Adoption of e-government by disadvantaged groups in the United States and the United Kingdom

1. INTRODUCTION

This chapter concerns groups in the United States (US) and United Kingdom (UK) who are disadvantaged in some way and for whom there is evidence that they also make less use of the Internet and e-government than others in these countries. It first looks at the state of e-government in these countries, the direction in which this is going, and how important it is for their populations to use e-government. It examines the evidence that particular groups – older people, those on low incomes and those with disabilities - make less use of the Internet and e-government than others in society. It reviews the barriers to Internet and e-government use by these groups. In particular it looks at the web accessibility barrier that affects many people with disabilities, which includes many older people. What legal and other requirements are there in the two countries to promote accessibility and how effective are these in terms of the actual accessibility of government websites? It describes the main government policies to increase Internet and e-government use by disadvantaged groups in the US and the UK, and examines briefly some initiatives for which there is some evidence of effectiveness. It concludes with lessons that can be drawn from these initiatives. The chapter is based on policy documents and research studies relevant to the issue of increasing the participation of disadvantaged groups in e-government.

2. E-GOVERNMENT in the UNITED STATES and UNITED KINGDOM

The US and UK are among the countries foremost in promoting e-government. In 2002 US President George W. Bush signed the E-Government Act .[i] This was designed to enhance access to government information and services through the Internet and other emerging technologies, and to increase citizen participation in government. It aimed to increase inter-agency collaboration both in the provision of electronic government services, and in internal electronic government processes. It was meant to increase effectiveness and reduce costs. It aimed to provide effective federal government-wide leadership through establishing an Administrator of a new Office of Electronic Government within the Office of Management and Budget (OMB), appointed by the President. The Act was reauthorized in 2007.

In the UK e-government was one of the key features of the *Modernising Government* white paper (Prime Minister and Minister for the Cabinet Office, 1999). The aims were very similar to those of the US E-Government Act, including: making it easier for individuals and businesses to deal with the government, using the Internet and other new technologies; making it easier for different parts of government to communicate. Subsequently an Office of the E-envoy was set up, in the Cabinet Office. In March 2000 the Prime Minister announced a target for all government services to be online by 2005. The main policy objectives of the Office of E-envoy were to lead on achieving this target and also to ensure that anyone who wanted it had Internet access by 2005[ii]. In 2004 the Office of E-envoy was abolished, to be replaced by the E-Government Unit, also within the Cabinet. Its mission was more specifically on providing efficient government services. [iii]

In 2007 the US was ranked 3rd and the UK 16th on the United Nations [UN] (2008) web assessment measure, which ranked national websites, along with those of selected ministries/departments of the 192 UN member states. The web measure assessments were based on a questionnaire which investigated the presence/absence of specific electronic facilities/services. Five stages of service delivery were conceptualized: *emerging, enhanced, interactive, transactional and connected.* Emerging sites consisted of mainly static information, transactional sites were those where transactions could be conducted wholly online, while connected sites included connections with other agencies both within and external to government and encouragement of citizen participation. The UN report suggested that the rankings actually under-rate the US and UK online presence. Just taking the national websites into account the USA.gov web portal was ranked 1st and said to be one of

the most comprehensive and effective government websites in existence. The main UK government portal, Directgov.uk was said to be doing an excellent job joining up services from both central and local government.

These findings suggest that e-government in the US and UK, is well on the way to achieving the aimed-for online presence. To what extent are people using these sites, and how satisfied are they with the experience? A Pew Internet and American Life survey found that 66 percent of Internet users had visited a federal, state or local government website in the past year (Estabrook, Witt & Rainie, 2007). On the American Consumer Satisfaction Index [ACSI] (Feed, 2009), which rates websites on 100-point scale, scores rose for federal government websites from 70.9 in the 3rd quarter of 2003 to 73.6 in the second quarter of 2009. While satisfaction with e-commerce (80.0) was ahead of that with government websites, that for online government was greater than that for offline government (68.9).

Use of e-government in the UK is behind that in the US, but increasing quite considerably. The 2009 Oxford Internet survey [iv] (Dutton, Helsper & Gerber, 2009) found that 59 percent of Internet users had used a government website in the past year (up from 46 percent in 2007). Mostly this was to get information about local or central government services but 18 percent made a payment to central government online. A survey by the Office for National Statistics [ONS] in 2005 in Great Britain[v], (McKinnon, Armitage & Pollard, 2007) found very high satisfaction among those who did use e-government services, 90 percent of users rating them as very good.

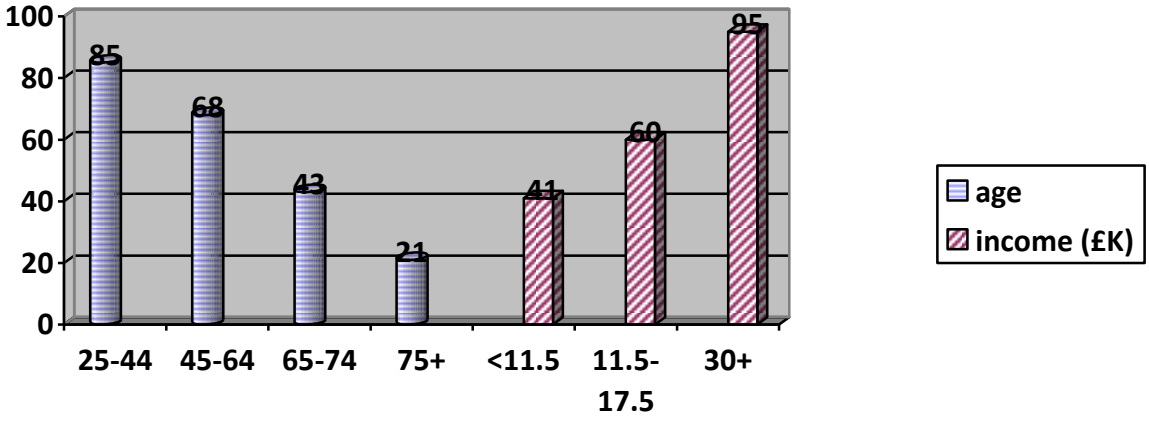
In its recent *Digital Britain* report the UK government (BIS/DCMS, 2009) proposes that it should "develop a roadmap to a new programme of Digital Switchover of Public Services", meaning that the primary means of access to government services should be online, rather than this being one means of access among many. It states there should be "a safety net" in delivery for those unable to access services online. In the US some information or services are entirely or primarily online (Bertot, Jaeger, Langa & McClure, 2006; Wright and Hill, 2009). Those who do not or cannot, for some reason, use the Internet are likely to be at increasing disadvantage. It is ironic that these include older people and those with disabilities for whom the convenience and availability of e-government could provide the greatest advantage.

3. INTERNET AND E-GOVERNMENT USAGE BY DISADVANTAGED GROUPS

UK

There is strong evidence from major surveys in the UK, such as those of the UK communications regulator, Ofcom (2008), the Office for National Statistics [ONS] (Shepherd & Bryson, 2007) and the biannual Oxford Internet survey (Dutton, et al., 2009) that older people are less likely to be Internet users than younger people and those from lower income households are less likely to be Internet users than those with higher incomes.

Figure 1. Percentages using the Internet anywhere, by age and income, UK



Source: Ofcom survey, 2008

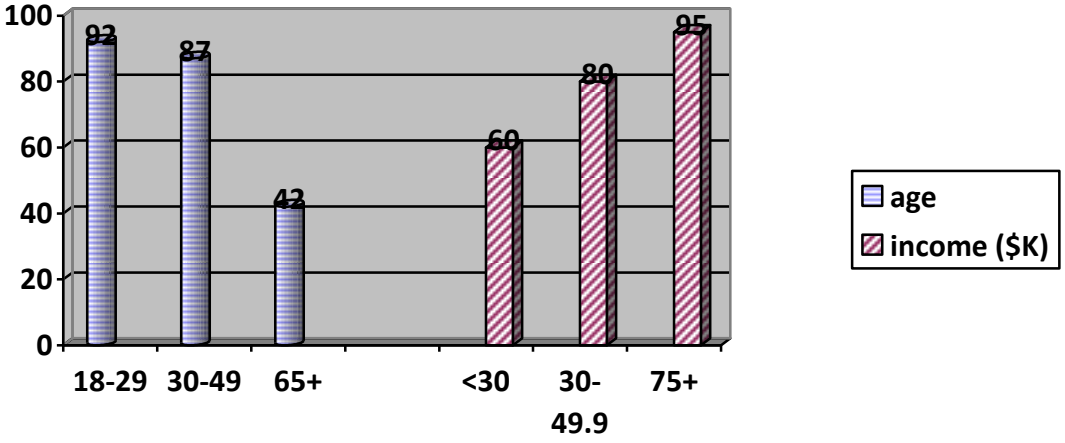
Figures for having Internet access at home are slightly lower than those for using the Internet anywhere, but follow the same pattern (Ofcom, 2008). Only five percent of UK adults had dial-up Internet access, rather than broadband, this being rather higher for older people (65-74, 13 percent) and lower income groups (£11.5-17.5K, 11 percent) (Ofcom, 2008). There is also evidence of Internet usage being much lower for adults with disabilities (41 percent) than those without (75 percent) (Dutton et al., 2009). Similarly access to the Internet at home is lower for those with disabilities than those without (Ofcom, 2006).

Evidence is sparse in the UK on the use of e-government among Interest users who are older, have lower income or disabilities. ONS surveys found that e-government usage declines with age among Internet users (McKinnon, et al., 2007). However, e-government use was higher in a project to encourage Internet use in a socially disadvantaged area in Scotland than the average found in the 2007 Oxford Internet survey (Smith, 2008).

US.

There is consistent evidence in the US that older people (age 65+) are less likely to be Internet users than younger people and those with lower household incomes are less likely to be Internet users than those with higher incomes (e.g. Fox, 2005; Horrigan, 2008; Thomas & Streib, 2003).

Figure2. Percentages using the Internet anywhere, by age and income, US



Source: Pew Internet, April 2009

Estabrook et al. (2007) found that older and lower income people were much more likely not to have home Internet access than others but that there were little demographic differences in home broadband access. There is also evidence that fewer people with disabilities than without in the US go online (Dobranksy & Hargittai, 2006; Fox & Vitak, 2008). The latter study, using data from the Pew Internet and American Life Survey, May 2008 found 50 per cent of people with disabilities or chronic health problems were going online, compared with 75 per cent of those without disabilities. Dobransky and Hartgittai's research, using data from the Current Population survey, indicates that much of the lower use by people with disabilities is due to demographic and socio-economic factors, but that some disabilities, such as visual impairment or manual dexterity exercise an independent effect.

Lower use of the Internet by older people and those of lower socio-economic status in itself will lead to lower use of e-government by these groups. Thomas and Streib (2003), using a randomly selected sample of adults in Georgia in 2000 found a tendency for older Internet users and those with lower socio-economic status to access e-government slightly less than other Internet users, this being most pronounced among those with lower educational attainment. Larsen and Rainie (2002) had similar findings. In contrast, Dobranksy and Hargittai (2006) found that Internet users with disabilities were more likely to visit government websites than those without disabilities. However, they were no more likely to download forms, and were significantly less likely to submit completed forms than those without disabilities. The authors attribute this to lack of resources, such as software, or high speed connectivity, or possibly lack of computer skills among those with disabilities.

4. BARRIERS TO INTERNET USE

Surveys in the UK (Dutton & Helsper, 2007; Dutton et al, 2009; Ofcom, 2009; ONS, 2009) indicate that the main reasons people give for not using/not having Internet access at home are: lack of interest; not having a computer/Internet connection; lack of knowledge/confidence; and cost. In Ofcom's (2009) survey of people lacking home Internet access lack of interest/need was the reason given most often (by 37 percent). This group tended to be older (68 percent were over 65), had limited contact with technology (39 percent did not have a mobile phone), had mostly (83 percent) never used the Internet, and lacked confidence in using a computer (91 percent). In the 2007 Oxford Internet

survey reasons associated with lack of knowledge/skill were more prominent than those associated with lack of interest (Dutton & Helsper, 2007).

Cost has fluctuated as a reason for non-use from 7 to 15 per cent in the ONS (2008; 2009) surveys but was given as a reason for non-use by half the respondents in the Oxford Internet surveys (Dutton & Helsper, 2007; Dutton et al., 2009). In Ofcom's (2009) study of those lacking home access, 26 percent gave cost as their main reason. This group spanned a range of ages. Most were thinking about costs both of a computer and monthly payments, and those on benefits or low incomes were worried about signing up to 12-month contracts. Cost may be an issue of particular importance to people with disabilities who require special software or equipment to use the Internet (Ofcom, 2008; Pilling, Barrett and Floyd, 2004).

There are also real problems in using the Internet, particularly for people with disabilities and for those with low literacy skills. There is evidence that some people with disabilities have come to distrust e-government because of accessibility issues (Jaeger, 2008).

5. LEGAL REQUIREMENTS AND POLICY GUIDANCE ON WEB ACCESSIBILITY

Many people have visual, motor, auditory, cognitive or learning disabilities that affect their use of the web. There were estimated to be 54 .4 million residents of the US with disabilities in 2005, (US Census Bureau, 2008). In the UK 2001 Census, 10.3 million people were reported as having a long term illness or disability that limited their daily activities (ONS, 2006). Web accessibility is about making it possible for these people to use the web or use it more easily. There is no overall co-ordinated approach to making websites accessible in either the US or the UK, but there is relevant legislation and guidance in both countries.

UK.

Guidance on meeting accessibility standards is currently available on the Central Office of Information [COI] (2009) website. The COI guidelines state that government websites must have regard to the duty to make reasonable adjustments for people with disabilities indicated in the Disability Discrimination Act [DDA] of 1995. They must also have regard to the additional duty to promote disability equality as required in the 2005 amendment to this Act. All central government websites must have, by December 2009, met the minimum level of accessibility set by the European Parliament in 2002 for public service websites. This is at level AA of the *Web Content Accessibility Guidelines* [*WCAG],* which are recognised worldwide as the standard for web accessibility (see below).

Legal requirements in UK.

It is generally agreed in the UK that the provisions of Part III of the DDA 1995 apply to websites, but the position is not clear-cut. Part III sets out ways in which it is unlawful for a provider of services to discriminate against people with disabilities. It gives them a duty to take reasonable steps to change policies or practices which makes it impossible or unreasonably difficult for people with disabilities to make use of the service. While these duties do not specifically refer to websites it has been argued (Mason & Casserley, 2001; Sloan, 2001) that they should be applicable, and that the Disability Rights Commission's [DRC] (now part of the Equality and Human Rights Commission [EHRC]) [vi] revised Code of Practice in 2002 appears to strengthen its applicability. This makes explicit reference to provision of a website as a service which is subject to the Act. An Australian case in which a blind person was upheld in his complaint related to the inaccessibility of the website of the Sydney Organizing Committee for the Olympic Games in 2000 is widely held to be relevant to the UK (Sloan, 2001).

According to the DRC (2005) Code of practice, the disability equality duty requires public authorities to take a proactive approach and incorporate disability equality into all their decisions and activities. It involves them taking anticipatory action rather than waiting for someone to claim discrimination.

The Web Content Accessibility Guidelines.

WCAG guidelines are published by the World Wide Web Consortium (W3C) an international organization working to develop the web to its full potential.[vii] WCAG 1.0 guidelines [viii] were published in 1999 and consist of 14 guidelines which summarise essential elements of accessible web design. Attached to each guideline there are between one and ten checkpoints which specify the application of the guideline in website design.

There are 65 checkpoints which are graded between three priority levels giving an increasing standard of accessibility. Priority 1 is for checkpoints that must be satisfied otherwise "some groups of people will be unable to access information on a site" while adherence to Priority 3 may make it easier for some groups to use a site. Sites conforming to Priority 1 are said to be level "A" compliant, to Priorities 1 and 2 level "AA", and to all three Priority levels "AAA" compliant.

WCAG 2.0 guidelines[ix] were published in December 2008 and recommended as succeeding version 1.0. According to W3C [x]version 2.0 applies broadly to more advanced technologies, is easier to use and understand, and is more precisely testable. Most sites that conform to version 1.0 should not require significant changes to conform to version 2.0.

US.

Section 508 legislation.

Unlike in the UK, there is specific legislation in the US which requires federal agencies to make their electronic and information technology accessible to people with disabilities. This, usually referred to as *Section 508*, is an amendment by Congress in 1998 to the Rehabilitation Act of 1973. "The law applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology. Federal agencies must ensure that this technology is accessible to employees and members of the public with disabilities to the extent it does not pose an 'undue burden'." [xi]. The Access Board, an independent Federal agency devoted to accessibility for people with disabilities, was mandated to develop accessibility standards. These became enforceable in June 2001.[xii] There are 16 web standards. Generally the 508 guidelines are similar to the WCAG 1.0 Priority 1 guidelines, 11 being drawn directly from them (Thatcher, 2010). Five require a higher accessibility level than Priority 1, or give more specific requirements. The guidelines are currently being reviewed. The Section 508 website [xiii] provides assistance in understanding and implementing 508.

There have been different interpretations of the applicability of Section 508 to states. A separate law requires states to provide an assurance of their compliance with Section 508 as a condition to receiving Federal funds for the State Grants for Assistive Technology but 2004 amendments clarified the scope as only applying to this program.[xiv] States have a variety of approaches to accessibility, many being informed by Section 508 or WCAG guidelines.

The Americans with Disabilities Act [ADA], 1990.

The ADA was written before the Internet was in common use. It does not refer specifically to websites. Though there have been several legal cases these have been settled out of court and it remains uncertain as to whether the ADA applies to websites. The argument centers around whether

websites can be regarded as "public accommodations", which the Act requires to be accessible to people with disabilities.[xv]

6. HOW ACCESSIBLE AND USABLE ARE GOVERNMENT WEBSITES?

Government policy in both the UK and US stresses accessibility as has been seen above.
How accessible and usable are UK and US government websites in practice? Generally the evidence suggests that in both countries government websites are more accessible than those of the private sector, that there has been progress, but there is a considerable way to go to achieve universal accessibility. Some studies have relied solely on automated tests, and there is evidence of different tests giving different results (e.g. Ellison, 2004). Automated tests cannot check performance against all checkpoints, and give warnings that manual tests should be carried out, but this is not always done. User testing can reveal problems even beyond manual checks (DRC, 2004). Jaeger (2006; 2008) advocates using a multi-method approach. He suggests that expert testing can reveal a broad range of issues affecting people with many disabilities, while user testing provides in-depth information on the problems of individuals.

U.K.

Accessibility of central government websites

In their Formal Investigation into website accessibility the DRC (2004) found that, using automated testing, only 19 percent of the 1000 public and private sector sites tested were WCAG 1.0, level A compliant. More government (32 percent) than private sector websites (15 percent) reached this level. A much smaller and slightly later survey of 28 central government sites found that on automated testing 78 percent reached this level of compliance, suggesting that there might have been some improvement (Nomensa, 2005). However, manual checks indicated problems particularly for screen reader users. A survey in 2005 found the Department of Health site to be one of only three out of 436 European government websites to reach level A compliance on both automated and manual testing (UK Presidency of the EU, 2005). The UK government is moving government information and service delivery for citizens to a supersite, Directgov (see below). It is stated on this site (January 2010) that efforts are constantly made for it to achieve WCAG 1.0 AA level compliance [xvi] However, it also states that sections of the site are controlled by third parties and that it has not been possible for the same standards of accessibility to be applied to them.

Accessibility of local government websites

In the 2009 Society of Information Technology Management [Socitm] annual review of every UK local government website it was found that only 8 percent (36) out of the 468 websites reached level A of the WCAG 1.0 guidelines. [xvii] A qualitative assessment system carried out by Royal National Society of Blind People [RNIB] for Socitm presented a more favorable picture, with 33 percent of councils rated as satisfactory or excellent.[xviii] RNIB reported a significant improvement in accessibility in most of the websites they tested, and said that third party content had a big part to play in failing WCAG 1.0 guidelines. Overall Socitm found that local government sites had more awareness and implementation of accessibility than private sector sites.[xix]

Usability of central government websites

A comprehensive survey of UK government websites by the National Audit Office (NAO, 2007), using a variety of methods, found a slight improvement in quality when websites were compared on the same 60 features in 2006 as in 2001.

US.

Accessibility of federal government websites.

West's (2008) yearly survey showed some progress in accessibility of federal websites when the automated "Bobby 5.0" software was used for testing. Fifty four percent of the major federal sites tested were in compliance with WCAG level A in 2007 compared with 47 percent in 2003. In an earlier study using "Bobby 3.2" (Jackson-Sanborn, Odess-Harnish & Warren, 2002) a considerably higher proportion of federal government (60 percent) than of all websites tested (33 percent) reached level A. The higher degree of compliance than in West's study could be due to a different selection of sites.

Jaeger (2006) using a multi-method approach to evaluate five major e-government sites found all to have accessibility issues.

Accessibility of state websites.

West's (2008) study found that 46 percent of state websites were level A compliant in 2007 compared with 33 percent in 2003 using "Bobby 5.0", suggesting some progress.

Usability

West (2008) found problems with readability, the average grade readability level of the front page of state and federal websites being 11.9 years, well above the average for the US population (8th grade). However, West found some good and improving usability features. These included: high proportion of sites with email addresses for particular departments; substantial rise in facilities to receive update on particular topics since 2001.

7. POLICIES AND INITIATIVES

UK.

In March 2005, the year when all UK government services were to be online, and all citizens who wanted it were to have access to the Internet, the government produced a report: *Connecting the UK: the Digital Strategy* (Prime Minister's Strategy Unit, 2005). In terms of getting government services online the targets had to a large extent been achieved. The target for setting up 6,000 UK online centres, so that everyone had free or low cost access to computers and the Internet and support in their use had already been reached in 2002. However, the report admitted that the low take up of the Internet by some particular groups had not been overcome, and that more needed to be done.

At an EU Conference (Riga, 12th June 2006) on "ICT for an Inclusive Society" all member countries signed the Riga declaration, agreeing to a number of targets to promote digital exclusion. These included ensuring the accessibility of public websites by 2010, and halving the gap in Internet usage by disadvantaged groups by this date. A UK Minister for Digital Inclusion was appointed in February 2008, and a Ministerial Digital Inclusion Cabinet committee established. Later that year a consultation document, *Delivering Digital Inclusion - An Action Plan for Consultation* (HM Government, 2008) was launched. Chief among new initiatives was the appointment of an independent Digital Inclusion Champion, with a remit to represent the six million most socially excluded people.

The recent *Digital Britain Report* (BIS & DCMS, 2009) focused on universal broadband provision. The then Labour government was committed to providing universal broadband coverage at a minimum speed of 2 mps by 2012 to the one in 10 households not able to obtain this. Along with this it promised to improve basic digital skills and promote take-up of broadband. Main measures to tackle Affordability were: The Home Access computer programme for school children in low-income families; UK online centres; provision of greater support for computer re-cycling schemes.

Capability and Relevance were to be dealt with by: equipping pupils with IT skills at school; working towards a basic digital life skills entitlement for all adults (see below); greater emphasis on accessibility for people with disabilities. A National Plan for digital participation would bring together the numerous but fragmented initiatives to increase digital participation and promote the attractiveness of being online. The Digital Switchover of Public services in 2012 would also be a motivator to get people online. And subsequent to this report £30 million has been promised, mainly for grants to UK online centres or other grassroots ICT centres, to help get a million more people online for the switchover (HM Government, 2009). The new Conservative-Liberal Democratic government which came into office in May 2010 is also committed to universal broadband coverage and getting as many people as possible online but there is current (July 2010) uncertainty about the exact measures it will take.

UK online centres

UK online centres have been the government's flagship initiative for getting socially disadvantaged people online. Over £400 million was spent on setting up the initiative. Currently about half are based in public libraries, a third in community and not-for-profit organizations, and one in ten are in colleges. UK online centres are independent organizations, which obtain funding from several sources. Belonging to the network gives them the opportunity to bid for UK online centre funding, take part in funded projects, and provides access to learning materials, marketing, advice and support.

There have been several evaluations of UK online centres. Studies indicated that over 60 percent of centre users were in socially disadvantaged groups (Countryside Agency, 2003; Hall Aitken, 2003), the percentage being higher for the community and not-for-profit centres. Three quarters of users are now said to be socially excluded (BIS/DCMS, 2009). Users generally expressed high levels of satisfaction with the centres, particularly with the friendliness of staff (Hall Aitken, 2003; SQW/Mori, 2005). A common comment in the former study was "It's great because it's not like a college." After a year 43 percent of users had started a course leading to qualifications. But many were not interested in qualifications, only in gaining skills.

The Hall Aitken study authors stressed the importance of the individualized, informal approach of these types of centre for the target groups. Studies emphasized the difficulties centres have had in raising funding for this. A recent consultation with centre managers re-affirmed the need for funding for informal learning, and courses that do not lead to qualifications (UK online centres, 2009.) A recent government policy paper (Department for Innovation, Universities and Skills, 2009) and an independent report on digital literacy (Morris, 2009) reinforce the argument for funding for informal learning.

Myguide and UK online

Myguide is a UK government initiative to make the Internet easy to use for people who might have difficulties with it, who have inhibitions about it, or who doubt its relevance to them. It is now incorporated into UK online service delivery. It has a free easy to use email service and web search facility with a simple uncluttered homepage which can be personalised to suit the individual's needs. Piloting of myguide in 40 UK online and 106 other centres suggested that it was attracting the targeted groups (ORC International/UK online centres, 2007). Most people thought it had increased their ability to use computers. However, a more rigorous evaluation, comparing the characteristics and progress of myguide users and other beginners is needed to determine its value.

UK online centres and e-government

UK online centres have been used extensively to promote the use of e-government. Studies show the crucial role of support from centre staff for the take-up of e-government by people from disadvantaged groups (Hall Aitken, 2003; Simpson Carpenter and Regeneris Consulting, 2006;

University for Industry [Ufi], 2005). In the Ufi study, designed to promote e-government to hard-to-reach groups, centres supported users by producing maps and guides through key parts of various websites and developed materials for users to take home and absorb. Of 3,604 new users of e-government services, 62 percent came back to the centre to use them again.

Home Internet access

There is some evidence that Home Access schemes increase the ICT skills not just of the children involved, but also of their parents (Home Access to Technology, 2008). In one project in Aston, Birmingham, an area with low Internet usage and a large proportion of families from ethnic minority groups, each computer was used on average by 7.6 people (Passey, 2007). The government's national scheme provides a free laptop and 1 year's Internet access and support for low-income families with school children, but funding on this is limited.

There have been no national home access schemes for older or disabled people in the UK but a long-established project for this group, CareOnLine, led by Leicestershire County Council, illustrates the potential benefits. The project offers advice about equipment, individualized training from a qualified IT tutor in people's own homes, ongoing technical support and a computer and necessary assistive technology if the participant cannot afford this. Training is designed around each individual's needs and motivations, such as emailing distant relatives, and the project illustrates the importance of this in encouraging use of the Internet (Boeltzig and Pilling, 2007). Over two thirds of users in the pilot project said that they had no previous intention of using the Internet, but all but one continued with Internet access when they had to pay for it after initial free access (Poulson & Osman, 2003).

Wired-up and wireless communities

As part of the UK government's policy to ensure that people living in socially deprived areas would not be excluded from online services, in 2000 it invited bids for a Wired-up communities [WuC] project which was piloted in seven areas. The projects were multi-agency public-private partnerships. They used a variety of technologies, organizing and managing the supply of these into people's homes being a major challenge. Three months free Internet access was generally provided. Three-quarters of those provided with the equipment used the Internet (Devins, Darlow, Petrie & Burden, 2003). Non-use was related to lack of interest and problems with technology (such as use of refurbished computers). Internet use was not related to receiving training, but study findings suggest that this may have been due to a need for more individualized and long-term support. The project played a major part in increasing use of the Internet, 59 percent using it for the first time in the follow-up period compared with only nine percent of residents of a matched comparator area. Use of government websites was low, with less than 10 percent visiting particular sites, though these would have been at a relatively early stage of development. In a later, wireless, project in a socially disadvantaged area in Scotland (Smith, 2008) e-government usage was found to be above the average in the 2007 Oxford Internet survey (58 percent compared with 46 percent).

Digital literacy

The current provision to develop ICT skills has been examined in an independent government commissioned review (Morris, 2009). This found that there had been a 50 percent reduction in adults taking up funded ICT provision since 2004/5, largely because increasingly only courses leading to qualifications are government funded. The report recommended that all adults who do not have digital life skills should be entitled to up to nine hours of funded support to develop the skills needed to get online and that this should be delivered in a variety of ways suiting people's needs.

Improving web usability

Difficulty in understanding government websites is one of the key reasons for the creation and promotion of Directgov (NAO, 2007). Government policy is to move the main service delivery and

information provision functions for citizens to this site. To this end over half of UK government websites will close. This transition is in process and visits to Directgov have increased from 400,000 in its first month to18 million in 2009. The chief executive of Directgov reported that visitors to the site rated it better than the BBC, eBAy, Amazon and Tesco for comprehensive services and information.[xx] While the NAO (2007) census of government websites found that the content was generally conservative, this is changing with, for example, the major government health site, NHS Choices, including video, audio and much interactivity. The challenge is in maintaining accessibility and ease of use which must await further evaluation.

US initiatives

The Telecommunications Act of 1996 can be regarded as the main federal government initiative to provide affordable Internet access to disadvantaged groups. This obliged telecommunications carriers to provide telecommunications and Internet access to schools and libraries at a discounted rate, and was particularly meant to assist rural and economically disadvantaged areas. Discounts, known as the E-rate, depend on the level of poverty and the urban/rural status of the population served and range from 20% to 90% of the costs of eligible services. [xxi] The schools and libraries program is one of four programs funded by the universal service fund [USF], which is maintained from contributions of telecommunications providers.

Some federal programs, such as the Technology Opportunities Program, have wound down. However, increasing the use of broadband is an important aspect of the American Recovery and Reinvestment Act of 2009 [xxii], designed to stimulate the US economy. The Broadband Technology Opportunities Program [BTOP][xxiii] has objectives of increasing the broadband infrastructure to people living in areas unserved or underserved by broadband, increasing broadband capacity at public computer centers, and encouraging sustainable adoption of broadband service. Take-up of broadband requires its relevance to be perceived (Horrigan, 2009). The Act specifically mentions providing broadband education, awareness, training, access equipment and support to organizations and agencies that facilitate greater use of broadband service by low-income, and other disadvantaged populations. The Recovery Act also commits the Federal Communications Commission [FCC] to deliver to Congress a National Broadband Plan early in 2010 to ensure everyone in the US has access to broadband. Ideas under consideration [xxiv] include extending the USF program, through which low income households receive a discount on telephone service, to broadband. Specialized solutions to the accessibility problems of people with disabilities are also proposed.

Public libraries

Public libraries in the US have become an essential source of Internet access, training and support and means of using e-government. Public libraries built up their computing resources and Internet access from the early 1990s. The E-rate has provided large amounts of discounts for Internet access. Public libraries also obtain a small amount of funding from the federal government, amounting to about one percent of annual library operating grants. Much of the funding for Internet access comes from state and local governments and private sources.

In a national survey of public libraries in 2008-2009 over 70 percent reported that they were the only means of free Internet access in their communities (Bertot, Clark, Davis & McClure, 2009). Ninety percent of libraries offered formal technology training classes or informal assistance. Staff provided assistance to users on how to access and use government websites in over 80 percent of libraries. Qualitative evidence from an earlier national study of libraries indicated their importance not only for those without home Internet access, but also in helping people to understand government information (Bertot et al., 2006). An example given was registering online for mandatory Medicare prescription drug coverage, which the government encourages, and for which the information is complex and primarily available online. Bertot et al. (2006) point out that government agencies often refer service users to public libraries both for online services and assistance. Public libraries have become access points for e-government, although this is not an explicitly designed policy. Currently funding is not

meeting the demands on libraries (Bertot et al., 2009). The Recovery Act broadband economic stimulus program will enable some libraries to increase their broadband capacity, but Bertot et al. also emphasise the need for recognition and financial support of the crucial role of public libraries in e-government.

City-wide broadband and digital inclusion strategies

A number of American cities from around 2004 had plans to build municipal wireless broadband networks. Motivations in some cases included encouraging socially disadvantaged groups to get online (Jain, Mandviwalla & Banker, 2007). However, most of the plans for large cities were never fully implemented or abandoned. Reasons included unsuitability of the technology at the time for large scale developments, and competition from cable and telecom providers who were moving into new areas, increasing speeds and cutting prices (Fleishmann, 2008). A number of private companies contracted to build and operate networks left the municipal wireless business between mid 2007 and mid 2008. Numerous small networks were completed, but Minneapolis was the only city-wide network completed which included paid access for residential customers.[xxv] The difference between other cities and Minneapolis is attributed to the city agreeing to be an anchor tenant, and guaranteeing payments for 10 years to access the service. Free or discounted Internet access to low income households is not provided. However, the wireless provider is committed to provide financial resources to organizations working with disadvantaged groups. So the municipal broadband initiative is not dead. One of the policies under discussion for the National Broadband Plan is enabling municipalities to create broadband networks where they would not otherwise be available.

The OMG Center for Collaborative Learning [OMG] (2008) carried out an evaluation of the experiences of the Philadelphia wireless project, which included interviews with representatives of other large digital inclusion programs. The interviewees agreed that there was a large demand for free or low cost computers among low income groups. Community organizations with established technology programs and appropriate client groups had been productive partners in the programs. Funding to enable these organizations to provide support and training to the participating clients was essential. Providing reliable home Internet access remained a challenge. There was some evidence of training leading people to acquire market-rate home Internet access. Programs involving both children and parents were particularly successful, with knowledge flowing from young people to adults.

Improving web usability

In 2002 the Bush administration declared its intention to improve the performance and management of government (OMB, 2002). This included championing citizen-centered e-government and increasing access for people with disabilities. One result was the replacement of FirstGov, the portal to government services, by USA.gov. The site was re-designed, based on monitoring of feedback of the site's visitors, focus groups and usability testing. It was made less cluttered, its search engine improved and some Web 2.0 features such as Web chat were added.

The Bush administration identified 24 e-government initiatives, one of which was GovBenefits.gov. Before this Internet users had to go through a complicated and confusing maze of sites to find benefit information (Pizella, 2009). Established in 2002, GovBenefits.gov is a partnership of 17 federal agencies, which provides information on nearly 1,000 government and benefits programs. The site incorporates technology to assist people with disabilities. In 2007 the home page was re-designed with many of the changes based on extensive usability testing, to better indicate the site's purpose, and the best way for users to find information. In 2006, GovBenefits.gov incorporated the American Customer Satisfaction Index [ASCI]. This enables customer satisfaction to be compared on a week-by-week basis. This tool is used by over 100 federal government agencies, and quarterly reports are published on the ACSI (2010) website).

There is also evidence of much going on to improve the design of municipal web portals but evaluation is needed to ensure that attractive looking features do not impair accessibility.

8. LESSONS TO BE LEARNED

The account of policies and initiatives to increase uptake of the Internet and e-government among socially disadvantaged groups in this chapter suggests that the UK central government has been more active in this area than the US federal government. Perhaps this is because, as Rubaii-Barrett and Recascino Wise (2008) suggest, in the context of the US federal system, many issues related to the Internet have been subject to debate regarding which level of government can and should control policy. However, federal laws relating to accessibility of information and communication technologies are ahead of those in the UK. Nevertheless, while Section 508 of the Rehabilitation Act specifically covers web accessibility for people with disabilities, it has not resulted in universal accessibility, even at the federal level to which it specifically applies. Greater efforts to ensure implementation are required. Both countries have disability discrimination legislation, but in both, failing court judgements, it remains uncertain as to whether they apply to websites. Perhaps the solution is new, unambiguous legislation, as has been proposed for the European Union.[xxvi]

Some lessons can be derived from various initiatives. The UK online research (Hall Aitken, 2003; UK online centres, 2009) has indicated the importance of informal learning for many people who are wary of computers and the Internet, and this currently seems to be gaining recognition in the UK. There is evidence from a variety of research that people who thought they had no interest in computers and the Internet can gain this if they are given the opportunity to see and understand its possibilities and how it can be relevant to them (e.g. Boeltzig and Pilling, 2007; Poulson &Osman, 2003). Many Internet non-users, particularly older ones who say "the Internet is not for me" simply have no idea of what it can do. Training that is not geared to the individual's interest and needs is unlikely to be effective (Devins et al, 2003).

Some very diverse initiatives have shown the importance of having access to a computer at home, as opposed to only being able to use it in a public facility (Hall Aitken, 2003; OMG, 2008). Cost can be a real barrier to home access. The UK government seems to be suggesting re-cycled computers as the main solution for those who do not have school age children. But recycled computers do not necessarily provide satisfactory service (Devins et al., 2003), and do not in themselves solve problems of set up and long term maintenance of computing systems (Pilling et al., 2004; 2007), which are rarely taken into account.

While increasing e-government use among disadvantaged groups must be largely a matter of finding ways of encouraging non-users to use the Internet, there is a place for specific encouragement to use e-government. Several studies have shown that providing specific guidance can encourage its use (e.g. Hall Aitken, 2003; Ufi, 2005). At least until they become experienced, new Internet users often do not explore all that is available. Policies in both the US and UK are rapidly moving towards the online channel being the primary channel for government services. This will make those without home access, or who have difficulty in understanding government sites, seek help with online government. But it does not necessarily mean that they will be encouraged to use, and gain full benefits from online services themselves, unless other obstacles to use are addressed. The initiatives to make government websites more interesting and attractive may help, as long as attractiveness is not at the expense of accessibility and usability.

Where initiatives have been evaluated valuable lessons can be learned. But often evaluations do not include comparison groups, do not have long enough follow- ups, do not make sufficient efforts to avoid sample attrition. Adequate funding for evaluation of initiatives is essential if full understanding of what is effective is to be gained.

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[i] http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_cong_public_laws&docid=f:publ347.107.pdf
[ii] http://archive.cabinetoffice.gov.uk/e-envoy/index-content.htm
[iii] http://archive.cabinetoffice.gov.uk/e-government
[iv] The Oxford Internet surveys (Dutton and Helsper, 2007; Dutton , Helsper and Gerber, 2009) cover Great Britain (England, Wales and Scotland), but not Northern Ireland, which is also part of the United Kingdom
[v] ONS surveys covered Great Britain only until 2006, when Northern Ireland was added
[vi] The Disability Rights Commission (DRC) was an independent body established in April 2000 by Act of Parliament to stop discrimination and promote equality of opportunity for disabled people. It was absorbed into the Equality and Human Rights Commission in 2007.

[vii] http://www.w3.org/Consortium/
[viii] http://www.w3.org/TR/WAI-WEBCONTENT
[ix] http://www.w3.org/TR/WCAG20
[x] See: (http://www.w3.org/WAI/intro/wcag.php)
[xi] See: http://www.access-board.gov/sec508/guide/act.htm
[xii] See: (http://www.section508.gov/index.cfm?FuseAction=Content&id=12#Application
[xiii] www.section508.gov
[xiv] See: http://www.access-board.gov/sec508/refresh/report, *§3.1*
[xv] See recent case relating to Target.com: http://www.out-law.com/page-9389
[xvi] See: http://www.direct.gov.uk/en/Hl1/Help/Accessibility/DG_10016906)
[xvii] See: http://www.headstar.com/eablive/?p=253
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[xix] http://www.headstar.com/eablive/?m=200904
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