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Internet accessibility and disability policy: lessons for digital inclusion and equality from Australia

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Abstract: In the fifth decade of the internet, accessibility for all, especially those with disabilities, is central to digital inclusion. Yet internationally, the score card on internet and accessibility remains mixed, at best; and woefully inadequate, at worst. Via an Australian case study, we argue that it is imperative to better understand how internet technology interacts with the life worlds and dynamics of disability, and we suggest how policy can be articulated and improved to put people with disabilities on an equal basis to others in digital societies.

Keywords: Disability, Accessibility, Internet policy, Web accessibility, Universal design

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INTRODUCTION

Digital inclusion is a longstanding and complex issue in internet policy. With Web Accessibility Initiative of the World Wide Web (W3C) Consortium, championed by Tim Berners-Lee, web accessibility has been on the agenda since the 1990s, almost as long as the mass diffusion of the internet itself. In the fifth decade of the internet, accessibility for all, especially those with disabilities and impairments, is widely recognised as central to digital inclusion (Ellis, and Kent, 2015b; Jaeger, 2012). The top level framework on accessibility and disability participation and inclusion in internet, and associated information and communication technologies (ICTs), was set out a decade ago in the 2006 United Nations *Convention on the Rights of Persons with Disabilities* (CRPD) (Blanck, 2014; Varney, 2013).

Despite these policy frameworks and initiatives –– including those by national countries, regional groupings, and international alliances between governments, industry, and civil society –– the score card on internet and accessibility remains mixed, at best; and woefully inadequate, at worst (Ellcessor, 2016).

This is a situation that calls for urgent action. People with significant disabilities are estimated to exceed 1 billion (WHO, 2011), and now are accessing internet on a wide range of devices (especially smartphones and tablets), in a variety of contexts (Alper, 2016; Dobransky, and Hargittai, 2016). Disability is also a "canary in the mine" for broader usability, design, and accessibility issues, as universal design (Preiser and Smith, 2011; Steinfeld, Maisel, and Levine, 2012) and disability design (Boys, 2014; Pullin, 2009) literatures and practices establish. If we shape internet for people with disabilities (a very diverse group in their own right), then we add to our prospects of ensuring the internet can be used by all.

Discussions of internet policy, disability, and accessibility often focus on the US, UK, or European approaches, as prominent global approaches (Easton, 2014; Jaeger, 2012; Lazar, Goldstein, and Taylor, 2015). However, the Australian case offers signal lessons for how to frame a comprehensive future agenda in this area of digital inclusion. Due to a confluence of factors, Australia is a very interesting case study in disability and internet policy. These factors include: medium-to-small market size (25 million people); large rural geography; a distinctive disability movement.

In addition, Australia has a very interesting recent set of reforms on both technology and disability, arising from political traditions featuring a recurrent emphasis on social equality and justice. One such nation-building project that has attracted international attention is the National Broadband Network (NBN). Commenced in 2009, the NBN involves a government business enterprise creating a wholesale only open access network to bring broadband infrastructure to all Australian households. While politically contentious for its cost and impact on competitive markets, the NBN has also provided the opportunity for advancing the agenda of broadband accessibility for people with disabilities. The same Labor government that devised and introduced the NBN also introduced a widely supported scheme to make disability support a right for all Australians who need it, in the form of the National Disability Insurance Scheme (NDIS). Accessible technology is a key part of the NDIS, which entails a new national assistive technology scheme, as well as reliance on digital technology for providing information and delivery of disability support packages for consumers. The NDIS forms part of the broader, overarching 20FDi10-2020 National Disability Strategy (NDS), the national policy framework for "improving life for Australians with disability, their families and carers" (Australian

Government, 2016).

Against this backdrop, the paper falls into two parts. Firstly, we review the historic 2000 decision on web accessibility, then consider progress in this area since then. Secondly, we enlarge the focus to interrogate two interlinked problems in internet policy and disability: why has accessibility progress in web and broader internet been so slow?; and, how do we think about disability policy for the breadth of internet technologies, media, and contexts today and in the future?

HIGH HOPES DASHED? AUSTRALIA'S HISTORIC WEB ACCESSIBILITY DECISION AND ITS AFTERMATH

Australia came to global prominence in internet and disability policy at the close of the 1990s, as one of the first jurisdictions where human rights and anti-discrimination law was applied to web accessibility. Sydney was hosting the 2000 Olympic Games, however information for fans with disabilities –– in traditional formats and new online formats –– left much to be desired. Bruce Maguire, a blind man, brought these issues to a head, when he made a complaint to the Australian Human Rights and Equal Opportunity Commission (HREOC) against the Sydney Organising Committee for the Olympic Games (SOCOG). Relying on provisions of the 1992 *Disability Discrimination Act* (DDA), Maguire complained that SOCOG had discriminated against him in three ways: failure to provide braille copies of information required to place orders for tickets; braille copies of the souvenir programme; and "failure to provide a web site which was accessible" to him (HREOC, 1999). The Human Rights Commission found for Maguire regarding the failure of SOCOG to provide a copy of the braille ticket book, directing it to expedite the provision of a braille copy of its supplementary ticket information and facilitate Maguire to placing an order for tickets (HREOC, 1999b). After a lengthy process seeking to conciliate the complaint concerning the inaccessibility of the website with SOCOG and its contractor, IBM, HREOC found for Maguire in a historic decision, delivered on the eve of the Sydney Olympic Games. Inquiry Commissioner William Carter QC noted:

The internet is now a well established phenomenon, its capacity to store information of immense proportions to which one can have access is a fact of life. The respondent [SOCOG] in creating its own web site sought to include in it a considerable body of information to which any person could have access. The provision of the web site was a service relating to the provision by the respondent of information relating to the largest and most significant entertainment or recreation event in the history of this country. (HREOC, 2000)

Carter noted that "alongside the evolving development of the internet, the question of facilitating accessibility by relevantly disabled persons to it was likewise the subject of professional and scientific development" via the W3C guidelines. SOCOG had argued that the W3C guidelines were only very recent, having emerged after the planning and "substantial" implementation of its website –– and consequently it would be an "unjustifiable hardship" (in the parlance of the DDA), if it had to comply with the guidelines. Relying on two expert witnesses –– one Australian (Tom Worthington) and one international (Jutta Treviranus, well known for her work; see, for instance, Treviranus, 2014), Commissioner Carter found the complaint substantiated, issuing a decision including:

1. A declaration that the respondent has engaged in conduct that is unlawful under section 24 of the DDA in that it has provided for the use of the complainant a web site which because of his

blindness is to a significant extent inaccessible.
2. A declaration that the respondent do all that is necessary to render its web site accessible to the complainant by 15 September 2000 by:
   i. including ALT text on all images and image map links on its web site;
   ii. providing access to the Index of Sports from the Schedule page; and
   iii. providing access to the Results Tables to be used on the web site during the Sydney Olympic Games (HREOC, 2000a).

Despite this epochal decision, SOCOG only partially complied with the Commission's ruling, and in its dealings with Maguire was found to have maintained a "dismissive" stance towards him, that ultimately saw Maguire awarded AUS$ 20,000 compensation by way of relief (HREOC, 2000b). Commenting on SOCOG's intransigence, Commissioner Carter declared:

I am comfortably satisfied that his [Maguire's] limited access to the web site caused him considerable feelings of hurt, humiliation and rejection. One cannot overstate the consequential effect upon him of his having to cope with the persistent need to counter what he saw as a negative, unhelpful and dismissive attitude on the part of an organization charged with the presentation of the most notable sporting event in the history of this country. (HREOC, 2000b)

This quote from Carter is used by W3C in introducing the Sydney Olympics website as a case study in how not to do web accessibility –– "A Cautionary Tale of Inaccessibility: Sydney Olympics Website" (W3C, 2009). As W3C notes, the Australian federal and state governments moved to make web accessibility a requirement of all government websites. The *Maguire v SOCOG* case was a precedent keenly observed around the world, and helped support the concept that websites, especially those associated with governments, large public organisations, corporations, and businesses, should adopt and conform to web accessibility guidelines and best practice.

Internationally, the introduction of the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 1.0 in 1999 (World Wide Web Consortium, 1999) was generally received as a significant step forward in the provision of online information to people with disabilities. In subsequent years, many countries adopted the guidelines. Also influential and widely taken up were the information access requirements set out in a parallel and pivotal piece of US legislation. The US 1973 *Rehabilitation Act* was amended in 1998 requiring that information technology procured, developed, maintained, and used by federal agencies must be accessible to people with disabilities, unless the requirement imposes an undue burden. This provided a way to make "the [ADA] *Americans with Disabilities Act* effective communication requirements apply to online material" (Ellcessor, 2010, p. 300). As Liz Ellcessor puts it: "While the WCAG was in development, the Federal government was taking steps to create web accessibility requirements that would have the force of law" (Ellcessor, 2010, p. 300). However, the Section 508 process undertaken by the US Access Board had a strong focus on enforceability, with the result that in the final version of the standards approved in 2001 "many elements of WCAG 1.0 remain, but the organization and priority structure changed drastically" (Ellecessor, 2010, p. 303).

Hollier & Brown note, that while "WCAG 1.0 and its influence on the U.S. Section 508 [was] a strong catalyst for the inclusion of accessibility features in mainstream products, the standard itself became outdated due to rapid evolution of Web technologies and content in the early 2000s" (Brown & Hollier, 2015).The tension between specifying particular, enforceable legal requirements, and the need for dynamic, flexible definitions of disability as well as accessibility responses led to WCAG 2.0, released in 2008. As Ellcessor notes in another paper:

Web 2.0 sites and services, dynamically generated Web content, multimedia, mobile devices, and client applications written as web applications eliminated any simple notion of "Web content." The overly specific recommendations of WCAG 1.0 had quickly become out of date, as technologies developed in new directions, meaning that WCAG 2.0 needed to avoid such specifics (Ellcessor, 2015).

With the new paradigm widely accepted, putting into practice proved a considerable challenge, as Hollier and Brown point out: "While the 12 WCAG 2.0 guidelines were widely adopted into policy and legislative frameworks, the implementation of WCAG 2.0 was generally considered slow in its implementation" (Brown & Hollier, 2015). This was especially the case in Australia, where the seeds of the problem were that, in contrast to the US approach, the approach by Australian governments (federal and state) was largely state-based and ad-hoc despite the policy framework adopted in the wake of the *Maguire v SOCOG* case (Hollier, 2006).

The arrival of the WCAG 2.0 standard led the Australian government to adopt the new standard by introducing a phased in implementation in the form of the National Transition Strategy (NTS). The NTS made it mandatory that all government website content be compliant with WCAG 2.0 Level A by December 2012, and that all agencies be required to conform to WCAG 2.0 Level AA standard by December 2014 (Australian Government Information Management Office, 2010). This requirement was adopted by all federal, local and state Australian governments. The arrival of the NTS marked a change of emphasis in accessibility policy, not just in terms of government but also in terms of community awareness with meetup groups and other social activities, based around the perception that the government was taking web accessibility more seriously.

Yet while the NTS is largely credited for kick-starting Australia's accessibility policy journey, the results today remain mixed (Brown & Hollier, 2015). As the NTS progressed towards meeting its 2012 Level A and 2014 Level AA targets, notable issues relating to the resourcing of the NTS within government in terms of providing accessibility guidance to government departments, limited staff to administer it and its measure of success relied on self-reporting were all seen as concerns and highlighted a significant difference between Australia's policy-based NTS and the US' celebrated section 508 (Conway, Brown, Hollier, & Nicholl, 2012). At the conclusion of the first deadline the self-reported results indicated that 26% of federal government websites had successfully transitioned to the accessibility guidelines. However while some important improvements had been made, the end result still suggests that approximately three out of four federal government websites remained inaccessible at that time.

While web accessibility and compliance to the WCAG 2.0 Level AA standard still remains a mandatory requirement in Australia (Digital Transformation Office, 2016) there is currently no available data on the outcome of the 2014 Level AA target. The responsibility of web accessibility has now been folded into the Digital Transformation Office (DTO) (Digital Transformation Office, 2016; Martin & Goggin, 2016). However, there does not appear to be any reporting on web accessibility compliance within the Australian government.

Despite the landmark *Maguire v SOCOG* case, Australia has a long way to go. Irony abounds in this situation. Web accessibility is an excellent example of forward-looking digital inclusion policy in the area of the internet. Yet, implementation and compliance regarding Web accessibility is a work in progress, where many countries also have a poor score card. A 2014 report by the UN lead organisation G3ICT found that only in 45% of the 76 countries surveyed did respondents say that there were government websites that were accessible (G3ICT, 2014, p.14).

ACCESSIBILITY IN THE US, EUROPE, AND AUSTRALIA

Two useful comparisons can be briefly made, with the US and Europe respectively.

Firstly, the US, which internationally is often used as an exemplar. One of the core differences between the US and Australia is that while the US has specific legislation to support the inclusion of web accessibility, Australia does not. As well as the 1988 amendment to section 508 of the *Rehabilitation Act* discussed above, there is the more recent and far-reaching 2010 *21st Century Communications and Video Accessibility Act* (CVAA). The CVAA requires products and services using broadband to be fully accessible to people with disabilities, and extends requirements to make video programming on television and the internet more accessible (FCC, 2010; Ellis & Kent, 2015a). These two key pieces of US legislation cast the Australian situation in stark relief. Notably, the weakness in the legacy of *Maguire v SOCOG* is that it relies on demonstrating a lack of access to information under Section 24 of the DDA 1992 rather than any specific ICT or communications-based legislation for people with disabilities that mandates broader accessibility.

Secondly, Europe is also an often used comparison point. While there is great diversity among countries in Europe, and a range of progress on accessibility, European Union member states are working to strengthen their common framework for action and evaluation. A 2014 study of accessibility of public websites in Europe found:

Current levels of web accessibility remain low. None of the 37 public service websites that were assessed across the 7 countries currently comply fully with the WCAG 2.0 AA requirements (Laurin et al., 2014, p. 6).

The study recommended systematic monitoring coupled, and that "national web accessibility policies need to be backed up with practical support" for website managers and their staff (Laurin, 2014, p. 10). More recently, in 2015, the European Commission adopted a Directive - European Accessibility Act - promoting the harmonisation of accessibility criteria across member states (EC, 2015; Priestly, 2013). The underpinning framework for this harmonisation will be the European Standard, EN 301 549 (European Standards and Technical Institute, 2014), which outlines accessibility guidelines, including web accessibility guidelines necessary for publicly funded procurement of information and communications products and services. The EC then took specific action agreeing to enact a directive to make websites and mobile apps of public sector bodies (with limited exceptions such as broadcasting and live streaming) more accessible (EC, 2016). First proposed in December 2012, the directive will refer to the web and mobile accessibility standards, and require regular monitoring and reporting (EC, 2016).

While the EN 301 549 is strongly aligned with the US Section 508, currently under refresh (U.S. Access Board, 2015), its value as a standard, rather than legislation makes it a useful tool for adoption internationally. This is currently underway in Australia which is likely to be the first international jurisdiction outside of the EU to adopt the EN 301 549 as a national standard. Standards Australia with support from domestic disability and consumer groups and significantly with strong support from the Australian government's Department of Finance began progressing the direct text adoption of the EN 301 549 as an Australian standard in 2016 (Standards Australia, 2016).

As well as these two comparisons, there is the important issue of procurement, which has been widely seen as a lever of accessibility policy, in the US, Europe, and elsewhere. Disabled people's organisations have long been advocating for government to use its buying power as a way to leverage accessibility, asserting that such a policy would ameliorate many of the barriers people

with disability face when interacting with digital technologies and the internet. In 2011, the Australian Communications Consumer Action network (ACCAN), as part of a coalition of disability organisations, called upon the Australian government to implement a whole-of-government procurement policy for accessible ICT (ACCAN, 2011; Hawkins, 2011; Astbrink & Tibben, 2013). This policy suggestion was endorsed by the 2013 House of Representatives Standing Committee on Infrastructure and Communications inquiry into IT pricing. It is anticipated that this standard will be formalised in early 2017. While the Australian government has lauded this initiative as setting "a minimum standard to ensure that websites, software and digital devices are accessible" (Australian Government Department of Finance, 2016), it will be the practical implementation of the standard which will be critical in ensuring that Australians with disability have increased access to the internet and digital products and services.

Thus, the experience and research on the US, European, and Australian situations tell us that as well as needing specific legislation to require accessibility, there are a range of other measures such as education and training of developers, companies, and organisations, reframing discourses of accessibility, and incorporating disability into the mainstream of technology and design.

KEEPING UP WITH THE DEVELOPMENT OF INTERNET TECHNOLOGY

What is also key is for policy frameworks and actors to address the full range of convergent internet technologies. When it comes to wider internet accessibility, there remain many areas where people with disabilities lack effective access to operating systems, software, interfaces, hardware, platforms, and content. The example of mobile web and non-web mobile apps, now addressed by the European mobile accessibility standards, is one of the most obvious (Goggin, 2015b; G3ICT and ITU, 2012; WAI, 2016). Exact statistics are not available but it is likely that non-web apps have significantly lower levels of accessibility than websites and the mobile web. The industry-supported Global Accessibility Reporting Initiative (GARI) database has extended its information on accessible mobile phones to include accessibility mobile apps, as one way to make information available to consumers (GARI, 2016). Particular groups face additional challenges, such as Deafblind consumers (Able Australia, 2011).

Another important area where accessibility is poor is in the area of e-books. Like other areas of digital technology, the irony here is that, on the one hand, with digital formats, distribution, and digital readers, books and other reading material stand to be dramatically extended to blind people and those with other kinds of print disabilities, who have been hitherto largely excluded from print material and culture (Harper, 2017). On the other hand, intellectual property laws have hinged on restrictive notions of copyright, with only limited exceptions to allow reproduction of books in accessible formats. Australia has taken an important step in this area, in being one of the first 20 countries to ratify the Marrakesh Treaty, which came into force in September 2016 (Australian Government, 2016). However, Australia's implementation, by changing its domestic laws, has lagged, amidst debates on broader copyright reforms (Australian Digital Alliance, 2016).

The imperative to comprehensively address all aspects of internet and related mobile and ICT accessibility is highlighted by the authoritative study of US based disability law expert Peter Blanck on persons with cognitive disabilities (Blanck, 2014a & 2014b). Blanck argues for the concept of "web equality", as the opportunity for "full and equal enjoyment of web content". Blanck sees web equality as the "comparable choice to participate online, with or without appropriate supports and adjustments, and without discrimination on the basis of disability" (Blanck, 2014, pp. 6-7). He notes that: "Designers and online service providers, as well as other

stakeholders, progressively understand that their choices and attitudes profoundly affect web content equality for increasingly diverse and global users, with and without disabilities" (Blanck, 2014, p. 30). As Blanck and a wide range of others note, there are considerable resources available to provide choice for users in relation, for instance, to online readability, navigation, and language (Blanck, 2014, p. 30; Lazar, Goldstein, and Taylor, 2015), as well as significant options for ensuring accessibility and equality across convergent internet, mobile, social media, wearable, data-intensive, and other technologies.

Such a comprehensive framework is something required in principle by the United Nations' CRPD. The Committee on the CRPD requires states parties to report on their implementation, initially within two years of accepting the CRPD and then on a four yearly schedule. The *Guidelines on Reporting to the Committee* specifically request that the states parties report on measures adopted to implement the principles of access to information - including electronic information - enshrined in Article 9 of the CRPD. However, it is unclear how effective this self-reporting has been in increasing accessibility of the internet for Australians with disabilities.

In addition, Article 33 of the Treaty requires states parties to establish monitoring mechanisms to coordinate and monitor progress. As well as civil society participation, and that of people with disabilities in particular, a "focal point" in government is required to undertake coordinate. This architecture is incorporated in such a treaty for the first time. Fair to say it appears well designed when encountered in lofty treaty prose, but in practice raises considerable issues (Quinn, 2009), as an influential Irish report outlines. Not only 'the focal point must be highly placed, and influential enough to compel government action', but the body undertaking this role must have a strong understanding of 'social' model of disability (not just the 'medical model'), and the broader human rights contexts of disability (NUI Galway and IHREC, 2016, p. 7).

In the remainder of the paper, we discuss how these broader aspects of internet and digital accessibility and disability policy have been addressed in the Australian case.

FROM THE COMPUTER AND TELEPHONE TO INTERNET TECHNOLOGY IN EVERYDAY LIFE: NEW POLICY FRONTIERS OF DISABILITY

Like many countries, the early, explicit law and policy that addresses disability and accessibility is found in telecommunications. Deriving from state or monopoly provision and ownership, the telecommunications sector largely neglected the needs of citizens and consumers with disabilities until efforts gathered momentum in the 1970s, and then intensified in the 1980s and 1990s. In Australia, a very active disability and consumer movement advocated for the inclusion of disability accessibility into the core concept of "universal service" (Goggin & Newell, 2000). This was resisted by the telecommunications industry and government until the landmark *Scott v Telstra* case. Geoff Scott, a deaf person from Western Australia, lodged a complaint under the DDA against Telecom (now Telstra), the dominant telecommunications carrier. Scott contended that he was being discriminated against because Telecom would not provide him with a teletypewriter (TTY) device at similar price to a standard telephone. The Human Rights Commission upheld Scott's complaint, and the government was forced to expand the legislative definition of universal service in the 1997 *Telecommunications Act* to include an equivalent form of voice telephony for people with disabilities who require this (Bourk, 2000).

This definition of universal service has not changed in the intervening 20 years, although the Australian government has called for a review by the Productivity Commission, currently underway (PC, 2016), with policy change likely in 2017. The core defect is that the universal service definition has been frozen in time as a voice telephony or equivalent service. So contemporary aspects of actual universal service –– notably mobile communications and broadband internet –– are not captured by such telecommunications legislation. Nor has Australia yet seen consolidated convergent communications legislation eventuate, hence the efforts to use anti-discrimination and human rights legislation to tackle internet accessibility issues. As we have seen, Australia has witnessed landmark rulings –– as with the *Maguire v SOCOG* and *Scott v Telstra* cases –– yet how these legal achievements have translated into long-term progress for digital inclusion is a moot point.

Given these difficulties, it is not surprising that another front was eventually opened up on internet and disability policy –– procurement. Procurement has a long and important history in internet accessibility, and is a key part of the projected European Accessibility Act. Rather than directly tackling or regulating production of ICT technologies, procurement seeks to marshal the purchasing power of large organisations, especially governments, as a policy lever. This is a useful move, as a way to deal with the fact that accessibility and disability have a highly influential global character, due to the nature of innovation, design, production, and distribution in global ICT markets (Goggin & Newell, 2007). In countries such as Australia, which is not a significant player in global ICT production, policies developed in other countries have provided an indirect yet significant influence through the provision of accessibility features into mainstream products. Notably, the development of the United States Rehabilitation Act of 1973, Section 508 (U.S. General Services Administration, 2014), which focused on public procurement policies and information access to support employment for people with disabilities, formed the basis for website and mainstream products to start including accessibility features (Jaeger, 2002). In essence, section 508 highlighted that in order for accessibility to be effective, two distinct aspects of ICT need to be addressed: the provision of assistive technologies for people with disabilities and the provision of accessible information for such devices to work (Brown & Hollier, 2015).

As a result, on the consumer side, the arrival of Section 508 influenced the inclusion of accessibility features in popular mainstream computers and devices including the addition of the Narrator screen reader in Windows 2000, the inclusion of a full-screen magnifier in Mac OS X 10.2 and the VoiceOver screen reader in Mac OS X 10.4, significant improvements to accessibility features in Windows 7 and the breakthrough inclusion of a touchscreen gesture-based screen reader on the Apple iPhone 3GS in 2009. The 2012 inclusion of a touch-based interface to complement the traditional keyboard and mouse interface in Windows 8.x also marked a significant shift in mainstream product accessibility, while currently the voice-driven digital assistants of Siri on Apple mobile devices and Cortana in Windows provide another welcome addition for device engagement for people with a vision or mobility impairment.

While the operating systems discussed are primarily US-based, the global nature of these products meant that the benefits of their inclusion changed the accessibility landscape in countries around the world, including Australia. Currently accessibility features such as screen readers, screen magnifiers, captioned video playback support, on-screen keyboards and a host of other accessibility features can be found across all major mainstream operating systems including Microsoft Windows, Google Android, Apple OSX and Apple iOS. With assistive technology products being prohibitively expensive prior to the inclusion of these features in mainstream operating systems, the consumer's ability to select the accessibility they need in the

device they want without necessarily purchasing additional software to use it has provided a great leap forward. In short, in recent years the consumer's ability to get assistive technologies built in has been significantly improved in Australia as an indirect result of US-based policies.

In the Australian context the ensuing priority issues include a focus on the accessibility of information for such devices, and the effectiveness of content accessibility policies and procurement processes. While section 508 focused on legislating the provision of information access and procurement, Australia was slow to adopt effective procurement policies. In 2011, the Australian Communications Consumer Action network (ACCAN), as part of a coalition of disability organisations, called upon the Australian government to implement a whole-of-government procurement policy for accessible ICT (ACCAN, 2011; Hawkins, 2011; Astbrink & Tibbens, 2013). This policy suggestion was endorsed by the 2013 House of Representatives Standing Committee on Infrastructure and Communications inquiry into IT pricing, but at the time of writing still had not been accepted by the Australian government.

If Australian governments have been slow to grasp the nettle of procurement as a policy tool for digital inclusion, one unique area where innovation did happen was in broadband internet infrastructure. Conceived by the Rudd Labor government in 2007-2008, in its first blush –– as a massive private-public partnership in next generation internet –– the NBN received widespread attention internationally. As announced and developed by the Labor government, the NBN was a nation-building project, rivalling the telegraph or telephone, which would deliver broadband internet to all citizens. In its early stages of NBN where a "supply-side" focus reigned, there was a neglect of disability and accessibility policy issues. Thus Robert Morsillo warned that

... there has not been any specific affordability or accessibility policy considerations that might address the needs of people with disability as a particularly interested user group. What is at stake is a repeat of the situation that dogged the previous universal network, the copper based Public Switched Telephone Network (PSTN), where accessibility policies didn't come till the mid-1990s and affordability policies until 2002, many decades after telephones had become widespread in Australian homes (Morsillo, 2011).

This was regrettable, given that various commentators noted the potential benefits of the NBN for internet users with disabilities, including high-profile Disability Discrimination Commissioner Graeme Innes, who suggested that:

Real-time captioning, audio description, talking books and video-calling could all be made widely available by a fast-speed broadband service. For people with a disability fast-speed broadband means a great deal. It means access to information becomes possible. It means participation becomes possible. It means inclusion (Innes, 2011).

Since the return of the conservative Liberal-National party government in 2013, the Australian NBN has moved from the vision of fibre to the home to "good-enough" broadband via a mix of technologies. This raises serious questions about the adequacy of the NBN, as it is being delivered now, for some services that might benefit people with disabilities –– such as advanced video communications. This is especially the case, when we consider the relationship between fixed broadband and mobile broadband internet infrastructures and services –– as the place of mobile internet and mobile media services in NBN has never been clearly defined. Over and above, the now much more modest reality of the NBN, as the great leap forward for internet users with disabilities, the central problem with having these desires realised lies in the lack of an adequate policy framework for broadband services. The NBN is a "wholesale" only network,

an infrastructure project, which relies upon retail service providers to actually deliver the services to consumers. It is these providers that would be responsible for ensuring accessible broadband internet. However, the benchmark remains still the "voice-equivalent" telecommunications service defined in the 1997 *Telecommunications Act*.

As this brief discussion of NBN reveals, next-generation broadband fixed and mobile internet is an obvious area where disability and accessibility policy for internet need to be addressed. A less obvious but equally urgent area of contemporary internet is television. Disability media policy discussions of television have focussed on captioning for deaf people and those with hearing impairments, and audio description for blind viewers. With the 1990s visions and social imaginaries of digital broadcasting finally unfolding in an unforeseen trajectory via the new ecologies of internet - and mobile-based "connected" television, and video on demand, policy actors need to engage with this area of internet media, where providers have been slow to address accessibility issues, and policy frameworks have lagged (Ellis, 2014; Hawkins, 2017). In response to Australian commercial video-on-demand and catch-up television providers' shortcomings, in 2013, ACCAN called for a new *Australian Communications and Video Accessibility Act* to mandate minimum standards on accessibility for content and communication services, modelled on the US *21st Century Communications and Video Accessibility Act* (ACCAN, 2013).

Finally, there is the unique Australian nation-building experiment which relies upon the internet, and indeed reshapes its configurations, contexts, and uses, when it comes to people with disabilities, and discussions of access and design. This is the NDIS, outlined above, that aims to provide disability support for any citizen who needs it. Central to the NDIS vision of full social participation is the role of digital technology, both in providing information and potential support services via the internet as well as providing internet and mobile technology to people with disabilities (as part of their support package, via a new national assistive technology scheme that aims, for the first time, to provide adequate provision for all who are eligible). Although there has been much talk of the role of the NDIS combining with the NBN to advance participation of people with disabilities in internet and associated digital technologies, it remains unclear how the policy frameworks articulate with each other. In addition, while NDIS as a new disability support agency is very much seeking to innovate using online technology, its vision of providing technology for people with disabilities still revolves around narrow concepts of "assistive technology".

Furthermore, in the intervening years since Morsillo's 2011 prescient observation there has continued to be no substantive policy discussion on affordability of broadband for people with disability. For a population with almost 1 in 2 living in poverty, addressing issues of affordability are paramount if broadband is to be one of the routes to greater economic, social and community participation for Australians living with disability (OECD, 2010). While it is anticipated that the NDIS will fund assistive and mainstream equipment to help as many as 460,000 participants get connected, NDIS funding will not provide assistance for the ongoing monthly subscription cost of staying connected. For the more than 3 million Australians who identify as having a disability but who will not qualify for NDIS funding, affordability may indeed be the barrier which stops them from achieving greater economic, social and community benefits available to those in our society who are able to connect and use the internet.

CONCLUSION

There is agreement internationally on the need for a comprehensive, broad conception of accessibility in internet policy, law, and practice –– something which Paul T. Jaeger articulates under the rubric of "Internet justice" (Jaeger, 2014). Such a broad account of internet accessibility fits in with and is meaningfully underpinned by new notions of communication rights that emerged in the CRPD (Goggin, 2015a). Yet when it comes to how these goals of equality, justice, and accessibility are enacted for internet users with disabilities, there is a long way to go indeed –– even in the relatively well established area of internet accessibility. This yawning gap between aspiration and achievement is common across the world.

In the case of Australia, explored here, there are particular issues to be faced. As we have discussed, Australia was briefly in the vanguard of policy on web accessibility, in the 2000 application of human rights legislation to require access to the internet for people with disabilities. Since this time, progress has been much slower than expected. There is certainly scope to adopt and adapt useful laws and policy from elsewhere, such as the longstanding idea of advancing procurement as a policy tool or the newer idea of a 21st century law on communications, which has internet, especially multimedia and video internet, at its heart. While the US is the leading jurisdiction that is typically invoked internationally as a source of "best practice" on disability and accessibility policy, it is not without its problems and shortcomings. For its part, Europe in 2015-2017 has finally seen the political agreement, legal formulation, and national implementation of general accessibility law and policy, and specific frameworks on web and mobile activities. Yet there is no real equivalent in the US or Europe for instance, for the nation-building approaches in Australia of the NBN, promising broadband internet, or NDIS, promising support for people with disabilities, their families, and carers. As the Australian case shows, all these broader social aspects are important coordinates, when it comes to internet policy for digital inclusion to people with disabilities.

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