Access to digital information – the need for a change of paradigm

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Abstract: Many countries now amend their legislation to ensure accessible digital services to all their citizens. Until now there has been a focus on content providers to comply with guidelines, e.g. W3C Web Content Accessibility Guidelines 1.0/2.0. However, Single Object Design, as these guidelines encourage, will not give accessible content and services to all citizens. To ensure accessibility for all we need to move towards a Multi Object Design. This implies a change of perspective, addressing accessibility more from the receiver's end than from the position of the sender, emphasising the contextual, cultural, political and social aspects of the challenges.

Introduction

Web Accessibility has up till now been biased toward a sender's perspective on access to digital information. By ensuring that the syntactical aspects of the transmission of web pages are conforming to standards, the hope has been that new user groups (e.g. people with different kind of disabilities) will obtain the information as it turns up in the tools used for browsing. However, this is like adding the 110th channel to your TV guide: there is no guarantee that your preferences are met. Even if physical access is important, other aspects of contextual nature have to be considered to close the accessibility divide to digital information.

This paper will report on some of the trends and challenges in the domain of accessibility, based on the work in the European Union funded Learning Interoperability Framework for Europe (LIFE) project [1]. The project was set up to explore practice in e-learning interoperability, to identify the current state or art, trends and challenges in a number of areas relevant to learning, teaching and training. Many of these problems and challenges are also relevant to eGovernment services as well.

Accessibility to web services is more than satisfying W3C WAI recommendations

Discussions on accessibility to ICT systems have often been focusing on the needs of people with defined disabilities. Users may have problems with visual or auditory information; with perceiving existence and location of actionable components, status of controls and indicators and feedback from operations; they may be unable to invoke and carry out all actions including maintenance and set-up of systems, completing actions and tasks within the time allowed etc.; and they may have problems with security and privacy, not causing personal risk (e.g. seizure, etc.); and overall having problems with how to efficiently operate a product and understanding how it is used. Users may also experience problems operating assistive technology to control the product at hand. These, and other issues have been compiled by a Special Workgroup on Accessibility set up by the ISO/ICE JTC1 standardisation committee [2].

The importance of universal accessibility to Web resources is widely acknowledged. W3C's Web

Accessibility Initiative (WAI) has since 1997 developed guidelines which help to ensure that Web resources can be accessed by people with disabilities [3]. WAI has been highly successful in raising awareness of the importance of Web accessibility. However, the success comes with some adverse effects. The WAI guidelines play an important role in national legislation. This has raised the concerns of accessibility experts who see the danger of premature standardisation, and fear that complex issues are met with inappropriate actions.

Accessibility approaches

The current focus of content providers has been on what we call *Single Object Design*. The sender of information has been challenged with the task to encode every piece of information in such a way that the test of compliance to the WAI Guidelines is passed. This emphasis on what we would call Syntactical Accessibility is what drives different initiatives that deliver automatic testing. Often we see that these services are assigning a number of "stars" to sites indicating how "accessible" they are.

Automatic testing of sites does not necessary ensure accessibility. The sites are often designed to satisfy the tests, not necessarily the needs of the users. To design for accessible digital resources and accessible digital technology, we also need to look at Semantic and Procedural Accessibility.

For eGoverment services that are designed for all citizens it is important that these information services are usable and available to as many users as possible. Since most societies are multi-cultural and with many citizens with a native language other than the majority language there is a need to make sure that the eGovernmental services have a language and uses a vocabulary that are known and understandable by various groups of citizens. To ensure semantic accessibility a thorough user testing is needed, and different scaffolding tools would be of great help, e.g. translator services, explaining the terminology used in the native language for all members of the society addressing the cultural understand the user could relate to.

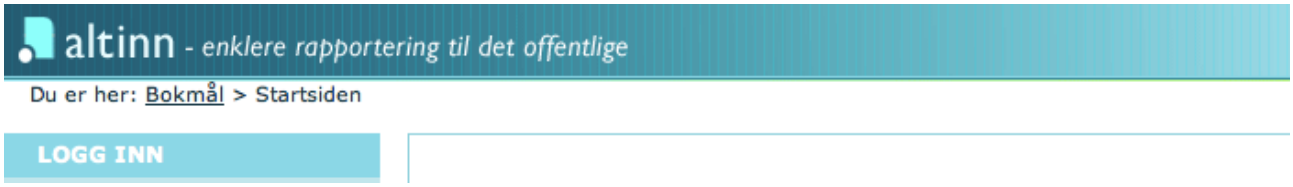
In most western countries the age profile of the population is changing and more and more elderly citizens are challenged with services that are difficult to predict how will operates and not easy to use. We call this perspective on accessibility *Procedural accessibility*. The Procedural accessibility is good if the positioning of information elements are consistent between web-sites, and the sequencing of actions are predictable and consistent. Procedural accessibility is also important for the group of users that have cognitive challenges of any kind.

This perspective is also important in the global competition between companies that have efficient on-line services such as on-line banking. To give an example: If we find four different on-line banking services in a market, and all of them have a complete different interaction scheme and design, this would have adverse effects on competition. When we eventually have learned to use the service of one bank, we would be reluctant to change to another because the effort it takes to learn a new one. With eGovernmental services where the citizen has no alternatives it is even more important to ensure good procedural accessibility.

When the user goes from one service to another there should be no need to learn a new interaction design and ponder the logic behind a new navigation patterns or an unexpected location of information on the screen. To demonstrate this we have visited some Norwegian governmental services: Regjeringen.no, brreg.no, altinn.no, oslo.kommune.no. rikshospitalet.no, nav.no. The screen shots of their mastheads shows a big variety in navigation principles:

Figur 1: regjeringen.no

Figur 2: brreg.no



Figur 3: altinn.no

Figur 4. oslo.kommune.no

Figur 5: rikshospitalet.no

Figur 6: nav.no

In a great number of domains a consensus has emerged on the design of "everyday things" [4]. Cars, airports, banking services, houses, etc. are designed according to certain *design patterns* [5] in a way that give people the possibility to find their way around, without preventing the design of new and unexpected solutions. Better procedural accessibility of Web resources will eventually emerge. To ensure access for all citizens, this process has to be speeded up.

The focus has been on Design for Disabilities, benchmarked by the WAI Guidelines. This approach could have adverse effects, resulting in less accessible information (ref. "designing to test"), and preventing the development of more holistic approaches [6].

In the Design for All paradigm we move from the sender's perspective to the receiver's perspective, and our focus will be on the individual needs and local cultural, political and social factors.

This shift of paradigm calls for new specifications, standards and guidelines to improve accessibility and interoperability of ICT systems. We will highlight one international standard that is ready to be published by the International Standards Organisation in the domain of learning, education and training [7]. This standard is an example of this approach.

Conclusions and Recommendations.

This paper argues that accessibility to ICT systems and digital services should be considered an important aspect of the challenge to eGovernmental services. With the proliferation of ICT applications and services, and the increase in global connectivity new constituencies use on-line services. If the service providers only design for shallow transformation of their Web content to pass automatic Web Accessibility tests that only are concerned with Syntactical Accessibility, neither old nor new users of the Internet will be fully served. This challenge calls for a new and more holistic approach to accessibility that is based upon the needs of the individual user. New accessibility standards in the domain of learning, education and training are now soon to be published that could allow individuals to state their preferences on a number of variables; and let the content providers tag their resources accordingly, so that a better match of targeted content and services could be made.

References

[1] LIFE project report, in press. See http://life.eun.org

[2]SWG-A (2006) Updated Report and Unser Needs Summary from Ad Hoc 4 to the September 2006 SWG-A Meeting, document number SWG-A N198, online at http://wwww.jtc1access.org/documents/swga_docreg.htm, accessed 2006-10-27

[3] W3C (1999) Web Content Accessibility Guidelines 1.0., online at http://www.w3.org/TR/WAI-WEBCONTENT/

[4] Norman, D.A. (1998) The Design of Everyday Things, Currency Doubleday

[5] Alexander, C., Silverstein, M. and Ishikawa, S. (1977) *A Pattern Language: Towns, Buildings, Construction (Center for Environmental Structure Series).* New York, NY: Oxford University Press.

[6] Kelly, B.; Phipps, L; and Howell, C. (2005) Implementing a Holistic Approach to E-Learning Accessibility, Paper presented to the Alt-C 2005 Conference

[7] ISO 24751 (forthcoming) - Individualized Adaptability and Accessibility in e-learning, Education and Training