

**Comparison of accessibility evaluations carried
out by eGovMon and norge.no**

Deliverable number D2.1.1



Version: 1.0 (*English*)
Date: 2008-12-09
Authors: Annika Nietzio, Morten Goodwin Olsen, Lasse Berntzen
Dissemination Level: Public
Status: FINAL

License:

This work is licensed under the Creative Commons Attribution-ShareAlike License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/2.5/> or send a letter to Creative Commons, 543 Howard Street, 5th Floor, San Francisco, California, 94105, USA.

This document consists of 13 pages including this cover

Version Control

Version	Status	Date	Change	Author
0.1	DRAFT	2008-11-11	Initial draft	Annika Nietzio
0.2	DRAFT	2008-11-13	Elaboration of chapter 3 "Questions & Answers" and 4 "Conclusion"	Annika Nietzio
0.3	DRAFT	2008-11-18	Revision after inspection by Morten Goodwin Olsen, Rudolph Brynn, Lasse Bertzen and Ahmed A. A. S. AbouGhonim	Annika Nietzio
0.4	RC	2008-11-20	Update with comments from DIFI/norge.no (Frank Fardal) Additional input from Morten Goodwin Olsen	Annika Nietzio
0.5	RC	2008-11-21	Minor updates after comments from Lasse Berntzen	Annika Nietzio
1.0	FINAL	2008-12-09	Translation of norge.no criteria (Appendix). Updated Link to eGovMon accessibility checker.	Annika Nietzio

Table of Contents

- 1 Introduction.....3
 - 1.1 The eGovMon project.....3
 - 1.2 Scope of this document.....3
 - 1.3 Acknowledgements.....3
- 2 A closer look at the approaches.....4
 - 2.1 How does eGovMon evaluate web accessibility?.....4
 - 2.2 How does norge.no evaluate web accessibility?.....4
 - 2.3 Comparison of test criteria.....5
 - 2.4 Publication of results.....5
- 3 Questions and answers.....6
 - 3.1 Accessibility evaluation.....6
 - 3.2 Scores and ranking.....6
 - 3.3 Improvement of your web site.....7
- 4 Conclusions.....8
- 5 Background material and references.....9
- 6 Appendix.....10

1 Introduction

1.1 The eGovMon project

The eGovMon is currently developing a prototype implementation of a large scale observatory for benchmarking eGovernment services. The online resource will provide an up-to-date assessment of the current eGovernment implementation, with access to past results, and allow for reflection of the progress so far and exploration of future trends. eGovMon will assess eGovernment services with respect to their:

- Accessibility
- Transparency
- Efficiency
- Impact

A set of well defined indicators will be identified for each area, using a coherent assessment methodology. To develop and maintain the measurement framework, an open, participatory, and inclusive process will be established.

Evaluation results will be gathered through automated tools, when possible, and supplemented by surveys and manual assessments. All project results are released under an open license, and all software is open source.

1.2 Scope of this document

The public agency norge.no runs a quality assessment of governmental and municipal web sites in Norway once a year. The results are always eagerly anticipated. One out of three sets of criteria used in the assessment addresses the accessibility¹ of the web sites.

The first eGovMon prototype also evaluates the accessibility of Norwegian public web sites.² This document presents a comparison of the two approaches and tries to answer some frequently asked questions.

1.3 Acknowledgements

The authors would like to thank Frank Fardal from DIFI/norge.no, who provided helpful comments to this report and answered our questions about the norge.no methodology.

1 The Norwegian word *tilgjengelighet* has a broader meaning than the English *accessibility*. It can also refer to availability.

2 Surveys of transparency, efficiency, and impact are planned for the future.

2 A closer look at the approaches

2.1 How does eGovMon evaluate web accessibility?

eGovMon monitors the accessibility of a web site in a fully automated way. A web crawler collects a list of all pages that are publicly available on the web site (in a similar way as Google does). If a part of the site requires the user to log in with a password, the crawler will skip that part, since it can not interact with a password entry field.

Subsequently, up to 600 web pages are selected from the list at random. If this site consists of less than 600 pages, all are selected. In this way eGovMon gets an overview of the situation on the site as a whole.

Then the accessibility of the selected pages is checked. The eGovMon accessibility module contains 23 tests. The outcome of the tests is presented as a percentage value: 0% = no test failed, 50% = half of the tests failed, 100% = all tests failed. Note that this is the exact opposite of the norge.no results where 100% is the best result. Finally, the results are sorted into five score card categories. The threshold values are shown in Table 1.

Score card		Percentage of failed tests
Letter	Colour	
A		0 %
B		1 – 10 %
C		11 – 25 %
D		26 – 50 %
E		51 – 100 %

Table 1: Threshold values of eGovMon scores

2.2 How does norge.no evaluate web accessibility?

The norge.no evaluations are carried out every year, usually in September and October. Each Norwegian public web site at governmental and municipal level is evaluated by an expert. On average, the review of a web site takes about one hour. Twelve of the 34 indicators address accessibility.

Most tests are applied to two or three pages from the site. Sometimes the whole site is searched for certain features (e.g. data tables, documents in other formats). A failing test scores zero point. The maximum number of points for a test ranges from two up to five. The overall rating reports which percentage of the maximum number of points has been achieved. These percentage values are then mapped to stars as shown in Table 2. The threshold values are based on a Gaussian distribution for one to five stars, with six stars as an "extra level".

<i>norge.no star rating</i>	
6 stars	80 – 100 %
5 stars	70 – 79 %
4 stars	58 – 69 %
3 stars	43 – 57 %
2 stars	31 – 42 %
1 star	0 – 30 %

Table 2: *norge.no star rating*

2.3 Comparison of test criteria

This section compares the norge.no and eGovMon test sets. It is based on the 2008 version of the norge.no set of criteria [1]. Note that accessibility is only one of three groups of criteria in norge.no.

The eGovMon test set contains 23 tests, which are derived directly from the Web Content Accessibility Guidelines (WCAG) 1.0 [2]. It covers priorities 1 and 2. Checkpoints of priority 3 are not included. The test procedures have been developed by the Web Accessibility Benchmarking Cluster (WAB Cluster) and are described in the Unified Web Evaluation Methodology (UWEM) [3]. UWEM contains 140 test but most of them require human judgement and can not be carried out in a fully automated process.

The norge.no criteria are developed by DIFI (Agency for Public Management and eGovernment) and are revised every year. They are also based on the WCAG. In norge.no there are 12 accessibility tests.

- 1 test is part of both norge.no and eGovMon. (1.11)
- 4 tests are covered partially by eGovMon (1.1, 1.3, 1.5, 1.9)
- 3 tests are not covered by eGovMon because they are related to WCAG checkpoints of priority 3 (1.7, 1.8, 1.10)
- 2 tests are not covered by eGovMon because there are no automated methods for these tests (1.4, 1.6)
- 2 tests are not covered by eGovMon because they are not directly related to the WCAG 1.0 (1.2, 1.12)

A detailed comparison of the test sets can be found in the Appendix.

2.4 Publication of results

Norge.no has introduced an additional quality assurance feature. Before the official publication of the results, the web sites owners get the opportunity to review their rating. They can send in feedback and complaints if they think the results are not correct. The affected web sites are then reassessed and the results updated, if necessary.

The eGovMon project is still in an early phase. Currently, the evaluation results are not presented to the public. The findings are sent to the participating municipalities for their internal use. For the future, we consider to establish a feedback process similar to that of norge.no.

If you have any comments or questions regarding the data you receive from an eGovMon evaluation, please send an email to maintainer@egovmon.no.

3 Questions and answers

3.1 Accessibility evaluation

The norge.no evaluation is carried out by a team of experts. eGovMon uses a fully automated approach. Both methods have their advantages and shortcomings.

- **What are the advantages of manual web accessibility evaluation?**

Human experts can check many different aspects of web accessibility; including those that can't be tested by a machine. For instance they can decide if textual alternatives for images and multimedia content are appropriate and useful. They can verify that the meaning of the content reflected in its structure (via headings, lists, quotes, data tables). To make sure that the web site is operable with only the keyboard, or with a mouse and other assistive technology, a human tester can explore the interaction options of the web site. Difficult cases can be judged at the discretion of the evaluator.

- **What are the advantages of automated web accessibility evaluation?**

Due to the high level of detail, a manual evaluation of web accessibility takes much more time and effort than an automated assessment. Only a small number of pages can be tested by one person. In contrast, automated checks can cover all much larger number of web sites and also a larger number of pages per site. The process can run with a minimal amount of human supervision. The low cost allows more frequent re-assessments of the web sites. Single pages can even be tested with immediate feedback. You can try out the eGovMon eAccessibility checker at <http://accessibility.egovmon.no/>.

3.2 Scores and ranking

We have shown in section 2.3 that the indicators used by norge.no and eGovMon differ. There are also differences in how the single results are added up into one overall rating.

- **How can the results of norge.no and eGovMon be compared?**

Only the accessibility component of the norge.no percentage score should be considered in the comparison because usability and content are not covered by eGovMon. In norge.no a higher percentage corresponds to better accessibility whereas in eGovMon it is the other way around: a high percentage corresponds to a high number of potential barriers and thus to poor accessibility.

- **Why are the results different?**

The two ratings differ considerably in the number of pages on which they are based. Whereas norge.no checks only a few pages of each site, the eGovMon tool tests up to 600 pages and is therefore much more likely to discover potential accessibility problems.

Both approaches have selected a subset of all possible indicators of web accessibility. There is some overlap but the emphasis is put on different parts.

- **My web site does well in norge.no but the eGovMon rating is only average. Why?**

Such a situation has to be considered as the case arises. There is no general explanation. Possible reasons behind the different ratings might be:

- eGovMon has evaluated more / different pages from the web site.
- The web site has been optimised to get a good norge.no rating.
- eGovMon counts every failed test. If there is one indicator that got a bad results and this indicator occurs very often, the outcome will be severely affected.
- The eGovMon software encountered problems during the evaluation of the web site.

3.3 Improvement of your web site

The goal of both the norge.no and the eGovMon approaches is to provide an incentive for the improvement of Norwegian public web sites.

- **How can I improve my eGovMon rating?**

Improve the accessibility of your web site (see next question).

- **What can I do to improve the accessibility of my web site?**

Start out from the detailed reports and try to fix one problem at a time. Some issues might require changes in the work flow of content production (e.g. training the editors to produce more accessible content). While other issues have to be addressed by the web site developers (e.g. changing from layout tables to a flexible CSS layout). The detailed report provided by eGovMon contains more information on the technical issues. The preliminary reports from norge.no, which are sent out for quality assurance, include detailed comments on each indicator. You can also get more feedback from an accessibility consultant. And last but not least, listen to the users of your site and provide a way for them to report any problems they encounter.

Further information can be found in the set of brochures published by the Deltasenter. They cover production of content, design and development, and procurement and quality control of accessible web sites [4].

- **Will improving the eGovMon rating also increase my norge.no result?**

An improvement of your eGovMon rating can result in a better norge.no score but there is not necessarily a direct impact. For instance if your improvements were made on pages deeper down in the hierarchy, that are not checked by norge.no. However, the accessibility of your web site will certainly benefit from the improvements.

4 Conclusions

Accessibility is an important part of web site quality. Especially for web sites offering public information and services, the objective must be to enable all citizens who want to use the web site to do so according to their own needs and preferences. Universal design (e.g. valid html code, meaningful structure, consistent navigation, clear language) is beneficial for all users.

It should be noted that neither six stars (100% on the accessibility criteria) from norge.no nor a green score (0% barriers) in eGovMon are a guarantee of full accessibility. Both evaluations cover only a small part of the tests needed to confirm the accessibility of a web site. Therefore further testing and clear requirements during the design and implementation phase of a web site are necessary. Once a web site has been launched it is crucial to keep an eye on accessibility as the site is maintained and extended. For instance, by prompting editors who enter new content items to verify that images have alternative text, language changes are marked properly, links have descriptive titles, and so on. Ideally, this step should be integrated into the content production work flow, e.g. in the Content Management System (CMS). Also putting together a user panel that identifies barriers can ensure better accessibility of the web site.

eGovMon and norge.no share the same overall goal. We want to promote universal design, because it is beneficial for all users of the internet, and we want to raise awareness for the importance of accessible web sites. The secondary goals of the two approaches are slightly different. Norge.no concentrates on a few indicators and awards extra points for use of good practices (e.g. font size widget, skip links, no frames used). eGovMon is oriented toward a (technical) assessment of WCAG 1.0 conformance. It aims to identify as many potential barriers as possible. In this way it can provide support to the developers working on the improvement of the web site.

By taking into account the findings of both approaches web site owners can identify the areas which have most room for improvement.

Closer collaboration of norge.no and eGovMon is envisaged for the future. The new version 2.0 of the Web Content Accessibility Guidelines (WCAG 2.0) is almost completed. It is expected to become a W3C recommendation (i.e. a web standard) in December 2008. Generally speaking, web sites that are accessible according to WCAG 1.0 are going to be accessible with regard to WCAG 2.0 as well. The new guidelines are technology independent. There will be a wider range of options in the design and implementation of accessible web content. New indicators are needed to assess the new techniques and identify good practice examples. Norge.no and eGovMon are planning to tackle this challenge together; possibly via the integration of automated evaluation as part of the norge.no data collection.

5 Background material and references

- 1: Norge.no, Kriteriesett, 2008,
<http://www.norge.no/kvalitet/kvalitet2008/kriteriesett.asp>
- 2: W3C, Web Content Accessibility Guidelines 1.0, 1999,
<http://www.w3.org/TR/WCAG10/>
- 3: Web Accessibility Benchmarking Cluster, D-WAB4 Unified Web Evaluation Methodology (UWEM 1.2), 2007
- 4: Deltasenteret, Tilgjengelige nettsteder, 2006,
http://www.shdir.no/deltasenteret/universell_utforming/ikt/internett/

6 Appendix

The tables 3 and 4 below present a comparison of the sets of criteria and show how the tests of norge.no and eGovMon are related.

	norge.no	eGovMon	comment
1.1	Does the web site provide alternative text for images (alt text)?	Partly covered by 1.1_HTML_01.	Appropriateness of alternative text can't be tested automatically.
1.2	Is the content accessible when colours are not shown?	Not covered.	This test is beyond WCAG 1.0. It is not aligned with WCAG 2.0 (G183).
1.3	Does the web site provide documents in other formats (PDF or ODF)?	Covered by document format statistics.	Not related to WCAG 1.0, the accessibility of other document formats is not checked!
1.4	Are data tables marked up correctly?	Not covered.	Data and layout tables can't be distinguished automatically.
1.5	Does the web site use frames? If yes, are the frames coded in such a way that barriers avoided?	Partly covered by 12.1_HTML_01.	Appropriateness of title can't be tested automatically.
1.6	Do navigation and search functionality of the web site work without any browser plugins?	Not covered.	Javascript and Flash are not covered by eGovMon.
1.7	Is the colour contrast sufficient?	Not covered.	CP 2.2 has priority 3 in WCAG 1.0.
1.8	Does the web site provide skip links to the important parts of a page?	Not covered.	CP 13.6 has priority 3 in WCAG 1.0.
1.9	Does the web site use CSS to separate layout from content?	Partly covered by 3.2_CSS_01.	eGovMon does check whether CSS has been used, but can't identify data tables.
1.10	Is the language of the web site defined in the HTML code?	Not covered.	CP 4.3 has priority 3 in WCAG 1.0.
1.11	Is the HTML code of the web site valid?	3.2_HTML_02	Difference: eGovMon counts every error. Norge.no tolerates up to 5 validation errors.
1.12	Is it possible to change the font size of the web site?	Not covered.	eGovMon can't check automatically that the layout supports increasing font size, part 2 is not derived from WCAG 1.0.

Table 3: How do the norge.no indicators relate to the eGovMon accessibility tests?

eGovMon		norge.no
1.1_HTML_01	Does the web site provide alternative text for images?	1.1
1.1_HTML_06	Does the web site avoid the use the non-standard embed-element?	x
3.2_HTML_01	Do the web pages have correct document type declarations?	x
3.2_HTML_02	Is the HTML code of the web site correct?	1.11
3.5_HTML_03	Do the web pages have a useful heading structure?	x
3.6_HTML_03	Are lists marked up correctly?	x
6.4_HTML_01	Is the web site usable without a mouse?	x
7.2_HTML_01	Does the web site avoid the use of blinking text (blink elements)?	x
7.3_HTML_01	Does the web site avoid the use of moving text (marquee elements)?	x
7.4_HTML_01	Does the web sites avoid automatic reloads?	x
7.5_HTML_01	Does the web site avoid redirects to other sites?	x
9.1_HTML_01	Does the web site avoid the use of server-side image maps?	x
11.1_HTML_01	Does the web site use the latest version of the W3C technologies (X)HTML ?	x
11.2_HTML_01	Does the web site use no deprecated HTML elements?	1.11
11.2_HTML_02	Does the web site use no deprecated HTML attributes?	1.11
12.1_HTML_01	Do the frames have titles?	1.5
12.3_HTML_01	Do the field sets have legends?	x
12.3_HTML_04	Do the optgroups have labels?	x
12.4_HTML_01	Do the form control elements have ids?	x
12.4_HTML_02	Are there labels for the form control elements?	x
13.1_HTML_01	Are the link texts unique and descriptive?	x
3.2_CSS_01	Is the CSS code of the web site correct?	x
7.2_CSS_02	Does the web site avoid the use of blinking text (achieved by CSS)?	x

Table 4: Table 3: How do the eGovMon accessibility tests relate to the norge.no indicators?