

# Evaluating Web Accessibility

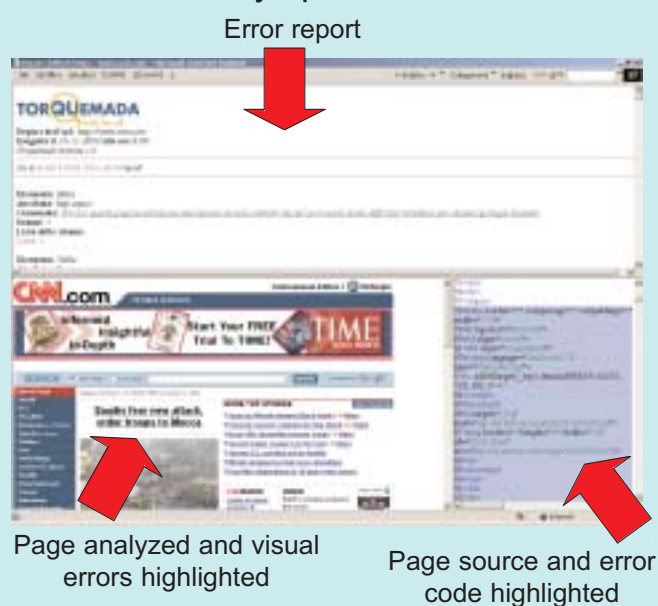
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Fondazione Ugo Bordonì is involved in accessibility research with its "Webxtutti" project ([www.webxtutti.it](http://www.webxtutti.it)), with the aim of studying and spreading problems and related solutions of web sites accessibility and usability. We developed a methodology for verifying accessibility of web sites, which includes three different phases: Automated testing tool, expert evaluation, and structured user testing. Automated testing tool is very useful since it carries out mostly of the heavy and boring work but it is technologically limited in the violations it can detect.

Expert evaluation is useful in order to identify problems that require informed human judgement and that cannot therefore be detected by an automated testing tool. Structured user testing, which involves real users in a real working environment in order to perform real tasks, allows to identify real problems with information design, structure and content, visual design and interactive features.

## AUTOMATED TESTING TOOL

Torquemada (<http://www.webxtutti.it>) is an automatic testing tool for accessibility, developed at Fondazione Ugo Bordonì. It is the first and only tool for accessibility completely in Italian and its aim is to help the spreading of the accessibility issue also in the Italian context. Torquemada can be freely used online from the page of the project Webxtutti. Torquemada runs 49 checks on the html code, following the WAI guidelines and returns a report where the line, the type and the visual appearance of each detected violation are clearly specified.



## EXPERT EVALUATION

Expert evaluation consists in the application of an analysis protocol made of 29 check points which inspects the accessibility problems that cannot be automatically discovered. An expert, i.e. someone who is familiar with accessibility guidelines, the nature of disabilities, assistive technologies used by disabled people, and the technologies used to create web sites, applies the evaluation rules scoring the web pages quality. The aim of expert evaluation is to have a precise picture of the problems that a site has with respect to accessibility.

1 Link shape and position analysis	15 Shortcuts
2 Text link analysis	16 Dynamic elements
3 Navigation bar analysis	17 Dynamic elements description
4 Persistent appearance web site analysis	18 Blinking, flickering and freezing features analysis
5 Web site orientation	19 Time related features analysis
6 Search engine evaluation	20 Pop up windows analysis evaluation
7 Web site structure and navigation helps	21 Frames evaluation
8 Accessible version evaluation	22 Information architecture
9 Images analysis	23 Colors quality evaluation
10 Imagemaps	24 Style sheet evaluation
11 Audio and video analysis	25 Readability
12 Critical technologies turned off	26 Tables accessibility
13 Critical technologies and navigation without mouse	27 Layout tables
14 Navigation without mouse	28 Linearizable tables evaluation
	29 Forms evaluation

## STRUCTURED USER TESTING

We developed an experimental methodology which tests web accessibility and usability through several tasks that disabled users should carry out. The metrics used are accessibility, site structure comprehension, information reaching through navigation or by using a search engine. The evaluation concerns 4 different aspects:

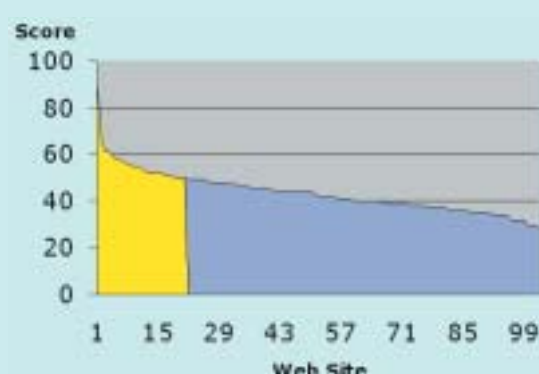
- whether a page can be reached
- accessibility of web pages
- search through navigation
- search through a search engine

The experimental findings emphasize the following critical problems with respect to accessibility:

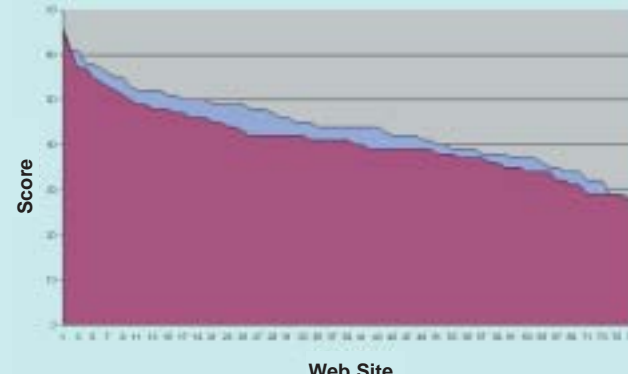
- Structure of pages (lack of separation between form and content)
- Quality of colours and scalability of characters
- Images
- Clarity of language
- Navigation aids
- Search engines
- Critical technologies

## Annual Report on accessibility of Italian public web sites

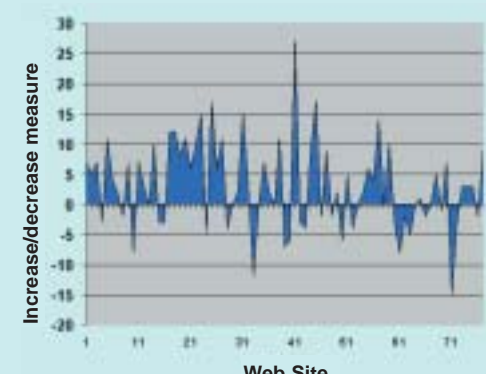
The accessibility of public web sites is still very poor as indicated in the Fondazione Ugo Bordonì Annual Report, presented in June 2003. The Annual Report analyzes 102 Italian public web sites (77 public administration – 25 public services). The results state small improvements with respect to the 2002 situation.



Only 20% of the sites went beyond a minimum quality threshold (a score of 50 out of total 92 points). This means that users can reach information in only 20% of the sites even if with some difficulty.



Comparison between 2002 and 2003 evaluations of public web sites: data in 2003 indicate a small improvement with respect to the situation in 2002.



Detailed analysis of increase or decrease of the quality for a single web site

## Projects in progress:

- The English version of Torquemada
- An online interface for the expert evaluation
- Accessibility evaluation of online services delivered by Public web sites
- An automatic generator of accessible forms
- An accessible online campus for blind people
- New structured user tests