An Analysis of Website Accessibility of Private Industries
-Focusing on the Time for Compulsory Compliance with Web Accessibility Guidelines in Korea-

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Abstract. A law to make websites accessible, 'the law about prohibition of the discrimination against those with disabilities and the remedies of their rights', came into force in Korea on April 11, 2008. The range of compulsory observance of the law about the accessibility to websites expanded gradually from the public sector of the national government and local governments in 2009 to all private enterprises, which are required to observe the law as of April 11, 2013. Thus, this study aims to identify trends in web accessibility in Korea focusing on private enterprises around April 11, 2013, the date the law was implemented. To reach this goal, first, this study examined the current situation of web accessibility certification awarded to private enterprises by certifying organizations. This study then compared the results of web accessibility assessments for the top 100 most visited websites in November, 2012 and in April, 2013.

Keywords: Web Accessibility, Web Standard, Mobile Accessibility

1 Introduction

The web ensures that those with disabilities and the elderly can access all information provided by websites at any time without much technical skill as much as those without any handicaps can [1][2]. To accomplish this, W3C (World Wide Web Consortium) has laid down various standards for the Internet, making them known so that websites can be built accordingly.

In Korea 'the law about prohibition of the discrimination against those with disabilities and the remedies of their rights' was laid down on April 11, 2008, and the article for the requirement of the accessibility to websites was prepared [3]. To realize website accessibility, the national government has annually surveyed and publicized website accessibility since 2005. The range of compulsory observance of the law about the accessibility to websites first started to apply to the public sector of the national government and local governments in 2009, and gradually expanded to all
private enterprises, which are required to observe the law from April 11, 2013. Accordingly, all private enterprises are required to observe web accessibility as agents for web accessibility. However, domestic websites have been building brilliant and stimulating websites without considering the standards and web accessibility. What is worse, only the public sector organizations are surveyed for website accessibility [4][5][6].

Thus, this study aims to identify interest in website accessibility and the rate of observance of web accessibility around April 11, 2013, the date the law was implemented. To reach this goal, this study examined the domestic trends in web accessibility, and the current situation of web accessibility certification awarded to private enterprises by organizations for web accessibility certification. This study then compared the results of web accessibility assessment for the top 100 most visited websites in November, 2012 and in April, 2013. This indicates that interest in website accessibility is generally on the increase, and that the results of website accessibility assessments are improving. However, constant interest in web accessibility and great efforts to improve it are still required.

2 Trends in Web Accessibility

There are two sets of standards in web accessibility: the standards promoted by W3C (World Wide Web Consortium) and those of individual countries. The first includes WCAG (Web Contents Accessibility Guidelines), ATAG(Authoring Tools Accessibility Guidelines), and UAAG (User Agent Accessibility Guidelines). For the standards in web accessibility, the USA enforces Section 508 of the Rehabilitation Act and Japan, JIS X 9341-3 [7][8].

WAI (Web Accessibility Initiatives) of W3C laid down WCAG (Web Contents Accessibility Guidelines) 1.0 in 1999 and announced WCAG 2.0 in 2008 focusing on practical usability for those with disabilities.

In Korea, IWCAG (Internet Web Contents Accessibility Guidelines) 1.0 was laid down as the national standards by KISC (the Korea Internet Security Center) in December, 2005. KWCAG (Korea Web Contents Accessibility Guidelines) 2.0 was stipulated in 2010, and has been used as the guidelines for web accessibility.

Korea has several laws related to web accessibility such as the basic law for national accessibility to information, the law for the prohibition of discrimination against those with disabilities, and the welfare law for those with disabilities. According to 'the law about the prohibition of discrimination against those with disabilities and the remedies of their rights' which has been implemented step by step since April, 2008, the public sector organizations have to comply with this law from April 11, 2009, and all private industries from April 11, 2013. The survey of the realities of web accessibility in 2011 showed faithful compliance with this law in the order of national government ministries, local governments, public corporations, medical institutions, and welfare facilities. It was also understood that private industries were free from web accessibility assessment because they did not have to comply with the law [5].

However, according to rankey.com which analyzes the Internet data, the most visited websites are not public organizations but private industries such as portal sites,
shopping websites and web communities. All private industries have to comply with web accessibility as of April 11, 2013. Thus, with many visitors, it is time to assess their compliance with web accessibility.

3 Analysis of Web Accessibility of Private Industries

Fig. 1. below is the graph showing changes in the number of searches for 'web accessibility based on the use of trend.naver.com in Naver, a portal site, from 2011 to August, 2013. There was not such a great change in web searches from 2011 to 2012. Starting in October, 2012, however, the number of web searches increased, peaking on April 8, 2013 right before April 11, 2013, the date the law of web accessibility was implemented, and then continuing to decrease.

Fig. 1. Changes in the number of searches for web accessibility

Fig. 2 below is a graph showing the number of certification marks awarded to private enterprises by various organizations until July, 2013. Organizations which were assessed by the National Information Society Agency for their web accessibility were excluded from this graph. Web accessibility certification marks are awarded to websites for their excellent compliance with web accessibility. The websites which were awarded certification marks were found to much better comply with web accessibility guidelines than those which were not awarded certification marks [9].

Fig. 2. The number of certification marks awarded to private enterprises by various organizations

The number of certification marks won by private industries before April 11, 2013 was found to comprise a very small proportion of the whole. The survey of each organization's awarding certification marks showed that only a few private industries
won certification marks by 2012, when private industries were not required to comply with web accessibility: KDB Capital on September 8, 2010, NH (NongHyup) Portal on December 30, 2010, and Woori Bank Self Introduction on April 14, 2011. However, it was at the end of 2012 and in early 2013 near April, 2013 - the time when private industries were required to comply with web accessibilities that they came to be interested in web accessibilities and eagerly won web accessibilities certification marks.

The assessment of web accessibility is to test and prove the accessibility of websites regardless of one's disability and environment. Web accessibility can be assessed through various methods such as automatic assessment, manual assessment, and user assessment.

This study assessed web accessibility using K-WAH 4.0, which enables automatic assessment. In order to identify the rate of compliance with web accessibility for private industries, this study selected the 100 private industries that are most visited according to a survey by rankey.com. According to its ranking information, the top 100 private industries mostly include portals, shopping websites, and blogs. At the time when the required compliance with web accessibility has extended to all private industries, this study compared the results of assessing web accessibility in November, 2012 and those in April, 2013 for the top 100 most visited private industries to identify any improvement in web accessibility. The results of assessing the web accessibility of private industries in November, 2012 are based on previous studies [10].

Table 1 below compares the results of web accessibility assessments in November, 2012 and April, 2013 for the 100 most visited private industries according to the survey by rankey.com. As seen in table 1, on the whole, the assessment score of web accessibility in April, 2013 is found to be high, which can be interpreted as a general improvement in web accessibility. This improvement is thought to be caused by increasing interest in web accessibility and also by the fact that required compliance with web accessibility has been extended to all private industries.

Web accessibility assessments were automatically made. Some items like an error in duplicate ids, an error of omission in the opening and closing tag, and an error of nested tags are found to be well observed. On the other hand, the item of an alternate text, which is the most important way for the blind to obtain information from websites, is found not to be completely observed.

The items for automatic assessment such as an alternate text, <input> a label not provided, an error of omission in the closing tag, and an error of omission in the opening tag depend on using a tag. When a website developer builds up websites with a little care and interest, problems with these issues can be solved. Nevertheless, even after April, 2013 when the law of compliance with web accessibility began to be enforced, private industries do not quite comply with web accessibility. Thus, website developers should be interested in this point and make efforts to comply perfectly with web accessibility guidelines.

Table 1. Comparison of averages in web accessibility assessment results for the top 100 websites selected by rankey.com(November, 2012 and April, 2013)

<table>
<thead>
<tr>
<th>Items for web accessibility assessment</th>
<th>Nov., 2012</th>
<th>Apr., 2013</th>
</tr>
</thead>
</table>

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Table 2 above compares the rate of compliance with web accessibility for the 100 most visited websites in November, 2012 and in April, 2013. As seen in Table 2, for almost all the levels of compliance rate, the number of organizations that comply with web accessibility are found to have increased. The number of websites whose compliance rate is 100% has increased from 6 to 13. The number of websites with a compliance rate of 90% and 80% is also found to have increased considerably.

### Table 2. Comparison of the web accessibility compliance rate in November, 2012 and in April, (the number of sites)

<table>
<thead>
<tr>
<th>Compliance Rate</th>
<th>November, 2012</th>
<th>April, 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance rate=100%</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>Compliance rate≥90%</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Compliance rate≥80%</td>
<td>12</td>
<td>29</td>
</tr>
</tbody>
</table>

### 4 Conclusion

The power of the web lies in its universality. Regardless of disability, everyone should be able to access websites, which is the most important property of the web. Thus, web accessibility is justified in all websites. For universal web accessibility, the Korean government has made a law to enforce compliance with web accessibility, surveyed the realities of web accessibility, and required all public and private organizations to comply with the law. Accordingly, the requirement to comply with web accessibility has been extended to all private enterprises since April 11, 2013.

This study examined the interest of private enterprises in web accessibility, and compliance with web accessibility before and after April 11, 2013. In fact, private enterprises were not forced to comply with web accessibility guidelines before April 11, 2013.
The compliance of private enterprises with web accessibility is found to have been steadily increasing, which appears a temporary phenomenon attributed to the national government's regulation. The survey of web accessibility certification by certifying institutions shows that only a few private enterprises won certification marks before they were forced to on April 11, 2013, and that most private enterprises got certification marks around the time when they were forced to.

The results of investigating web accessibility for the 100 most visited websites selected by rankey.com in November, 2011 and in April, 2013 are as follows: the number of websites with over 80% compliance rate has increased from 22 to 46 within the period, and the number of websites with 100% compliance rate increased from 6 to 13 within the period. This confirms an improvement in the rate of organizations' compliance with web accessibility. Despite this improvement in the web accessibility compliance rate, the most basic use of alternate texts was not followed perfectly.

Problems with the items for automatic assessment of web accessibility could be solved with a little care and interest by website developers. They need to direct their interest and attention to these areas. Compliance with web accessibility guidelines should be regarded not only as a requirement enforced by the law, but also in terms of the equity principle between people with and without disabilities. This kind of attitude toward compliance with web accessibility will enhance the rate of compliance with web accessibility.

References

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