Communities
and Local Government

Understanding Digital Exclusion
Research Report

Understanding Digital Exclusion
Research Report

The findings in this report are those of the authors and do not necessarily represent those of the Department for Communities and Local Government

Contents

Figures

Chapter 1

Digital exclusion: why all the fuss?

For decades, information and communication technologies (ICT) have been driving profound changes in the way in which individuals, organisations and governments interact. In particular, the internet has been a major force behind the development towards a more globalised, knowledge-based economy. However, in terms of access to the internet, a **digital divide** between the 'haves' and the 'have nots' has long been recognised.

The applications of ICTs have now developed far beyond just computing hardware and the internet towards a much **wider realm of digital technologies**. As such, the digital equality agenda must capture the disparity of access and functional usage for both the traditional communications technologies such as the internet, mobile phones and interactive digital television, *and* support new ways of working, managing information, improving the delivery of public services or enabling personal development through electronic gaming.

The benefits of digital technologies are numerous and far-reaching. Moreover, certain types of digital technologies can have a huge impact on the quality of life and range of opportunities available to socially vulnerable individuals and groups. Previous work by FreshMinds (2007) has highlighted the strong link between social and digital exclusion. As such, **digital equality matters** because it can help to mitigate some of the deep social inequalities derived from low incomes, poor health, limited skills or disabilities.

Using the latest available data from sources such as the Office for National Statistics (ONS), the Office of Communications (Ofcom), the Oxford internet survey (OxIS) and UK online centres, this report considers the most recent trends in the uptake of digital technologies. It then goes on to highlight the benefits that the different wider digital technologies can bring to socially vulnerable groups. Finally, the report profiles which individuals or groups are most likely to be digitally disadvantaged and then considers some of the key barriers to digital equality. Using all the evidence collected, recommendations have then been made as to what approaches should be employed to achieve digital equality in the UK.

1.1 Recent trends in digital technologies: an overview

ICT ownership has broadly increased across all traditional platforms. Growth in ownership appears to have been driven by the elderly, although this age group are still the **least likely** to own a mobile phone, digital television or the internet.

However, just because the digital divide is reducing, this is not necessarily an indication that the problem is being resolved. Those that are still not included are at risk of being left further and further behind, as technology continues to develop, the **depth of inequality** increases.

As technologies develop it is not only inequality of access to the internet that creates a digital divide. Wider information communication technologies (ICTs) also offer considerable opportunities for those able to take advantage of them; and increased exclusion for those who cannot.

Figure 1 illustrates home ownership of other ICTs has broadly increased between 2000 and 2007:

Figure 1: Trends in ownership of technologies among UK consumers

Source: Ofcom 2007a. Base: 700+ individuals per month
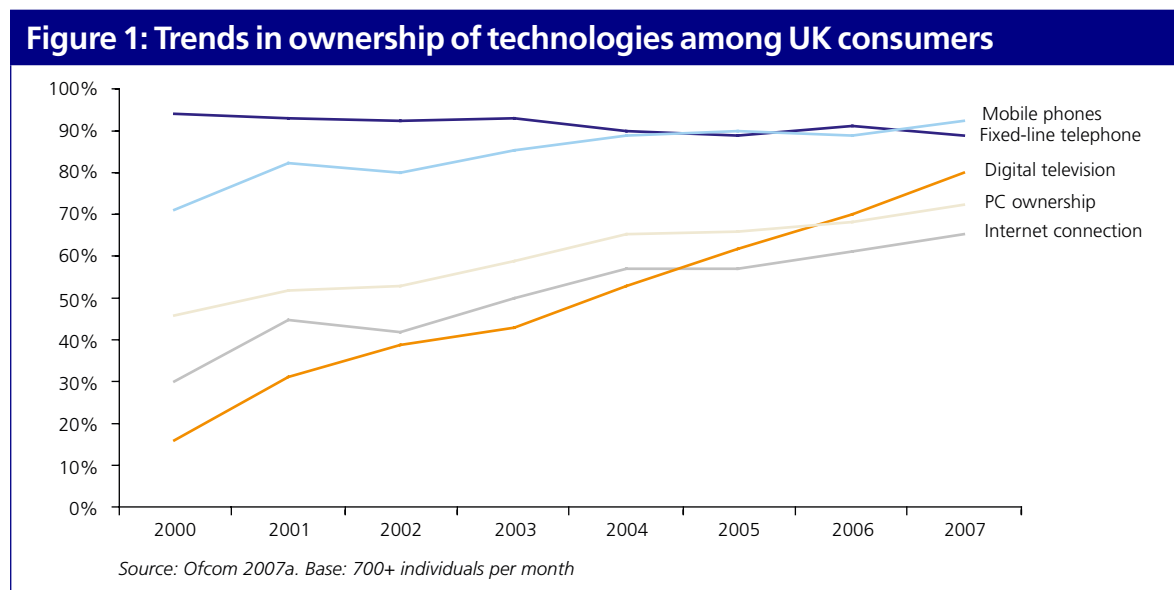
Ofcom's most recent data shows that by 2007 mobile phone ownership had overtaken that of fixed telephone lines. Mobile phones and fixed telephone lines have remained relatively stable since 2004 at around 90 per cent ownership, possibly indicating saturation in the market (Ofcom 2007a; Ispos MORI 2007).

Digital television ownership has continued to expand rapidly to reach 76 per cent of UK households in 2007 (ONS 2007a). As suggested in our 2007 report, this increase is most likely driven by the 2012 analogue switch-off. Lower prices and an increasing range of

available services may have also contributed to this increase in uptake, although the use of interactive digital television services has shown a slight drop in use to around 19 per cent of the population (Ipsos MORI 2007).

Alongside the rise of other digital technologies, home internet connections have continued to increase at an annual rate of 4 percentage points (since 2005). 65 per cent of the UK households now have a connection of which 84 per cent are broadband connections. This indicates the dominance of this technology over dial-up over the past few years. Another trend to note is the correlation between PC and internet ownership; 9 in 10 PC owners also own an internet connection (Ofcom 2007a; ONS 2007a).

1.1.1 The mobile phone market has reached saturation, but seen a large increase in uptake by those over 65 years old

> The mobile phone market has witnessed saturation over the past few years. Growth has come from **technology switching**, rather than great increase in use by the population. However, there has been a large increase in take up by those over 65; over half of those over 75 now use a mobile phone.

There has been growth in mobile phone use across all ages according to Ofcom. The overall increase in use was 6 percentage points between 2006 and 2007. This was probably driven by the market increase in use by those aged 65 – 74 (13 percentage points) and those over 75 (19 percentage points). It is now the case that **over half of 75 year olds now personally use a mobile phone**. Even though those who don't use a mobile phone are a minority in any age group, those over 65 are still the least likely to use mobile phone services. There was also a marked increase in those who use mobile phones by those earning less than £11,500 a year (8 percentage points) (Ofcom 2007a).

A strong increase has been recorded in those using phones with 3G technology. The total share of phones with 3G in 2005 was 9 per cent. This figure had increased to 20 per cent by 2007; a greater increase than the share of new users in the same period. However, these figures may be understated as some research indicates that some consumers are unaware of the term 3G (Ofcom 2007a).

People are most interested in sending calls and text messages when using their phone, while accessing mobile operator's internet sites is the least interesting mobile phone function (Ofcom 2007a). Use of mobile internet services was most prominent among those aged 16 – 24. Internet use then decreased with age until the 45-54 age group, beyond which it became negligible. There was a slight trend in increasing use as income increased, with those earning over £36,400 using the internet on their phones 6 percentage points more than those earning less than £10,400 (ONS 2008b).

1.1.2 Growth in digital television remains strong

There has been strong growth in the ownership of digital television for a number of years, with Freeview providing a solution to the barrier of affordability. Usage is least amongst those over 65, but there is again an indication of increased uptake within this age group.

As seen in Figure 1, the ownership of digital television has continued to increase fairly constantly since 2003.

Between 2006 and 2007, growth was driven by all age groups except those aged between 45 and 55 years old. The greatest increase was witnessed by those over 65 who increased their usage by around 11 percentage points. 74 per cent of those aged 65 – 74 and 51 per cent of those over 75 years old now own digital television services. Usage also increased across the majority of incomes, but the £17,500 – £29,900 band remained more or less the same over the 12 month period. The ONS records the total share of houses in the UK with digital television access to be 76 per cent (6 percentage points more than the previous year). The greatest increase was again recorded to be within the over 65s (13 percentage points) though data was not available with respect to income (Ofcom 2007a; Ofcom 2008b; ONS 2008b).

43 per cent of households now have satellite television and 30 per cent have Freeview. Growth in ownership of these two technologies has resulted in the decline of households with only terrestrial television (17 percentage points from 2005 to 2007). 23 per cent of houses now own a digital video recorder along with their digital television, though the majority of these are in conjunction with satellite services (Ofcom 2008b).

This growth in digital television ownership is likely to continue; of those who did not own digital television, 27 per cent (12 percentage points more than in 2005) intended to get the service within the next 12 months in 2007 (Ofcom 2008b).

Just over half (54 per cent) of digital television owners showed interest in using interactive television services, with those over 55 and economic group DE being the least interested. 44 per cent of owners felt that they could use this function with confidence though nearly the same share felt that they were just not interested.

1.1.3 After a period of stagnation, uptake of the internet has increased markedly within the last year

According to ONS, 67 per cent of the adult population now use the internet. 65 per cent of the population had home internet access in 2007; 84 per cent of these connections were broadband.

The elderly showed the greatest increases in both use and ownership, however, **over three quarters of those over 65** were still non-users in 2007.

Since internet services are available in a multitude of locations, internet ownership somewhat diverges from internet use.

Figure 2: Percentage of UK internet users and households with an internet connection

Source: ONS 2007a; ONS 2007b. Base: 2000 households quarterly up to 2007. Base: 2288 in 2007.
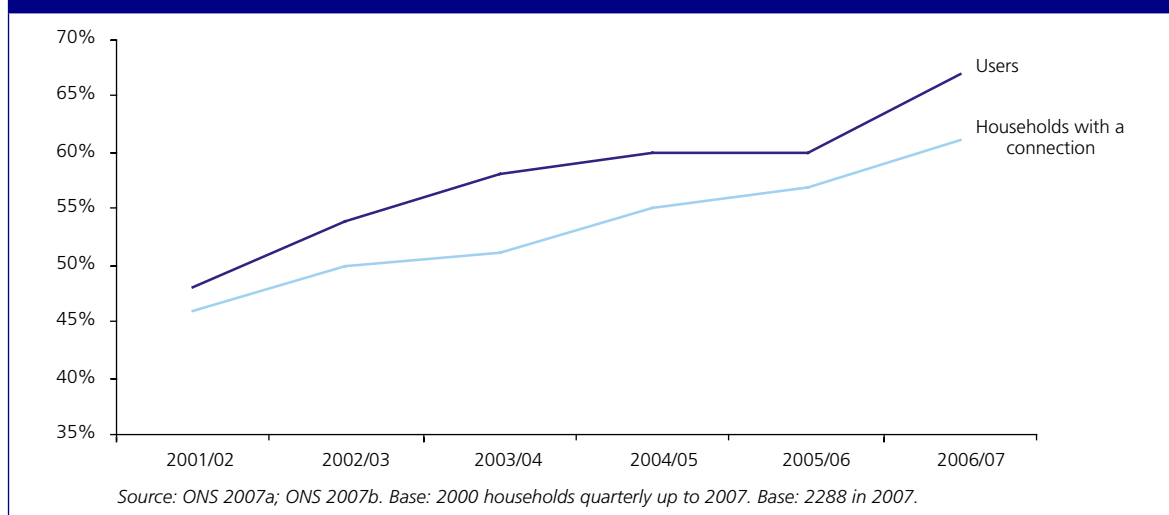
Figure 2 indicates how current internet use has changed over the past 6 years based on the ONS Omnibus survey data (a **current internet user** is defined as someone who has **used the internet in the last 3 months**).

The plateau of current internet users identified in the 2007 report can be observed up to 2005/6. There has been further growth in internet users since the original report was published. According to the ONS, the number of internet users who are considered 'current users' has increased by 7 percentage points, up from 60 per cent of adults in 2006 to 67 per cent in 2007.

This increase has also been identified by other reliable data sources:

- The Oxford Internet Survey recorded an increase of seven percentage points from 2005, citing the share of internet users as 67 per cent.

- Ipsos MORI recorded an increase from 63 per cent in late 2006 to 65 per cent in mid 2007.

As can be seen from **Figure 3** below, all ages exhibit growth in usage between 2006 and 2007.

Figure 3: Trend in proportion of the UK population who use the internet by age

Source: ONS 2007a; ONS 2007b. Base: 2000 households quarterly up to 2007. Base: 2288 in 2007.
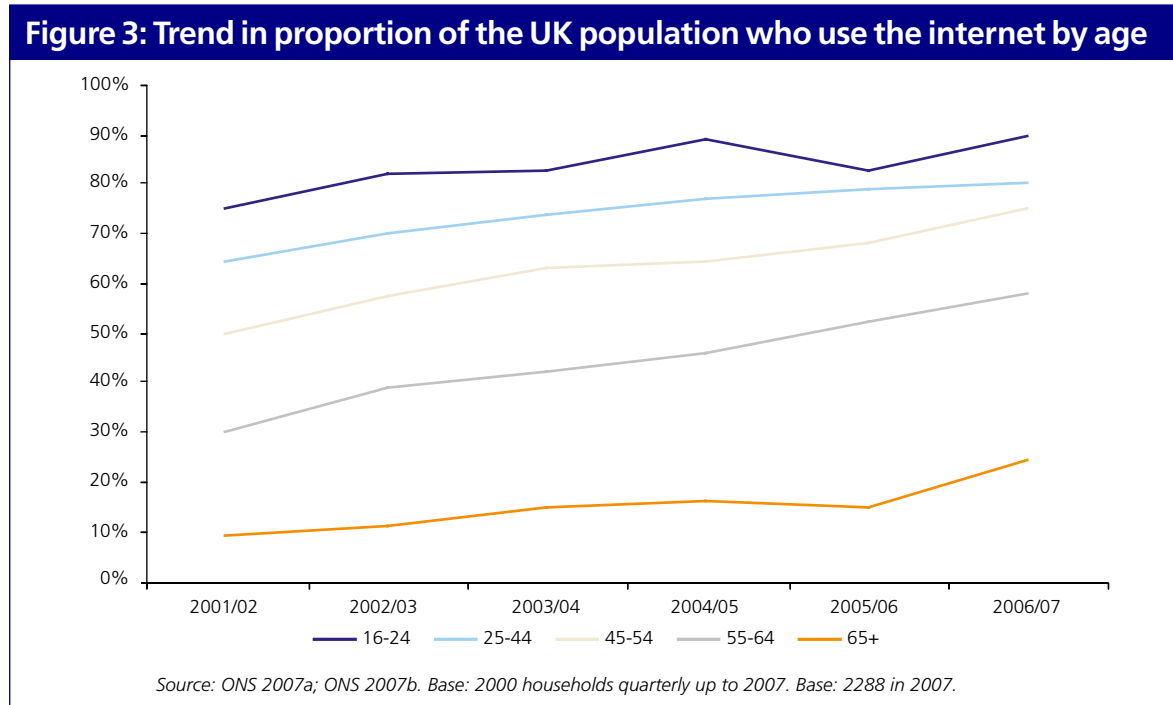
Figure 3 clearly indicates that internet use decreases with age. However, 16 – 24 year olds and the over 65's displayed the biggest use increases between 2006 and 2007; 7 and 9 percentage points, respectively (ONS 2007a). Although not illustrated in Figure 3, the 2007 Ofcom Children's Media Literacy Audit suggests that 65 per cent of 8 -11 year olds and 75 per cent of 12 – 15 year olds are now regular users of the internet.

The increase in the 'ownership' of internet services is highest among those over 75 years of age. Whilst growth among 65 – 74 year olds remained slight at 3 percentage points, 13 per cent more of the total over 75 population have internet connections at home compared to 2006 (Ofcom 2007a).

It is particularly interesting to note that those aged between 16 and 24 suffered a slump in internet use between 2004 and 2006. The recent increase therefore amounts to a mere recovery to its 2004/05 peak of approximately 90 per cent (ONS 2007a; ONS 2007b). In terms of policy implications, this suggests that **care and attention is required to sustain growth** among even those age groups most likely to be exposed to, and motivated by, internet based technologies.

In relation to income, the ONS data suggests that the main drivers of internet usage growth come from those of the middle income bracket (£10,401 – £20,799), where there has been growth of around 5 percentage points. There has also been a slight decrease in indicated use by those earning over £36,400, though this group still has the greatest percentage of users in relation to the other income groups (ONS 2008b).

The availability of ADSL broadband in terms of UK coverage has stabilised around 99 per cent for a number of years now. However, between 2006 and 2007 the availability of local loop unbundling (LLU) to the UK increased by 23 percentage points. Such a significant increase has allowed operators providing cheap or so-called 'free broadband' to have greatly increased their coverage of the UK. Note, however, that LLU is restricted to areas with high numbers of houses near the exchanges being unbundled, so rural users are less able to enjoy the benefits of cheaper access. Between 2006 and 2007 cable broadband accessibility also increased (albeit by 1 percentage point), so that 46 per cent of the UK now have cable broadband access (Ofcom 2007a).

1.1.4 There is a strong correlation across ownership of ICTs

Figure 4 is a Venn diagram displaying the share of the population that posses a connection to the internet, a mobile phone or digital television, or a combination of all three.

Figure 4: Share of multiple ICT ownership of the UK population

Source: Ofcom 2008b. Base: 3244 in 2005, 2905 in 2007.
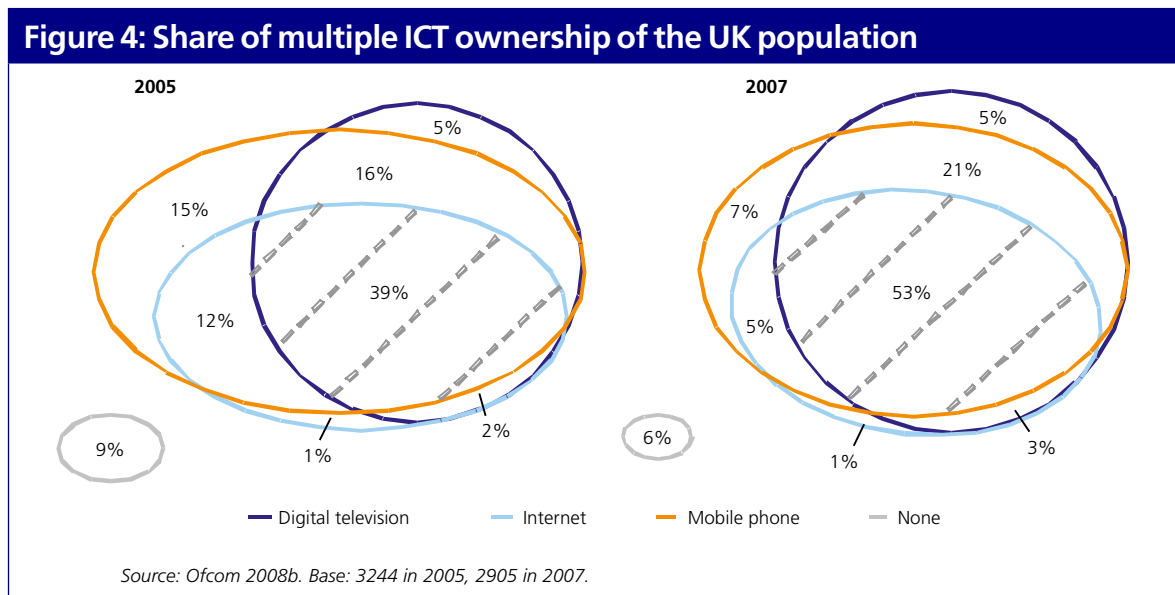
The share of adults who own all three of the major digital technologies has increased by 14 percentage points to 53 per cent. This means that over half of the UK population has access to all three of these ICTs at home. Similarly the share of those who own none of the three technologies has decreased by a third to 6 per cent.

73 per cent of those aged 35 to 44 own all three of the platforms and, as a result of them living with their parents, 74 per cent of 16 – 19 year olds had access to all three in their households. This was reflected in the decrease of triple ownership in the 30 – 34 year olds. Those who don't own any of the technologies are most likely to be over 65. Triple ownership also increased with economic social group (probably due to an increase in disposable income) and was more likely for those households with children (Ofcom 2008b).

Chapter 2

The full digital picture

When tackling the issues of digital exclusion, the focus has traditionally been on communications technologies such as the internet and digital television. However, as these technologies have developed, so too have other digital solutions with a wide range of applications and potential benefits – particularly for otherwise socially disadvantaged groups. This may be through the support of new ways of working, managing information, improving the delivery of public services or enabling personal development through electronic gaming.

These wider digital technologies can be categorised under the following:

- **Information management –** the sharing, analysis and amalgamation of data, allowing better understanding and forecasting of social and/or commercial trends

- **Process improvement –** the improvement of logistical systems helps organisations deliver better, more efficient results. It can be used to refine workflow patterns, to support new intellectual products and to integrate third parties

- **Service improvement –** systems that help personalise the provision of services in both the public and private sectors, and to introduce a wider choice of services to all

- **Communications –** encompass technologies such as mobile devices, digital television, WiFi, social networking technology, smart cards and video

- **Gaming and entertainment –** the participation in electronic games with a video interface. These can be played on a number of platforms such as on a PC or through a television

- **Domain specific technology –** encompasses those digital technologies (such as medical devices and educational aids) for people with specific needs

- **Assistive technology –** overcomes accessibility barriers for those with disabilities and other specific conditions. Examples include aids such as user-friendly mobile phones, as well as accessible web-based technologies

2.1 The benefits of wider digitial technologies are vast

Wider digital technologies can yield benefits for all members of society; they can make our lives easier, more productive and more entertaining. In particular, they have the potential to generate significant positive benefits for *at risk* groups.

The benefits of digital technologies can be categorised in two ways:

- **Direct:** where they immediately impact upon the user
- **Indirect:** where greater 'back office' efficiency leads to indirect savings through, for example, the freeing up of public resources for improved frontline delivery

Access to quality public services is of particular importance for those people with greater social needs. As our 2008 report showed, those who have more social needs – and so require more interaction with public services – are less likely to be digitally included. However, the benefits of digital inclusion for vulnerable social groups are extensive and include:

- **Enhanced self-sufficiency for vulnerable adults**
- **Increased access to public services through e-government channels**
- **Enhanced community cohesion**
- **Improved education, attainment and life/work chances**
- **Greater value for taxpayers' money through enhanced public service efficiency**
- **Improved quality of public services**
- **Time and monetary savings**
- **Enhanced working and environmental savings through more stimulating and flexible remote work practices**

For example, digital technologies can be used by local authorities to map specific needs in the community so to pre-empt, identify and target these more effectively. Kent County Council has used Geographic Information Systems (GIS) technology to pinpoint lone parent 'hotspots' within the county so to target policy action more effectively. Leeds City Council is also using digital technologies extensively through, for example, digital pen and paper which enable social workers to make benefit claims direct from the homes of local citizens.[1] Leeds City Council estimates that social services could save more than £1.2 million over three years.[2] The latter is just one instance of how socially disadvantaged individuals can benefit directly and indirectly from wider digital technologies as resources are freed up through more efficient data management.

[1]   For more information, please see www.leeds.gov.uk/innovation/products.html.

[2]   www.rcegov.uk/rce/aio/17242

New technologies are also being leveraged to help less vulnerable groups. For example, SMEs are benefiting from the creation of a UK Internet telephony service by Nominet. The initiative, named ENUM, will bring significant cost savings to those businesses that employ the technology.

2.2 Mapping the benefits of wider digital technologies

> Wider technologies can affect a large range of individuals and groups, particularly those vulnerable or disadvantaged. There are many examples of where they are already being put to use so to improve the lives of many in the UK.

Figure 5 below summarises which groups of digital technologies presently benefit various vulnerable social groups. Each 'tick' represents where FreshMinds has found tangible evidence of a digital technology being applied to benefit the relevant disadvantaged group. As such, it is *not an exhaustive list* of where digital technologies *might* be used to benefit typically socially disadvantaged groups. Rather it is an indication of where these technologies are already being applied.

Figure 5: Digital technologies and disadvantaged groups – mapping the applicability

	Carers	Young people	Older people	Rurally deprived	Illiterate	Unemployed	Low income	On benefits	Isolated	Homeless	Disabled	Poor health	Victims of crime	Offenders	Addicts	Ethnic minorities
Information management	✓	✓	✓	✓		✓		✓		✓		✓	✓			✓
Process improvement	✓	✓	✓	✓								✓				
Service improvement	✓	✓		✓	✓			✓	✓	✓		✓	✓			
Communications	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓		
Gaming and entertainment		✓	✓		✓	✓						✓			✓	
Domain specific technology	✓	✓	✓	✓								✓			✓	
Assistive technology			✓								✓					

Source: FreshMinds

Of the seven profiled technologies, communications currently benefit the greatest number of disadvantaged groups. The integration of information management systems across a

broad range of sectors has also proven effective across the majority of groups. At the other end of the scale, the specific nature of assistive technology means that its impact seems to be more concentrated across just two groups; disabled and older people. However, it is important to stress that these groups are not the only ones which could potentially gain from assistive technologies.

2.3 Examples of wider digital technology use

To further understand the ways that these technologies can be used to benefit disadvantaged people, FreshMinds has outlined a series of case studies which demonstrate how these technologies are currently being utilised to improve the everyday lives of those disadvantaged within the UK.

2.3.1 Information management
The sharing, analysis and amalgamation of data, allowing for better understanding and forecasting of social and/or commercial trends.

Case study: Geographical Information Systems (GIS)

Geographical Information Systems (GIS) are used to capture, analyse and visualise administrative information and to combine it with other useful geographic data. The Jobcentre Plus tool is an example of such a system that can be used by Jobcentre staff, but also shared with other organisations such as Local Strategic Partnerships (LSPs).

Indeed, Liverpool LSP has used this tool to map out areas where there is a high incidence of incapacity benefit claimants, assisting in the development of a strategy to tackle unemployment. Kent County Council has employed this technology to target single parent hotspots, whilst in Birmingham the COSMOS system provided the intelligence to drive a 25 per cent reduction in crime in the area. (DIT)

The potential direct and indirect benefits include:

- **Increased public and private sector productivity**
- **Greater value for taxpayers' money through enhanced public service efficiency**
- **Increased self-sufficiency of socially vulnerable individuals**
- **Reduced welfare costs**
- **Decreased social exclusion**

Information management is similar to process improvement in that it requires a significant level of technical understanding and logistical thought for it to be successfully

implemented. Most initiatives are carried out on a large scale, which makes this an **expensive** and **relatively inaccessible** technology. Information management has been used to benefit a wide range of vulnerable groups – more so than process improvement – and therefore it ranks higher up the benefits axis.

2.3.2 Process improvement

The improvem ent of logistical systems helps organisations deliver better, more efficient results. For example, it can be used to refine workflow patterns, to support new intellectual products and to integrate third party systems.

Case study: Broomwell Healthwatch

Broomwell Healthwatch is a private company that provides tele-monitoring services. This technology removes the need for both patients and GPs to travel to hospitals for medical tests. The services enable patients to have a quick reading of their tests in convenient locations. The information is then transmitted to a 24-hour monitoring centre in Manchester where clinical staff can decide on treatment.

In 2007, over 100 GP practices in the North West of England offered patients heart check-ups over the phone during the Christmas period. A six-month pilot by NHS North West showed that 90,000 A&E visits, 45,000 hospital admissions and hundreds of lives could be saved each year. The manufacturer believes the savings to the NHS from using telemedicine cardiac monitors would be in the region of £250m a year. (DIT)

The potential direct and indirect benefits include:

- **Cost savings and increased public and private sector productivity**

- **Enhanced working and natural environment through more stimulating and flexible remote work practices**

- **Improved quality of and satisfaction with public services**

It should be noted that, in order to be effective, process improvement relies not only upon physical digital technologies such as databases, but also upon a well considered underpinning logistical strategy. The technology **cannot stand alone** – it requires intelligent application and ongoing operational support. As a result, it is one of the more **costly** and **least accessible** of the profiled technologies. There are relatively few instances of process improvement benefiting socially vulnerable groups, thus the benefits it provides are limited in both depth and range for the disadvantaged groups considered in this report.

2.3.3 Service improvement

These are systems that help personalise the provision of services in both the public and private sectors, and to introduce a wider choice of services to all.

Case study: E-LAMP

E-LAMP was a pilot project in 2004 that explored the use of laptops and data-cards to enhance distance learning support already in place for traveller children. By enabling access to the internet through data-cards (which use mobile phones for online connection), children could exchange emails and work with their teachers, as well as research projects online. By 2006 there were in the region of 100 traveller pupils using datacards and laptops. (Becta - the UK Government agency responsible for improving learning through technology).

The potential direct and indirect benefits include:

- **Cost savings and increased efficiency and productivity**
- **Increased satisfaction with public services**
- **Decreased social exclusion**

Service improvement initiatives vary greatly depending on whether they are carried out in the public or private sector. Public service schemes such as the Single Non-Emergency number are often implemented on a national scale, and are therefore costly and complex to put into practice. Service provision schemes will often have a **broad reach** and benefit a significant number of vulnerable groups.

2.3.4 Communications

For the purpose of this report, communications encompass technologies such as mobile devices, digital television, WiFi, social networking technology, smart cards and video.

Case study: GIRLS Sexual health textback

The GIRLS Sexual health textback service is available for young women aged between 13 and 25 years old in Durham. Anonymous communication through SMS text provides a way of offering confidential sexual health advice without the embarrassment associated with these issues.

In the first 15 months of the service running there had been over 150 requests for information or advice to the GIRLS service. (DIT)

The potential direct and indirect benefits include:

- **Greater social inclusion**
- **Time and monetary savings**
- **Improved support facilities for vulnerable social groups**
- **Improved access to, and satisfaction with, public services**

Communication devices are typically designed to be **user-friendly** technologies which require nominal training. Until now, many initiatives have been carried out locally, suggesting that implementation on a larger scale would be **costly**. Most significantly perhaps, communications technologies support all but four of the vulnerable social groups, making it one of the most beneficial of the digital technology categories.

2.3.5 Gaming and entertainment

Gaming and entertainment refers to the participation in electronic games with a video interface. These can be played on a number of platforms such as consoles, on a PC or through a television.

> **Case study: Game2Learn**
>
> LearnPlay Foundation is a not for profit company which seeks to develop innovative ways of engaging hard-to-reach individuals, such as young people with learning difficulties, the unemployed, individuals being rehabilitated and silver surfers. Game2Learn is a form of collaborative gaming that uses off-the-shelf gaming technology incorporated into a structured educational programme and provides personalised feedback.
>
> The programme develops competencies such as physical coordination, teamwork and online communication, but can also be used to cover subjects such as history, geography and engineering (Becta – the UK Government agency responsible for improving learning through technology).

The potential direct and indirect benefits include:

- **Improved support facilities and increased personal capacity for vulnerable individuals**
- **Increased motivation, education and attainment**
- **Improved work and salary prospects**
- **Decreased social exclusion**

Gaming and entertainment technology tends to be it is widely accessible to, and relatively inexpensive for, consumers. Until recently, games were not widely used to aid vulnerable groups, but the arrival of the Nintendo Wii has demonstrated that exercise and gaming can be a commercially viable combination. Ultimately though, this technology **does not** currently **offer the same in-depth benefit and support** of other digital technology categories,

2.3.6 Domain specific technology
Domain specific technology encompasses those digital technologies (such as medical devices and educational aids) for people with specific needs.

Case study: Newham Telecare

In May 2007, Newham Council and Primary Care Trust received a share of £12 million to pilot advanced telehealthcare. A range of digital technologies utilising mobile phone and digital television communication channels enable GPs to monitor their patients' vital signs. It is hoped that pre-emptive action will be able to reduce the numbers of patients admitted to residential care and nursing homes, reduce emergency hospital bed-days and reduce accident and emergency admittance.

As well as providing assistive technology, NeAT provides multi-channel services that include education (how to become an expert patient or carer), entertainment (RegenTV), audio and video conferencing (telephone social club) and web access. (DIT)

The potential direct and indirect benefits include:

- **Time and monetary savings**
- **Increased public service productivity through targeted action**
- **Increased satisfaction with public services**
- **Decreased social exclusion**

Domain-specific products are at the forefront of technological development, and as such are expensive, complex and demanding when it comes to implementing them. Like assistive technology, schemes such as telecare provide **instant benefits** to users. It is unlikely that domain-specific initiatives will be rolled out on a national scale in the near future, which limits the technology's potential reach. For further information, please see the Annex, 'Digital Equality & Technology Futures'.

2.3.7 Assistive technology
Assistive technology helps to overcome accessibility barriers for those with disabilities and other specific conditions. Examples include aids such as user-friendly mobile phones, as well as accessible web-based technologies.

Case study: Significan't

Significan't offers a remote, web-based signing facility for deaf people. It reduces the cost of interpreters for consumers (especially for more rural users) due to the online video technology, SignVideo. For the companies, services and individuals they reach, Significan't provides an effective way for deaf people to carry out everyday activities, from going to the doctor to paying a parking fine, without needing to book an interpreter in advance.

Users can access one of 40 SignVideo access points in London, and with further technological developments with 3G mobile phones, laptops and palmtops it will be possible to carry out video interpreting on the go. The proprietors of Significan't have seen average waiting times for an interpreter drop from two weeks to ten days as a result of this technology. (DIT)

The potential direct and indirect benefits include:

- **Time and monetary savings**
- **Increased civic participation**
- **Increased self-sufficiency for marginalised individuals**
- **Decreased social exclusion**

It can be argued that assistive technology is the **most beneficial technology** of any group, as it provides direct, life-changing support to disabled and elderly people. By adapting existing products, costs to users and manufacturers should remain low, whilst there is significant potential to roll out products on a large scale. However, because this technology affects just two groups (the fewest of all profiled technologies) its potential reach to the population as a whole is somewhat more limited.
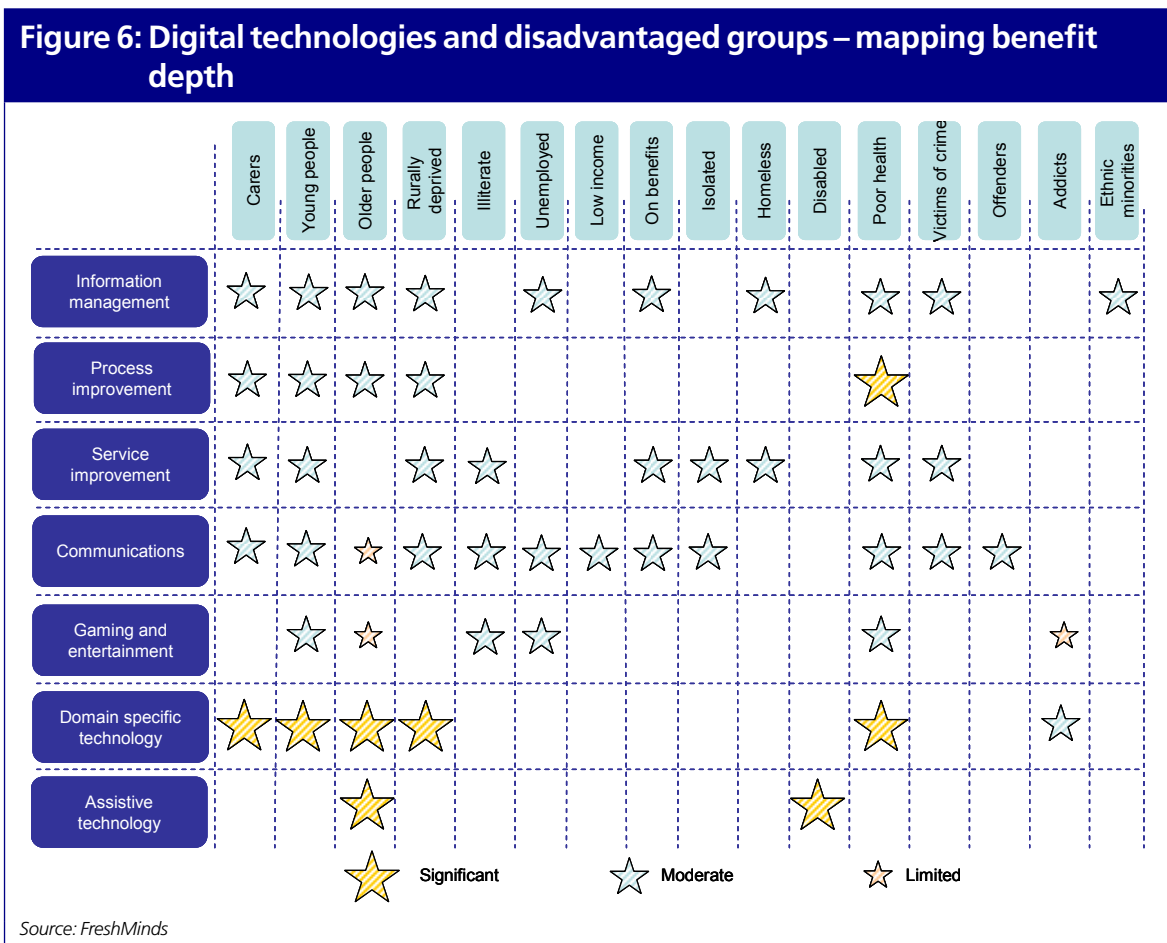
2.4 Digital technologies: the overall benefits

As well as affecting different groups, digital technologies also affect these different groups in different ways. Technologies that provide a lot of **direct benefits** tend to have a **deeper impact** on smaller, more focused segments of the population.

It is not enough to identify which disadvantaged groups can benefit from the different technologies, as the extent of impact each technology has varies from group to group.

Figure 6 displays a simple model identifying the depth of benefit each technology provides for each of the disadvantaged groups. In compiling this model, FreshMinds built upon that of Figure 5 and our bank of case study examples for each digital technology category. We then assessed every category of technology on the basis of the potential impact it could have upon each disadvantaged group. An indexed score was thus assigned according to the level of intensity of benefit (ie to what extent could the technology make a life-changing improvement for each socially disadvantaged group?).

It should be stressed that this method was based on the case study evidence that FreshMinds collated. Although not an intensely scientific or exhaustive approach, it represents a first attempt to segment the digital technologies. As such, it is a presentational device which enables us to see which socially disadvantaged groups might benefit from a particular category of digital technology.

Figure 6: Digital technologies and disadvantaged groups – mapping benefit depth

	Carers	Young people	Older people	Rurally deprived	Illiterate	Unemployed	Low income	On benefits	Isolated	Homeless	Disabled	Poor health	Victims of crime	Offenders	Addicts	Ethnic minorities
Information management	Moderate	Moderate	Moderate	Moderate		Moderate		Moderate		Moderate		Moderate	Moderate			Moderate
Process improvement	Moderate	Moderate	Moderate	Moderate								Significant				
Service improvement	Moderate	Moderate		Moderate	Moderate			Moderate	Moderate	Moderate		Moderate	Moderate			
Communications	Moderate	Moderate	Limited	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate			Moderate	Moderate	Moderate		
Gaming and entertainment		Moderate	Limited			Moderate	Moderate					Moderate			Limited	
Domain specific technology	Significant	Significant	Significant	Significant								Significant			Moderate	
Assistive technology			Significant								Significant					

Legend: Significant | Moderate | Limited

Source: FreshMinds

From Figure 6 it is clear that, with the exception of gaming, those technologies that provide more **direct benefits** have a **deeper impact** on the individuals and groups that they affect. Those technologies that provide **indirect benefits** have a less profound impact, but tend to benefit a **wider range** of disadvantaged groups.

This distinction leads to the question – which of the technologies is the most beneficial – those that provide direct or indirect benefits?

To answer this question, FreshMinds assessed each technology, in terms of the depth of benefit for each group, as in Figure 6, and also assessed the accessibility for each of the technologies on the following four criteria:

- **Cost** of the implementation of the technology and for use by the disadvantaged groups.

- **Complexity** of the system, concept or technology implementation.

- **Ease of use/required training** in order to operate the technology from both a user and personnel perspective.

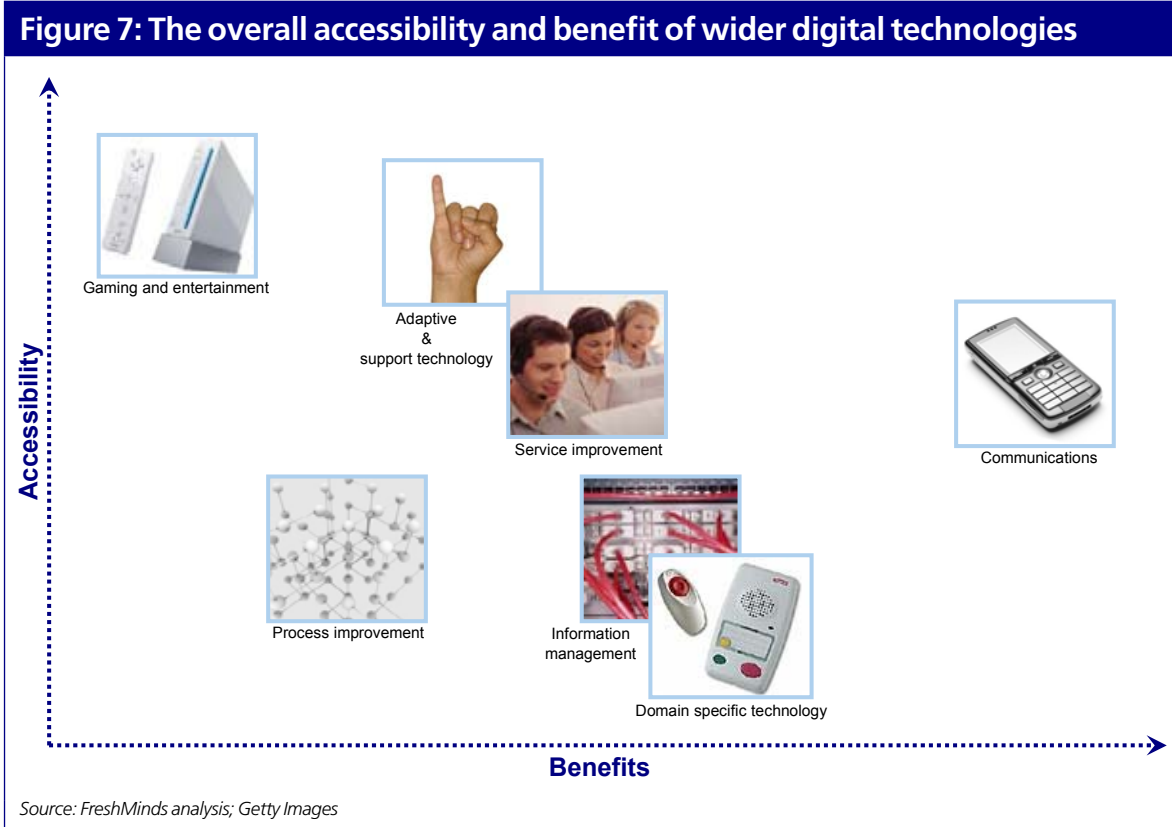- **Potential reach** into the wider community and potential for mass production.

Each of the wider digital technologies was assessed on these criteria, in terms of each digital group that they individually benefit. The 'total benefit' score and the average accessibility score for each technology was then calculated and has been plotted in Figure 7.

2.4.1. Key tools for digital inclusion

From Figure 7, it is clear to see that **communications technology** is the most beneficial overall. This is predominantly due to its ability to affect almost all of the at risk groups to at least a moderate extent; indicating that it can be a key tool in improving the lives of many at risk groups.

However, it is important that the depth of potential benefits that **domain specific** and **assistive technologies** bring to specific groups should not be overlooked. Even though the wider benefits can be limited with these technologies, the extent to which individual lives can be improved is substantial.

Gaming and entertainment technology also has the ability to play an important role in bringing about digital equality. The potential to be mass produced, cheap and entertaining means that it can affect the lives of many, even if the impact is not as great as some of the other technologies considered.

Figure 7: The overall accessibility and benefit of wider digital technologies

Source: FreshMinds analysis; Getty Images

Chapter 3

Understanding digital exclusion

So far this report has considered the recent trends in the uptake and market development of broader digital technologies. It has also explored the benefits that digital technologies can bring, with particular emphasis on socially vulnerable groups. This section builds on previous work by FreshMinds (2007), which highlighted the link between social exclusion and digital exclusion. As such, we now seek to answer:

- **Who is digitally disadvantaged?**
- **What barriers are preventing digitally disadvantaged people from engaging directly with digital technologies?**

The answers to these questions should help to build an understanding of the current extent of digital exclusion within the UK. In turn, it should also enable the development of targeted policy recommendations to remove barriers to digital, and often thereby, social exclusion.

The internet is a good indicator of digital behaviour amongst the population. For this reason, and also due to the abundance of data available on internet activity, these questions have been answered predominantly from an internet-based perspective. However, where possible, data for other ICTs have been considered in our analysis.

3.1 Who is being left behind?

In our 2007 report, FreshMinds and UK online centres defined four different digital behavioural groups; each characterized by individual behaviour relative to the internet. The definition for each of these groups is as follows:

- **Digitally included:** have easy access to the internet at home, work or place of education, and make use of it.
- **Digitally determined:** use the internet, but do not have access at a convenient location (home, work or college).
- **Connected non-users:** are those who live in a household which has internet access but do not use it.
- **Disconnected non-users:** are those who don't have access at home and do not use the internet.

The change in size of these different groups from 2003 to 2007 is displayed in Figure 8 (the dotted line denotes the last data point from the previous report).

The increase in internet ownership and use has led to a reduction in the share of the population who are disconnected non-users and an increase in those digitally included or digitally determined.

However, the share of connected non-users has remained the same. This is perhaps indicative of the persistent **lack of motivation and perceived need** from those who do not use the internet.

Figure 8: Trend in sizes of digital behavioural groups**

Source: ONS 2007a; ONS 2008b; FreshMinds analysis (**individual data for included and digitally determined groups was not available for 2007). Base: 2000 households quarterly up to 2005, 2288 in 2007
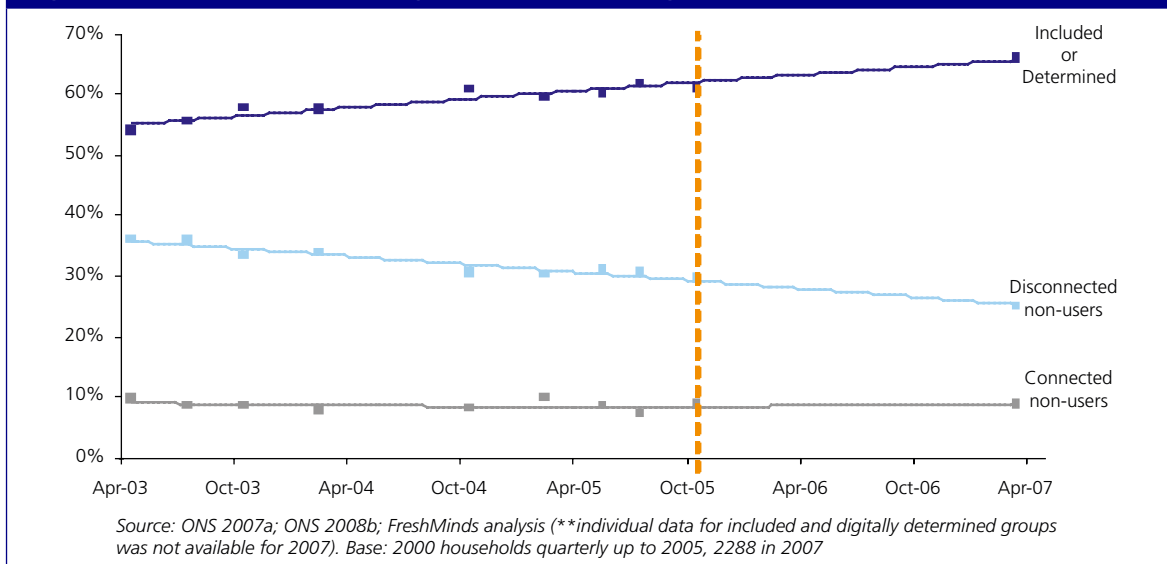
The share of the population who are connected non-users has remained constant between late 2005 and early 2007. The total share of disconnected non-users has decreased and the share of those included or determined has increased. These shifts comply with the increase in internet 'ownership' and use over the same period.

These trends indicate that the majority of new users are probably those getting new connections in their home, further indication of the effect of market forces. Non-users already with a connection, however, are not being converted to users, which is indicative of a lack of motivation and perceived need.

3.1.1 Profiling the digitally disadvantaged

> Those without access to the internet are typically those who are also **socially disadvantaged**. They tend to be elderly, in the DE social class, are likely to live alone and have low qualifications.
>
> The relative isolation of these groups indicates that digital exclusion cannot be solved in isolation from other policy areas.

In order to understand, and consequently reach, those that are without access to the internet, it is necessary to know exactly who is being left behind. ICM conducted an omnibus survey for UK online centres, conducted with adults around the country in early 2008. Those who do not have access to the internet, at home or elsewhere, have been profiled using this data.

Figure 9: Key profile figures of those without internet access at home or elsewhere

Source: ICM & UK online centres. Base: 7655 (weighted)
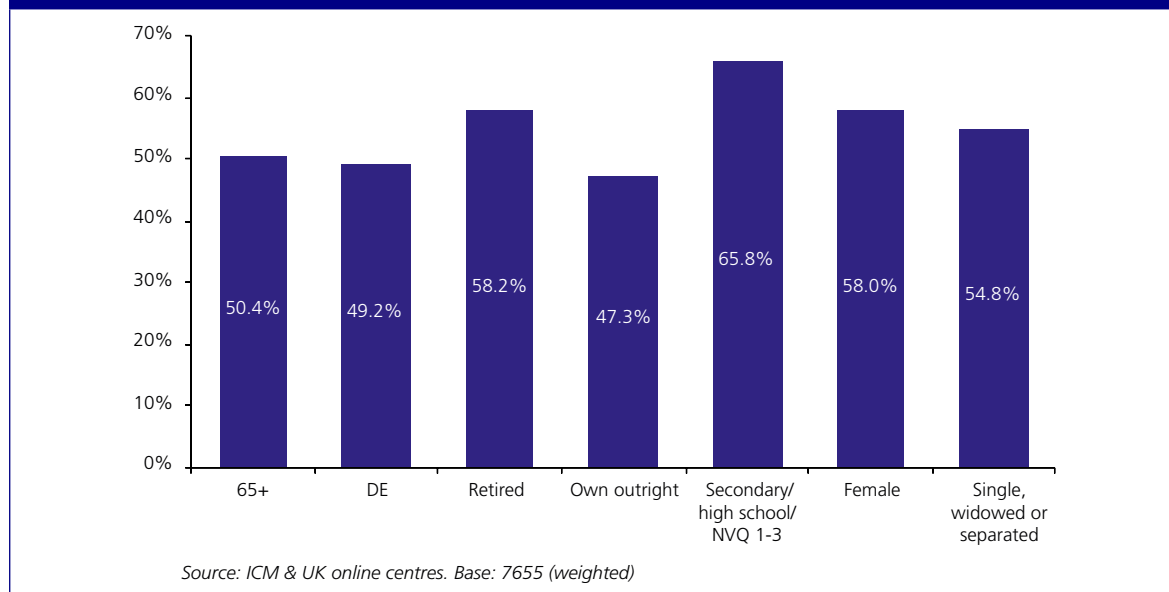
Of those who do not have access to the internet at all, more than half are over 65 years of age and just less than half are of the DE social class. The majority were single, widowed or separated, 13 per cent more than those married or cohabiting. 47.3 per cent owned their own home and only a third have qualifications higher than secondary school standards. The slight majority were female. The majority were retired, probably due to the large share of over 65's, and just under a fifth was still in full-time employment.

Those who were over 65 and of the DE social class counted for 28 per cent of all respondents; four times that of any other similar combination. This segment of those without access has been profiled in Figure 10.

Figure 10: Profile of over 65s and DE without access

51% No car

87% Does own shopping

57% Widowed/single/divorced

65% Secondary school qualifications or equiv

66% No holiday last year

68% Home owners

Source: ICM & UK online centres; FreshMinds analysis. Base: 2198 (weighted)
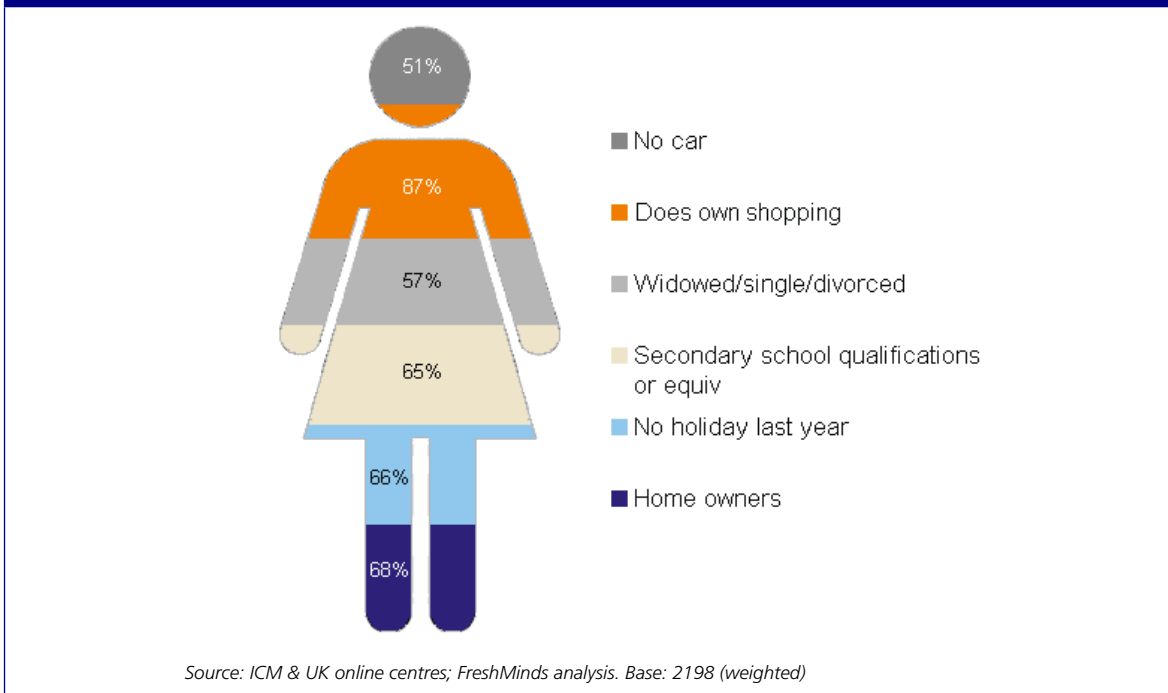
63 per cent of over 65s and DE without internet access are female and 99 per cent have no children under the age of 18. They are also more likely to be widowed/ single/divorced and therefore are likely to live alone. This is reflected in the large share who is self-dependant, demonstrated by 87 per cent doing half or all of their own shopping. Nearly seven out of ten own their home outright and the majority are no higher qualified than to secondary school levels or equivalent. They are also slightly less likely to own a car. The profiles outlined above correlate with the initial findings of our previous report indicating that those most at risk of exclusion remain the same.

The Oxford Internet Institute found that those most **deprived socially** are also most likely to lack access to digital resources such as the internet. Three out of four of those 'broadly' socially excluded **lack a meaningful engagement with the internet**. In addition to this, those deeply socially excluded, with no meaningful internet engagement, account for 10 per cent of the total UK population.

The barriers outlined in section 3.2 will be even harder to overcome for those who are at a social disadvantage. The declaration that **digital exclusion cannot be solved in isolation from other policy areas** is still a valid one.

3.2   What are the barriers to digital inclusion?

In the 2007 report, three key factors were identified as the elements necessary for using technology effectively – access, motivation, skills and confidence. The situation has changed in these areas though the principle behind them remains valid. The three main barriers outlined were:

- **Access –** whether an individual has some means to access the technology in terms of affordability, time, training or support, literacy levels, disabilities and usability of interfaces.

- **Motivation –** whether the individual sees the benefit from or has interest in accessing these technologies.

- **Skills and confidence –** whether the individual is able to, and feels able to, make affective use of technologies. Concerns about security also fall into this category.

In the following section we take each of these drivers in turn and consider the extent to which they have contributed to the recent rise in individuals using the internet.
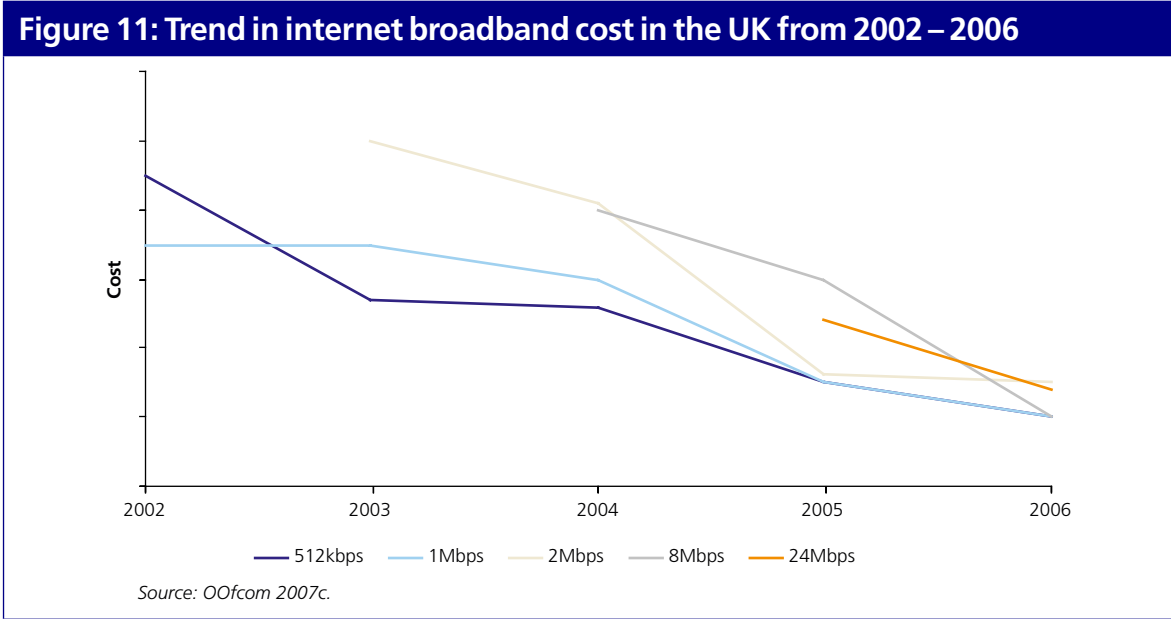
3.2.1 Access

An improvement in availability and continued improvement of cost are indicative of the effect the market has had in driving growth of internet use and connections. The bundling of digital services may also play a key role in delivering the internet to those interested in other ICTs.

However, **market forces can only go so far** in reducing the digital divide. Those who do not own or use the internet due to affordability reasons account for a minority of the total non-users. The remaining majority of non-users seem to not use ICTs out of choice.

Easy access to the internet and other ICTs is a fundamental prerequisite for expanding use and reducing digital inequality. In our 2007 report, we suggested that the private sector and market forces would not be enough to reduce digital inequality. However, **availability and cheaper internet access have improved** markedly within the last year, and it is likely that this is at least partly responsible for the recent sudden rise in usage.

Figure 11 shows the trend in advertised prices for different speeds of broadband connection. The figures have not been included in the chart but the shape of the graph is indicative of the trend in broadband prices over the past few years.

Figure 11: Trend in internet broadband cost in the UK from 2002 – 2006

512kbps — 1Mbps — 2Mbps — 8Mbps — 24Mbps

Source: OOfcom 2007c.

Improvement in service speeds are likely to have been a key factor in driving broadband take up, **connection speed** was the most important factor in choosing an ISP according to the Ofcom 2008 media literacy audit.

Price was the second most important factor in choosing a service, and also plays a key role in the non-use of internet services. Figure 12 highlights how cost changed as being the reason for not owning an internet connection between early 2003 to early 2006.

Figure 12: Historical trends for cost being the reason for not having an internet connection

Source: ONS 2007b. Base: 627 in 2006.
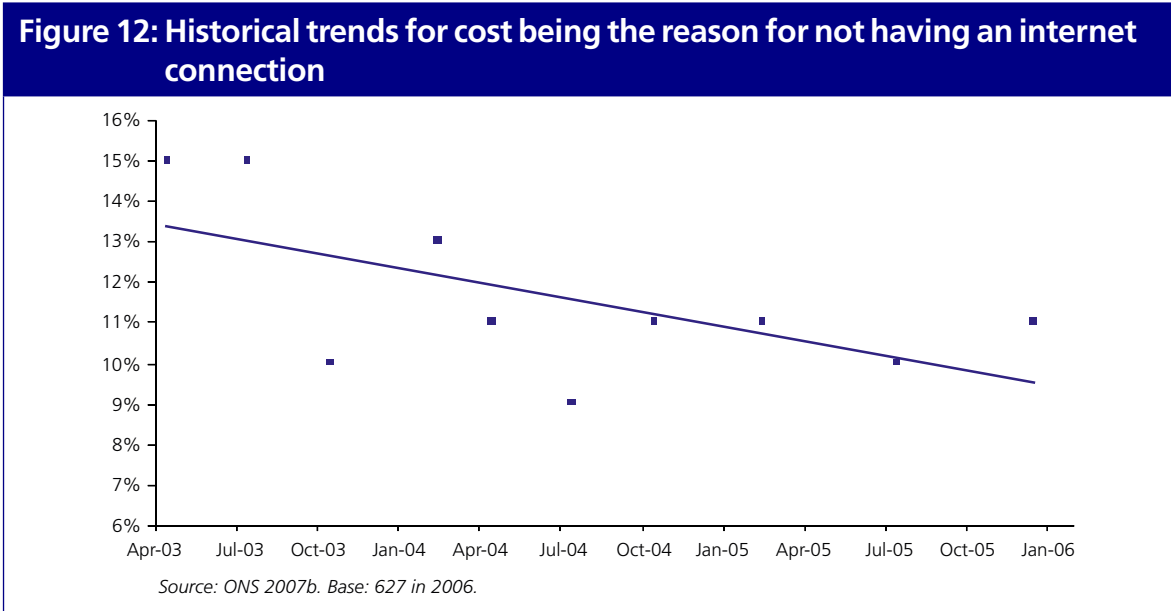
From Figure 12 it is clear that the share of those citing cost as the primary reason for not owning an internet connection has been progressively decreasing. Between 2006 and 2007, Ofcom recorded that involuntary reasons for not owning a home internet connection (primarily cost) reduced from 39 per cent to 22 per cent. This reduction was primarily due to three groups; the over 75s, those aged between 25 and 44 and also those earning less than £17,500 a year. However, as we move up through the age groups involuntary non-ownership is still more prevalent. Increasing income means that cost is less of a problem and (as we might expect) involuntary non-ownership decreases in line with this.

A similar trend has been seen in digital television ownership, driven by the relatively cheap digital service Freeview. Only 12 per cent of those who did not own digital televisions said they did so due to affordability issues in 2007; this figure was as high as 39 per cent in 2005 (Ofcom 2008b). There is a clear indication of market saturation in the mobile phone market, given that only 2 per cent of the population do not own phones for involuntary reasons. This figure has remained constant over the past few years.
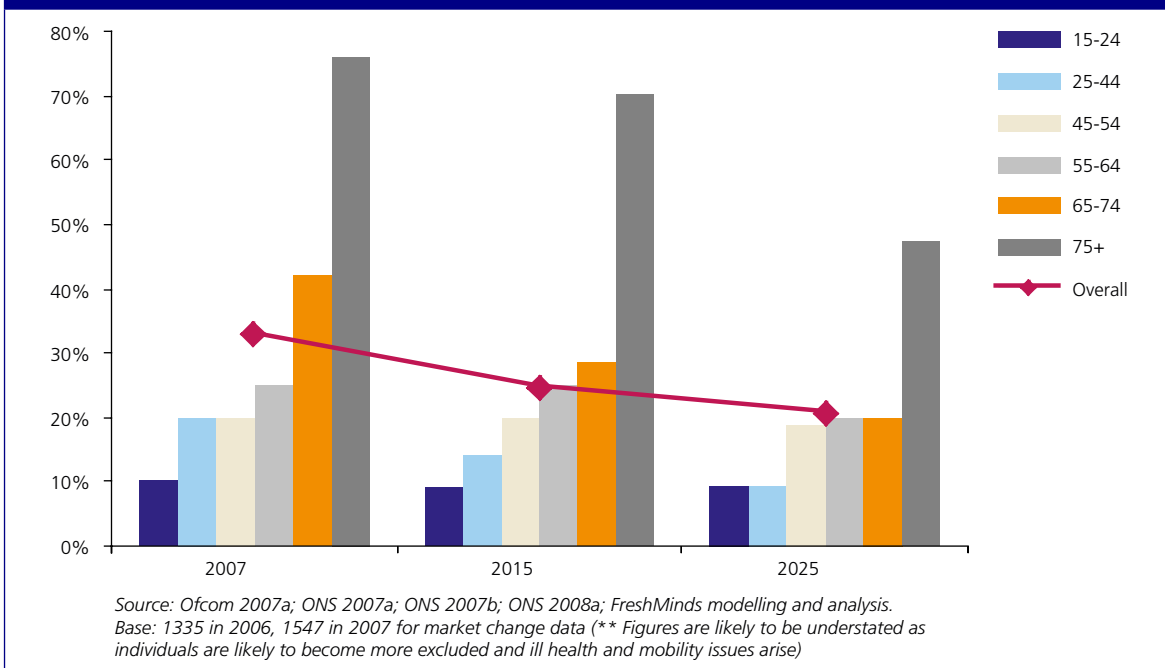
These changes indicate that market forces can have an effect on those excluded from internet use. The bundling of services may also be a driving factor of this change; it is as an important a factor in choosing an ISP as price, second only to speed of connection. It also makes those who are signing up for other communications, such as digital television more inclined to obtain internet services.

It is important to note, however, that of those who did not have internet access in 2007, less than a quarter (23 per cent) cited involuntary reasons. Those citing reasons of affordability issues for non-use of other ICTs were also in the minority of non-users. As a result, and in line with our previous report, **market forces can go only so far** to reduce those not connected. For the remaining share of non-users, their exclusion seems due to be for other reasons.

This perceived market effect on digital exclusion has been predicted in Figure 13. It is an updated model to that of the previous report, and accounts for both generational change and the current market conversion rates. The age distribution of the 2006 population has been used to estimate the number of non-users in 2015 and 2025, assuming mortality rates will remain constant, at 2006 rates.

The market effect has been calculated using the rate of change between 2006 and 2007 for involuntary non-ownership for each of the different age groups. New generations are assumed to have the same share of non-users as the previous age group, though the market rates are considered to affect the same age each time, assuming that economic circumstances are related to life stage.

Figure 13: Projections for the number of non-users of the internet in 2015 and 2025**

Source: Ofcom 2007a; ONS 2007a; ONS 2007b; ONS 2008a; FreshMinds modelling and analysis.
Base: 1335 in 2006, 1547 in 2007 for market change data (** Figures are likely to be understated as individuals are likely to become more excluded and ill health and mobility issues arise)

The overall proportion of the adult population that is digitally excluded at current market conversion rates could reduce from 33 per cent in 2007, to 25 per cent in 2015 and 21 per cent in 2025. These figures, although an improvement on the predictions of the previous report, demonstrate the market's limited maximum effect on the majority of non-users.

3.2.1.1 Predicting the impact of market forces upon future access

The forecasts of Figure 13 are based on the behaviour of the market over the past few years, and also that of consumers over the last two years. There are some key changes in the broadband market that may have a profound impact on both internet usage and take-up:

- The 'broadband price boom' could be coming to an end as a result of Ofcom reviewing the amount BT can charge operators to use their lines. Many customers have long term contracts already, a typical feature of the current market that must be honoured by ISPs. This could lead to some customers witnessing price increases. Those offering the cheap or free broadband through LLU (ISPs such as Talk Talk and Tiscali) are most at risk. However, those offering their own cable broadband, such as Virgin Media are likely to benefit from this market shift (The Telegraph 2008; Roach 2008).

- Another factor that could affect the broadband market in the future is mobile broadband. The 3G network connects almost 90 per cent of the country. At the end of 2006, providers 3 Mobile broadband and T-Mobile joined forces to improve coverage and speed; Vodafone currently already offers 7.2Mb connections. Although only a relatively new technology, it has the capability to change the broadband market in the UK profoundly in the upcoming years.

The lack of need to pay for BT line rental could save an individual consumer £132 a year spent for those who use LLU services (Broadbandchoices.co.uk 2008).

- There is a risk of flat rate fees being increased to accommodate the rising traffic volumes clogging up available bandwidth. The changing in pricing is likely to be prohibitive to those of low income or already excluded; £7 billion of investment is required for capacity expansion (Wray 2007).

Increasing access to the internet is critical in combating digital inequality. Although we have seen a recent jump in internet use between 2006 and 2007, it is difficult to predict from this additional data point whether this trend will continue.

3.2.2 Motivation

Access is still not enough – nearly two fifths of **non-users fail to see the need or benefit** of using the internet and other ICTs or feel that they are not the right kind of person to use them. The greatest share of the population which hold this view are the elderly and those on low incomes. These groups were also the most likely to not use the internet - even if they had a connection at home.

This dismissive view is resulting in a **deepening of the divide**, even though the divide itself is reducing in terms of access and use.

In order for people to use the internet or other ICTs, they must first be motivated to do so. If they see the benefit of using an ICT, for example reducing the cost of shopping, or keeping in better contact with loved ones, they are much more likely to not only use it but value the service enough to **make provisions to use it in their everyday lives**.

Many different data sources highlight the perceived lack of need for the internet. The ONS data in Figure 14 suggests that up to 2006 the share of those who did not see the need for the internet was reducing but stabilising.

Figure 14: Trend for 'no need' as reason for not using the internet

Source: ONS 2007a; ONS 2008b. Base: 602 in 2006.
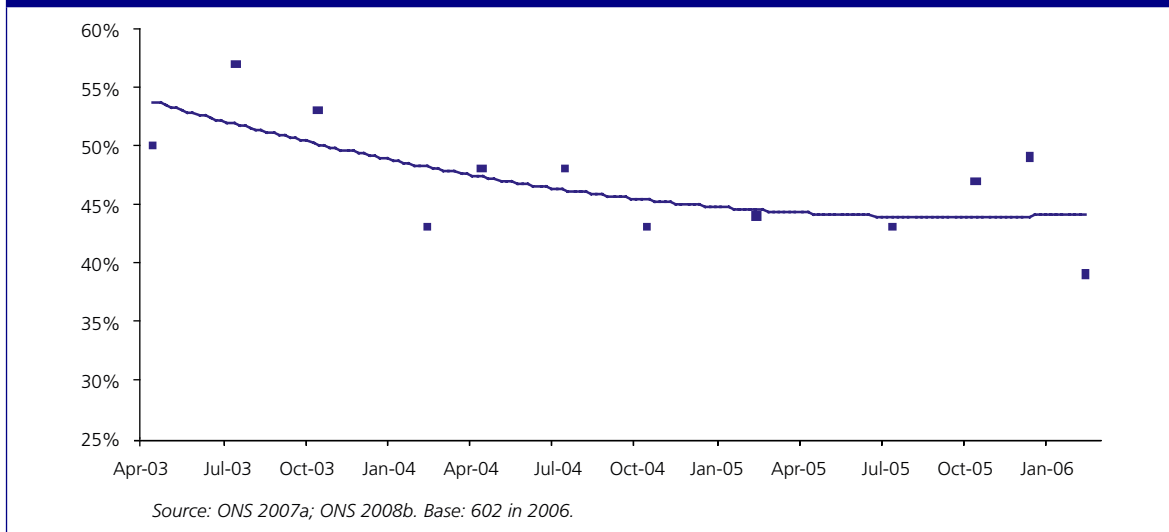
Point Topic cited 40 per cent of those without the internet failed to see the need for it. Similarly, Ofcom recorded 42 per cent of those not owning the internet were doing so out of choice (3 per cent more than the previous year). The Oxford internet survey in 2007 found that 52 per cent of non-users felt there was nothing of interest on the internet, an increase of 8 percentage points on 2005. 37 per cent also said that the internet was of no use; an increase of 5 percentage points to the previous survey. These increases indicate that the although the **digital divide is reducing** in terms of those who use the internet and have access to it, it also **appears to be deepening** as those not included are becoming increasingly left behind.

Lack of perceived need is also an issue with the take up of digital television; the share of those not watching digital television out of choice increased by 24 percentage points between 2005 and 2007. This number is expected to reduce by the time of the digital switch-over, however (Ofcom 2008b). The majority of those who do not own a mobile phone also do so out of choice, though 15 per cent intend to get one in the future.

Those who choose not to use ICTs out of choice tend to be the elderly and those on low incomes, a trend noted by Ofcom, the ONS and Point Topic. A further demonstration of this is the lack of internet use among those people even with internet access at home (9 per cent, ONS 2007).

Figure 15: Relationship between age and income with internet non-use with home access

Source: ONS 2008b. Base: 1192
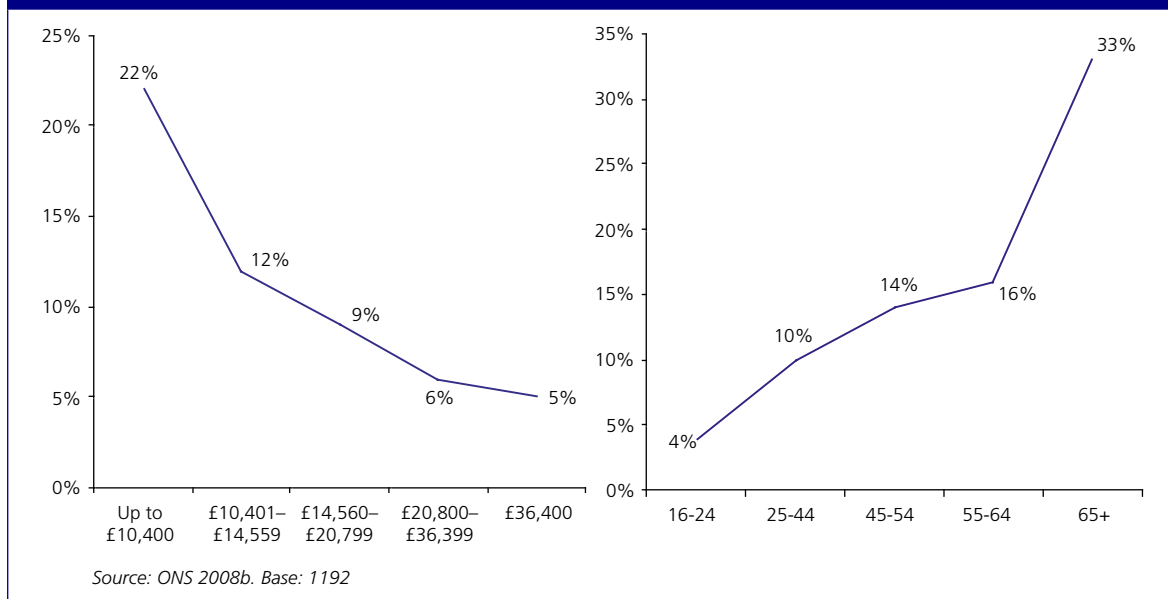
Failure to make use of internet services clearly increases with age and decreasing income in 2007, although there is some improvement from 2006 figures, particularly among those of middle income. As indicated by the Oxford Internet institute, it is a **cultural issue** as well as economic. Once any economic barriers have been overcome, the attitudes of those not engaged by technology must still be influenced.

3.2.3 Skills and confidence

A significant proportion of the population still lack general IT skills in terms of using a PC as well as using the internet. This skills gap is restricting what these people can do privately and professionally.

A **lack of skills** leads to a **lack of confidence**, which in turn leads to a **lack of trust** of technologies. Credit card protection is the main concern for internet security and there is a correlation between lack of confidence and reluctance to use personal information over the internet.

"Improving ICT skills and trust among disadvantaged groups is an important element of digital inclusion" (DIT 2007)

Both the actual and perceived levels of ICT skills required are a further barrier to inclusion. Such a skill base extends beyond just internet skills. A recent ICM poll detailed that one in five Britons is unable to open a Word document, and fewer than 20 per cent lack reasonable email skills. In addition to this, nearly a tenth of adults feel that their **lack of IT skills "greatly restrict"** what they can do privately and professionally. According to Ofcom, 28 per cent of UK households did not own a personal computer in 2007. Ofcom also found that people encounter more problems using PCs with age and decreasing income.

OxIS research also indicates that age may be an issue with skills. Whilst 86 per cent of students rated their internet skills as either good or excellent, only 40 per cent of those who are retired rated their skills similarly. Retired people were also more likely to ask for help from friends or family than any other life stage.

The impact of IT skills on the workforce of course varies between different professions and roles. The lack of general IT skills is falling year on year, probably driven by an intake of IT proficient younger employees replacing the older retiring employees who lack these skills (LSC 2008).

The government committed to improving security and safety online in the Digital Strategy in 2005. Since then, home users can now make use of ITSafe which provides home users with advice on protecting their different ICTs (DIT 2007). However, a government study titled 'The get safe online report' published in late 2006 indicated that **people feared internet crime more than burglary, mugging and car theft**.
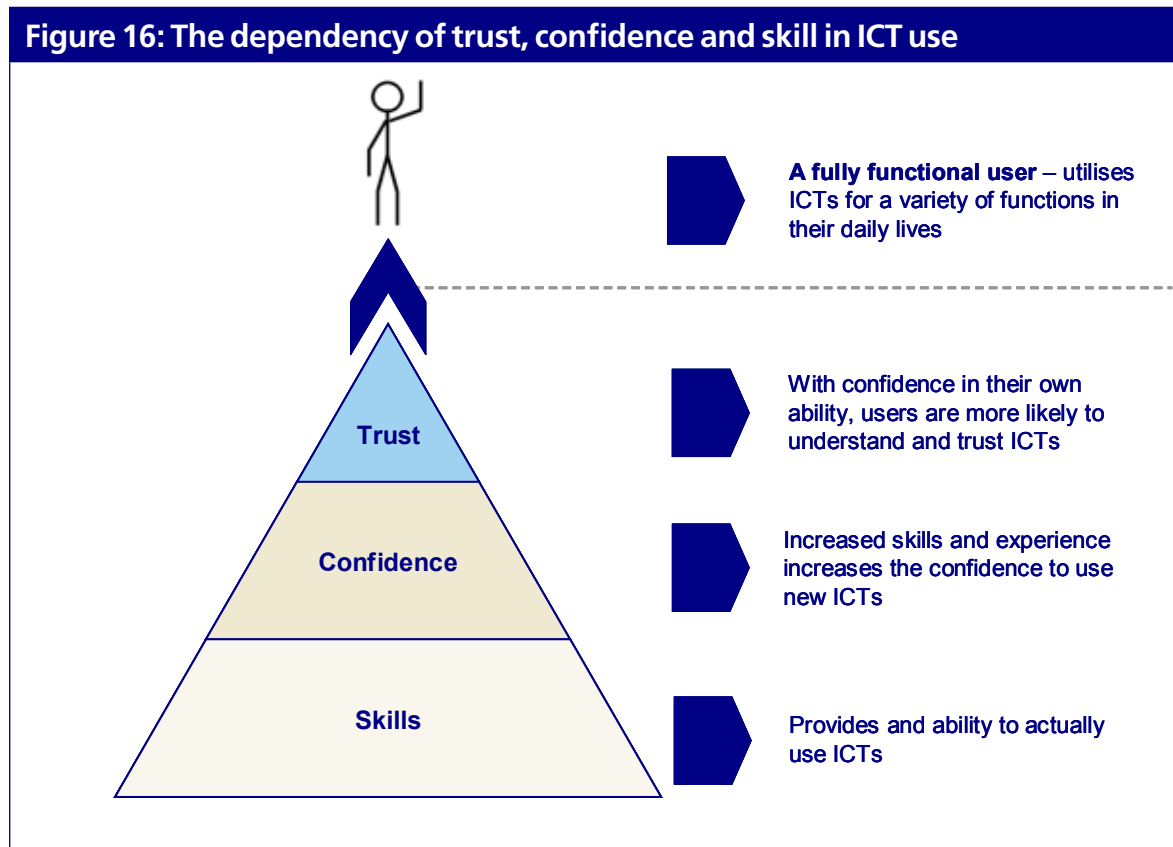
The largest concerns that people have about the consequences of Internet use are the protection of credit card details and concerns about privacy. In relation to the use of technologies, privacy concerns have gone up since 2005 and tend to be higher for non-users than for users. In other words, those who do not use the ICT are more negative about technologies than those who use the ICT (OxIS 2007). This increase has also been noted by Ofcom, where concerns about the internet have increased by 5 percentage points from 2005. Fears of identity fraud have increased from 1 per cent to 16 per cent in 2007 and parents concerns for child protection have also driven this increase (Ofcom 2008a).

Other ICTs also hold concerns in relation to use:

- Concerns about mobile phones are highest in the AB economic group, whilst those in the C2 groups have the least share of concerned consumers. The biggest cause for concern was around the risks phones cause to society or values, for example misuse of the photo functions or paedophiles contacting children (Ofcom 2008b).

- 34 per cent had fears about the offensive content on the television (eg. violence), though 45 per cent had no concerns at all.

Confidence in using the internet also has an impact on trust. In the Ofcom 2008 media literacy audit, when asked about their confidence in identifying website security, ABC1s felt that they were most able to make a judgement. This reflected the recorded reluctance of C2DEs and over 65s of giving their details or making a card payment over the internet. 20 per cent of all respondents were unsure if they could tell if a website was truthful or reliable.

The dependant relationship between skills, confidence and trust is displayed in Figure 16 below.

Figure 16: The dependency of trust, confidence and skill in ICT use

A fully functional user – utilises ICTs for a variety of functions in their daily lives

Trust

With confidence in their own ability, users are more likely to understand and trust ICTs

Confidence

Increased skills and experience increases the confidence to use new ICTs

Skills

Provides and ability to actually use ICTs

Skills provide a base on which to build **experience** and **confidence**; an increase in confidence leads to an increase in perceived understanding of ICTs allowing self assessment of risks and therefore a willingness to **trust** the technologies and their content. Skills, confidence and trust are the key building block of a fully functional ICT user.

Chapter 4

Conclusions and recommendations

The scope for digital technologies in meeting many of the needs of vulnerable social groups is extensive. In an age of often widening social inequalities in education, health and living standards (among other areas), digital inclusion has the capacity to help close the gap. In this way, not only are the problems of digital and social exclusion inextricably linked, but so too are their solutions.

The key findings from the above analysis are as follows:

- **ICT ownership has broadly increased across all traditional platforms:** Growth in ownership appears to have been driven by the elderly, although this age group is still the least likely to own a mobile phone, digital television or the internet. Most noticeably, the internet witnessed a **growth in use of 7 percentage points** with 84 per cent of household connections using broadband technology.

- **Those without access to the internet are typically those who are also socially disadvantaged:** they tend to be elderly, in the DE social class, are likely to live by themselves and have low qualifications. The relative isolation of these groups indicates that digital exclusion **cannot be solved in isolation** from other policy areas.

- **Access is still not enough:** nearly two fifths of **non-users fail to see the need or benefit** of using the internet and other ICTs or feel that they are not the right kind of person to use them. The greatest share of the population who hold this view is the elderly and those on low incomes. These groups were also the most likely to not use the internet – even if they had a connection at home.

- **Skills, confidence and trust are linked:** A lack of skills leads to a lack of confidence, which in turn leads to a **lack of trust** of technologies. There is a correlation between lack of confidence and reluctance to use personal information over the internet.

- **The digital divide is deepening:** Just because the digital divide is reducing, this is not necessarily an indication that the problem is being resolved. The persistent **lack of motivation and perceived need** from those who do not use the internet means those that are still not included are at risk of being left further and further behind.

- **Wider digital technologies are a key part of the answer:** can affect a large range of individuals and groups, particularly those vulnerable or disadvantaged.

There are many example of where such technologies are already being put to use to improve the lives of many in the UK. As well as affecting different groups, wider technologies also affect these different groups in different ways. Technologies that provide a lot of **direct benefits** tend to have a deeper impact on smaller, more focused segments of the population. However, the **indirect benefits** of digital technologies can be vast and tend to affect a wider number of people.

As a result of these findings, FreshMinds has produced a series of recommendations as to what approaches should be employed to help bring about digitally equality in the UK.

4.1 The need to change attitudes

The dismissive attitude toward ICT is a key barrier that needs to be overcome in order to motivate those currently excluded. It is important to note that neither the needs of the different disadvantaged groups, nor the respective benefits for each group, are necessarily the same. What is crucial, and most successful, is that programmes focus on the individual needs of participants; the actual applications and their benefits rather than the ICT.[3] Focus must lie on **specific targeted benefits**, rather than a 'one solution for all' approach.

Non-users of the internet were recorded to be the most interested in sending emails, transferring digital photos to computers, making purchases and finding out about hospital information (Ofcom 2008b). Targeted campaigns focusing on such functions could be used to **activate** non-users. For example the EQUAL project in Latvia provides ICT training for the unemployed, which is linked to job searching and writing CVs.[4]

One way of converting attitudes could be to link ICT with social interactions:

- The Internet Rangers scheme allows children to take their parents or grandparents to school in order to teach them how to use computers and the internet.[5]

- The Australian Seniors Computer Clubs Association use ICT literate seniors to tutor fellow club members. The similar age and life experiences between tutor and pupil reinforce confidence in the training and support provided and also improved the social inclusion of members.[6]

4.2 The need to improve skills, confidence and trust

As outlined in section 3.2.3, skills breed confidence which in turn breeds trust. According to the Oxford Internet Institute, the more basic activities a user undertakes on the internet,

---

[3] Digital Inclusion Team (DIT) (2007), The Digital Inclusion Landscape in England: Delivering Social Impact through Information and Communications Technology

[4] Digital Inclusion Team (DIT) (2007), The Digital Inclusion Landscape in England: Delivering Social Impact through Information and Communications Technology

[5] For more information, please see http://www.btinternetrangers.co.uk

[6] Digital Inclusion Team (DIT) (2007), The Digital Inclusion Landscape in England: Delivering Social Impact through Information and Communications Technology

the more likely they are to undertake intermediate and advanced activities. It is therefore necessary to **implant basic skills** among those who lack general ICT skills and provide **continuous support** to all levels of ability.

It is important to remember that computers may seem alien or inaccessible to those who have little or no experience with them. There are certain initiatives underway that demonstrate ways of reducing such barriers. For example, the Royal National Institute for the Blind provides training in both ICT for those blind or partially sited, as well as provide training for employers to improve accessibility in the workplace via screen magnification and speech software; three out of four of those with sight problems in the UK remain unemployed.[7]

4.3 The need to support those vulnerable in the use of wider digital technologies

The link between social and digital exclusion means that public, private and/or third sector intervention will be required to support disadvantaged groups in accessing the more direct benefits of digital technologies. For example, the benefits of online patient support for the chronic or terminally ill can only be realised by those patients who have easy access to the internet. As such, wider digital technologies that **do not require PC-based internet technology** can be utilised to reach out to those without access, skills or motivation to become otherwise digitally included.

4.4 Further work

This report acts as an overview of the current digital climate in the UK. As such, it only touches on many of the issues associated with wider digital technologies (such as connectivity and accessibility). It also highlights only some of the direct and indirect benefits that these technologies can bring to the digitally and socially disadvantaged.

There needs to be further research into the interdependencies between technologies, and exactly how those who lack motivation can be converted in their beliefs. If the benefits that improve the lives directly of those who are dismissive can be identified and conveyed to them, the digital divide may reduce.

Building on this report, work should also focus in much greater depth on the potential benefits that the wider digital technologies provide. It is also necessary not only to review what is being done, but also what could be achieved by such technological advances. Implementation and expansion of these technologies could pay dividends for those most disadvantaged in the UK.

---

[7] The Royal National Institute for the Blind (RNIB), 'RNIB NI ICT Training', available through the World Wide Web: www.rnib.org.uk/xpedio/groups/public/documents/publicwebsite/public_rnib003725_ia485fe712-2.hcsp

Chapter 5

Appendices

5.1 How do people use ICTs?

> The majority of the population are users of the internet and can therefore take advantage of the potential benefits that this use brings. However, different people use the internet in **different ways**, and for **different reasons**.

Previous work by FreshMinds (2007) revealed that between 2004 and 2006 there was little growth in the number of internet users. The percentage of the population taking advantage of the internet remained around 61 per cent. However, the most recent data now suggests that there has been an **increase in the share of internet users** – up to 67 per cent of the population in 2007 (ONS 2007a).

Whilst the number of people with access to the internet has increased, different **people are utilising the internet in different ways**. This is having a notable change upon how individuals live their daily lives and how they come together socially and how culture is changing. For example (based on Ofcom 2008a; Ofcom 2008b):

- Children conduct large portions of their lives online; over half of 8–11 year olds and three quarters of 12–15 year olds use the internet for their homework.

- Over half of 12–15 year olds use the internet for instant messaging and social networking, with almost one in six 13–15 year olds now owning a webcam.

- 16–19 year olds spend the most time sourcing leisure information and using the internet for creativity.

- Older workers are far more likely to use the web for learning than younger employees.

- Over-65s spend the most hours on the net out of any age group, particularly in search of news and local information.

- Email, online purchases and online banking are the most popular uses for the internet, after general surfing.

- Use of the internet accounts for 28 per cent of people watching less television and 33 per cent reading newspapers less frequently.

As well as using the internet in different way for different functions, there is also divergence in the amount of time different age groups spend on the internet every month.

Figure 17 displays the share of internet users and the average total use for different ages (in hours) from April 2007.

Figure 17: Internet use against total hours of use by age

Source: Ofcom 2007b
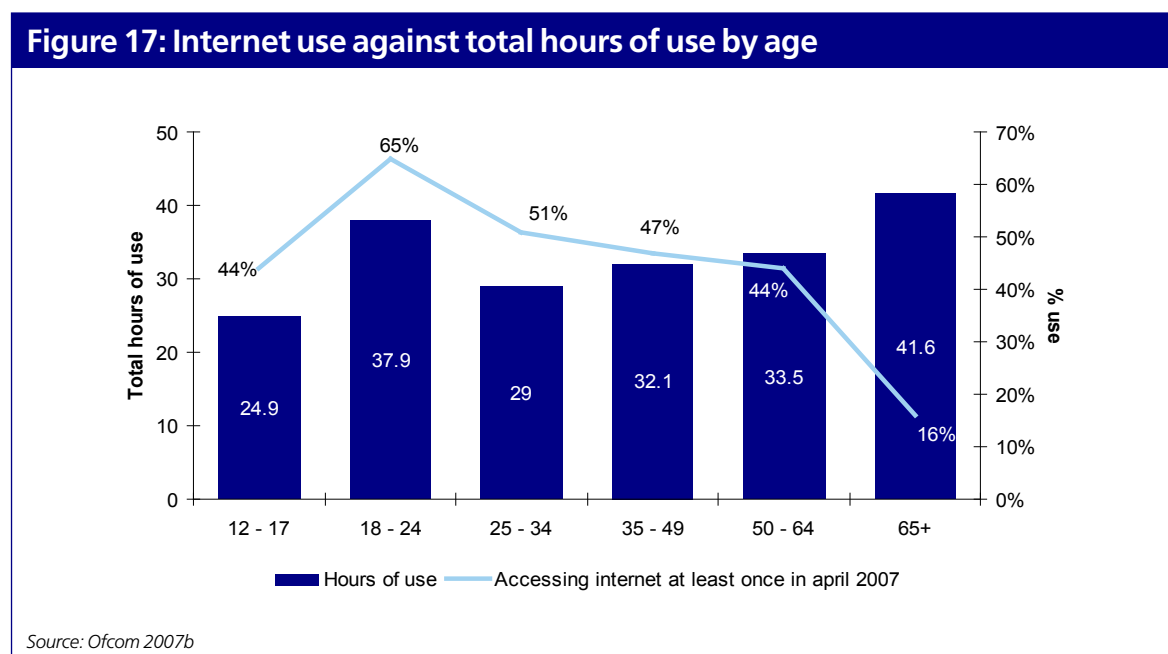
Out of those who use the internet, the over 65's spend the most time online. This is perhaps surprising given that they have the smallest share of overall users and are one of the groups most likely not to be using the internet for work purposes. 30 per cent of the total time spent online is by over those over 50, indicating the internet is far from a young person's technology (Ofcom 2007b). 12-17 year olds spend the least number of hours on the internet, most likely because the largest share of their time (ie school) does not allow for extended periods of access.

5.2 Futher case study examples

In addition to the case studies outlined in the main body of the report, this section outlines further examples of the way wider technologies are being utilised to help the UK population.

5.2.1 Information management

CHAIN is London's most comprehensive and widely used database on homelessness, rough sleeping and the street population. Drawing on information from over 80 projects, it is a web-based resource that can be used to track the use of services such as outreach teams, hostels, day centres and resettlement teams. Workers and agencies can refer to this database to find background information about their clients, use information to support planning and to link rough sleepers with available services.[8]

---

[8]   Digital Inclusion Team (DIT) (2007), The Digital Inclusion Landscape in England: Delivering Social Impact through Information and Communications Technology

The potential direct and indirect benefits include:

- **Increased public and private sector productivity**
- **Decreased social exclusion**
- **Improved support facilities for vulnerable social groups**

Active Intelligent Mapping (AIM) is being employed in Middlesbrough to map crime by geographical area and by type of crime. This allows the AIM group to profile each area, identify criminals, and execute targeted responses. This scheme has led to a 14 per cent reduction in all crime, a 20 per cent reduction in house burglary and a more effective system for the removal of abandoned, untaxed cars.[9]

The potential direct and indirect benefits include:

- **Increased satisfaction with public services**
- **Improved productivity through targeted actions**

5.2.2 Process Re-design

The Framework for Multi-agency Environments **(FAME)** is a national initiative to develop a framework for sharing information between local authorities and other agencies, so as to deliver better public services. Six local strands covered:

- Children with Disabilities
- West Yorkshire Child Protection
- Identification Referral and Tracking of children at risk
- Promoting the Independence of Older People
- Housing Benefits Inter-working
- Integrated Mental Health

Newcastle County Council had struggled with information governance, protocols and finance within the Children's Trust. It used FAME to target issues involved in multi-agency participation, ultimately resulting in Link IT – a new platform for sharing information across children's services. In this instance, a cohesive system of information exchange enabled partner agencies to support a joint service delivery to disabled children and to develop a real time case management system, amongst other applications.[10]

---

[9] IDeA (2005), 'eGovernment: reaching socially excluded groups?', available through the World Wide Web: www.idea.gov.uk/idk/aio/1123803

[10] Digital Inclusion Team (DIT) (2007), The Digital Inclusion Landscape in England: Delivering Social Impact through Information and Communications Technology; and FAME Final, 'FAME L&E Final Report', available through the World Wide Web: www.fame-uk.org/archive/FAME_L&E_FinalReport.pdf

The potential direct and indirect benefits include:

- **Decreased social exclusion**
- **Improved support facilities for vulnerable social groups**
- **Cost savings and increased public and private sector productivity**

5.2.3 Service Improvement

The **Single Non-Emergency Number** (101) is a nationwide service whereby people can report non-emergency crime, policing and anti-social behaviour. Currently, the service is live in three areas in England and Wales. More locally, **Easy Connects** in South Yorkshire gives residents access to a number of services such as booking medical appointments and reporting anti-social behaviour through interactive TV, games consoles or on the move through their mobile phone.[11]

The potential direct and indirect benefits include:

- **Improved access to, and satisfaction with, public services**
- **Improved support facilities for vulnerable groups**
- **Decreased social exclusion**

5.2.4 Communications

Using a smart card system called **Sentinel**, the John Port School in Derbyshire achieved major gains in teaching time and improved their control and knowledge of the whereabouts of students. The system is used by 2000 pupils, who swipe their card on passing a control point. The data, collected at a central PC, is used for a number of purposes, including locating pupils in the school in the event of an emergency. The system has acted as a useful deterrent against truants. Indeed, nearly 99 per cent of pupils remember to bring their card to school every day.[12]

The potential direct and indirect benefits include:

- **Improved educational attainment through greater participation at school**
- **Decreased social exclusion**
- **Time and monetary savings**

5.2.5 Gaming and entertainment

The Nintendo Wii has opened up a new market for games with a healthy focus. Players of "Wii Fit" use a balance board that tracks shift in weight. This board can be used across a variety of sports-related games. In one month since the game's release it sold nearly

---

[11] Digital Inclusion Team (DIT) (2007), The Digital Inclusion Landscape in England: Delivering Social Impact through Information and Communications Technology

[12] Phil Revell (2002), The Guardian, available through the World Wide Web: http://education.guardian.co.uk/itforschools/story/0,,735661,00.html

700,000 copies in North America. On Nintendo's hand held console, the DS, Ubisoft's "My Health Coach: Manage your Weight" comes with a pedometer which can be plugged into to the console. Using this information, the DS makes suggestions and sets fitness tasks for the player. Similarly, "My Health Coach: Stop Smoking with Allen Carr" departs from the traditional concept of a computer game. Not only are players said to absorb information better when actively engaged, such games may also convince those who are less inclined to visit a clinician."[13]

The potential direct and indirect benefits include:

- **Improved quality of life and health**

Members of residential homes in Brighton and Hove have come across an unexpected way to keep fit. Somerset Point sheltered housing organised a **Wii** Sport Relief competition for elderly residents. The scheme has received positive feedback and is seen as an effective way to encourage older people in homes to stay active and to socialise.[14]

The potential direct and indirect benefits include:

- **Decreased social exclusion**
- **Improved quality of life and health**

5.2.6 Domain specific technology

Wearable healthcare monitoring devices are being developed by a number of manufacturers15. These systems can be used to monitor a wearer's movement, breathing and heart rate in real-time and can be applied across a wide range of settings.

Information can be fed back to clinicians so that treatment can be as pre-emptive as possible. These remote healthcare monitoring technologies might also save patients from travelling long distances for testing in hospital.

The potential direct and indirect benefits include:

- **Time and monetary savings**
- **Increased self-sufficiency for marginalised individuals**
- **Improved support facilities and increased personal capacity for vulnerable individuals**

---

[13] John Gaudiosi (2008), available through the World Wide Web: http://www.reuters.com/article/technologyNews/idUSPAR64389220 080627?feedType=RSS per cent2526feedName=technologyNews

[14] Jan Goodey (2008), available through the World Wide Web: http://www.guardian.co.uk/society/2008/apr/30/health.longtermcare

[15] See, for example, Phillips IntelliVue: www.medicexchange.com/news.aspx/13343/-Philips-unveils-patient-monitoring-technologies-and-services-that-help-deliver-clinical-clarity-; and Sensatex:
www.sensatex.com/press/Sensatex per cent20Press per cent20Release per cent202007 per cent2004 per cent2030 per cent20- per cent20FINAL.pdf

5.2.7 Assistive technology

In April 2008, Microsoft launched its Digital Literacy curriculum in association with **learndirect**, UK online centres and OCR (Oxford Cambridge and RSA Examinations). It is a free, step-by-step guide on how to access the internet, perform essential tasks and to remain safe whilst online. Microsoft will provide the software to qualifying UK online centres based in the voluntary and community sector. It is hoped that approximately 500-800 eligible UK online centres will apply for their share of the estimated £3-6 million software donation over the next six to twelve months.

The Digital Literacy curriculum will also be uploaded onto refurbished ex-Council PCs as part of a digital inclusion initiative in Milton Keynes. In May 2008, Microsoft and Milton Keynes Council launched the scheme to help up to 10,000 previously excluded local citizens to gain access to digital technology. Citizens will be able rent the refurbished PCs for a fee of £1.50 per week. In conjunction with community centres and other third sector organisations, the programme is designed to boost digital literacy skills, facilitate adult learning and assist local small business.[16]

The potential direct and indirect benefits include:

- **Increase economic prosperity**
- **Decreased social exclusion**
- **Increased civic participation**
- **Increased self-sufficiency for marginalised individuals**

[16] For more information, see http://www.milton-keynes.gov.uk/council-news/DisplayArticle.asp?ID=57523

Chapter 6

Bibliography

Becta (2008), 'Meeting their potential: the role of education and technology in overcoming disadvantage and disaffection in young people' www.partners.becta.org.uk/upload-dir/downloads/page_documents/research/meeting_their_potential.doc

Broadband Choices (2008), 'Mobile Broadband', Last viewed 20/06/08, www.broadbandchoices.co.uk/mobile-broadband-guide.html

Digital Inclusion Team (DIT) (2007), *The Digital Inclusion Landscape in England: Delivering Social Impact through Information and Communications Technology,* www.epractice.eu/resource/1881

Dutton, W. and Helsper, E.J. (2007) *The Oxford Internet Survey (OxIS) Report (2007): The Internet in Britain*, Oxford Internet Institute, University of Oxford, www.oii.ox.ac.uk/microsites/oxis/publications.cfm

FAME Final, 'FAME L&E Final Report', Last viewed 24/06/08 www.fame-uk.org/archive/FAME_L&E_FinalReport.pdf

FreshMinds and UK online centres (2007), *Understanding digital inclusion: A research summary*, www.ukonlinecentres.com/downloads/UK_Online_digitalinclusion.pdf

FreshMinds and UK online centres (2008), *Economic benefits of digital inclusion: Building the evidence*, www.ukonlinecentres.com/corporate/images/stories/downloads/economic per cent20benefits per cent20of per cent20digital per cent20inclusion per cent20- per cent20building per cent20the per cent20evidence.pdf

Gaudiosi (2008), 'Playing a video game? No, it's health therapy', Reuters www.reuters.com/article/technologyNews/idUSPAR64389220080627?feedType=RSS&feedName=technologyNews

Get Safe Online (2006), *The Get Safe Online Report 2006*, HM Government, www.getsafeonline.org/media/GSO_Cyber_Report_2006.pdf

Goodey (2008), 'Wii strikes in older people's homes', The Guardian, www.guardian.co.uk/society/2008/apr/30/health.longtermcare

IDeA (2005), 'eGovernment: reaching socially excluded groups?', www.idea.gov.uk/idk/aio/1123803

Ipsos MORI (2007), 'Technology Tracker: Monthly report', September 2007,
www.ipsosmori.co.uk/assets/loyalty/technology/statistics.pdf

Learning and Skills Council (LSC) (2008), *National Employers Skills Survey 2008*,
www.readingroom.lsc.gov.uk/lsc/National/nat-nessurvey2007mainreport-may08.pdf

Ofcom (2007a), *The Consumer Experience: Research report*,
www.ofcom.org.uk/research/tce/ce07/research07.pdf

Ofcom (2007b), *The Communications Market 2007: Telecommunications*,
www.ofcom.org.uk/research/cm/cmr07/telecoms/telecoms.pdf

Ofcom (2007c), *The Communications Market 2007: Broadband*,
www.ofcom.org.uk/research/cm/broadband_rpt/broadband_rpt.pdf

Ofcom (2008a), *Media Literacy Audit: Report on UK children's media literacy*,
www.ofcom.org.uk/advice/media_literacy/medlitpub/medlitpubrss/ml_childrens08/ml_
childrens08.pdf

Ofcom (2008b), *Media Literacy Audit: Report on UK adult's media literacy*,
www.ofcom.org.uk/advice/media_literacy/medlitpub/medlitpubrss/ml_childrens08/ml_
childrens08.pdf

Office for National Statistics (ONS) (2007a), *Internet access 2007: Households & individuals
First Release*, www.statistics.gov.uk/pdfdir/inta0807.pdf

Office for National Statistics (ONS) (2007b), 'Internet Access – Individuals, GB', Statbase,
www.statistics.gov.uk/statbase/explorer.asp?CTG=3&SL=4970,4376&D=4721&DCT=32
&DT=32

Office for National Statistics (ONS) (2007c), *Focus on a digital age*, Palgrave Macmillan
www.statistics.gov.uk/downloads/theme_compendia/foda2007/FocusOnDA.pdf

Office for National Statistics (ONS) (2008a), Populations Trends, No131, Palgrave
Macmillan, www.statistics.gov.uk/downloads/theme_population/Population_
Trends_131_web.pdf

Office for National Statistics (ONS) (2008b), Additional data requested by FreshMinds

Revell (2002), 'Where's school, sonny?', The Guardian, June 11, 2002,
www.education.guardian.co.uk/itforschools/story/0,,735661,00.html

Roach (2008), 'Broadband prices could rise after Ofcom review', Broadband Choices,
June 2, 2008, www.broadbandchoices.co.uk/broadband-prices-could-rise-after-ofcom-
review-020608.html

The Royal National Institute for the Blind (RNIB), 'RNIB NI ICT Training', www.rnib.org.uk/xpedio/groups/public/documents/publicwebsite/public_rnib003725_ia485fe712-2.hcsp

The Royal Society (2006), 'Digital Healthcare: the impact of information and communication technologies on health and healthcare', www.royalsociety.org/displaypagedoc.asp?id=23835

Sensatex Press Room (SPR) (2007), 'Sensatex Announces SmartShirt Field Trials', May 1, 2007, www.sensatex.com/press/Sensatex per cent20Press per cent20Release per cent202007 per cent2004 per cent2030 per cent20- per cent20FINAL.pdf

The Telegraph (2008), 'Sea change in prices lets surfers get up to speed', July 26, 2008, www.telegraph.co.uk/money/main.jhtml?xml=/money/2005/07/23/cmsurf23.xml

Wray (2007), 'Minister leads push for faster broadband', The Guardian, November 26, 2007, www.guardian.co.uk/business/2007/nov/26/telecoms.internet