Understanding Web Accessibility: Why Adopting Universal Web Design Will Be Good for Your Organization

Web accessibility – making it possible and commonplace for everyone, including those with sight and other impairments, to enjoy and benefit from the Internet and the Worldwide Web - is in the news today and will be an even bigger story in the months and years to come. As with many social advances, Web accessibility is being achieved through community action, government legislation, and judicial due process. Here are a few recent stories that made headlines…

- One of the biggest and highest profile retailers in the US reached a multi-million dollar class action settlement for the company's failure to provide adequate access to its retail Website for persons with disabilities.
- The prestigious Law School Admissions Council, administrator of admission tests for more than 200 high-ranked law schools in Canada and the US, was sued earlier this year by the National Federation of the Blind claiming that the LSAC Website is inaccessible to applicants with disabilities.
- The Province of Ontario introduced legislation in July 2009 that sets standards for how businesses and organizations in Ontario create, provide, and receive information and communications in ways that are accessible for people with disabilities.
- Following a complaint by a sight-impaired web user in Australia, the Australian Human Rights and Equal Opportunities Commission found that the Sydney Organizing Committee for the Olympic Games website was not properly accessible to the complainant and ordered the Organizing Committee to render the Olympic Games website fully accessible within forty days.

Where we are with the Web

Computer Industry Almanac reports that there are more than 1.2 billion computers currently in use worldwide, including 28 million in Canada and 265 million in the US. There are near equivalent numbers of Internet users worldwide and in Canada and the US. We are in the information age; and these numbers, while huge, are not surprising. The computer and the Internet now form an integral and ubiquitous information and communications channel for government, for community, for business, and for each of us at home and at work.

The Internet and the Worldwide Web deliver much more than entertainment, news, and social chatter. They give us instant communication, synchronized workplace collaboration and decision-making, real-time information compilation and delivery, and easy access to the world's knowledge repositories. And with the arrival of mobile computing, cloud computing and other technologies, we will further increase our use of the Internet and the Web and our dependency on them.

It has only been forty years since the first Internet was established, and less than twenty years since the Web started to develop. Through this burst of technology-driven creativity, there has been an evolving vision and understanding of what the Web is as a content platform and what the Internet is as the Web's information delivery system, and what they should be. At its core, through this period of hyper development, the Web has been managed primarily as a visual medium, with bits of soundtrack thrown in.

This has given us Web design and development that has focused primarily on being visually pleasing, is often a maze to navigate, and has overlooked significant audience sectors, market

drivers, workplace efficiencies, and knowledge transfer opportunities. The exciting news is that we are now at the threshold of the next evolution of the Web, transitioning from what has been in essence a two dimensional medium to something that is akin to a three dimensional medium.

Understanding Web accessibility

Is the accessible Web really a three-dimensional medium? No, not as we usually think of three spatial dimensions. But in other important respects, there is a third dimension that does exist in an accessible Website. In this third dimension are found the content tags, navigational directions, structural design details, hierarchical descriptions, and other information visible only to a machine reader or to someone reading the source code of a Web page.

It is this layer of "invisible" information, code that cannot be seen on-screen, that makes a Web page as accessible for a person with sight impairment as for a sighted person. It is this layer of information that contains instructions for adaptive haptic devices used by individuals with physical and developmental impairment. It is also this layer that contains text captions of audio and video clips embedded in a Web page for a hearing impaired person.

W3C Four Principles of Web Accessibility

Perceivable: Information and user interface components must be presentable to users in ways they can perceive.

Operable: User interface components and navigation must be operable.

Understandable: Information and the operation of user interface must be understandable.

Robust: Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

The basis of Web accessible development is a methodology commonly referred to as Universal Web Design - derived from the worldwide universal design movement that seeks to produce buildings, products, and environments that are usable and effective for everyone, not just those with impairment. Universal Web Design means better design for all audiences, critically important to Internet users with impairment, but also of real benefit to existing Web audiences who appreciate the lack of clutter, better organization, and improved readability of content published on a Website developed using University Web Design concepts.

As an evolving discipline with an expanding process methodology, the accessible Web has three distinct participating stakeholder groups, each contributing to the science and the art of Universal Web Design. Any accessible Website development project needs to allow and encourage input from all three groups. The first group is the Web developers, tasked with building the programming and application infrastructure on which a Website's content will reside. The second group is the designers and content producers whose job it is to create and deliver a compelling Website experience that succeeds equally well on-screen and through screen reader playback and other forms of off-screen content delivery.

The third and equally important group is the audience – the consumers of the content of an accessible Website. Particularly in these relatively early days of Universal Web Design, audiences of the accessible Web audiences are not inclined to be or to remain passive. The

feedback from their use of a Website and their direct solicited, and sometimes unsolicited, feedback provide valuable insights and may even provide direction on how to refine and improve the user experience on a Website.

Millions and more the Web doesn't serve

As suggested above, there are big, prolific, and valuable audiences that the Web doesn't serve well, if at all. Audiences for whom the Web's outdated visual design and navigational concepts create an almost inaccessible online environment.

In both Canada and the US, more than 14% of the adult population – more than 36 million adults - live with one or more profound impairments that significantly impact the individual's activities of day living, including the individual's ability to access most of the current Worldwide Web. Here are the percentages of the adult population in each country living with impairment.

	Sight impairment	Hearing impairment	Physical impairment	Cognitive intellectual impairment	Adults with one or more impairments
Canada	3.2%	5.0%	11.5%	7.3%	14.3%
US	2.8%	4.4%	11.4%	5.1%	14.8%

Canadian data from Statistics Canada/HRSDC Canadians in Context: People with Disabilities (2006)

US data from US Census Bureau 2008 American Community Survey

These are important audiences that are asking to be served; are ready and willing to contribute; and have as great a need and desire to access the fullness of the Worldwide Web as any person online. A few facts to consider:

- 7.1 million adults in Canada and the US have sight impairment and cannot visually read Web content;

- 28.4 million adults in Canada and the US have a physical impairment that can challenge their ability to navigate through a Website following a standard cursor;

- On a worldwide basis, the UN reports there are more than 750 million people living with impairment, making this the world's largest minority community;

- Active consumers, over half of adults with impairment in Canada and the US own homes, and their combined annual disposal income is estimated to be $250 billion.

There is substantial social good that comes from making the Web accessible to everyone. There is substantial commercial gain that can also come from building an accessible Web. Most notably, Google, Yahoo!, Bing, and other public search engines index the Web for their search customers by machine reading Web content. These machine readers, more commonly known as spiders or bots, do not read or interpret design creative, images, animation, video and audio clips, or other visual-only content. The design and programming concepts used to develop a Website that is accessible will also create a Website that can be more fully and accurately indexed by search engine spiders. Critical for search indexing and useful for myriad industrial processes where machine readers can enhance and expedite workflow.

As described in the introduction to this discussion, change is underway. Individuals and groups

denied effective Web access are making their needs known and demands heard. Governments at both the legislative and judicial level are giving substance to the principles of accessibility – on the Web as well as in other arenas. As the issues of Web accessibility are heard and understood, public and private sector organizations are responding. Whether serving a public citizenry or catering to an attractive consumer audience, developing an accessible Website is socially responsible and simply good business.

Getting started

Although punitive compliance with Web accessibility standards is still in the future, sooner rather than later your organization will face the need to redevelop its Website and Web content to meet accessibility standards. Now is the time to begin planning for this transition.

First and perhaps most important, your organization should set a mandate with respect to embracing Web accessibility, possibly within a broader mandate regarding the organization's commitment to fostering accessibility throughout the organization, in its workplace environment, and in its business practices. This will mark the beginning of the cultural shift that will need to take place within the organization, or at least within your Web team, for accessible Web design, structure coding, and content creation to become entrenched in your team's Web development processes.

Experience has shown that the adoption of Web accessibility standards need not lessen the impact of an organization's Website to inform and serve the site's visitors. To the contrary, development teams that have embraced a paradigm change when adopting accessibility standards in its work have demonstrated a capacity to achieve new heights of creative excellence within a presentation look 'n' feel that is engaging and fulfilling for all visitors. And this has led to reported improvements in Website performance measures, arising in no small part from the site's ability to productively engage visitors who use screen readers and other assistive devices whether working, recreating, or shopping online.

Organizations have typically followed one of three strategic approaches for establishing an accessible Website initiative. Each strategic approach responds to differing demands in organizational priority, workflow planning, and budgetary constraint.

- **Building forward with universal Web design principles and technical standards**: This is the generally the fastest and least costly strategic approach for getting a quantity of accessible Web content built and published. Organizations who are continually replacing existing Website content are candidates for this approach. The obvious drawback in this approach is the organization's Website is only partially accessible as content continues to be replaced. This approach works best if the initial accessible portions of the Website are audience or purpose-specific and linked from an accessible home page or landing page. A workplan and timeline for replacing all legacy Web pages with accessible pages is strongly recommended when following this approach.

- **Rebuilding existing Web content**: For organizations whose requirement for comprehensive Web accessibility is mission-critical, increasingly the preferred approach is to rebuild the organization's current Website from the underlying data and content management structure through to page template design and content writing and editing – in effect, building an entirely new and fully accessible Website. Depending on the size and functionality of the legacy site, this approach can range from being the most cost-affordable, for a boutique site with a limited page count, to the mostly costly, for a full-scale enterprise site with many hundreds or thousands of pages. The great advantage

in this approach is that full accessibility can be ensured on every page from the day the accessible site is launched.

- **Retrofitting existing Web content**: Combining elements of both other strategic approaches, organizations whose underlying Website structures are properly integrated, well-organized, and consistent are candidates for retrofitting existing Web pages and existing content, following accessibility standards and best-practice guidelines. A workplan will be needed to set scheduling priority for page and application retrofitting and to ensure that no pages are missed. For Websites with dynamic CMS platforms, retrofitting can be the most efficient and cost-effective approach to creating a fully accessible Website.

If your organization hasn't given any thought to Web accessibility or hasn't begun accessibility transition planning, the project of creating an accessible Website may seem daunting or impossible. Good news. Help is available. Tier-one Web development shops generally have experience with accessible design and development. Interview two or three shops. Ask about their commitment to Web accessibility. Ask to see examples of their accessibility work.

Open source communities and enterprise software resellers have been reworking their CMS platforms and application code to incorporate Web accessibility standards and best practices. Investigate what your organization's options are for replacing your legacy CMS with a CMS designed to Web accessible standards. As well, take the opportunity to start building an accessibility knowledge base for your team. Web accessibility training is available online and through your local technical college and technology association.

Start planning now. Transitioning to a fully accessible Website is socially responsible, community supportive, and commercially smart. Good luck in your transition!

References

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U.S. Federal Rehabilitation Act (Section 508): http://www.section508.gov

Web accessibility: UN General Assembly mandate: http://www.un.org/webaccessibility

Worldwide Web Consortium - Understanding Web Content Accessibility Guidelines 2.0:
http://www.w3.org/TR/UNDERSTANDING-WCAG20/intro.html

Web Accessibility In Mind (WebAIM): http://webaim.org

Making the Web Truly Accessible: http://www.cs.unc.edu/Research/assist/et/projects/universal

Drupal reference: http://drupal.org/node/394094 *and* http://groups.drupal.org/accessibility

OpenConcept Accessibility Posts: http://openconcept.ca/topic/accessibility

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