CHAPTER 2

REVIEW OF LITERATURE

Since 1999, when the first W3C Accessibility document was released, a number of tools and approaches have emerged and are available to support Web developers evaluating Accessibility of existing Web applications. However, Accessibility has not yet gained enough recognition as a crucial non-functional requirement such as other quality factors. This situation may be due to several reasons, but probably, it had much to do with the way Accessibility was first introduced to Web developers -- i.e. by showing only its side committed with disabilities. This lack of knowledge within a developer’s community, prevented them from getting involved with the cause, and as a consequence, the work has been addressed mostly by Accessibility specialists and entities engaged with disability.

Primarily, services are enforced as Web Services that are outlined by the W3C as “Software systems designed to support practical machine-to-machine interaction over a network” (Hugo Haas 2004). It has an interface delineate in a very machine-process able format. Alternative systems act with the web service in a very manner prescribed by its description victimization SOAP-messages, usually sent victimization HTTP with an XML publication in conjunction with alternative Web-related standards shows in Hass et al, 2004. Extensible Mark-up Language (XML) has emerged as a strong self-describing language to alter businesses to share data and conduct transactions on the web. The emergence of XML as a typical, to an oversized extent, has driven the evolution of application integration technologies (Hess et al. 2004).

Accessibility is not just a high-level theoretical goal. Currently, there are guidelines that web developers can follow so that their web sites can be accessible. For instance, the Web Accessibility Initiative provides guidelines; called the Web Content Accessibility Guidelines (WCAG) to help developers make their websites accessible (http://www.w3.org/wai). The United States Government offers similar guidelines for web developers, which are included in the Section 508 initiative (http://www.section508.gov). In addition, automated software tools are available to help find accessibility flaws in web
sites before the sites are publicly posted. These software tools include Bobby, RAMP, InFocus, and A-Prompt (Ivory et al. 2003). In addition, new versions of web development tools (such as DreamWeaver and FrontPage) include tools that assist developers with accessibility-related issues. Given that the guidelines and tools are there, it seems hopeful that most web sites would be accessible. In fact, many governments make web accessibility a requirement for government information on the web. The United States, England, Canada, Portugal, and Australia require some types of government information to be accessible (Slatin and Rush 2003).

Unfortunately, most web sites are not currently accessible. Recent studies point out that large percentages (70–98%, depending on the category of site) of web sites are not accessible. For instance, in recent studies, private and non-profit web sites (Lazar et al. 2003), for-profit commerce web sites (Sullivan and Matson 2000), US state web sites (Ceaparu and Shneiderman 2002), and even US Federal web sites (Stowers 2002) were found to have major accessibility problems. In addition, over time, web sites are getting more inaccessible (Lazar and Greenidge 2006), as accessibility violations have been added to the sites.

The investigation of the perceptual experience of accessibility of Web developers has been an important target pursued by various research tasks.

The first large-scale survey on the perception of accessibility of developers and designers was held out by (Lazar et al.m2004). The main purpose of the survey was webmasters and Web developers. The participants were invited to participate through a Web questionnaire sent by e-mail to HCI-related lists. A total of 175 developers and Web site maintainers participated in the survey, 45% of them from the US. In this subject, most of the participants (65.7%) said that they have already created an accessible Web site; 73.7% indicated that they are familiar with Section 508. Around 78.9% stated that they know accessibility evaluation tools, and 69.1% have already used an evaluation instrument. Yet, merely 38.9% responded that they have already navigated the Web using a blind reader.
The main challenges for making a Web site accessible by people with visual impairments pointed by the disciplines were: the lack of consciousness of their guests, the tradeoff between accessibility and graphical plan, lack of time, lack of training and need for better tools to aid the evolution. When inquired about who are the main responsible for making a Web site accessible, 52% answered the webmaster should be in charge of this task, 30.18% suggested the system analyst, 34.9% pointed the programmer, 10.18% indicated the help desk manager and 31.63% pointed the office for special requirements. The participants suggested that the primary causes for preparing their Web sites accessible were governmental requirements, the purpose of the Web site by people with visual impairments, external support, and requirements from management or clients, training on accessibility and better instruments. It seems that the effects of this study may have a bias, due to the major participation of HCI-related people. This is the survey that indicates the most optimistic results found in the literature.

The second work, done by the ENABLED Group also involved a Web based questionnaire. Participants of the project and of the Health on the Net were invited to take part in the survey (http://www.enabledweb.org/public results/survey results/). A total of 269 subjects participate in the survey, 87% from North America. Roughly 29% of the participants were webmasters, 29% of a non-specified area, 21.9% was managers and 7.8% were content editors. Only 36% responded that they strain to make their Web sites accessible.

The main reasons pointed to this were the lack of knowledge on Web accessibility guidelines, lack of technical knowledge and lack of time. When asked about usability, 51% answered that they are concerned about it. The main reasons pointed by users that do not concern about usability were the lack of technical knowledge, lack of time and of usability skills. About 63% of the participants answered that they utilize tools to help in Web evolution. Dreamweaver and FrontPage are the most used tools, and HTML/CSS, PHP and ASP are the most used languages. About 41% of the subjects answered that they have an intermediate degree of programming skills and 37% claimed to present high level programming skills. Only 13% answered that had already got training on accessibility, mainly from the Internet, school or university and from friends. Approximately 74% responded that they would wish to have training on accessibility.
The main topics the subjects would like to be insured in a training track would be: the WAI (Web Accessibility Initiative), Web accessibility guidelines, usability and accessibility evaluation. It is possible to note that the chief goal of the survey carried out by the ENABLED Group (http://www.enabledweb.org/public results/survey results/) was to identify opportunities for providing training on usability and accessibility. Although the questionnaire received a multitude of participants, there was little variability in terms of user types.

The first research on the perception of accessibility with Brazilian developers was developed by (Tangarife and Mont’alv’ao 2006; Tangarife 2007). This study had the participation of 68 subjects, from 70 people invited by the authors by e-mail. The bulk of the subjects were male (75%), and about 61% were between 25 and 35 years old. Participants were from government organizations (57.35%). The main occupations pointed by the subjects of the survey were system designer (41.18%), programmer (25%) and Web designer (20.59%). Most of the participants (75%) had been working with Web development for more than five years, and nearly half (44.11%) saw themselves as experts in computing. Most of them (83.82%) also answered that they consider very important to go to a site accessible by whatever person.

The vast majority of the cases (94.11%) answered that they have never taken part in a project that involved accessibility. Most of the participants also responded that they do not know accessibility legislation: 82.35% do not know Section 508 and 81% do not know the Brazilian accessibility law. Roughly 80% of the subjects are not sure whether their Web sites are accessible or not. Some 49% replied that they know accessibility evaluation tools, but just 18% said that they actually use them.

Only 8.9% of the subjects answered that they have already evaluated a Web site using a blind reader. When inquired about the observation of accessibility in organizations, around 3% responded that their organizations have always considered accessibility, 31% that they currently consider accessibility, and 66% responded that the organization has never considered accessibility. The main reason for not considering accessibility was: budget limitations (32.35%), lack of expertise (32.35%), time (27.94%) and lack of accessibility awareness by managers (26.47).
accessibility was: budget limitations (32.35%), lack of expertise (32.35%), time (27.94%) and lack of accessibility awareness by managers (26.47%). Some 87% answered that they had never read the Brazilian e-government accessibility model (e-MAG) (http://www.governoeletronico.gov.br/emag). This study has been introduced many interesting results. However, the study presented, a low representation of Brazilian developers, and was only concentrated on few developers invited by the authors.

The second study with Web developers in Brazil was carried out in 2007 with governmental organizations (Ferreira et al. 2007). The primary goal of the survey was to determine whether governmental institutions are taking the Degree/Law 5, 296/2004 in the account or not. The study also required the evaluation of Web pages from federal, state and municipalities Web sites. Afterwards, in the evaluation of the Web pages, the responsibilities for each organization Web site was e-mailed with a questionnaire. A total of 87 organizations responded to the study. A percentage of 69% answered that they knew the Degree/Law 5,296/2004, 53% answered that they knew about the deadline for adapting their Web sites (December 2005) and 42% said that they knew the e-MAG. For the organizations that said that they had already built their Web sites accessible (22% of the total), 47% do not use an accessibility icon. Some 42% responded that their own staff had directed the adaptation process, 37% by an external team and 21% by other ways.

The greatest challenges to adapt their Web sites where the big quantity of information and lack of expertise. A percentage of 47% did that they had performed tests by users with disabilities. For the organizations that answered that were still adapting their Web sites (31% of the cases), and 64% had an internal team to carry out the procedure. The largest challenges to make the adaptations were the lowest priority of accessibility projects in their formations, big amount of info, lack of experts and too many standards to be observed. A percentage of 47% did that their Web sites are not accessible and they are not bringing in any accommodations. About 68% of them do not even have any plans for arriving to the adaptations. Some 83% answered that they do not know DaSilva (2007), a popular Brazilian accessibility evaluator.

The greatest challenges to implement accessibility pointed by these participants were: low priority of accessibility projects, lack of experts, and big amount of information to be
adapted. This work also makes really interesting results about the Brazilian panorama of accessibility development. However, the sample was restricted to governmental organizations. The four works demonstrated in this section show different aspects of accessibility awareness of Web developers. Although it is possible to see differences between the perceptual experiences of accessibility in different groups, it is not possible to arrive at any inference, as the sampling method for each case was very different.

The study performed in TamilNadu present important data about accessibility in organizations. Nevertheless, it is possible to detect that most of the participants were from governmental settings. Besides, both studies did not have a broad theatrical performance of the whole body politic. Any other issue related to these industrial plants is the fact that the variables were not designed properly to perform more demanding statistical analysis.

Web sites need to be accessible to all users, including those with disabilities. Given all of the resources available for making web sites accessible, it is unclear why they remain so inaccessible. Our goal is to learn more about why sites are not accessible. For the person that has the greatest influence on current-existing websites is the webmaster, the researchers decided to start the investigation with webmasters. The researchers created a survey to learn more about webmasters and their approaches and knowledge on the topic of web accessibility. The results of that survey are discussed in this paper. In addition, we have created a model, called the Universal Web Accessible Platform Model, which describes the various ways that accessibility flaws enter a web site. Our goal with this research is to increase the knowledge about why web sites are not accessible, so that we can make the web a more accessible place.

Service-oriented Architecture is beginning to fundamentally change the way in which enterprises deploy information technology IT to support business operations.

Inherently, a service may be a package part that contains a group of connected package functionalities reusable for various functions (Builder et al. 1999). It delivers such operations as information storage, processing, mathematical and scientific computations, and networking. It's ruled by a producer-consumer model during which a service is delivered by a service supplier, referred to as the producer that owns the facilities for
hosting, running, and maintaining the service, and the consumer, referred to as the buyer, that connects and uses service functionalities.

Service oriented Architecture perhaps an architecture for linking assets on demand. According to Piet Jan Baarda (2008), “Service-Oriented Architecture is an architecture style that enables the improvement of enterprise agility through the use of business services”. According to (ZakirLaliwala et al. 2006), Service Oriented Architecture is software architecture to enable loosely coupled integration and interoperation of distributed heterogeneous system by using the services as component elements.

Much of the research concerning SOA tackles a lot of granular technical problems with the development and implementation of web services, which can be a result of the said misconceptions (Hass et al. 2004). A few papers, e.g., (Ren and Lyytinen 2008; Papazoglou and Georgakopoulos 2003), traumatize the abundant larger downside of shaping what SOA suggests that to the organization and the way this definition ought to then give the steering for the event of parts to satisfy business data needs (Schulte et al. 2007).

The IT adoption literature targeting a technique for developing states that there is a unit five classes of things influencing the choice to adopt SOA, i.e., environmental, structure, individual, technology, and task characteristics (Teti 2006). These same factors ought to be self-addressed by the methodology for implementing SOA (Kwon and Zmud 1987). We tend to currently discuss two SOA methodologies that arrange to represent some or all of those factors.

Teti (2006) provides a technique, which entails making a vision, construction, and execution. He suggests that this model is applicable to several cameos, but however, specifically addresses SOA. The vision creation is driven by a variety of inter- and intra-structural problems that outline tasks necessary to the people and therefore the firm, i.e., the constituency; the development addresses the technology needed to accomplish the tasks; and execution seeks to make sure that SOA can facilitate data exchange within the atmosphere.
Bell (2008), provides an SOA methodology that takes a lot of technical approach. It professes that each one package are often thought-about as services that are designed to support the informational tasks of the organization, designed for transmission within the operating environments, created with offered technologies, and deployed to be used by people. The methodology represents an abstract structure that brings along distributed services that support the practicality Haines (2007).