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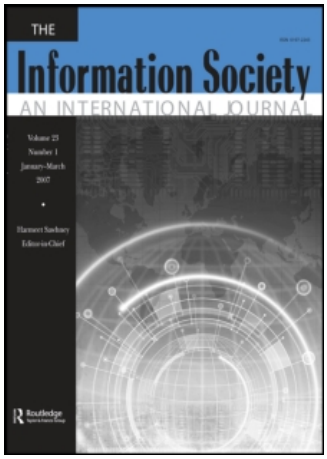

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PERSPECTIVE

Crossing the Digital Divide—Possibilities for Influencing the Private-Sector Business Case

Helen Maskery

The accessible information and communications technologies (ICT) design community has made compelling arguments about the business benefits available to companies who design their products and services to be accessible to people with disabilities. The ICT industry, however, has not embraced accessible design. This article proposes re-branding accessible ICT design as "Anytime, Anywhere, Anyone (AAA) Design." This rebranded approach would shift the focus from one of "pushing" accessible design to one where business would actively "pull" for it.

Keywords accessibility, accessible design, information and communications technologies, information technologies, people with disabilities, universal design

Much work has been done in the latter part of the 20th century to remove physical barriers that exclude or make it very difficult for people with disabilities to participate fully in society. But as the removal of physical barriers is becoming standard practice in building codes and construction, an insidious new barrier has been introduced in the form of information and communications technology (ICT).

This powerful and amazing "new" technology has fundamentally changed the way we work, communicate, and play. Initially used and operated by those few with training and knowledge, ICT has found its way into just about every aspect of the daily life of most people. For many this has had a positive impact, opening opportunities and bringing levels of global awareness that were not possible before. We are truly becoming a global village as a result.

However, this pervasive spread of technology has introduced new barriers that significantly interfere with the ability of persons with disabilities to contribute. This is the Digital Divide—the subtle yet powerful discrimination caused by information and communications technology that is not accessible and usable by all individuals. People can usually "get in the building," but they still cannot always do their jobs or participate to their full extent in society because of the new technology that gets in their way.

Why is ICT getting in the way? Without assigning blame, typically the answer is because it has not been explicitly designed to be accessible for people with disabilities. Although it feels like ICT has been around a long time, it is still in its relative infancy compared with many other types of artefacts that we encounter in our daily lives. This infancy means that the sophistication of laws, standards, and regulations such as those that guide and control the design and construction of buildings do not yet exist fully or maturely for ICT. Until such times as accessibility standards, regulations, and laws are enforced with meaningful penalties (in the eyes of the private sector) for noncompliance, the decision to include accessible design considerations in a product or service will remain the prerogative of the manufacturers. In this milieu, accessibility is only one of many factors that contribute to the complex equation called the "business case." The business case is the fundamental decision-making tool for private-sector investments in new or evolving product or service offerings.

The business case is the assessment of whether or not the gains to be made from an investment of time and money in the development of a product or service are worth the anticipated risks. Factors considered typically

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Shortly after the completion of the research, I attended an Ottawa Technology Executive Breakfast event on March 31, 2005. Brian McFadden, then chief technical officer (CTO) at Nortel, repeatedly talked about the need to simplify the end user's experience through anywhere, anytime, anyone delivery of multimedia services. His comments were not specific to people with disabilities.

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include:

- Anticipated size of market (number of potential customers).
- Projected price point (the price for which the product or service can expect to be sold).
- Expectations of the target market in terms of features, product positioning, delivery date, etc.; this includes identifying the "table stakes"—the product or service attributes that must be present in order for the intended customers to buy the product.
- Expected cost to manufacture/distribute/market/sell.
- Expected cost of research and development required to create the product or service.
- Expected time to develop a commercially ready product.
- Expected life of the product once in market (how long the product will remain viable before needing an upgrade or revision).
- Assessment of product complexity and component maturity—are there many new innovations required in order for the product to work or is it being built on largely tried and tested technology?
- Assessment of whether or not it's a strategic play (first-to-market advantage) or a tactical play ("me too" or portfolio augmentation).
- Assessment of the competitive landscape—current and in the future.
- Anticipated levels of enforcement of any legislation or standards that apply to the product or service.
- Assessment of the current "pain" being experienced by the company, such as lost sales to a competitor, or future "pain," such as expectation of losing sales to a competitor or of not being able to the sell product in the future.
- Assessment of the opportunities that will not be followed up, due to committing to a specific opportunity (companies do not have an infinite supply of development resources, so one project given the green light is typically at the expense of a number of other opportunities receiving the red light).
- Assessment of the possible outcomes if the investment is not made, and so on.

While many company decision makers wish that all the business case factors could be objectively and quantifiably measured, this is not the case. Expenditure on research to quantify factors such as the market size or user needs must be balanced with an initial, almost "gut" feel for the possible returns. Early decisions in the process of defining the business case are based on the decision maker's knowledge and experience. This knowledge and experience will include various perceptions of each factor's value—perceptions that may or may not be accurate.

The bottom line in the private sector is exactly that, the bottom line. Is the risk of the investment more than outweighed by the potential gains? Will the company make money, and if so, will it make enough money? If the gamble fails, it can mean that the company closes its doors, thereby impacting directly and indirectly the many stakeholders (shareholders, employees, customers, suppliers, et al.) that depend to a greater or lesser extent on the company.

Given the high stakes nature of business, it is the business case that must be influenced if ICT is to become more accessible. The job of influencing the business case is made even more difficult by the many myths and perceptions that are now heavily entrenched in the private sector around designing for accessibility. "Accessibility" for the private sector typically conjures the image of small markets, special design requirements, low-tech uncool products that are perceived to require the sacrifice of aesthetics and function to meet the needs of a few.

Even more damaging for the business case are the perceptions that "designing for accessibility" will increase the cost and complexity of the product and lengthen the time for development. These perceptions affect the risk assessment negatively and are often sufficient to swing the accessible design decision to "not in this release."

Additional myths to those already mentioned include:

- Perceived challenges of supporting accessible ICT.
- Perceived lack of specific guidance on how to design accessible ICT.
- Perceived difficulties in designing products and services that will meet the needs of all people with disabilities.
- Perceived negative trade-offs for those without disabilities that will need to be made in order to make products and services accessible to those with disabilities.

As indicated earlier, a very influential factor in the business case is whether or not there are standards or regulations that must be met in order to ship a product or service to a given market. For example, many countries have electrical safety standards and any manufacturer that wants to sell an electrical product in that market must demonstrate compliance with the appropriate standards; otherwise, the "doors are closed." Currently, there are no such enforceable standards, regulations, or legislation requiring the delivery of accessible ICT.

Since 1998, Section 508 of the United States Rehabilitation Act has required U.S. federal government agencies to take into account the accessibility requirements of people with disabilities when procuring electronic and information technology (Section 508). Because the U.S.

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government purchases so much (and so many kinds of) electronic and information technologies, there was a great expectation that Section 508 would lead companies to make their products and services accessible. However, due to the indirect method of enforcement (through government procurement policies and agents) and due to compliance being "voluntary" on the part of vendors to comply, little improvement in the overall availability of accessible ICT has been reported. Due to perceived high costs associated with accessible ICT, manufacturers have, in general, been playing a waiting game. So far, they have not generally experienced "pain" as a result of not complying with the legislation. Until such times as there is recognizable pain from noncompliance, accessibility will continue to prioritized below other financial drivers in the business case.

When the manufacturer's business case for developing Section 508 compliant products is looked at closely, there is:

- No current pain (no or few lost sales per manufacturer).
- No mid-term pain (few competitors are moving to deliver more accessible products or greater ranges of accessible products).
- A perceived small incremental market resulting from delivering accessible products.
- A perceived higher risk to delivering a market-acceptable product on time and in budget.

So, what is there to do about this? As those in the accessible design community know, there are substantial business benefits accruing from the application of accessible design principles to all products and services irrespective of target market and user groups; that is, the features that make ICT accessible to people with disabilities have significant benefits for non-disabled users through improved convenience, flexibility, and/or usability. But as soon as the word "accessibility" is mentioned, the doors close. So the question remains: What can we do about it?

Instead of trying to "push" accessibility into a private sector that does not see the business case for it, this article presents a possible roadmap for "rebranding" accessible design in such a way that the private sector actively "pulls" for it. This should not be construed as meaning that the current tactics should stop—only that alternative approaches need to be added to the mix to help speed things up!

In my view, three key things need to occur to make this happen:

1. The rules of engagement need to be restructured—instead of the accessibility design community pushing, we need the private sector to start pulling.
2. Accessible design needs to be rebranded to sidestep current perceptions and myths held by the decision makers in the private sector.
3. The playing field needs to be leveled to reward those manufacturers that develop certified accessible ICT.

In 2005, my company at that time undertook a preliminary research project for Industry Canada, the Government of Canada department responsible for competition, consumers, the information highway, investment, regulation, science, small business, telecommunication, tourism, and trade. We interviewed five medium to large corporations to identify the business case drivers that influenced their product design decision making. In addition, we "floated" an alternative definition of accessible design—Anytime, Anywhere, Anyone (AAA) Design.

All the companies we interviewed saw this alternative definition as meeting a fundamental business goal—that of enabling their customers and users to receive the benefits of their products and services without barriers due to location, time, or device capability. The only change they suggested was that in today's security conscious world, the final element "Anyone" should be adjusted to "Anyone Authorised."

As user behaviors and expectations adapt with the emergence of ever smaller and more mobile technology offering more services and functionality, the products and services need to be designed to be device independent. Device independence means that the same application, service or piece of functionality can be used effectively, for example, on a cell phone, on a PDA (personal digital assistant), or on a large-screen computer or whatever device is appropriate for the context of use.

While the input and output devices obviously influence the design of the application, the more consistent the user experience is—irrespective of input and output devices—the better it is for the user, the easier it is for the vendor to support the product, and the easier it is to build the product. For example, the more code that can be reused, the higher is its quality, the quicker the development timeline, and the easier/cheaper it is for the company to build it.

Designing for accessibility because of the need to enable people who cannot see, who cannot hear, or who have physical limitations, results in products and services that are inherently device independent. For example, if you design ICT such that it can be used with only a keyboard for an input device, it results in an application that can be used as effectively on a desktop PC by an individual with poor motor skills as on a BlackBerry with its small keyboard and thumb wheel. As another example, designing a product for use by people with poor or no hearing will result in a product that is also suitable for use in quiet environments such as meeting rooms and movie theaters because the user's task can be completed successfully without audio output.

AAA design is a problem being faced by the private sector today. The private-sector challenge of delivering technology solutions that meet the anytime, anywhere, anyone

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criteria are significant both in terms of making the technology work and in terms of ensuring a simple yet effective experience for the end user. Companies that hit the AAA target will have a competitive advantage.

This immediate business need of ICT manufacturers and vendors presents a golden opportunity for the accessible design community. Instead of developing business case information around accessible design and trying to "push" accessible design guidance into the private sector, making AAA design guidance available will result in the private sector members "pulling" the information in because they need it to solve their immediate challenges.

Rebranding accessible design materials under the Anytime, Anywhere, Anyone banner should therefore be successful in sidestepping the current heavily entrenched myths about accessible product and service development. The materials to support the private sector need to focus on AAA design rather than on accessibility. This is not to say that the existing wealth of accessible and universal design materials needs to be thrown out or new materials started from scratch. The perspective is more one of "re-skinning" the existing material so that it looks and feels like AAA design materials.

This rebranding exercise should not be seen as replacing the current accessible design fields. Nor is it saying that assistive technology is not needed. There will always be a need for assistive technology in meeting the needs of the full range of individuals with disabilities. Ideally, AAA design would be positioned as a new approach offering significant business benefits, with, much as I hate to say this, no reference to its roots in the accessible design arena.

The private-sector business case is also heavily influenced by customer pull. Customers and potential customers therefore need to be educated about the benefits of "branded" AAA design. Then they need to be equipped so that they can procure AAA-designed technology solutions. Again, the roots of AAA design are not relevant to customers who are simply seeking to get the full benefits from their investment in ICT.

With the business case issue based on market size and accessibility myths sidestepped by AAA design, the tactics then need to focus on supporting companies in the design and delivery of AAA solutions and on helping customers procure AAA ICT. These tactics translate into a number of activities that will each contribute to one or more of the three steps identified earlier.

Kick Start the AAA-Branded Program With Government and/or Public–Private Partnership Funding for the Creation and Dissemination of the Initial AAA Design Standards and Guidelines

The creation of standards and guidelines takes a considerable amount of work. Even in a case such as this where the underpinning material already exists, there is still substantial effort required to turn it into a format suitable for use by the private sector. Dissemination of the materials also needs to be handled energetically if the AAA strategy is not to linger on the sidelines.

The long-term success of the initiative will also be dependent on quickly establishing governance and the ongoing maintenance and updating of the AAA design standards and guidelines. This would be addressed from the start under the umbrella of the initial funding and consultation process.

Create Standards and Guidelines That Support and Define the Results of AAA Design

To make it easy to use the AAA design standards and guidelines, the guidelines should focus on the result of applying the design principles—similar to the approach taken by Section 508. Where possible, these standards and guidelines should be technology independent and they should avoid prescribing how to implement solutions. This approach fosters innovation in finding solutions that meet the requirements.

Having said this, "A picture paints a thousand words." Even if AAA design is seen as fundamental to the organization's success, the pragmatics of business require that it be quick and easy for developers to design and implement. The easier it is for developers to see what they need to do to meet the standards, the easier it will be for them to design and build AAA ICT. The standards and guidelines should therefore include numerous examples of existing and potential solutions.

To gain credibility in the private sector, the AAA materials need to be pragmatic, specific, and implementable. Clear demonstration through the materials that AAA design is business focused will go a long way to gaining credibility.

Similar to Section 508, the standards and guidelines need to identify different levels of anywhere, anytime, anyone usage to enable decision makers and development teams to choose the level of AAA design that is right for their business and their customers and users, as well as the context of their usage.

It will be necessary to segment the types of products to be covered by the AAA design principles. This is because the potential range of products that would be impacted by AAA design is huge. The segmentation should be understandable by the private sector. Segmentation of the product types will also allow a phased delivery of the standards and guidelines. The selection of which segment to define first is important and will need to factor in a variety of criteria such as size of the market sector, first-mover impact, and the size of the population that would be beneficially impacted.

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A first draft of the AAA design standards and guidelines should be created based on accessible design principles. Thereafter, they should be put through a review process that would allow the private sector to comment and provide input. However, care must be taken with this process to avoid it "bogging down" in the sometimes typical Standards consensus-based processes.

Given that the five companies interviewed in the research all reported AAA design as being fundamentally important to their companies, the standards review process will be challenging! Standards and legislation is a potent competitive weapon or challenge for manufacturers. By "lobbying" for the inclusion, exclusion, or softening of specific design requirements in a set of standards, a company can gain considerable market advantage if their products meet or will meet the new standards when a competitor's products do not. Alternatively, slowing down the standards review process can buy a company sufficient time to develop or revise its products so that they meet the new requirements when these become law.

Create a Repository for AAA Design Information

To facilitate quick uptake and ongoing compliance with the AAA design standards and guidelines, a repository or "center of excellence" in AAA design should be created. This should become the focal point for all individuals wanting to develop, procure, or use AAA-compliant technology solutions.

The types of information expected to be found in a center of excellence would include case studies, information on training courses, links to qualified consultants, background information, and such like.

Develop and Implement a Comprehensive Communications Strategy

With the draft AAA design guidelines and standards written and the repository of materials started, the next step is that of getting the word out to the private sector that the answer to the AAA design challenge is ready and waiting. This communications strategy would identify the best ways to raise awareness in the private sector. Strategies targeting AAA ICT vendors, manufacturers, and systems integrators as well as customers and end users will be needed.

Provide Financial Incentives for Early Adopters

Initially, financial incentives with government backing may tip the business case in favor of including AAA design activities and investments. Financial incentives could be targeted at leading adopter companies in the form of additional tax credits. Alternatively, financial programs could be targeted at qualified consultancies and organizations offering AAA design services so that the cost of professional help in this scarce-skill field does not become a barrier in itself.

Taking Canada as an example, 94% of companies employ fewer than 50 people (Industry Canada statistics, December 2003; http://strategis.ic.gc.ca/sc_ecnmy/sio/ciseste.html). These small to medium-sized companies typically cannot afford to "explore" new design issues or processes outside of their current knowledge. Financial aid targeted specifically at small, medium, and startup businesses would go a long way to helping them to deliver AAA-branded products that they might not otherwise be able to afford.

Level the Playing Field

Levelling of the playing field will come from the development of industry-accepted testing procedures and certification processes—AAA-Branded. These should be introduced along with the rest of the AAA design strategy. Allied with the testing procedures is the need for independent testing labs to be identified and certified to conduct the tests. AAA-branded ICT, over time, should become equated with perceptions that these solutions deliver the expected business benefits to the customers and their users.

There are many examples of standards and testing processes already established in the technology sector. For example, in the telecommunications industry, network equipment must meet Network Equipment Building System (NEBS) standards before it can be installed in a service provider's network. This is a government requirement. Products that are not "NEBS-compliant" cannot be installed in the network. The NEBS standard has three levels of compliance to recognize the needs of the technology development process for service provider lab-based testing of new equipment. These three levels of compliance also recognize that the size of the risk of introducing equipment into the network is not the same across the network. So, for example, equipment that is at the periphery of the network does not need to meet the same exacting equipment as that in the network backbone.

CONCLUSIONS

The wide availability of ICT that is accessible to all could be achievable through a series of smaller steps. The fundamental strategy switch suggested is that of moving from pushing on the design-for-accessibility "rope" to one of creating pull for the results of accessibility design through a rebranding exercise focused on the design of ICT products and services that can be used Anywhere, Anytime, by Anyone.

As a journey, this will take many years to complete. When viewed in the light of the many years it has taken to get accessible buildings, the progress toward accessible ICT will be web years faster!