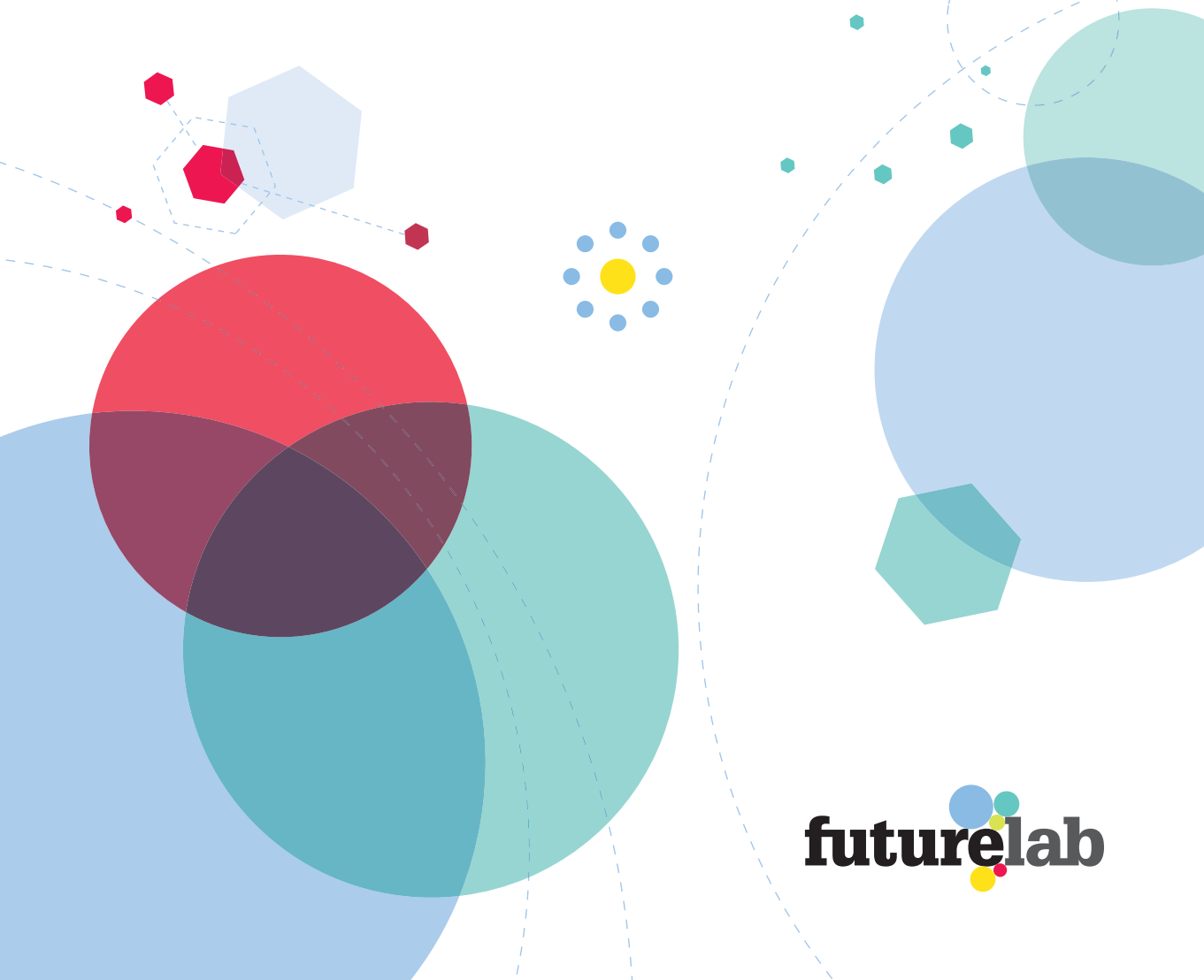
OPENING EDUCATION

Beyond the digital divide

Rethinking digital inclusion for the 21st century



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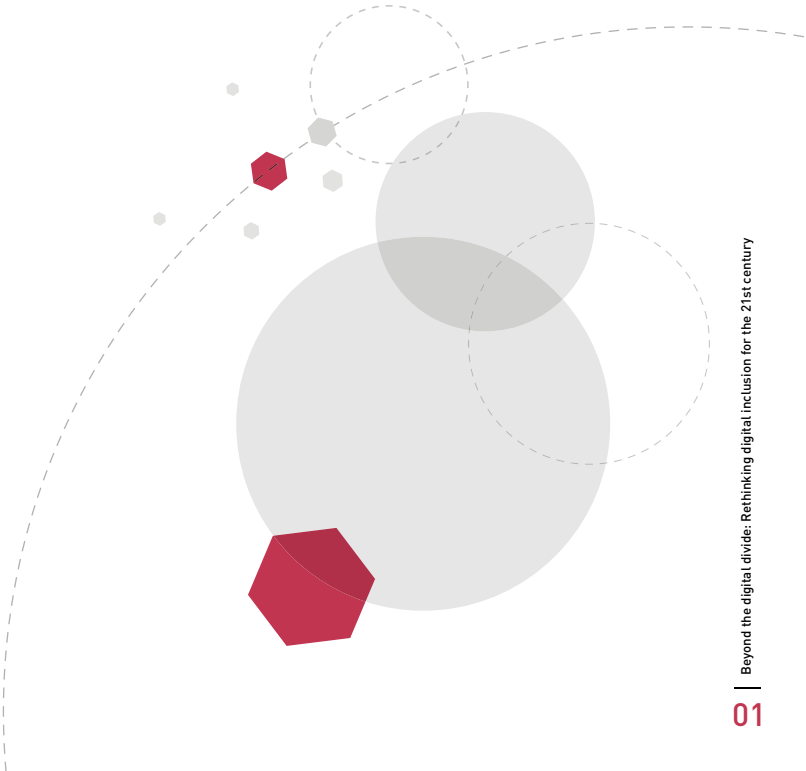


Neil Selwyn and Keri Facer

Futurelab 2007

Foreword

What is the Opening Education series?
Opening Education is Futurelab's 'blue skies' publications series. As its name suggests, this series is intended to open up areas for debate; to provoke, to challenge, to stimulate new visions for education.

The ideas and arguments presented in these publications are generated in a variety of ways – through events, collaborations and consultations with thinkers, practitioners and policy makers from a variety of sectors, through thought-experiments and visioning workshops, and as unexpected 'side effects' of the research and development activity that goes on at Futurelab on a day-to-day basis. The series complements our evidence-based publications by offering a space to propose new ideas that may not yet be ready for implementation or rigorous evaluation, and to flag up emerging issues of concern that may require action in the education sector.

Why publish this series?
All the research into innovation in a range of sectors suggests that having a superfluity of ideas is essential for growth and development – education is no different. We need to have a surplus of potential ideas, visions and plans so that we have a range of strategies to draw on when we face the serious educational challenges that social, economic and technical change presents us with. Not all ideas will become a reality, not all ideas will survive in the form in which they were first presented, but what cannot be denied is that education, and educators, need to know that there is scope to dream; to think about new approaches and different ways of doing things; to know that the ways we do things now will not be always and forever the same.

It is in this spirit that we publish these papers. They are experimental and exploratory, both in their arguments and in the forms in which we publish – they don't all look the same, feel the same, say the same thing. They all, however, attempt to open up a new area for debate and for action, and we look forward to hearing from you and working with you to determine their fate.

Keri Facer
Research Director

1. Introduction

Given the integral role of digital technology in contemporary society should we be concerned with enduring inequalities in individuals' ICT use? Is the so-called 'digital divide' a 20th century problem set to soon disappear from all but the margins of society? Do governments have a part to play in ensuring that all members of society are able to access the opportunities afforded by ICT use?

In this paper we argue that the digital divide continues to present a serious and significant threat to the establishment of the UK as a successful digital society. There is overwhelming evidence that as ICT becomes woven into the fabric of everyday life then the divisions in ICT use are strengthening rather than diminishing. At the same time, individuals from all sectors of society can be considered as being digitally disadvantaged – not just those who are socially excluded in general.

The time is therefore right for countries such as the UK to be reconsidering their efforts to tackle the digital divide. Over ten years on from the popular emergence of the concept, the digital divide remains an important issue that demands renewed attention. With careful thought and due consideration it should be possible for policy makers, technologists and other concerned stakeholders to develop a revitalised policy agenda which builds upon but moves beyond previous digital divide policy-making.

As a precursor to such work, this paper considers the reasons why the digital divide remains a complex and entrenched social problem. Firstly, there is a diverse and wide range of technologies which can be considered as ICTs – not just computers and the internet. Similarly, there is a diverse and wide range of activities for which ICTs can be used if individuals so choose – from learning and employment to leisure and entertainment. One of the primary challenges facing policy makers is to match the affordances of ICTs with the everyday needs, interests and desires of individuals. In this sense the digital divide continues to demand a complex set of policy responses which go far beyond simply increasing levels of hardware provision and support, and then assuming the 'gap' to have been 'bridged'.

From this background the paper argues that a 'charter for change' is needed – a list of basic entitlements which we contend that every individual in the 21st century digital age can reasonably expect. At the very least, then, we argue that government should seek to...

Enable all individuals to make informed and empowered choices about the uses of ICTs whilst ensuring these individuals have ready access to the resources required to enable them to act on these choices.

With this in mind, we also offer a list of assumptions about the digital divide which we feel should underpin future discussion and action. Furthermore, the paper concludes by highlighting some key areas of contention which will require consideration and clarification before sustained progress can be made – namely:

- Who should take a lead in coordinating and driving the digital divide effort?
- How do we ensure ready access to hardware and software for all individuals?
- How do we ensure ready access to relevant content and services for all individuals?
- How do we ensure ready access to skills, social and technical support and know-how for all individuals?
- How do we ensure that all individuals can exercise an empowered choice about their ICT (non)use?

Given these wide ranging challenges, this paper is intended to act as a resource for discussion and action across a wide range of different sectors – from the education community to the technology industry, from social policy makers to community practitioners. Although the digital divide is often seen as an individual problem, it undoubtedly requires collective solutions. As such, above all, we hope that the issues and arguments raised in this paper can act as a catalyst for a sustained period of dialogue and development concerning the digital divide and the establishment of a more equitable information society.

2. The place of ICT use in 21st century society

We live in a fast-changing 'runaway world' where the social, economic, cultural and political foundations of society are being redefined on a continual basis (Giddens 2000). The much heralded globalisation of society is now manifested in a variety of ways, such as an apparent acceleration of time, shrinking of space and reconfiguration of social relations along international lines. Although traditional structures such as the nation-state retain a significant importance in the governance of society, their influence is increasingly being challenged by other entities such as the transnational corporation.

Most commentators agree that this recasting of social relations is borne not only of economic, cultural and political changes but also of the changing technological world in which we are living. This is perhaps most clear in the rise of the information society and the attendant knowledge economy, where the production, management and consumption of information and knowledge are seen to now be at the core of economic productivity and societal development. Clearly, one of the key accelerators of these new forms of society and economy has been the rapid development of new telecommunications and computerised technologies over the past three decades. The global flows of data, services and people which characterise the global knowledge economy have been underpinned by information and communications technology (ICT). From e-commerce to e-learning, ICTs such as the internet and other global telecommunications systems are major conduits through which contemporary society is acted out.

A defining characteristic of ICT has proved to be its ability to bring people and places together, thus underpinning the 'time/space compression' outlined above (Harvey 1989). In his influential analysis of the rise of the so-called 'network society', Manuel Castells (1996) outlined how the dominant functions and processes in contemporary society are now organised increasingly around networks rather than physical boundaries - what Castells termed the 'space of flows' (ie the movement of information or money) rather than the space of places (ie their original location). Crucially Castells saw the rising importance of networks in society as brought about by the coincidence of new technological developments with the restructuring of capitalism and nation states in the 1980s. Now ICTs can be said to be firmly at the heart of the interconnected logic of 21st century life.

An age of equality?

This technology-based reconfiguration has been evident in the transformation of most, if not all, areas of society over the past decade. Employment, education, health, welfare, politics, leisure and entertainment all now take place in ways and in locations which would have been unimaginable a generation ago, often with technology at their heart. Of course, we should be wary of seeing these developments as heralding a total transformation of society. Many of these 'online' developments replicate rather than replace existing 'offline' practices and activities (Woolgar 2002). Yet one noticeable shift has been the increasingly decentred and individualised nature of life in this globalised, networked, knowledge-focused world. Free to live beyond the confines of the nation-state, local community or family, the onus is placed on the individual citizen to make their way in the world. For some commentators these changes are wholly beneficial, 'freeing' societies and their citizens from the interference of the nation-state and other regulatory bodies and allowing the (re)distribution of services and wealth along more efficient and market-driven lines (see Stromquist 2002).

Whilst the globalised nature of contemporary society can prove empowering for some individuals and groups, it also undeniably has led to increased fragmentation, marginalisation and dis-empowerment. The global opportunities of the 21st century such as low-cost air travel and deregulation of international trade barriers belie the persistence and reinforcement of many distinctly 20th century inequalities, limited opportunities and social problems. Whereas some individuals benefit from their new-found agency, others fare less well from being decoupled from the familiar anchors of the welfare state, nuclear family and so on. We cannot afford to see contemporary society as offering homogenous benefits for all. Individuals, groups, organisations and countries can be as connected or isolated, as advantaged or disadvantaged in the globalised technology-driven age as before. Crucially these inequalities are also being reconfigured along different lines – in particular within as well as between social groups.

New practices for new times?

Whilst debate rages over whether society in the early 21st century is necessarily better or worse than before, we can be certain that we are experiencing a different form of society. In particular the changes outlined above imply a vast set of expected new practices and ways of operating within a less linear, structured and predictable logic of society. In the world of work, for example, the expectation of a 'job for life' has long passed. An individual's employability is seen to rest on their ability to adapt to different demands and circumstances on a 'just-in-time' basis. Employees are expected to be flexible in their working practices – operating when and where required, as opposed to clocking-in from nine-to-five in the same location. Practices such as remote teleworking, video-conferencing and flexi-time are now common features of the workplace.

Similarly, in terms of education, individuals are expected to now learn different skills and knowledges in different ways as their situation dictates. Regardless of their age or stage of prior education, individuals are expected to cast themselves as lifelong learners, willing and able to engage with learning as and when appropriate throughout the life-course. This can involve learning through formal educational institutions, remote learning, or learning from others in non-formal and informal settings. Some educational opportunities will be personalised and tailored to the individual's needs and requirements, whilst others will take the form of mass instruction. The notion of 'finishing one's education' at the age of 16, 18 or 21 years is now a thing of the past.

All of these new practices and 'ways-of-being' imply a revised set of expected competencies and abilities which are required if one is to be an 'effective' and successful member of society. In a physical sense, individuals are required to be more mobile now than ever before (Urry 2000). Alongside the basic skills of numeracy and literacy, individuals are required to develop different forms of information and technological literacies (Bawden 2001). Successfully negotiating the ever-changing opportunities and choices on offer requires the development of a capacity for constant self-evaluation and self-awareness (Beck-Gernsheim 1996). The successful individual is therefore required to be reflective and reflexive, building upon and learning from past experiences and reacting to new opportunities and circumstances.

Crucially ICT is seen to be an integral element of these new ways-of-being, playing important roles in underpinning an individual's reflexive judgement and social action. The life of the reflexively modern individual is likely to be bound up with an array of technological possibilities from mobile phone-based communication to the online sharing of information. Through these technologically-facilitated channels, reflexivity is therefore "no longer about distanciated decision-making [now] there is no distance at all between knowledge and action" (Lash 2002, p156). Of course many of the competencies seen as essential to contemporary life – such as communication, reflexivity, team-work, adaptability and so on – are underpinned by decidedly non-technological practices and contexts. Nevertheless, the fact remains that ICTs provide an integral context for these actions.

ICT use encompasses a number of integral roles in 21st century life. At a basic level, what one knows, who one interacts with, and what one is able to do is contingent upon being connected adequately to the information flows of contemporary society. For example, computer-mediated communication and mobile telecommunications technologies are at the heart of many social interactions, however mundane or life-changing. Similarly, the world wide web is a key setting where individuals access and interact with information. ICTs now play an integral role in people's purchasing of goods and services, their employment and education, their involvement in civic or political affairs as well as consumption of leisure and entertainment services.

Indeed, ICT now lies at the heart of most of the activities which are seen to constitute 'social inclusion' - from playing an active role in one's neighbourhood and community to maintaining one's personal finances. The inclusive role of ICT has recently been reinforced by the digital migration of most government and public services. Technologies such as the internet, digital TV and mobile telephony are now important means of accessing and interacting with local government, health and welfare services, the criminal justice system and other areas of government. In all these instances, ICT use is implicated increasingly in what it means to be socially, economically, culturally and politically involved in 21st century society.

Whilst ICT use is certainly not a pre-requisite to surviving in 21st century society, therefore, it is almost certainly an integral element of thriving in 21st century society.

3. Recognising the multiple levels of ICT access and use

Before we continue this discussion further, it is necessary to establish the contours and complexities of 'ICT access and use' – complexities often glossed over by those commentating on the digital age. As our discussion so far has implied, any talk of 'ICT access and use' in contemporary society refers to much more than access to a desktop PC, having basic keyboard skills and a familiarity with Office software applications. Crucially, the digital activities and interactions outlined above can take place via a range of different types of ICT. The convergence of new media platforms such as digital television, mobile telephony, games technologies and other portable devices has led to
a multi-modality of technology access and use. There are a wider number of ICT devices upon which one may, for example, use the internet. However, it is important to recognise that the technical and social qualities of such use can vary considerably across different platforms – for example, the difference between searching the world wide web on a mobile telephone and on a desktop PC.

Alongside this variety of ICT hardware we also need to acknowledge the importance of people's connections into information and telecommunications networks. 'Plugging in' to the digital landscape is now contingent on a range of types and levels of connectivity. Whilst the connectivity debate during the late 1990s and early 2000s centred around the necessity of 'broadband' rather than 'narrowband' access to the internet, other spectrums of connectively now exist, including wireless and satellite-based connections, all with varying speeds and quality of data transmission and all suitable for different types of users.

Crucially, being able to use these ICT configurations is reliant on a variety of

competencies and literacies above and beyond basic 'technological literacy' of being able to operate common ICT tools effectively. This much broader view of 'multi-literacies' sees individuals requiring the language, number and technical skills which give them access to the evolving digital world, alongside a set of creative and critical skills and understanding required to productively engage with technology use in their lives (New London Group 1996). As Andy Carvin (2000) has outlined, these competencies include the ability to be 'information literate' (the ability to discern the quality of content), 'adaptively literate' (the ability to develop new skills whilst using ICTs) and 'occupationally literate' (the ability to apply these skills in business, education or domestic environments). These competencies are underpinned by levels of basic literacy in reading and writing and the functional literacy of being able to put these skills to daily use. Crucially, then, the various forms of 'digital literacies' required of the individual ICT user both mirror but also go beyond the traditional 20th century literacies of 'lettered representation' (Kress 2003, Lankshear et al 2000, Marsh 2006). As Thoman and Jolls (2005, p4) conclude:

"No longer is it enough to be able to read the printed word; children, youth, and adults, too, need the ability to both critically interpret the powerful images of a multimedia culture and express themselves in multiple media forms."

4. So what is the digital divide... and why does it matter?

It should be clear from our discussion so far that ICT use is an important element of effective participation in 21st century society. Given the integral part that ICTs play in national development, organisational growth and individual welfare, governments cannot afford to under estimate the importance of what was referred to during the 1990s as the 'digital divide'. Now, more than ever before, intervening in the digital divide offers a timely and powerful opportunity for policy makers to force positive social change – creating opportunities for the technologically-based empowerment of individuals and their eventual increased social inclusion and long-term security (Norris 2001, Wilhelm 2004).

As the past decade of digital divide policy-making has proved, it cannot be assumed that engineering such changes will be an easy task. As discussed, 'ICT use' is a multi-faceted concept which encompasses a variety of activities and practices, via a range of hardware platforms and means of connectivity, requiring a number of different competencies and resulting in a number of outcomes. It follows that the ambition of any efforts to ensure the fair and equitable use of ICT use within society must reach well beyond issues of technological resourcing and availability of content. In this sense there is a need to move beyond a conventional understanding of the 'digital divide' as a simple case of 'technology haves' and 'technology have-nots' and begin to address the area of digital inclusion in more nuanced terms.

For example, alongside the user/non-user divide a little discussed facet of the digital divide debate is the substantial proportion of 'ordinary' users of ICTs who nevertheless do not make best use of digital technology. Indeed, the tendency to view the digitally excluded purely in terms of 'non-users' of technology has prompted an narrow alignment of the digital divide with general concerns over social exclusion and deprivation. As we shall go on to discuss, the issues underlying the digital divide impinge on the ICT (non)use of individuals from all social backgrounds. In this sense the digital divide should not be viewed merely as a sub-set of general patterns of social exclusion. Although many people who could be considered to be digitally excluded would also be considered as being more generally socially excluded, the two categories are not mutually inclusive. In tackling the digital divide we must consider the substantial but 'hidden' digital exclusion of individuals who may well have relatively high levels of income and educational background, who nevertheless gain little from their engagement with ICTs.

Moreover, any disparities in use should not be assumed to be static in nature, as individuals tend to drop in and out of ICT engagement at different stages in the life course as their circumstances change (Anderson 2005). Whilst at a primary level the digital divide is obviously predicated upon an individual either having or not having adequate access to the necessary hardware, software and network connections, more attention needs to be paid to issues surrounding the dynamics of the use of ICT. As the US commentator Mark Warschauer (2003, p46) argued, "the key issue is not unequal access to computers but rather the unequal ways that computers are used".

From this perspective, a number of authors have begun to map out multi-dimensional definitions of the digital divide which encompass the multiple levels of ICT use outlined in the previous section. For instance, Lievrouw and Farb (2003) propose four basic elements of digital equity above and beyond matters of physical access to resources – namely skills, content, values and context. Similarly, Yu (2006) discusses 'ICT use' in terms of skills, literacies, support and outcomes of activity and practice (such as the differences in outcomes between ICT-based entertainment as opposed to education). Also of use is Jan van Dijk's (2005, p21) delineation between the motivations behind making use of ICTs, possession of operational, information and strategic ICT skills, and the nature of usage (eg usage time, the number and diversity of applications). Crucially, van Dijk sees the success of these stages of engagement with ICTs as contingent on the following aspects of resourcing:

- temporal resources (time to spend on different activities in life)
- material resources above and beyond ICT equipment and services (eg income and all kinds of property)
- mental resources (knowledge, general social and technical skills above and beyond specific ICT skills)
- social resources (social network positions and relationships – eg in the workplace, home or community)
- cultural resources (cultural assets, such as status and forms of credentials).

Implicit to all these models of ICT use are the surrounding social, cultural and cognitive contexts of the activity or practice that ICT is being used for, as well as the overall relevance and utility of the activity itself. This combination of technological possibilities, user capabilities and understandings, and the wider social context is sometimes described in terms of the 'affordances' of ICTs (Norman 1999). In this sense facilitating such affordances of ICTs relies both on the technology providers (to produce and provide content which is of use to the user) and the individual users themselves (to perceive content to be useful and feel compelled to make use of it). Aside from issues of user cognition, these individual perceptions and understandings of the affordances of ICT use are likely to be organisationally and socially based (Cushman and

Klecun 2006). If the wider cultural context of use (such as the workplace, school or home) does not fit well with the culture of the ICT application, then use will not easily follow. As such ICT use is not just based on the individual being able to 'understand' the potential benefits of ICT use, but how well ICT-based activity 'fits' with the wider contexts within which they are operating. To view the digital divide as a matter simply of successfully 'marketing' the benefits of ICT to the individual is to ignore the wider issues which must also be addressed.

In this sense an integral aspect of ICT (non)use is that of individual agency and choice. Above and beyond having the necessary access to resources, digital inclusion is therefore predicated on the ability to make an informed choice when and when not to make use of ICTs. Digital inclusion is not therefore simply a matter of ensuring that all individuals make use of ICTs throughout their day-to-day lives, but a matter of ensuring that all individuals are able to make what could be referred to as 'smart' use of ICTs, ie using ICTs as and when appropriate. In this sense not making use of ICTs can be a positive outcome for some people in some situations, providing that the individual is exercising an empowered 'digital choice' not to do so (see Dutton 2005, Selwyn 2006).

The complexity and socially-rooted nature of these issues has prompted an understandable reticence amongst sections of the policy community and IT industry to feel that they are able to engineer any sustained, meaningful change when it comes to individuals' ICT use. Some in the policy community and IT industry are resigned to see inequalities in ICT use as a natural and unavoidable phenomenon, akin to all forms of inequality in a functioning and 'effective' market economy. Other more techno-utopian stakeholders continue to store considerable faith in the power of market forces to eventually lead to full 'diffusion' of ICT use, assuming that ICT use will naturally spread from 'early adopters' (mostly male, white, affluent, well-educated) to subsequent 'majorities' of users in the due course of time (Rogers 1995). As such, some in the policy community and IT industry now consider the digital divide as a 'dead' issue not worthy of policy intervention (see Strover 2003, Compaine 2001). There have even been suggestions of late that the digital divide is a relic of the 1990s, nothing more than **"a last century anxiety"** (Brown 2005, p13).

5. Recognising the continued importance of the digital divide

We would argue strongly against abandoning the digital divide as a viable area for social intervention. There is little research basis for being either resigned or complacent when it comes to digital inequalities. Instead, there is considerable evidence that the digital divide is neither disappearing through the machinations of the market or being rendered obsolete by advances in technological development. Nor, as we have argued above, are digital inequalities rigidly following the entrenched lines of general inequality and social injustice. As such we would contend that the digital divide continues to be one of the most important social issues of our time. Moreover, it is a social issue which can be addressed by policy makers and other concerned stakeholders in the information society/knowledge economy – albeit requiring a carefully thought-through approach to any intervention.

As a basis to this discussion it is worthwhile taking some time to consider the patterning of the digital divide in more detail. In doing so there is a wealth of empirical evidence on which we can draw. Led by high-profile surveys administered by the likes of the World Internet Project and Pew Internet & American Life Project, a host of large-scale and well-executed studies have sought to map the digital inequalities in developed and developing countries alike. Building upon a series of seminal US surveys in the 1990s which first brought the digital divide to political prominence – such as the NTIA's 'Falling Through the Net' reports and the 'UCLA Internet Report' - a succession of studies and surveys show specific social groups to remain significantly less likely than others to engage with new technologies (eg Roe and Broos 2005, Dutton et al 2005, Kaiser Family Foundation 2005, Chinn and Fairlie 2004, Holloway 2005, Chakraborty and Bosman 2005, Demoussis and Giannakopoulos 2006, Roe and Broos 2005, Peter and Valkenburga 2006, Cotten and Jelenewicz 2006). Such is the recurring importance of variables such as age, socio-economic status, education, family composition, gender and geography, that the Pew study was led to observe that **"demography is destiny when it comes to predicting who will go online"** (Pew 2003, p41). This conclusion has been reinforced year on year by a variety of digital divide surveys and statistical analyses produced by governments, the IT industry, charitable foundations and market researchers the world over.

Whilst there is some variation to the magnitude of difference, the social groups most likely to be characterised as being 'digitally excluded' in these data are most commonly delineated in terms of gender, age, income, race, educational background, geography and disability. The nature of this patterning can be seen in the context of the UK, for example, in the latest data from the Office of National Statistics (2006). These data show that 57% of households in the UK could access the internet, marking a slight but steady rise from previous years [Table 1]. However, these baseline data were noticeably delineated by a number of factors. In terms of regional variation, for example, over half of households in Scotland but only one third of households in the south-east of England were found to lack internet access [Table 2]. Similarly, the 35% of adults who had never made use of the internet were more likely to be female, from older age groups and/or residing in lower-income households [Table 3], again replicating patterns evident in data from previous years.

Table 1: Households with internet access UK, 2006 (ONS 2006)

Year	% of households
2002	46
2003	50
2004	51
2005	55
2006	57

Table 2: Households with no internet access by region and type of connection, UK, 2006 (ONS 2006)

Region	% of households
Scotland	52
Northern Ireland	50
Yorkshire and the Humber	48
Wales	48
West Midlands	47
North East	45
North West	45
East Midlands	44
South West	41
London	37
East of England	36
South East	33

Table 3: Percentage of adult population (age 16 years or over) that has has never made use of the internet (ONS 2006)

Gender	
Men	30
Women	40

Age-groups	
16–24 years	10
25–44 years	17
45–54 years	26
55–64 years	43
65+ years	82

Income	
Up to £10,400	51
£10,401 – £14,559	38
£14,560 – £20,799	25
£20,800 - £36,399	12
£36,400 +	6

The significance of these factors is confirmed – to a greater or lesser extent – by a burgeoning body of academic literature conducted by scholars around the world. The breadth of this digital divide literature was recently illustrated in a comprehensive systematic review of 192 English-language research reports by Liangzhi Yu (2006). This analysis confirmed the following factors as emerging from the recent literature as associated with the non-use of ICTs within countries:

Income/socio-economic status	Lower levels of income are consistently shown to be associated with digital divides concerning access to and use of a range of ICTs.
Education	Lower levels of education are also shown to be associated with digital divides concerning access to and use of a range of ICTs.

Family structure	Family composition, adult caring responsibilities (ie for an older parent) tend to be associated with less contact with ICT. Conversely, the presence of school-age children within the household tend to increase contact with ICT.
Age	Increased age is associated with decreased levels of access, limited modes of use and patterns of connecting. Age differences are especially pronounced in those individuals aged 60 years and over.
Race	Some US studies report lower levels of access and use amongst African-American and Latino populations. However, many studies report that then racial differences in ICT use disappear when issues of income and education are taken into consideration.
Gender	Whilst gender differences were associated with digital divides during the 1990s, more recent academic research seems to indicate declining gender differences in ICT access and basic levels of engagement.
Geography/rural-urban location	Levels of ICT use generally less in rural and inner-city areas, although often differences are not evident once other socio-economic variables are taken into account.
Culture/social participation	Communities and individuals with higher levels of social contacts tend to make more use of ICTs.

From Yu (2006, p240-241) – factors are presented in order of prominence within the academic literature on the digital divide

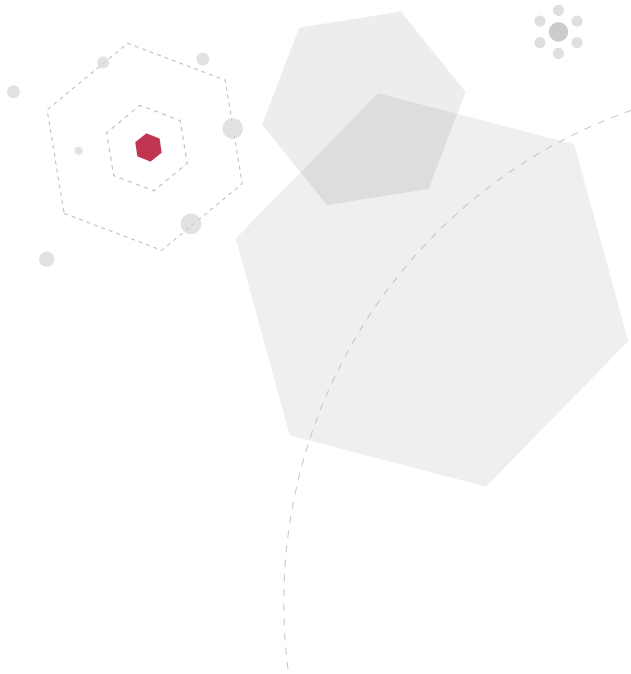
The identification of these trends is useful, although it should be noted that most of the research literature to date has been primarily concerned with ICT access and general levels of 'use', and therefore lacks the multi-layered realities of ICT use which we have outlined above. As such we should be wary of the diminishing importance of certain variables in terms of these 'headline' statistics (eg the apparent disappearance of the gendered digital divide). In fact, beyond these basic levels of access and being a 'user' or 'non-user', other studies of ICT use suggest that all of these variables continue to influence the nature, quality and outcomes of an individual's ICT engagement.

Taking the example of differences between men and women's use of the internet, a robust body of qualitative research suggests that despite the apparently diminishing divide between the sexes in terms of the quantity of access and basic internet use, gender remains an important factor in terms of the quality and nature of an individual's engagement (see Liff and Shepard 2004, van Dijk 2006). For instance recent studies of (non)use of the internet in everyday settings such as the home, workplace, and classroom highlight a host of deep-rooted ways in which gender continues to fundamentally mediate engagement with new technologies, regardless of an individual's age or technological background (eg Cranmer 2006, Lally 2003).

Concerns continue to be raised by social scientists over the gendered nature of a host of technological uses, including the playing of computer games (Melissa and Newcombe 2005), the use of mobile telephony (Lemish and Cohen 2005), and computer-mediated shopping (Dittmar et al 2004). These studies have shown, for example, how women's engagement with ICTs is often compromised by their roles as partner, sister, daughter, student, or employee. These compromises are experienced in terms of when and where women get to use technologies, as well as who gets to use technology and with what outcomes. As with all areas of contemporary society, it seems that ICT use continues to be a highly gendered area of life, even if this is now not always immediately obvious from the basic access and usage data. Crucially, these issues have been found to impact on the ICT use of women from all socio-economic and educational backgrounds. These more subtle continuations of inequality are not unique to gender; the same conclusions can be drawn for the continued influence on ICT use of all the major variables within Yu's typology, alongside other variables such as physical disability and other health-related factors.

The bearing of these inequalities between different social groups on the outcomes of ICT use continues to be significant. If individuals from underserved social groups such as older adults, the unemployed and/or carers are experiencing quantitatively and qualitatively diminished forms of ICT use then there is a danger that they will further fall behind those individuals who, in contrast, could be said to be 'super served' by ICTs. From this empirical background, we can therefore conclude that ICT use continues to be a source of significant social inequality in enduring ways. As such it is clear that the digital divide is a multi-faceted social problem, requiring a multi-faceted intervention. As Yu (2006, p235) concludes:

"Nearly all related studies agree that the fundamental solution lies beyond a mere consideration of information availability and infrastructure; they call for governments to interfere with the deep-rooted factors which have directly or indirectly caused this situation."



6. Towards a charter for change

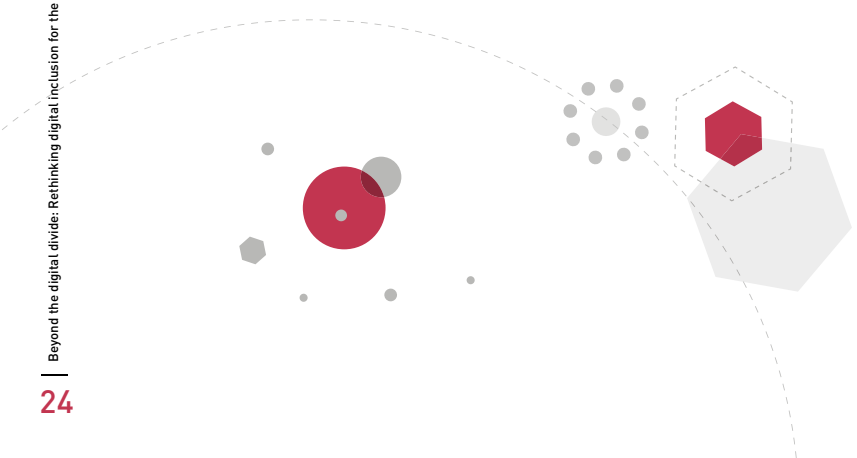
On the basis of this evidence, we would argue that there is a pressing imperative to develop a wide-ranging and ambitious agenda which sets out to address the multiple layers of the digital divide. It should be clear from our discussion so far that the digital divide is not set to simply diminish or disappear of its own accord. Instead it continues to demand a complex set of policy responses which go far beyond simply increasing levels of hardware provision and then assuming the 'gap' to have been 'bridged'. We would contend that the time is right for a country such as the UK to develop a renewed and revised portfolio of interventions and initiatives which builds upon but moves beyond the past decade of digital divide policy-making. In short there is a need for policy makers, technologists and other stakeholders in the UK as a digital society to work together on how best to achieve the following aim:

Enabling all individuals to make informed and empowered choices about the uses of ICTs whilst ensuring these individuals have ready access to the resources required to enable them to act on these choices.

To date, much government activity in the area of the digital divide has centred on the latter half of this aim: ie "ensuring that individuals have ready access to the resources required to use ICTs". In particular, UK government activity has focused on widening access to ICT resources, skills and support for the socially disadvantaged, as well as the provision of public services through ICT to all citizens. These objectives have been pursued through a series of high-profile initiatives over the past ten years prompted initially by the Social Exclusion Unit's PAT15 report (SEU 2000). These initiatives have included ICT for All, UK Online, NGfL and associated Community Grids for Learning, the People's Network, learndirect, and others. Specific digital divide pilot initiatives such as Wired-Up Communities and Computers Within Reach were also implemented during the first years of the 2000s. Latterly, a new wave of initiatives such as the Digital Challenge community funding programme, the PCs for Pupils initiative and the UK Online Social Impact Demonstrator projects have been introduced in response to the government's recent 'Action Plan on Social Exclusion' (Cabinet Office 2006) and 'Inclusion Through Innovation' report (SEU 2005).

Yet with the demise of the over-arching Office of the e-Envoy there are signs that the momentum from this policy work of the last ten years is declining. In particular there is clearly scope to extend the focus of current digital divide initiatives to encompass all sectors of society, not just those considered to be generally socially disadvantaged. Moreover, there is a need for the policy community to begin to give serious consideration to the first half of our stated aim – ie "enabling all individuals to make informed and empowered choices about the uses of ICTs". In a reflexive, globalised society where individuals are expected to take responsibility for their own actions, this is arguably the most important aspect of the digital divide. The key question to consider is whether government, public sector organisations and other concerned stakeholders have the capacity to support and strengthen individuals' capacity to make these choices when it comes to ICT.

With this in mind we conclude this paper with a 'charter for change' – outlining a list of basic entitlements which we would suggest that every individual in the 21st century digital age can reasonably expect. We also offer a list of corresponding assumptions about the digital divide which should inform future discussion and action. Most importantly, we conclude by highlighting a number of areas and issues which will require consideration and clarification before any sustained progress can be made. This, we hope, can provide a basis for debate over the forthcoming months.



Beyond the digital divide: a charter for change

We propose a set of four entitlements which we suggest that every individual in the current digital age can reasonably expect:

- **Entitlement one:** all individuals are able to exercise an empowered and informed choice about their use or non-use of ICT.
- **Entitlement two:** all individuals have ready access to the requisite social and technical support, skills and know-how to support their use of ICT.
- **Entitlement three:** all individuals have ready access to ICT-based content and services which are relevant and useful to their needs and interests.
- **Entitlement four:** all individuals have ready access to a full range of ICT hardware and software.

Underpinning these entitlements, we also propose a set of six challenges to our basic assumptions about the digital divide which should inform future discussion and action:

- **Challenge one:** to start from premise that individuals from all sectors of society can be digitally excluded – not just those who are considered socially disadvantaged in general, or just those who make no use of ICT.
- **Challenge two:** to remember that there is a diverse and wide range of technologies which can be considered as ICTs – not just computers and the internet.
- **Challenge three:** to draw upon the diverse and wide range of activities for which ICTs can be used.
- **Challenge four:** to strive to extend the range of ICT-mediated activities through the involvement of all social groups in the production of digital content and services.
- **Challenge five:** to find ways to make the full range of ICT-based activities visible and viable to all individuals – regardless of their current engagement with ICT.
- **Challenge six:** to seek to match the affordances of ICTs with the everyday needs, interests and desires of individuals.

7. Beyond the digital divide: questions to consider

Who should take a lead?

With the demise of the Office of the e-Envoy there is a sense that the issue of the digital divide is lacking a central advocate and coordinating presence within UK government. At present the digital divide is the explicit concern of the DCLG's Digital Inclusion Team, whose remit is to explore the application of ICT to alleviate the basic needs of the socially disadvantaged. Whilst this group is undertaking valuable work, there appears to now be less 'joined-up' concern within government over the wider issues underlying the digital divide, an approach which may, for example, lead to those individuals who would not be necessarily classed as disadvantaged in other aspects of their life being overlooked. This may be particularly significant when it comes to considering gendered or geographical differences in access and use.

This lack of general profile within government contrasts with the number of public and private sector organisations working in the area of digital inclusion – from charitable organisations such as Citizensonline, the Alliance for Digital Inclusion, the e-Learning Foundation and Intellect to private sector interests such as DSG International, BT, Microsoft, Cisco and AOL. Aspects of the digital divide such as e-democracy have also formed prominent areas of work for organisations such as the BBC, Hansard Foundation, ippr and Demos, as well as the devolved administrations in Scotland, Wales and Northern Ireland.

The continuation of this de-centralised model of digital divide intervention may well be desirable. The question should nevertheless be raised as to whether responsibility needs to given to a dedicated sector of central government. Is there a need for a distinct Department for the Digital Divide (along the lines of the Office of the e-Envoy) or else a direct remit being given to an existing department (as was previously the case with the DfES, DCMS or DTI)? Conversely, should central government pull further back from leading in this area? What roles can be played by the likes of OfCOM and Becta?

Another issue which merits consideration is the increased involvement of individual citizens in the digital divide debate. William Davies, in the ippr's 'Manifesto for a Digital Britain', argued for the establishment of a high-profile, democratised debate over the capabilities of ICTs and the purposes of digitisation. Increased involvement of the 'citizen voice' within the digital divide debate could shape outcomes in ways which are both meaningful and relevant to the public and therefore stand more chance of success (Davies 2005). Is this politicising (with a small 'p') of the digital divide debate a desirable direction to pursue? If so, how may such a debate be stimulated, maintained and acted upon? These questions of the politics of the digital divide are all issues which should be addressed as a matter of urgency.

How do we ensure ready access to hardware and software?

As we have established, ensuring that individuals have adequate access to hardware and software is a pre-requisite to tackling the digital divide. To date government strategy has largely focused on the provision of communal internet access points in public locations such as schools, libraries, museums and other community settings. Such a 'community technology centre' approach has achieved varied success in widening meaningful access to those individuals and social groups otherwise lacking internet and computer access in domestic or workplace settings (see Smith and Cook 2002, Hall Aitken Associates 2002, Selwyn et al 2005). But are other options available, especially considering that ICT resources now span beyond desktop computers and fixed internet connectivity? For instance, can and should government provide access to personalised and mobile technologies or digital interactive television in similar ways?

There are a number of alternative options to the community technology centre approach which could also be considered. For instance, there could be a place for government intervention in areas of ICT provision where there has been 'market failure' to distribute ICT access. Such intervention may take the form of direct state provision of ICT resources to under-served populations, or else the use of tax incentives or reduced tariffs on ICT goods to stimulate the domestic, workplace and education markets for ICTs. There are other 'low-cost computing' strategies which can be revisited (James 2001), not least the redistribution of reconditioned hardware and software to underserved

populations. This area of recycling looks set to increase in significance in light of the UK implementation of the EC Waste Electrical and Electronic Equipment (WEEE) directive which provides an incentive to producers of hardware to re-use rather than recycle (DTI 2006). With this mind, is there scope to build upon the spirit of the Computers Within Reach and Wired-Up Communities programmes whilst being mindful of the logistical and administrative problems experienced during these pilot initiatives (Halcyon Consultants 2003)? This legislation may also encourage the dismantling and redesign of old equipment into new sorts of hardware – how might this be encouraged in ways which offer creative solutions to difficultures of access for different communities? In the area of software, what role might be played by further exploring and mainstreaming Open Source approaches to development (Futurelab 2005)? Whilst it remains only one aspect of the digital divide, ensuring adequate quantity and quality of access for all remains an important issue to address.

How do we ensure ready access to relevant content and services?
Digital inclusion is also predicated upon ensuring that individuals have adequate access to meaningful and relevant content and services. To date government strategy has largely focused on the provision of public sector services and information. The Cabinet Office's e-Government Strategy (Cabinet Office 2005) and the DTI's Digital Strategy (DTI 2005) have been implemented with some success, not least in the establishment of the Directgov portal. A Cabinet committee has recently been established to address barriers to effective data sharing between government and citizens. Encouraging citizen interaction with government has also been pursued through a number of recent non-government initiatives, such as the Hansard Society's e-democracy programme and their Digital Dialogues initiative, as well as the funding of 'bottom-up' civic information websites by the likes of mySociety, and the high-profile direct e-petitioning of government.

Should these initiatives be extended? How can we best ensure that the production and distribution of government information and services is underpinned by social justice principles and promotes genuinely open access to information and knowledge? A key area for debate here is the relative virtues of 'top-down' provision of information and services as opposed to the

'bottom-up' creation of content. Should the official production of information and services move beyond its primary foci of education, employability and interaction with government services? Is there a role for the official provision and support of ICT uses which are based around more creative or frivolous uses of technology? In terms of internet-based information, are individual users best served by 'supersites' such as the BBC, MSN or directgov or the use of community generated local content? Should 'top-down' official content be reshaped for different social groups? For example, should digital content emanating from the middle-class mainstream society be repackaged for other sectors of society, such as the elderly or ethnic minority groups (see Hargittai 2003)? Are there opportunities to extend the approach of the DfES Cybrarian Project, such as the myguide facility which has been developed to support the consumption of online information by underserved populations? What role is there for community online networks and other forms of bespoke content production by individuals (Borgida et al 2002)?

How do we ensure ready access to skills, social and technical support and know-how?

A further important element of digital inclusion is ensuring that the social context of ICT use allows individuals to be informed about their choices, and provides trustworthy support when using ICTs. At present, most government effort in this area has been directed at the formal provision of ICT skills and support, most notably in the provision of ICTs skills training via the learndirect and UK Online initiatives, and the training of staff in community technology centres to support users. Yet are there ways to make more extensive and imaginative use of these ICT skills training programmes? One possibility would be the cascading of skills and know-how back into skills-deprived communities, thereby using ICT training to build the social capital of communities. Efforts could be made, for example, to encourage and support those individuals who have received ICT skills development as part of their formal education and training to return to their communities and support other individuals in their informal social networks in their ICT use (as evinced in the notion of the Scottish Executive's Digital Champions).

Furthermore, it is observed that people often prefer what they see as 'disinterested' sources of advice rather than 'interested' ones, ie those that can offer 'impartial advice' (Introna and Nissenbaum 2000). Aside from the formal provision of skills and support is there scope for supporting the informal networks which individuals draw upon for advice and support, especially family and work networks? Could ICT suppliers such as PC World, Currys, Digital and other ICT professionals be supported in playing more sustained supportive roles for individual users which are not commercially-driven? Can lessons be learnt from the DTI's Digital Switchover Help Scheme for the elderly and disabled? Are there ways in which the informal and sometimes non-legal neighbourhood contacts used to supply software and advice to individuals can be built upon – therefore tapping into the so-called 'greyware culture' (Sundaram 2004) which underpins much domestic ICT use?

How do we ensure individuals can exercise an empowered choice?
Underlying all these issues is the most challenging but perhaps most important area for consideration. Amidst all these suggestions for intervention it should be recognised that public-sector support for individuals' ICT use can only go so far. In light of our opening discussion concerning the individualised nature of contemporary society, any government intervention in the digital divide must start from the assumption that the successful individual is reflective and reflexive, building upon and learning from past experiences and reacting to new opportunities and circumstances. In this sense individuals must ultimately take responsibility for their ICT engagement, acting in a reflexive manner towards ICT use. Yet how can individuals be as empowered, informed and effective as possible in making these choices and engaging with ICT?

With this in mind, a new strand of the digital divide debate needs to be opened up amongst academics, policymakers, technologists and other stakeholders as to how to enable informed choices and support the actions of individuals as knowledgeable users or non-users of ICTs (see Cushman and Klecun 2006). It could be that an empowering of users would result from the democratising of the digital divide debate as suggested earlier. Such public recapturing of the discourses surrounding ICTs in society could lead to the opening up of the 'black box' of ICTs to individual users, so that ICT use becomes less of a

prescribed means to prescribed ends, and more a set of tools and practices which the majority of individuals feel that they have some control over and part in shaping (see also Schofield Clark et al 2004, Mansell 2002). Nevertheless, there is an obvious need for the development of some tangible actions and interventions in this area above all others.

8. Beyond the digital divide: where next?

Whilst it is trite to talk of 'digital divide 2.0', in many ways this paper is arguing for a wholesale re-imagining of the digital divide as a social rather than 'simply' a technical or economic issue. We want to foreground the importance of skills, informed choice, content and community in creating new contours to 'the' digital divide in the early years of the 21st century.

As such, this paper is intended to act both as a reminder of a longstanding problem - sometimes forgotten as we enter the brave new world of Web 2.0, 4G phones and immersive gaming - and a call for collaborative action. Just as the digital divide is social as well as technical, so too will its solutions require collaboration across technical and social research, between education and social policy, between industry, community and public sector.

As is often the case with such papers, we have raised far more questions than answers and highlighted many problems whilst offering few potential solutions. We hope that the charter we have presented might act as a focus for the establishment of a more equitable information society, and look forward to discussing, refining and meeting the entitlements and challenges outlined in the charter with people and organisations from all sides of this debate.

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