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# Beyond Access: Bridging the Digital Divide

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# BEYOND ACCESS: BRIDGING THE DIGITAL DIVIDE

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## Abstract

*This paper describes the theoretical underpinnings of an ongoing research project that is examining the relationship between e-Democracy and the 'digital divide'. The literature surrounding the Digital Divide is reviewed, and the importance of equitable physical access to ICTs in the drive to bridge the issue of social exclusion examined. It is argued that any discussion of the phenomenon of the digital divide must look beyond equitable physical access and take into consideration issues mentioned separately in the literature – 'real access', 'reach' and 'socially responsible connectivity'.*

*Keywords: Digital divide, social responsibility, connectivity, e-government.*

## 1 INTRODUCTION

The exponential growth of the use of information and communications technology (ICT) has had such a profound impact on the way that we live that it has been referred to by the economic commentator Alvin Toffler as the third, or 'Information' revolution. It is expected that over time, ICT will comprehensively change the patterns of people's lives, as have previous innovations such as broadcasting and high-speed transport (PAT 15 2000). However, there are fears that a widening divide is emerging between those who are participating in the information revolution and those who are not – the so called *digital divide*.

This paper reviews the literature surrounding the digital divide, and investigates the assumed importance of equitable physical access to ICT in the drive to bridge the divide. It is argued that any discussion of this phenomenon must look beyond the issue of equitable physical access, and take into consideration issues mentioned separately in the literature – 'real access', 'reach' and 'socially responsible connectivity'. In the final section of this paper we discuss an on-going project that is examining the 'reach' of electronic consultation among socially excluded groups. The paper concludes with a discussion of some of the initial results emerging from the project.

## 2 WHY STUDY THE DIGITAL DIVIDE?

In recent years, the notion of the digital divide has been widely researched, and has attracted much debate and speculation. Despite the wealth of studies examining this phenomenon, it has been suggested that commentators lack an overly critical perspective in the evaluation of the benefits of technologies, believing instead that the adoption of new technologies is inherently beneficial (Foley and Alfonso, 2002).

Some studies tend to attempt to measure the digital divide: the Digital Divide Index (DDIX) created by Husing and Selhofer (2002) is an example. Other studies tend to focus on Internet usage (MORI 2002; ONS 2003; OFCOM 2004) and, more specifically, those individuals who are and are not using the Internet (DfES 2001). The majority of these studies investigate issues of use among different groups according to variables such as gender, income, age and location (DfES 2001). The assumption here is clearly that the digital divide is merely an issue of access to various technologies.

### 2.1 Defining the Digital Divide

The term 'digital divide' was first used in the mid-1990s at a time when debate raged surrounding whether regulation should be built into the US Telecommunication Act 1996 in order to offset market forces (Tsiavos et al, 2001). Since then, arguments relating to the digital divide, its manifestations and its effects have assumed greater importance in socio-political debate and within policy circles (BRIDGES 2003). Nowadays, the digital divide is seen to be on a par with the divisions in class and basic literacy that existed in the industrial age as well as the persistence of social and economic divisions between the First and Third Worlds (MacNamara and O'Donnell, 2001).

Essentially, the digital divide is a socio-economic problem that has been exacerbated by the recent growth in ICT use and the Internet in particular (Tsiavos et al, 2001). The digital divide can be seen as an expression of social and economic inequities, with ICT having the potential to reproduce and increase the social and economic inequities already existing throughout society (Gomez and Martinez 2000).

In the policy literature the digital divide has been defined as "the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities" (OECD, 2001). It is also referred to as "the spiral of uneven

access to and usage of information and communication technologies and the socio-economic rebound caused” (Husing and Selhofer, 2002: 1274-5) that has caused the emergence of information inequality throughout the world, both in and between countries and also locally in communities.

### **3 THE IMPORTANCE OF EQUITABLE PHYSICAL ACCESS IN BRIDGING THE DIGITAL DIVIDE**

Universal access to ICT and the Internet is seen as necessary to avoid social divisions and to open up opportunities for all by ensuring that future ‘knowledge economies’ includes everyone (HM Treasury 2000). This section examines the levels of Internet access in the United Kingdom.

#### **3.1 Internet Access in the UK**

The most recent estimated figures from the UK Office of National Statistics (ONS), published in April 2003, suggest that over the period October to December 1998 2.2 million households had access to the Internet, growing to 11.4 million in the period October to December 2002; in October to December 1998 nine per cent of households had Internet access from home computers, growing to 43 per cent in October to December 2002 (ONS, April 2003). In the first quarter of 2003, 11.7 million (or 47 per cent) households had access to the Internet from home, growing to 12 million (48 per cent) in April-June 2003 (ONS, September 2003). In April to June 2003, the number of households with Internet access is over five times the number just five years previously in April to June 1998 (ONS, September 2003).

According to ONS (September 2003) relating to July 2003, of those who had used the Internet in the three months prior to interview, 99 per cent had used a computer, of which 25 per cent had used a laptop computer; approximately 10 per cent had used their mobile phone; whilst other means of access such as Digital Television were reported but small sample sizes mean that estimates are unreliable.

ONS (September 2003) also provides recent data concerning where people access the Internet. Individuals were asked where they had used the Internet in the three months prior to interview. The most popular location was the respondent’s own home (with 83 per cent), followed by workplace (43 per cent), another person’s home (25 per cent), at the individual’s place of education (16 per cent), public libraries (10 per cent) and Internet cafes or shops (nine per cent).

According to ONS (September 2003), men use the Internet more often than women. Almost half of all men who had accessed the Internet in the three months prior to interview did so every day or almost every day, compared with 35 per cent of women. The data shows that women use the Internet less frequently, with 30 per cent accessing the Internet at least once a month but not every week, or less than once a month, compared to 21 per cent of men.

#### **3.2 What does ‘Access’ tell us about the Digital Divide?**

The statistical information presented above tells us how many people are accessing the Internet in the UK, how and where they gain access and the frequency of their access. These are issues that are essential in any discussion of the digital divide. However, the issue of access is not a simple one. Foley and colleagues (2002) suggest that the digital divide, based upon access, exists not only between those individuals or groups that have Internet access and those that do not, but between high, medium, low, and non-users. In this situation, they argue, disadvantaged users will always have to play catch-up with more advantaged users, who will tend to possess higher levels of skills and adopt newer technologies and services (Foley et al 2002). Access by one group cannot necessarily be equated with access gained by another group: some groups will have attained higher-level Internet access with more advanced ICTs, while other groups may have dial-up Internet connections with dated hardware and software.

It is important to take this debate beyond a consideration of such 'physical' access alone and to broach other issues that are equally important in any discussion of the digital divide. Access to technologies alone will do little to bridge the digital divide (Sipior et al, 2002), since access does not necessarily guarantee use: for instance, household access to the Internet does not necessarily mean that all members of that household are using the Internet. This next section moves this debate beyond a consideration of physical access, and looks at the related, but often neglected, issues of 'real access', 'reach' and 'socially responsible connectivity'. These three concepts allow us to gain a greater appreciation of the dynamism and complexity of the digital divide.

#### **4 'REAL ACCESS', 'REACH' AND 'SOCIALLY RESPONSIBLE CONNECTIVITY'**

This section examines three issues referred to separately in the available literature: 'real access', 'reach' and 'socially responsible connectivity'. Their significance is that they draw attention to factors, other than the somewhat simple factors associated with physical access alone. If they gain greater currency both within academic debate and within political circles, these factors may ultimately contribute to better policy aimed at overcoming the digital divide.

##### **4.1 'Real Access'**

Several authors argue that physical access to computer technology alone is not sufficient to close the digital divide (Arterton 1987; Gomez & Martinez 2000; Foley et al 2002; Selwyn 2002; Sipior et al 2002). Rather, there are other equally important issues, not least the further attainment of computer skills, greater availability of computer technology in the community (homes and institutions) and the regular engagement of the whole community in using technology (Sipior et al, 2002).

The organisation BRIDGES (2001), argues that ICT needs to be affordable; people must understand how to put it to use and not be discouraged from using it; and the local economy must be able to sustain its use. All of these factors combine to form, what is called at BRIDGES, 'real access'. It moves beyond 'physical access' and creates opportunities for people to use technology effectively to improve their lives (BRIDGES 2001). Twelve criteria are set out as determining factors of the extent of 'real access' (BRIDGES 2001):

- Physical access: is the technology available and physically accessible?
- Appropriate technology: what technology is deemed appropriate according to local conditions, and how people need and want to put technology to use?
- Affordability: is access to technology affordable for people to use it?
- Capacity: do people understand how to use technology as well as its possible uses?
- Relevant content: is there locally relevant content, particularly in terms of language?
- Integration: does the technology further burden people's lives or does it integrate into their daily routines?
- Socio-cultural factors: are people limited in their use of technology according to socio-cultural factors, such as gender or race?
- Trust: do people have confidence in and understand the possible implications of the technology they use, such as privacy, security or cyber-crime issues?
- Legal and regulatory framework: how do laws and regulations impinge upon technology use, and what changes are required to create an environment that fosters its use?
- Local economic framework: is there a local economy that can and will sustain technology use?
- Macro-economic environment: is national economic policy conducive to widespread technology use, such as in relation to transparency, deregulation, investment and labour issues?
- Political will: is there the political will in government to do what is necessary to enable the integration of technology throughout society?

Each of these factors is interdependent and so cannot be individually used as a determinant of 'real access'.

Foley and colleagues (2002), echoing the thoughts of BECTA (2001), suggest that access to ICT is merely a precondition for use, and other factors are also important in determining whether an individual makes effective use of ICT, including awareness raising, training provision and the individual's desire to use ICT.

#### 4.2 'Reach'

A further dimension of the digital divide is the idea of 'reach'. Arterton (1987) argues that to determine 'reach' it is necessary to measure how many of those who are able to participate (access) actually do take part (reach): for instance, of those who have Internet access, who does participate? According to Arterton (1987), writing in the context of 'teledemocracy', a participatory system must be designed and implemented in such a way as to maximise both access and 'reach' if it is to fulfil democratic principles. He is wary that attempts at securing near universal participation through technology are thwarted by a considerable gap between access and 'reach'.

So what intervening factors can explain the gap between access and 'reach'? A look at the available literature relating to technology and democracy highlights a number of issues that go some way towards explaining this perceived gap. These include:

- the way technology is utilised by various groups: some groups may use ICT for personal reasons such as e-mail, and may not have considered the possibility of participating in the political process online
- the attainment of computer skills: some people with access may feel they do not have the skills deemed necessary to engage electronically with the political system
- the lack of alternative communication channels: some people may feel unable to participate fully using the English language, particularly those who do not use English as a first language and those who are illiterate

Selwyn (2002), discussing access and use of public ICT sites in the UK, is interested in who has 'access' to what forms of public ICT sites and who is (and who *is not*) making 'use' of them. This research appears to have some resonance with the issue of 'reach': if people have access to ICT, it may be a different matter entirely if they actually put this technology to use for participatory reasons ('reach'). Selwyn's data suggests that only 11% of research respondents made use of computers in some form of public ICT site during the twelve months prior to his study. Also, just under two thirds of the research sample lived in electoral wards with libraries offering ICT access, yet just under a third cited them as a ready means of Internet access. Free access obviously does not guarantee usage. In referring to this pronounced disparity between 'formal access' and 'effective access', Selwyn's work also seems to make some critical points about the 'reach' of public ICT sites, with the language of 'formal access' substituting 'access' and 'effective access' substituting 'reach'.

#### 4.3 'Socially Responsible Connectivity'

In addition to 'real access' and 'reach', the idea of 'socially responsible connectivity' looks beyond the simple issue of equitable access to ICT. Gomez and Martinez (2000), describe the term 'socially responsible connectivity' as involving the fostering of meaningful use and relevant appropriation of ICT in the following ways:

- equitable access to technology, particularly in remote areas and marginalised communities (e.g. through public access facilities)
- meaningful use of technology according to local users' own needs and preferences, including acquiring, exchanging, producing and disseminating information and content (e.g. having the

criteria to select from a menu of communication tools, such as e-mail, depending upon organisational goals)

- appropriation of ICT tools in which people absorb, systematise and turn information and new relations into new knowledge that can be communicated to others and applied to solve their concrete needs (e.g. improving the quality of education)

'Socially responsible connectivity' also involves the consideration of a broader base of social and political actors beyond States and businesses, such as civil society, and the directing of policies at local, regional and national levels in order to work together to find appropriate ICT solutions for society's many needs (Gomez and Martinez 2000).

Gomez and Martinez (2000) perceive 'socially responsible connectivity' as having the potential to allow citizens to use ICT as tools for development purposes that not only strengthen their ability to work, but also help them solve their most critical needs, enable the realisation of their full human potential and lay the foundation for the consolidation of democracy and prosperity.

The factors approached in this paper, 'real access', 'reach' and 'socially responsible connectivity', are by no means the only other issues that need addressing in the debate on the digital divide, but are presented briefly here, for the sake of clarity, as examples taken from the available literature. The importance of addressing these three issues is that they present a more complex and diverse definition of the digital divide, one that captures its various idiosyncrasies and acknowledges the various factors other than access, or lack of access, that demarcate the information haves from information have-nots.

## **5 ONGOING RESEARCH**

Our ongoing research project is examining the reach of electronic consultation, a facet of e-government amongst socially excluded groups in Wales. E-consultation is 'a two-way relation [between governments and citizens] in which citizens provide feedback to government' as a means to improve the quality, credibility and legitimacy of policy decisions, which in turn can enhance both legislative decision-making and scrutiny (OECD 2001, p. 2).

The National Assembly for Wales (NAfW) has taken the opportunity to engage its citizens electronically in the creation and development of policy through e-consultation. The first ongoing e-consultation at the NAfW, Cymru Ar-lein (Wales On-line), was launched in November 2001. The e-consultation was established in order to help develop a strategic framework for Wales in the area of ICT. The strategy aims to ensure that Wales take full advantage of ICT. It is the 'reach' of such e-consultation among socially excluded groups that is the focus for our research.

As we have seen the literature refers to a variety of reasons why the socially excluded may be 'digitally excluded' from engaging in the information society in general and e-Democracy in particular: the prohibitive costs associated with computer ownership, Internet access and hardware and software. Other issues, such as low levels of educational attainment and low socio-economic status are also implicated as factors that may deter socially excluded groups from owning or accessing ICT.

Our research encompasses all of those issues addressed earlier in the paper, from accessibility to issues of content and capacity ('real access') and appropriation of ICT tools ('socially responsible connectivity'), and so aims to serve the recommendation suggested in this paper that the digital divide be perceived in a way that goes beyond consideration of equitable physical access.

We have gained access to a series of ICT awareness raising seminars organised by the NAfW, which are being run throughout Wales in the period November 2003 to June 2004. These seminars are attempting to raise the awareness of and interest in the use of ICT in general but also as a means of communicating with the NAfW. They aim to act as a conduit for participants to become further involved in a range of ICT training programmes run in Wales. Data collection involves observing at sessions, semi-structured interviewing of participants during the sessions and follow-up interviews

with participants. A large subset of the sessions is to be targeted at socially excluded groups such as the elderly, the disabled and from various ethnic minorities.

Arterton's definition of 'reach' is concerned with discovering how many people who are able to participate (those who have access) actually do take part (reach). This definition will be applied directly to electronic consultation, and will move the research beyond a simple appreciation of access alone. The research aims to demonstrate whether, in a scenario where physical access to ICT is assured, socially excluded groups will use the opportunity to access and contribute towards electronic consultation. Issues of motivation and interest will be investigated in order to determine and measure how far electronic consultation 'reaches' socially excluded groups; i.e. in a scenario where socially excluded groups have physical access to ICT are they motivated to/interested in electronic consultation; will they contribute to an e-consultation; how do they perceive the importance of electronic consultation?

## 6 CONCLUSION

This paper has conveyed the importance of equitable physical access as central in any attempt to overcome the digital divide. Equitable physical access is essential if all individuals who desire to participate in the information society are to be given the opportunities for accessing the relevant ICT. However, equitable physical access alone has been shown to be insufficient at getting individuals online and encouraging the productive use of ICT by all members of society. The importance of the three additional concepts discussed in this paper, 'real access', 'reach' and 'socially responsible connectivity' need to be considered by researchers and by policy-makers. This paper has attempted to move beyond the perception of technology as an end in itself, and instead see ICT as an 'enabling tool' (PAT 15), one that does not assure its own effective use but requires parallel investment in resources, relevant content and trust of users, amongst many other factors related to 'real access', 'reach' and 'socially responsible connectivity' in order to be used successfully for social reasons.

The 'real access' to, 'reach' of and connectivity with electronic consultation are important issues in today's political and social environment where ICT is gaining greater popularity and currency as a communicative tool. Our ongoing research aims to place the use of electronic consultation in the context of addressing the needs of socially excluded groups.

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