethnicity on Digital Engagement Framework



Sample size = 6,932
Figures rounded.

The above data reveal a picture of the UK population consisting of two contrasting groups that are distinguished primarily by their age and SEC profile. The digitally engaged group is characterised as more likely to be younger and in professional and skilled SECs; in contrast, the digitally unengaged group is more likely to be older and in unskilled SECs. Previous studies in the UK⁶¹ and elsewhere^{62,63} have reported similar patterns of distribution.

A more detailed consideration of the digitally engaged and unengaged groups is provided below.

⁶¹ BECTA (2001) *The digital divide: a discussion paper*. Coventry: BECTA.

⁶² Kruger, L (2002) *Broadband internet access and the digital divide: Federal assistance programs*. Report for Congress. Washington: The Library of Congress.

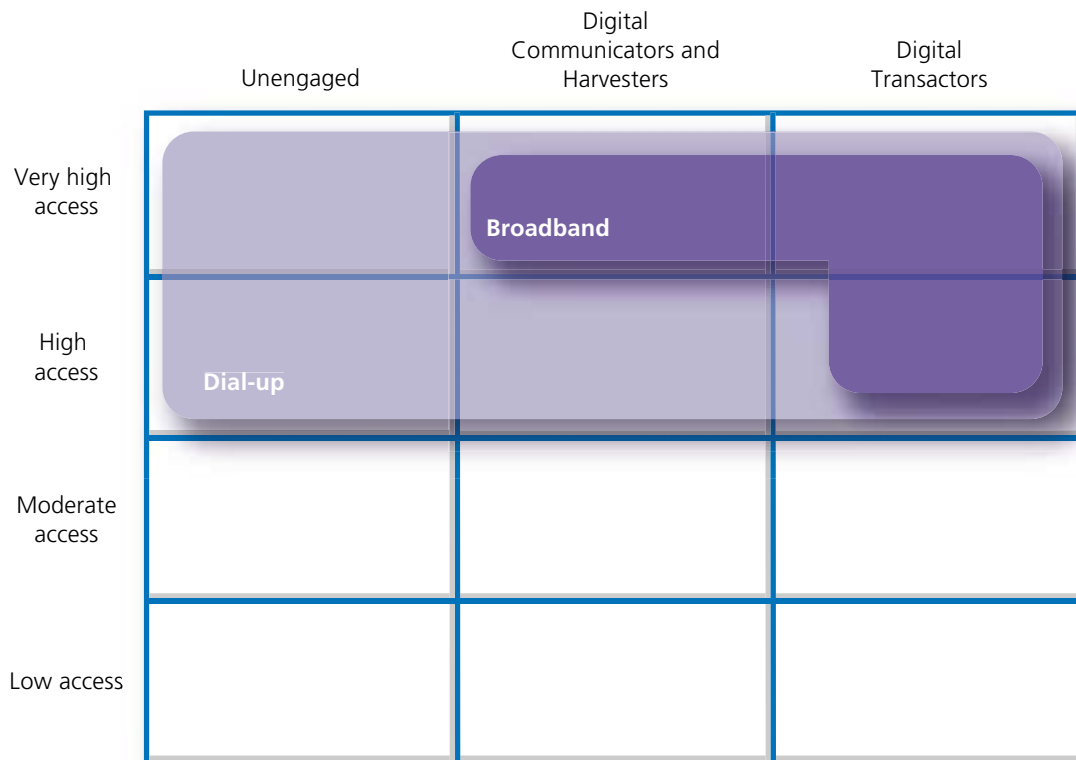
⁶³ Chen, W and Wellman, B (2003) *Charting and bridging digital divides: comparing socio-economic, gender, life stage and rural-urban internet access and use in eight countries*. Toronto: University of Toronto.

The digitally engaged

Figures 11, 12, 13 and 14 illustrate strong positive deviations – or swings – in the responses.

Figure 11 illustrates the distribution of broadband and dial-up access at home. Sections where there is a strong positive deviation – or swing – towards using broadband or dial-up at home are shaded; and those in which there is either a negative swing – or no significant deviation – from what would be expected are not shaded. Note that although dial-up connections remain the dominant method of connection, take-up of broadband increases with higher levels of access.

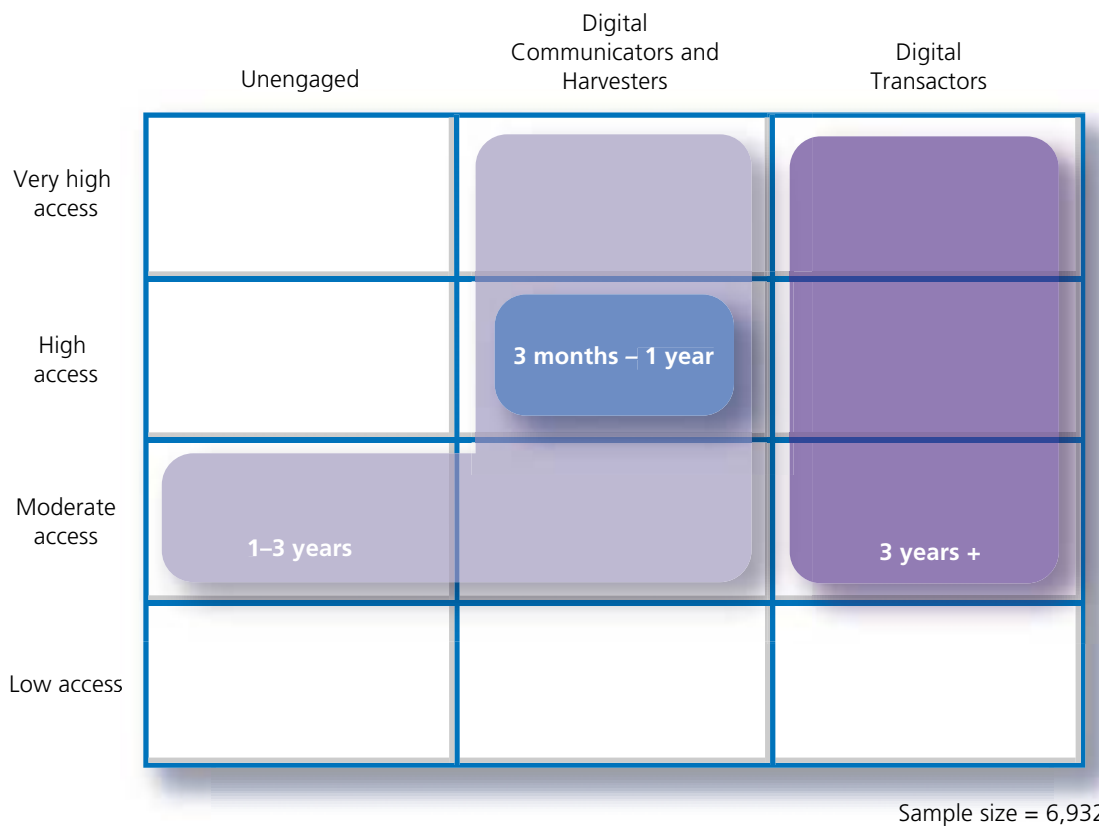
Figure 11: Home broadband and dial-up connectivity on Digital Engagement Framework



Sample size = 6,932

Figure 12 presents the distribution of the length of time for which people have been internet users. Note that people who have used the internet longest are most likely to be Digital Transactors. Also, the data suggest that once people do begin using the internet, they tend to stay in the Communicators/Harvesters area for several years and migrate only after they have gained trust and experience in the medium.

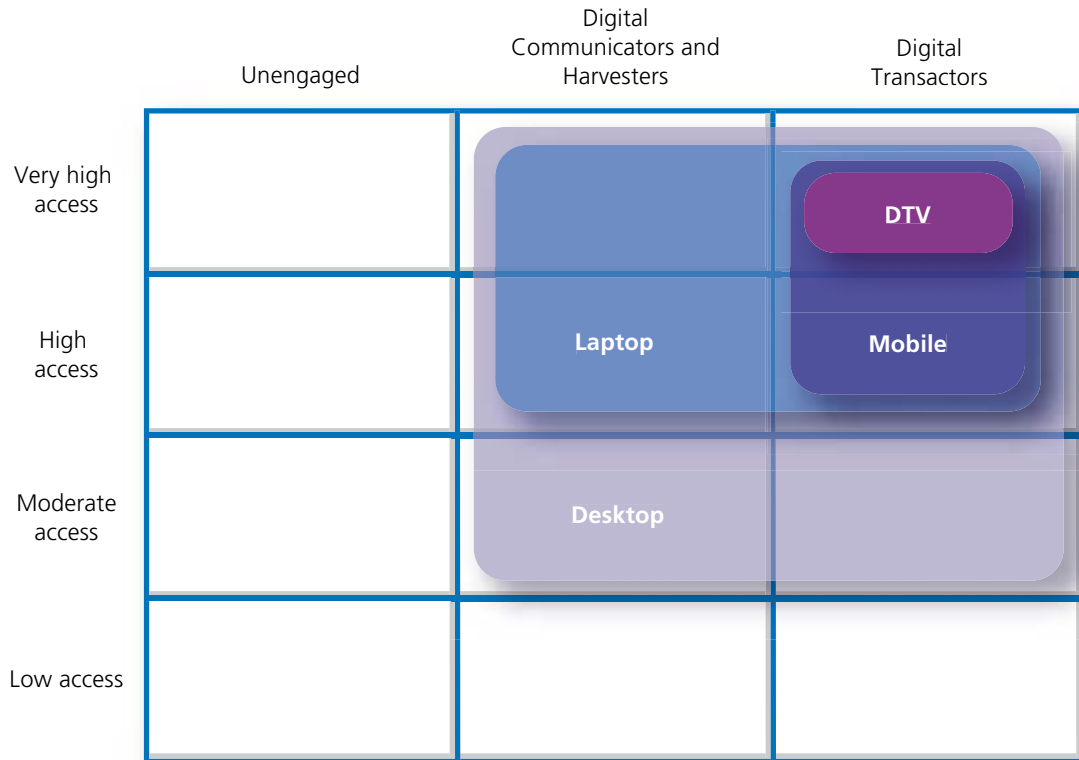
Figure 12: Length of time as an internet user on Digital Engagement Framework



The ONS data revealed that among the UK adult population, over the past year, 59% had access to a home computer, 42% had access to home DTV, and 80% had a mobile. Earlier-reported Ofcom data indicated that 53% of UK households have DTV, while the ONS data indicated that 42% of the adult population have home access to DTV. The variance may be best explained by differences in methodology. The Ofcom data were sourced from operators and suppliers, while the ONS data were sourced from consumers. It is likely that many consumers have difficulty distinguishing between whether the television they use is digital or analogue, and that this may have resulted in an under-reporting of DTV use by consumers. The ability to integrate and use a range of digital devices (eg PC, mobile phone, PDA, DTV) in different contexts (eg home, community, work, and when mobile) is associated with high-level digital engagement. As users upgrade to more advanced iDTV and 3-G mobiles, the distribution of access and use patterns of digital technology may change. What is important to the user is the ability to get easy access to new communications and content, and to conduct transactions at a time and place that meets their needs.

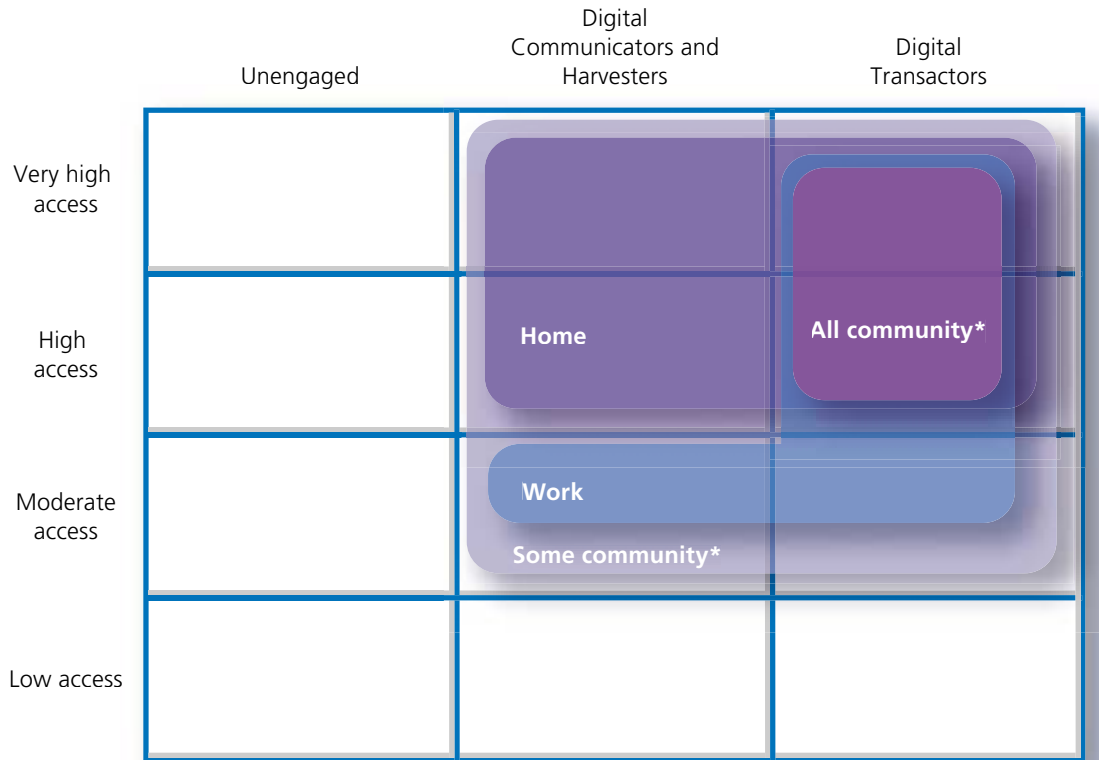
As indicated in Figures 13 and 14, low levels of device and context switching are associated with low levels of digital engagement; in contrast, higher levels of device and context switching are associated with higher levels of digital engagement.

Figure 13: Device switching on Digital Engagement Framework: access to devices



Sample size = 6,932

Figure 14: Context switching on Digital Engagement Framework: place of access



Sample size = 6,932

As noted earlier, people live within and between a number of dynamic and ever-changing contexts, including work, home, community and while mobile. Device switching and context switching are closely linked. People who have access to multiple digital devices – such as a PC and a mobile phone – will switch and combine use of such devices according to their individual needs within any given context.

The above data suggests that efforts to develop device and context switching opportunities may yield higher levels of digital engagement. Many users still find it difficult to integrate their use of various digital devices. There is a clear need for suppliers to design products so that device integration is made simple and easy for the user. This, in turn, should encourage wider use of digital technologies.

On the demand side, Digital Transactors are able to benefit most from digital engagement; and on the supply side, the ability of customers to conduct transactions is inextricably linked to further development of online services across government, industry and the voluntary sector. Although some people may feel content staying put as Digital Communicators or Harvesters, the data suggests that there are significant content, capability and connectivity barriers which may hinder migration from the Communicators/Harvesters areas to the Transactors area: this contrasts sharply with the rapid migration that currently exists from Communicators to Harvesters as shown in Figure 5.

* 'All community' includes access at all of the following: educational institution, public library, internet café, another person's house. 'Some community' includes at least one, but not all, of the above list.

Given that many websites seamlessly integrate communication and harvesting elements in the design of the user interface, more attention to the interface design of transactional internet services may enable more rapid take-up of online transactions. For the most part, digital communication and harvesting are relatively passive experiences, while digital transaction is a relatively active experience. The experience of companies such as Amazon and Theyworkforyou.com suggests that suppliers need to build opportunities for gentle, incremental user engagement, where users can begin to 'test the waters' and gradually build their confidence and trust in digital transactions. Through repeated, informed and successful user engagement – and with the benefit of intelligent software – suppliers are able to develop a clearer picture of what might be compelling transactional propositions to offer the user.

With regard to context switching, innovations such as the Government's Home Computing Initiative – where workplace use serves as a catalyst for home use – provide a powerful vehicle to enable high-level digital engagement. It is clear that e-skills are often developed in or for the workplace and then transposed to home or community environments. The skills needed to become a Digital Transactor at home and within the community are the same as those needed to become a Digital Transactor at work. Further opportunities to develop work-related digital skills through activities supported by e-skills UK and the Skills for Business Network should be encouraged.

A focus on children

The Government has invested over £1 billion in ICT in schools and has made e-skills one of three life-skills (along with literacy and numeracy).

For families with schoolchildren, there is evidence to suggest that context switching is occurring, with government ICT investment in schools serving as a catalyst for family ICT investment in the home. Currently, 80% of homes with dependent children report having home internet access.⁶⁴ A key driver for this home internet take-up is the desire by parents to keep up with their children's homework.⁶⁵ The advent of the Digital Curriculum in 2005 will create another significant and compelling reason for homes to provide a computer and a broadband connection for children of school age. This could then spearhead the introduction of other innovative services and partnerships such as those already developed by the e-Learning Foundation.

Looking ahead, locally co-ordinated efforts to encourage digital take-up through diffusion from community, workplace and school to home and mobile have the potential to drive high-level digital engagement. There are already considerable resources in place to accelerate this diffusion. In order to release the full potential of such investments, more innovative use of local resources for the benefit of the whole community should be encouraged. This would include, for example, allowing families and local communities to use school ICT resources in the evening, at weekends and through the long school holidays.

⁶⁴ ONS (2003) Omnibus Survey, October.

⁶⁵ Harris, K (2000) *Everyone gets hooked: exploring ICTs in low-income neighbourhoods*. London: Community Development Foundation.

The e-Learning Foundation: supporting context switching

The e-Learning Foundation is a national charity, founded in April 2001. The aim of the Foundation is that every child in this country should have access to a computer and the internet when and where they need it, by 2007.

To achieve this ambitious aim, the Foundation operates in the following way:

- The e-Learning Foundation recruits schools, or groups of schools, to form a local charity that wins donations from parents and other local stakeholders. These donations are usually three-year covenants, normally worth between £2 and £5 per week.
- Local foundations grant the funds they have raised to local schools who then purchase or lease portable computers that can be used during the day in school, but most importantly can then be taken home by children who do not have home access.
- Donations made by taxpayers (estimated at over 75% of all current donors) attract a 28% Gift Aid rebate from the Inland Revenue.
- The schemes are equitable, ie there is no direct link between parents who donate and special access rights for their children.
- The e-Learning Foundation raises funds at a national level, and grants these to the network of local foundations, with priority given to disadvantaged areas. Its Digital Divide Fund specifically aims to redress the balance in the ability of parents to contribute to schools' e-learning programmes. While some groups of parents in middle-class areas have no difficulty contributing £5 a week, £1 or £2 a week is far more realistic for those in less fortunate circumstances, and there are significant numbers of parents who do not have a bank account or regular income.

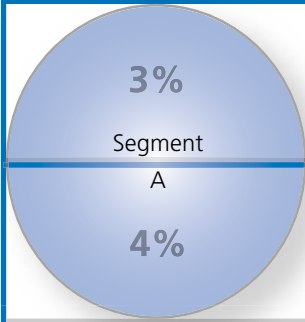
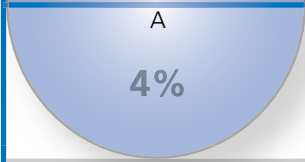
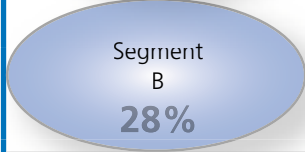
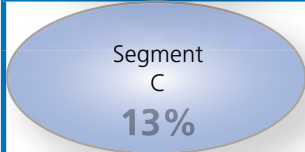
The outcomes so far include:

- 3,400 schools now fall within the remit of a local e-Learning Foundation.
- 1.2 million children are in these schools.
- Through 39 local e-Learning Foundations, nearly 100 schools, many in very disadvantaged areas, are actively working with their parents to help bridge the digital divide.
- Primary schools with e-Learning Foundations have, on average, 29 laptops compared to the national average of 6.
- Secondary schools with e-Learning Foundations have, on average, 323 laptops compared to the national average of 28.
- Secondary schools with e-Learning Foundations have, on average, 201 parents making a donation, and contributing over £58,000 a year to the school's ICT budget, almost doubling the current average spend on ICT.

The digitally unengaged

As indicated in Figure 15, very high access and high access segments were combined for the purpose of this analysis because the percentage of people in these segments was small and both segments shared similar distribution profiles in terms of age, SEC, combined age/SEC, broadband and dial-up access, gender and ethnicity.

Figure 15: Unengaged segments on the Digital Engagement Framework

	Unengaged	Digital Communicators and Harvesters	Digital Transactors
Very high access	 <p>3% Segment A</p>	7%	16%
High access	 <p>4%</p>	8%	12%
Moderate access	 <p>Segment B 28%</p>	5%	3%
Low access	 <p>Segment C 13%</p>	Sample size too small	Sample size too small

Sample size = 6,932

Figure 16 shows unengaged citizen internet intentions, segmenting the unengaged in terms of their consideration of future use of the internet. Note that the percentage of people who declared that they have considered using the internet and probably will not use it in future remains similar across each access group, at approximately 12%. As rational decision-makers, it is unlikely that people in this group will easily take-up the internet. Nevertheless, the data suggests that a very large percentage of the unengaged may in future consider using the internet. Note, in particular, that the percentage of people who reported having never considered using the internet is large in each access group, and this percentage increases as access levels decrease. There is clearly a role for government and industry to support people in making an informed judgement whether to use the internet or not, and to at least enable the unengaged to migrate into the two segments that have actively considered using the internet.

Figure 16: Internet intentions of the unengaged

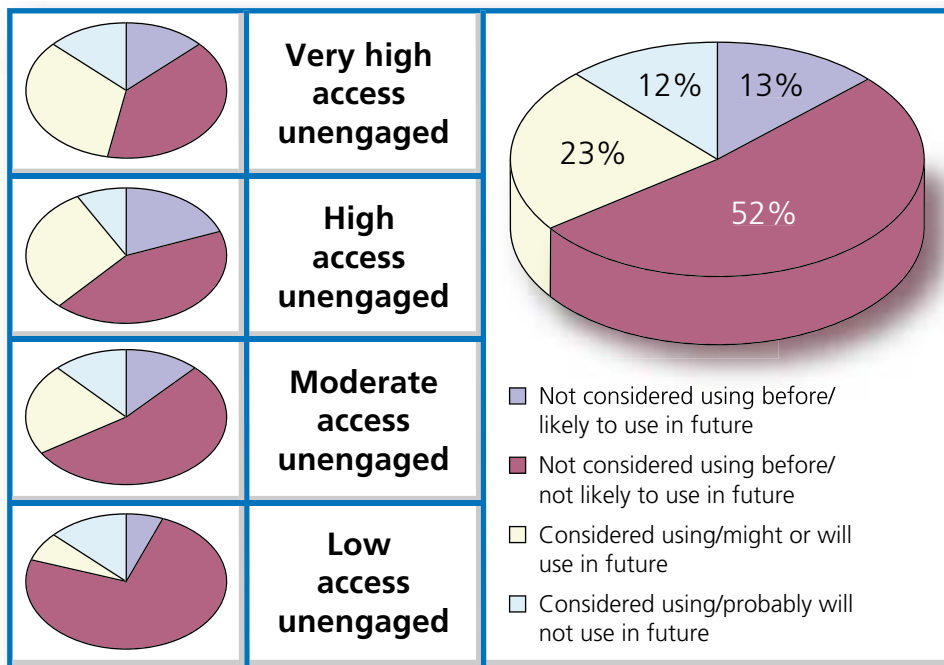
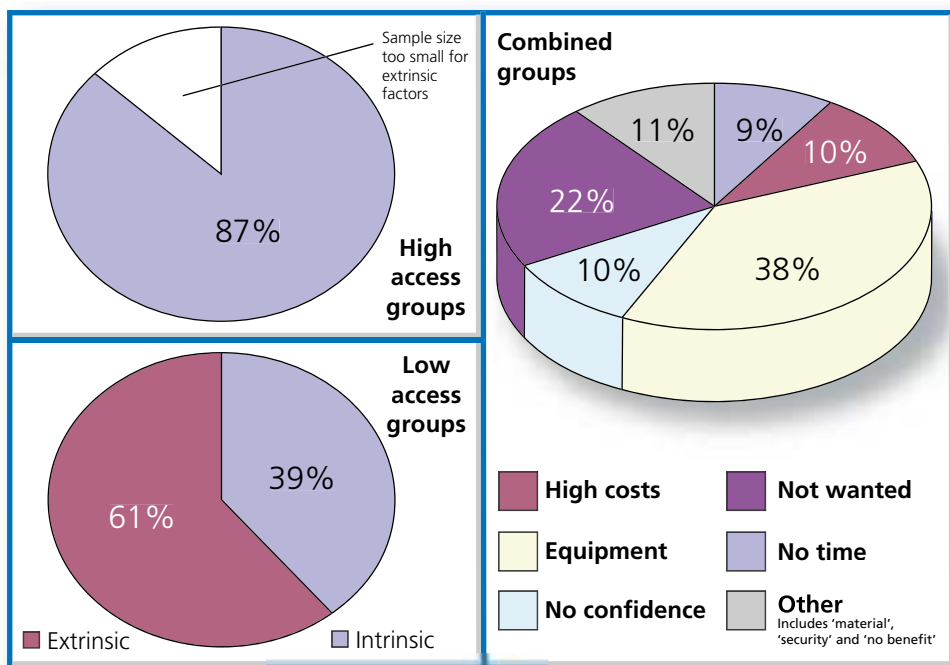


Figure 17 reports on perceived barriers to internet take-up among the unengaged. Note that unengaged people in the low and moderate access groups were more likely to report that factors *extrinsic* to them (eg no equipment, high cost) were barriers to their digital engagement; in contrast, unengaged people in the high and very high access groups were more likely to report that factors *intrinsic* to them (eg lack of time, lack of benefit, low confidence) were the main barriers.

Figure 17: Barriers to internet take-up among the unengaged



Intrinsic factors are: 'no benefit', 'no time', 'not wanted' and 'no confidence'.
 Extrinsic factors are: 'high costs' and 'equipment'.

Table 2 provides a summary profile for each of the three segments.

Table 2: Summary descriptions of groups of people who are unengaged by segment**▶ Segment A**

Less than 8% of the population are in this group. Poor and middle-income individuals are more likely than the affluent to be in this group. Gender, ethnicity, and presence of children have no effect on the likelihood of being in this segment. Twelve per cent of all 55–64-year-olds are in this segment. All have home access to internet. Major barriers to take-up are intrinsic to the individual and include lack of time, not wanting the internet, and no confidence.

▶ Segment B

Largest non-engaged group at 27% of the population. Across the framework, there is a concentration of the following in this segment: people over 55 years old, childless households, and those in lower socio-economic groups. There is a significant presence of other age groups, the middle-income group and the most affluent. Gender and ethnicity have little effect. People in this segment do not have home access to the internet. Major barriers to take-up are extrinsic to the individual and include high cost and no equipment.

▶ Segment C

Second largest unengaged group. Across the framework, there is a concentration of the following in this segment: white people, women, childless households, people over 65 years old, and those in lower socio-economic groups. People in this segment do not have home access to the internet. Major barriers to take-up are extrinsic to the individual and include high cost and no equipment.

Expert Working Group analysis

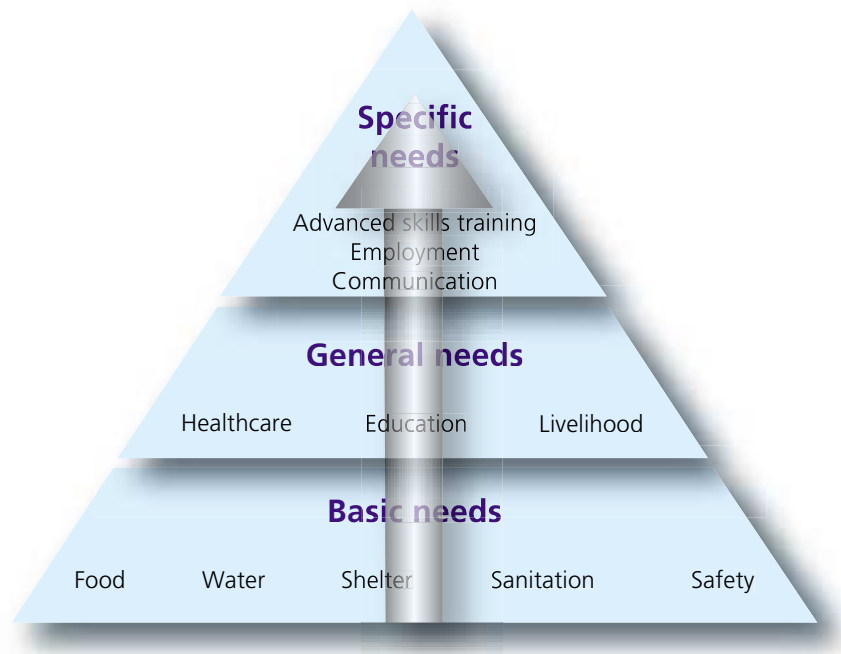
To assist in the analysis, DIP and Working Group members participated in a structured workshop at the e-Government Unit. The aims of this workshop were:

- to use the Benefits Realisation Model (Figure 4) to identify what *barriers* to internet take-up exist within the three digitally excluded segments;
- to use Maslow's Hierarchy of Needs model (Figure 18) to identify what is *important* to and what would be a *compelling proposition* for people in the three segments;^{66,67}
- to describe what *current solutions* are available to enable users to migrate across the Digital Engagement Framework towards high-level engagement; and
- to describe what *future solutions* could be adopted to drive migration to high-level digital engagement.

⁶⁶ Maslow's Hierarchy of Needs was developed in 1954 by Abraham Maslow, a psychologist from the USA. Maslow hypothesised that some innate human needs are more pressing than others, and must be satisfied before any less pressing ones can be attended to. Maslow's Hierarchy of Needs is now globally used in many disciplines to develop a wide range of customer-focused services.

⁶⁷ Boston Consulting Group (2002) *Options on the future: the role of business in closing the digital divide*. Boston: BCG.

Figure 18: Maslow's Hierarchy of Needs



A summary of the workshop discussions is presented in Tables 3, 4, and 5.

Table 3: Segment A: Very high/high access and unengaged

Barriers to digital engagement		
Population group: low and middle-income	Importance	Changeability
Lack of awareness of benefit	High	High
Low ability/skills, and lack of time to learn	High	Medium
Access to lifestyle alternatives	High	Medium
Disability	Possibly low	Medium
Population group: 55–64-year-olds		
Perceived lack of useful services	High	High
Resistance to change	High	Low
Lack of awareness of benefits	Medium	High
Lack of skills	High	Medium
Compelling propositions for target groups		
Population group: low and middle-income	Description	
Health and social care	E-booking, health and social care services online	
Leisure and entertainment	Video services, specialist chat rooms	
Money – savings and benefits	Access to government benefits, cost saving through shopping, breaking down of geographic isolation	
Population group: 55–64-year-olds		
Health and social care	E-booking, health and social care services online	
Communication with family	E-mail, webcam	
Leisure and entertainment	Video services, specialist chat rooms	
Solutions		
	Comments	
Health and social care; remote monitoring	NHS Direct needs further development, to include improved e-communications and transactions such as e-bookings and prescriptions.	
Communications to friends and family	E-mail and voice/video-over-internet. Current providers could improve bundling of technology and services.	
Leisure and entertainment	Suppliers need to improve push-pull navigation and marketing to ensure products and services reach the right audience.	

Table 4: Segment B: Moderate access and unengaged

Barriers to digital engagement		
Population group: Aged 55+	Importance	Changeability
Lack of relevance, no value proposition	High	Medium
Poor product design, use too complicated	High	Medium
Attitudes and knowledge	High	Low
Lack of support/training	Medium	Medium
Population group: low and middle-income		
Lack of marketing/retailing	High	High
Lack of support/training	High	Medium
Fear of failure	High	Low
Cost versus lack of perceived benefit	Medium	Medium
Compelling propositions for target groups		
Population group: Aged 55+	Description	
Maintain independence with security	Connect with family and friends, e-healthcare and social services, emergency alerts	
Maintain human contact, including face-to-face	Community access points could provide social contact	
Communicating	Connect with family and friends, social networking	
Population group: low and middle-income		
Entertainment	Video on demand, downloading music	
Employability	Job fairs and online job search, IT literacy training	
Access to social and professional services	Online resource to find social (eg benefits, education) and professional (eg plumber, electrician) services	
Access to cost savings	Pre-paid internet; promoting cost-saving benefits through online shopping	
Solutions		
	Comments	
Accessible/easy-to-use internet services	Design internet services that engage users of all abilities (eg Tesco, DfES Cybrarian project).	
Development through local networks	Use of trusted intermediaries and user-focused training (eg Age Concern, Ability Net, Citizens Online) represents good practice that should be scaled up.	
Retirement planning	Companies that offer retirement training should add ICT learning.	

Table 5: Segment C: Low access, but unengaged

Barriers to digital engagement		
Population group: Aged 65+	Importance	Changeability
Lack of trust	High	High
High cost	High	High
Lack of relevance	High	High
Fear	High	Medium
Lack of support	High	Medium
Poor interface	High	Medium
Compelling propositions for target groups		
Population group: Aged 65+	Description	
Maintain health and independence	E-enabled personalised and timely care that gives the user access to people, information, and services such as home monitoring should be developed	
Access to benefits	E-enabled benefits calculator that helps people manage their benefits entitlement across all government services should be developed	
Communicating with family, friends and others	E-mail, voice/video capacity of internet should be developed	
Leisure	Access to entertainment such as video on demand Access to local resources, such as recreational and adult educational services for older people	
Solutions		
	Comments	
Provide connectivity, content and capability support to meet needs of older people	<p>Provide access via a set-top box to broadcast television, the internet and e-mail, with options to integrate other types of device (eg PC and mobile) and applications (eg videoconferencing). The service would enable people to get fast and easy access to information and services that are important to them (eg health care, benefits, communication, entertainment, leisure).</p> <p>The service should support transformation of government services, such as healthcare. A subsidy should be provided based on user need. Home-based learning is required. Intermediaries may form part of service redesign (eg nurses), or may be based in other organisations (eg Age Concern, Citizens Advice).</p>	

At present, 48% of the UK population are not digitally engaged. Analysis of data indicates that the reasons for digital disengagement are often complex, dynamic and highly context-specific. What is striking about the data is the importance that age and socio-economic profile have on digital take-up.

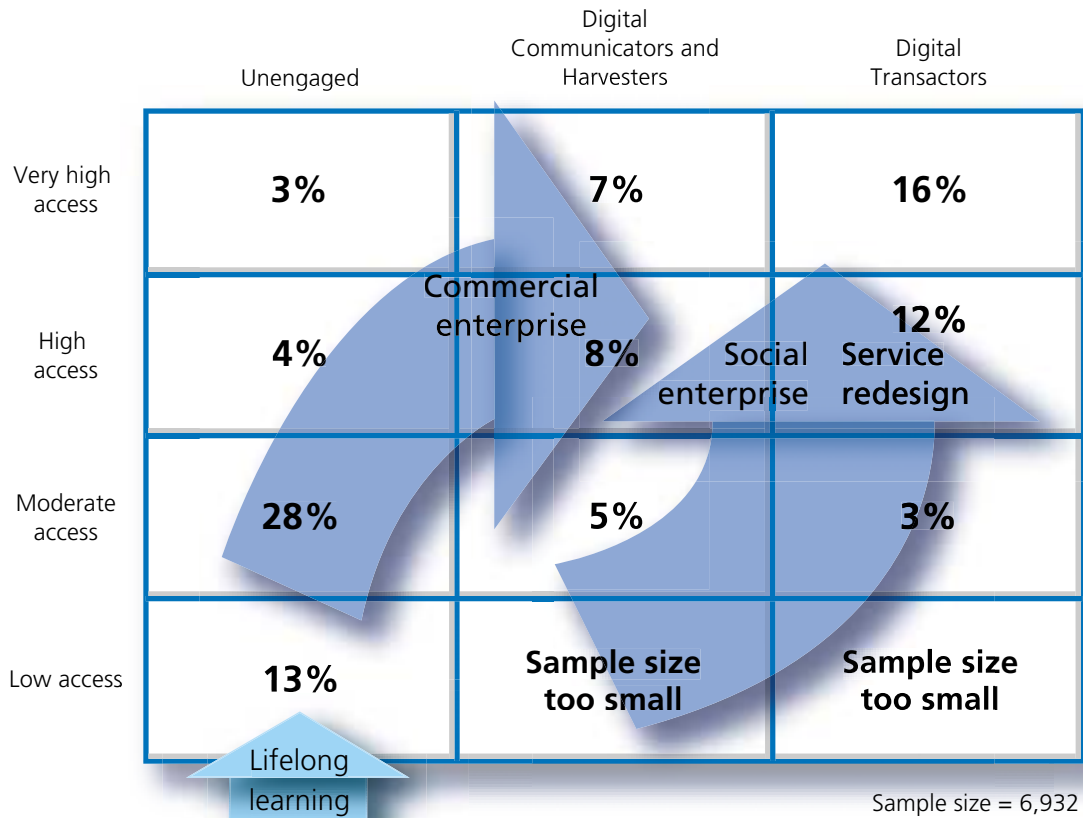
The vast majority of people who are digitally unengaged do not have home access to the internet. People aged 65 and over, and people on low income, are significantly more likely to be digitally unengaged. But far from being 'digital refusers', the data confirms that the vast majority of people who are not engaged have never even considered using the internet. This suggests that many people who are currently unengaged are simply not aware of how they personally could benefit from becoming digitally engaged. The data also indicates that for many older people and people on low income, factors extrinsic to the individual may limit their digital take-up. These include not having internet access at home and high cost.

Similar results were reported in the Get Started Campaign, which was led by the Office of the e-Envoy from May to August 2003.⁶⁸ Working with recognised brands (eg Grenada, Dixons, Arriva, Expedia, Microsoft and BT) and trusted intermediaries (eg Age Concern and Citizens Advice) this co-ordinated multi-channel marketing and public relations campaign aimed to drive take-up of the internet through free awareness-raising 'taster events' using the entire network of 6,000 UK online centres. In this short period of time, 122,272 people expressed an interest in learning more about the internet, of whom 35,249 actually attended an awareness-raising event at a UK online centre. Of these participants, 53% were retired, 7% were disabled, and 6% were unemployed. What the Get Started Campaign quite clearly demonstrated was that by working in cross-sector partnerships and with intermediaries, hard-to-reach groups of people can indeed become digitally engaged.

The challenge of digital engagement is complex. A holistic and integrated approach that enables digital engagement is indicated in order to maximise opportunities for successful digital take-up among people who are currently unengaged. As discussed in more detail below, data from this study indicates that this challenge will best be met through a strategy that enables innovation to accelerate in the areas of commercial enterprise, social enterprise, service redesign, and lifelong learning. This robust and highly flexible approach is illustrated in Figure 19.

⁶⁸Office of the e-Envoy (2003) *Get Started Campaign evaluation report, May to August 2002*. London: OeE.

Figure 19: Channels for digital take-up



A two-pronged approach to digital engagement is indicated in order to provide the necessary conditions to develop both the supply-side digital opportunities and the demand-side capacity for people to exercise their option to become digitally engaged:

Engagement pull

- Commercial enterprise, innovation and investment will be the key driving forces to accelerate digital take-up in the UK.
- Social enterprise, in the form of corporate social responsibility initiatives, enables people and communities to become stronger and more digitally connected.
- E-government service redesign presents a significant opportunity to support digital take-up.

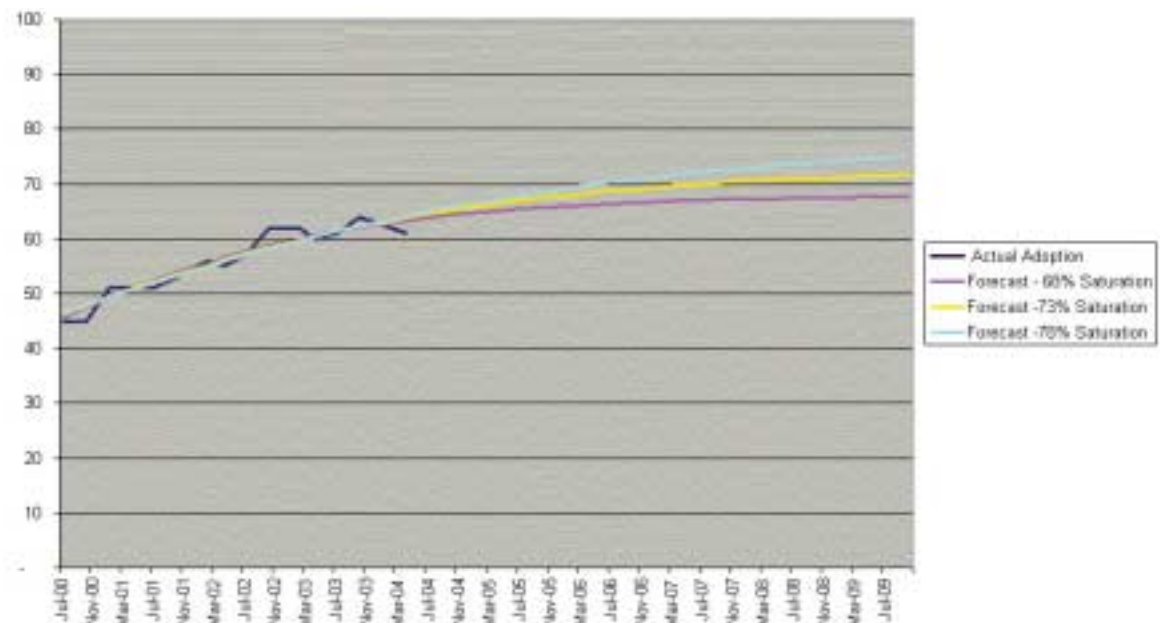
Engagement lift

- Lifelong learning opportunities provide support to enable people to become digitally engaged. The above 'pull market dynamic' will be fully supported and complemented through existing commitments to lifelong learning activities provided by UK online centres and complementary services provided by others, such as e-Skills UK and Ufi/learnirect.

Commercial enterprise

A strong and vibrant commercial market has the potential to engage many – but certainly not all – people who are currently digitally unengaged. Based on data shown in Figure 15 on likelihood of USC, and on a simple ‘S’ curve forecast using ONS time series data, internet take-up has the potential to reach 73% (Figure 20). A plateau effect such as this has been observed elsewhere; for example, in the USA internet use has already reached a long-term plateau of 63% of the population.⁶⁹

Figure 20: Adult internet take-up forecast



New innovations in iTV and mobiles – in addition to advances in interoperability – may very well encourage further digital take-up, as will the further development of compelling propositions. Such innovations will require a clear understanding of what potential customers want. Although many currently unengaged customers are on low income, business model innovations – such as BSkyB’s new 200 free channel service, and the Freeview service – provide good examples of ways forward.

Analysis of ONS data suggests that, in addition to the need to develop compelling propositions for potential customers, there is also a clear need to market products and services properly. Very simply, people need to become aware of how they personally may benefit from being digitally engaged. In this regard, the Broadband Stakeholder Group experience of developing the cross-industry awareness-raising campaign Broadband Is Here serves as a good example.

It is likely that digital take-up will plateau somewhere below full digital engagement across the whole UK population; nevertheless, much of the remaining population could still benefit via a range of social enterprise activities and the redesign of government services.

⁶⁹Mediamark Research Data (2004) Internet penetration flattens out: 63% of US adults regularly online, 79% have access to the internet, 16 June.

Social enterprise

Social enterprises are businesses with primarily social objectives whose surpluses are principally reinvested for such purposes in the business or in the community, rather than being driven by the need to maximise profit for shareholders and owners.⁷⁰ There is no single model for a social enterprise. They include companies limited by guarantee, industrial and provident societies, and companies limited by shares. Some organisations are unincorporated, and others are registered charities.

Social enterprises tackle a wide range of social and environmental issues and operate in all parts of the economy. By using business solutions to achieve public good, the Government believes that social enterprises have a distinct and valuable role to play in helping to create a strong, sustainable and socially inclusive economy. Social enterprises offer significant potential to model, develop and widely disseminate innovative approaches to enable currently unengaged people and communities to become engaged.

Corporate social responsibility programmes often support social enterprises. As illustrated by the excellent work of a wide range of companies – such as BT, Sainsbury's, Marks and Spencer, Grenada, Cisco, and AOL – corporate social responsibility innovations are often highly bespoke and context-specific. What they have in common, however, is a commitment to working in a collective and co-ordinated way across all sectors in order to provide sufficient levels of support to enable people and their communities quickly to achieve self-sustainability. Social enterprise activities can be particularly helpful in supporting the development of capacity for local context switching, intermediaries and home access.

Context switching

In cities across the UK, well-established social enterprise initiatives provide an ideal platform to enable digital take-up. Such initiatives – which often link local community, work and home environments – play an important role in helping deliver on many of the Government's key policy objectives by:

- helping to drive up productivity and competitiveness;
- contributing to socially inclusive wealth creation;
- enabling individuals and communities to work towards regenerating their local neighbourhoods;
- showing new ways to deliver and reform public services; and
- helping to develop an inclusive society and active citizenship.

⁷⁰ DTI (2002) *Social enterprise: a strategy for success*. London: The Stationery Office.

Social enterprise in Liverpool and Manchester

In many cases, community-driven content and service delivery is the key to building effective bridges between low-income groups and the digital revolution. Two such community-based projects – the South Liverpool Housing Group in Speke, Liverpool, and Eastserve in Beswick, Clayton and Openshaw in Manchester – have been helping local people experience the internet and digital technology, in many cases for the first time.

Eastserve

As one of only seven 'Wired-up Communities' in the UK, Eastserve is changing the way that Manchester communities start the 21st century. Residents in Beswick, Clayton and Openshaw in Manchester have benefited from having a computer in the home. Through a deal with a hardware supplier, Eastserve is able to offer a PC to residents at an affordable £200, with options to finance the purchase through credit-union-backed monthly repayments. Eastserve offer internet connection through a wireless broadband network, so that everyone in the area can benefit from fast, always-on access regardless of whether they have a telephone landline.

The Eastserve website offers several online facilities for the people of east Manchester and beyond, including a dedicated e-mail facility, discussion forums, local information, interactive forms and much more. There is also an interactive element where residents can report on what happened at their last neighbourhood watch meeting or residents' association. The local police are involved, keeping the community up-to-date on what has been happening in their area, and the city council are making sure that users can report problems or make inquiries online.

South Liverpool Housing Group (SLH)

The success of the IPTV project in Newham, East London shows that low-income groups are prepared to use DTV as a channel for access and information, again through local content that users find relevant to their lives. To build on the community access already offered in Speke through community and UK online centres, the SLH has been developing a scheme to give residents access to a digital network through a set-top box connected to their television. Football is an integral part of life in south Liverpool, and so SLH used video streaming images of local football matches as a driver for local people to access digital content.

Both the Speke SLH project and the Eastserve initiative demonstrate the importance of local content and local knowledge as key enablers to driving digital technology in poorer areas. Both organisations provide lifelong learning opportunities for people who do not often participate in formal education. Both organisations also serve as intermediaries between government and low-income groups by providing the communication links, service delivery channels and informational content to engage people. Projects such as these and others around the UK provide government and industry with an opportunity to drive low-income groups up the Digital Engagement Framework, and successfully to introduce digital culture into communities which have so far not been digitally connected.

Intermediaries

Intermediaries are organisations from the private or voluntary sectors offering services targeted at groups of customers (citizens or businesses). They do not offer services on behalf of the public sector, and do not represent themselves as doing so. The intermediary acts as an agent of the end customer.

It is clear that not all people will want, or be able, to become digitally engaged. Nevertheless, people who do not may still gain indirect benefits through the use of intermediaries.

Eaga Partnership Ltd: an intermediary

Eaga Partnership Ltd is an employee-owned company. It describes itself as a social enterprise which uses its trading surpluses to expand its ability to tackle the housing problems of low-income families, through the Eaga Partnership Charitable Trust. Since 1990 it has assisted 5 million disadvantaged households throughout the UK. Since 2000, the Government has radically changed its approach to energy efficiency, and the grant schemes were altered to address fuel poverty and energy efficiency more holistically. As a result, Eaga has won contracts to manage energy efficiency grants schemes in Wales, Scotland, England and Northern Ireland. It also manages schemes on behalf of utilities and social housing providers.

Current turnover is approaching £200 million. Eaga has just over 500 staff, many of whom are home-based, and eight offices across the UK and Ireland. Its head office is in Newcastle upon Tyne and it also has offices in London, Bristol, Cardiff, Edinburgh, Dungannon, Dublin and Penzance.

Eaga's customers include central government, the devolved governments, utilities and social housing providers. Its current specialism is energy efficiency and its programme portfolio includes:

- Warm Front – managed on behalf of the Department for Environment, Food and Rural Affairs;
- Central Heating Programme and Warm Deal – managed on behalf of the Scottish Executive;
- Home Energy Efficiency Scheme – managed on behalf of the Welsh Assembly Government; and
- Warm Homes – managed on behalf of the Northern Ireland Housing Executive, within the Department of Social Development.

All the schemes that Eaga currently manages are targeted at the most vulnerable members of society. They target the 8 million households in the most disadvantaged social groups and they handle over 500,000 client contacts per year. Eaga provides online registration for all of the government schemes shown above.

Developing home access

A striking result from this study is the impact that home access to technology has on internet use. The data confirmed that people who have home internet access are significantly more likely to use the internet than people who have only community internet access. People with home access are much more likely to be Digital Communicators/Harvesters and Digital Transactors; they are also more likely to use a wide range of digital devices, and to do so not just at home but when in the community or in other contexts, such as work.

People who are not digitally engaged are largely characterised as having low income, being over 65 years old, or both. Absence of home internet access and lack of money represent significant barriers to digital take-up for these groups.

Increasingly, broadband internet access to the home is seen as a vital utility in the same way that gas, water, and electricity supply are vital utilities. It is clear that many older people and people on low income spend a significant amount of their time in their home environment, which is often social housing. The provision of broadband access in social housing has been shown to be a powerful means to connect previously unengaged people, with the home environment positioned well to enable future context switching.^{71,72}

⁷¹ Dwelly, T (2003) *Homes that work*. Live/Work Network.

⁷² Dwelly, T (2002) *Disconnected*. York: York Publishing Services.

Government service redesign

Delivery of core public services using digital technology promises to improve the efficiency, convenience and quality of government services. Figure 21 shows use of e-government web services.⁷³ The first column consists of people who never use the internet; the second tier consists of people who use the internet, but not e-government services; the third tier consists of internet users who are e-government Digital Communicators/Harvesters; and the fourth tier consists of internet users who are e-government Digital Transactors. With 74% of all government services now e-enabled, 27% of the UK population have reported using a government website in the three months prior to interview.

Figure 21: Access to and use of e-government services in Great Britain

	Non-internet users	Not visiting e-government sites	Visiting e-government sites	Transacting on e-government sites	Total
Very high access	3%	10%	10%	3%	26%
High access	4%	10%	8%	2%	24%
Moderate access	26%	6%	3%	Sample size too small	36%
Low access	13%	Sample size too small	Sample size too small	Sample size too small	14%
Total	46%	27%	21%	6%	

Sample size = 6,904

Enabling innovation and transformation

The potential to conduct online government transactions represents a major opportunity to improve services for citizens. Government’s launch of the DirectGov website has positioned the UK well to develop a comprehensive and customer-focused service to support the citizen. DirectGov – combined with co-ordinated transformation of offline services and well-placed marketing – will open up new channels of access and help make government services more useful and relevant to all citizens.

⁷³This ONS data differs from ONS data reported earlier in two ways: the sample is slightly smaller, and, the unengaged are defined as people who have not used the internet in the 12 months prior to interview.

Encouraging intermediaries

The e-government intermediaries policy seeks to enable all departments to involve private and voluntary sector intermediaries for e-government services as part of their overall e-government strategy. The rationale for this policy is that intermediaries, due to their existing relationships with customers and insight into their needs, are well placed to deliver effective e-government services in a customer-centred way.

The UK online centres are an important community resource, with many settings providing an ideal venue from which to develop locally relevant intermediary services.

Service innovation through joined-up government

Since 1999, government has invested almost £400 million establishing a network of 6,000 UK online centres across the UK to provide supported low or no-cost internet access in a range of convenient community venues, at least half of which are in the 2,000 most deprived wards. Access, skills and citizen confidence to get online are barriers to internet take-up. From DfES research we know that centres are particularly effective at reaching the disadvantaged and digitally excluded, and improving citizens' confidence and skills to get online.

A big challenge for take-up of online services will be to ensure that new e-services are well designed to meet the needs of ordinary citizens and are promoted in ways that address their concerns as well as benefits. The centres provide access to the sort of people who will need to be 'convinced' by e-services and they are already valued as non-threatening places by the socially disadvantaged groups who tend to be heavy users of government services.

The UK online three-government pathfinder project aimed to test the potential of UK online centres to support e-government service delivery. It did this by running nine themed pathfinders in 75 centres across the UK presumably using around 40 different e-government services. The nine themes included: benefits for older people (with DWP and NHS Direct); supporting citizenship (with the Home Office), supporting job search (with DWP/Jobcentre Plus); and supporting sole traders/micro businesses (with DTI/Small Business Service). The success of the pathfinders depended on the strength of the local partnerships, the commitment of national government departments, the co-operation of local agencies and arms of government departments, the commitment of centre staff and the development of innovative ways of introducing users to online services.

Centres employed a range of techniques to increase awareness of e-government services and introduce citizens to them. These included organising family e-learning days; running health awareness sessions facilitated by NHS Direct; adding an online element to surgeries held by local pension services; taking jobseeker referrals from Jobcentre Plus; running sessions for those seeking citizenship; and tying in discounted leisure services with job search. Outreach work has seen users access e-services in pubs, sports centres and supermarkets.

DfES estimates that by the end of the pathfinder period centres will have introduced over 4,000 separate users to at least one e-government service. If scaled up to the whole network at a similar level, the centres have the potential to introduce over 1.3 million extra people a year from their existing user base to online government services.

Lifelong learning

The above 'pull market dynamics' will be bolstered by the work government has been doing on developing an ICT user skills strategy, and by designating ICT as a life skill.

e-Skills UK, the development of the Cybrarian Project, the establishment of over 6,000 UK online centres, and the creation of Ufi/learnirect combine to provide a powerful and complementary portfolio of resources to advance digital engagement. By joining up government departments and by working with other sectors, this portfolio will provide a vital lift to enable many currently unengaged people to become digitally engaged.

e-Skills UK

It is clear that sustainable, strong growth of the UK economy is critically dependent on the e-skills of its people, and the blend of technical, personal and business skills that enable organisations to take advantage of digital technology advances.

The mission of e-skills UK is to develop the skills pool needed to improve productivity and business performance, by uniting employers, educators and government on a common, employer-led agenda for action. Delivering this mission is critical to the success of virtually every UK organisation and the economy in general, as current skills shortages and gaps are restricting growth in many areas.

The Cybrarian project

Through innovative use of new technology the Cybrarian project aims to develop and market a search and interaction facility to enable digital take-up. Cybrarian will achieve this by facilitating access to the internet and learning opportunities for those who currently do not, or cannot, use the internet because of a lack of skills or confidence, or because of physical or cognitive disabilities. Cybrarian tools and services will be made available for integration into any educational website, and particularly DirectGov, so that portals providing access to appropriate lifelong learning content and services will be accessible to all. User testing has confirmed that Cybrarian can act as an online companion to provide a simple, uncluttered experience of the internet. It personalises the way information is presented, provides assistance in the use of online services, assists people wishing to use government services online, and supports progression from low-level to high-level access to and use of the internet.

Ufi/learnirect

Ufi, which operates the learnirect UK online network and service, is the largest government-supported e-learning organisation in the world. learnirect's unique selling proposition is that it offers 'any time, any place, any pace' learning for individual adults and businesses. Ufi:

- inspires existing learners to develop their skills further;
- transforms the accessibility of learning in everyday life and work; and
- wins over new and excluded learners.

A focus on older people

The population of the United Kingdom is becoming older. Today there are more than 10.5 million people over state pension age; by 2040 this figure is expected to have reached 16 million, or 25% of the population.⁷⁴ Many are living longer – between 1995 and 2025 the number of people aged over 80 years is expected to increase by half. And the population of older people is as varied as other sections of the population in terms of race, gender, ethnicity, literacy and health status. For example:

⁷⁴Comptroller and Auditor General (2003) *Developing effective services for older people*. London: The Stationery Office.

- the current generation of people of pension age is on average the most affluent ever, although at the same time some 2 million pensioners live in low-income households;⁷⁵
- the ageing of the population is a sign of rising standards in health, but then nearly half of those over 75 suffer from longstanding illnesses which limit their lifestyle;⁷⁶ and
- whilst large numbers have benefited from post-1945 educational developments, there are many older people with learning difficulties.

The ageing of the population has significant implications for the delivery of public services. In general, older people are more likely than younger ones to use public services provided by central and local government and the NHS. The development of health and social care services that would enable people to maintain independence was identified in this research as a priority compelling proposition for older people. Some key challenges remain which should form the focus for more detailed work, building on research already taking place. At present, older people are the least likely to be digitally engaged. At the same time, some 40% of NHS expenditure and 50% of social services expenditure is spent on people aged over 65.⁷⁷

It is likely that health and social care providers can provide access to relevant digital technologies as part of an overall package of cost-effective support for individuals. Further research and field-trialling would allow this to be tested. New digital services have the potential to add to the repertoire of 'assistive technologies' and form key elements of the overall range of services that are available through the Standard Assessment Process. If digital technology is provided as part of the health and social care support package, then it could open up a new channel which allows opportunities for the provision of a range of other services likely to be beneficial to patients and care providers.

The provision of personalised services for older people to support their independence and to avoid their admission to hospital is a priority for health and social care organisations. Nevertheless, the delivery of internet-enabled and other digital services should not serve as a substitute for physical activity and human contact, as it would threaten further isolation for many older people; instead, digital services should complement and improve traditional services, such as direct face-to-face contact.⁷⁸

Connectivity challenges

Older people are least likely to be familiar with the WIMP (Windows, Icons, Mouse and Pointer) interface inherent in PC-based applications. At the same time they are also likely to suffer from increasing levels of disability which may include hearing and visual impairment, and loss of mobility and manual dexterity. This makes interaction with current devices and interfaces – such as a PC keyboard and mouse – difficult.

Many of the current digital technologies – such as PCs – have their origins in the workplace environment. Whilst this underlying technology may be rapidly adaptable to support home health and social care services, the home environment has a very different socio-technical context and the design of interfaces and devices needs to reflect this for people of all ages. Technologies that are not robust enough to cope with drops, knocks and spillages will not meet the needs of many users. Dependability is also vital: devices must be reliable. Frequent crashes or screen lock-ups would not be acceptable.

⁷⁵ Comptroller and Auditor General (2003) *Tackling pensioner poverty: encouraging take-up of entitlements*. London: The Stationery Office.

⁷⁶ Comptroller and Auditor General (2003) *Progress in making e-services accessible to all: encouraging use by older people*. London: The Stationery Office.

⁷⁷ Office for National Statistics (2004) *Social trends, No 34*. London: The Stationery Office.

⁷⁸ Joseph Rowntree Foundation (2004) *Internet access and online services for older people in sheltered housing*. York: Joseph Rowntree Foundation.

Trust is an important component of adoption and acceptance. More than 98% of households possess at least one television set, making it one of the most pervasive, familiar and accepted devices in the home. With 53% of households already connected to digital television, iDTV potentially provides a means to reach virtually the whole population. By taking advantage of all the features of iDTV to blend rich content with interactivity, a wide range of communication, information and transactional services are being developed by industry and government to engage people who may currently be reluctant or unable to use an internet-enabled PC or to follow traditional channels such as visiting a local government office. Across the UK, local government has been working in partnership with industry to build iDTV portfolios which support the full spectrum of local government service delivery, including transport, council tax payment methods, education and employment. Central government also continues to innovate in its use of iDTV, most recently with the launch of DirectGov on BSkyB, ntl, and Telewest.⁷⁹ iDTV has considerable potential to provide communication, content and transactional services to enable many currently unengaged people to become digitally connected, including older people and people with sensory and physical impairments.⁸⁰

Further work needs to be done with users, service providers, industry and academic research groups to use and further develop existing standards, models and prototypes for interfaces and digital remote sensing. This could form part of the role of the proposed NHS Innovation Centre, which will act as a broker to bring together a range of stakeholders to develop solutions to meet NHS service priorities.⁸¹ The NHS Innovation Centre could act as a focus for a range of partners to collaborate in the development and field testing of digital health and social care assistive technologies.

Content challenges

Compounding the problems of connectivity are problems with content. Most websites (81%) fail to satisfy the most basic Web Accessibility Initiative category and have design characteristics that make it difficult, if not impossible, for people with certain impairments to make use of the services provided.⁸² Such design limitations are a major barrier to digital take-up for many people and represent lost opportunities for industry, government and the voluntary sector. Yet for many people with disabilities who are able to get access, digital engagement can be the route to information, education and learning. There is clear evidence that digital engagement can facilitate communication, open up opportunities for networking and socialisation and so enhance quality of life for many people with disabilities.⁸³

As people grow older, their risk of developing health complications increases. Diabetes is a major cause of early death and disability, and causes heart disease, strokes, kidney failure, and blindness. In the UK, Bangladeshi adults are nearly six times more likely to self-report diabetes than the general population.⁸⁴ Having online access to good quality health information that people can understand enables more effective self-care. Because 50% of Bangladeshi adults in the UK are not able to read or understand English well,⁸⁵ the multi-language website developed by the charity Diabetes UK meets a clear market need. It should be pointed out that the development of such multi-language websites is extraordinary; as indicated in Table 6, English is by far the most common

⁷⁹ Office of the e-Envoy (2003) *Digital television: a policy framework for accessing e-government services*. London: Cabinet Office.

⁸⁰ Comptroller and Auditor General (2003) *Progress in making e-services accessible to all – encouraging use by older people*. London: The Stationery Office.

⁸¹ DTI (2003) *Innovation report: competing in the global economy: the innovation challenge*. London: DTI.

⁸² Disability Rights Commission (2004) *The web: access and inclusion for disabled people*. London: The Stationery Office.

⁸³ Bunting, G, Bunting, T and Small, P (2004) *Preliminary investigation into access to information communication technology for people with disabilities: Phase 2*. Highlands College Social Science Research Centre.

⁸⁴ Department of Health (1999) *The health of minority ethnic groups, health survey for England 1999*. London: The Stationery Office.

⁸⁵ Home Office (2001) *Communicating with non-English speakers*. London: COI Communications.

language on the internet. The development of online content that meets diverse linguistic, cultural and religious needs would encourage further digital take-up among often hard-to-reach groups, and might very well yield significant benefits for commercial, voluntary sector and government suppliers.

Table 6: Chart of internet content by language

English	68.4%
Japanese	5.9%
German	5.8%
Chinese	3.9%
French	3.0%
Spanish	2.4%
Russian	1.9%
Italian	1.6%
Portuguese	1.4%
Korean	1.3%
Other	4.6%
Total internet pages:	313 bn

Source: Vilaweb.com, as quoted by eMarketer.
Numbers rounded.

Capability challenges

Many factors can limit digital take-up among hard-to-reach groups, including:

- lack of knowledge, awareness, and skills;
- lack of money, social support and time; and
- special access needs.

Part of the capability challenge relates to enabling people to benefit from lifelong learning opportunities. The Government is committed to improving literacy, numeracy and e-skills among hard-to-reach groups,⁸⁶ and this will do much to encourage digital take-up. As the experience of the Office of the e-Envoy's Get Started Campaign made clear, many people from hard-to-reach groups are keen to learn e-skills. With significant investment from government to create the national network of 6,000 UK online centres, the UK is now well placed further to develop these opportunities for the benefit of older people.⁸⁷

Another part of the capability challenge relates to connectivity. There is a clear need for industry to begin designing products and services that are more socially inclusive, and which can adjust to the changing abilities of users. In designing such tools and applications, it is important to note that throughout one's life, one's ability

⁸⁶ ODPM (2004) *Tackling social exclusion: taking stock and looking to the future*. London: Social Exclusion Unit.

⁸⁷ Comptroller and Auditor General (2003) *Progress in making e-services accessible to all – encouraging use by older people*. London: The Stationery Office.

levels change. Many people resist defining themselves as disabled, and yet choose not to become or remain digitally engaged. In fact, an estimated 60% of the adult population have reported some access issues related to disabling conditions.⁸⁸

Because the UK population of older people is increasing, there remains a real risk that in the medium to long term significantly more citizens will migrate from being digitally engaged to being unengaged than the other way round. Yet this demographic shift represents a significant commercial opportunity for industry. Companies that innovate and create more socially inclusive products may well generate handsome commercial returns in future. BSKyB's remote control and navigation systems are easy to use, and provide an excellent example of innovation in this area.

Future health and social care in context: Kate's story

Kate is 85, widowed and lives alone in a flat. She has lived there for many years and has been an active member of her local community but finds it increasingly difficult to get out. Her son has moved to Australia with his family and she has no relatives living close by. Kate has diabetes, heart problems and arthritis which particularly affects her hands. She is unsteady on her feet and at risk of a fall which would probably end her days of independence.

As part of an assessment process led by Kate and supported by her care worker she has had some adaptations made to her flat. The most obvious ones are the grab-rails next to the bath, adaptations to the kettle so she can better grasp the handle, some general movement of furniture and fixing down of rugs to reduce the risk of trips, falls and knocks and a smoke alarm. There is also what looks like a flat-screen TV in her living room with a small camera on top and a remote control with five large buttons. Kate also has a small and attractively designed pendant which she can wear around her neck or clip to her blouse. The pendant contains a call button and a small wireless microphone.

Less obviously there are digital flow sensors attached to the main hot and cold water pipes, and small ceiling-mounted motion sensors in the main living areas. In the bedroom are two small non-invasive monitoring devices for measuring her blood sugar level and blood pressure. Behind the scenes Kate's telephone line has been converted to broadband and a small wireless router is hidden away out of sight. All these devices are either unobtrusive or attractively designed – nothing that would embarrass Kate when she has visitors around. Neither is there a large processor box in the flat – all functions and data are served by remote servers in the local health and social care support centre. The only box under the stairs is a small UPS (uninterruptible power supply) in case of power cuts.

The screen in her living room provides access to the normal range of TV channels as well as being a touch screen that replicates the controls on the remote. The support worker has also helped her to set up her own personalised screen. This includes a diary providing audio and visual reminders for taking medication, doing her regular blood pressure and diabetes tests or simply when her favourite soap is on TV. She can see the Meals on Wheels menus for the coming week, make her choices and see who is doing the delivery. Local community information is also available, such as bus times, 'what's on' and access to volunteer car schemes to get to the shops or a local community centre. Kate can also order her repeat prescriptions online.

⁸⁸Forrester Research (2003) *The wide range of abilities and its impact on computer technology*. Cambridge, MA: Forrester Research. www.microsoft.com/enable/research/summary.aspx

Her personal screen is based around a series of familiar 'cue' pictures that relate to the key elements of Kate's support requirements. She can select them using her remote or by touching the screen. She can pick up video, voice and text messages left by her support worker (or any of her friends) or leave similar messages. A small camera at the front door enables her to see who is there from her living room, talk to them and if necessary admit them remotely. She can see her diabetes and blood pressure 'report cards' if she wants. The monitoring devices send the readings to a central server. If the patterns or trends in the readings are abnormal then she will see an indication on screen or hear a voice alert and the Nurse Practitioner in the support service commissioned by her local Primary Care Trust will give her a call and either have a brief video or voice consultation, or arrange for someone to call around at a convenient time. Only Kate can initiate a video discussion as her privacy is important to her. Kate can also use the video and voice link to talk to friends and most importantly her family in Australia via their PC.

Kate could have chosen a wrist-wearable wireless monitor with an accelerometer to detect falls but taking it on and off to get in the shower is awkward. Instead the motion and flow sensors are used to 'watch and learn' the patterns of movement and activity in Kate's flat. If they detect rapid movement such as a possible fall, the lack of any activity at times when Kate is normally up and about, or indeed unusual activity near windows or doors which might be an intruder, then the system will first use a sound or visual cue in the flat to alert Kate to press her pendant button or press a button on the remote control. If there is no response a text message is sent to her support worker to alert her.

All these services have been designed to fit into Kate's pattern of life. Unobtrusive, attractively designed and dependable, they significantly enhance her independence and confidence. They do not replace the human touch of the nurse or support worker, but they help put Kate back in control of her own life.

Recommendations

Analysis of the literature and the ONS data indicate that a vibrant commercial market has the potential to engage many people who are not currently digitally engaged. For people who remain digitally unengaged despite such efforts, both social enterprise and redesign of government services have the potential to encourage further internet take-up. Lifelong learning opportunities delivered through a range of organisations – including UK online centres, e-Skills UK, and the Learning and Skills Council – provide vital resources to enable digital take-up.



The Digital Engagement Framework helps key stakeholders understand more clearly their respective market opportunities. This report provides a snapshot in time; follow-up demand-led research – in particular to extend the ONS dataset to include iDTV and mobile devices – is needed in order to enable industry, the voluntary sector and government to innovate with new products, services and business models.

To enable a *digitally United Kingdom*, this report recommends that:

- 1) Government should support commercial and social enterprise, delivery of e-government services, and development of strategic lifelong learning opportunities by providing key stakeholders with ongoing demand and supply market intelligence based on the Digital Engagement Framework. The sharing of this research evidence should be supplemented with cross-sector meetings to encourage collaborative innovation and ongoing progress.

Through service transformation and improved IT efficiency and effectiveness, government should continue to join up services around the needs of citizens via DirectGov and the enhanced role of the new e-Government Unit, which will have greater involvement in formulating cross-departmental take-up strategies. Customer-focused propositions that enable easy access and use of local services such as healthcare, social benefits and employment services should continue to be developed and evaluated to ensure the realisation of benefits for all, including those who are currently not digitally engaged.

The national network of 6,000 UK online centres is an important resource that has the potential to encourage digital take-up across a wide range of government services. It is also recognised that trusted intermediaries that have a deep understanding of their client group are often better equipped than government to deliver services for hard-to-reach groups. UK online centres are also an important community resource, providing the necessary lift to enable often hard-to-reach groups of people to become digitally engaged. Innovation in these areas should continue.

2) The UK would benefit from the establishment of an industry-led body that focuses on encouraging digital take-up through social enterprise, supported with corporate social responsibility initiatives. Local, sustainable and scalable innovations work best. Such an organisation should aim to act as a broker between suppliers and customers who are currently not digitally engaged; it should exploit market intelligence to encourage rapid innovation, scaling-up and sustainability; and it should provide leadership and strategic vision to promote a *digitally United Kingdom*. The organisation should build on the many different projects that exist regionally and locally, and should create new partnerships and joined-up initiatives within existing organisational frameworks.

3) Government should encourage Intellect, the trade body, to convene a new cross-industry, fully representative group that focuses on the implications for digital engagement in the UK of the convergence of broadcasting, telecommunications, broadband and the internet. This group should look at the scope for investment, innovation and enterprise to fulfil government's objective for digital engagement.

In particular, the group should focus on the various opportunities for meeting the desires of content providers who seek to provide content across multiple platforms and devices. In this context, the group should also consider the content needs of all user groups.

Appendix A: Digital Inclusion Panel members

Name	Position	Organisation
Eric Abensur	Chief Executive Officer	Freeserve
Charles Allen	Chief Executive Officer	ITV
Alistair Baker	Managing Director, UK & Vice President of EMEA	Microsoft
Kevin Carey	Director	HumanITy
Paul Coby	Chief Information Officer	British Airways
Barry Cox	Deputy Chairman	Channel 4/DTV Action Group
Jos Creese	Head of IT	Hampshire County Council
Pierre Danon	Chief Executive Officer	BT Retail
David Docherty	Chief Executive Officer	Yoo Media
Simon Duffy	Chief Executive Officer	ntl
David Harker	Chief Executive Officer	Citizens Advice
Fru Hazlitt	Managing Director	Yahoo UK and Ireland
John Higgins	Chief Executive Officer	Intellect
Ashley Highfield	Director, Distribution & Strategy	BBC
Larry Hirst	Chief Executive Officer	IBM UK
Shuna Kennedy	Chief Executive Officer	AbilityNet
Jeremy Klein	Head of Public Sector	Scientific Generics
Ann Limb	Chief Executive Officer	Ufi
Gordon Lishman	Director General	Age Concern
Brian McBride	Managing Director	T-Mobile
Dave McGlade	Chief Executive Officer	O ₂
Maggie Miller	Chief Information Officer	Sainsbury's
James Murdoch	Chief Executive Officer	BSKyB
Rick Skett	Director and Country Manager	Intel UK
Ian Smith	Managing Director	Oracle UK
Phil Smith	Director of Business Development	Cisco UK
Robin Terrell	Managing Director	Amazon.co.uk
Karen Thomson	Chief Executive Officer	AOL UK
Simon Turner	Managing Director	PC World
John Varley	Director	Clinton Devon Estates
Ian Whittaker	General Manager	Hewlett Packard

Appendix B:

DIP Working Group members

Chris Batt	Museums, Libraries and Archives
Margaret Bennett	Department for Education and Skills
Elaine Chamberlain	Office for National Statistics
Jim Davies	Department of Trade and Industry
John Fisher	Citizens Online
Mervion Kirwood	Office of the Deputy Prime Minister
Matt Locke	BBC
Andrew Pinder	Office of the e-Envoy
Karen Price	e-Skills UK
Catherine Smadja	Department for Culture, Media, and Sport
Michael Wilkinson	e-Government Unit, Cabinet Office
Ian Wood	British Telecommunications plc

Appendix C: Workshop participants

Emma Aldridge	Age Concern
Nicola Bolton	IBM UK
Gail Bradbrook	Citizens Online
Yonca Brunini	Yahoo
Kevin Carey	HumanITy
Sheila Cassells	BSkyB
Peter Clarke	Fujitsu UK
Jos Creese	Hampshire County Council
Jim Davies	Department of Trade and Industry
David Dawson	Museums, Libraries and Archives
Simon Dawson	Intel UK
David Docherty	Yoo Media
Vic Foti	Hewlett Packard
Emma Fyer	EURIM
Katrina Giles	AOL UK
Billy Harley	Dixons
Mike Hughes	British Telecommunications plc
Shuna Kennedy	AbilityNet
Mervion Kirwood	Office of the Deputy Prime Minister
Jeremy Klein	Scientific Generics
Bronwyn Kunhardt	Microsoft
Philip Matthews	British Airways
Mark Outhwaite	NHS
Nick Penston	Cisco UK
Simon Pitts	ITV
Karen Price	e-Skills UK
Chris Randall	Office for National Statistics
Angela Richards	Ufi
Asher Rickayzen	T-Mobile
Mike Short	O ₂
Catherine Smadja	Department for Culture, Media and Sport
Trevor Smale	ntl
Ian Smith	Oracle UK
Helen Thompson	Clinton Devon Estates
Anna Van Zoest	ipprr
Antony Walker	Intellect
John Wheatley	Citizens Advice
Michael Wilkinson	e-Government Unit