

Response to Government Consultation Document 'Delivering Digital Inclusions: An Action Plan for Consultation'.

from

the EPSRC funded
Inclusive Digital Economy Network.

Introduction

This document was prepared on behalf of the "Inclusive Digital Economy Network" by members of the Digital Technologies and Social Inclusion Consortium, with contributions from other members of the network.

The Inclusive Digital Economy Network was funded by the EPSRC for the period April 2008 to March 2009 to determine a research agenda for inclusion within the Digital Economy. It consists of representatives of over 20 Universities plus industrialists (*see Appendix*) and is headed by Professors Newell and Hanson of Dundee University. The Network will produce a final report during March 2009. It will present its findings publically at a meeting on March 6th in City University London, at which the Deputy Minister will speak.

The Digital Technologies and Social Inclusion consortium, established in 2003, is a long-term collaboration led by Professor Leela Damodaran (Loughborough University) and Professor Alan Newell (University of Dundee) and comprising representatives of local government, business, and the voluntary sector.

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Response to Questions

Question 1: How far do you agree with the definition of digital inclusion and the nature of the problem set out in Chapter One?

We agree with the definition presented but suggest that the citizen is put in the driving seat. We thus suggest :

“Digital inclusion is the best use – *as defined by individual citizens or a local community* – of digital technologies, either directly or indirectly, to improve their lives and life chances and the places in which they live.

The nature of the problem set out in the Action Plan is well-framed and carefully explored. The generation of solutions needs to fully exploit the state of the art knowledge and international experience in this field, and reap the benefit of considerable past investment by the UK research councils, the EU, World Bank, Unesco, NGOs and many others. Our network will be happy to provide data on the the wealth of existing research and work within Digital Inclusion to the longer term consultative process.

The development of new technologies which are truly inclusive is required, but in addition awareness raising of existing technologies and their features is also essential, - many people being unaware of the accessibility features which already exist in many computer operating systems despite the enormous benefit they can provide.

Question 2: How far do you agree with the analysis set out in Chapter Two? Is there other evidence we should consider as to why digital inclusion is an important social issue?

The analysis presented is well-founded and the examples are powerful in showing how transformational it can be for individuals who, through learning ICT skills, gain in confidence, become economically active, and engage productively in society after many years on the margins.

It is important to note that a quantitative ‘business case’ must be hollistic and sufficiently sophisticated to include the complex relationships between factors such as digital and social exclusion. (For example, social exclusion plays a part in onset of depression, which leads to the costs to the NHS of treating it – and to the labour market in loss of human resource).

A greater focus needs to be given to the untapped creativity and innovation among the digitally excluded. The digital economy could provide ways of exploiting this and benefit society by promoting a sense of belonging/social cohesion and thus, for example, increase employability and reduce some aspects of criminality.

Question 3: How far do you agree with the analysis in Chapter Three of the main barriers which prevent individuals and communities from engaging in digital technologies?

The analysis presented is sound but should be extended to encompass other significant parameters including:

- **technical access** – (that is the ability to use the systems provided) continues to be a major impediment to digital inclusion for many people (e.g. the challenges presented to blind people, by screen based systems, small buttons and text for people with age related sight and dexterity problems, the challenges of many text based systems to people with poor literacy)
- **good design** which takes into account the needs of currently digitally excluded people is essential. If the digital economy is to become truly inclusive, it is vital that designers understand the needs of marginalised groups. Digital systems need to become much less complex and intuitive to use. There is evidence of some good design practice within the digital economy (see MyGuide -discussed later) but these are few and far between. It is essential that designers be encouraged to develop novel designs in conjunction with the intended end-users
- **ownership** of problems and related solutions by the communities concerned is crucial. All citizens should be engaged in the shaping and appropriation of technologies to meet their needs and contexts.
- **motivation** for taking part in the digital economy needs to be truly understood. Government must understand why citizens choose or do not choose to use and learn to use a piece of technology or digital resource. For example, a large percentage of older people want to learn how to do one specific thing, rather than simply “to use the internet”. Their interest is triggered by becoming aware of a particular piece of technology which would benefit them such as using a webcam to maintain contact with distant relatives. Citizens thus need to be made aware of the range of possibilities through a variety of means including the media.
- **building capacity**. The complexity of current technology in people’s lives is overwhelming and there is rarely one instruction manual to consult when they try to achieve certain tasks. This lack of support causes significant problems and can substantially demotivate the potential users. The development of support networks, particularly peer group support networks, needs to be encouraged and expanded.

Question 4: What are the most effective ways to remove these barriers and ensure that all individuals can exercise an empowered choice about their use of digital technologies?

There are a range of proven ways of removing barriers and empowering people to use digital technologies – a large amount of associated published literature exists in several domains. For example, research into the use of ‘technology probes’ reveals their success in motivating people to adopt (and sometimes adapt) technologies – in varied environments. Other ways of motivating and inspiring adoption of digital technologies include exposure to use by peers or others perceived as sharing similar interests/characteristics/ living conditions - through film, video, direct contact and experience. There is also considerable experience and expertise worldwide in engaging with the hard-to-reach and enabling them to shape the technologies to make changes in their lives and environments. A crucial common factor in successful endeavours has been found to be that any developments or initiatives are locally-driven by the prospective end-users.

This research needs to be integrated to provide a comprehensive response to this question. Our network would be happy to assist in this process.

Question 5: What are the risk factors and benefits for different associated with current and next generation access?

Major risk factors relate to lack of sustainability and to lack of investment in building capacity. Too many projects and initiatives are of short duration. With the continuing rapid changes in technology and technology infrastructure, long term on-going initiatives are essential.

There is a significant danger that initiatives to promote digital inclusion will be overtaken by the fast rate of change of technologies and the adoption of next generation technology. Web 2.0 is potentially a whole new way to engage and connect with people, for example by promoting social inclusion via social networking sites such as Facebook. These methods, however, are in their infancy and further research is needed to determine the most appropriate and effective ways of using this technology.

There is a risk that, although there is a wealth of information on the Internet, citizens lack the tools to judge the quality, credibility and accuracy of the resource, and the mass amateurisation of Web 2.0 increases these problems as even more people become web authors. This is a major challenge. (For example, with the wide range of web based health information patients can 'develop' rare illnesses subsequent to reading about them online or find bogus or even dangerous treatments to current health conditions. These effects add pressure on the healthcare system, and can outweigh the health benefits of the digital economy.

People excluded from the Digital Economy will also not be able to take advantage of lower prices and the use of price comparison web sites. In the longer term there is greater danger that, for economic reasons, an increasing range of goods and services will only be available on-line, thus debarring digitally excluded people from them. This is particularly important for Government services as a greater percentage of people needing such services are likely to come from digitally excluded groups.

Question 6: What should be done to empower communities and local partnerships to address these risks and benefits?

Existing stakeholder groupings/partnerships in the community should be identified, and their concerns and needs explored as part of agenda-setting. Grass-roots driven initiatives which address real needs perceived by the community will lead to enthusiastic take-up of ideas in contrast to externally imposed moves towards 'Digital Inclusion' in the abstract. Resources are needed to ensure provision of access, information, learning opportunities and good support at a local level. Education and awareness is needed to promote an understanding of the advantages and dangers of the internet. This is particularly important with older people who are more likely to believe what they read on the internet, many of whom are confused and frightened by digital information.

Question 7: How far do you agree with the summary of issues around the direct use of technology presented in Chapter Three? Are there any other important issues we have not mentioned?

All the issues mentioned are valid. There are a number of additional profoundly important issues to address. These include end-user/community engagement in design decision-making; interface/interaction design, web design, and design for

accessibility; the role of ICT and related industries; and building capacity for ICT use throughout society (see responses to Q21).

The issue of motivating people to use technology is important. For example, older people will invest time and effort into learning a new technology which will benefit them directly, (e.g Skype to contact family and friends) but learning simply to keep up with current technologies is almost unheard of.

Constant upgrades to technology without “backwards compatibility” can be a major cause of digital exclusion. Many disadvantaged people will only have access to older computers which may not contain, or even be capable of running, more modern software. Major challenges of learning a new operating system for older people (and younger ones!) with no obvious advantage also provide major challenges to the uptake and sustainability of the Digital Economy.

Residential homes are an area where the Digital Economy has little or no presence. Key workers are needed in homes to ensure residents benefit from the many advantages the Digital Economy can provide to isolated lonely people with little or no access to entertainment and hobbies.

Question 8: How far do you agree with the assessment of risks and opportunities around the indirect benefits of technology presented in Chapter Four?

We agree with the assessment of risks and opportunities - having repositories of accurate and relevant data offers many potential benefits in informing and understanding of complex, multi-faceted needs in society. However the copious information now available needs to be understood and used appropriately by a wide range of people if significant improvements in service delivery are to be achieved.

This requires effective organisations with appropriate structures, roles and policies – staffed by able competent people with extensive knowledge, experience and understanding and capable of assessing available data, of taking responsibility for applying it appropriately and willing to be accountable for the impact. The evidence to date (eg from high profile examples of child abuse where Social Services have not been able to prevent tragic outcomes) suggests that a preoccupation with assessment procedures and the recording and processing of data may become a substitute for thought, professional judgement and timely action.

The final sentence of the Conclusion (para 22): “To achieve the indirect benefits, we must breakdown silos between social policy makers and technology professionals – across all sectors – so that the capability of technology to tackle disadvantage can be fully exploited” is valid but needs to be taken much further. It needs to include all users groups, end-users, communities, local service providers (educational, social and health services, emergency services etc) to really achieve joined-up processes in communities through the evolution of **sociotechnical** systems developed with the participation of all stakeholders. The capability of technology alone to meet the needs of our complex societies is very limited – it also needs the engagement of a wide array of interested parties, especially those who are the intended users and beneficiaries, in deciding why, how, what, when and where it should be put to use – that is key to successful delivery of desirable outcomes such as enhanced digital inclusion.

Question 9: How can we raise awareness of the indirect benefits of technology for service design, planning and delivery across all sectors?

There are many powerful communication and persuasion techniques available to meet such objectives which are widely used in the advertising industry. To successfully reach the societal goal of digital inclusion, however, the focus should be on promoting widespread understanding that technology is a versatile and powerful tool which can be used in different ways by people/communities to meet their goals and fulfil their responsibilities. Capacity building and support will be crucial to making this a reality. Change management programmes provide an array of tools, techniques and methods for changing perceptions, promoting the sharing of knowledge and understanding of new concepts and new ways of doing things. They work to the extent that the participants and their communities have been actively involved in setting the agenda, investing in understanding the potential offered by the technology and appropriating it for their use.

Creating an effective strategy for engaging citizens and their communities and empowering them through appropriate user-driven capacity building processes would be an ideal top priority for the UK Government.

There is a range of available guidelines, demonstrators and exemplars which should be collated to be used in addition extensive user consultation. For example, most guidelines need additional activities to take place to engage the hearts and minds of all involved - citizens/end users, communities, developers, designers and policymakers. One novel method of achieving this is the use of interactive theatre work which has been used extensively and successfully at the University of Dundee. This technique was demonstrated at the recent Ministerial Conference on e-inclusion (Vienna Dec. 2008). The Deputy Minister saw this demonstration and commented very positively on it. In addition, the University of Dundee has produced a range of videos which illustrate the challenges older people find with the Digital Economy. These have been shown to be very valuable in encouraging discussion with older people on the pros and cons of the digital economy and to be very successful in changing the attitudes of designers to the needs and wants of older users. We are happy to send further details of this work to the consultation process, and will make these videos available for use in awareness raising activities for citizens, designers, and policy makers, and to discuss the potential of live theatre in such activities with Government.

Question 10: Does the way in which services, particularly public services, are currently delivered adequately support individuals and groups who are socially disadvantaged? What more could be done to ensure they do?

There continues to be a considerable gap between planned and actual take-up of services. Recent research conducted by the Information, Technology and Society research group at Loughborough University has revealed that, although e-government websites are provided by all local councils, the uptake level is still low and only few sites are fully transactional. The low level of user involvement in design emerges as a significant factor for this outcome. This finding emphasizes the crucial importance of user involvement – in this case citizen engagement – in the design, development and evolution of local e-Government systems. In particular, there is a need to establish good understanding of the users' needs and preferences. Citizens are also likely to have a sense of ownership of systems if they have been involved with their development and can see the opportunity to continue to have influence over decisions taken by Governments and Council, thus enhancing e-Democracy.

The following steps will improve the provision of public services:

- **Participative design.** Stakeholders of a service (including the beneficiaries or primer users) should participate in the design and evaluation process. Participation encourages several advantages such as shared ownership of the service, shared understanding between designers and users as well as the development of services that correspond to beneficiaries' information needs, capabilities (physical or cognitive) and values. Damodaran and her colleagues have proposed an integrated framework for participative design that enhances participation and engagement in the design of ICT through knowledge and change management practices.
- **Usability.** Research on the usability of interfaces in desktop applications and the web has resulted in the definition of guidelines or principles that should govern the development of standardised, functional and user-friendly interfaces. These guidelines highlight the need for simplicity, visibility and consistency in the interface design, use of user-oriented terminology, provision of interfaces that support multiple user needs (for example, groups of users with different ages, computer self-efficacy and accessibility needs), error prevention, ease undo of actions and online help provision. However, recent studies reveal that despite the development of web usability standards (see for example ISO) many online services of the public and private sector still lack usability and accessibility standards. This is an issue that should be investigated further with a view to improving design methodologies used for systems and services in the digital economy.
- **Personalised provision of services.** There are solutions that provide users with the opportunity to adapt web interfaces to their own needs. Such systems have been implemented by organisations that provide online services including universities (e.g. e-learning personalisation) or libraries (personalised information retrieval systems and search engines). Novel approaches have been proposed for personalised access to web-pages such as the "essentiality track", and other tools specifically for the promotion of e-government and e-Democracy are promoted from ICELE (the International Centre of Excellence for Local eDemocracy).
- **Ubiquity** is another concept that public organisations should exploit in order to improve access to their services. Ubiquity is a powerful solution for e-inclusion and involves provision of services on demand and transparently. Examples of the application of ubiquitous technologies include "smart flats" for people with dementia or the use of cell phones and PDAs as digital assistive technologies for older people or people with special needs.
- Finally it is important to **raise awareness** of the available technologies that can improve users' access to public services. Many people are simply not aware of the different technologies that can support usability, accessibility or adaptivity of services. Campaigning for the availability of such services or tools and the provision of technical support and help is an integral part for e-inclusion.

We are happy to provide the consultation exercise with full references and details of the above research findings.

Question 11: Are you aware of any other examples of good practice not mentioned in Chapter Five?

There are many examples of 'projects' and on-going programmes around the world which have successfully motivated people with diverse characteristics to engage in shaping and appropriating ICTs to enhance their lives. Examples can be drawn from the work of NGOs such as ActionAid which engages with people some of whom lack even basic literacy skills, Canada's Wireless Portal, and work throughout Asia, including the Philippines, Age Concern (silver surfers clubs supporting use of ICTs by older people), University of Dundee where older people are research partners actively involved in improving their future and also use peer-led & peer-supported learning in their over 60s computer club. We can provide full details of these initiatives to the consultation exercise.

Question 12: What aspects of previous or current digital initiatives and strategies have been most successful in tackling digital exclusion?

Successful attempts to promote uptake of ICTs have in common approaches which are not technology-focussed in the first instance but which engage individuals and communities in open-ended explorations of their lives, their needs and aspirations – preferably taking place in familiar, non-threatening surroundings.

Question 13: What actions need to be taken to support better partnership approaches?

Brokering and supporting their development are essential in establishing new partnerships. Once partnerships form, facilitation processes become important to help partnerships explore issues constructively and to reach consensus. This is a complex and challenging process. In practice, for individual partners it often means having to change what they would do in a single objective/sector environment and often requires tough negotiations and compromise. Although partnerships are often talked about, there is as much failure as success.

Success depends on skilled facilitation and on sufficiently attractive incentives to encourage people to overcome barriers (e.g. a definition of partnership could be the suppression of natural barriers or conflicts in pursuit of hard cash.)

Better partnerships in the digital economy require:

1. Public funding streams that commercial and voluntary providers can apply for to change the way they operate to be more inclusive. Many inclusive approaches will not be viable without public funding. Regulation of markets cannot secure continuous improvement but sets a baseline that will always be too low and out of date. Given the scale of the digital economy the funding available should be substantial at both local and national levels.
2. Single sector government programmes require to be audited to identify areas of delivery where partnerships could have delivered more inclusive approaches.
3. Where possible public service delivery (e.g. health provision) should be separated from client functions (e.g. purchasing of healthcare). Functions should be designed to

reflect user and business needs in a more integrated way, and foster purchasing decisions which involve partnerships between multiple specialist service providers.

4. Legislation and regulation should foster principles (e.g. the concept of reasonableness in the Disability Discrimination Act) rather than specifications of detailed standards, and these principles should be harmonised across sectors i.e. inclusion within health, financial services, transport, etc should all follow the same principles (reasonable delivery of safety, accessibility, equity, etc) This will require substantial changes to existing legislation (e.g. people are rarely prosecuted for failing to provide good access to health but would be for providing an incorrectly equipped transport vehicle).

Question 14: What should be the extent of Government's intervention in tackling digital exclusion?

The Government's interventions should be focussed on adhering to the list of principles suggested below in response to Q 16. Other key roles for Government have been identified in response to other questions in this consultation: Interventions should focus on promoting 'user-pull', empowering locally-driven projects through leveraging resources and facilitating sustainability in the specific context of the community. Essentially Government interventions should be focussed on empowering grass-roots efforts in communities to achieve greater digital inclusion in the pursuit of their own aims and objectives.

Question 15: How else can the impact of current activity be maximised?

A major UK strategic plan for capacity building to engage with citizens and communities, hosting enjoyable community events to share knowledge and experience across many divides – and involving diverse stakeholders would ensure maximum impact. Such a plan could be devised collaboratively using events constructed along the lines of the inspiring and innovative stakeholder meetings hosted by members of the consultation team and addressed by the Minister for Digital Inclusion. The inclusion of theatrical presentations as developed by the University of Dundee (mentioned above) could make such events both effective and memorable.

Citizens and communities need to understand why the Digital Economy is important and the overwhelming benefits that will arise from engaging with it. If user consultation happens because it is something they are told to do, and there is no perceived benefit to the process, the person in the consultation often feels that their time has been wasted and becomes disenfranchised with the process and potentially the technology or service being discussed.

On the local level, virtual town hall meetings – such as those developed by the Utah State Legislature in the United States – provide effective models for discussion & debate among community members, especially in remote, rural areas, where geographic distances inhibit citizens from gathering in one physical location. Other digital democracy initiatives could include: Online citizen panels, Deliberative polling, Virtual Question periods (regular, online sessions with political representatives), and Scenario planning.

We are happy to work with the consultation exercise to discuss the wealth of experience and knowledge available concerning effective harnessing of the potential from people by engaging them in a bottom-up process.

Question 16: How far do you agree with the proposed principles outlined in the Charter? Are there others we should consider?

The proposed 'principles' list necessary actions (with which we are in agreement) towards digital inclusion for achieving success through effective "user-pull" in key communities.

We suggest the following additional principles:

1. Citizen Engagement in development & planning (active participation of stakeholders; ownership of actions & changes)
2. All systems within the digital economy should be designed so they can be easily used by digital excluded people. Participatory design methods should be used. Systems should be accessible by older and disabled people, and such access should be embedded in all systems
3. Services should also be tailored to meet user requirements
4. Capacity for ICT use and appropriation including the use of peer group support methods should be built up.
5. Ensure that usability by all is sustained through changes in technology
6. Active participation and collaboration of all stakeholders eg citizens, communities, local government, NGOs, developers, content providers, researchers etc in setting the local and national agenda for digital inclusion ie "Think global - act local ..."
7. Knowledge sharing across domains (building on established expertise, see examples in Q13
8. Conducting independent evaluations of outcomes/impacts – using criteria developed in collaboration with the stakeholders – especially the end-user
9. Not relying on the personal computer, but including the use of other platforms, such as mobile phones, but with careful design so that they are usable by digitally disenfranchised people.

Question 17: How far do you support the actions which underpin the principles? Are there others we should consider?

We fully support the actions proposed as necessary steps towards the goal of digital inclusion in the UK. In addition, building capacity for widespread and effective use of ICT across the UK is critical to long-term success. Extensive effort is also required to promote awareness of features and benefits of ICTs to facilitate interest, and the provision of a wide range of learning opportunities.

Another important action to consider is establishing a knowledge transfer process from 'ICT for Development' (ICT4D) programmes. Government provision of access to PCs and to the internet are not the only ways of delivering digital inclusion. Innovative trends in deprived areas towards use of the mobile phone as the access device are proving very effective. Examples include projects such as the Big Board public media sharing system in South Africa, the MobileLED mobile encyclopaedia

and the Rural e-services photo and voice enquiry service. Such services are easy to use and serve as a more immediate entry point to the digital world than getting to grips with computers. These services are all accessible and well-used by people – including those lacking literacy skills and may therefore be well-suited to highly marginalised and deprived communities in the UK.

Citizen/user involvement is the cornerstone to the success of the Action Plan. The most important activity is user consultation, engagement and involvement. This process ranges from engaging socially-excluded people in prototyping/designing systems and services to engaging excluded individuals and groups in shaping technology and services to meet their particular needs and circumstances.

Question 18: What issues need to be considered in determining a baseline measure for digital inclusion?

The measure for effective digital inclusion should be based on assessment criteria which are relevant to stakeholders in specific user communities. Global and appropriate measurement techniques are limited but placing measures within the context of a local inclusion initiative has far more flexibility and benefit. There will undoubtedly be generic metrics that are appropriate across the board (particularly in relation to the alternative principles mentioned in Q16) but it will be the local initiatives that should determine the specifics of the baseline.

Question 19: What should be the brief of the Digital Champion role?

To be effective, this will need to be a wide, roving brief to include both ‘coal face’ engagement with digitally excluded groups in their own environments and close collaboration with Ofcom and the telecommunications industry, with a raft of professionals from many domains including community organisations, NGOs, academics etc.

Specific responsibilities would include :

- Commissioning reviews of research and practice concerned with defining social exclusion, bridging the Digital Divide, engaging with disadvantaged communities, design of digital systems and services.
- Commissioning cross-project analyses to identify generic lessons for successful digital engagement.
- Consulting widely across many communities (local government, policy makers, NGOs), particularly those with a track record of successful promotion of digital engagement eg Age Concern, Help the Aged; with a view to identifying relevant stakeholders – crucially including citizens who are socially/digitally excluded - to participate in collaborative exercises/Think tanks’ to plan strategies for digital inclusion tailored to specific communities/groups in society.
- Reviewing and selecting appropriate ways, such as “road shows:” and Citizen Juries, for gaining widespread engagement of diverse citizens and communities to explore the parameters of digital exclusion and formulate criteria for characterising digital inclusion in the different communities.
- Engage with Government and Industry to highlight the importance of design and thus ensure that the digital economy can be easily used by all citizens.
- Brokering new alliances and partnerships relevant to promoting and delivering digital inclusion.

Question 20: What would be the single most effective thing government could do to drive its digital inclusion agenda?

Developing local initiatives where citizens and communities, particularly those from excluded sections of society work together with designers and service providers to develop exemplar systems and services which are really appropriate for their needs and wants and which enable older and disabled people, those from ethnic minorities, and other excluded groups, to fully exploit the digital economy. The process and the products of such exemplars could then be used to promote good practice in government, the ICT and service industries and provide a major stepping stone towards a truly inclusive digital economy

Question 21: Are there any other issues you would like to raise in relation to this consultation?

Design and Designer Education

The dearth of attention given to design and design principles for inclusion in this consultation is concerning. Although there is a brief mention of interface/interaction design, web design, and design for accessibility in the research report, very little of this nature appears in the Action Plan. The importance of design was articulated by Professor Newell and others at the London consultation meeting and the Minister agreed that this was an important aspect of inclusion.

Addressing these issues effectively will be essential to delivering digital inclusion. In particular, interface and interaction design are crucial to digital inclusion. The one interface design innovation mentioned in the Action Plan is Myguide (the prototype of which was developed at Dundee University) The Action Plan reports the finding that 86% of users say it has had a positive impact on their lives, but fails to draw the important conclusion that interface/interaction design innovation (including participatory design practices which were used in that design activity) should be a mainstream design activity encouraged and facilitated by educators and the Government .

There needs to be a major initiative focussed on industry, commerce, and government, and other procurement agencies which addresses the design needs for digital inclusion. Awareness raising and education desparately is needed in this area.

Legislation

The UN Convention on the Rights of People with Disabilities is highly relevant as an instrument for promote digital inclusion. Article 9 of this convention requires governments to promote common technological standards so as to bring down the costs of developing assistive technology, and this needs to be included as an integral part of any digital inclusion charter.

Disability legislation and building this into government procurement requirements has produced significant change both in the US and the UK. Section 508 of the Rehabilitation Act in the US made inclusion financially rewarding by requiring anyone applying for a government contract to prove their product is accessible to All. This is currently a powerful incentive to develop and supply accessible products, systems and services. The UK Government is a very large customer of ICT products and systems and as such has enormous potential influence over suppliers and manufacturers which it could use to excellent effect through its procurement criteria.

Role of the ICT industry

The reluctance of the ICT industry to tackle issues associated with digital exclusion for which it is directly responsible should be addressed. For example, some entirely avoidable difficulties have been created for visually impaired people accessing digital television, and in general, there are major challenges for many older people in currently designed digital television systems. Government needs to work with the key industrial stakeholders to identify appropriate ways forward which are acceptable and practicable for all stakeholders, and will produce commercial as well as societal advantages.

Learning, memory, and cognition in ICT use

As e-systems become more pervasive, increasing numbers of vulnerable people will be at risk of exclusion as a consequence of impaired learning abilities and memory. It is therefore important that the design process is informed by expert knowledge of cognitive psychology (learning, memory, language, perception etc) as well as by other aspects of psychology such as stress, depression and social isolation.

Knowledge-sharing

Our responses to the Action Plan have emphasised repeatedly the importance of consultation, collaboration, partnerships and alliances between multiple stakeholders in the drive towards digital inclusion. The importance of these relationships lies in the knowledge-sharing they foster across many divides, for example between communities, ethnographers who are interacting with the communities, representatives and advocates (e.g. NGOs), technical designers, psychologists and local and policy-makers. Knowledge sharing is essential to learn lessons, to avoid repeatedly 're-inventing the wheel' and to promote understanding. It is therefore an essential process for government to support with appropriate leadership and resource with relevant expertise.

Research

There is still a great deal of research needed concerning inclusion in the Digital Economy. This is particularly important in view of the rapidly changing technologies and the changing use which is being made of these technologies. Thus Government and the Research Councils should be encouraged to promote inclusion as an important area for interdisciplinary research, which should include technology design and social sciences.

Appendix

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