Chapter XXV
A Framework for Accessible and Usable Web Applications

Lourdes Moreno
Carlos III University of Madrid, Spain

Elena Castro
Carlos III University of Madrid, Spain

Dolores Cuadra
Carlos III University of Madrid, Spain

Paloma Martinez
Carlos III University of Madrid, Spain

INTRODUCTION

Internet growth makes use feasible by an increased number of people around the world. For this reason, several approaches must be taken in order to get a universal access for all kinds of users, independent of their capabilities. Nowadays, it is difficult for disabledd people to use the Web in the same way as non-disabledd people, even though the use of this technology is a right for everybody and more in the public administration scope in which, a lot of services must be available for users and on a correct way.

Universal access may be obtained through the integration of usability and accessibility concepts in the software engineering discipline. To get the integration a user central design (UCD) (ISO 13407, 1999) lean on an inclusive design (Newell &Gregor, 2000), has to be required. These design methodologies consist of the possibility that every users, with independence of if they have disabilities or not, participate in all phases of the Web application development. These techniques imply that the accessibility is taken into account from the first development phases, so that disabled people will be able to access to each and

every one information technologies. In addition, the accessible applications design does not only benefit to disabled people but also for all users and developers, because, following accessibility guidelines, contributing to the scalability and using standards that will make easy the application growth and evolution (Moreno et al., 2005), we will obtain strong applications that will be easily re-usable.

Traditional methodologies in Web application design must be adapted including accessibility and usability. The integration of these concepts should be transparent to developers and must be seen as a usual behavior in Web application development.

BACKGROUND

The adaptation of new technologies in order to provide access for all users with independence of their capabilities and context of use, involves several actors as public administrations, enterprises, universities, the society, and so on.

To minimize digital barriers in the Web, development activities require collaboration among different expert groups and organizations. Administrations play a main role in this process; they must promote the universal accessibility with the aim to ensure equal bases in the access to the information for all citizens. To do this, they own several normalization and legislation tools (W3C, 2006).

Enterprises play an essential role because, if they do not fulfill the normative in their products, the universal access will not be possible. Some of leader enterprises in the technological market, as IBM, Java, Adobe, Microsoft or Macromedia, have their own initiatives but the use of *de facto* standards instead of universal standards is a mistake, due to the diversity of criteria.

The lack of accessibility standards makes difficult the proliferation of products and applications that would include disabled people, causing in some cases non-desirable market segmentations. To solve such accessibility issues, various efforts are underway worldwide. The W3C (W3C, 1994)

has promoted a Web accessibility initiative (WAI) (WAI, 2006) to publish the Web Content Accessibility Guideline 1.0 (WCAG 1.0) (WCAG, 2006a) in 1998. They are working in the 2.0 version hopping it will be available at the end of 2006, this new version will be a more easily applicable standard and includes several technological profiles called baselines (WCAG, 2006b) for Web sites and the level of accessibility for each one.

The WAI helps coordinate international Web accessibility efforts to bring together technical and human component considerations. WAI includes working groups to produce technical specifications that support accessibility: user agent accessibility guidelines (UAAG) (UAAG, 2006), authoring tool accessibility guidelines (ATAG) (ATAG, 2006) and evaluation tools.

WCAG is widely seen as a standard to which legislation and policy can refer, directly or indirectly. Nevertheless, these guidelines do not cover all situations, and resources may be inaccessible even when they conform fully to the guidelines (DDC, 2004).

Regarding to the legislation, there are examples in several countries that promote the accessibility for Web sites:

In Australia and the UK, there is a Disability Discrimination Act 1992 (DDA) (ADA, 1990). Web sites are not mentioned in the legislation in an explicit way, but it mentions the need to make accessible and usable services to disabled people and initiatives will be in the way to continue the WCAG by site developers. On the other hand, after a formal research study in 2004, the Disability Discrimination Commission of UK investigated the accessibility of Web sites concluding the need to extend WCAG because, in some cases, pages that did pass that WAI test were inaccessible in another way and almost certainly would have failed usability tests.

In the United States, the amendment Section 508 of the Rehabilitation Act (Department of Justice USA, 1998) arranges a set of rules for federal agencies in which the technology has to provide accessibility to disabled people. In simple terms, the legislation requires to be in accordance with the Section 508. Standards are not part of the

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