

2005 Accessibility Diagnosis on the Government Web Sites in Taiwan, R.O.C

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Outline

1. Introduction
2. The present situation of accessible websites
3. Comparison of Web Accessibility Equipments
(Freego versus Bobby)
4. Conclusions and Suggestions

Background and Motivation

- Swiftiness and convenience of the network
 - disabled individuals cannot take advantage
- The network and multimedia technology with rapid change
 - These problems worsen exponentially

Background and Motivation (Cont.)

- The Global E-Government issued by Brown University of America.

| 2004 | Rankings/ Ratings | | Online Service | Publication | Data bases | Privacy Policy | Security Policy | W3C Disability Accessibility |
|---------------|----------------------|------|-------------------|-------------|---------------|-------------------|--------------------|---------------------------------|
| Taiwan | 1 | 44.3 | 46 | 100 | 100 | 50 | 54 | 0 |
| Singapore | 2 | 43.8 | 87 | 100 | 63 | 97 | 93 | 3 |
| United States | 3 | 41.9 | 77 | 100 | 95 | 82 | 67 | 42 |
| Canada | 4 | 40.3 | 29 | 97 | 87 | 90 | 23 | 81 |
| Monaco | 5 | 39 | 50 | 100 | 100 | 50 | 0 | 0 |

Global E-Government,2004

| 2005 | Rankings/ Ratings | | Online Service | Publication | Data bases | Privacy Policy | Security Policy | W3C Disability Accessibility |
|---------------|----------------------|------|-------------------|-------------|---------------|-------------------|--------------------|---------------------------------|
| Taiwan | 1 | 57.2 | 77 | 100 | 100 | 77 | 85 | 92 |
| Singapore | 2 | 54.5 | 77 | 100 | 100 | 100 | 100 | 13 |
| United States | 3 | 50.5 | 75 | 100 | 95 | 82 | 64 | 44 |
| Hong Kong | 4 | 46.2 | 65 | 100 | 100 | 85 | 65 | 15 |
| China | 5 | 44.3 | 70 | 100 | 100 | 78 | 61 | 0 |
| Canada | 6 | 43.3 | 27 | 93 | 60 | 100 | 100 | 70 |

Global E-Government,2005

The principle of accessible website's design

- The Research, Development and Evaluation Commission (RDEC) of Executive Yuan has established “the guidelines of accessible websites” .

| Guideline | Human checkpoints | Machine checkpoints |
|---|-------------------|---------------------|
| 1. Provide equivalent alternatives to auditory and visual content. | 9 | 7 |
| 2. Don't rely on color alone. | 2 | -- |
| 3. Use markup and style sheets and do so properly. | 6 | 4 |
| 4. Clarify natural language usage. | 2 | 1 |
| 5. Create tables that transform gracefully. | 6 | 1 |
| 6. Ensure that pages featuring new technologies transform gracefully. | 4 | 2 |
| 7. Ensure user control of time-sensitive content changes. | 2 | 4 |
| 8. Ensure user control of time-sensitive content changes. | 1 | -- |
| 9. Design for device-independence. | 4 | 2 |
| 10. Use interim solutions. | 4 | 2 |
| 11. Use W3C technologies and guidelines. | 4 | -- |
| 12. Provide context and orientation information. | 5 | 1 |
| 13. Provide clear navigation mechanisms. | 13 | 1 |
| 14. Ensure that documents are clear and simple. | 3 | -- |
| Total | 65 | 25 |

The principle of accessible website's design (Cont.)

- The schedule to accomplish accessibility of some public websites was announced by The RDEC in November, 2003.

| Classification | Organization | Before June 93' | 04' | 05' | 06' | 07' | 08' |
|----------------|---|---|-----|----------|----------|----------|----------|
| Government | Central Government | A | AA | A+ | | | |
| | The First level Bureau of Central Government Local Government | | A | AA A+ | | | |
| | The Second level Bureau of Central Government The First level Bureau of Local Government | | | A | AA A+ | | |
| | The office of Local Government | | | | A | AA A+ | |
| | Social welfare | Handicap welfare, Hospital, Finance, Transportation, Postal service, and Telecommunications | | A | AA A+ | | |
| Academic | Academic institution, College, and University | | | | A | AA A+ | |
| | Senior high school, Junior high school, and Elementary school. | | | | | A | AA A+ |

**A+ :
revised(2005)**

The Establishment of A+ Level

- A measure adopted based on practical needs
- Requirements of A+ :
 - Conform with priority 1 plus three guidelines selected from AA and AAA
 - Provide Web Guide Bricks and keyboard shortcuts
 - Provide sitemap
 - Provide functions to use keyboard for browsing web pages
- Design the Web Guide Brick (:::) and adopt Access keys
 - Three contiguous colons form the Web Guide Brick “:::”
 - The Web Guide Brick provides search and location function
 - `:::`

Research Objects

- To understand the current status of the Web accessible services in Taiwan.
- To understand the different of Web Accessibility Equipments (Freego versus Bobby) .

Distribution of the Three Priority Levels Checkpoint Error

| The mistake checkpoint Amount of websites | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total |
|--|-----------|----|----|----|----|----|---|---|---|---|----|-------|
| Priority level 1 | 35 | 25 | 17 | 11 | 14 | 7 | 7 | 1 | 0 | 0 | - | 117 |
| Priority level 2 | 13 | 10 | 12 | 20 | 21 | 16 | 9 | 6 | 4 | 4 | 2 | 117 |
| Priority level 3 | 4 | 3 | 7 | 19 | 39 | 45 | - | - | - | - | - | 117 |

The present situation of accessible websites- Priority level (Cont.)

| | does not pass | Priority 1 (9 items) | Priority 1 (9 items) + Priority 2 (1 items) | Priority 2 (9 items) | Priority 3 (6 items) |
|-----|---------------|-------------------------|--|-------------------------|-------------------------|
| 117 | | 7 | | | |
| | | 15 | 15 | | |
| | | 10 | 10 | 10 | |
| | | 3 | 3 | 3 | 3 |
| | 82 | | | | |
| | | 35 websites | 28 websites | 13 websites | 3 websites |
| | | | | | |

Priority Level 1-3 Validation Comparison between 2004 & 2005

| Number of checkpoint Errors | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total | Average number of heckpoint Errors |
|-----------------------------|------|----|----|----|----|----|----|----|---|---|---|-------|------------------------------------|
| Priority level 1 | 2004 | 3 | 11 | 10 | 12 | 16 | 10 | 10 | 2 | 0 | 0 | 74 | 3.45 |
| | 2005 | 35 | 25 | 17 | 11 | 14 | 7 | 7 | 1 | 0 | 0 | 117 | 1.98 |

| Number of checkpoint Errors | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total | Average number of checkpoint Errors |
|-----------------------------|------|----|----|----|----|----|----|----|---|---|---|----|-------|-------------------------------------|
| Priority level 2 | 2004 | 2 | 1 | 5 | 10 | 13 | 14 | 13 | 4 | 6 | 3 | 3 | 74 | 5.05 |
| | 2005 | 13 | 10 | 12 | 20 | 21 | 16 | 9 | 6 | 4 | 4 | 2 | 117 | 3.78 |

| Number of Checkpoint Errors | | 0 | 1 | 2 | 3 | 4 | 5 | Total | Average number of Checkpoint Errors |
|-----------------------------|------|---|---|---|----|----|----|-------|-------------------------------------|
| Priority level 3 | 2004 | 2 | 1 | 1 | 7 | 21 | 42 | 74 | 4.30 |
| | 2005 | 4 | 3 | 7 | 19 | 39 | 45 | 117 | 3.89 |

Comparison of Failed Website Percentage between 2004 & 2005

■ Priority 1 level checkpoints

| Item | Year | Samples | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.8 | 6.2 | 9.1 | 12.1 |
|--------------------------------|------|---------|-------|-------|-------|-------|-------|-------------|-------|-------|-------|
| The number of failed Websites | 2004 | 74 | 67 | 13 | 53 | 15 | 47 | 1 | 11 | 1 | 47 |
| | 2005 | 117 | 79 | 11 | 38 | 18 | 39 | 2 | 1 | 1 | 43 |
| Website Mistake Percentage (%) | 2004 | 74 | 90.54 | 17.57 | 71.62 | 20.27 | 63.51 | <u>1.35</u> | 14.86 | 1.35 | 63.51 |
| | 2005 | 117 | 67.52 | 9.4 | 32.48 | 15.38 | 33.33 | <u>1.71</u> | 0.85 | 0.85 | 36.75 |
| Average Decline Percentage (%) | | 38.33 | 25.43 | 46.5 | 54.65 | 24.12 | 47.52 | -26.67 | 94.28 | 37.04 | 42.14 |

Comparison of Failed Website Percentage between 2004 & 2005 (Cont.)

■ Priority 2 level checkpoints

| Item | Year | Samples | 3.3 | 3.5 | 3.6 | 6.6 | 7.2 | 7.3 | 7.5 | 7.6 | 9.3 | 13.5 |
|--------------------------------|------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| The number of failed Websites | 2004 | 74 | 68 | 68 | 15 | 18 | 21 | 37 | 14 | 14 | 64 | 55 |
| | 2005 | 117 | 90 | 101 | 21 | 16 | 15 | 26 | 21 | 16 | 74 | 63 |
| Website Mistake Percentage (%) | 2004 | 74 | 91.89 | 91.89 | 20.27 | 24.32 | 28.38 | 50 | 18.92 | 18.92 | 86.49 | 74.32 |
| | 2005 | 117 | 76.92 | 86.32 | 17.95 | 13.68 | 12.82 | 22.22 | 17.95 | 13.68 | 63.25 | 53.85 |
| Average Decline Percentage (%) | | 27.52 | 16.29 | 6.06 | 11.45 | 43.75 | 54.83 | 55.56 | 5.13 | 27.7 | 26.87 | 27.54 |

Comparison of Failed Website Percentage between 2004 & 2005 (Cont.)

■ Priority 3 level checkpoints

| Item | Year | Samples | 1.16 | 4.3 | 5.5 | 10.5 | 10.6 |
|--------------------------------|------|---------|-------|-------|-------|-------|-------|
| The number of failed Websites | 2004 | 74 | 51 | 68 | 70 | 59 | 70 |
| | 2005 | 117 | 57 | 104 | 108 | 76 | 105 |
| Website Mistake Percentage (%) | 2004 | 74 | 68.92 | 91.89 | 94.59 | 79.73 | 94.59 |
| | 2005 | 117 | 48.72 | 88.89 | 92.31 | 64.96 | 89.74 |
| Average Decline Percentage (%) | | 11.73 | 29.31 | 3.26 | 2.41 | 18.53 | 5.13 |

Comparison of Failed Website Percentage between 2004 & 2005 (Cont.)

■ The most often seen checkpoint errors

| rank | Checkpoints | Priority level | 2004 | 2005 |
|------|---|----------------|--------|--------|
| 1 | 5.5 「Provide summaries for tables.」 | 3 | 94.59% | 92.31% |
| 2 | 10.6 「Do not use space to separate adjacent links.」 | 3 | 94.59% | 89.74% |
| 3 | 4.3 「Identify the language of the text.」 | 3 | 91.89% | 88.89% |
| 4 | 3.5 「Use relative sizing and positioning (% values) rather than absolute (pixels).」 | 3 | 91.89% | 86.32% |
| 5 | 3.3 「Use a public text identifier in a DOCTYPE statement.」 | 2 | 91.89% | 76.92% |
| 6 | 1.1 「Provide a text equivalent for every image.」 | 1 | 90.54% | 67.52% |
| 7 | 9.3 「Make sure that event handlers do not require use of a mouse.」 | 2 | 86.49% | 63.25% |

Comparison of Web Accessibility Design Inspection Regulation

- WAIWCAG 1.0 proposed by W3C (**Bobby**)
- The Executive Yuan of Taiwan, R.O.C adopted the regulations of WAIWCAG 1.0 and proposed the “Development of Web Accessibility Regulations” which also consisted of 14 regulations and 3 Priority Levels. (**Freego**)

Comparison of Web Accessibility Design Inspection Regulation (Cont.)

| WAI WCAG1.0 Number of Checkpoints | | |
|---|-----------|-----------|
| Research, Development, and Evaluation Commission, Executive Yuan. (Development of Web Accessibility Regulations) Number of Checkpoints | | |
| Web Content Accessibility Guidelines | | |
| Guideline 1 : provide equivalent alternatives to auditory and visual content. | 16 | 5 |
| Guideline 2 : Don't rely on color alone. | 2 | 2 |
| Guideline 3 : Use markup and style sheets and do so properly. | 10 | 7 |
| Guideline 4 : Clarify natural language usage | 3 | 3 |
| Guideline 5 : Create tables that transform gracefully. | 7 | 6 |
| Guideline 6 : Ensure that pages featuring new technologies transform gracefully. | 6 | 5 |
| Guideline 7 : Ensure user control of time-sensitive content changes. | 6 | 5 |
| Guideline 8 : Ensure direct accessibility of embedded user interfaces. | 1 | 1 |
| Guideline 9 : Design for device-independence. | 6 | 5 |
| Guideline 10 : Use interim solutions. | 6 | 5 |
| Guideline 11 : Use W3C technologies and guidelines. | 4 | 4 |
| Guideline 12 : Provide context and orientation information. | 6 | 4 |
| Guideline 13 : Provide clear navigation mechanisms. | 14 | 10 |
| Guideline 14 : Ensure that documents are clear and simple. | 3 | 3 |
| Total number of Checkpoints | 90 | 65 |

Comparison of Web Accessibility Design Inspection Regulation (Cont.)

- July and August 2005
- **one web page was selected** and underwent analysis using both **Freego and Bobby** equipments in order to find the conditions of the **58 checkpoints** listed in the machine recognition/machine review and machine recognition/human review sections of the Development for Web Accessibility Regulations (originally there are 59 checkpoints, however the one numbered 3.2 H203001, which stated assurance of web page design documents can be used in HTML, was amended for human recognition).

Results from the administration of Freego versus Bobby

- The 58 checkpoints, after comparing Freego and Bobby, found to have 49 checkpoints that are alike. →→→ 85% consistency
 - none of the 90 checkpoints listed in the Web Accessibility Regulation in Freego can be compared with checkpoint number 13.1 (Create link phrases that make sense when read out of context) in Bobby.

| 6 checkpoints | 5 checkpoints | 1 checkpoint |
|-------------------|-----------------------------------|--|
| Revision Required | different in Priority Level setup | different in the calculation of number of errors |

Results from the administration of Freego versus Bobby (Cont.)

- six checkpoints were selected for “Revision Required”
 - 3.3 「 Use a public text identifier in a DOCTYPE statement. 」
 - 3.5 「 Use relative sizing and positioning, rather than absolute 」
 - 3.9 「 Make sure BLOCKQUOTE is used only for quotations, not indentation 」
 - 6.1 「 If style sheets are ignored or unsupported; ensure that pages are still readable and usable. 」
 - 10.5 「 Provide a default in the text area. 」
 - 10.6 「 Do not use space to separate adjacent links. 」

Results from the administration of Freego versus Bobby (Cont.)

■ five checkpoints were different in Priority Level setup

- 1.4 「Provide alternative text for all image-type buttons in forms.」
- 5.6 「Provide a summary for tables」
- 8.1 「Provide accessible alternatives to the information in scripts, applets, or objects.」
- 9.1 「If possible, use a client-side image map instead of a server-side image map.」
- 12.6 「Explicitly associate form controls and their labels with the LABEL element」

■ one checkpoint was different in the calculation of number of errors.

- 9.3 「Make sure that event handlers do not require use of a mouse」

Conclusion and Suggestion

- Reaffirm the critical development direction; set up the suitable accessibility website's goals.
- Offer consultation of accessibility website's construction services.
- Freego Validation tool needed to be improved, and the Development Web Accessibility Regulation needed to be discussed further.

Thank you