

# Moving Toward E-Government – Effective Strategies for Increasing Access and Use of the Internet Among Non-Internet Users in the U.S. and U.K.

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## ABSTRACT

Increasing penetration of the Internet for government service delivery (e-government) poses new challenges for the users of those services, especially groups of people who are less likely to use the Internet but are more likely to use government services - people on low incomes, older people, and people with disabilities. Internet access in itself does not mean that those who could benefit most from government online services will use them. While there are many initiatives intended to increase access to and use of the Internet, some of which have an element of increasing use of e-government, there are few detailed accounts of what makes an initiative successful. The aim of this paper is therefore to begin to fill a gap by providing information on strategies that initiatives in the United States and the United Kingdom have used and that have been effective in terms of *encouraging* marginalized groups of people to use the Internet as a first step toward using e-government services. The strategies reported in this paper were identified through multiple case study research that was conducted in the U.S. and the U.K. between May and November 2006. The paper concludes with recommendations targeted at policymakers and government managers, committed to making e-government information and services universally accessible.

## Categories and Subject Descriptors

K.4.2 [Computers and Society]: Social Issues - *assistive technologies for persons with disabilities, employment, handicapped persons/special needs.*

## General Terms

Performance, Human Factors.

## Keywords

E-Government, Digital Government, Electronic Government, Public Services, Universal Access, Accessibility, Usability, Digital Barriers, Diffusion of Innovation, Technology Adoption, Low Wage, Older People, Disability, Social Science Research, Case Study.

## 1. INTRODUCTION

Considerable emphasis has been placed, in both the United States and the United Kingdom, on the Internet delivery of government

services (e-government). There is evidence of this being achieved. A survey of online national government services in 22 countries including the U.S. and the U.K. - across 12 major service sectors including human services and education carried out by Accenture [1] - found that goals had largely been achieved in the two countries, with 99 percent of government services being online in the U.S. and 92 percent in the U.K. Likewise, West [32] evaluated 1,782 national government websites for 198 countries including the U.S. and the U.K. in terms of information availability, service delivery, and public/disability access. Both countries were among the top 10 countries that scored well on the e-government index (score 47.7 for the U.S. and 42.6 for the U.K. with 60.3 for South Korea being the highest score achieved out of a possible 100).

*Unequal Internet access.* While both countries seem at least well on the way to Internet delivery of government services, this does not necessarily mean that all citizens are equally able to access them. In both countries those who have most to gain from e-government, may have least access to it. This was acknowledged by the U.K. government in a report in 2002 [6]: “While the market has successfully delivered Internet access to most citizens, take-up among the most disadvantaged groups in society - those on low incomes, the elderly and people with disabilities - is lower. These groups are traditionally heavy users of public services and potentially have most to gain from convenient, customer-focused channels of electronic delivery. [...] but without access to the Internet or the skills to use it confidently, these groups may face further social exclusion.” This was re-iterated in the Prime Minister’s Strategy document in 2005 [24].

In both countries there is evidence of less Internet usage and less usage of e-government by these groups. In the U.S. in February-April 2006, according to the Pew Internet and American Life Project [22], 73 percent of adults had used the Internet. Figures were much lower for those aged 65 and older (32 percent), for those who had not graduated from high school (40 percent), for African Americans (62 percent), and for those living in rural areas (63 percent). The 2002 Pew Internet survey had found five demographic features related to non-Internet usage including age, educational level, ethnic group, income, and living in a rural area [16]. Over a quarter of non-users were identified as having a disability. Only 38 percent of people with disabilities were found to use the Internet, compared with 58 percent of people without disabilities.

According to the Office of National Statistics (ONS) Omnibus survey [20], 60 percent of adults in the U.K. had used the Internet in the three months before being interviewed between January and April 2006. Use dramatically decreased with age for those aged 65 and older. Eighty-three percent of those aged 16 to 24 accessed the Internet within three months prior to the interview, but only 15 percent of people aged 65 and over did so. The ONS study also found that the higher an individual's income, the more likely he/she was to have accessed the Internet. Ninety-three percent of people with an income of £36,400 (approx. \$71,450) or more had used the Internet in the three months prior to the interview, more than twice the proportion (43 percent) of those earning £10,400 (approx. \$20,400) or less.

*Slowing of growth in Internet access.* In both countries there is evidence of a recent slowing in growth of Internet access, indicating that unequal access is not disappearing. The 2005 Pew Internet survey found that 22 percent of Americans were 'truly disconnected,' having never used the Internet and not living in households with access, a figure that was virtually unchanged from the 23 percent found in 2002 [10]. A national survey of over 2000 households in the U.K. carried out by the Oxford Internet Institute [5], found little change in home Internet access over the period 2003 to 2005, this increasing from 58 percent to 61 percent.

*Problems with website accessibility and usability.* Problems do not necessarily end when people do access the Internet. In both countries there are government commitments for websites to be accessible to people with disabilities, and some legislation relevant to this exists in the U.S. and the U.K. (the Americans with Disabilities Act of 1990; the Telecommunications Act of 1996; and the 1998 Amendment to Section 508 of the Rehabilitation Act, in the U.S.; the Disability Discrimination Act of 1995 in U.K.). Section 508 most clearly applies to federal websites, stipulating that the federal government must make its information accessible to federal employees with disabilities and the general public, unless this creates an unreasonable burden. Despite this, there is evidence that there are still many problems with web accessibility in both countries [18, 19, 32].

*Unequal access to e-government.* It is not surprising then that people with lower income, lower education, older people, and people with disabilities make less use of government websites. A survey by Mori/Microsoft of 990 people in the U.K. early in 2006, confirms that usage of online public services is lower for those groups of people. Sixty-four percent of those surveyed said that they never use public services online, this rising to 77 percent for those not working and 86 percent for the aged 65 and older - both groups are more likely to use public services [11]. Of non-users, 39 percent said this was due to lack of Internet access and 24 percent preferred other ways of making contact. Even among those who do use the Internet there are differences. A 2001 survey of 815 Internet users in the U.S. conducted by the Pew Internet and American Life Project found that 58 percent had visited at least one government website, with the environment, education and health care being the top issues researched online [15]. Those on low income, people without a college degree, and those aged 65 and over were less likely to use e-government websites.

*Systemic barriers to the Internet and e-government, or just "late adopters."* So far, the paper has focused on systemic barriers to accessing the Internet and e-government that are more likely to be

encountered by certain groups of people – people on low incomes, older people and people with disabilities. This approach emphasizes universal design and equal access,<sup>1</sup> placing the onus on society to address and to possibly remove those barriers, thereby making the Internet and e-government accessible to all citizens. Proponents of *the diffusion of innovation theory*, rather than focusing on the systemic barriers that prevent people from accessing and eventually adopting technology such as the Internet and e-government, focus on the individual characteristics of the adopters (socioeconomic characteristics, personality traits, and communication behavior), holding the individual responsible for his or her problems. Rogers [25], the originator of the theory, called this "the individual-blame bias of diffusion research," pointing to one of the limitations of his theory.

Moreover, Internet and e-government services can be seen as an innovation, and individuals differ in terms of when and how soon they adopt these new technologies. Based on the latter observation, Rogers [25] developed five categories or ideal types of adopters: innovators (2.5 percent), early adopters (13.5 percent), early majority (34 percent), late majority (34 percent), and laggards (16 percent). Each of those groups possesses different characteristics. For example, individuals who early adopt innovations tend to be young, well-educated, and earn higher incomes [25, 26].

Both the U.S. and U.K. are still in the early stages of e-government adoption. Thus, proponents of the diffusion of innovation theory would classify individuals who have already adopted the Internet and e-government as "early adopters." Existing research provides evidence that these early adopters tend to be young, well-educated and have higher incomes, thus confirming (to a certain extent) Roger's theory [see 8, 14, 29]. "Those individuals [...] who most need the benefits of a new technological idea (the less educated, less wealthy, and the like) are generally the last to adopt the innovation. The units in a system who adopt first generally least need the benefits of the innovation"[25]. Rogers [25] suggested that this "paradoxical relationship" between innovativeness and the benefits of an innovation would widen the socioeconomic gap between the wealthy and the poor.

*More action needed.* Marginalized groups, particularly people on low incomes, older people, and people with disabilities, then face many hurdles in having access to and using the Internet. In the U.S. and the U.K. there have been many initiatives, both by government and other organizations, to encourage these groups of people to use the Internet and possibly e-government services. The slow increase in the uptake of Internet access suggests that considerably more still needs to be done, particularly for people with disabilities and older people.

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<sup>1</sup> Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for individual adaptation or specialization. The desired result is that universal design benefits all users of products and environments, irrespective of some people being identified as having minority or special needs. In other words, universal design provides equal access.

While there are many initiatives in both countries, there are few detailed accounts of what makes an initiative successful. Thus, there is a need for improved project evaluation and the sharing of good practice within and across the two countries. The aim of this paper is therefore to begin to fill a gap by providing information on strategies that initiatives in the U.S. and the U.K. have used and that have been effective in terms of encouraging marginalized groups of people to use the Internet as a first step toward using e-government services. This paper addresses the following research questions:

- What effective strategies have been used in the U.S. and U.K. to encourage non-Internet users to access and use the Internet and online government services?
- How do these strategies address existing barriers to providing government information and services over the Internet?

The strategies reported in this paper were identified through multiple case study research that was conducted in the U.S. and the U.K. between May and November 2006. It is important to note that this paper employs a cross-national comparative perspective *not* for analytical but for illustrative purposes. The paper concludes with recommendations targeted at policymakers and government managers, committed to making e-government information and services universally accessible.

## 2. METHODS

A multiple case study approach [33] was used to explore initiatives designed to encourage non-Internet users to access and use the Internet and particularly e-government services. Specifically, the methodology for this study consisted of five steps: 1) Identification of initiatives, 2) Selection of initiatives and development of initiative summaries, 3) Review of selection criteria and initiative summaries, 4) Case study research, and 5) Data analysis. In addition, the researchers recruited a total of nine individuals to join a transnational and cross-disciplinary Advisory Board (five from the U.S. and four from the U.K.). The board membership was drawn from academia, research, think tanks, business/industry, non-profit organizations, and advocacy groups. Following is a brief description of each component of the methodology employed in this study.

### 2.1. Identification of initiatives

In each country the researchers started the identification process by a World Wide Web search, and by requesting information through electronic mailing lists, website advertisements, and individuals working in the area of digital inclusion. Through these efforts, the researchers identified about 20 potential initiatives in each country.

### 2.2. Selection of initiatives and development of initiative summaries

Based on a preliminary review of existing research [9, 12, 13], the researchers developed a list of pre-defined selection criteria that would function as a set of indicators of effective practices (explained later). The researchers created a matrix listing the identified initiatives on the horizontal axis and the selection criteria on the vertical axis. Based on initiatives' scores, 12 of the 40 initiatives (six in each country) were selected for further study. Detailed information about each of the 12 initiatives was collected

by means of documentary research and interviews with program managers. The researchers summarized the information and developed a 5-6 page report for each initiative. Brief abstracts of the 12 initiatives are included in Appendix I.

### 2.3. Review of selection criteria and initiative summaries

The list of pre-defined selection criteria together with a rating sheet were sent to all Advisory Board members with the request to evaluate the usefulness of the criteria and to provide additional comments. It is important to note that these criteria, while helpful in the process of selecting initiatives, continued to evolve during the research process. Put differently, this pilot study provided an opportunity to identify effective initiatives and also to develop and field test a list of indicators of "best practices" in the digital inclusion field that could be used in future research studies. The review process including the feedback obtained from the Advisory Board resulted in some minor modifications to the list of selection criteria, which is included in the Appendix II of this paper.

Based on the matrix, the three initiatives that scored highest in each country were selected for further study. At least one of the three initiatives had to be targeted specifically at people with disabilities, to comply with the project aims as set out in the proposal. It should be noted that application of the selection criteria was not without challenges due, in part, to the qualitative/subjective nature of the criteria, and that initiatives tended to have similar scores. Thus, selection of initiatives for in-depth case study was not only based on scores but was also driven by the consideration to represent the variety of initiatives and the strategies that they have used. Independent evaluations of the initiatives as well as user evaluations collected by the initiatives themselves functioned as an additional source of information that aided the researchers in the selection process.

The three U.S. initiatives selected for case study were: the eRutherford project in Rutherford County, North Carolina; the Foundation for Successful Solutions-Project T.E.C.H. in Los Angeles, California; and the Computers for Homebound and Isolated Persons (CHIPS) Program in Knoxville, Tennessee. The three U.K. initiatives selected for case study were: the Leicester Disability Information Network (LDICN) in Leicester; CareOnLine in Leicestershire; and Leeds Libraries IT Learning in Leeds. The selection process placed particular emphasis on initiatives overcoming barriers to digital inclusion, involving users in developments so that they fulfilled their needs more exactly, making efforts to raise awareness and to educate users about online government services, and also having some evaluative evidence of their effectiveness. The three initiatives selected in each country fulfilled these criteria to the greatest extent.

### 2.4. Case study research

As part of the case study, the researchers conducted one-or two-day site visits to each of the initiatives with the exception of two with whom we conducted telephone interviews. The goal of the site visits was to gain a better understanding of the programs, specifically the strategies used for encouraging people who might not have had the opportunity to use computers and the Internet, especially e-government services. The researchers had a contact person at each site (usually a program staff member) who assisted

with identifying and recruiting potential respondents. We interviewed 2-3 program staff including the program manager and 4-5 past and current users of each initiative. A total of 25 staff and 21 program users were interviewed in both countries.

Interviews were conducted in person or by telephone; they lasted for about an hour, and were digitally recorded with the permission of each interviewee. In order to guide the (on-site and telephone) interview process, researchers developed an interview protocol for program staff and another one for program users. The nature of questions was non-intrusive. In the case of staff, interview questions asked about their views of key factors that made the initiative successful, for which group/s they are successful, problems and whether/how these were overcome. Interviews with program users asked about why they took part in the particular initiative, how much they have used it, what they have learned from it, how much they have used government websites, what was best about the initiative, and how it could be improved. While meant as a guide, the questions and process developed allowed for and encouraged wide-ranging and free-flowing conversation, and were not used as formal interview queries. Thus the discussions had different emphases based on local conditions and the type of staff interviewed at the site.

## 2.5. Data analysis

According to Miles and Huberman [17], qualitative data analysis consists of three interrelated sets of activities: data reduction, data display, and conclusion drawing/verification. Data reduction refers to the process in which researchers prepare their raw data for data analysis. Research staff in this study used two techniques of data reduction, *coding* (attaching meaningful labels that denote concepts, actions, or recurrent themes to data or pieces of data) and *memo-writing* (systematic writings and musings of the researchers that occur during the coding process), to condense the collected (interview and documentary) data. Data were then organized into categories and emerging themes (data display) that provided the researchers with the main direction and clarified missing links in the data analysis. The researchers met online on a regular basis to compare specific incidents, refine concepts, and explore relationships (conclusion-drawing).

Conclusion-drawing is intricately connected with verification, which involves testing out provisional conclusions for their plausibility, sturdiness, and validity. This was achieved by discussing findings not only with experts but also with respondents and inviting alternative explanations. Program managers of all 12 initiatives who participated in this research were given an opportunity to comment on the draft of the research findings and to provide feedback. Drafts of the study findings were compiled using the themes organized during the memo-writing process. In this way, the memos served as an outline for the results that are presented in this paper.

## 3. FINDINGS

This section presents five strategies that initiatives in the United States and United Kingdom have used and that have been effective in terms of helping non-Internet users who are more likely to be using public services - people on low incomes, older people, and people with disabilities - overcome digital barriers as a first step toward accessing and using e-government services. Following is a description of each strategy; illustrations are drawn

from across the 12 projects investigated in this research. Brief abstracts of the 12 initiatives are included in Appendix I. While we consider that all the selected initiatives have used effective strategies, and that much can be learned from them, they are not by any means the only effective initiatives.

### 3.1. Strategies to address lack of awareness of the benefits of the Internet and e-government

Lack of awareness of the benefits of using the Internet and e-government is one of the reasons for people's lack of *perceived need*. The initiatives in our study addressed this in various ways. In the U.K. CareOnLine in Leicestershire and Leicester Disability Information Network (LDICN) both had specially designed easy-to-use websites covering information likely to be of interest to the project users, and including links to local government and other websites. The Community Heritage Store (CHS) in West Norfolk used a display stand from the local authority and links from localCHS.co.uk to encourage people to see what was available on the local government website. Leeds Libraries, through their posters and readers' groups, try to show the benefits of the Internet, including government websites. However, they do this indirectly, by appealing to people's interests, such as showing parents how to obtain Ofsted (the U.K. Schools Inspection Service) reports. In Internet learning sessions, they give people a flavour of what is available, including Directgov (a website giving information on U.K. government services and providing links to relevant websites) and the local government.

In the U.S. the CHIPS program in Knox County, Tennessee, tries to encourage participants to use county and federal government sites through its discussion email list. Project T.E.C.H. staff in Los Angeles, California, try to raise awareness of government websites in their training, especially the Internet training classes. They also provide training on how to access information about and apply for Federal Student Aid as well as assistance with online tax preparation service for low and moderate income families. ERutherford project staff in Rutherford County, North Carolina, presented on the county government website and available services at local events (e.g., community-based organizations, church services, community outreach meetings). Across the two countries, there seems to be a need for more public awareness-raising and education about e-government services provided at all levels. Incorporating formal training on e-government websites (i.e., what services they offer, how they can be accessed and navigated) into basic computer and Internet training was another suggestion that program staff made.

### 3.2. Strategies to address limited interest in and motivation to use the Internet

According to the U.K. government "by far the biggest barrier to accessing ICT [Information and Communications Technology] is interest and motivation, followed by lack of perceived need" [24]. Figures from regular surveys of the U.K. Office of National Statistics on reasons for not using the Internet seem to endorse this [21]. Similar findings have been made by studies carried out in the U.S. [10, 16]. Most of the initiatives we studied, particularly those for older people, made great efforts to find out what interests, motivates and concerns people. In both countries, initiatives that provide computers and training for isolated and housebound people at home, the CHIPS program and CareOnLine, emphasized the importance of exploring at an early

stage people's interests and concerns. Being able to communicate with family members and relatives was often the primary reason that attracted people to the computer. The Community Heritage Store, aiming to "bridge the digital divide" for people aged 55 and over living in rural areas, gained seniors' interest initially by providing them with the opportunity to preserve their memories and to share their stories with the community, through interlinked individual and community websites. Program staff said that project had sparked sustained interest in the Internet.

Moreover, asking participants what *they* wanted to learn through participation in the program often had an empowering effect on people. Using technology to empower people to learn new skills is part of the program philosophy of the Digital Sisters program in Washington D.C. in the U.S. that provides technology education to predominantly single and teenage mothers and young girls. The goal is to give people control over the learning process, thereby taking away some of the fears and anxieties related to computers and the Internet. Lack of knowledge and confidence is, in fact, a reason given by over a third of respondents to the ONS survey [21] mentioned earlier, and a reason that has been increasing in prominence in the surveys since 2000. Our study findings suggest that lack of perceived motivation and need as well as lack of confidence are very much tied together. If people's interest is aroused, and they are also given training that shows them that using a computer and the Internet are not so difficult, these reasons for non-use can be overcome.

### **3.3. Strategies to address lack of access to the Internet and e-government**

Program staff interviewed in this study said that there continued to be a digital divide and identified barriers to digital inclusion such as a lack of affordability of computers per se, a lack of Internet access in some areas (especially rural areas), the high cost of Internet services and lack of affordability thereof, and the increasing sophistication and complexity of the Internet that does not lend itself to dial-up Internet access. All of the initiatives provide an Internet connection of some type for varying lengths of time. The CHIPS program and CareOnLine provide computers in people's own homes if they cannot afford this, the CHIPS program paying for a dial-up Internet connection for a minimum of six months. CareOnLine paid for this for the first two years of the project when they had sufficient funding. The Computers for Families (CFF) program in Santa Barbara, California, provides refurbished computers and discounted Internet access for home use by fourth grade students from low income families living in south Santa Barbara County. The U.K. initiative, Carpenters Connect, provides free Internet access through digital TV in people's homes on a disadvantaged council housing estate (affordable housing provided by local government) in East London.

Other projects in both countries provide free or affordable Internet access in the community. Leeds Libraries provide up to two hours a day free Internet access in local libraries. LDICN provided up-to-date computer suites to day centres in the area, which give free access to day center users. The project also offers free public access to the Internet, including the local government website through touch-screen kiosks dotted around the city, particularly in locations likely to be used by people with disabilities. The eRutherford project worked with local Internet Service Providers not only on expanding Internet connectivity to very remote areas

of the county but also on issues around affordability. Many initiatives stressed the importance of computer and Internet access being in locations with which people are familiar. The goal was to go to where the people are and to really meet their needs.

### **3.4. Strategies to address limited computer and Internet skills**

Interviews with program users conducted as part of this study showed that many people, especially older people, thought that they were incapable of using computer and the Internet or they felt uncomfortable using technology. This often became a barrier to technology learning. Staff across the sites emphasized the importance of providing training within a comfortable learning environment. Many of our reported initiatives used informal one-to-one or group teaching as the method of training. It was suggested that this is the preferred method of training for many older people, or those who have been out of the school system for some time. Leeds Libraries' one-off small group or individual sessions were seen as fulfilling a niche for people who felt uncomfortable about going to college, or were not really sure whether or not they wanted to use a computer at all. Making technology learning not only an educational but a social experience was another strategy that some programs used. Instructors from Project T.E.C.H., in addition to providing people with an opportunity to learn computer and Internet skills, encourage participants to make connections with other participants and to get engaged in communal efforts. "It's the people and the relationships formed that are important and of value and that technology is used and taught as a tool to be used by people to help them achieve success," said one program staff member.

### **3.5. Strategies to address accessibility and usability issues related to the Internet and e-government**

Having an Internet connection does not necessarily make it usable for many people with a variety of disabilities. Several of our reported initiatives made considerable efforts to overcome the main problems faced by people who have difficulty in using a computer, identifying the assistive technology (AT)<sup>2</sup> required and affording it. Having training locations (regardless of whether training took place at a public space or in a participant's home) that are physically accessible is a priority for many initiatives in this study, especially those that specifically targeted older people and people with disabilities. Before joining the CHIPS program, seniors are assessed to confirm eligibility and to identify any special needs in using a computer. Inexpensive assistive devices may be provided and CHIPS program staff can assist clients in finding funding for more expensive AT. CareOnLine also starts with an assessment of clients' needs and provides assistive technology to those who need it. LDICN provides equipment and assistive software to meet all requirements in the computer suites in the day centers. Leeds Libraries learning sessions start with an assessment of participants' (access) needs also. All the libraries have Supernova, providing both magnification and a screen reader

<sup>2</sup> An umbrella term that is inclusive of assistive and adaptive devices, intended to increase or maintain a person's functional abilities in order to use a personal computer or services obtainable through the computer (such as on the Internet).

for people with visual impairments, and also trackballs and larger keyboards.

Apart from accessibility, websites are by no means always easy to use, particularly for people with literacy problems or learning disabilities. Several of the identified initiatives have endeavoured to address these problems. For example, the HousingWorks project in Boston, Massachusetts, in addition to providing a comprehensive and up-to-date list of affordable housing and related resources in form of a website database, HousingWorks staff offer online training on how to use the website tool as well as technical assistance over the phone. The system interfaces are fully accessible, can respond to speech, can speak to the limited vision user, and are color-coded to make it easier for users with low computer/Internet skills to get technical assistance; (they only have to say which color page they are on). This also makes it easier for staff to assist users.

The CareOnLine website covers a wide range of lifestyle information designed especially for carers, older people and people with disabilities. It includes links to local government websites, brief descriptions of the kinds of information and services likely to be relevant to the user group of government websites, with links to these. The LDICN website specifically aims to engage and communicate with people with disabilities. It makes extensive use of pictures, graphics and also uses some audio. It has a piece of technology called web skinning, which enables people to adjust how the screen looks. Recently, a Housing and Support Information pack CD using symbols and audio output has been developed to assist people with learning disabilities to obtain information on their own, and other easy-to-understand CDs are also being developed. In the Carpenters Connect project video clips on the TV interface talk people through how to use different aspects of the service. Program staff considered that this kind of innovation has considerable potential for encouraging people to use online government services. Video clips, for example, could be used to guide people through online forms, so that when they get stuck on a particular point, they can click to see a video which talks them through the point and shows them how to fill in that part of the form.

In addition to physical accessibility, offering training and training resources that would meet everyone's needs, that is ensuring programmatic access, was key to many initiatives. At one of Cascade's satellite centers, a voluntary organization for deaf people, training was provided in sign language for those who preferred this as a method of communication. Project T.E.C.H. provides computer and Internet classes in English and Spanish. It also customizes teaching techniques to meet participants' needs, including those with literacy problems.

#### **4. DISCUSSION AND RECOMMENDATIONS**

While there is considerable emphasis in both the United States and the United Kingdom in providing online delivery of government services, there is much evidence that people who could most benefit from using these online services are the least likely to do so. This was the starting point for this research study. The problem is two-fold. As has been indicated, there is considerable evidence for lower Internet usage among certain groups in both countries – particularly people on lower incomes, older people, and those with disabilities. Secondly, even if they

do use the Internet they may not use e-government, or obtain the maximum gain from their use. Following are recommendations that have arisen from the experiences of 12 initiatives, in conjunction with other relevant research. The recommendations are targeted at policymakers and government managers, committed to making online government services universally accessible.

##### **4.1. Raise awareness of the benefits and encourage use of e-government services**

Our findings suggest that people initially use the Internet for what particularly interests them, and may not use it beyond this self-created limit unless it is seen as particularly advantageous. Program staff have stressed that talking to people about e-government has little significance for them. What is needed is to show the relevance of using online services for people's needs and that online services can be easier and more convenient than other methods of obtaining services. Moreover, while there is a need to publicize online government services through national and local media, and through the many initiatives that are promoting Internet access to those who have not so far used it, emphasis should be placed on demonstrating the concrete benefits of e-government to consumers. Findings from a study carried out by Dimitrova and Chen [8] indicating the importance of *perceived usefulness* support this strategy. There is evidence of some movement in this direction in the U.K. A take-up campaign to increase the use of local government websites was launched in May 2006 [2]. Services were advertised in the national and local print press, on radio and online, the campaign being directed at existing Internet users. Such a campaign, directed at groups who do not currently have easy Internet access, dealing with subjects of concern to them, could have considerable potential, particularly if the advertisements are both relevant and lively.

Fostering a closer relationship between government departments and organizations which offer technology access and training is another way government managers could promote access to the Internet and to e-government particularly. The U.K. government has carried out several studies which suggest that U.K. online centres<sup>3</sup> have considerable potential for promoting the use of e-government to people who do not have Internet access at home, work or college [27, 28]. The first mentioned of these studies carried out in the South West of England was a pilot in which centers increased their marketing, particularly to people not yet using the centers, and in which staff devoted more time to giving advice and support on ICT and e-government websites. Usage of 25 central government online services was monitored as well as local government e-services. Sixty-six percent of center managers reported an increase in people asking about or using these sites. Users in focus group meetings emphasized the importance of having staff around to support first-time users, to allay fears about security and interpret the often complex information on the websites. This kind of promotion of e-government services could

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<sup>3</sup> The main U.K. government initiative to help people get online. U.K. online centres are situated in the local community (e.g., in libraries, community centres, schools) providing Internet access and training at no or low cost.

well be extended to other initiatives trying to expand Internet usage.

#### **4.2. Offer free computer and Internet access**

Program staff across the two countries recognized that the majority of participants did not have computer and Internet access when they first registered for training and/or related supports and that this was a barrier for them in not being able to practice or apply what they had learned in the training. Home access to computer and Internet technology is even more important for people with disabilities and older people, especially those with mobility issues who may find it difficult or impossible to use public access Internet sites. Two of the initiatives in our case studies, the CHIPS Program and CareOnLine, provide computers, training, and support at home for isolated or homebound people who could not afford this technology. For many of those participants, computers and the Internet have become an important or even an essential part of their lives.

Promoting home as well as public site access was a recommendation of Hall Aitken [13] in their evaluation of U.K. online centres. Those researchers found that many users of these centers thought that the skills and knowledge they had acquired were of little use without home access. The Internet is useful for many things, including ordering goods and services, communicating with others, and obtaining information quickly. If people have to travel to an Internet public access site which has limited opening hours, and possibly a charge, many of these benefits disappear. The researchers concluded that “new initiatives to promote home access and make it easier to achieve should be introduced alongside U.K. online centres” [13].

#### **4.3. Create a comfortable learning environment and provide informal training opportunities**

Many of our reported initiatives offered formal and informal computer and Internet training. Hall Aitken [13], in their evaluation of U.K. online centres, highlighted the informal learning atmosphere that these centers offered and noted that this played a key role in attracting users. Yet all the evaluations of U.K. online centres, and several of our initiatives have stressed the difficulty in the U.K. of obtaining funding for informal learning. A similar situation exists in the U.S. Because many employers and business now want to provide technology training themselves, non-profit organizations offering technology training, like Digital Sisters, have been under increasing pressure to move away from customized, informal training toward standardizing their training with credentials and certifications to their participants. While it is understandable that funders require some evidence of achievement, there should be acceptable alternatives to measuring program success exclusively by qualifications acquired, or progression to higher level courses. Government managers should support local programs and initiatives that provide access with the type of learning environment that encourages consumers to use computers and the Internet, and possibly e-government services.

This is not, of course, to deny the importance of increasing skills and gaining qualifications for some groups of people, and there is evidence that learning computer and Internet skills can lead to this. In the Hall Aitken evaluation of U.K. online centres [12, 13] half of all users who stayed at centers for six months or more

went on to do learning that earned them a certificate (whether externally verified or not). A high proportion said that the centers had helped them to progress to learndirect courses (flexible online courses available to individual adults that can be accessed through the Internet at home, work or in learndirect centres) and to college. Six months after coming to the center, 50 percent of users had completed a course at the center and received a certificate (predominantly in the area of ICT). Forty percent of these had completed an intermediate or advanced course. Figures were similar even for people who had not participated in learning for at least five years. Most users, apart from retirees, had improved their skills for work to some degree after completion of the course.

#### **4.4. Make access “accessible”**

The concerns of our study were about encouraging non-users to use the Internet, not about web accessibility *per se*. However, there seems no doubt both from the initiatives’ experiences and from recent surveys, that despite the commitment of both the U.S. and U.K. governments, there is still a long way to go before web accessibility for all users is achieved [18, 19, 31, 32]. Moreover, making people aware of the advantages of Internet access, and providing free or low cost access in the local area or even in people’s home is not sufficient to allow everyone to use computers and the Internet. People with disabilities may need assistive technology (AT) to enable them to do this. Most of the initiatives in this study went at least some way to helping people to obtain and use appropriate AT. A U.K. study of the experiences of people with disabilities using the Internet [23] showed that many had problems identifying the most appropriate AT for them, in affording it, and in learning to use it.

A recent U.S. study [4], using a large, representative sample, found not only lower Internet usage and home access among people with disabilities, compared with those without disabilities, but also that they were less likely to engage in a variety of activities – using email, or Instant messaging, getting news, banking, taking courses, searching for jobs. Although Internet users with disabilities were more likely to look for information on government websites, they were less likely to download and submit forms than those without disabilities. While demographic and socioeconomic factors partly explained the lower use and access, the authors suggest that technical accessibility barriers may also play a part in this, and also in the less diverse use of websites. The Pilling et al. study [23] conducted in the U.K. also found a strong relationship between the need to use AT and difficulty in using websites.

Dobranksy and Hargittai [4] call for public policy that encourages access to assistive technologies that are more affordable and more up-to-date to help overcome the divide between people with and without disabilities. Likewise, the U.K. Disability Rights Commission<sup>4</sup> [3] has called for advice to be available so that people are enabled to identify the assistive technology that best suits their needs, to obtain funding enabling them to acquire it,

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<sup>4</sup> The U.K. Disability Rights Commission is an independent body established by the United Kingdom Parliament in 1999 to eliminate discrimination against people with disabilities and promote equality of opportunity.

and training in how to use it. Our findings reinforce the need for this.

#### 4.5. Improve usability of the Internet and e-government services

Apart from technical issues in the design of websites, websites can be complex, difficult to search and navigate. Several of the initiatives in our study addressed these usability issues by themselves designing websites that not only provided material relevant to people's interests and concerns, but which were easy to use for people with different disabilities and/or a lack of previous experience of the Internet. These websites might also provide an introduction to relevant and interesting material available on other sites, including government websites.

Governments in the U.S. and the U.K. have spent much time, effort, and resources to determine how to improve people's use of and the effectiveness of e-government services. However, these online resources' design and implementation have often been developed without consulting citizens. Thus, it is not surprising that government websites continue to be less user-friendly and publicly accessible than they ought to be [3, 7, 9, 30, 32].

In the pilot study using U.K. online centres to promote e-government discussed above [27], the authors pointed out that consumers and center managers identified that the e-services being tested were not always designed with the needs of the socially or digitally excluded consumers in mind, and suggested that online centers could be used to facilitate testing and ensure that government websites do meet these needs. Thus, government officials should actively involve consumers, or different groups of consumers, from the beginning in government websites' design and implementation, thereby ensuring that the websites meet diverse needs, especially those with more complex barriers to technology [30]. This is the first step toward increasing utilization of e-government among consumers of public services.

#### 5. CONCLUSION

This paper presented strategies that initiatives in the United States and United Kingdom have used and that have been effective in *encouraging* use of the Internet by those who are less likely to do so but are more likely to use government services - people on low incomes, older people, and people with disabilities. Study findings indicate that while most of these strategies are relevant to all groups some are more relevant to particular groups. Thus providing affordable Internet access, a comfortable learning environment, improving the usability of government websites, and raising awareness of the benefits of using online government services are applicable to all groups. Issues of web accessibility, and identifying and providing appropriate assistive technology and training to use it relate to people with disabilities. Initial engagement of interest and overcoming problems of lack of confidence probably relate most to older people.

The recommendations that emerged from this research highlight the need for policymakers and government managers to continue addressing digital barriers as a first and vital step toward making online government services universally accessible. In addition to continued investment in Internet projects like the ones studied in this research, benchmarks for success need to be developed that can be used for program development, implementation, and evaluation. Finally, this research has shown the value of cross-

national learning and information-sharing related to digital inclusion. Government managers should sponsor research that provides comparative information of effective strategies and approaches in order to guide and catalyze appropriate policy decisions. The research should include transnational partnerships between researchers so that initiatives in a wider range of countries than the U.S. and U.K. can be studied. Funding should be sufficient to include some independent evaluation of benefits to users.

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## 8. APPENDICES

### Appendix I: List of initiative abstracts

#### U.S. Initiatives

##### **Computers for Homebound and Isolated Persons (CHIPS) Program, Knoxville, Tennessee**

The program provides computers, free Internet access, extensive training and support to homebound people including people with disabilities, older people, and their caregivers in Knox County, East Tennessee. The key to the program are volunteer mentors who teach homebound people computer and Internet skills. The program intends to lessen social exclusion and isolation by connecting program participants with their communities using computer and Internet technology. The Office on Aging, the primary social services agency for older people in Knox County, is a major program partner. In addition to referring seniors to the CHIPS program, Office staff are responsible for meeting the needs of qualifying seniors while CHIPS staff focus on the technology aspect and the mentor training.

##### **Computers for Families (CFF) Program, Santa Barbara, California**

The program provides refurbished computers and discounted Internet access for home use by fourth grade students of low income families living in south Santa Barbara County. Families receive basic training on computers and the Internet including technical support. Extensive training and supports are available for teachers whose students have received computers through the program. In addition, CFF partners with the County Probation Department, involving young offenders in the refurbishment and upgrading of donated computers and teaching families how to use technology at distribution events. The initiative is a partnership between Santa Barbara Partners in Education and the Santa Barbara County Education Office.

##### **Digital Sisters, Washington, District of Columbia**

Digital Sisters is a non-profit technology social services agency that promotes and provides self-sufficiency skills to women and children who are traditionally underserved through technology tools. Increased opportunities through technology is the key to individuals gaining or improving self-sufficiency by the program. Digital Sisters helps participants build life skills through participation in various types of technology-based training while also raising awareness of gender equity and promoting opportunities for women and girls in technology. The program predominantly targets low-income families, particularly single and young mothers and their children. In addition to technology and job training, Digital Sisters offers classes on financial literacy.

##### **eRutherford, Rutherford County, North Carolina**

An initiative spearheaded by a group of volunteer citizens, the eRutherford committee, which represents all sections of the community. The committee has used a multi-faceted approach to digital inclusion creating Internet public access sites - some of which provide digital literacy training - and collaborating with local Internet service providers on expanding Internet connectivity (especially to the very rural parts of the county) and making it affordable. In addition, eRutherford has involved local government in the design of the county government website and the promotion of government online services to county residents. Engaging all stakeholders in this community effort was key to the success of this initiative. This effort is part of a larger state-wide initiative called e-North Carolina (e-NC; <http://www.e-nc.org/>).

##### **Foundation for Successful Solutions-Project T.E.C.H., Los Angeles, California**

Project T.E.C.H. intends to overcome digital barriers by providing community access to and training in computer and Internet technology and also to connect program participants to their neighborhoods and communities. In addition, the program provides assistance with tax preparation and filing, as well as financial literacy training. Project T.E.C.H. serves a predominately African American and Latino population. This also includes seniors and people with developmental disabilities. The majority of program participants live in the neighborhoods surrounding the two community centers out of which Project T.E.C.H. operates. The two community centers are administered by the City of Los Angeles Community Development Department and Department of Recreation and Parks respectively.

##### **HousingWorks [www.housingworks.net], Boston, Massachusetts**

The HousingWorks website and database provides information on affordable housing (housing for low-income households) available throughout Massachusetts as well as other housing resources to consumers and their housing advocates. The goal is to reduce or eliminate barriers to subsidized, affordable and special needs housing. Consumers can access the website and database at any social service agency, housing provider, library, school, health center, or state agency providing a public computer and a support staff person. In addition, HousingWorks staff offer online training on how to use the website tool as well as technical assistance over the phone. The initiative is based on a model that places state and federal oversight agencies, for-profit management companies, housing authorities, housing advocates, and homeless people in a position to render each other indispensable services.

#### U.K. Initiatives

##### **CareOnLine [www.leicscareonline.org.uk], Leicestershire**

A project led by Leicestershire local government, which uses ICT as a way of overcoming social exclusion for carers, older people and people with disabilities. The project provides equipment, insofar as the budget allows, including a computer and any necessary assistive technology, if the participant cannot afford this, advice on equipment, individualized home tuition from a qualified Information Technology (IT) tutor in people's own homes, and ongoing technical support if they encounter problems. The project has a website which provides information relevant to the needs of users, including links to local government websites.

The project has also provided equipment for communal facilities, such as sheltered housing schemes, day centers and charities.

#### **Carpenters Connect RegenTV, London Borough of Newham**

This is a project in which digital TV, the Internet, email, video, an estate intranet, multiplayer video games, and a functioning personal computer are delivered to residents of a disadvantaged council estate (affordable housing provided by local government) through an easy access TV and set top box. The project has given residents the opportunity to make video films dealing with issues of local concern, consult more effectively with local government about the state of the tower blocks, and get to know other residents better. It has also encouraged use of interactive TV, of the Internet and email. The hardware, software and the community development know-how achieved as a result of this product has been put together into an easily deployable and fully scaleable product. The project is a partnership, led by the London Borough of Newham.

#### **Cascade, Nottingham**

A project set up by a partnership of three voluntary organizations, Nottingham Council for Voluntary Service (NCVS), Nottinghamshire Deaf Society (NDS) and Nottinghamshire Royal Society for the Blind (NRSB), to overcome the barriers to ICT training for people with disabilities, particularly those living in deprived areas. The project offers informal and accredited training by qualified tutors, with assistive devices as appropriate to people with a wide range of disabilities. In addition to the paid tutors at the three main centers, the initiative recruits and trains volunteers to assist with the training. The project also provides computers and training for a tutor at other organizations catering for people with disabilities in the Nottingham area. At the time of the research, 18 Cascade Learning sites had been set up in and around Nottingham.

#### **Community Heritage Store (CHS) [www.localchs.co.uk], West Norfolk**

This project is targeted at older people aged 55 and older in rural communities in Norfolk. It uses older people's concern to preserve local heritage as a means of sparking their interest in the Internet. This provides a way for the project to preserve local heritage captured in stories, photos, letters and other memorabilia which would probably otherwise be lost. Starting with very targeted local publicity to attract people to the initial launch and five local workshops, five community groups have been established, with a remit to encourage the use of the Internet and usage of the project website. Participants receive informal training from peers. In addition, they receive their own CHS website, which acts as a personal store; with their permission the website becomes part of the local community CHS. The project is a public-private partnership between the Borough Council of King's Lynn and West Norfolk and UKVillages.co.uk.

#### **Leeds Libraries IT Learning, Leeds**

Leeds libraries are part of the People's Network, a U.K. government led initiative to bring computers and Internet access to citizens. The 54 libraries deliver both small group and one-to-one sessions that provide informal learning for people who are anxious about enrolling in or do not want to commit to a college course. Over a third of those attending learning sessions have disabilities, and over half have retired. The libraries provide free use of computers and the Internet; they also have a range of

assistive technology, and staff who know how to use this. In basic Internet training sessions staff show participants the local government website and Directgov (the U.K. government portal to public information services). The libraries have taken part in government pilot programmes to encourage use of the Internet and e-government services.

#### **Leicester Disability Information Network [www.ldicn.org.uk/], Leicester**

The project provides computer suites with all necessary assistive devices and Internet access for people with disabilities attending day centers in Leicester; touch screen kiosks providing email and Internet access in locations convenient for people with disabilities; a website that aims to be as informative and user-friendly as possible, and to encourage feedback and communication. The website uses easy language, pictures and graphics, and some audio output and focuses on topics of concern to people with disabilities. It also provides links to the websites of local and central/U.K. government. The website is also useful for carers and professionals.

## **Appendix II: List of final selection criteria**

**1. The initiative is inclusive of or targeted at underserved populations** (e.g., people who are educationally and/or economically disadvantaged, unemployed people, single mothers, people with disabilities and/or long-term health conditions, older people, people from ethno-racial groups, people living in rural areas).

**2. The initiative addresses barriers to using computers and the Internet.**

- a. Basic skills (e.g., basic literacy, technology/digital literacy)
- b. Cost of technology including computers, assistive technology (AT), Internet connection
- c. Physical accessibility
- d. Access to assistive technology (e.g., identifying AT needs and knowledge of how to use it)
- e. Infrastructure (e.g., lack broadband)
- f. Other barriers (e.g., language, technophobia, gender, culture barriers, motivation barriers)

**3. The initiative offers (formal/informal) support on a long-term basis.**

- a. Within the program
- b. Information about or referral to other programs and opportunities to progress

**4. The initiative encourages use of the Internet/e-government services.**

- a. Provides assistance in how to use the Internet
- b. Has some means of indicating what is available on the Internet/e-government websites
- c. Actively promotes the use of e-government websites
- d. Is involved in developing content/design for websites including e-government websites

**5. The initiative makes concerted efforts to identify and meet *all users' needs*.**

- a. By involving users in the (initial) design/development of the initiative/program
- b. By engaging users in the implementation of the initiative/program
- c. By actively seeking feedback from users (e.g., customer feedback – both formal and informal, program evaluations/reports)

**6. The initiative benefits/impacts users**

- a. At an individual level (i.e. users gain new skills and capabilities, ranging from greater independence to employability and self-sufficiency)
- b. At a community level

**7. The initiative has developed mechanisms to sustain itself.**