

# The digital divide in a world city



June 2002



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A literature review and recommendations for research and strategy development to address the digital divide in London

*A report commissioned by the Greater London Authority,  
London Development Agency and LondonConnects*

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# **The digital divide in a world city**

A literature review and recommendations for research and strategy development to address the digital divide in London

Prepared by IECRC and Citizens Online for the Greater London Authority, LondonConnects and the London Development Agency

Paul Foley, Ximena Alfonso and Shazad Ghani



**20 June 2002**

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## Executive Summary

A digital divide exists, but it is not as simple as have and have not. There will always be a divide between high, medium, low and non-users. Disadvantaged users will always be playing catch up. Advantaged ICT users will probably always possess higher levels of skills and adopt newer technology and services. (Section 1.2)

Household connectivity in London was 45 per cent in 2001; this was higher than in any other UK region. Average UK household connectivity was 37 per cent. (1.3)

The least connected boroughs in London in January 2001 were Barking and Dagenham; Hackney and Islington, all three had less than a quarter of households connected. The three most connected boroughs (Kingston upon Thames, Richmond upon Thames and the City of London) had more than twice this level of connectivity. (1.3)

Barriers to adoption and use of ICTs by socially excluded groups are usually correlated with socio-economic factors. Use of ICTs by socially excluded groups living on council estates with high unemployment was only 16 per cent (2.2)

Socio-personal factors (encompassing attitudinal and behavioural factors such as levels of interest; awareness; understanding and acceptance of ICTs) are also key barriers to the adoption of ICTs by socially excluded groups. Just under half of the 49 per cent of UK adults who have never used the Internet claimed that they have not done so because they are not interested. Furthermore, 39 per cent of non-users stated that nothing would encourage them to use the Internet. Contrary to popular belief only 24 per cent of non-users said that the reason for not using the Internet was the lack of a computer or online access. Amongst non-users the most important factor to enhance ICT adoption was not access but training coupled with a reduction of access costs. (2.2)

Lack of access to a computer declined in importance as a barrier to adoption by two per cent in the last year. The proportion of adults who have never accessed the Internet stating 'a lack of interest' or 'do not want to use it' rose by two per cent, to 40 per cent, during the last year. (2.2)

Low educational levels provide an indication that individuals might not only lack the basic computing and technological skills needed to use ICTs, but also the basic literacy levels required. Even though IT literacy is higher in London than elsewhere in the UK, one in eight young people under 25 had no IT skills. This figure rose to almost half for those aged 50 and over (2.3)

Simply providing online access at a public access point or in a socially excluded person's home is unlikely to enhance efficiently the level of Internet use. Access is a precondition for Internet use, but supporting activities such as raising an awareness and desire to use the Internet and the provision of training to develop basic levels of ICT skills are also important. (3.7)

One of the three main targets of UK ICT policies is to ensure that everyone who wants it has access to the Internet by 2005. Current strategies predominantly focus on providing access and support to those individuals who seek access themselves. Few policies have been introduced that target those, often from socially excluded groups, that need more encouragement to use Internet. (4.2)

Numerous benefits have been proclaimed to result from the use of ICTs, but few studies substantiate these claims. An important component of any initiative to enhance ICT use

must be to discover how socially excluded groups benefit from ICTs and then to ensure that the content or services they find most beneficial is enhanced. A more user focused approach is required to encourage ICT adoption and use among socially excluded groups. (5.4)

A lack of interest in ICTs amongst those not connected is probably the most significant problem facing policymakers. The number of non-users with 'no interest' remains stubbornly high. If these ambivalent views are to be overcome non-users must be convinced that there is a benefit in using ICTs. (6.2)

This report presents a framework that policymakers and researchers can adopt to investigate and address the digital divide. Our approach models the way policy intervention can take place to support and encourage socially excluded groups to use ICT. It identifies the key areas for policy intervention and adopts a user focused perspective. By developing new policies and refining existing initiatives for each stage of the adoption process a more holistic approach in overcoming the digital divide in London should be possible. (6.3)

Deficiencies in knowledge about the requirements and benefits of ICT to socially excluded groups can be overcome by undertaking four research projects. Information from these projects will be important in establishing if there are benefits in ICT use for socially excluded groups. If this is the case they will be vital in developing ICT initiatives that encourage socially excluded groups to use ICT. The four proposed projects are:-

- A citizen study to examine ICT use and non-use.
- A geographic study to examine non-use in different areas of London.
- A workplace study to investigate ICT use, non-use and training opportunities at work.
- A review of public access points and ICT training centres to examine use, impact and 'what works'. (11.1)

Strategy development and implementation activities are proposed in the final chapter of the report. They provide the basis for stimulating discussion about the key objectives and strategic activities required to address the digital divide in London.

*Key objectives include:-*

**Awareness:** To enable all citizens to become aware of the benefits of ICT in their social and working lives.

**Access:** To enable all citizens to have access to ICT from home or a convenient nearby location.

**Skills and Training:** To provide all citizens that require it with the skills to use ICT for work and pleasure.

**Use and Impact:** To raise use to a threshold that encourages the provision of more information and services for socially excluded groups. (12.2)

**Leadership** – Development of organisational capability to address the digital divide, probably co-ordinated through one organisation.

**Strategy** – Development of strategy, driven by a user focus, provided through a range of ICT channels.

**Research and resources** – Funding should be provided on the basis of sound research. Initiatives need to target non-users.

**People and partnerships** – Partnerships between organisations will be required to provide the multi-faceted approach required to address the digital divide. (12.3)

# 1 Social Exclusion and the digital divide in London

## 1.1 Introduction

This report has been prepared by IECRC and Citizens Online after reviewing more than 200 papers and research reports concerned with information and communication technology (ICT) use and the digital divide. Most of this literature has not adopted an overly critical perspective in evaluating the benefits of ICT. The presumption that adoption of ICT is beneficial, without any real attempt to understand the relationship between users and ICT, is an inherent feature of much literature. This presumption is fostered and maintained by the policy push from governments to encourage the adoption and use of ICT.

The fact that research in this area is relatively new, coupled with the presumption of benefit, means that little is known about how users are responding to the opportunities provided by ICTs, beyond relatively simplistic studies and statistics of use by gender, age or location. In addition there is little empirical evidence that relates to how and why people use ICTs and the problems that arise from adoption. This report presents the information that we have been able to find and concludes with recommendations for research to overcome deficiencies.

The definition of ICT used throughout this report includes the use of Internet enabled devices such as PCs, mobile telephones, interactive digital TV, PDAs (personal digital assistants) and games machines (such as the Sony PlayStation 2 or the Microsoft xBox).

The first chapter of this report examines the relevance of the notion of the digital divide to London.

The next first four chapters provide a quantitative and qualitative assessment of the nature and extent of the digital divide. These chapters provide a brief description of key issues related to ICT use, each chapter is followed by bullet points presenting key statistics found in ICT studies.

Chapter two examines socio-economic and socio-personal barriers to ICT use. Chapter three investigates factors that enhance the use of ICTs by socially excluded groups. This is followed by an examination of current policies to address the digital divide in the UK and other developed countries. The final introductory chapter considers the impact of the Internet and the benefits of ICT for socially excluded groups.

Chapter six draws together these key findings into a framework that policymakers can use to identify areas where policies and initiatives can be developed to address the digital divide. The remaining chapters examine each component of the framework; ICT awareness, access, skills and training, use and impact. The final two chapters present the key research projects and strategy development activities required to address the digital divide in London.

## 1.2 Social exclusion and the digital divide

***Social exclusion*** is a shorthand term for what can happen when people or areas suffer from a combination of linked problems such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health and family breakdown.

Social exclusion is a politically contentious concept. It is multi-dimensional and not simply related to income. Research has revealed a wide range of causes of social exclusion, both social and spatial. Geographical concentrations of disadvantage result from a combination of macro-structural and micro-local factors operating through labour, land and property markets.

The Social Exclusion Unit (2000) revealed that in 1988, compared with the rest of England, the 44 most deprived local authority areas had nearly two-thirds more unemployed, mortality rates 30 per cent higher and a quarter more adults with poor literacy and numeracy.

The Social Exclusion Unit's 'National Strategy for Neighbourhood Renewal' (2000) proposed a strategy based on four key principles to reverse decline in deprived neighbourhoods. The first principle focused on reviving local economies and one of the key ideas to help people to compete for jobs was the improvement of IT in deprived neighbourhoods. Chapter 5 of this report demonstrates that many commentators have suggested ICT could also contribute to the other three principles of the Social Exclusion Unit's strategy – reviving communities, providing decent services and partnership working.

Little research has been found that examines whether ICT helps to overcome social exclusion. Few studies investigate whether ICT can help at the margins or whether, in combination with other initiatives, it is beneficial in addressing the problems of social exclusion. Despite this lack of information the December 2000 SOCTIM survey of local government IT professionals found that 47 per cent of respondents felt that ICT could address problems of social exclusion by making services easier to use and access, and in assisting the process of lifelong learning.

The phrase ***digital divide*** is frequently mentioned in the media. It refers to the disparity between those who have use of and access to information and communications technologies (ICT) and those who do not. Some commentators have added an extra dimension to this definition by asserting that it should focus on the effective use of ICT for social and economic development and not simply access and 'use'.

A digital divide exists, but it is not as simple as have and have nots. There will always be a divide between high, medium, low and non-users. Disadvantaged users always have to play catch up in obtaining access and

advantaged users will always leave them behind gaining higher levels of skills and adopting newer technology and services.

The digital divide exists between countries and within countries, regions and other localities. For instance, even though London is one of the most affluent cities in Europe it also has some of the poorest communities in the UK. There is significant social division and polarisation (London Development Agency, 2001).

### **1.3 The digital divide in London**

ONS statistics (December 2001) reveal that levels of Internet access vary greatly between different parts of the UK. Average household connectivity in the UK was 37 per cent between October 2000 and September 2001. Connectivity in London was the highest for any UK region at 45 per cent (the South East was also 45 per cent). Northern Ireland and the North East were the least connected regions, only 26 per cent of households had Internet access.

Figure 1.1 provides an estimate of the percentage of households in London Boroughs connected to the Internet in January 2001. This estimate was derived from data about more than ten million users of UK Internet Service Providers in 2000. This analysis is currently being repeated by the authors of this report and up-to-date statistics will be available in June 2002.

Figure 1.1 clearly shows the large variation in household Internet access in London boroughs. The least connected boroughs in London in January 2001 were Barking and Dagenham, Hackney and Islington, all three had less than a quarter of households connected. The three most connected boroughs (Kingston upon Thames, Richmond upon Thames and the City of London) had more than twice this level of connectivity. These figures clearly reveal that a digital divide is evident in London.

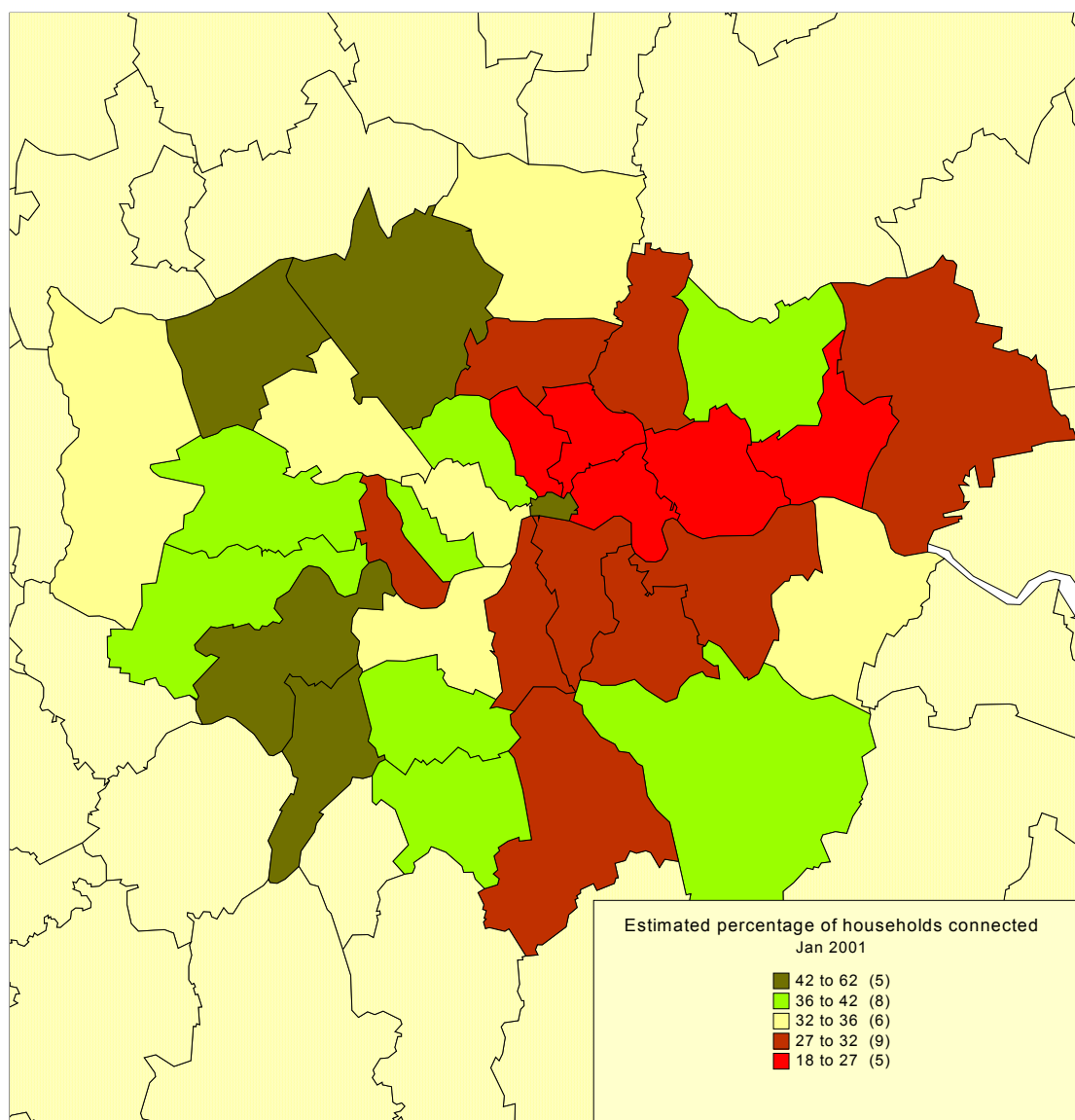


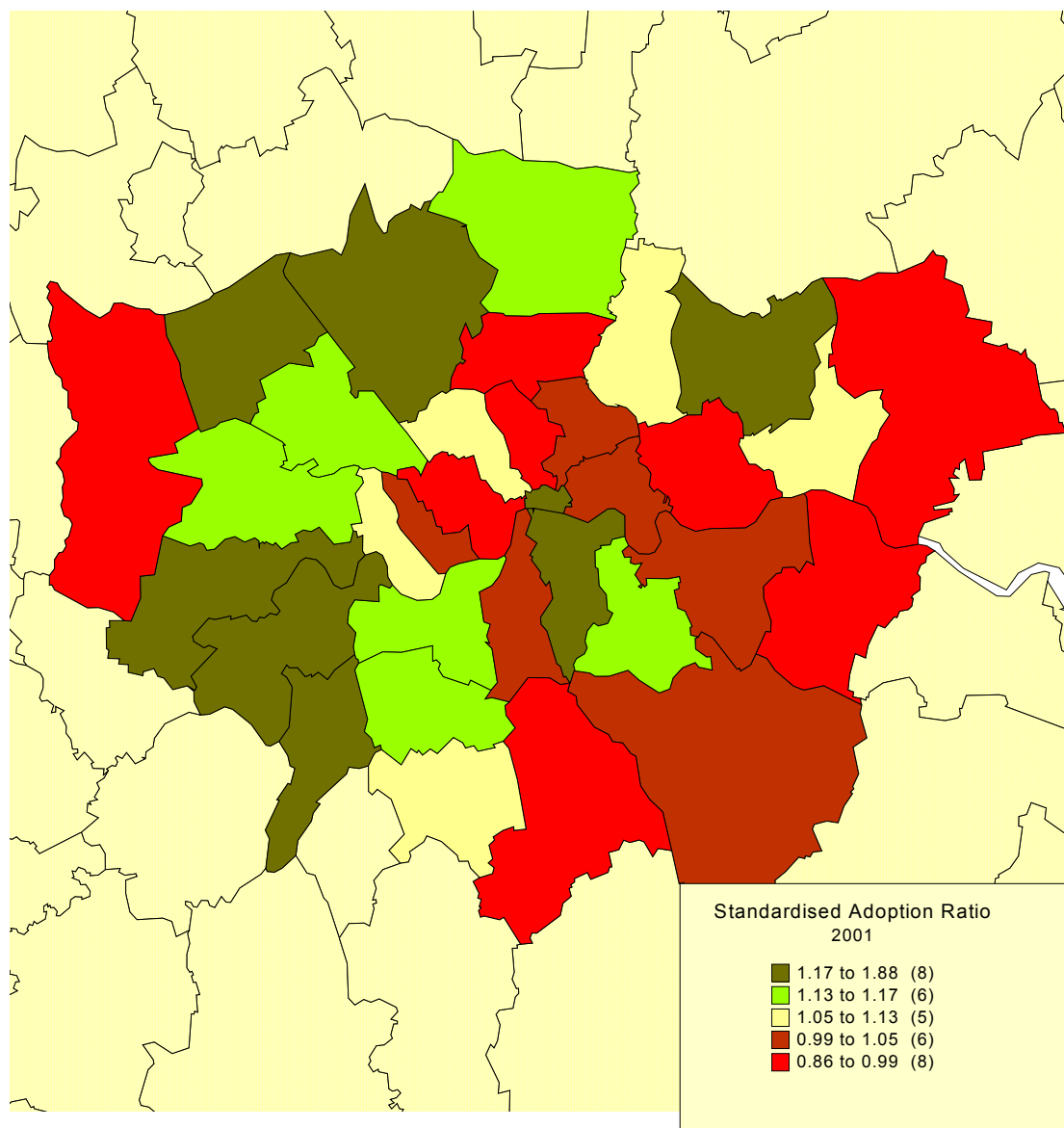
Figure 1.1 Estimated percentage of households connected to the Internet in London in January 2001

Numbers in brackets in the legend relate to the number of boroughs within that group

As the next chapter highlights it is well known that the wealthiest groups in the UK adopt the Internet at four times the rate of the poorest. In a city such as London, with considerable variation in wealth between different boroughs, a great deal of the difference in household ICT adoption percentages could simply be related to wealth. The research, from which this data is drawn, has developed a method of taking into account differing socio-demographic characteristics of geographical areas.

Figure 1.2 presents the results of this standardised adoption comparison. In Figure 1.2 a value above one (predominantly yellow and green) indicates that the rate of Internet adoption is higher than would be expected relative

to a borough's socio-demographic characteristics. Further details about the standardisation method can be found in Appendix 2.



**Figure 1.2 Standardised adoption ratio for Internet connectivity in London in January 2001**

Numbers in brackets in the legend relate to the number of boroughs within that group

## 1.4 Conclusions

This chapter demonstrated that a digital divide does exist in London. The next chapter examines key factors that cause the digital divide.

The remaining chapters then examine the large body of literature, research studies and policy reviews about Internet connectivity and use. This analysis concludes with policy and research recommendations to enable the Greater London Authority, the London Development Agency and LondonConnects to more effectively develop policies and initiatives to address the digital divide in London.

## 2 Barriers to ICT adoption and use

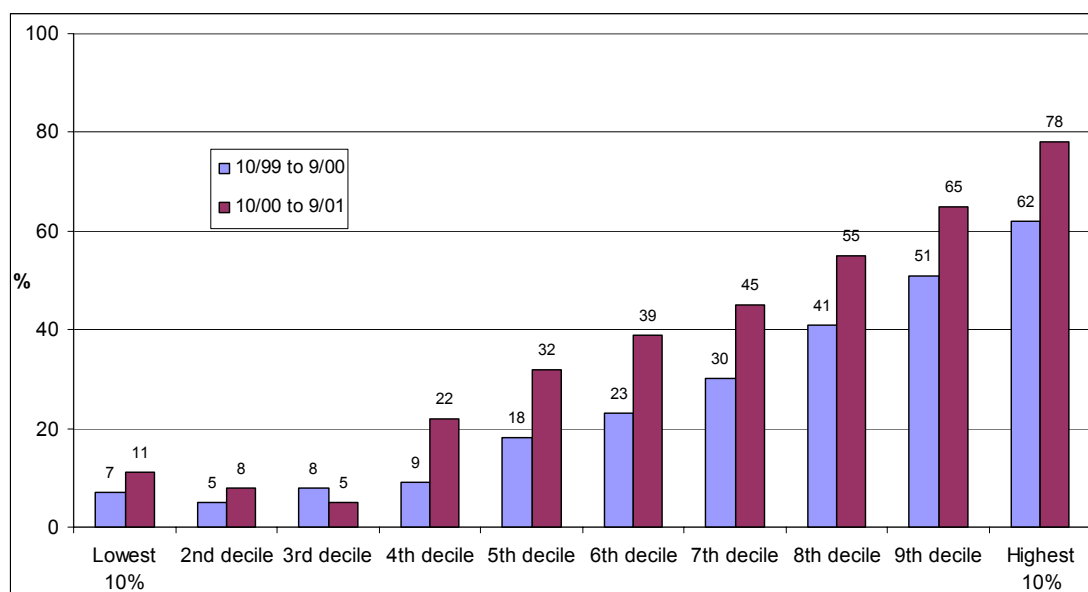
### 2.1 Introduction

This chapter identifies and examines barriers to ICT adoption and use. It commences by examining key issues revealed by over 200 papers and research reports analysed for this project. Whilst no literature review can unequivocally claim to provide an exhaustive examination of all barriers we believe we have been able to identify all the key issues.

An overview of the key barriers, statistics and literature sources identified during our research is provided at the end of the chapter

### 2.2 Socio-economic and socio-personal factors

Barriers to the adoption and use of ICTs by socially excluded groups are usually correlated with *socio-economic factors*. Commonly identified barriers preventing the adoption and use of ICTs are lack of low-income, low levels of education, low skilled jobs, unemployment and lack of technological or computing skills. All of these factors are linked to, or are consequences of, socio-economic factors. The relationship between household income and Internet access is particularly strong, see figure 2.1.



Source: ONS Internet Access Press Releases 18<sup>th</sup> December 2001. Questions are asked in the Family Expenditure and National Statistics Omnibus surveys.

**Figure 2.1 The percentage of households with home access to the Internet by gross income decile group**

Other factors hindering the adoption and use of ICTs are life characteristics such as age, gender, disability and ethnicity. (Half of UK's ethnic minority population lives in London (London Connects, 2001)). Some of these are often related to socially excluded groups, but they are not necessarily socio-

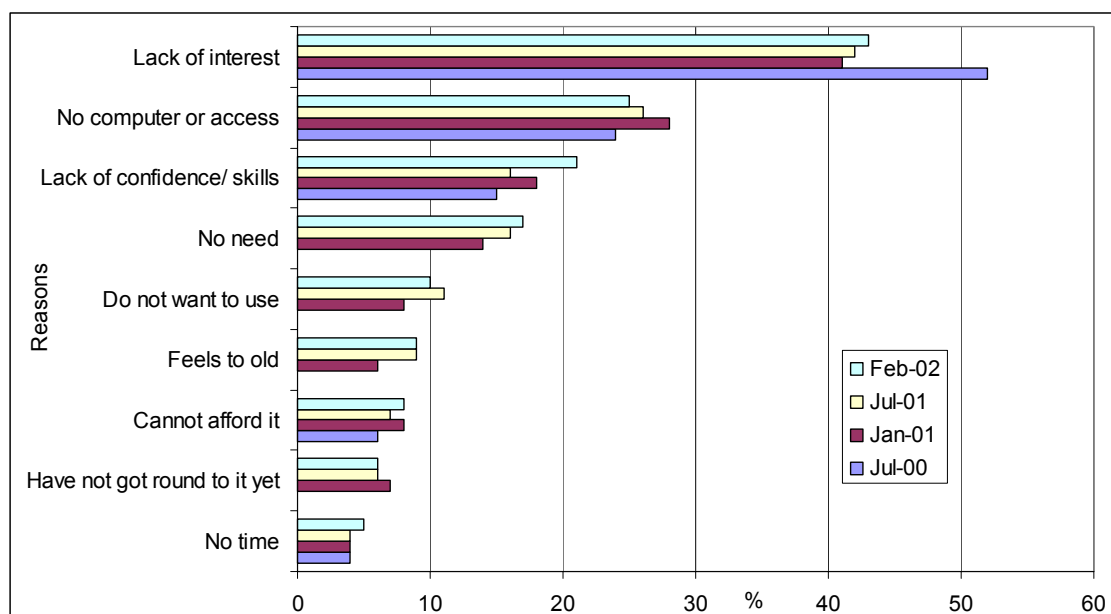
economic factors. All the factors mentioned above have been widely researched and are acknowledged as the core barriers to the adoption and use of ICT.

Several surveys have found lower levels of ICT use amongst socially excluded groups. A Department of Education and Skills (2002) survey found that the use of ICTs by socially excluded groups living on council estates with high unemployment was only 16 per cent. Another survey, published by the Department for Education and Employment in 2001, found similar results. This survey estimated that 25 per cent of adults living on council estates with high unemployment used ICTs. ICT use by the disabled was estimated to be 28 per cent, 32 per cent by those with basic skills difficulties and 36 per cent amongst lone parents.

Our analysis has shown that **socio-personal factors** are also important barriers to the adoption of ICTs by socially excluded groups. Socio-personal factors were acknowledged in most of the literature examined, however research in this area has been limited and the extent and significance of these factors as barriers to the adoption and use of ICTs are still unknown. Socio-personal barriers encompass attitudinal and behavioural factors. These include issues such as levels of interest, awareness, understanding and acceptance of ICTs.

According to Enders Analysis (2001) just under half of the 49 per cent of UK adults who have never used the Internet claimed that they have not done so because they are not interested. A similar figure is reported by the ONS, which claims that 43 per cent of non-users are not interested in using the Internet (ONS, April 2002). Furthermore, in a complementary study by Tech Europe 39 per cent of non-users stated that nothing would encourage them to use the Internet (Tech Europe, 2001). Contrary to popular belief only 24 per cent of non-users said that the reason for not adopting and using the Internet was the lack of a computer or online access (ONS, December 2001).

Lack of access to a computer declined in importance by two per cent in the last year (January 2001 to February 2002), see Figure 2.2. Interestingly, the proportion of adults who have never accessed the Internet in the ONS study stating 'a lack of interest' or 'do not want to use it' rose by two per cent during the last year.



**Figure 2.2 Reasons for not using the Internet 2000 to 2002**

Source: ONS Internet Access Press Releases 26<sup>th</sup> September 2000 to 30<sup>th</sup> April 2002. Questions are asked in the Family Expenditure and National Statistics Omnibus surveys. Results are for adults who have never accessed the Internet

These findings contradict the widely held assumption that the main barrier for adoption and use of ICTs is a lack of access due to socio-economic reasons. One cannot question the significance that socio-economic factors have in determining the adoption and use of ICTs, especially for socially excluded groups. But our research indicates that socio-personal factors are probably equal in importance amongst socially excluded groups as socio-economic factors. Having money to spend on ICT is problematical for socially excluded groups, but even if resources are available it is possible they will not have the motivation, desire or skills to use it.

No research was found that explored socio-personal factors as a barrier to the adoption and use of ICT by socially excluded groups. However, what little information is available indicates that socially excluded groups are resistant to adopting and using new technologies (PAT 15, 2000). Research indicates that resistance towards the adoption and use of ICT by socially excluded groups is related to socio-personal characteristics. These to a certain extent, are determined by the poor socio-economic circumstances suffered by socially excluded groups. Literature indicates that socially excluded individuals with low-levels of education and low income levels had little awareness of ICTs and little knowledge of ICTs and the way in which it could enhance their quality of life. For instance four out of ten non-users lack an understanding of how ICT may improve the quality of their life (Tech Europe, 2001).

Even though no factual evidence was found that supported claims that reasons for non-ICT adoption were low educational levels or low income levels, a positive relation between socio-personal barriers and socio-economic factors is implied. Albeit that both elements, socio-personal barriers and socio-economic circumstances, are almost certainly inter-related. The need to consider the significance and implications of these elements separately is fundamental to achieve a deeper understanding of the digital divide and to develop and implement effective policies to enhance online access. Current research and policies have focused on socio-economic elements. Socio-personal issues have largely been neglected.

To summarise; barriers to ICT adoption and use can be categorised into socio-personal factors and socio-economic factors. Socio-personal factors include attitudinal and behavioural issues such as levels of awareness, interest, knowledge and acceptance of ICTs by individuals. Due to a scarcity of knowledge about socio-personal factors, later sections of this report will concentrate on the significance and implications of these elements and suggest the critical need for further research of this area. Conversely extensive research has been undertaken on socio-economic factors as barriers to ICT adoption and use. The depth and thoroughness of previous work available in this area has assisted the development and implementation of policies targeted at overcoming socio-economic barriers such as access. Socio-economic factors include low-income levels, unemployment and lack of computing and technological skills among others. One socio-economic barrier that requires greater attention is poor educational attainment.

### **2.3 Education**

Low levels of education are a key barrier to ICT adoption and use for several reasons. Firstly, basic ICTs use does not require high levels of educational attainment (Tech Europe, 2001). However, it does require basic literacy skills such as reading and writing. Therefore the level of education received and attained by socially excluded groups will determine their capability to use ICTs.

Secondly, low educational levels provide an indication that individuals might not only lack the basic literacy levels required, but also lack the basic computing and technological skills needed to use ICTs. Even though IT literacy is higher in London than elsewhere in the UK, one in eight young people under 25 are reported to have no IT skills. This figure rises to almost half for those aged 50 and over (London Development Agency, 2001).

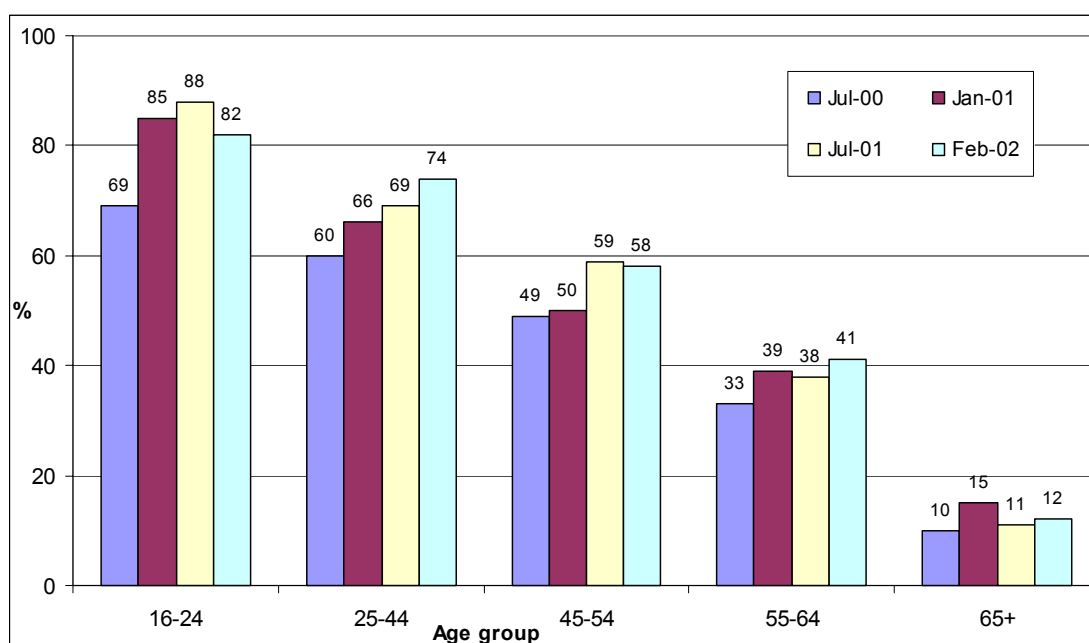
Thirdly, a measure of the perceived importance of inadequate education as a barrier to ICT adoption and use is the intensity of policies implemented to increase ICT access and use at schools. It is expected that by 2010 half of London's workforce will be made up of graduates whose school and college education will have involved routine use of the Internet (Local Futures Group, 2001). Individuals unable or unwilling to receive education at schools, colleges or universities are being excluded from the opportunity of

having access to ICT and the training required to obtain the skills necessary to use ICTs.

Fourthly, research indicates that an adverse reactions toward formal or institutionalised education caused by past experiences may make it difficult for some people to use this form of education (of these locations) to overcome adoption and use barriers. Adverse attitudes toward education are usually the result of negative experiences associated with education. In some cases negative experiences of formal education develop feelings of incompetence, which develop into psychological barriers that makes it difficult for the individual to undertake any kind of educational and training activity or institution learning again.

## 2.4 Age and gender

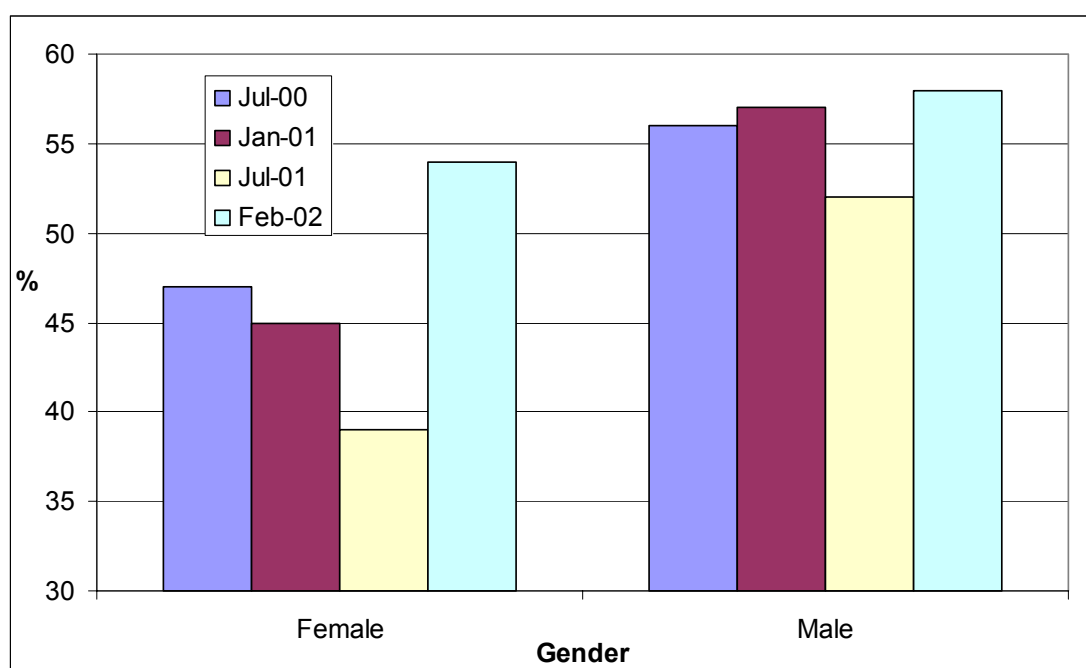
In July 2000, the date of the first ONS Internet use survey, 45 per cent of UK adults had used the Internet; by February 2002 this figure had risen to 56 per cent. Figure 2.3 shows that the increase in Internet use was not evenly distributed across all age groups. Highest levels of use and the largest proportionate increase in use were amongst younger age groups; 16 to 24 year olds using the Internet rose from 69 per cent to 82 per cent between the two time periods. Use by those aged 65 and over only rose by two per cent to 12 per cent. It is important to note that the oldest age group in the ONS survey has changed overtime, but nonetheless, the use and increase in use by this group is still lower than for all other age groups.



**Figure 2.3 Internet access amongst different age groups**

Source: ONS Internet Access Press Releases 26<sup>th</sup> September 2000 to 30<sup>th</sup> April 2002. Questions are asked in the Family Expenditure and National Statistics Omnibus surveys. Results are for adults who have never accessed the Internet

It is also interesting to note that the 'gender' divide in Internet use has decreased overtime in the UK, see Figure 2.4. Male use of the Internet increased by only two per cent, to 58 per cent, between July 2000 and February 2002. Female use has increased by seven per cent to 54 per cent during the same time period. In February 2002 female use of the Internet was just four per cent behind the level of male use. The ONS have not commented on the variations in male and female Internet use observed in Figure 2.4. These are probably the result of sampling differences between the four ONS Surveys. In the future a more reliable trend may emerge.



**Figure 2.4. Internet access by gender 2000 to 2002**

Source: ONS Internet Access Press Releases 26<sup>th</sup> September 2000 to 30<sup>th</sup> April 2002

## 2.5 Cost

Figure 2.2 revealed that only eight per cent of adults who have never accessed the Internet gave high cost of access as a reason for not using ICTs. This reason was ranked fifth, behind others that were largely related to interest or skills.

The ONS survey from which this statistic was derived had a stratified random sample of all UK households (i.e. rich and poor). It is therefore likely that in areas with a high proportion of socially excluded households; with lower levels of disposable income, that cost of Internet access is likely to be a more significant factor. Several commentators have noted that computer costs, access costs and telephone call charges are a more significant barrier

to low-income earners. Indeed, a study by Enders Analysis (2001) found that a quarter of adults who had never accessed the Internet identified lack of affordability as a key reason.

An additional consideration in socially excluded areas, that often have higher levels of unemployment, is that adults who are not in work will not have the opportunity for 'free' Internet access in their workplace.

## **2.6 Conclusion**

An important barrier to the adoption and use of ICTs, that has not previously received very much interest, is the negative impact that socio-personal elements can have on attitudes to initiatives designed to encourage ICT use. To date most of the research emphasis has centred on socio-economic elements. Socio-personal elements have been largely neglected. Considerable resources have been invested in achieving a more thorough understanding of socio-economic barriers and to develop robust policies capable of overcoming these barriers.

However, our literature review suggests that complementing knowledge of socio-economic barriers with a more thorough understanding of socio-personal barriers will provide a more holistic understanding of factors that restrict the use of ICT and how these might be overcome. Further research is critical to enable deeper understanding of the impact of socio-personal factors as a barrier to ICT adoption and use.

## **2.7 An overview of key barriers, statistics and literature sources**

### **Awareness**

- Lack of awareness, understanding and acceptance of ICTs are major barriers to ICTs adoption and use (Revenaugh, 2000; Cullen, 2001)
- Non-users often have no interest in ICT (Local Futures, 2001; Enders Analysis, 2001; Tech Europe, 2001)
- Out of 49 per cent of UK adults who have never accessed the Internet, 43 per cent stated they had "a lack of awareness" (ONS, 2002)
- According to the ONS 55 per cent of non-users stated that the reason for not accessing the Internet was that they had no interest in doing so and only 28 per cent said that the lack of a computer was the main reason for not accessing the Internet
- 39 per cent of non-users claim nothing could encourage them to use the Internet (Tech Europe, 2001)
- Negative attitudes towards ICTs are a barrier to adoption (Cullen, 2001)
- Lack of confidence and self-esteem are a barrier to ICT adoption (Katz and Aspeden, 1997)

- Apprehension towards conducting online payments due to security reasons (Cullen, 2001)
- Concerns over confidential information (Cullen, 2001)
- Concerns regarding unsuitable material or content (Livingstone, 2001; Cullen, 2001)

### **Access**

- Lack of robust telecommunication infrastructure (Cullen, 2001; Revenaugh, 2001) Central London benefits from some of the most advanced IT and telecommunication infrastructure in the world. However, areas outside central London, in particular to the East and in the suburbs, do not benefit from the potential offered from the capacity that the concentration of bandwidth should offer. In these areas, broadband services are offered by BT and a few cable companies. Recent reductions in access prices may make these more affordable for domestic customers in socially excluded areas (Local Futures Groups, 2001).
- Lack of affordable routine access to ICTs by low income earners (Cullen, 2001)
- Low-income earners are unable to afford equipment costs, access costs and telephone costs incurred in the access and use of ICTs (Katz and Aspden, 1997; Hoffman and Novak, 1999; Selwyn, 2002; Brent Council, 2001)
- A quarter of UK adults who have never accessed the Internet have identified lack of affordability as a key reason (Enders Analysis, 2001)
- Unemployment inhibits access and use of ICTs at the work place and hinders adoption of ICT at home because of low-income levels (Katz and Aspden, 1997)
- Manual workers and low skilled workers have little or no access to ICTs in the work place (Local Futures, 2001; Cullen, 2001)
- Long-term illness and disabilities are barriers to ICT adoption and use. Technologies are rarely adapted for the special needs of disabled or ill individuals even though they have the capability to be adapted (Katz and Aspden, 1997)

### **Training**

- Lack of free training available for individuals with low or no technological skills who cannot afford paid training (Katz and Aspden, 1997)
- Only four per cent of low-income earners have received computer training paid for by their employer and only 12 per cent of low educated individuals have had any kind of ICT training (Tech Europe, 2001)

**Use**

- 30 per cent of non-users are low educated individuals (Tech Europe, 2001)
- People with low educational levels are incapable of effectively using ICTs due to low levels of literacy (Selwyn, 2002; Revenaugh, 2001; Cullen, 2001)
- 31 per cent of non-users are low income earners (Tech Europe, 2001)
- Less educated individuals demonstrate less interest in adopting and using ICTs (Oswald, 2002; Tech Europe, 2001; Hoffman and Novak, 1999)
- Lack of pertinent and interesting content relevant to all cultural groups (Revenaugh, 2000; Katz and Aspden, 1997)
- Content is commonly over-dependant on literacy and published mostly in English hence it makes it difficult to comprehend for poorly educated people or those who do not speak English (Katz and Aspden, 1997)
- Increasing age is closely related to lower levels of ICT adoption and use (Selwyn, 2002)
- 40 per cent of non-users are retired (Brent Council, 2001; Tech Europe, 2001)
- Even though an increasing number of women are using ICTs gender remains a barrier. Access and use by women is significantly lower than men (Selwyn, 2002). This is specially true for low-income, less educated or unemployed groups (Oswald, 2002; Europe, 2001)
- Ethnic minority groups access and use ICT in considerably lower proportions than white ethnic groups (Hoffman and Novak, 1999; Tech Europe, 2001; Brent Council, 2001)

## 3 Enablers to enhance ICT adoption

### 3.1 Introduction

This chapter briefly describes factors that enhance ICT adoption and use. These factors are often the antithesis of barriers to adoption examined in the preceding chapter, however some are different.

An overview of key factors, statistics and literature sources about enhancing Internet use is provided at the end of the chapter.

### 3.2 Access

Lack of physical access has been regarded as the key barrier to ICT adoption and use, as a result it has attracted a great deal of research interest. The results of this research have enabled government to develop and implement a number of policies aimed at providing ICT access for all. Judging by the monetary investment undertaken by the government, widening access to ICTs seems to be the largest and most crucial initiative implemented to address the digital divide. The main objective of these initiatives has been to enable ICT access, often for disadvantaged groups and schools. This is being done by creating community centres that provide ICT access and by equipping schools and libraries with ICT.

However, as the previous chapter highlighted there are additional issues that need to be considered in relation to the effectiveness of initiatives aiming to provide physical ICT access for all. Simply providing access is a necessary but rather simple technocratic solution, encouraging use of these physical access points can be a more difficult proposition.

Widening access to ICT is without question a necessity to help bridge the digital divide. Access to ICTs is a precondition for use, as well as for the development and understanding of IT skills. Nonetheless, access ought not to be regarded as the sole solution to the problem of the digital divide. There are several issues related to the provision of access, which require that complementary activities and initiatives need to be undertaken simultaneously if the provision of access is to be effective.

The first issue to be considered is whether or not the provision of free access to ICT guarantees use. It is reasonable to assume that the purchase of ICTs (and/or an ongoing subscription to an Internet Service Provider) by a household will translate into ICT use by some or all of household inhabitants: Purchase provides a strong indication of commitment and use. But no evaluation studies have been found that investigate the level of use and activities of users of ICT provided 'free' by initiatives.

There are also very few studies that examine the levels and characteristics of users of public access points, such as neighbourhood centres, libraries and Internet cafes.

Policies aimed at widening access are usually adopted in the belief that lack of access is the key barrier to ICT adoption and use and that providing access will automatically increase use. Our research obviously does not question the importance of providing access for all as an essential measure to overcome the digital divide. But it does question whether providing access for all will be sufficient to ensure use among socially excluded groups. What our literature review suggests is that related to lack of access there are additional barriers that constrain ICT use and that there is a need to develop and implement policies that go beyond widening access and instead focus on encouraging use.

Even though providing access to ICTs is a precondition for its use, this does not mean that access in itself will ensure the use of ICTs. Indeed, although London has the highest Internet access capacity of all major cities in the world (Local futures Groups, 2001) only 45 per cent of households were connected.

No robust research studies were found that supported a positive relation between the provision of access and increased use. This might be due to the fact that initiatives to widen access are relatively new and that evaluation studies have not yet been undertaken to assess the effectiveness of these initiatives. Our literature review highlighted that there are additional reasons that account for low levels of use even when free public ICT access is provided. Four main areas were identified where action can be undertaken to enhance ICT access and use. These are:-

- Education
- Provision of ICT training and skills
- Enhance interest and relevant content
- Provide access at a location required by users

The remainder of this chapter examines each of these together with a discussion of appropriate actions that can be undertaken to enhance ICT use.

### **3.3 Education**

Education is an enhancer as well as a barrier to ICT adoption and use. The previous chapter noted that low levels of formal educational attendance and achievement can be a barrier to ICT use.

The government is focusing on formal education as a key driver to enhance the life opportunities of all young people and as a method of improving the competitiveness of UK industry. London has a skilled ICT workforce of around 300,000 people employed in the knowledge industry (London Connects, 2001). ICT access for all schools and the development of ICT skills are an important component of these initiatives. Government is encouraging all 30,000 schools in the UK schools to go online by 2002 with support from a £700 million initiative. In additional £230 million was spent by the New Opportunity Fund to train schoolteachers to use ICT.

Government expects that better educated generations in the future will help erode the digital divide. An expansion of the national curriculum to include ICT topics and an increase in the number of students entering higher and further education should lead to a considerable increase in the number of school, college and university leavers that have a high level of basic educational competence and ICT skills. In 1991, 22 percent of London's workforce had a college degree or equivalent. By 1999, this percentage had risen to 35 percent. Forecasts suggest that by 2010, 46 percent of London's workforce will have a college degree or equivalent (Local Futures Group, 2001).

Education serves as an enabler of ICT adoption and access in more than one way. Better levels of education should translate into more computer literate individuals. A beneficial cycle could be encouraged since the new opportunities for education and learning offered by the use of ICT should encourage the use and adoption of ICT. ICT offers possibilities of transforming the learning paradigm by enabling flexible and individualised learning, meeting individual educational needs and avoiding the limitations of current systems of education based mainly on predefined options (Tech Europe, 2001).

One way to encourage greater ICT use could be to enhance public awareness of the educational and training opportunities available through the wide range of education and learning resources available online.

It is important to highlight that some commentators are sceptical about remote learning and how much the learning paradigm can be transformed by ICT. They suggest that ICT may be able to assist but will rarely be able to compete with an inspiring teacher in a physical classroom. Recent research has suggested that children's attention/concentration spans are declining. It is possible that the use of ICT in teaching may actually contribute to this decline in concentration.

### **3.4 Training and Skills**

It is obvious, but has occasionally been forgotten at some access initiatives, that users need basic computing and ICT skills before they can make use of access initiatives.

Individuals with low or no ICT skills will be unable to use the technology even if it is available to them. Few studies were found which provided relevant figures concerning the extent and quality of training provided to individuals with low or no technological skills, particularly those in socially excluded groups.

The few studies that were available indicated that training in ICT skills is relatively low, with only twelve per cent of low educated people having received any kind of ICT training and only four per cent of low-income earners receiving computer training paid by their employer (Tech Europe, 2001). Research undertaken in Hounslow indicates that 48 percent of managerial and professional workers have access to the Internet at work.

While only 5 percent of semi-skilled and unskilled workers did (Local Futures Group, 2001).

An important finding in this research was that ICT users believe that access is the most important initiative to encourage ICT adoption. However, amongst non-users the most important factor to enhance ICT adoption was not access but training coupled with a reduction of access costs. These findings indicate that providing ICT skills training for all is just as important as providing access for all. Therefore training or support for non-users or new users should probably always be implemented alongside access initiatives.

### **3.5 Interest and content**

Widening access and providing training are obviously important factors in enhancing ICT adoption and use. However, as the previous chapter highlighted interest amongst many non-users is limited and access and training initiatives may not always be successful.

55 per cent of non-users show no interest in adopting and using ICTs (Local Futures, 2001). 39 per cent of non-users claim that nothing will encourage them to use the Internet (Tech Europe, 2001). These statistics clearly indicate that even if access to ICTs is widened a considerable proportion of non-users will remain as non-users due to a lack of interest or negative attitudes toward ICTs. For policies and initiatives targeted at widening access and increasing the provision of training to be effective levels of awareness and interest must be raised among non-users. This is especially applicable to socially excluded groups as they present higher levels of resistance towards the adoption and use of new technologies and possess lower levels of awareness, interest and knowledge of ICT.

The need to inform individuals of the benefits that can be derived from ICT use is exacerbated by the fact that four out of ten non-users lack an understanding of how ICT can improve their lives (Tech Europe, 2001). An important component of any initiative to enhance ICT use must be to discover how socially excluded groups benefit from ICTs and then to ensure that the content or services they find most beneficial is enhanced.

A number of European Union countries have introduced initiatives to encourage Internet access with successful result. Some examples are:

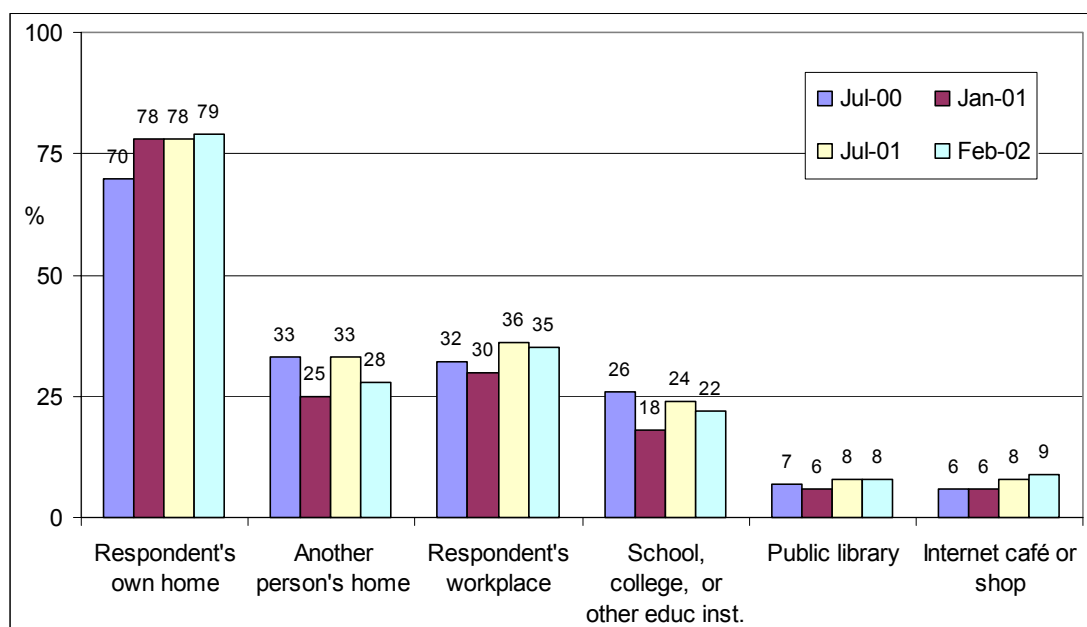
- Ireland: Television series
- Belgium: Road shows 2000, visited 125 towns explaining to more than 55,000 the practicalities of setting up Internet connections
- Denmark: Road shows for elderly
- Sweden: Senior surfing days
- Austria: Mobile Internet trainers approaching people at shopping centres

Chapter 7 of this report focuses in some detail on issues related to raising the awareness and attitudes towards Internet use.

### 3.6 Access Location

Studies suggest that the preferred location for accessing ICTs is from home. 79 per cent of Internet access at present is from home (ONS, 2002), see Figure 3.1. Public access points are necessary to offer access for all, but home use is still preferred for most purposes (Enders Analysis, 2001; Tech Europe, 2001). The fact that the home is the preferred access point raises the question of whether individuals will actually use ICTs from public access points.

Figure 3.1 shows that in February 2002 only eight per cent of adults used public libraries and nine per cent used Internet cafes or shops for access. We could find no research that compared the way public access points were used with the types of activities and services that are accessed through home use. Research in this area could be beneficial. It is not unreasonable to assume that ICT activities in a public access point are likely to be less confidential or sensitive than those that might be undertaken from home. Equally, in the privacy of their own home users with lower levels of ICT skills might be happier to experiment, make mistakes and learn more about the Internet than they might be in a 'public' environment. However, the opposite might also be true. Fear of 'breaking' their own computer or nearby access to more experienced users could be a stimulus for the development of computing skills and the use of public access points.



**Figure 3.1 Locations adults use to access the Internet 2000 to 2002**

Source: ONS Internet Access Press Releases 26<sup>th</sup> September 2000 to 30<sup>th</sup> April 2002. Questions are asked in the Family Expenditure and National Statistics Omnibus surveys. Results are for adults who have never accessed the Internet

In addition to the environment in which computer access is obtained it should also be noted that socially excluded groups are unlikely to use ICTs in the same manner as more affluent groups in society. This is due to several reasons. First, they might not have the necessary skills. Second, they are likely to have different needs, some of which they might prefer to address from within the privacy of their homes, for example accessing benefits information or health services. Third, their social-economic status might prevent them from carrying out certain type of activities commonly undertaken by more affluent groups of society such as online shopping or using services that require a regular subscription or payment. Indeed, the simple fact that many socially excluded groups do not possess a credit card could well be the most important reason why purchasing activities cannot be undertaken by socially excluded groups on the Internet.

More needs to be known about how socially excluded groups use ICTs and their willingness to use ICTs from public access points. In the mean time literature available indicates that the preferred access and use point is and will probably continue to be from home. Even though the provision of access through public access points is of undoubted importance (particularly if supported by complementary training policies) it will also be useful to continue the development of initiatives aimed at enabling universal home access. Initiatives, such as those announced by the Chancellor of Exchequer in 1999 providing £15 million to make 100,000 refurbished computers available to low-income families, are important. However, this initiative has been criticised by some commentators for encouraging the refurbishment of older PCs that are unable to use recent Internet browsing software.

Access and use through public access points may help bridge the digital divide, but it is possible that access in 'public' (or at least in the way that public access is currently provided) will restrict the way in which socially excluded groups and others use ICTs at these public access points. It is possible equality of use will only be achieved when and if every individual from every socio-economic group has access from home.

### **3.7 Conclusions**

Simply providing online access at a public access point or in a socially excluded person's home is unlikely to enhance efficiently the level of Internet use. Access is a precondition for Internet use, but supporting activities such as raising an awareness and desire to use the Internet and the provision of training to develop basic levels of ICT skills are also important.

Education is crucial. Future generations should have developed ICT skills at school. Probably the largest challenge facing government is to provide sufficient stimulus for the less well educated to appreciate the benefits of ICT and enhance their desire to learn how to access ICT technologies.

### **3.8 An overview of key enhancers, statistics and literature sources**

#### **Awareness**

- Campaigns aimed at raising awareness of the technology and its potential benefits, increasing acceptance levels of ICTs, enhance use of ICTs, increase understanding of ICTs and help build positive attitudes towards ICT (PAT 15, 1999)
- Awareness of personal benefits is the first step to attract people at risk of digital exclusion (Tech Europe, 2001)
- Four out of ten non-users lack an understanding of how ICT, particularly the Internet, may improve quality of their own life (Tech Europe, 2001)

#### **Access**

- Provide access to ICT through public Internet Access points, especially for people on low-incomes unable to afford it (London Development Agency, 2001; London Connects, 2001; Jones, 2002; Tech Europe, 2001)
- Reduction of costs, such as access and use costs are, alongside training, regarded by non-users as the major incentive to increase ICT adoption and use (Tech Europe, 2001)
- Development of mass broadband Internet access: Initiatives are already being implemented to provide widely available broadband services to the domestic market and to ensure a suitable broadband technical infrastructure. (London Connects, 2001).
- Use of other technologies other than PC's, such as WAP, GPRS, and third generation mobile phones and digital television (Millar, 2002; Enders Analysis, 2001)

#### **Training**

- Training targeted toward the acquisition of ICT skills, and knowledge of the capabilities of ICTs (Kibirige, 2001; Conhaim, 2001; Bickler, 2001; Revenaugh, 2000)
- For non-users training is regarded as the most important measure towards encouraging ICT adoption and use (Tech Europe, 2001)

#### **Use**

- Increasing levels of general education and literacy might be a necessary precursor to the effective utilisation of ICT (Tech Europe, 2001).

#### **Impact**

- Delivery of integrated public services online (London Connects, 2001)

- Digital literacy has become a basic condition for getting and keeping a job (Tech Europe, 2001)

## 4 Current Policies

### 4.1 Introduction

This chapter focuses on policies to enhance Internet use and address the digital divide in the UK and other developed countries. An overview of the key policies, statistics and literature sources identified during our research is provided at the end of the chapter

### 4.2 UK strategy goals

Current UK policies for ICTs have three main targets, these are:

- To ensure that everyone who wants it has access to the internet by 2005
- To make the UK the best environment in the world for e-commerce by 2002
- To make all government services available electronically by 2005

Source: <http://www.e-envoy.gov.uk>

The key target related to the digital divide is to ensure that everyone who wants it has access to the Internet by 2005. This target does not imply that everyone within society should have access to the Internet, but it does set the objective of providing anyone who desires it from any socio-economic group, of any age, race or gender with Internet access.

Initially one would assume that such a target is beneficial to all socio-economic groups. However, as research reviewed in previous chapters highlighted, socially excluded groups are amongst the least willing and able to access the Internet.

UK government policy for addressing the digital divide was primarily derived from one the 18 Policy Action Team (PAT) reports which focused on the development of policies and strategies to overcome some of the intractable problems facing communities living in deprived neighbourhoods throughout the UK. Nearly 600 recommendations from the 18 PAT reports fed into 'A New Commitment to Neighbourhood Renewal: National Strategy Action Plan', the national strategy for neighbourhood renewal, published on 15 January 2001. This was an agreed response, across Whitehall and beyond, to the problems of deprived areas.

Policy Action Team 15 focused on the use of ICTs in deprived areas and produced a report entitled 'Closing the Digital Divide' Report (PAT 15, 2000) The key recommendations of this report were:-

1. The government must ensure that all its actions to promote the use of ICTs and e-commerce are coherent and reduce rather than increase social exclusion.
2. To achieve the government's aim of maximising the national benefit from the use of ICTs individual departments, programmes

which provide various ICT facilities should be represented to the public in one cohesive proposition.

3. In neighbourhoods local marketing and mentors should be used to encourage people to take the first step towards using ICTs.
4. Each neighbourhood should have one publicly accessible yet community based facility which allows them to access ICTs by April 2002.
5. The DfEE should provide ICT taster and familiarisation programmes as part of ICT learning centres, such programmes could lead to further education, enterprise and employment programmes.
6. Public services should be made available through ICTs to 75 per cent of people from deprived neighbourhoods by 2004, as part of the Modernising Government White Paper, which seeks to get all Government and public interaction capable of being done through ICTs by 2008.
7. ICT projects are funded through numerous sources these should be co-ordinated and managed under the context of the National Strategy for Neighbourhood Renewal.
8. Telecommunication operators should be encouraged to offer a wider range of tariff structures, as long as basic telephone costs do not increase and people in deprived areas are not priced out of all available telephone services.
9. The government needs to develop mechanisms for continuous identification and promotion of good practice in this area.
10. Local ICT champions and mentors need to be drawn up within neighbourhoods and should reflect the cultural background of these neighbourhoods so that people can identify with them. In deprived neighbourhoods particular consideration needs to be given to black and minority ethnic groups,  
(PAT 15; Closing the Digital Divide, 2000)

The PAT 15 report has been influential in guiding government policies for the socially excluded. Policies have addressed the key barriers of motivation, trust, and skills. Government is committed to providing Internet access through a variety of ICTs, these being in the community, at home via the personal computer (PC) and iDTV, as well as on the move via mobile devices<sup>1</sup>.

Whilst acknowledging barriers to ICT use and seeking to address them current strategies for access predominantly focus on providing and supporting those individuals who seek access themselves, rather than encouraging non-users and overcoming adoption and use barriers.

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<sup>1</sup> Source: <http://www.e-envoy.gov.uk/ukonline/progress/anrep2001/03.htm>

Current leading UK initiatives focus on:

1. Work to integrate all Government Internet access initiatives into one UK online-branded programme.
2. Complete the network of 6,000 UK online centres by the end of 2002 and encourage improvements in the range and quality of UK online services offered by centres, and work with the voluntary and community sector to bridge the digital divide.
3. Support a local and national advertising and marketing campaign both to raise awareness of the benefits of the Internet and to signpost non-users to UK online
4. Recognise ICT as a basic skill and continue working to embed ICT in the education system and throughout lifelong learning.
5. Continue working with industry to help people trust the Internet.

Source: UK Online, Annual Report, 2001

### 4.3 Policies to address barriers

UK government has highlighted three key barriers to Internet use. These are motivation, skills and trust. Strategies to address each barrier have also been introduced. These include:

- **Motivation:** - Create new benefits  
- Aggressive marketing
- **Skills:** - Continue to recognise ICT literacy as a basic skill and to evaluate existing programs to ensure they support ICT skills training
- **Trust:** - Improve access and awareness of consumer rights and redress mechanisms of the Internet  
- Facilitate development of a flourishing market in trust services  
- Promote best practise in protecting the security of online information assets  
- Ensure the prevention, detection, investigation and prosecution of crimes where new technologies including the Internet, are being used or abused<sup>2</sup>.

The strategy for *motivation* seeks to increase ICT usage amongst socially excluded groups through the creation of local and voluntary sector content. Local content will make Internet content more relevant to non-users thus providing them with a better opportunity to understand it. The voluntary sector will assist through the development of content and universal access targeted at socially excluded and other groups.

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<sup>2</sup> Source: <http://www.e-envoy.gov.uk/ukonline/progress/anrep2001/03.htm>

**Skills** strategies takes into account the numerous training opportunities available through the education system, lifelong learning, and other initiatives. Recent initiatives include :-

- **UK Online centres** - as well as providing online access these centres also help individuals to explore opportunities that new technologies offer such as further learning and updating skills. Centres are designed to meet the need of individuals who have low or no ICT skills or access to ICTs. However, not all of the centres provide training.
- **BBC Web Wise** - consists of online training programmes (<http://www.bbc.co.uk/webwise>). Training is aimed at beginners and covers topics such as getting connected, emailing, searching for information, bookmarking, skills for building basic web sites and legal online rights. However, to receive training individuals most enrol at a local college.
- **Learndirect** - enables skills and training provision through an online environment. It is targeted at adults and is only available from schools, colleges and libraries.
- **Technologies for Training (TfT)** - developed on behalf of the Department of Education and Employment this initiative is targeted at employers. It provides advice, information and technology-based training.
- **Wired up Communities** - developed by the Department for Education and Skills. Several pilot studies are being undertaken to test ways of supporting education and delivering leisure services by linking households to a local community website, the Internet and government services.
- **British Educational Communication and Technology Agency (BECTA)** – this ICT training initiative is targeted at schools and career practitioners.
- **National Grid for Learning**- provides ICT training to schools, mainly for teachers.

However, it does appear that whilst training opportunities are available, these are generally not targeted towards non-users or users from lower socio-economic backgrounds, these users are less likely to enter formal institutionalised methods of training.

Strategies for overcoming **trust** as a barrier focus on promoting confidence in purchasing and undertaking transactions on the Internet, However, as noted in chapter two, it is possible socially excluded groups will not undertake a great deal of online shopping. Key policy elements are publicity campaigns to make individuals aware about safe Internet shopping and publicity for the Midcots Trading Standard website. This site provides consumer advice in relation to ICT shopping and deals with consumer complaints about retailers located in the UK. Trust services are the provision of electronic credentials, which allows someone to determine who they are

dealing with. The government is seeking to improve uptake of these services, such as digital signatures amongst business and the public, so that e-commerce can develop and be safer to use.

A major strand of government policy addressing digital divide issues is the Wired up Communities initiative. £10 million funding has been provided to connect seven disadvantaged communities to the Internet. The pilot scheme aims to assess the following six key issues:

- **Impact** - the impact of new technologies on different types of community.
- **Integration** - how best to complement existing programmes in the most disadvantaged communities.
- **Technology** - the most appropriate technological approaches. Including both the architecture to wire up the households and the different ways in which to view software and Internet resources, such as televisions and computers.
- **Public private sector partnerships** - how best to involve and work with the private sector.
- **Services** - what facilities, services and support should be offered to the communities.
- **Sustainability** - ensuring communities take up the technologies as their own and foster long-term development<sup>3</sup>.

The seven communities selected for the pilot scheme included one in Newham in East London where 750 households and 1 primary school are being connected to the Internet. The aim of the initiative is to improve educational standards and increase job opportunities for socially excluded individuals who do not have ICT access.

#### 4.4 Other UK digital divide policies

Other key initiatives undertaken by government to bridge the digital divide include:

- Giving away 100,000 recycled PC's to the poorest families in Britain
- Running schemes to provide free digital set top boxes so that individuals could watch interactive television, however this only provided people with one free channel and they had to pay for associated telephone costs.
- The creation of 700 ICT learning centres throughout England, these provide new ICTs and learning opportunities for people in deprived areas
- The creation of eGovernment pathfinder projects which allow selected councils to experiment and innovate in the way they deliver services electronically. Citizens are reached through a variety of ICTs

<sup>3</sup> Source: [http://www.dfes.gov.uk/pns/DisplayPN.cgi?pn\\_id=2000\\_0168](http://www.dfes.gov.uk/pns/DisplayPN.cgi?pn_id=2000_0168)

and projects enable and encourage individuals to go online by providing appropriate content and services.

- The Chancellor introduced an annual tax benefit of up to £500 for employees to obtain a PC from their employer without having to pay tax. This was introduced to encourage PC leasing schemes, which it was believed would increase PC ownership and access to the Internet<sup>4</sup>.
- Learndirect offers a free phone helpline for individuals to obtain advice on local learning opportunities to help them meet their skills needs. Learndirect also offers basic ICT courses free or at low costs for individuals to gain basic ICT skills.

## 4.5 Conclusions

Almost since the first UK government policies for the Internet and eGovernment were developed government has also highlighted the need to address the digital divide. Strategies have been multi-faceted and a variety of different policies have been introduced that focus on increasing awareness and providing access and training. However, these policies are usually targeted at assisting those that want to access the internet. Few policies appear to have been introduced that target those, often from socially excluded groups, that need more encouragement to appreciate the benefits of the Internet.

The success of many existing policies is unknown because most have only been existence for a limited duration and evaluation studies have not yet commenced.

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<sup>4</sup> Source: <http://www.e-envoy.gov.uk/ukonline/progress/anrep2001/03.htm>

## 5 ICT impact and benefits

### 5.1 Introduction

This chapter examines ICT impacts and benefits. In comparison with preceding chapters there was a paucity of research on the impact and benefits of ICT, particularly for socially excluded groups.

An overview of the key impacts and benefits, statistics and literature sources identified during our research is provided at the end of the chapter

### 5.2 Impact and benefits

Numerous benefits have been proclaimed to result from the use of ICTs, but few studies are available that substantiate these claims. The final section of this chapter outlines some of the key benefits that we have found in our review of more than 200 papers and research reports that have been put forward for the use of ICTs. The list below summarises these perceived benefits :-

#### ***Political Benefits***

- Democracy
- Empowerment
- Access to information
- 24/7 Public service delivery

#### ***Economic Benefits***

- Development of ICT skills
- Improvement in job prospects
- Access to more job information
- Access to cheaper goods and services
- 24/7 purchase of goods and services

#### ***Social Benefits***

- Better communication and networking
- Overcome geographic or transport barriers for communication or access to goods and services
- Access to recreational and learning materials
- Access to health and welfare information
- Improved access to information, goods and services for those with disabilities

#### ***Environmental Benefits***

- Environmental benefits through less travelling and/or tele-working

The above list is not exhaustive, it is unlikely any list of ICT benefits ever could be. In some ways, as the text below highlights, it is not necessary to have a comprehensive list of all the benefits. It is far more important for the development of policies focusing on the digital divide to have a clear understanding of the impact and benefits that will be derived by the socially excluded group policies are trying to assist.

### **5.3 User characteristics and benefits**

Most of the literature we could find assumes that benefits and impacts of ICT are the same for all users. Little or no distinction is made regarding the impact and benefits of ICT across different socio-economic groups.

The benefits and impact of ICT vary depending on the characteristics of the user and the way the ICT is used. For instance users with poor sight may obtain considerable benefits from using ICTs to access information (perhaps through large print or automated reading software) which they might not otherwise be able to access. The benefits of these technologies to sighted users could be negligible, but to disadvantaged users they could be invaluable. Equally, users with a physical handicap or those unable to travel easily might be able to access information and/or obtain shopping and other services more easily using ICTs.

The way ICTs are used will also determine the benefits that users receive. Wealthy users might gain considerable benefits from online share trading services, whereas poorer users might find information about benefits and welfare more useful. Indeed, trying to encapsulate which information or services on the Internet might be most useful to an individual is probably not dissimilar to recommending a good book or restaurant to someone that you do not know. However, like a good book or a good restaurant if enough of your acquaintances or people in a neighbourhood have read the book, eaten at the restaurant, or in the context of ICT visited the web site, 'word' soon travels.

Chapter two highlighted that because of socio-economic and socio-personal constraints ICT use by socially excluded groups may vary from the use patterns of more affluent groups. Many people in socially excluded groups have low levels of ICT skills and poor access to ICT. These differences in use, skills and ICT availability mean that the benefits for socially excluded groups are not the same as for other groups, even if they are using the same online technologies to search for similar information or access similar services.

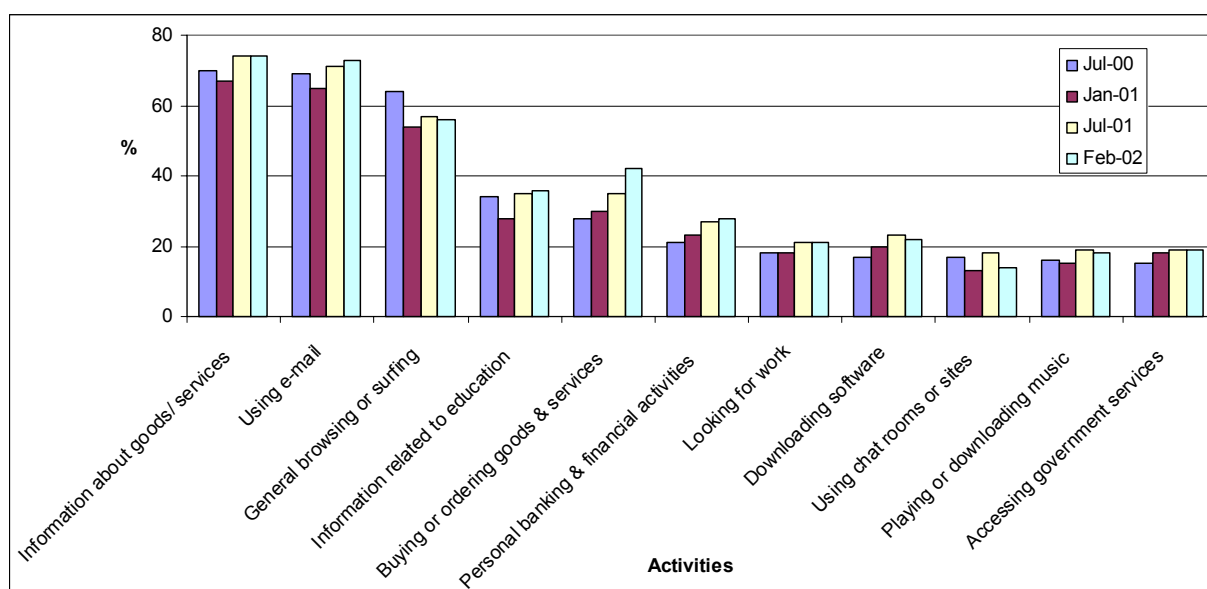
This variety of considerations highlights the fact that ICT benefits and impacts cannot be simply presented. Differences in the impact of the same service or source of information will be dependent upon a variety of user characteristics. These include:

- Physical characteristics (physical disability or capability)
- Personal characteristics (likes, dislikes, socio-personal characteristics)

- Socio-economic characteristics
- ICT skills and experience

A large number of studies have been undertaken by market research companies to investigate ICT use amongst more affluent able bodied groups.

Analysis for all UK adult users found that the most common online activities for these groups were: searching for information about goods and services (74 per cent to those surveyed by the ONS, 2002), using email (73 per cent), purchase of goods and services (42 per cent) and purchase and use of financial services online (28 per cent), see Figure 5.1.



**Figure 5.1 Purpose of Internet use 2000 to 2002**

Source: ONS Internet Access Press Releases 26<sup>th</sup> September 2000 to 30<sup>th</sup> April 2002. Questions are asked in the Family Expenditure and National Statistics Omnibus surveys. Results are for adults who have never accessed the Internet

ICT use and benefits for socially excluded groups remain unknown because there is a paucity of knowledge of ICT use patterns for socially excluded people. No studies were founded that examined the way in which socially excluded individuals use ICT, what proportion use ICTs and the qualities of computing equipment and time they have available. This scarcity of information makes it very difficult to accurately determine what benefits the use of ICT provides for socially excluded groups. Furthermore, there is also a paucity of knowledge on the motivations and underlying rationale that encourage socially excluded groups to use ICT. This is compounded by a paucity of knowledge on the expectations of socially excluded groups’ regarding the use and capability of ICT.

At present initiatives and policies undertaken to bridge the digital divide between socially excluded groups and more affluent groups of society are based on the assumption that due to their particular socio-economic and

socio-personal circumstances, socially excluded groups will use ICTs to access online public services, search for jobs, obtain ICT skills and further educate themselves. Even though these assumptions might be accurate they remain, at present, as assumptions. The need to undertake research on possible use patterns, expected benefits and motivations of socially excluded groups is critical.

It is also important that this research should include an investigation of the potential negative impacts for socially excluded groups. These could include direct impacts such as easier access to online gambling, loan sharks and junk mail. Indirect disadvantages could be the ability of vendors to use the more precise consumer profiling information they might possess through ICTs to disadvantage or discriminate against some groups in society.

### **5.3 Impact: the key to policy intervention**

Improved understanding of the benefits and impact of ICT for socially excluded groups is essential for effective policy intervention. Accurate identification and understanding of the desired outcomes and benefits expected from ICT by socially excluded groups will ensure the development and implementation of more effective policies capable of meeting their expectations.

Like any service, if desired benefits are known then policies and initiatives can be better targeted to effectively meet and/or promote these requirements. The main benefit to be derived from this approach should be increased ICT adoption and use by socially excluded groups. The lack of research on motivations, expected benefits and use patterns of ICT by socially excluded groups implies that at present policies to address the digital divide on the basis of untested assumptions that it is beneficial for 'them'. This suggests a technocratic approach adopted on the basis that all that is required is access to the technology and everyone will use it. It is probable that a more citizen centric or user focused perspective in developing policies and initiatives will lead to the development of more effective policies.

The remainder of this report proposes a user focused model that identifies key areas for policy intervention.

### **5.4 Conclusion**

Numerous benefits have been proclaimed for the use of ICT. However, it is clear that each individual that uses ICT has different desires, needs and abilities. This will influence their reasons for using ICT and their personal circumstances will determine the benefits they receive from the Internet. At present very little is known about the benefits derived by socially excluded groups from using ICTs.

A more citizen centric or user focused approach is required to encourage ICT adoption and use among socially excluded groups.

## 5.5 An overview of key benefits and impacts

### Political Benefits

- Access to public service delivery regardless of location and time (Katz and Aspeden, 1997)
- Empower individuals by allowing them to participate in the democratic process (PAT 15, 2000)
- Virtual mobility allows people that are unable to physically move because of disabilities or inability to access transport to participate in party and pressure groups discussion, government consultations and contact political representatives (Kenyon, 2002)
- Allows for community networking, which could bring people together as a result to free public access to information (PAT 15, 2000)

### Economic Benefits

- Enable acquisition of skills that can open up new employment opportunities (Katz and Aspeden, 1997)
- IT is a growing area for employment (PAT 15, 2000)
- Increases the chances of self-employment or business start-up (London Connects, 2001; PAT 15, 2000)
- Re-engineer and enhance products online (PAT15, 2000)
- eCommerce allows the purchase of products and services online (PAT 15, 2000)
- Offer new opportunities to numerous industries such as financial services and tourism (PAT 15, 2000)

### Social Benefits

- Enables access to education for all. Provides access to learning materials and information to those who previously were unable to participate in education (Kenyon, 2002, Tech Europe, 2001)
- Transform learning paradigms by introducing the concept of flexible and individualised learning, answering to individual educational needs and avoiding the limitations of current methods (Tech Europe, 2001, Ishaq, 2001, PAT 15, 2000)
- Enhance health services by empowering patients with information and access. For example, subscribing prescriptions by Internet or fax (Sorensen, 2000)
- Access health information to make decisions about treatment and care (Kenyon, 2002, PAT 15, 2000)
- Influence the shape of health service delivery (PAT 15, 2000)

- Improve the quality of life for people with disabilities or health problems (Ramrayka, 2002, London Connects, 2001)
- Increase the feeling of belonging of socially excluded people by developing confidence, communication skills, information handling skills and allowing them to pursue leisure activities (PAT 15, 2000)
- Supplement and/or substitute physical mobility (Kenyon, 2002)
- Overcome geographical barriers by participating in meetings, creating new and maintaining existing social networks, shopping online (Kenyon, 2002)

### **Environmental Benefits**

- Could help protect the environment through a reduction in physical mobility due to teleworking (Kenyon, 2002).
- The Institute of Employment Studies (IES, 2001) suggest London is the most appropriate region for home-based teleworking in Europe. The IES estimated that Inner London had a potential teleworkforce of 34 per cent of employment and outer London 29 per cent in 1999 (Local Futures Group, 2001).

## 6 A framework for policy development and intervention

### 6.1 Introduction

This chapter draws together the key findings of our extensive review of literature investigating the digital divide and proposes a framework that policymakers and researchers can adopt to investigate and address the digital divide. It adopts a user focused perspective that examines each stage of the policy intervention process.

The next four chapters of the report provide a summary of the key issues for research and policy development required to address each stage of the framework. The final two chapters then present the key research projects and strategy development activities required to address the digital divide.

### 6.2 The need for a new policy and research framework

Preceding chapters describe a diverse range of papers and research studies about the adoption and use of ICTs. In some areas such as online purchasing of goods or services and studies of ICT adoption in the UK there was a relatively large amount of literature. In other areas, such the use of ICTs by particular socio-economic groups', literature was virtually non-existent. In some areas, such as the impact of ICT there was a great deal of speculative material, but few robust facts and figures.

Growth in adoption of the Internet has been spectacular. The ONS estimate that at the end of 1998 only about 9 per cent of households had Internet access, three years later at the end of 2001 this figure had more than quadrupled to 37 per cent (9.8 million households with Internet access from a home computer). This rapid growth has been accompanied by many studies of those that have joined this band-wagon and connected to the Internet. However, studies of those that have not connected are sparse. It is therefore unsurprising that development of policies to address the digital divide has often been undertaken on an ad hoc basis.

One of the problems we have highlighted is the lack of interest in ICTs amongst those not connected. This is probably the most significant barrier to ICT use facing policymakers. There has been a proliferation of public access points introduced in the last eighteen months and Internet cafes are prevalent in every city in the UK. But still the number of non-users with 'no interest' remains stubbornly high at more than 40 per cent, and since January 2001 it has risen by one per cent every six months (see Figure 2.2).

### 6.3 A new policy and research framework

It became evident in our literature review that the traditional approach of looking at barriers and enablers of ICT adoption, ICT policies and ICT impact was an inappropriate focus with which to examine the needs of socially excluded groups. Instead, as the bullet points in the first two chapters demonstrated, it is easier to present and consider the literature and policymaking processes from a user perspective. As the preceding figures concerning a lack of interest about ICT from non-users demonstrate it is necessary to convince non-users that ICT has some benefit for them. Unless non-users are convinced that ICT has some advantages they will not be tempted to use free public online access points, let alone contemplate paying money from a limited budget to purchase ICT equipment for their own home.

If they can be encouraged to try the Internet they are also likely to require training or support to develop basic ICT skills. Chapter two highlighted that only 12 per cent of people that had low educational achievement had ICT skills (Tech Europe, 2001).

When non-users first visit a public access centre or training course they need to be guided as quickly as possible to web sites, or information sources that are pertinent to their needs or requirements. If they find nothing useful during an initial or early visits their motivation to continue is likely to be reduced.

This user focused approach is not new. It was advocated in the PAT 15 report (2000) and the Performance and Innovation Unit's Report on Electronic Government Services for the 21<sup>st</sup> Century (2000). However, in our extensive literature review we did not find any reports that presented research or the policymaking process from a user perspective.

Our approach, shown in figure 6.1, models the way policy intervention can take place to support and encourage socially excluded groups to beneficially use ICT. It identifies simply the key areas for policy intervention. It is evident that many current initiatives are likely to fail because they are undertaken in isolation without thinking of other elements or without having a citizen centric focus.

The *bottom line* is that if there is no benefit to socially excluded groups in using ICT they are very unlikely to make use of it. If these benefits or impacts are known they can become the focus for initiatives and other policy elements earlier in the policy development framework and the needs of socially excluded groups will be met and the digital divide overcome.



**Figure 6.1. The ICT adoption and policy intervention framework**

The feedback loop in Figure 6.1 represents the growing body of information that can be fostered by research or which can travel by word of mouth and encourage other individuals or socially excluded groups to use the Internet.

## 6.4 Conclusion

Many previous studies and initiatives have been developed without a user focused approach. 40 per cent of non-users have suggested they have no interest in using the Internet. If these ambivalent views are to be overcome non-users must be convinced that there is some benefit of using ICTs. Therefore a user focused framework for policymaking and research has been developed that examines each step of the adoption process.

By developing effectively policies for each stage of the framework a more holistic approach in addressing the digital divide in London should be possible. Initiatives at each stage of the framework should then become more compatible with later stages in the adoption process. Non-users will then be targeted with initiatives that more carefully meet their needs and encourage them to use and benefit from ICTs.

The remainder of this report briefly examines each stage of the framework and makes policy and research recommendations that can help to better understand the ICT adoption process for socially excluded groups. A better understanding of each stage of the model should enable policymakers to intervene more effectively and support socially excluded groups to access ICTs.

## 7 Policies and research to promote awareness

### 7.1 Introduction

This chapter explores the first stage of the ICT policy intervention framework. It examines the importance of raising awareness of ICT and the stimulus this can provide in encouraging activity in other stages of the adoption model. Awareness is required before individuals or groups will use public online access points, attend training or educational courses or use the Internet in a constructive or useful way.

### 7.2 Attitudes, acceptance and understanding

The importance of awareness lies in the fact that without awareness the possibility of encouraging use are significantly reduced, even if ICTs are easily accessible to all. Chapters 2 and 3, examining barriers and enablers for ICT adoption, highlighted the fact that awareness levels vary across different groups. Effective policy intervention will be determined by accurate knowledge of the level of awareness of different groups. According to the DfEE (2001) about 98 per cent of the population are aware of ICT. However, few studies were found that explored levels of awareness amongst different socio-economic groups or amongst socially excluded groups. Therefore, it is important to undertake research into ICT awareness, particularly amongst socially excluded groups. This research should focus on three key areas, each of which is a component in our ICT adoption model:

- Awareness of the ways in which ICT can be used in everyday life and work
- Awareness of ICT access or availability
- Awareness of ICT impact and benefits

It is important to highlight that high awareness levels do not translate into ICT use. Research carried out by DfEE (2001) found that whilst national levels of ICT awareness were high, use of ICT was considerably lower. For example 98 per cent of those surveyed in August 2000 were aware of ICTs, but less than half the number of people that were aware of ICTs had used the Internet (47 per cent; ICT Access and Use, 2001). The same research also identified that the Internet, mobile phones, and PC awareness was high amongst all groups, except for those 65 or over. It also showed that higher socio-economic groups tended to have higher awareness levels than those in lower socio-economic groups.

Whilst the DfEE research identified awareness levels in general it did not examine different forms of awareness. It is important to note that an individual might only be aware that a technology exists; they might have little knowledge of its availability, purpose, impact or benefits. These were important elements highlighted in the ICT adoption model.

Three subtly different characteristics that encapsulate awareness are attitudes, acceptance, and understanding. These are discussed in the remainder of this chapter. Examination of these elements plays an integral part in underpinning research and policy recommendations at the end of this chapter.

### **7.3 Attitudes**

If an individual is aware of ICT it does not necessarily mean that they have a positive attitude towards it. Levels of awareness can be raised relatively easily, but it is important in any promotional campaign that ICT technology should also be associated with having a positive impact on an individual's social or work life.

Research published by the DTI (IT for All initiative, Spring 1999) showed that 35 per cent of adults were either concerned with being left behind in the digital age or were alienated about the value of ICTs in their lives. Many of these respondents were from socio-economic groups D and E. The majority of ICT enthusiasts or those who were comfortable with ICTs were from socio-economic groups A, B and C, they accounted for 43 per cent of the adult population. The remaining 22 per cent in the survey, spread evenly between socio-economic groups, were unconvinced about the relevance of ICTs to their lives.

This research, supported by other studies (Social inclusion and the information poor, 2000) suggests there is a correlation between the attitudes towards ICTs from different socio-economic groupings. Lower socio-economic groups appear to be more negative in their attitudes; higher socio-economic groups have more positive attitudes towards ICTs.

Chapter 2 noted that socially excluded groups generally have negative attitudes and resistance towards the adoption and use of ICT (PAT 15, 2000) and 55 per cent of non-users in London are not interested in ICT adoption and use (London Connects, 2001). However, this research did not record the percentage of interviewees that belonged to socially excluded groups. Our overview of previous studies indicates that a lack of interest and negative attitudes toward ICT are probably a major constraint on ICT adoption and use by socially excluded groups. It is important to investigate the rationale underlying this lack of interest and motivation. If these factors are known it will be possible for promotional campaigns and other initiatives to promote a positive attitude towards ICTs. This should then ensure a more positive response to ICT access and training initiatives.

### **7.4 Acceptance**

Acceptance refers to the perceived or actual acceptance by an individual that the adoption of ICTs can be useful in their daily lives. This probably requires a perception that it can enhance their (or their household's) quality of living. Acceptance is closely related to attitudes. If positive attitudes are

developed acceptance levels are more likely to increase. The reason for this is that if an individual has a positive attitude they will have the motivation and desire to use ICTs.

This view was confirmed by research mentioned in the previous section that showed a correlation between attitudes towards ICTs and use. If individuals have a positive attitude they are more likely to try ICT technology and subsequently might be more likely to use ICTs in their daily lives and reap the associated benefits. This is probably a process that is likely to occur more easily among more affluent groups in society than amongst socially excluded groups. This assertion is based on two key points noted in chapters two and three. Firstly, more affluent groups have the resources to purchase ICT equipment and use it more intensively in their homes to find items of interest. Secondly, since affluent groups have higher levels of disposable income they are more likely to undertake purchasing activities, Figure 5.1 showed these are amongst the most popular purposes for internet use (information about goods and services is sought by 74 per cent of users, ordering goods and services 36 per cent, personal banking 26 per cent).

The majority of socially excluded groups have low levels of disposable income and they are less likely to have sufficient funds to purchase a computer or ICT connection for home use. They are therefore less likely to benefit from the purchasing activities offered by the Internet that more wealthy groups are able to use more readily. It is impossible, from current research, to distinguish whether a lack of income is a barrier to ICT purchase and beneficial use or whether it simply affects the purchase of computers and ICT equipment in the first place. Figure 2.1 showed that 78 per cent of the highest decile income group had home access to the Internet in September 2001 compared to 11 per cent in the lowest decile (ONS, December 2001).

No studies were found that explored the disposition of socially excluded groups to accepting ICT as a tool capable of improving their quality of life. Neither could we find studies that explored levels of understanding about the way in which ICT can improve the quality of living. General findings indicate that 4 out of 10 non-users ignore the way in which ICT can enhance their quality of living (Tech Europe, 2001). In addition, half of non-users identified irrelevance as the key reason for not adopting the Internet (Can't Surf, Won't Surf -The Digital Divide, 2000). There is a clear need for research to be undertaken in this area if effective policy intervention is to occur.

## **7.5 Understanding**

As awareness and acceptance levels are raised and positive attitudes are developed, individuals will also develop a better understanding of the capabilities and benefits that ICTs can provide to them. Improvements in awareness and acceptance will aid understanding. Considerable research has been undertaken that identifies general ICT benefits. But we could find no

research that explored ICT benefits and understanding amongst socially excluded groups.

It is important to note that a lack of understanding amongst non-users was highlighted by the Which Online study (Can't Surf, Won't Surf -The Digital Divide, 2000). The study found that a third of non-users do not understand the Internet.

Research needs to be conducted on the benefits derived by socially excluded groups from the use of ICT. Currently most studies make sweeping assumptions that providing social excluded groups with ICT access will benefit them in many ways. These benefits are usually associated with instant access to up-to-date information which impacts their daily lives. Such information may include welfare rights and benefits, health care, and education. However the failure of these assumptions is that they do not describe how relevant and easy to use these information sources are, nor whether they offer the stimulus and benefits to socially excluded groups require to use the Internet.

Some commentators have also suggested that ICT may enable citizens to become engaged and empowered and better able to develop and engage with their (local and online) communities. Only by better comprehending what socially excluded ICT users and non-users understand to be the benefits of the Internet will it be possible to enhance these features and highlight them in promotional campaigns and initiatives.

It is necessary to highlight that in many ways the above recommendation brings the ICT adoption model full circle. It focuses on identifying the benefits or impacts of ICT for socially excluded groups so that they can be used as a stimulus to encourage awareness amongst non-users. For this reason the model in Figure 6.1 has a feedback loop that uses the positive experiences and impacts of socially excluded ICT users as key elements in promoting awareness of ICT amongst non-users in the future.

This approach has two key outcomes. Firstly, it promotes a citizen-centric approach that focuses on identifying what users require. By identifying and enhancing these features (which could be services, information sources or methods of communication) it will ensure that the benefits derived from Internet use by socially excluded groups will be maximised. It is unlikely that all of these features or services will have to be provided by the public sector. Indeed, the public sector could become a catalyst in encouraging community groups or the private sector to better meet the needs of socially excluded groups.

Secondly, a citizen focus offers a more holistic and complete approach to policy intervention and research. It moves beyond some early initiatives that adopted a more technocratic approach that divorced the provision of ICT access from issues concerning how or why users might benefit from ICT.

In summary, awareness is a fundamental stage within the adoption model and the policy making process because it is a precondition that precedes all other stages in the model and it is a catalytic factor responsible for initiating

the ICT adoption process. Levels of awareness determine future ICT use and the utilisation of ICT access and training initiatives. Therefore it is important for effective policy intervention to take place at this early stage.

## 7.6 Recommendations

**Research** A thorough research study is required that examines the attitudes, acceptance and understanding of ICT by socially excluded groups. The project should focus on the interests, motivations and benefits of ICT use amongst socially excluded ICT users in London. It should also seek the views of socially excluded non-users about the benefits they perceive from ICT use and the barriers they observe in using ICT in their social and working lives. When this initial research has been completed it should be used in targeted promotional campaigns about the benefits of the Internet. Further research will be required to see if these campaigns produce positive reactions and awareness towards the Internet and ICT use.

**Policy** ICT policies need to take a more holistic approach and encourage non-users about the benefits of ICT use. Policies and promotional campaigns should make users aware of benefits identified by others in a similar situation. Promotional campaigns should take a citizen-centric approach that concentrates on the benefit that ICT can play in their social or work lives. We have observed that many previous initiatives have taken a 'technocratic' approach highlighting online access and training. These initiatives could become more successful if non-users were carefully targeted and made more aware of how the Internet can enhance their lives. Community and voluntary groups and the private sector should be provided with details of these requirements and encouraged to create more sites or services that socially excluded users require.

It might be appropriate to integrate the use of ICT into some mainstream programmes for socially excluded groups. In this way users might be encouraged to use ICTs by 'stealth'. If the desire to use the service or access information is substantial enough or the benefits of ICT access are significant users might be encouraged to learn to use ICT. In this way ICT use may be encouraged indirectly as clients of non ICT related projects become aware of its benefits.

## 8 Policies and research to promote access

### 8.1 Introduction

If non-users can be motivated to try ICTs they need to be given the opportunity to use online technologies, preferably with the support of someone to assist them. Initial access for many socially excluded groups will probably take place at a public access point, at work or through access at a friend or relation's home.

Unlike many issues concerned with the digital divide access is an area that has been relatively well researched. A comprehensive body of information is available on this subject. However, much of this research has been concerned with examining the characteristics of those that are connected and have access to the Internet, rather than those that have not.

### 8.2 Factors influencing access

ICT adoption rates increase in relation to income. Figure 2.1 showed that ICT adoption rates are more than seven times lower for households in the lowest socio-economic groups (11 per cent adopted in 2001) than households from higher income groups (78 per cent)(ONS, 2001).

Removing access barriers through the creation of public access points overlooks barriers to access (including a lack of skills or interest) that might still exist for access at home and at work.

The provision of public Internet access points has been seen as the main solution to the problem of lack of access. With the aim of providing access for all, ICTs are becoming available at libraries, schools and neighbourhood centres. Government has set the goal of creating more than 6,000 UK online public access centres. However, ONS (2002) figures suggest that in February 2002 only eight per cent of adults had accessed the Internet from a public location and nine per cent from an Internet café. 79 per cent of users had access from home and 35 per cent had accessed the Internet from their workplace.

It is probable that the duration users spend using public access points and the way ICT is used will differ from the ease and extent of use that might be possible from the home.

While widening access through public access points is beneficial, other access point should not be neglected. Nielsen/NetRatings for example found that people spend more time surfing at work than surfing at home. These individuals spent more time online, visited more domains and viewed more web pages (Nielsen/NetRatings, 2002). However this research cannot be extrapolated across all employees. The DTI international business ICT benchmarking study (2001) found that only 40 per cent of the UK workforce use the Internet more than once a month and on average only 35 per cent of employees make daily use of external email. Nonetheless, the

promotion of initiatives to enable businesses to provide their employees with access or training on the internet could provide a valuable access route that does not require public funding.

A lack of desire and means to access ICTs at home by non-users could underlie some of the reasons given for not using the Internet. Which Online found that 48 per cent of non-users stated the Internet was not relevant to their needs and 29 per cent stated that it costs too much (Can't Surf, Won't Surf -The Digital Divide, 2000). A key difficulty that individuals from lower socio-economic groups face is that they may not be offered access opportunities at work and they may not have the financial resources or desire for ICT access at home.

Although access to ICTs at home and work may be problematic for socially excluded groups, it should not be assumed that lack of such access will necessarily lead to the use of public access points. More needs to be known about the willingness of socially excluded groups to use public access points. Another important issue to be considered in the future is the possibility of ICT use by technologies other than a computer. Mobile phone access and digital TV use are expected to increase in the future. However, the use of these technologies by socially excluded groups is currently uncertain. Mobile phone adoption rates are similar for both high and low income groups (DFEE - ICT access and use report, 2001). But the characteristics of those using WAP and GPRS phones, which provide limited internet use, are not yet clear.

### 8.3 Recommendations

**Research** Research is required to evaluate the use and users of public access points. The research should investigate the characteristics of users, in particular the proportion that are from socially excluded groups and the proportion that are using ICTs for the first time. All users should be asked about how they first used ICTs and how their use of ICT at public access points differs from their use of ICT at other locations. Questions should also focus on their reasons for using a public access point and alternative locations, supporting facilities or personnel and styles of public access points they might prefer.

At the conclusion of this research a review of the character and geographical distribution of current public access provision should be undertaken to enable provision to better meet the demands of non-users.

Workplace studies should be undertaken to identify the level of access to ICT by socially excluded users. The views of employers should also be sought about undertaking ICT access initiatives for their entire workforce.

**Policy** Access initiatives need to encourage ICT use by socially excluded non-users. The results of the preceding research should be influential in determining whether the current types of public access provision meet the needs of non-users.

Consideration should be given to encouraging employers to broaden access to ICT in the workplace. ICT training for staff could be promoted as a method of enhancing corporate social responsibility (whilst still benefiting the company through the development of a better skilled workforce).

## 9 Policies and research to promote skills and training

### 9.1 Introduction

Providing ICT skills and training is essential if policies aimed at widening access are to be effective. Having access to ICTs does not ensure the use of these technologies. Non-users need a basic level of ICT skills to use effectively public access points or other access methods. Training is probably essential at public access points with 'taster' initiatives aimed at new users. Without suitable support new users of public access points may become frustrated and discouraged from using ICTs.

### 9.2 The need for training and skills development

The ONS (2002) found that 16 per cent of non-users stated that a lack of confidence or skills was a reason for not using the internet. This was the third most important reason after a 'lack of interest' (42 per cent) and 'no computer or access' (26 per cent).

Interestingly, despite the fact that in July 2001 49 per cent of adults had not used the Internet (ONS, 2002) a DfEE survey (Internet Access, 2001) found that 83 per cent of respondents thought having ICT skills was fairly important and 44 per cent said it was very important. A larger proportion of individuals from higher socio-economic groups perceived computer skills to be very important than individuals from lower socio-economic groups. But nonetheless this still suggests that a relatively high proportion of non-users regard ICT skills as important.

### 9.3 Training and skills initiatives

Government and other organisations have acknowledged the need to provide training for people that might require ICT skills. Several of these initiatives were reviewed in section 4.3.

In London the new Skills Commission, established by the London Development Agency and partners, is developing a skills agenda for London. The Commission's objectives are diverse and deal with the development of a wide range of skills and educational matters. However, one of their objectives is to encourage the development of ICT skills at all levels within the workforce, but with a special emphasis on entry-levels skills.

One problem with many ICT training initiatives is that they are delivered through schools and colleges. It was noted in chapter two that many socially excluded people who did badly at school have an aversion to returning to a formal learning environment. For this reason it may be more appropriate to provide facilities or an environment that is user friendly and not immediately related to a formal educational environment.

Training and skill initiatives for socially excluded groups need to consider more fully the negative educational experiences many socially excluded groups have encountered and the lack of confidence, poor skills levels and low self-esteem that many non-users may possess. In addition to these considerations it is also necessary to acknowledge the low literacy levels of many socially excluded groups, the fact that English may not be their first language and the probable need for continuous support, advice and encouragement (preferably face-to-face) when using ICTs for the first time.

A good example of this type of initiative appears to be the Priory Court information, technology and communication project in Waltham Forest. The project is aimed specifically at disadvantage groups ranging from lone parents and elderly people, to people from black and minority ethnic groups, unemployed, disabled people and those needing basic skills. A new community centre was built, which provides a friendly environment. The aim of the centre is to encourage those that have not used ICT to use the technology in any way they might need it. The purpose is to support people new to ICT and make it as enjoyable as possible so that the experience is repeated and individuals are encouraged to find new ways to access and use ICT. Most importantly, this project provides an example of how ICT can enhance educational opportunities for people lacking basic skills who might be unwilling or unable to attend formal education. Socially excluded individuals with low educational levels and low basic literacy skills are learning basic ICT skills like word processing, email and Internet at the same time that they are receiving help to develop basic literacy skills such as reading and writing.

## 9.4 Recommendations

**Research** Research is required to examine the attitudes of socially excluded groups to ICT skills training. The research should focus on the motivations for and benefits of ICT training amongst socially excluded ICT users in access centres and training initiatives. The views of those attending different types of training establishments (formal and non-institutional) locations should be obtained about the suitability of the venue and style of training to meet their needs. The basic literacy skills of those attending training course should also be investigated.

If possible socially excluded groups who have attended a training course but later 'dropped-out' should be approached to investigate the reasons why they ceased their training and the alternative types of training that might better meet their needs.

ICT initiatives should be evaluated to investigate whether those that integrate access, training and other means of support for socially excluded groups are more effective and better received than other types of ICT initiative.

Workplace studies should be undertaken to examine the provision of ICT training for socially excluded users. The views of employers should also be

sought about undertaking training initiatives for their entire workforce in ICT skills.

**Policy** Ideally ICT training should be available at all public access points. Training should adopt a user focused approach that aims to be flexible and meet the needs of different socially excluded groups. Consideration should be given to providing some training and access in the community at locations that are not traditional educational establishments.

Consideration should be given to initiatives encouraging employers to broaden access to ICT training in the workplace.

## 10 Policies and research to promote use and impact

### 10.1 Introduction

The final stage of the policy intervention framework focuses on the use of ICT. Use should be the logical outcome of all the preceding stages of the framework. Preceding initiatives should have provided non-users with access and/or sufficient skills to find suitable services or information that meet their requirements effectively.

If all the preceding elements of research and policy development have been undertaken non-users should have been made aware of the benefits of ICT that others in similar circumstances have found useful. This should make it far easier for new users to find useful services or information.

Resources for ICT initiatives to address the digital divide are likely to be limited. Therefore it will be important to focus on socially excluded groups or geographical areas where ICT use is relatively low. Further research will be necessary in London to investigate ICT use amongst different socially excluded groups or in different geographical areas of London. Figures 1.1 and 1.2 demonstrated that this information is available.

### 10.2 Recommendations

**Research** Research is required to examine how experienced and 'new' users from socially excluded groups use ICTs. This review should evaluate the effectiveness and efficiency of initiatives used by 'new' ICT user. Policies that have been successful should be highlighted and ideas for improvement in all initiatives should be sought.

'New' users should also be monitored to identify how using ICT is beneficial to them. These benefits should be compared with those found in earlier research.

Research will be necessary to investigate ICT use amongst different socially excluded groups or in different geographical areas in London. This will be vital if initiatives are to target particular groups or areas.

**Policy** The results of the research recommended above should be used to enhance policies and initiatives to promote ICT awareness, access and training.

# 11 Recommendations for further research

## 11.1 Introduction

Chapters 7 to 10 recommended research in a number of different areas. This chapter consolidates these recommendations into four key research projects that will provide a great deal of the information required to understand the digital divide and to refine and develop strategies and initiatives to tackle this problem in London. The recommendations can be addressed by four research projects. These are:

- A citizen study to examine ICT use and non-use.
- A geographic study to examine in fine detail the level of ICT use and non-use in different areas of London.
- A workplace study to investigate ICT use, non-use and training opportunities at work.
- A review of public access points and ICT training centres to examine use, impact and 'what works'.

Each of the proposed projects is examined in greater detail in the remainder of this chapter.

## 11.2 A citizen study to examine ICT use and non-use

A research study is required that examines the attitudes, acceptance and understanding of ICT by socially excluded groups. The project should focus on the interests, motivations and benefits of ICT use amongst socially excluded ICT users in London. The research should study a variety of socially excluded groups (distinguished by factors such as ethnicity, age and gender) approximately 90 individuals in each group should be identified.

The study should interview equal numbers of individuals that use ICT at home, use ICT at public access points and non-users. Interviews should focus on the key elements of the policy intervention framework. Questions should focus on :

- **Awareness:** attitudes to ICT, perceptions of public access availability, acceptance, understanding, interests, motivations and benefits of ICT use and early barriers to ICT use.
- **Access:** Location, type (public access/home/work), regularity/time, cost, bandwidth, use of non-PC ICT technologies. Extra questions for public access users could focus on their satisfaction with public access provision and whether it encourages them to adopt the Internet at home.

- **Skills and training:** General education level, IT skills, attitude to training, motivation for training, training undertaken (characteristics and quality). Extra questions for ICT training initiative users.
- **Use and motivation:** Confidence, regularity of use, time used, uses, disadvantages, impact, different uses between home, work and public access points. Questions about advantages should focus on democracy and empowerment, economic benefits, social benefits and environmental benefits.

For nearly all interviewees, particularly those that have been using ICT for some time it will be valuable to ask questions about early stimuli for ICT utilisation, how use has changed over time and the role that public access centres played in enabling access or ICT skills development.

The proposed research would probably be one of the first studies of ICT use amongst socially excluded groups. It would focus on how socially excluded users start to use the Internet, the key sites or services they use and the benefits they receive from ICT use. Equally it is possible the research may show no benefits to socially excluded groups from ICT use.

If benefits are revealed they can then be used as the focus for promotional campaigns to promote awareness (amongst carefully targeted socially excluded groups) of the benefits of the Internet. The interests of these groups could also be highlighted to encourage others to provide similar or better information or services.

### **11.3 A geographic study to examine the level of ICT use and non-use in different areas of London**

A research study is required to examine, at a fine scale of geographical detail, the level of ICT use and non-use by households throughout London. With limited resources to address the digital divide it will be important for policymakers to know where the highest levels of non-users are located. This will be important to enable policymakers to target initiatives. The preceding research will enable targeting to focus on the needs of particular socially excluded groups. Research into geographical household ICT adoption will enable areas with the lowest adoption levels to be targeted. This will be particularly important in determining the efficiency of the current geographical distribution of public access points and other ICT initiatives. Research on access points and training initiatives is recommended in section 11.5.

IECRC have undertaken considerable research at postcode level with data provided by all the UK's leading Internet Service Providers on household adoption of ICTs. Indeed, this data was used to produce Figures 1.1 and 1.2 that revealed household ICT adoption at Borough level in London.

Analysis of ICT adoption and standardised adoption (see Appendix 2) percentages at ward level (approximately 2,000 households comprise one ward) for the 780 wards in London would provide a much finer level of focus

for geographically targeted initiatives. It would also be beneficial to investigate uptake of metered and unmetered access and broadband use in London.

#### **11.4 An employer study to examine ICT use and non-use**

A workplace study focusing on ICT use by employees would provide details about current use and the potential for business support of ICT work based initiatives. Section 8.2 highlighted that 60 per cent of the UK workforce (16.8 million) do not use the Internet at work. In London the proportion of non-users is slightly less – 46 per cent. Nonetheless, this still represents at least 1.2 million of the London workforce. The promotion of initiatives to enable businesses to provide their employees with access or training on the internet could provide a valuable access route that does not require public funding.

The study should examine a sample of businesses stratified on the basis of industry, size/employment, ethnicity and geographical locations. 1,000 businesses would provide a large enough sample to provide fairly robust results.

Analysis should focus on:

- ICT use by staff (particularly by socially excluded groups).
- ICT skills amongst staff.
- ICT training for staff.
- Skills and training for socially excluded groups.
- Reaction to ICT access or skills development initiatives.
- General ICT barriers.
- General ICT benefits.

The proposed research would be one of the first studies to quantify the use of ICT amongst socially excluded groups at work. The reaction of employers to supporting initiatives that would enhance ICT skills access and development in the workplace could also be gauged. If the initiative was feasible further analysis of the data could be undertaken to investigate how best to target different types of employers to encourage them to become involved with these initiatives.

#### **11.5 A study of public access points and ICT training centres**

The citizen survey will help to determine the importance that users and non-users perceive for access points and training centres. If the role of these centres is significant it would be beneficial to undertake an audit of ICT access points and ICT training centres. This could then help to provide

valuable information about whether the location and style of these centres meet the requirements of socially excluded groups.

The study will comprise two parts. The first will collect data about general features of each centre, such as:

- Location
- Style, services and characteristics. Particularly in relation to the needs of inhabitants in areas of social exclusion).
- Goals and objectives.
- ICT equipment and bandwidth.
- Access availability (times).
- Services and support provided.

The second part should focus on the perceptions of centre managers about the needs and requirements of users and non-users. This will include and examination of:

- General and user awareness of the centre and what it does.
- Ease of access and use for newcomers and regular users.
- Skills and training needs of new users and regular users.
- Use and impact.
- 'what works' in encouraging use, particularly by socially excluded groups.

## **11.6 Conclusion**

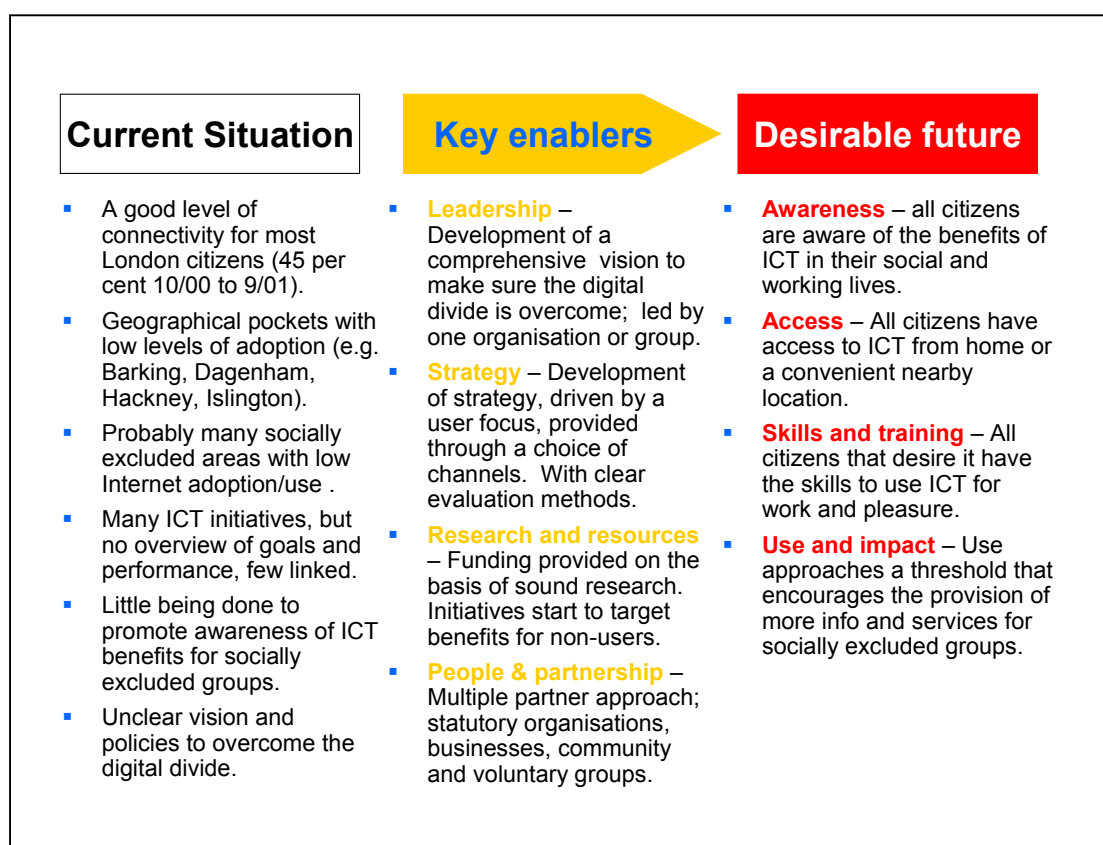
The four proposed research studies will help to overcome many of the deficiencies highlighted in preceding chapters concerning statistics and information about how socially excluded Londoners perceive, use and benefit from ICT. Importantly all four studies have been developed with a user (or potential ICT user) oriented focus. This information will be vital in developing and targeting future ICT initiatives to encourage socially excluded groups to use ICT.

## 12 A strategy to address the digital divide in London

### 12.1 Introduction

The final chapter of this report outlines the strategy development activities required to address the digital divide in London. The key components of the strategy are provided in Figure 12.1. The left hand column briefly highlights the current situation in London. The right hand column uses the adoption framework presented in chapter 6 as a basis for outlining a desirable situation in London in the future. The central column describes the key activities that need to be undertaken if the goals outlined as desirable in the future are to be achieved.

A strategy is proposed as the basis for discussion about the goals and objectives that need to be agreed to address the digital divide in London. It is unlikely all these elements will be acceptable to everyone, but the adoption framework provides a valuable basis for stimulating discussion about what the key objectives should be.



**Figure 12.1 Objectives and strategy development activities required to address the digital divide in London**

When objectives have been agreed it will be necessary to consider how these can be achieved. The central column of Figure 12.1 describes the key activities that are likely to be necessary. These activities will be influenced by the objectives to be achieved. However, Figure 12.1 outlines the key activities that our research suggests are necessary to address the digital divide in London.

## 12.2 ICT for all in London: A vision

This section outlines the key components that should underpin a vision for ICT use in London. It focuses on issues outlined in the right hand column of Figure 12.1. These issues are:

- Awareness
- Access
- Skills and training
- Use and impact

Each of these issues is considered below:

**Awareness:** To enable *all citizens to become aware of the benefits of ICT* in their social and working lives the results of research suggested in the previous chapter should be used to inform promotional campaigns to raise the awareness and understanding among socially excluded groups of the benefits of ICT. Schools should continue to develop ICT skills and raise awareness and understanding among school children of the potential benefits of ICT. If these activities are carried out successfully it is possible that a critical mass of socially excluded users will have been developed to 'spread the word' of the benefits of ICT.

**Access:** To enable *all citizens to have access from home or a convenient nearby location* it will be necessary to undertake the systematic review of access points suggested in section 11.4 to ensure current styles and locations meet the needs of potential new socially excluded users. These centres will need to comprise part of a five stage holistic approach focusing on the development of awareness; access; training; use and impact. There will have to be sufficient access points with training support (online or people) for new inexperienced socially excluded users. In addition it may be necessary to develop initiatives, perhaps in partnership with organisations such as housing associations, telecommunications companies and Internet Service Providers to provide cheaper access to dial-up or broadband services for socially excluded groups.

**Skills and Training:** To provide *all citizens that require it with the skills to use ICT* for work and pleasure it will be necessary to undertake the review of training provision suggested in chapter eleven to ensure current styles and locations meet the needs of potential new ICT users from socially excluded groups. Support might be required for community and voluntary groups to promote existing ICT training courses or to assist them to develop their own

courses. Partnerships with businesses to develop ICT training more extensively throughout their workforce, particularly for socially excluded groups or businesses in socially excluded areas would also be beneficial.

**Use and Impact:** When sufficient socially excluded users are online *use will approach a threshold that encourages the provision of more information and services for socially excluded groups*. This will require higher levels of ICT use by socially excluded groups. This increase in use might be encouraged if the research in the previous chapter is able to find the most beneficial uses of ICT for socially excluded groups. Government could then encourage the provision of more information or services of this type by private sector, voluntary or community groups.

It is important to stress that these objectives are unlikely to be acceptable to everyone. But the preceding literature review and the results of the research suggested in the previous chapter will provide a valuable basis for stimulating informed debate about what the key objectives should be. It will also be important to review these objectives in the future. Advances in technology and changes in the perceived importance of the Internet are likely to necessitate modification to objectives and policies over time.

### 12.3 Achieving the objectives for ICT use in London

The previous section outlined key objectives for ICT use in London. Figure 12.1 demonstrated that action is required to move from the current position to the desired vision. Key activities will include:

- Leadership
- Strategy development
- Research and resources
- People and partnership

Each of these is considered below:

**Leadership** - *Developing the organisational capability and vision to address the digital divide is probably the greatest challenge*. This will require strategic direction from London government as whole, perhaps through one London organisation or several working in partnership with a clear digital divide focus. As preceding sections have shown there is a great deal of activity being undertaken to support Internet use in London. But at present much of this activity is unrelated and undertaken on an ad hoc basis. Clear leadership is required to draw initiatives and policies into a clear coherent whole. Strong organisational incentives and support is required to achieve joined-up delivery of initiatives and services

**Strategy** – *Development of strategy, driven by a user focus, provided through a choice of channels*. If London is to tackle the digital divide a clear strategy is desirable. This will require a clear and agreed strategic direction from all London statutory organisations. The strategy should accommodate

access through a variety of channels, emphasising benefits for all. Development of a web page or portal of ICT benefits for socially excluded groups – emphasising and encouraging user input would be valuable. It must be noted that stipulating policies and specifications will not in itself be enough. Successful implementation will require the provision of training, best practice guidance and support for all participating organisations.

**Research and resources** – *Funding should be provided on the basis of sound research, initiatives need to be targeted at non-users.* Research suggested in the previous chapter will be vital in determining the needs of socially excluded users and ensuring that support is given to initiatives that are best placed to achieve the strategic objectives. Research will play a major role in developing and refocusing existing initiatives. Funding should be provided to initiatives on the basis of clear strategies to address the digital divide. Difficult strategic choices will have to be made.

**People and partnerships** – *Partnerships between organisations will be required to provide the multi-faceted approach required to address the digital divide.* As previous sections have shown many different organisations can contribute to overcoming the digital divide; these will include statutory organisations, businesses, community and voluntary groups. Developing a bottom up and top down approach amongst partners will enhance ownership and commitment to initiatives. Training needs analysis and support might be required to ensure awareness and skills to implement the new strategy.

It is important to stress that these activities are indicative. It is impossible to provide a definitive set of actions until objectives have been established and research projects completed to better understand the nature of the digital divide in London. Nonetheless the need for clear leadership and a clear strategy will be paramount. These activities will then lead to an assessment of resources, people and partners to implement the strategy.

## 12.4 Conclusion

The strategy development and implementation activities recommended in this chapter will be greatly influenced by the outcomes of the research proposed in the previous chapter and discussion about the findings in this report from all interested public and private sector groups in London. It is possible that if no benefits for socially excluded groups are evident from research, strategy will be superfluous. Equally, discussions between representatives from all participating organisations may decide that the current or future benefits of ICT to socially excluded groups are not sufficient to warrant the resources required to address the digital divide. If this is the case this research report and the proposed research will have been successful in providing sufficient information and evidence on which to make important strategic resource allocation decisions.

If there is a consensus for action this report and the proposed research should provide a robust basis to stimulate discussion and develop a strategy to address the digital divide in London.

# Appendix 1

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- From the global divide to the global digital opportunity
- Global digital divide frequently asked questions

## Appendix 2

### Standardisation Adoption Methodology

The data presented in Figure 1.2 is derived from research undertaken by the authors that has developed a standardisation method of taking into account differing socio-demographic characteristics of geographical areas.

For every postcode in the UK data was aggregated by ward and also by each of 12 socio-demographic groups (these ranged from 'high income families' to 'low rise council tenants'). Connectivity percentages for each socio-demographic group in every ward were calculated and compared with the national average level of connectivity. This had the effect of 'standardising' uptake by analysing the relative level of uptake for that socio-demographic group (in that ward) relative to Britain. In the analysis a value of 1 indicated uptake at the national rate, a value of 0.5 showed connectivity at half the national rate.

By finding the average relative level of uptake for each socio-demographic group in every ward it was possible to derive an index that standardises uptake across the UK. For each ward standardised uptake was calculated by aggregating the standardised figure for each of the ward's 12 socio-demographic groups. At the national level some areas such as the West Midlands and North East (both with a standardised value of 0.99) have connectivity in line with their socio-demographic structure. Other areas such as London (1.13) and the South East (1.12) have connectivity considerably above levels that would be expected from their socio-demographic structure. Figure 1.2 could be recalculated to standardise the data within London only or for London and the SE.

**Greater London Authority**

Romney House  
Marsham Street  
London SW1P 3PY

**[www.london.gov.uk](http://www.london.gov.uk)**

Enquiries **020 7983 4100**

Minicom **020 7983 4458**