Certification or conformance: making a successful commitment to WCAG 2.0

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ABSTRACT

The need for accessible websites is well recognized and the accessibility guidelines (WCAG 2.0) provide an important benchmark standard for measuring progress of eGoverment and commercial websites. This study was commissioned by ANEC and aimed to examine the effects of voluntary and third party certification schemes on actual conformance with web accessibility standards.

A sample of 100 websites claiming voluntary or certified conformance to accessibility standards were selected from 5 European countries. In a combination of automatic tests and manual inspection it was found that simple measures of numbers of passes to WCAG 2.0 level A were highly disappointing. Closer inspection of the results revealed that a limited number of criteria at level A accounted for more than half the failures. These individual failures at level A tend to mask the commitment made by development teams to meet the needs of disabled users. Clearer processes are needed to identify and resolve these persistent barriers in order to support web development and achieve better and more consistent conformance to accessibility guidelines.

Categories and Subject Descriptors

H.5.2 [User Interfaces - Evaluation/methodology]; K.4.2 [Social Issues - Assistive technologies for persons with disabilities]

General Terms

Measurement, Design, Human Factors, Standardization, Verification.

Keywords

Accessibility evaluation, WCAG 2.0

1. INTRODUCTION

Building, developing and maintaining websites for national and government departments and other public and commercial bodies represents a serious commitment by those organizations to make information publicly available. Increasingly there is a complex exchange of information, for example: to make applications for services, or to submit tax returns, and a growing trend to using multimedia. It is important that the information content and interaction is equally available to all citizens.

Translating higher level principles of equality of access into accessible websites that meet pan-disability requirements can be challenging. Some people benefit from relatively minor changes, for example to ensure adequate contrast, while others need robust solutions that support the use of assistive technologies such as head-pointers, and screen readers. The World Wide Web Consortium (W3C) has supported the development of accessible websites through the Web Accessibility Initiative (WAI) and the Web Content Accessibility Guidelines (WCAG) in 1999 [8], which was revised and updated as WCAG 2.0 in 2008 [1].

Three large scale accessibility evaluation studies in Europe have revealed a generally low level of compliance with web accessibility guidelines [4, 6, 7]. Two of these studies were part of Measuring Progress of eAccessibility programme (MeAC) [6, 7], and tested leading government and commercial websites in Europe to WCAG 1 [9].

> "Of all websites checked, only about 3% passed the full range of level-A automated and manual checkpoints in 2008 and 20% passed the automated test but failed those checkpoints that can only be tested manually." [7]

The third study [4] examined adoption of WCAG 2.0 and revealed a lack of progress towards adopting or passing WCAG 2.0 criteria.

Some European countries offer third party certification schemes which provide an independent assessment of conformance. In principle this should lead to better quality control, however, these use different evaluation processes which relate to different national contexts and thus the results may not be wholly comparable.

The developers of websites that are compliant with WCAG 1.0 or 2.0 can make a voluntary declaration of conformance and display appropriate logos. The process for claiming conformance and displaying logos is defined within the Guidelines, however, there is no monitoring process to test the accuracy of these claims.

The previous studies made no mention of whether the websites made any claim of conformance to recognized accessibility guidelines. A preliminary inspection of some of the web addresses used in the previous studies suggested that there was a low level of declaration.

A study was commissioned by ANEC to examine the impact of certification and voluntary declaration of conformance and particularly how many websites were in reality complying with web accessibility standards. The study is reported in full [5], and the results show a disappointingly high incidence of failures at

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WCAG 2.0 level A. These results detract from the efforts made to achieve higher levels of conformance and overall improved accessibility. Within this paper we examine some of the results in relation to individual success criteria in order to better understand the causes of failure and indicators of commitment to accessibility. We discuss the need for both schemes, the need for an ongoing commitment to maintaining accessibility conformance and the need for recognition of best practice.

1.1 Conformance to international guidelines and certification

The development and evaluation of accessible websites is supported by the internationally recognized guidelines of WCAG 1.0 and 2.0. The Guidelines have been embedded into national laws and frameworks, applied via national certification schemes and have an increasingly important role in procurement. For a webpage to conform to WCAG 2.0 [1] it is necessary that the content satisfies all the success criteria. These are organized into four core principles of perceptibility, operability, understandability and robustness, with three levels of conformance. WCAG 2.0 makes the recommendation that organizations should work towards compliance with AA standard. Optional self-declaration of conformance to the Guidelines is supported through advice on evaluation and rules by which the website can display the WCAG logos.

Within Europe there continues to be differences at the national level in legal and regulatory frameworks (Appendix 2) despite the general commitment to promote and ensure accessibility of public websites in Europe by 2010 within the Riga Agreement, and the call for the private sector to do likewise [8].

For the purpose of this study, we identified five countries having an established regulatory framework and recognized certification schemes [2, 4]. These were found to use different methodologies largely based on WCAG 1 [8] with different on-going plans to update to WCAG 2.0 [1].

2. SELECTION PROCESS

It was a priority of the study to identify an equal number of websites that were certified and self-declared in order to support comparison. A further key element of the study was to engage with the European perspective by selecting websites from 5 countries: Germany, Italy, Netherlands, Spain and UK.

A large initial sample was collected using a variety of selection strategies including examining the list of major national government and commercial websites previously examined in the MeAC studies [6, 7], the directories of the certification bodies, a European directory of standards compliant web developers, and a backlinking search tool to identify websites providing embedded links to WCAG compliance logos.

The initial sample was examined and used to create a final sample of 100 websites, consisting of 76 government or similar public bodies and 24 commercial websites.

3. METHOD

Ideally, evaluating website accessibility should include manual inspection and live testing by people with different disabilities. However previous large scale benchmarking studies such as MeAC [6, 7] have used a combination of automatic test tools and manual inspection and that strategy was adopted here.

WCAG 2.0 criteria were used as the benchmark in order to achieve consistency and to facilitate comparison of the results. For the initial automated evaluation process we chose a professional automatic tool (SortSite) that uses over 100 testpoints derived from WCAG 2.0 level A and AA success criteria and the related documentation in Techniques and Failures for Web Content Accessibility Guidelines 2.0 [3]. The tool was set to select 25 pages for automatic inspection.

A pass threshold was established of ten or less failed testpoints and those passing the threshold were submitted for manual inspection. The automatic results were used with minimal human intervention, however some intervention was needed to eliminate false results and duplications where several testpoints identified different aspects of the same failure.

During manual inspection five pages were selected for further investigation including the home page and pages where the automatic tool had identified errors.

During manual inspection the failed testpoints were located and mapped to WCAG 2.0 success criteria. These more detailed results were used in a secondary analysis to determine which success criteria and common failures were causing most difficulty.

Subsequently the home pages of the manually tested websites were inspected to identify key design features impacting on accessibility.

ANEC additionally contacted the websites tested and invited the developers to complete a questionnaire to further investigate the reasons that motivated them to comply with web accessibility standards, and the problems they have encountered in doing so.

4. RESULTS

The selection process revealed a notable difference between certification and self-declaration, in particular that it was much easier to find certified websites because of the detailed directories provided by the certification bodies.

From the initial sample of 100 websites, 76 were government or public body websites and 74 of these were inspected using the automatic tool. Two were omitted due to technical difficulties.

From the automatic tests, just two of these websites were found to pass at the recommended level AA and a further one website passed at level A, all three were self declared, carrying either the WCAG logo or provided a strong statement of accessibility policy. Following manual inspection, it was found that two websites passed the manual inspections at WCAG 2.0, at level A only. Both of these government websites were certified by their national certification body.

There were substantial differences between the government websites and the smaller number of commercial websites. Only two out of 24 met the selection threshold following the automatic testing and none of the commercial websites passed the manual inspection for WCAG 2.0 level A.

Focusing on the results for the Government and public bodies, as shown in the Table [1], 3 websites (4% of this sample) passed all automatic testpoints to WCAG 2 level A or AA. Nearly a third (31%) achieved the threshold for manual inspection. The final third (32%) of the sample failed 21 or more testpoints. The results for the self declared sites are more varied – the best 3 sites having no failed testpoints, and the worst 14 sites failing 21 or more testpoints (37%).

Table 1. Results of automatic tests of government and public body websites

Automatic testpoints passed/failed	Certified	Self declaration	Total % n=74
Pass WCAG 2.0 A	0	3	4%
Fail 10 or less testpoints	12	8	27%
Fail 11-20 testpoints	15	12	36%
Fail 21 or more testpoints	10	14	32%

Following manual inspection of 23 government and public body websites, just two were found to pass all checkpoints at WCAG 2.0 level A only. Both were certified, one by PubbliAccesso, Italy and the other by Drempelvrij, Netherlands. None of the eleven self-declared sites passed all manual checkpoints.

Most websites failed multiple criteria with an average of just over 4 failed criteria per website. The average for the certified websites was better at 3.6 compared to 5 for the self-declared websites. Taken together, the certified websites failed 15 different criteria, slightly less than the self declared websites which failed 18 criteria.

As shown in Table 2, five criteria at WCAG 2.0 level A were found to account for half of all failures. In particular, more than half the websites failed the success criteria 1.1.1 (Text equivalence). The expert evaluator noted that multimedia and third party elements accounted for many of these problems.

The next three most commonly failed criteria (Criteria 1.3.1 Information and relationship, 2.4.4 Link purpose and 3.3.2 Labels) all make demands for appropriate text labels for control function or links. The expert evaluator noted that the fifth criteria (4.1.2 Name, role value), was usually found in relation to form design and the design of search boxes.

Some design elements thus appeared to have a negative effect on the results. The home pages of 22 sites were reviewed, and it was found that many (14) provided links from the home page to multimedia content, commonly through a third party provider. Most (17) had a search box or other form element on the home page. In many instances these home pages were portals to other government departments and the structure of the page was complex with most (18) having three or more columns with multiple links.

Table 2 Top 5 failed WCAG 2.0 level A criteria

WCAG 2.0 level A criteria	Number of certified websites failing this criteria	Number of self declared websites failing this criteria
Text equivalence: 1.1.1	6	7
Information and relationship: 1.3.1	4	5
Link purpose: 2.4.4	3	6
Labels: 3.3.2	4	5
Name, role, value: 4.1.2	3	5

In continuing to support accessibility most (16) had links from the home page to an accessibility policy statement, and all provided breadcrumb trails on inner pages. Visible 'skip to content' links were common but some were hidden and some were found to be broken while font size widgets were rarely provided.

There were 10 responses to the follow-up questionnaire of which 9 were government and public body websites. Eight of the websites reported that they had modified or updated their pages since the study was carried out in 2010. All of them claimed to have done so taking into account web accessibility standards. Among the reasons which made them choose to improve accessibility, 4 responses referred to legal duties and alignment with policy, and 3 mentioned the importance to be accessible to the entire community. Finally, among the difficulties found when implementing accessibility standards, 3 responses stressed that often third parties documents, applications, and or services were not accessible. One response mentioned the lack of know-how of IT personnel and another website referred to the tension between accessibility and design.

5. DISCUSSION

Overall, the high incidence of failed criteria masks any differences between the certified and self declared websites in sites in terms of pass rates. These results were very disappointing, however a more detailed inspection suggested that there was a strong commitment and understanding of accessibility issues. We further discuss contributing factors.

5.1 Certification to national standards

The certified websites were selected from 7 certification bodies in 5 European countries each with different national requirements and applies different strategies. Notably, the certification schemes in Germany and the Netherlands, use a scoring system that has a pass threshold.

In order to provide consistent and comparable results the selected websites were all tested to WCAG 2.0. It would be reasonable to expect that a small number of errors would arise from differences between the test methods used by the certification bodies and those used in this study. However all certified websites should be achieving greater conformity to the fundamental level A criteria.

5.2 Voluntary conformance declaration

Half the websites made a voluntary declaration of conformance and about half of these (26) referenced WCAG 1 A or AA. Over a quarter (14) referenced WCAG 2 A or AA. The remainder (10) did not display a logo but had previously been included in the MeAC studies and provided a strong statement of activities undertaken to meet accessibility requirements.

The results of the self declared websites are enhanced by the performance of these statemented sites. Five of these, which were all government of public bodies, passed the selection threshold for manual inspection and the best three failed only 4 criteria each.

5.3 Specific success criteria

Five WCAG 2.0 level A success criteria accounted for a half of all failures. Around half the websites were found to fail criteria 1.1.1. This is a complex requirement which extends beyond the need to label pictures with appropriate 'Alt text'. Reasons for failures included inappropriate provision of 'Alt text' to non-relevant graphics and failures to appropriately label images used as links, buttons and controls.

Some features led to multiple failures. A common design feature is to attract attention to an important link by using a picture or icon with text. If done incorrectly this duplication causes confusion to screen readers, and failure to success criteria 2.4.4 as well as possibly 1.1.1 and 4.1.2. [3].

Most of the websites offered a search box or other form to fill in. Search boxes are important navigation aids for screen reader users and completing an online form is an important common goal for using a government website. Multiple accessibility challenges can occur if the label or title element of the input field is not properly associated and accounted for many of the failures of 1.3.1.

Despite these failures at level A, some of the websites met higher level criteria and all provided a breadcrumb trail to support navigation which is a technique that meets the AAA criteria 2.4.8.

5.4 Website complexity

All sites provided both text and graphic elements and many offered multimedia and interactive forms, held within complex layouts. Provision of accessibility features included audio output, sign language content and multimedia. The experiences of web developers who are at the leading edge of improving access to eGovernment content by all citizens should be recognized. In the responses to the survey most respondents indicated they were motivated to support accessibility either by legal requirement or by the ethical commitment to communication with all citizens.

6. CONCLUSIONS

Accessibility conformance claims are important signals of trust that a website consistently meets recognized guidelines.

In this study, all the websites claimed conformance and the best performing websites showed some commitment to meeting accessibility standards but very few were error free. Future European benchmarking studies to measure progress of accessibility should in future consider the conformance claims.

Clearer processes are needed to identify and resolve persistently failed criteria especially those at the most fundamental level A. The results of this study indicate that a small number of criteria are causing a disproportionate number of failures and it is suggested that significant improvements could be achieved by prioritizing these with practice based solutions.

Certification bodies have an important role to play, leading the way to improved harmonization in Europe, adopting WCAG 2.0, helping to identify problem areas and investigating consistent, evidence based, best practice solutions. On its own, certification cannot guarantee that a website is fully accessible to an individual disabled person, or that all pages continue to meet all current guidelines.

The voluntary declaration of conformance is an important alternative to certification and in this study was no less reliable than the certified websites. Despite the lack of external monitoring of quality and the danger of false claims undermining trust it would appear that commitment on the part of the developers was a strong indicator of success. Continued commitment is need to ensure that quality of conformance is maintained throughout the website life cycle of updates, revisions and additions.

Now, nearly four years on from the publication of WCAG 2.0 it is time to learn from the current body of experience and develop more harmonized approaches to accessibility across the European partners. It is time for all developers in the government and commercial sectors to successfully move to level AA criteria, and to address the emerging new challenges of interacting with complex information content.

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