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Adrienne Muir and Charles Oppenheim
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National Information Policy developments worldwide II: universal access – addressing the digital divide

Adrienne Muir and Charles Oppenheim
Department of Information Science, Loughborough University, UK

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Abstract.
Universal access refers to that part of a National Information Policy that attempts to ensure equal access to information for all, irrespective of location, financial resources or disabilities. This paper describes the results of a desk-based literature survey on recent developments in national information policies in this area. It considers the question of the digital divide, and the various approaches taken by governments in addressing the problems. It particularly notes the honesty with which the USA has described its problems, and the vigorous efforts it is making to address the problems.

1. Introduction

For the purposes of this article, ‘universal access’ refers to that part of a National Information Policy that attempts to ensure equal access to information for all, irrespective of location, financial resources or disabilities. This is a broader definition than the more technical and well-established term with the same name in telecommunications policy. This subject, as with many of those considered in this series of articles [1], is characterized by rhetoric and lip service to the ideal. Libraries have always been in the forefront of efforts towards universal access to information, and have willingly taken on such tasks given to them by Government. A good example of libraries taking the initiative is the Universal Availability of Publications (UAP) programme. This was initiated by IFLA and supported by UNESCO, and its objective is the widest possible availability of published materials in any format to users whenever and wherever they need it, as an essential element in their economic, social, educational and personal activity [2]. Starting in the days of print, the expansion to cover electronic information poses difficulties, such as the need for consistent identification of electronic materials [3].

In recent years, the emphasis of government policies has moved from a general right of universal access to universal access to electronic information (i.e. bridging the so-called digital divide), and to fulfilling the needs and aspirations of those with disabilities. Universal accessibility in the case of the Web ensures that sites are developed to serve the largest possible audience using the broadest range of hardware and software platforms, and that the needs of users with disabilities are considered and met. Universal access is these days largely discussed in terms of the digital divide, and refers to the ideal that a poor pensioner living in a remote place has the same quality and quantity of information available, at the same cost, as a wealthy individual living in a major metropolis. In principle, electronic information offers the capability to achieve this.
The digital divide is more than simply the gap between those people who have, and those who do not have access to the Internet. The perceived disparity is that which results from portions of the population not having the ability to use IT because of the lack of access and/or skills [4]. Lack of access to funds could be added as another factor, and it is noted that the digital divide can occur within a country, or between countries, such as between developed and developing countries. Whilst it is true that the literature on the digital divide is focused upon developed vs developing, it is emphasized that the divide may occur on various levels. For example, it occurs between different countries and regions; and between different demographic groups within a country (e.g., between the young and old, between able and disabled, between men and women, between high and low-income groups, and between different ethnic groups).

The digital divide is a global issue, and needs to be tackled at national and international levels. James has strongly argued for the need for low-cost IT to address the problem [5, 6]. Additionally, closing the digital divide requires creative partnerships between industry, non-profit organizations and government. An excellent brief review on the digital divide, together with a report of critiques of the digital divide ‘industry’, has been written by Cawkell [7]. In it, he notes both the arguments of those who believe the digital divide is an urgent issue that needs to be addressed, and the criticisms of those who believe arguments about the digital divide are self-righteous, pompous and under-argued, and are simply an excuse for consultants to make money.

Despite the rapid growth of information technology and the Internet since the 1990s, there are many people all over the world who do not have access to IT tools or the Internet. There are many factors that might restrict peoples’ access to information on the Internet. This is despite the fact that many governments argue for the principle that all individuals should have the right to access information online regardless of economic situation, disability, geographic location, education, race/ethnicity, technological and social literacy, social status or cultural development.

Web site design is an important aspect of universal access for the global population wanting to use the Internet. Web sites that do not incorporate accessible design principles (this term refers to the need for Web pages to be readable by those with visual disabilities [8]) prevent a significant number of the world’s population from having unlimited access to information on the World Wide Web. Therefore, information providers need to be made aware of the issues of standards for access to information by the visually impaired or disabled. For example, people who use different browsers may not receive the same information depending upon their browser. Designers must accommodate the differences both between technologies and between peoples’ abilities. Disappointingly, little evidence was found that governments are addressing these issues.

The Internet provides the facilities for people to purchase goods online, perform their financial transactions through online banking, searching and retrieving information, etc. However, the possibilities are currently confined to a small percentage of the global population.

There are a number of issues that need attention if countries are to achieve their oft-stated aim of universal access and bridging the digital divide. The checklist below lists these issues, as well as providing our working definition for ‘universal access’:

- telecommunication infrastructures need to be completed;
- people with disabilities need technological assistance to overcome barriers of a standard computer interface;
- users’ set-up and access costs;
- lack of physical access;
- a perceived lack of relevant content;
- security concerns;
- lack of skills and training; and
- illiteracy (both the inability to read, and the inability to use IT properly).

Desk-based research was undertaken as described in Part I of this series of papers, and found great variation in the level of detail provided by different countries on universal access. It is likely that in many countries universal access programmes are not identified as such, but are subsumed within other initiatives. Pateman has written a useful polemical report on a number of initiatives worldwide to address the social exclusion problem through libraries and IT [9]. He draws attention to the role of public libraries in Finland, Denmark, Sweden and Ireland, as well as the UK in addressing the problems. Haywood’s book [10], although dated, is another useful starting point for discussions on this topic. Some individual countries’ initiatives in this area will now be considered.

2. Australia

Increasing attention is being focused on the need to ensure that the entire community, including disadvan-
taged sectors, has a high level of access to the Internet. Australian Bureau of Statistics data showed that 67% of Australian households were not connected to the Internet in August 2000 [11].

The Australian Government has adopted a multifaceted approach [12] to tackling the problems of universal access. These include: regulatory initiatives to encourage greater competition in the telecommunications market; grants to fund the development of telecommunications infrastructure; community access facilities and training; a range of educational skills development initiatives; and providing government services electronically in ways that enable access for all sectors of the community, including the disabled.

Australia manages the so-called ‘Networking the Nation’ (NTN) programme. The main aims of this project are to enhance telecommunications infrastructure and services in those areas; increase access to, and promote use of, services available through telecommunications networks; and reduce disparities in access to such services and facilities [13]. The development of community-based access centres has also been a priority for the Government to increase use access to the information economy through the Internet.

Both Commonwealth and State Governments have developed IT education and training programmes. The Department of Education, Training and Youth Affairs (DETYA), in consultation with other education and training authorities, has developed an Education and Training Action Plan for the Information Economy which is targeting a wide range of issues. The Commonwealth recently announced funding of up to 5 million Australian dollars to help establish an Information Technology and Telecommunications (IT&T) Skills Exchange to address the current shortage of ICT skills.

DETYA has also spearheaded the Computers for Schools initiative, ensuring that surplus Commonwealth and State government computers are donated to government and non-government schools. To date, approximately 18,000 computers have been placed in schools.

Under the Disability Discrimination Act 1992 [14], Commonwealth government departments are required to ensure that information online is accessible by anyone with a disability [15]. The Act has a number of objectives:

- to eliminate, as far as possible, discrimination against persons on the grounds of disability;
- to ensure, as far as practicable, that persons with disabilities have the same rights to equality before the law as the rest of the community; and
- to promote recognition and acceptance within the community of the principle that persons with disabilities have the same fundamental rights as the rest of the community.

An example of a government agency whose web site [16] has undergone significant redesign in order to meet the government’s online standards is the Department of Finance and Administration. The redesign work of this Department has drawn on the Web Accessibility Initiative [17]. In addition, the Australian Government’s Online Council has adopted Web Content Accessibility Guidelines, providing a common best practice standard for all Australian government web sites. The Australian Human Rights and Equal Opportunity Commission has supported this initiative.

The Government has provided 3 million Australian dollars since 1998 to support projects that have helped people with disabilities to gain access to online information and communication services. @ccessability, ‘Online access for people with disabilities’ is a Government initiative, and is managed by the Department of Communications, Information Technology and the Arts (DGITA). The AccessAbility programme provided support for 18 projects in 1999, with the common focus for all projects being innovation and excellence, new products and services, new models for service delivery and to break down the barriers to online services faced by people with disabilities [18].

The following projects have been established:

- People with disabilities working online – a pilot study to examine requirements for people with disabilities to undertake teleworking.
- No Speech Required: Opening up online communication to non speech people – concentrates on low-cost Internet access, awareness and training for people who hear but cannot speak.
- SAM Online – established a ‘supported access model’ for people with severe multiple disabilities.
- ParaQuad Netwheel On-Line – developed an online service through the Web to allow and encourage people with spinal injury to access the service of the ParaQuad Association.
- Online access for people with disabilities through Australian public library services – included gathering information leading to the development of standards and policies for appropriate levels of online access for those with disability.
- Montrose Connect-Up – a web site and an Internet club for children with disabilities, enabling them to communicate with similar children, despite geographical isolation.

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• Web site access for literacy development in individuals with disability – aimed to facilitate literacy development through access to web sites that have been modified to accommodate limited literacy skills and physical access difficulties.
• Computer and Internet access training programme for people who are deaf and blind
• Scanning menu access to a range of Internet tools for people with severe motor impediments – developed a modified Web browser interface for people with cerebral palsy and severe motor impairment.
• Computer accessibility for people with disabilities in rural and remote West Australia – conducted workshops on computer access for people with special needs in 11 rural communities.
• Multiweb Disability Communication Access – carried out research and development to extend multiweb browser applications to include e-mail and word prediction.
• Rural and Peninsular Disability Support – designed to provide low cost Internet access, training, and services to people isolated by disabilities.
• Web access for people with aphasia – enabled people with aphasia to communicate and access information via the Internet, through training materials, guidelines and a web site based on iconic symbols.
• Making e-commerce available to people with disabilities – involved research and development of guidelines for e-commerce applications to ensure accessibility by people with disabilities, including the use of smart card technology.
• The VICSERV ‘NetNation’ project – piloted a model of Internet access by people with psychiatric disabilities.
• ADEC Ethnic disability resources online database – created an online database of disabilities related information in 17 languages.
• Promoting access to online information for women with disabilities in Australia – promoted access to online information for women with disabilities in Australia.
• MD-Net! – aimed to develop a network, training and support services for people affected by Muscular Dystrophy and related disorders.

Libraries play a full part in efforts to bridge the digital divide, as in many other countries. A good example is Brisbane’s ‘smart city’ project. Within this, Brisbane City Council Library is addressing information access, lifelong learning, digital divide and social inclusion issues [19].

3. Canada

The great strength of Canada is, it is claimed, ‘the issue of equitable distribution of access to modes of communication’ throughout Canadian history [20]. However, the digital divide and the lack of universal access to the Internet is also a matter of concern here.

Statisticians, government agencies and Government departments, and the private sector have conducted a number of surveys to try to estimate the total number of Canadian households that are connected to the Internet. The results, conclusions and recommendations vary from survey to survey. Some investigators have reported that Canada is not far behind the USA, but others rate Canada tenth globally for its population connectivity.

In September 1997, the Canadian Government announced that by 2000 Canada would be the most connected nation in the world [21]. It resolved that, by the end of 1997, Canada would have a ‘national access strategy’. There have been a number of practical initiatives to provide and encourage universal access across Canada. There are a number of initiatives, policies and services in operation that are trying to achieve this objective. Connecting Canadians was launched in 1998 [22]. Connecting all Canadians means universal access, regardless of where citizens live or the size of their income.

3.1. Community Access Programme (CAP) and other access initiatives

The Canadian Community Access Programme is a Government of Canada initiative that is administered by Industry Canada (Canadian Ministry for Industry) [23]. It is part of the ‘Connecting Canadians’ scheme. It started in 1994 in rural communities. Since then, CAP has expanded after piloting programmes in urban communities and, by 31 March 2001, Industry Canada had established public Internet access sites in 10,000 rural, remote and urban communities across Canada [24].

The main aim of the initiative is to provide Canadians with free or affordable public access to the Internet and the skills they need to use it effectively. This is established by building a national network of computers placed in convenient public areas such as libraries, schools and community centres to provide every Canadian with affordable access. A citizen can also register a copyright for him or herself. An e-mail confirmation of the registration arrives within an hour, followed by official confirmation shortly afterwards (T. Riley,
European Union set a target for the adoption of the WAI guidelines for public web sites by the end of 2001. The European Commission and all Member States are included within this target.

In the European Information Society for all Action Plan [31], the EU recognizes that, as government services and important public information becomes increasingly available online, ensuring access to government web sites for all citizens becomes as important as ensuring access to public buildings. If the objective of an ‘Information Society for all’ is to be achieved, the EU must provide universal access to information technology tools, the Internet and Information services provided by government. This aim should accommodate the entire population regardless of their specific needs.

In the context of citizens with special needs, the challenge consists of ensuring the widest possible accessibility to information technologies in general as well as their compatibility with assistive technologies. In addition, new technologies can often be easier for everyone to use if the usability requirements of all potential consumers are considered from the beginning of the design process [31].

In July 2001, the European Union telecommunications ministers backed a proposal to bring the Internet to every EU citizen’s house. Under the plan, operators will have to guarantee ‘functional’ Internet access, even in remote geographical areas, even if these mean inadequate economic returns. However, the proposal fell short of calling for a universal provision for fast, broadband Internet access [32].

The European Commission is finalizing a proposal for the new Universal Service Regulation, which states that Internet access must be available for all citizens. The final proposal was issued in the second half of 2001, but the Parliament will not be able to approve it before 2002. Once the Regulation is approved, all Member States will be obliged to supply such a universal Internet service [33]. It will create a ‘universal service’ for electronic communications such as telephone, fax, e-mail and the Internet. Under the new directive, telecomms companies will be required to provide service to all areas of the country, even those areas that are remote and expensive to connect [34].

The European Commission sent out questionnaires in August 2001 to companies providing high speed Internet access. The questionnaires asked about the implementation of legislation designed to reduce the dominance of the current operators, and will be used by the EC to decide what, if any, further steps must be taken to reach EC Internet access goals [35].
The European Union’s research programmes, especially the Telematics Applications Programme and the Fifth Framework Programme, explicitly included universal access [36]. Some activities in Member States will now be considered.

4.1. France

The French Government has unveiled plans to build high-speed Internet links to all regions within the next five years. The estimated cost of connecting the entire country is around FF30bn (Euros 4.57bn), but the former Prime Minister Lionel Jospin’s office said that telecomms companies are unlikely to take on the whole bill themselves because of low profitability in poorly populated areas [37]. A spokesman for Jospin said that the project would allow local communities to use cheap government loans to build the links across the country. A government agency will also be looking into the possibility of using existing state-owned electricity networks as a piggy-back for a fibre optic network. A spokesman said: ‘If we bowed to the logic of the market, in five years’ time a quarter of the French population and 70–80 percent of our land mass would not have access to high-speed links’ [37].

4.2. Ireland

The Department of Public Enterprise organized a conference entitled Community Application of Information Technology on 18 January 2001. This focused on IT Access for All and social inclusion in the digital economy. The Seminar was aimed at voluntary and community organizations and groups working with the socially excluded. The Seminar is being run in conjunction with other relevant Departments [38].

4.3. Spain

The Spanish Government wants to introduce universal access to the Internet, and is planning to replace the 260,000 telephone lines that currently lack Internet capability in rural areas by the end of 2002 [39].

5. Hong Kong

In Hong Kong, the digital divide and issues of accessibility to the Internet are considered to be less of an issue compared with many other countries, as it has an excellent communication infrastructure, and a high personal computer and Internet penetration rate [40]. All commercial buildings and over 95% of households have broadband coverage, although only 50% of households have computers.

Since 1997, Hong Kong has set a vision for itself to be ‘a leader and not a follower in the information world of tomorrow’ [41]. To this end, the Information Technology and Broadcasting Bureau (ITBB) was set up in 1998, and commissioned and oversaw the implementation of the 1998 Digital 21 Strategy. The main objective of this Strategy was to build capabilities and infrastructure to support a thriving information economy, and to create a strong foundation for growth in the use of IT.

The 1998 Digital 21 Strategy was recently updated. The 2001 Digital 21 Strategy: Connecting the World states that it is Hong Kong’s intention to strengthen the Hong Kong digital environment by improving accessibility, especially for those who have fewer opportunities to use IT in their daily lives, and cultivating a community that takes advantage of the information economy [42]. The following initiatives were put into operation to achieve this aim:

- improving IT awareness and knowledge in the community;
- promoting the use of IT;
- developing and publishing Hong Kong’s best practice guidelines for access to online services.

Hong Kong has provided IT training and awareness programmes for senior citizens, the disabled, and housewives, as they are seen as the social groups that may have fewer opportunities to fully appreciate the benefits brought about by the development of the information economy. It has enabled connectivity to Hong Kong citizens with disabilities by installing dedicated community cyberpoints. These are special computers to enhance access for disabled people.

Hong Kong has also developed a set of accessibility guidelines for best practice in Web development and electronic transactions. These will be enforced on all Government web sites by 2002 [41].

In July 2001, Hong Kong’s e-government web site was criticized for discriminating against users with incompatible web browsers and computer operating systems, leading to users not being able to access the site and services that were supposed to be available to all Hong Kong citizens. The National Electronic Service Delivery plan relies on Microsoft platforms and software. Many users do not have these facilities on their computers so universal access has not yet been achieved. The Hong Kong government has acknowledged this problem, but has not yet offered any solution [43].
6. USA

According to Congress, ‘the opportunity for people to participate in economic, political and cultural life depends on their ability to access and use communication and information services. Individuals need skills and tools to locate the communication pathways, information and audience in timely fashion and in an appropriate format. Unequal access to communication resources leads to unequal advantages, and ultimately to inequalities in social and economic opportunities’ [44]. There is little doubt of the Administration’s commitment to universal access. The problem is its plethora of overlapping reports and initiatives. Some examples are shown below.

The US e-commerce Working Group issued in 1999 a report, Towards Digital Equality, that summarized its current policy in a large number of areas, including helping to promote the delivery of high-speed Internet access throughout the country [45]. The Computer Science and Technology Board has also reported on universal access to the National information Infrastructure [46]. It proposed priorities for developing interfaces for all citizens, including those with disabilities. It recommended that research be undertaken to determine citizens’ needs, developing speech recognition technology and natural language processing softwares [46].

Unequal access to technology and high tech skills by income, educational level, race and geography could deepen and reinforce the divisions that already exist within US society [47]. A July 1999 report from the Department of Commerce based upon 1998 Census Department data revealed that in some cases the digital divide continues to widen in the United States:

- the gap between high- and low-income Americans is increasing with regards to Internet access;
- the digital divide is also persistent and growing along racial and ethnic lines;
- rural areas are less likely to be connected than urban users, regardless of income level; those living in rural areas are lagging behind in computer ownership and Internet access [47].

A key report published by the National Telecommunications and Information Administration was Falling through the Net: Defining the digital divide [48]. This reports the results of monitoring the digital divide and access to the Internet in America, and confirmed that problems of access remain. Although the number of Americans who own computers and use the Internet continues to rise, the digital divide continues to widen; schools, libraries and community access centres can help to bridge the divide [49]. The report also noted that Afro-Americans and Hispanic Americans were falling even further behind the white majority [50].

The Clinton Administration addressed these issues of accessibility and the global and national digital divide in December 1999. The administration presented a Presidential memorandum directing the executive departments and agency heads to give their assistance in the development of a national strategy for making computers and the Internet accessible to all Americans [51].

The American administration has concentrated on lessening the divide and connecting lower income groups, children and students, persons with disabilities, and Americans living in rural areas.

6.1. Lower income groups

To more effectively foster digital opportunity and connect lower income groups, the Clinton–Gore Administration created a Community Technology Centre (CTC) programme in 1999 with $10 million. This aims to provide access to technology for low-income Americans, help children to learn, adults to gain workplace skills, and families to benefit from online connections. Some $50 million was allocated for a public/private partnership to expand home access to computers and the Internet for low-income families. The Department of Commerce controlled this money. Initiatives for those on low incomes can also be found at the local level, e.g. the Bridge Project in North Philadelphia is a programme to provide Internet access in libraries to communities in low-income areas [52].

6.2. Children and students

As part of the USA’s commitment to creating digital opportunity for all children and students, the Administration has:

- connected 95% of US public schools in 1999, which shows a significant increase compared with the 35% connectivity in 1994;
- connected 63% of US public classrooms in 1999;
- increased educational technology funding from $23 million in the financial year 1994 to $766 million in 2000; and finally
- committed $5.6 billion in funding through the e-rate programme for telecommunications infrastructure and services to schools and libraries in 2000 [53].
6.3. People with disabilities

The Americans with Disabilities Act already provides that libraries must provide suitable access for those with disabilities, including rules on doors, ramps – and the design of web sites [54]. In response to the digital divide and gaps in universal access for the disabled, the USA enacted a Bill that required the Federal Communications Commission to establish a universal service support mechanism for the provision of advanced telecommunications and information services to schools and libraries. Moreover, the Federal Electronic and Information Technology Accessibility Compliance Act 1997 requires that information technology purchased by the Federal agencies must be accessible to their employees with sight disabilities.

During a visit to the Assistive Technology Access Centre on September 21, 2000 in Michigan, President Clinton and Secretary Mineta announced that:

- $4 million in grants would be awarded to the Web Accessibility Initiative and the National Centre for Accessible Media, to help ensure that people with disabilities can tap into the Web;
- $9 million in grants from AmeriCorps will help pay 1200 volunteers to work in schools to teach children with disabilities how to use the Internet;
- two dozen college and university presidents have pledged to ensure that their web sites and resources are accessible to those with disabilities; and
- 48 presidents of high-tech firms have pledged to adopt best practices on accessibility, such as training their workers to develop accessible products and services.

President Clinton and Vice-President Gore also fought for the Telecommunications Act of 1996, which requires that telecommunications equipment and services are accessible to people with disabilities. The implications of this Act for libraries are explored in Coyle [55].

The policy appears to continue with the present Administration. In a message to Congress, President George W. Bush announced ‘We must continue to break down barriers to equality’ [56] in June 2001. This reinforced America’s continual commitment to citizens with disabilities and their right to the same level of access to the Internet and information as any able-bodied person.

In April 2001, the US Attorney General directed all federal agencies to conduct an evaluation of their IT to report on the accessibility for people with disabilities.

In June 2001, Section 508 of the Rehabilitation Act came into effect [58]. This Act requires that all federal agencies must make sure that the electronic and information technology they use is accessible for all people with disabilities, and will enforce greater accessibility of government web sites for millions of Americans with disabilities. This issue is also covered by the Workforce Investment Act of 1998 [57]. Section 508 of the Rehabilitation Act also requires that individuals with disabilities seeking information or services from a Federal agency have access to and use of information and data that is comparable to that provided to the general public, unless an undue burden would be imposed on the agency [58]. Just how heavily this exception will be used is unclear.

Initiatives for those with disabilities can also be found at a local level, e.g. the ‘Universal Access to Web information’ project in Illinois, which involves promoting good web design for those with disabilities, and creating an accessible computer centre [59].

6.4. Americans living in rural areas

The Department of Agriculture has taken the lead in promoting the availability of advanced telecommunications services in rural and tribal (e.g. Indian) communities. The Rural Utilities Service of the Department of Agriculture has approved 44 loans to upgrade rural telephone exchanges so that they can offer customers high-speed Internet service. Borrowers invest in fibre optics that significantly outpace those of other telephone companies that provide service to rural communities. This of course implies that the digital divide has widened between those rural communities that have gained from this programme to those who haven’t. Arguably, the efforts have lessened the digital divide. Reports on a number of the rural initiatives have been published. These include the provision of medical information to citizens in rural Utah [60].

6.5. Global connectivity

The USA is committed to assisting developing countries and seeks to partner other governments, the private sector, international organizations and other stakeholders to achieve these goals. In 1998, the then Vice-President Gore posed ‘five great challenges’ to the global community that together constitute a Digital Declaration of Interdependence [61]:

- improve access to technology so that everyone on the planet is within walking distance of voice and data telecommunications services within the next decade;
- develop technologies that can overcome language barriers by providing real-time digital translation.
so that anyone on the planet can talk to anyone else;
- create a Global Knowledge Network of people working to improve the delivery of education, health care, agricultural resources and sustainable development and to ensure public safety;
- use communications technology to ensure the free flow of ideas and support democracy and free speech; and
- use communications technology to expand economic opportunity to all families and communities around the world.

This is typical politicians’ rhetoric, and it is unclear how realistic these aims are.

7. The Okinawa Charter

Although not strictly a national initiative, this is of importance to the universal access debate. The G8 Summit in Okinawa in 2000 issued a Charter on the Global Information Society. This included initiatives to bridge the digital divide [62]. This was a call to both the public and private sectors to bridge the divide by providing a solid framework of policies and actions. The Charter has been criticized for being too focused on technology [63] and not saying enough about the role of LIS professionals. However, there is an argument that it is up to librarians to seize the opportunities presented by the Charter.

8. Conclusions

This paper does not address all the issues identified as comprising matters of concern within the broad remit of ‘universal access’. A full report [64] considers in more detail, and draws conclusions on, security and information literacy. Little was found in the literature studied on initiatives addressing specifically physical access, and training of citizens in intelligent use of ICTs (a subject closely related to information literacy, of course). Nonetheless, it was found that there is a general (but not universal [61]) acceptance that the digital divide is a problem, and that universal access is desirable. The efficacy of the initiatives to address these issues is unproven. The USA, Canada and Australia have the most exciting initiatives, and one cannot but be impressed by the sense of urgency (and honesty) shown in the USA in tackling the increasing divide by racial group, and the great efforts to assist those with disabilities. These efforts are commendable.

Perhaps surprisingly, most of the initiatives seem to be top-down, and little effort seems to have been made to identify what citizens actually want from the new ICTs. This is an area that certainly deserves further research. The manner in which some countries have used or extended their anti-discrimination legislation to ensure that materials on the Internet are appropriate to all citizens’ needs is also noted. The authors commend this approach. Finally, the authors note the concern that simply providing the access does not guarantee that people make use of what is on offer. It is recommended that research is undertaken regarding the reasons for use or non-use of materials offered to citizens, so that maximum exploitation of the investment by government is achieved.

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