New Success Criteria in Web Content Accessibility Guidelines (WCAG) 2.1

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1. Introduction

To address the evolving needs of digital accessibility, the World Wide Web Consortium (W3C) published the Web Content Accessibility Guidelines (WCAG) 2.1 on 5 June 2018. As a minor version update, WCAG 2.1 extends WCAG 2.0, which was published on 11 December 2008, by including 17 new success criteria that focus on improving accessibility for persons with low vision and cognitive disabilities and persons with physical disabilities who browse websites on mobile devices.

According to W3C, the publication of WCAG 2.1 does not deprecate or supersede WCAG 2.0, and both WCAG 2.0 and WCAG 2.1 are prevailing standards. We advise organisations to adopt the new success criteria of WCAG 2.1, where appropriate, when carrying out major website revamps or developing new websites to enhance accessibility for persons with disabilities.

This handbook is designed to illustrate how the new success criteria in WCAG 2.1 can be successfully implemented. For details of success criteria in WCAG 2.0, please refer to www.webforall.gov.hk/en/handbook.

More information about WCAG and its supporting resources can be found at:

https://www.w3.org/WAI/standards-guidelines/wcag/

• https://www.w3.org/WAI/

2. New Success Criteria - Level A

2.1 Success Criterion 2.1.4 - Character Key Shortcuts

For keyboard shortcuts using letter, punctuation, number or symbol character, at least one of the following is true:

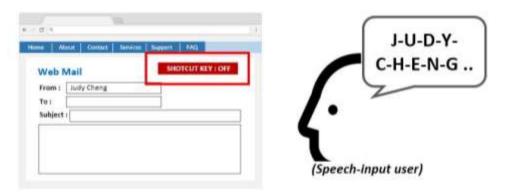
- Turn off: User can turn off the shortcut;
- **Remap**: User can remap the shortcut to include one or more non-printable keyboard characters (e.g. Ctrl, Alt); or
- Active only on focus: The shortcut is active only on focus.

Before Rectification



The character "e" is used as a shortcut key for archiving the email. When a speech input user reads "e" as one of the input texts, the archive function is automatically initiated.

After Rectification



A function is added for users to turn off the shortcut key feature. The speech-input user is now able to input the text without invoking the shortcut key function.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/character-key-shortcuts

2.2 Success Criterion 2.5.1 - Pointer Gestures

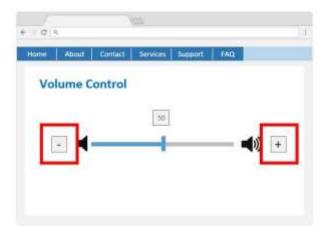
Complex gestures, such as swiping, dragging a slider or two-finger pinching for zooming, can be performed through simpler actions like taps or long presses.

Before Rectification



The dragging of a slider requires a precise path of the user's pointer movement to control the volume.

After Rectification



Buttons are added as an alternative way for users to adjust the volume with simple clicks.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/pointer-gestures.html

2.3 Success Criterion 2.5.2 - Pointer Cancellation

Functions are completed by the up-event (e.g. release the mouse button or remove the finger from the screen) and either one of the following mechanisms is available:

- To abort the function before completion; or
- To undo the function after completion.

There is exemption when the down-event is essential such as in the piano keyboard emulation program.

Before Rectification



When the user makes a donation by clicking the confirm button, the donation is confirmed before the user releases the mouse button. There is no way for the user to abort the function after he/she has pressed the mouse button.

After Rectification



The donation will be confirmed only if the user presses and releases the mouse button at the clickable area. If the user wants to abort the function after pressing the mouse button, he/she can drag the mouse pointer out of the clickable area, then release the mouse button.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/pointer-cancellation.html

2.4 Success Criterion 2.5.3 - Label in Name

All visible text labels must match their programmatic names to facilitate users using speech-to-text technologies to interact with the content based on an intuitive visual label.

Before Rectification



When a speech-input user speaks a command "Click Buy", the speech input does not activate the button control because the programmatic name that is enabled as a speech-input command does not match with the visible text label.

After Rectification



The programmatic names are exactly the same as the visual text labels of the buttons, so that the speech-input user can activate the control by speaking the visual text label.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/label-in-name.html

2.5 Success Criterion 2.5.4 - Motion Actuation

Functions triggered by moving a device (e.g. shaking or tilting) or by gesturing towards the device (e.g. a camera can interpret the gesture and activate a function) should be able to be operated by more conventional user interface components.

Before Rectification



To view a 360-degree photo, users are required to either move the device around to change the view or tap and drag on the photo. Users with mobility difficulties are difficult to perform these actions.

After Rectification



Navigation buttons are added as an alternative for navigation. Users can either move the device around to change the view or click the navigation buttons to perform the same function.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/motion-actuation

3. New Success Criteria - Level AA

3.1 Success Criterion 1.3.4 - Orientation

Unless a specific display orientation is essential, the content should be able to be viewed or operated in either portrait or landscape orientations.

Before Rectification



Users are unable to change the orientation of the video clip as the video player restricts its display orientation to landscape.

After Rectification



Persons with physical disabilities may mount the device on a wheelchair in a fixed orientation. By not restricting the display orientation, users can view the content in the orientation that suits them best.

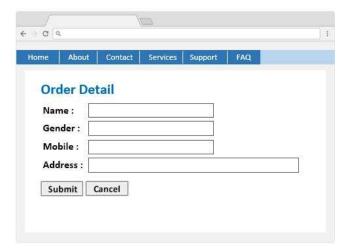
WCAG 2 Reference:

http://www.w3.org/WAI/WCAG21/Understanding/orientation.html

3.2 Success Criterion 1.3.5 – Identify Input Purpose

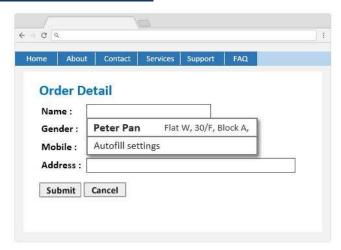
Autocomplete attribute techniques should be used for each input field to make form filling easier, especially for people with cognitive disabilities.

Before Rectification



The user is required to input personal information from scratch.

After Rectification



Enabling the autocomplete attribute improves the browser's ability to pre-populate form fields with user-preferred values. It allows the user to complete the form easily.

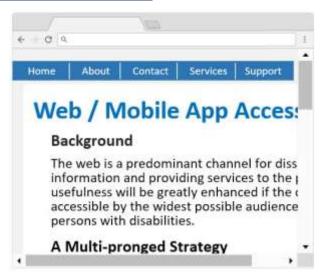
WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/identify-input-purpose.html

3.3 Success Criterion 1.4.10 – Reflow

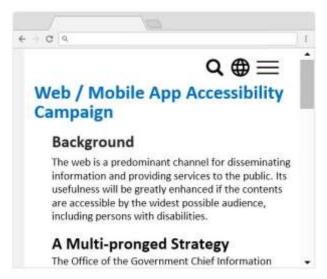
When a webpage is zoomed, the content is presented without loss of information and functionality, and without requiring horizontal scrolling.

Before Rectification



When users zoom in to enlarge the size of the content, they have to scroll both horizontally and vertically to view the content.

After Rectification



By using responsive web design, the page layout is changed automatically when it is zoomed, so that horizontal scrolling is not required.

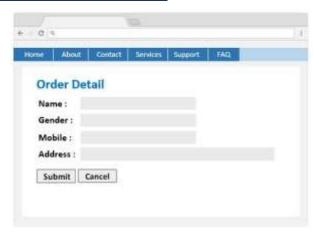
WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/reflow.html

3.4 Success Criterion 1.4.11 - Non-Text Contrast

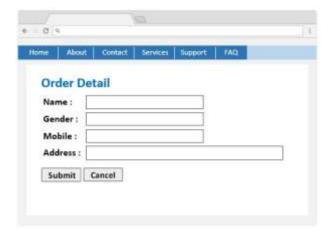
All non-text content (e.g. graphics, diagrams, buttons, checkboxes, radio buttons or input fields), which deliver important information, should have a minimum 3:1 colour contrast ratio against adjacent colour.

Before Rectification



The grey textboxes on the white background have poor colour contrast, making it harder for persons with low vision to identify.

After Rectification



Dark border is applied to the textboxes so that they can be identified easily.

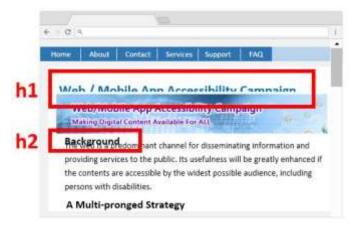
WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/non-text-contrast.html

3.5 Success Criterion 1.4.12 - Text Spacing

Ensure the content or functionality will not be lost if user overrides the setting for spacing between paragraphs, lines, words or characters.

Before Rectification



h1 {line-height:150px}
h2 {line-height:100px}

The line height of header (h1) and sub-header (h2) texts is defined using absolute values (i.e. number of pixels). When the user zooms in to enlarge the content of the webpage, the header and sub-header texts are cut off and become unreadable.

After Rectification



h1 {line-height:100%}
h2 {line-height:100%}

The line height of h1 and h2 is defined using relative values (i.e. percentage). When the page is zoomed by the user, the line height of h1 and h2 is changed accordingly such that the content can be displayed clearly.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/text-spacing.html

3.6 Success Criterion 1.4.13 - Content on Hover or Focus

If additional content appears on focus/hover, you should ensure all of the following:

- **Dismissible**: User can dismiss the additional content with the keyboard without moving focus/hover, e.g. via the escape key;
- Hoverable: User can move the pointer over the additional content without making the additional content disappear; and
- Persistent: The additional content remains visible until the hover or focus trigger is removed, or the user dismisses it, or its information is no longer valid.

Before Rectification



When user activates the "Support" menu via keyboard, a mega menu is displayed, which covered part of the main content. User is unable to view the content unless he/she moves the mouse pointer away from the mega menu.

After Rectification



Function is added for user to close the mega menu by pressing Escape key without moving the mouse pointer.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/content-on-hover-or-focus.html

3.7 Success Criterion 4.1.3 - Status Messages

For any visible status message (e.g. error or success message subtly added to a page), users should be informed by means of assistive technology tools even though the status message is not in focus. One possible way to implement this criterion is to define the Accessible Rich Internet Application (ARIA) role (status, alert) or Live Regions.

Before Rectification



A spinning logo with "searching" status message appears after user initiates the search function. However, screen reader cannot read out the status message because it is not in focus.

After Rectification



By assigning appropriate ARIA role to the status message, the screen reader is able to read out the message to inform users about the content change even though the status message is not in focus.

WCAG 2 Reference:

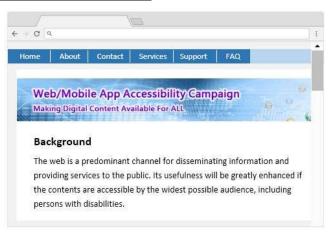
https://www.w3.org/WAI/WCAG21/Understanding/status-messages.html

4. New Success Criteria – Level AAA

4.1 Success Criterion 1.3.6 – Identify Purpose

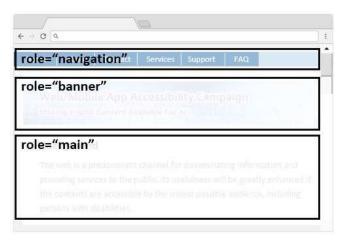
The purpose of user interface components, icons and regions of a webpage can be identified by user agents. For example, to identify the purposes of different regions of a webpage, Accessible Rich Internet Application (ARIA) landmarks should be used so that the webpage content can be more understandable to user agents, including assistive technologies.

Before Rectification



Without **ARIA** setting the landmark roles the on webpage, users are unable to identify the webpage structure assistive technologies which can provide customisation.

After Rectification



The ARIA landmark roles are assigned to identify the webpage structure. Assistive technologies will read out the landmarks according to the customisation made by users, such as skipping the "banner" region for simpler browsing of the webpage.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/identify-purpose.html

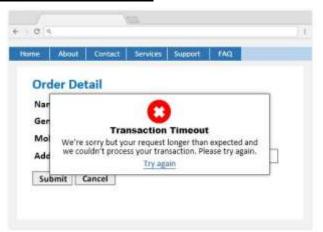
4.2 Success Criterion 2.2.6 - Timeouts

Users should be informed about the duration of inactivity which will cause the page to time out and result in data loss, unless the data is preserved for more than 20 hours when the user does not take any actions.

Note: If the preserved data involves personal data, please ensure the handling and protection of personal data complies with the Personal Data (Privacy) Ordinance. For more information about the Personal Data (Privacy) Ordinance, please refer to the following link:

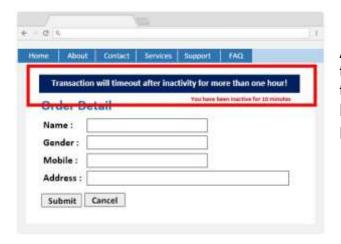
www.pcpd.org.hk/english/data privacy law/ordinance at a Glance/ordinance.html.

Before Rectification



Users are not warned of the duration of inactivity that could cause a timeout and data loss. After the page is idled for a certain period of time, the application prompts timeout and all the input data are lost.

After Rectification



A message is clearly shown at the top of the page indicating that inactivity for more than an hour will trigger the timeout process.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/timeouts.html

4.3 Success Criterion 2.3.3 - Animation from Interactions

Users should be allowed to disable the motion animation triggered by interaction, unless the animation is essential to the functionality or the information being conveyed.

Before Rectification



Animation on the top banner is triggered when users scroll down the webpage. However, the website does not allow users to disable the non-essential animation in the banner. Users with vestibular disorders (motion sickness) may feel sick when reading the web content.

After Rectification



A function is provided for users to disable all non-essential animations.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/animation-from-interactions.html

4.4 Success Criterion 2.5.5 - Target Size

The sizes of target (e.g. button) are at least 44 by 44 Cascading Style Sheets (CSS) pixels, except when:

- **Equivalent**: The target is available through an equivalent link or control on the same page that is at least 44 by 44 CSS pixels;
- Inline: The target is in a sentence or block of text;
- **User Agent Control**: The size of the target is determined by the user agent and is not modified by the author;
- **Essential**: A particular presentation of the target is essential to the information being conveyed.

Before Rectification



Buttons are too small and difficult to tap.

After Rectification



The size of buttons is larger than 44 by 44 CSS pixels, so that users can tap the buttons easily.

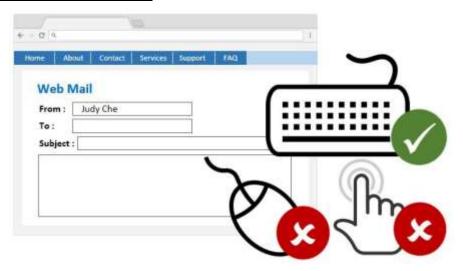
WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/target-size.html

4.5 Success Criterion 2.5.6 - Concurrent Input Mechanisms

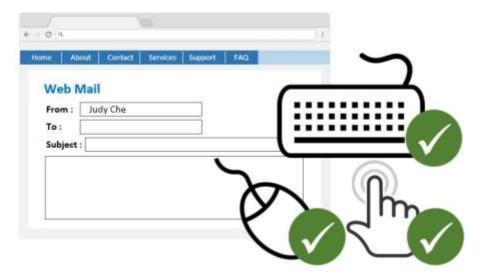
Websites should not restrict the use of input modalities (e.g. keyboard, mouse, touchscreen, voice input) available on a platform, unless the restriction is essential, or is required to ensure the security of the content, or to respect user settings.

Before Rectification



The webpage only accepts input by keyboard.

After Rectification



The webpage accepts more than one kind of input mechanism, including keyboard, mouse and touchscreen. Users are allowed to switch between input mechanisms when necessary.

WCAG 2 Reference:

https://www.w3.org/WAI/WCAG21/Understanding/concurrent-input-mechanisms.html

Appendix 1: WCAG 2.1 Criteria Checklist for Developers

How to Use this Checklist

Begin by following the steps below for Level A compliance, then repeat the steps for Level AA – and if necessary repeat again for Level AAA. Following this checklist will enable websites to be tested in the most efficient way.

- 1. **Review** each of the criteria and "check off" all the success criteria that DO NOT APPLY to the website, using the N/A column.
 - For example, if a website does not have any audio or video content, then criterion 1.2.1 can be marked N/A and the Visual Review and Assistive Technology (AT) Test can be skipped.
 - Other items marked as skipped can be ignored for that test as it is not possible to determine compliance with that test.

Level A Success Criteria	NIA	Code Scan	Visual Review	AT Tests
1.2.1 Audio-only and Video-only		Skip		

- 2. **Scan** website with a code scanning tool focusing on each of the items in the Code Scan column.
 - Note that code scan tools often report items that may not require fixing. Web developers should investigate each item found to determine if it is in fact a real issue.
- 3. **Perform Visual Review** by checking all items listed in the visual review column.
- 4. Test using various **Assistive Technology (AT)** tools such as screen readers, screen magnifiers and voice controls.

Level A Success Criteria	N/A	Code Scan	Visual Review	AT Tests	
1.1.1 Non-text Content					
8	80		57		

Level A Checklist

Level A Success Criteria	N/A	Code Scan	Visual Review	AT Tests
1.1.1 Non-text Content				
1.2.1 Audio-only and Video-only (Prerecorded)		Skip		
1.2.2 Captions (Prerecorded)		Skip		
1.2.3 Audio Description or Media Alternative (Prerecorded)		Skip		
1.3.1 Info and Relationships				
1.3.2 Meaningful Sequence		Skip		
1.3.3 Sensory Characteristics		Skip		
1.4.1 Use of Colour		Skip		Skip
1.4.2 Audio Control		Skip		
2.1.1 Keyboard				
2.1.2 No Keyboard Trap		Skip		
2.1.4 Character Key Shortcuts*		Skip		
2.2.1 Timing Adjustable		Skip		
2.2.2 Pause, Stop, Hide		Skip		
2.3.1 Three Flashes or Below Threshold		Skip		Skip
2.4.1 Bypass Blocks		Skip		
2.4.2 Page Titled				
2.4.3 Focus Order		Skip		
2.4.4 Link Purpose (In Context)		Skip		
2.5.1 Pointer Gestures*		Skip		Skip
2.5.2 Pointer Cancellation*		Skip		Skip
2.5.3 Label in Name*				
2.5.4 Motion Actuation*		Skip		Skip
3.1.1 Language of Page			Skip	Skip
3.2.1 On Focus		Skip		
3.2.2 On Input		Skip		
3.3.1 Error Identification		Skip		
3.3.2 Labels or Instructions		Skip		
4.1.1 Parsing			Skip	Skip
4.1.2 Name, Role, Value			Skip	Skip

*Note: New success criteria in WCAG 2.1

Level AA Checklist

Level AA Success Criteria	N/A	Code Scan	Visual Review	AT Tests
1.2.4 Captions (Live)		Skip		
1.2.5 Audio Description (Prerecorded)		Skip		
1.3.4 Orientation*				Skip
1.3.5 Identify Input Purpose*				Skip
1.4.3 Contrast (Minimum)		Skip		Skip
1.4.4 Resize text		Skip		Skip
1.4.5 Images of Text		Skip		Skip
1.4.10 Reflow*		Skip		Skip
1.4.11 Non-Text Contrast*		Skip		Skip
1.4.12 Text Spacing*		Skip		Skip
1.4.13 Content on Hover or Focus*		Skip		Skip
2.4.5 Multiple Ways		Skip		Skip
2.4.6 Headings and Labels		Skip		Skip
2.4.7 Focus Visible		Skip		Skip
3.1.2 Language of Parts		Skip	Skip	
3.2.3 Consistent Navigation		Skip		
3.2.4 Consistent Identification		Skip		
3.3.3 Error Suggestion		Skip		
3.3.4 Error Prevention		Skip		
4.1.3 Status Messages*		Skip		

*Note: New success criteria in WCAG 2.1

Level AAA Checklist

Level AAA Success Criteria	N/A	Code Scan	Visual Review	AT Tests
1.2.6 Sign Language (Prerecorded)		Skip		Skip
1.2.7 Extended Audio Description (Prerecorded)		Skip		
1.2.8 Media Alternative (Prerecorded)		Skip		
1.2.9 Audio-only (Live)		Skip		
1.3.6 Identify Purpose*		Skip		
1.4.6 Contrast (Enhanced)		Skip		Skip
1.4.7 Low or No Background Audio		Skip		
1.4.8 Visual Presentation		Skip		Skip
1.4.9 Images of Text (No Exception)		Skip		Skip
2.1.3 Keyboard (No Exception)		Skip		Skip
2.2.3 No Timing		Skip		Skip
2.2.4 Interruptions		Skip		Skip
2.2.5 Re-authenticating		Skip		Skip
2.2.6 Timeouts*		Skip		Skip
2.3.2 Three Flashes		Skip		Skip
2.3.3 Animation from Interactions*				Skip
2.4.8 Location		Skip		
2.4.9 Link Purpose (Link Only)		Skip		
2.4.10 Section Headings				
2.5.5 Target Size*		Skip		Skip
2.5.6 Concurrent Input Mechanisms*		Skip		Skip
3.1.3 Unusual Words		Skip		
3.1.4 Abbreviations		Skip	Skip	
3.1.5 Reading Level				Skip
3.1.6 Pronunciation		Skip		
3.2.5 Change on Request		Skip		
3.3.5 Help		Skip		
3.3.6 Error Prevention (All)		Skip		

*Note: New success criteria in WCAG 2.1