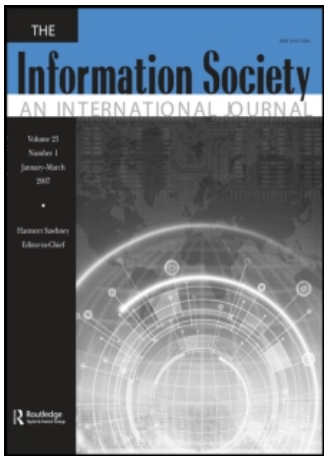

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A Three-Way Dance: The Global Public Good and Accessibility in Information Technologies

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When we recognize the development and use of information technologies as an emerging global public good, we can move away from the stark dualisms of profit versus human rights, market share versus accessibility, and competition versus inclusion, to an understanding of how both public and private interests are at play in the development of this global public good. Governments, industry, and disability advocacy organizations are all involved in the construction of this public good in a complex three-way dance. We argue that in the context of this three-way dance it is possible to create a common ground between disability advocacy organizations and the IT industry by developing tools that address the tensions that arise from their differing motivating forces. Specifically, we argue that three sets of tools—regulation, developing ease of use products and standards, and using education to increase the market strength of people with disabilities as consumers—can change the relationships between these two communities of interest in ways that will benefit each.

Keywords accessibility, consumers, disability, education, global public good, information technologies, regulation, standards

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INTRODUCTION

Two trends over the past three decades have shaped the lives of people with disabilities to a significant degree—the rise of global economic markets or what is commonly called *globalization*, and the advent of a knowledge-based society and the tools required to participate in it. These two trends have exposed tensions between the capitalist enterprises within the information technology (IT) sector and the advocacy organizations of the disability community that address the marginalization of people with disabilities in society. IT companies are driven by their bottom lines, the motivation to ensure that the company delivers profit for its shareholders and that the market share of the firm's business is not reduced or lost. These motivators are widely supported by governments in the industrialized world and beyond, with international financial institutions like the World Bank and the International Monetary Fund giving them a global reach. Disability advocacy organizations have emerged over the past 30 years to protect and enhance the human rights of people with disabilities in response to a long legacy of marginalization, poverty, and abuse. In a global information society, disability organizations are especially interested in the role that information technologies play in increasing or decreasing that marginalization of people with disabilities.

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These sets of motivations seem at first to be in direct opposition to each other—profit versus human rights, market share versus accessibility, competition versus inclusion. Much of the rhetoric of the disability community reinforces these differences, while the actions of IT companies solidify the exclusion of people with disabilities from their customer base. Issues of accessibility of IT remain marginal to the development of IT products and little has been done to bring these two solitudes together. Yet these binaries make the differences too stark and seemingly unchangeable. When we recognize the development and use of information technologies as an emerging global public good, we can move away from the solid dualisms to an understanding of how both public and private interests are at play in the development of this global public good. Governments, industry, and disability advocacy organizations are each involved in the construction of this public good in a complex three-way dance.

We argue that in the context of this three-way dance it is possible to create a common ground between disability advocacy organizations and the IT industry by developing tools that address the tensions that arise from their differing motivating forces. Specifically, we argue that three sets of tools—regulation, developing ease of use products and standards, and using education to increase the market strength of people with disabilities as consumers—can change the relationships between these two communities of interest in ways that will benefit each.

A GLOBAL, CAPITALIST, INFORMATION SOCIETY

Few would contest that we live in a global, capitalist information society. As Manuel Castells (1999, p. 5) suggests: "Globalization is a new historical reality—not simply the one invented by neo-liberal ideology to convince citizens to surrender to markets, but also the one inscribed in processes of capitalist restructuring, innovation and competition, and enacted through the powerful medium of new information and communication technologies." These technologies shape our access to information, ability to do our work and our private lives, and their reach across the globe is growing significantly, especially as evident in access to mobile telephones and the Internet.

> The greatest dynamism was exhibited by the growth of cellular mobile telephone subscribers and the increase in the number of Internet users. Of the 6.2 billion people in the world, 1 in every 5 is a cellular mobile telephone subscriber, up from 1 in every 12 three years ago. . ..The number of Internet users also multiplied exponentially—119 percent over the last three years. Since 1999, the world has added 329 million more Internet users, bringing the total number of Internet users to 605 million as of 2002. That means 10 percent or 1 person in every 10 in the world is an Internet user. Significantly, the number of Internet users has exceeded the number of personal computers. There were 550 million personal computers in the world as of 2002, up 40 percent from nearly 400 million in 1999. (Paua, 2004, p. 25)

This reach is fueled primarily by private corporations and transnational as well as small and medium-sized businesses, and illustrates the importance of one partner, that is, industry, in this three-way dance. Although smaller companies play a critical role in the development of new information technologies, a few major corporations such as IBM, HP, and Microsoft dominate the IT industry. Together with the telecommunications industry, which some have argued is in decline (Curtis, 2003; Jin, 2005), they shape how and what information technologies are developed and marketed. Because these corporations work at both the national and international level, they shape and respond to national regulations as well as international trade agreements and other regulatory mechanisms. In general, the industry approach is neo-liberal, calling for decreased government regulation, increased liberalization in the production and other processes, increased competition and support for privatization of industry. In addition, it supports global economic integration within the context of trading agreements like the North America Free Trade Agreement or more generally through the work of the World Trade Organization. While the effect of this approach on information technologies is not always clear at the national level (Kraemer & Dedrick, 2001), the more global or transnational effects are a shift from economies based on national regulations to those that support broader global economic interests (Curtis, 2003). Thus when we consider the place of industry in a three-way dance around accessibility in information technologies, we need to remember how complex industry is and as a result how difficult it is to identify narrowly its interests and effects.

Even with the increasing reach of information technologies, most people around the world have been left behind, illustrating what many have called a digital divide. While this divide is most often used to refer to the disparities between users and infrastructure in the industrialized countries as compared with those in the developing countries (Dutta & Jain, 2004), the digital divide is also very relevant for those within industrialized and developing countries who have little or no access to IT because of their ethnicity, perceived disability/ability, social class or other factors which shape their access to a global capitalist information society (Selwyn, 2004; Mehra et al., 2004; Lanvin & Qiang, 2003). Critics of the concept of the digital divide argue that it focuses narrowly on technological connectivity. "You either have access to ICT or you do not, you are either connected or not connected. From this perspective the digital divide is easily defined and, as a result, easily closed, bridged and overcome, given a political will to provide for those 'without"' (Selwyn, 2004,

p. 345). These critics, who seek to direct attention to the actual ability of marginalized groups to use IT, have developed more complex approaches to the disparities, including stages in the digital divide that illustrate formal access through effective access and use, engagement with ICTs, and content to outcomes and consequences of ICT use (DiMaggio & Hargittai, 2001; Lenhart & Horrigan, 2003; Selwyn, 2004). These more complex explanations of inequalities embedded in the way information technologies are developed and used are especially significant in helping us to understand the ways in which people with disabilities do and do not use these technologies.

IT has been both a liberating tool that provides increased access to information as well as a creator of new or additional barriers to accessing information and the benefits of an information society. For example, for people who are blind or visually impaired, screen-reading technology makes inaccessible print documents accessible. For Deaf people, text messaging has provided an accessible communications tool that removes many of the barriers of oral communications. The Internet, for those who can access it, can create online support communities for those living in isolated settings.

IT can also create barriers to access (Sandhu et al., 2001; Dobransky & Hargittai, 2006). People who require adaptive technology to make mainstream IT accessible to them often cannot afford to buy these technologies, or acquire new versions to keep pace with the changing mainstream IT environment (e.g., operating systems and other software with which adaptive technology interacts). In some cases, because of the design of emerging technologies, adaptive technology does not exist and may not be able to be developed. These people often rely on older computers or adaptations that have reduced or limited compatibility with newer platforms or limited connectivity with other IT. This requires considerable time and ingenuity to make adaptations work for an individual. Cost of accessible IT is one of the critical factors in accessing IT for many people with disabilities. But it is not the only barrier. Since many people with disabilities cannot afford their own computers or Internet linkages in their own homes, they rely on public use computers, often located in public spaces like libraries, community centers, and schools. This may mean they face transportation and other barriers to getting to and into these spaces. Public access computers rarely afford privacy for the user. For some people, including those with mental health disabilities, this lack of privacy can become a significant barrier to accessing IT (Stienstra & Troschuk, 2005). For others, including people who have been labeled intellectually disabled, the lack of appropriate training and other supports to facilitate their use of IT is a critical barrier to using IT.

Finally, as the social shaping of technology literature suggests, these technologies can also cast some people as disabled and others as able (Goggin & Newell, 2003; Moser, 2006). Thus, it is not in the experience of impairment (e.g., blindness) or the adaptations for impairment (screen-reading software programs) that disability occurs. Rather, it is the ways in which some technologies are identified as "normal" and others as "abnormal" or "adaptive" that shape the extent to which users are understood as disabled or able. As Moser suggests, "If we want technologies to be enabling also for disabled people then we will need to recognize not that disabled and able is a dichotomy between two unities, but that people are abled and disabled in many different ways and in many different situations. Both ability and disability are about what and who is included and excluded. They are both about how difference is handled" (p. 389).

For disability advocacy organizations, the liberating promise of IT for people with disabilities is substantively reduced by such barriers. There is considerable variation among disability organizations in terms of both how they work with technology and where they identify openings and barriers in technology (Troschuk, 2005). For those organizations that work within a human rights perspective, their goal is to identify and address the ways in which the development and use of IT excludes or marginalizes people with disabilities across the board as well as the specific ways particular people with disabilities encounter these barriers (D'Aubin, 2007). This leads to their advocacy specifically around the development of IT using universal design principles as well as regulatory mechanisms for the development and use of IT, including the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines.

The third partner in this dance around information technologies is government. The role for governments in a global knowledge-based economy is critical. Governments (and international economic organizations like the World Bank) see that expanding IT access and reach can mean strengthened national economies and societies. "ICT [information and communications technologies] diffusion flourishes best when governments make it a priority to promote the use of technologies. One of the ways that governments can do this is through e-government, such as increasing government presence on the web and providing relevant information and services online" (Paua, 2004, p. 50). On the intergovernmental level, key international organizations have identified the importance of IT to ensure the implementation of the Millennium Development Goals (MDGs) adopted by the United Nations to alleviate poverty in the coming decades (Lanvin & Qiang, 2004). The G-8 also has the Digital Opportunity Task Force (DOT Force).

There is in government priorities the greatest impetus to define and maintain the global public good in information technologies. Over the past 5 years the concept of global public good has also increasingly served as a framework for addressing complex problems that transcend national

boundaries. The International Task Force on Global Public Goods suggests that:

> Global public goods are those whose benefits could in principle be consumed by the governments and peoples of all states. Examples include mechanisms for ensuring financial stability, the scientific knowledge involved in the discovery of a vaccine and international regulations for civil aviation and telecommunications. Once such global standards and systems are established, they are available to all states, and consumption of the good by one state or its people in no way reduces its availability to others. (International Task Force on Global Public Goods, 2006, p. viii)

Most discussions of public goods, including global public goods, define them as *nonexclusive*, that is, no person or group can exclude others from consuming the good, and *nonrival*, that is, one person consuming the good does not diminish its availability for others. These are significant distinctions, although as Kaul and Mendoza illustrate, the boundaries between rival and nonrival, exclusive and nonexclusive, are more fluid than we may imagine. Kaul and Mendoza suggest that public goods become public not only because of their basic nature (for example, moonlight) but also because of policy actions to either create or inhibit the publicness of the good. "Society can choose to make nonrival goods more public (nonexclusive) by design" (Kaul & Mendoza, 2003, p. 84), as has been done with human rights and specifically gender equality. States have chosen to protect these rights through norms or standards to ensure that no person can be excluded from having access to their human rights.

> [I]n most if not all cases, publicness and privateness are social constructs. It often takes a long time and repeated efforts to anchor a good firmly in the public domain, as with equity or respect for human rights.
>
> Similarly, it often takes a policy decision to make a good private. And in the follow-up, it takes an elaborate institutional and organizational framework to define, assign, and monitor private property rights, update and revise them as needed, enforce them, and settle disputes. Societal norms and decisions of what is and is not private and in the realm of discretion of individual actors often reach deeply into what many perceive as the private sphere of people's lives—such as matters of matrimony and inheritance of private property. Most societies recognize that people should not be abused, even in the privacy of their homes and not even by their relatives. Children also enjoy this right, along with broader freedom from violence. On a much broader level, state borders can no longer be used as shields behind which to curtail human rights, practice corruption, spew air pollution, or pursue publicly frowned-on policies. (Kaul & Mendoza, 2003, p. 86)

Access to information technologies is an area that wanders between the boundary of public and private good. To use the Internet, for example, we must have access to computers, software, and a telephone line. These incur some costs and, as a result, create exclusivity. This means such use cannot be fully considered a public good. Yet increasingly governments recognize the potential public benefits of access to the Internet. It requires a policy action to make it more public. In the movement to create a more public good, the discussion has focused on two different understandings of the benefits derived from access to IT as a public good—the global public good defined as economic growth, and the global public good identified as development of human capacity or human development.

That interplay between economic development and human development is evident in much of the official literature on IT. For example, the Global Information Technology Report suggests:

> Among the important uses of these technologies is as tools for transmitting information that can be relevant for development purposes. But beyond the transmission of information, these same tools, when networked, enhance individual, firm and national productivity, broaden the market access of entrepreneurs and businesses, and improve government service delivery. Significantly, these devices can improve overall individual well-being and transform the interaction between and among various stakeholders in society, transcending geographical and other boundaries. (Paua, 2004, p. 24)

The DOT Force argued that IT offers an opportunity to reduce social and economic inequalities while supporting wealth generation. IT can assist with efficiency in production, bring geographically distant markets together, improve the delivery of government services, and increase access to social services (Lanvin & Qiang, 2004).

This tension between economic development and human development requires governments to make choices about how to maintain and sustain the public good in relation to IT. Specifically, governments are critical to addressing international trade barriers and creating a climate for business to expand beyond national borders. Governments are also responsible for the well-being of their own citizens, including those with disabilities. This role tasks government with examining how to address the inequalities in accessing and using information technologies. Governments can also be the catalyst to motivating new business development in this area. They can introduce and monitor regulatory mechanisms in this area. Individual governments work within the scope of their own national boundaries, but work together with other governments in the context of international organizations like the United Nations, the World Bank, and the G-8.

This complex understanding of the social construction of a global public good in information technologies requires us to understand the ongoing tensions at work in how access and inclusion are addressed or not in IT. In

the following sections, we examine how different national governments have used regulation as a tool to make IT more public as well as some of the constraints with regulation, and how other tools like education of consumers and ease of use guidelines bring greater attention to the private side of this tension.

REGULATION AND ACCESSIBILITY IN INFORMATION TECHNOLOGIES

Governments have the capacity to regulate and legislate in relation to information technologies and disabilities and in doing this identify what they believe needs to be protected or enhanced in relation to the public good. But the same regulatory mechanisms and standards (which are usually voluntary) are not found in both IT and disability rights and as a result may create dissonant rather than complementary regulatory frameworks (see Table 1).

For example, if we consider the question "Who creates information technologies and in what environment is IT created?" we can identify several regulatory mechanisms that are used to ensure that the appropriate environment is in place. While different governments may use different regulatory mechanisms, they are primarily found in the areas of property rights, competitive markets, liberalization of the economy, incentives for industry, and the coordination with international laws (Paua, 2004; Beardsley et al., 2004; Bezzina & Terrab, 2005). These suggest that what most governments identify as the appropriate environment for information technologies is one in which economic growth is enhanced according to principles of neo-liberal economic analysis. No specific legislation or regulation in the area of disability addresses these two questions, although Section 508 of the Rehabilitation Act in the United States shapes procurement policies of the U.S. federal government. In general, the regulatory frameworks suggest that disability is seen to be irrelevant to that broad notion of what an appropriate environment for the development of information technologies is.

If we ask "What IT is created? How is it developed? What features does it have?" we can again identify different regulatory mechanisms. These include licensing conditions and fees, public subsidies and interoperability mandates in the area of IT (Beardsley et al., 2004; Bezzina & Terrab, 2005). These suggest that governments believe that the greatest public good is achieved when the industry that develops IT is licensed and regulated, that public funds are used to ensure the development of desirable industries, and that part of the standards set requires interoperability between different platforms.

But we can also see several country-specific examples of regulation that address disability concerns in these areas, despite their different regulatory mechanisms. For example, the 1997 Australian Telecommunications Act includes a section on Disability Standards (part 21, division 4) as well as specific regulations adopted in 1998 about equipment for disabled people. In 1998 Section 508 of the U.S. Rehabilitation Act of 1973 became law and stipulated that all federal departments and agencies had to ensure that when developing, procuring, maintaining, and using information technologies, they would be accessible to people with disabilities. This has had wide-reaching effects within and outside of the United States on the development and use of accessible IT. Together with Section 255 of the Telecommunications Act, which mandates that both equipment manufacturers and telecommunications service providers ensure their products and services are accessible to people with disabilities, these pieces of legislation provide a significant framework within which both the disability advocacy organizations and IT industry maintain a focus on accessibility in information technologies. Title IV of the Americans with Disabilities Act more specifically focuses on closed captioning and telecommunications relay services that connect Deaf persons who use teletype devices with hearing persons using conventional telephones. This suggests that at least two governments recognize that the specific needs of people with disabilities in terms of equipment or standards more generally need to be addressed by regulation when IT is developed.

But we need to recognize that the frameworks themselves are only as effective as their implementation. In Australia, the development of industry self-regulation processes has significantly undermined these regulatory frameworks. (Goggin & Newell, 2004). This has been complemented in both Australia and the United States with efforts to limit the scope and implementation of disability rights legislation (Johnson, 2003; Goggin & Newell, 2004, 2005).

Finally, we can explore the questions "Who can use the IT developed? How and for what can it be used?" as well as the associated regulatory mechanisms used to protect or enhance interests of disabled people. In the area of IT, these include pricing, as well as universal service or access obligations (Beardsley et al., 2004; Bezzina & Terrab, 2005). Governments can regulate pricing to ensure wide access and also impose universal service obligations. As Goggin and Newell (2003) suggest, universal service obligation can also create an opening to address accessibility and disability issues. Governments, both individually and collectively, have recognized the need to regulate web accessibility and many use voluntary guidelines like the W3C guidelines. Several governments, including those of the United States, the United Kingdom, and Australia, have recognized that their human rights legislation prohibiting discrimination on the basis of disability also shapes information technologies. This suggests that the interests of the IT industry and the disability community are not mutually exclusive, but regulation can create a space where they

TABLE 1
Regulatory vehicles for IT and disability accessibility

	Who creates information technologies (IT)? In what environment is IT created?	What IT is created? How is it developed? What features does it have?	Who can use the IT developed? How and for what can it be used?
Existing IT regulatory vehicles	Property rights Competitive markets Liberalization Incentives and disincentives Tax laws Procurement policies International laws	Licensing conditions and fees Public subsidies Interoperability mandates	–Pricing –Universal service/access
Existing disability regulatory vehicles		Australia: Telecommunications Act 1997 Disability Standards (part 21, division 4) Telecommunications (Equipment for the Disabled) Regulations 1998 United States: Americans with Disabilities Act (1990) Title IV Section 508 Rehabilitation Act (1973) as amended Telecommunications Act (1996) Section 255 Electronic and Information Technology Accessibility Standards (2000)	W3C and other guidelines re web sites Country-specific legislation prohibiting discrimination on the basis of disability that also refers to IT: Australia: Disability Discrimination Act 1992 section 50 United Kingdom: Disability Discrimination Act (1995) Chapter 50 United States: Americans with Disabilities Act (1990) Title IV; Section 508 Rehabilitation Act (1973) as amended

Note. This table is illustrative, not exhaustive, in identifying regulatory mechanisms.

can be seen as complementary parts of a broader strategy to address or create the public good within a country and beyond.

One recent example from Canada illustrates how a regulatory agency can bring together the seemingly competing areas of economic growth and accessibility for people with disabilities, and stimulate actions that can further the public good. In April 2004 the Canadian Radio-television and Telecommunications Commission (CRTC) called for comments on its initial views related to a regulatory framework for voice communications services using Internet Protocol (VoIP). It made its decision final in May 2005 (CRTC Telecom Decision 2005-28, CRTC, 2005) and included several critical paragraphs on access for people with disabilities, largely in response to submissions by disability organizations, notably ARCH Disability Law Centre (ARCH). The most relevant paragraphs of the decision are noted in full here.

> 270. The Commission considers that IP technology has great potential to provide innovative communications tools for disabled consumers. It considers that one of the greatest problems in accessibility for the disabled is a lack of general attention to their needs when new technologies and services are first being developed. The Commission also considers that VoIP service providers should address issues regarding accessibility for the disabled to IP services and ensure that applications and technologies are being developed. In the Commission's view it is more cost-effective to make these technologies, applications and services accessible early in the development process.
>
> 271. Accordingly, the Commission requests CISC [CRTC Interconnection Steering Committee] to assess the accessibility needs of people with disabilities with respect to the development of VoIP technologies. . . (CRTC, 2005)

In its submission to the CRTC, ARCH argued that offering VoIP without accommodating the needs of people with disabilities would breach the Canadian Charter of Rights and Freedoms and the Canadian Human Rights Act. It argued that the Telecommunications Act requires that telecommunication services be delivered

without discrimination to people with disabilities and be accessible so that people with disabilities can fully benefit from these services (Gordon, 2004).

To implement this decision, the CRTC mandated the Accessibility Issues Working Group (AIWG) of the CRTC Interconnection Steering Committee (CISC) to identify the telecommunications needs of persons with disabilities, investigate solutions which meet these needs in the VoIP environment, and provide an implementation plan. This working group, which included representation from ARCH and the Canadian Association of the Deaf as well as representatives from over 20 companies, failed to reach a consensus on its mandate, especially in relation to how broadly to interpret paragraphs 270–271. The question was whether the AIWG should consider *existing* services or only new services offered as a result of VoIP, as well as whether the terminal equipment (including computers, microphones, etc.) was also included in the mandate. The disability organizations and one industry representative argued that a comprehensive investigation was required. Several industry representatives including Bell Canada and RTS Inc. argued that the CRTC did not have a mandate to go further than looking at the new services (AIWG, 2006). The CRTC committed itself to releasing a public notice on general disability issues in the second quarter of 2007 (Canadian Radio-television and Telecommunications Commission, 2006d).

In May 2006, Canada's newly elected Conservative federal government asked the CRTC to reconsider its decision on VoIP. Upon reconsideration the CRTC upheld its original decision. The Minister of Industry, on behalf of the government, overrode that decision in November 2006, "requiring the CRTC to forbear from economic regulation of 'access independent' VoIP services, those services that can reach the customer through any broadband Internet connection... The government believes that forbearing from economic regulation of this type of VoIP service will lead to increased competition in the VoIP market, which will ultimately benefit the consumer" (Industry Canada, 2006, p. 2). This decision reinforces the Conservative government's commitment to deregulate telecommunications policy more generally. A similar move was made in December 2006 to initiate the deregulation of local telephone service. It has been rare for a government to overturn decisions of the CRTC.

This move may significantly limit the opening for disabled consumers of telecommunications as well as the impetus for industry to consider accessibility in the development of VoIP and other emerging technologies. The deregulatory stance of the government, which holds a minority, may seriously undermine the possibility of using the CRTC as an effective vehicle to enforce the human rights of people with disabilities. This may mean that Canadians are forced to move more frequently to the courts using the Charter of Rights and Freedoms. The Conservatives have also, however, eliminated the programs that supported the legal challenges to the Charter for equality rights groups including people with disabilities (Treasury Board, 2006).

On February 16, 2006, the CRTC (2006a) ordered the major telecommunications companies in Canada (excluding Télébec) to spend over $30 million of the so-called "deferral accounts" addressing accessibility for people with disabilities. The CRTC directed the companies to consult and work with the advocacy organizations for people with disabilities in establishing their accessibility related projects.

The deferral accounts were established after the CRTC established its price cap for rates charged to residential and business customers as well as to competitor companies in 2002. The telecommunication companies were required to put into the deferral account amounts equal to the reductions in their revenue when the price cap was put into place. One half of the deferral accounts were used to reduce the rates given to competitor companies and therefore addressed the issue of local competition in the market. In 2004, the CRTC called for proposals to assess how to use the rest of the money in these accounts and decided the money would have to be used according to Canadian telecommunications policy. In addition, "the Commission placed emphasis on the principle of competitive neutrality and on proposals that primarily provided benefits to residential subscribers in order to achieve an overall balance among stakeholders" (CRTC, 2006b, p. 1). The decision drawing from the submitted proposals was to require that the majority of the money in the companies' deferral accounts be used to increase access to broadband in rural and remote areas, while a minimum of 5% of the deferral accounts be spent addressing accessibility for people with disabilities. As the press release notes, these areas are seen to meet both Canadian telecommunications policy and assist access to telecommunications for those who otherwise would not have access. "'Canada is a world leader in broadband access and today's decision builds on this enviable record. It serves to ensure that reliable, affordable, high-quality telecommunications services are extended to Canadians who would not otherwise be served, and is in the broadest interest of all consumers' said CRTC Chairman, Charles Dalfen" (CRTC, 2006c, p. 1).

The attention to accessibility in both the 2005 decision around VoIP, despite its reversal by the federal government, and the 2006 decision on deferral accounts suggests that it is possible to use regulation successfully to bridge the gap between the human rights concerns of disability advocacy organizations and the economic growth interests of the industry. Government regulators like the CRTC are especially well placed to create, implement, and monitor this regulatory common ground. In the deferral accounts decision, the Commission successfully created a bridge

between pricing as a recognized vehicle for regulating business and the broader concern around access for those who did not already have access. Both decisions also indicate that accessibility is a recognized concern within Canadian telecommunications policy—both in the development of new information technologies in the VoIP decision and in the access for all users, including users with disabilities. Yet the reversal on the VoIP decision reminds us how tenuous these gains can be when a government is committed to deregulation and how accessibility is considered irrelevant to the broader issues of a neo-liberal economy. It also suggests that reliance on regulation requires the strength of human rights regulations and the capacity to enforce them.

Critical to ensuring ongoing attention to accessibility, however, were disability advocacy organizations who were knowledgeable about both the telecommunications regulatory process and how to access decisions, submit proposals, and generally use the system, and knowledgeable about the implications of changes in information technologies for people with disabilities. In Canada, the ARCH Disability Law Centre has been especially effective at bringing together the equality rights arguments and the implications for telecommunications policy at critical times in the regulatory process. In Australia, disability representatives to the Australian Communication Industry Forum's Disability Advisory Body have been critical in identifying current and future telecommunications issues for people with disabilities (Goggin & Newell, 2004). The capacity of disability organizations to monitor and address this significant area of policy is very important to this process.

THE ROLE OF EDUCATION

The social construction of a global public good in information technologies is also shaped by increasing the possibility of engaging with the market. Two factors that can have an impact on selected IT products or the IT industry at large are the education of persons with disabilities as market consumers, and ease-of-use guidelines. In most cases the number of people with disabilities as actual consumers is not an adequate incentive for manufacturers or retailers of IT. Despite the limited size of this market segment and its lower disposable income, people with disabilities can play a critical role in the life of a given IT product in the following ways.

People With Disabilities as Early IT Adopters

People with disabilities are motivated to embrace IT because they believe they have so much to gain in terms of quality of life from properly functioning IT. As early adopters, people with disabilities can "work the bugs out" on a given product, which is not a trivial contribution to the launch and life of an IT product. To be an effective early adopter, one's own understanding of one's needs is crucial, including the ability to communicate those needs in technical terms, both from the human factors and in engineering terms. Just saying a product doesn't work is not enough. Fortunately, there are disability organizations, research groups, standards organizations, and consultants that can facilitate this very key communication-education need on behalf of individual people with disabilities who are consumers. The benefits of having improved IT consumer education for people with disabilities are many, for example, fewer mistaken purchases (products that end up in the closet benefit no one), positive impacts on future IT product designs, increased product loyalty by people with disabilities, and more uptake of an IT for workplace accommodations.

People with Disabilities as Populist Marketeers

A second, possibly more subtle, outcome of improved IT relates to informal marketing of accessible products. If the disability community finds a product effective, they will tell others, for example, by word of mouth, Internet sites, newsletters, etc. The converse is true too, only unlike older adults, who are more likely to blame themselves rather than the designer for a poorly performing product (Health Canada, Population Health Fund, 2004), people with disabilities are more likely to attempt to hold the manufacturer accountable for a product's poor user friendliness. These "populist communications" about a given product, if positive, can lead to all sorts of benefits, such as "crossover" increased market uptake (e.g., where a product begins to be adopted by populations beyond its original intended audience, e.g., older adults, children), increased positive public relations opportunities, peer-tutoring/mentoring programs that can increase market uptake, and increased consumer confidence in a given product, which can in turn lead to more satisfied and loyal customer base of people with disabilities. Probably one of the best examples of this kind of impact on a recent IT product is the case of the BlackBerry, which has been embraced by the Deaf community (Mitchell, 2006).

THE ROLE OF EASE OF USE GUIDELINES AND/OR STANDARDS

Ease-of-use guidelines and/or standards for IT products deserve some special discussion. Such guidelines or standards can be the bridge between industry, regulators, and the end user. Although standards organizations (e.g., the International Standards Organization [ISO], Canadian Standards Association [CSA]) have been in existence for many years, it is only relatively recently that such organizations have become sensitive to a product's "useability" or other human factors issues as they pertain to special

user groups, such as children, older adults, or people with disabilities. Concurrently, the work of "universal design" (Center for Universal Design, 2007) and that of consumer rights activists have led many standards associations to begin employing multiple stakeholder and consensus models enroute to developing their guidelines and/or standards. Two of the authors of this article (Birch and Watzke) have significant experience sitting on standards committees, representing consumer stakeholders (people with disabilities, older adults), as well as technical expertise (electrical engineering, human factors).

These guidelines and standards remain primarily related to product safety although functional performance and ease of use have now become more important features. Including these elements in a product guideline/standard can (1) lead to increased user-product safety, (2) result in fewer returned or closeted products, and (3) remove the "excuse" to design products for special needs users, and in the case of universal design, create products that work for the maximum portion of a user population. Most developers and manufacturers of products (including IT products) argue that such guidelines/standards, if they are going to exist, should be voluntary, not mandatory, since guidelines could restrict a company's ability to bring forward unique and creative products, which is their competitive right in a free market system. We have even heard private industry personnel state anecdotally that "useability features" can be intellectual property, and are therefore should not be controlled through a guideline or standard. On the other hand, although voluntary guidelines or standards do set a "minimum bar" (for product performance), if a standard is not referenced in legislation, it is unlikely to have much actual impact toward making sure that products appear on the market that are, for example, age and disability sensitive. Although one can imagine a world where a "trust treatise" would exist such that product developers, if left to their own ways, would indeed be socially responsible and accountable to consumers with special needs, experience tells us that other forces come to play, resulting in products that fall short on the ease of use continuum. Regulation and standards, such those described in the earlier section, can address some of this gap.

CONCLUSION

Despite the seeming distance between the goals of economic growth espoused by the information technologies industry and accessibility as part of human development advocated by disability organizations, regulation, ease-of-use guidelines, and consumer education can act to create a common ground between these two perspectives. The government plays an important role as regulator both of telecommunications and information technologies, but also as the implementer of human rights legislation.

Regulatory mechanisms in Canada, the United States, the United Kingdom, and Australia have included accessibility primarily in the areas of the development and use of information technologies. While not all of these have been successful or consistently implemented, they do provide an initial example of the common ground in developing a global public good around information technologies that governments, industry, and disability organizations can agree upon. In addition, several legitimate examples of ease of use guidelines and standards that are relevant to improving IT experience of the user with disabilities do exist—those provide invaluable information and resources for both governments, consumers, and industry personnel alike.

Yet one significant regulatory gap exists in the overall environment within which information technologies are created. Disability and accessibility are not included or seen as relevant to the market economy that is protected and enhanced through regulatory vehicles outlined above. This is significant because until people with disabilities are recognized as part of that market environment not simply as consumers or users of technology, but as full citizens, we will continue to see movements to deregulate the industry in the name of consumer benefits that in effect undermine the benefits of consumers with disabilities and continues to disable them in the information technologies environment.

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