

# WEB & MOBILE APP ACCESSIBILITY

Hong Kong Internet Registration Corporation Limited



COGNITIVE



VISUAL



AUDITORY



MOTOR

## Agenda

- What is Web Accessibility?
- Common Pitfalls
- Why Web / Mobile App Accessibility?
- Web Content Accessibility Guidelines
- Policy in HK & Web/Mobile App Accessibility Campaign
- Testing & Common Pitfalls
- Q&A

# What is Web Accessibility?



# What is Web Accessibility?

- Web accessibility means that websites, tools, and technologies are designed and developed so that people with disabilities can use them
- By World Wide Web Consortium (W3C)
- Making all **content** available to **everyone**
- Applicable to Web, Mobile Apps and other channels

# Type of disabilities



## Visual Impairment

Blind, low vision,  
colour blindness



## Physical Impairment

Missing limbs, reduced  
control of limbs, suffer from  
dexterity problems, epilepsy

## Hearing Impairment

Completely or partially deaf

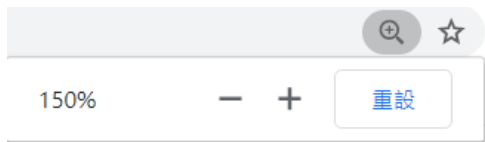
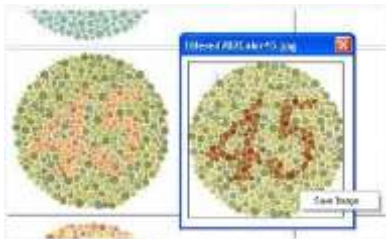


## Cognitive Impairment

Have difficulties in learning

# Visual Impairment

- Low Vision & Colour Blindness
- Screen aids to facilitate viewing
- Zooming
- Colour filter



# Visual Impairment

- Blindness
  - Reading with Braille Device
  - Connect to Computer
  - Content can be converted to
  - Braille display on the device
- Reading with Screen Reading Software
  - Use text-to-speech engine to interpret what is displayed on the screen





Source: Office of Government Chief Information Officer





GovHK 香港政府一站通

**Hot searches:** [Compulsory Testing](#) [Vaccine Bubble](#)  
[Covid-19 Vaccination Booking](#)

[Advanced Search](#) >

Residents

Business & Trade

Non-Residents

**Early  
Vaccination  
for All**  
*It's more than a Job*



**Together,  
We Fight the Virus!**

The 2022-23  
**Budget**

February 23, 2022  
11:00 am



# Hearing Impairment

- Loss of hearing
- Alternatives for information conveyed in audio
  - Text transcript
  - Subtitle
  - Sign language
- Sign language interpretation for news programme on TVB Pearl since 2018



# Physical Impairment

- With Limited Movement Capabilities
- Barrier-free Input Device
- Special hardware and software for accessing webpages





# Physical Impairment



- Brain-computer Interface Systems
  - User concentrates on the characters and strokes displayed which flashed sequentially on the screen
  - System monitors brain activity



# Cognitive Impairment

- Additional design consideration
  - Consistent navigation
  - Similar interface elements and interactions
  - Avoid unnecessary distractions
  - Pair icons or graphics with text



Ambiguous meaning



Clear meaning

**Close**

# Common Pitfalls

# Common Pitfalls



## 1. No alternatives text for non-text content

Persons with visual impairment cannot perceive the image content



Alt = "Officiating guests attending the Launch Ceremony of the Web Accessibility Recognition Scheme"



Alt="menu bar"



Alt=" Web/Mobile App Accessibility Campaign "

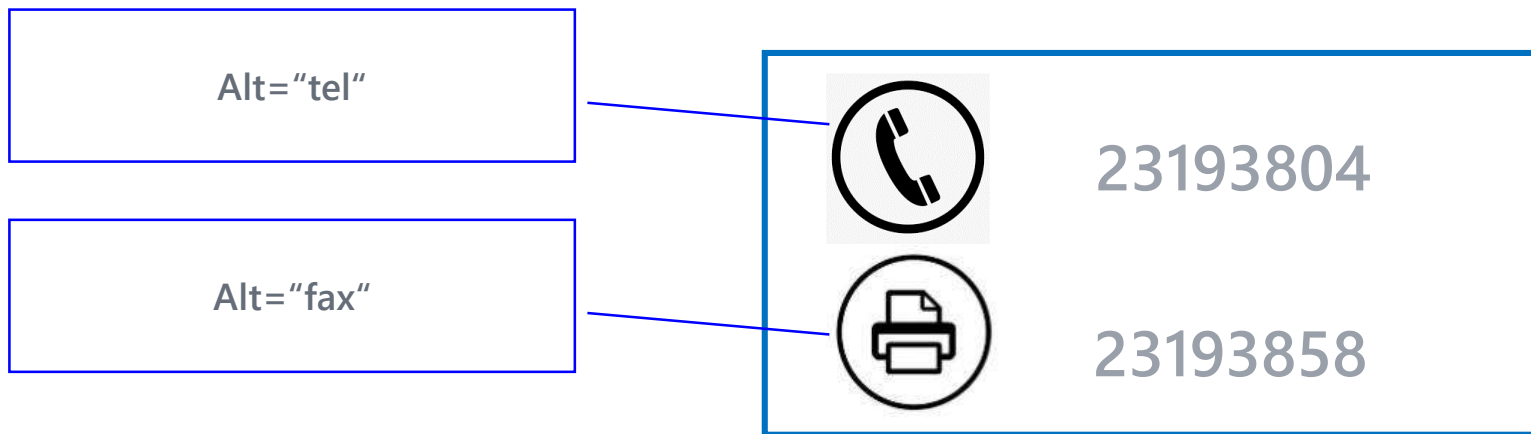
Contain descriptive text alternative for image

# Common Pitfalls



## 1. No alternatives text for non-text content

No alt-text for important icons or pictures



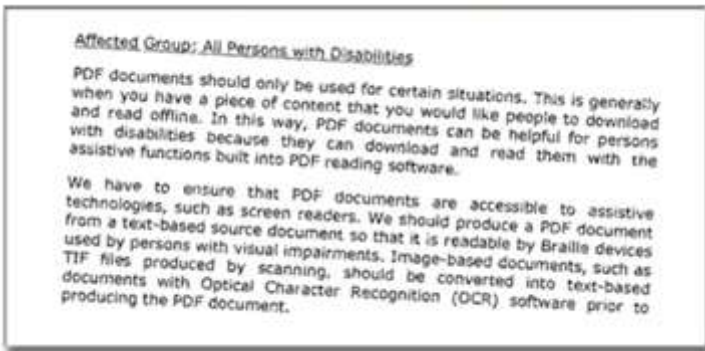
Provide meaning alt-text to key images.



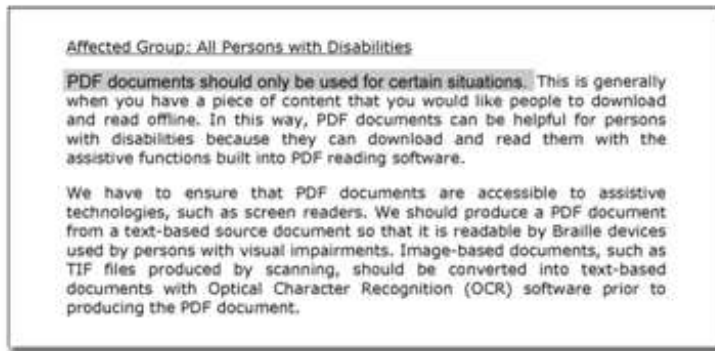
# Common Pitfalls

## 2. Inaccessible PDF Files

Screen reader cannot read the content



Scanned Image not accessible



Text-based accessible PDF

Use proper PDF generator to produce a PDF document from a text-based source document;  
use Optical Character Recognition (OCR) software after scanning

# Common Pitfalls



## 3. Insufficient colour contrast

Persons with low vision have difficulty reading text that does not contrast with its background e.g. provide sufficient contrast ratio



**Poor  
background  
contrast**



**Easier to read  
with higher  
contrast**

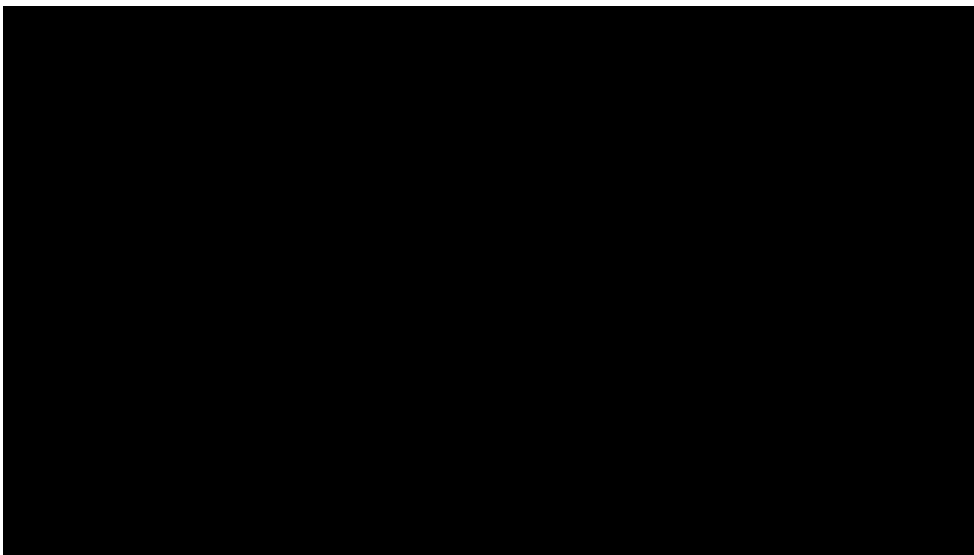


# Common Pitfalls



## 4. Video without captions and audio description

Persons with visual or hearing impairments have difficulty to understand the video



- ✓ e.g. provide captions and audio description

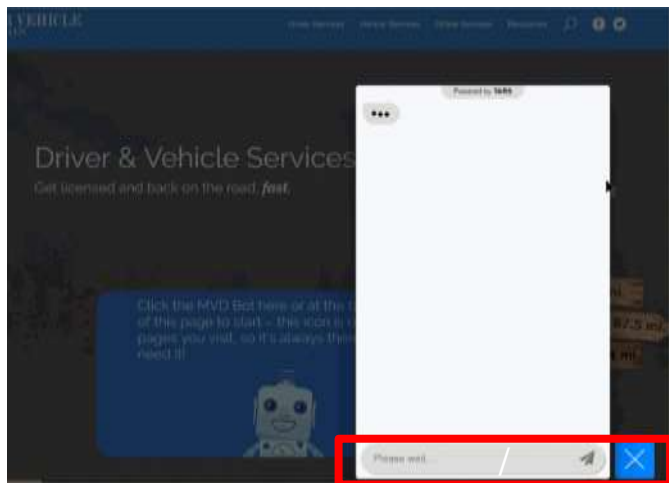
Source: infosec

# Common Pitfalls



## 5. Inaccessible Items

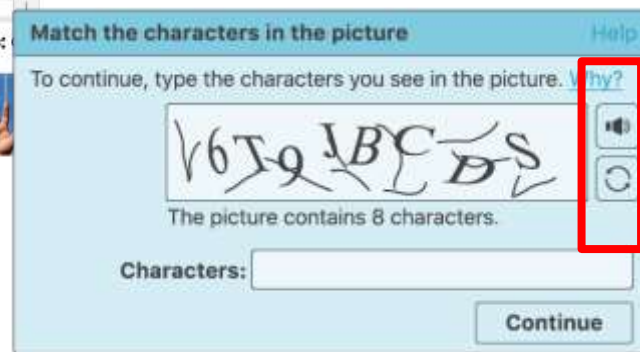
Keyboard/ screen reader is unable to accessible those items.



Chatbot



Options in date picker

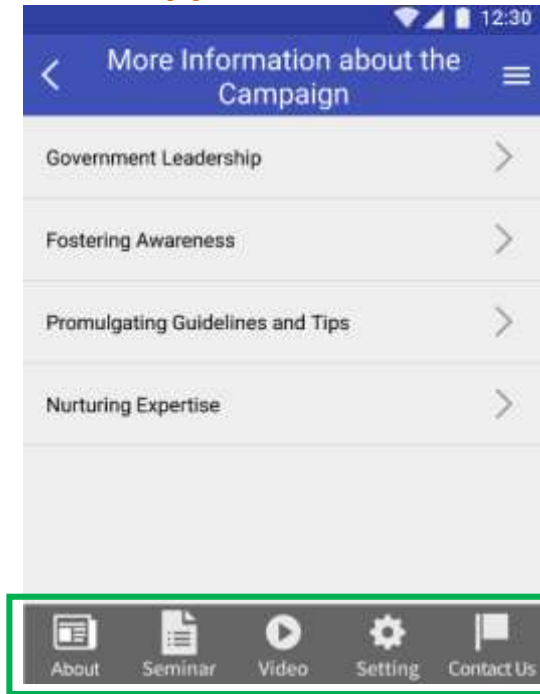
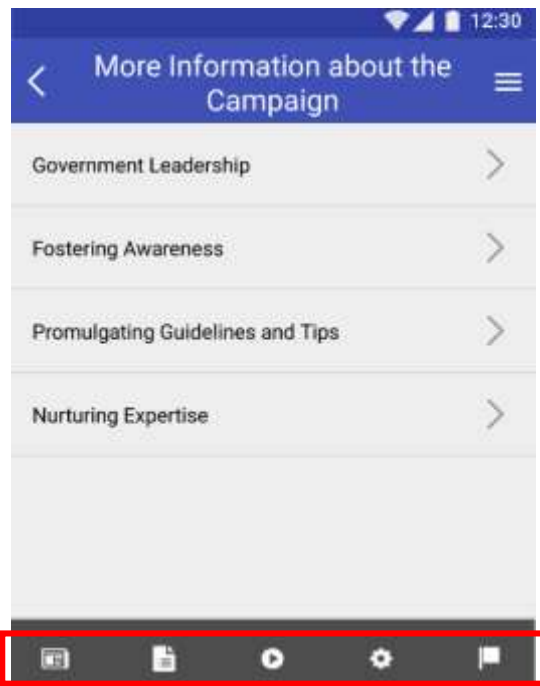


Captcha

# Common Pitfalls



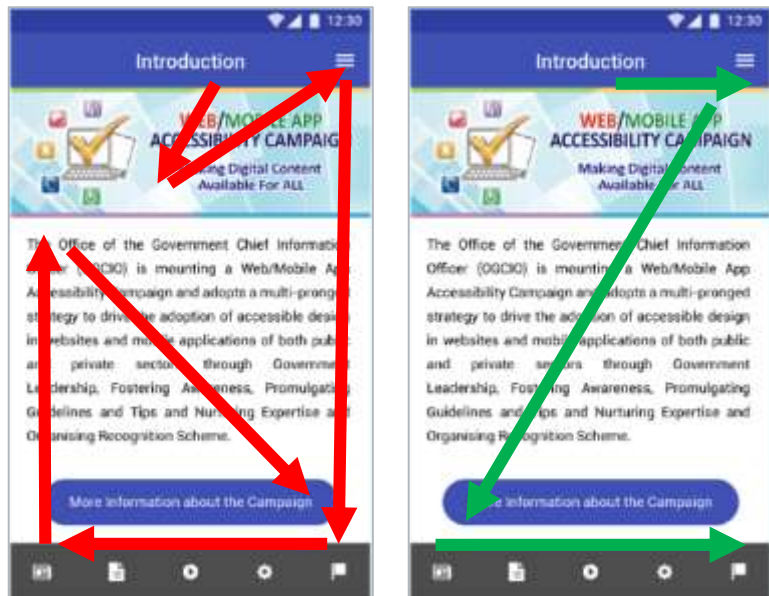
## 6. The clickable objects is too small to be tapped



# Common Pitfalls



## 7. Illogical reading sequence



the reading order for screen readers will be from top to bottom and left to right



Redundant items read in the mobile view

# Why Web/Mobile App Accessibility?

# Why Web/Mobile App Accessibility?

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- **Equal opportunities**
- United Nations' Convention on the Rights of Persons with Disabilities
- **Disability Discrimination Ordinance** (Cap 487) has created a legal duty for organisations to ensure their services are available to everyone
  
- **Social responsibility**
- Build positive corporate image
- Contribute to a more caring and inclusive society





# Why Web/Mobile App Accessibility?



## Search engine friendly

- Get more prominent ranking in search engine results

## Widest possible reach-out

- Reach out to more online customers

## Lower costs in the long term

- Easier to maintain and is compatible with different web browsers and devices, which saves time and money in the long term
- Avoid unnecessary lawsuits



# International Standards

# International Standards



## World Wide Web Consortium (W3C)

- Work together with different stakeholders to develop Web Standards
- Web Content Accessibility Guidelines (WCAG)



## Existing standards

- WCAG 2.0 (published in 2008)
- WCAG 2.1 (published in 2018)
  - with additional criteria on top of 2.0



## Future standards

- WCAG 2.2

# Web Content Accessibility Guidelines (WCAG 2.1)



- Released on 5 June 2018
- Currently recommended by W3C
- Backward compatible with WCAG 2.0
- 17 additional success criteria:
  - Mobile accessibility
  - Phone, tablets, TV, smartwatches, IoT
  - People with low vision
  - People with cognitive and learning disabilities



# Web Content Accessibility Guidelines (WCAG 2.1)

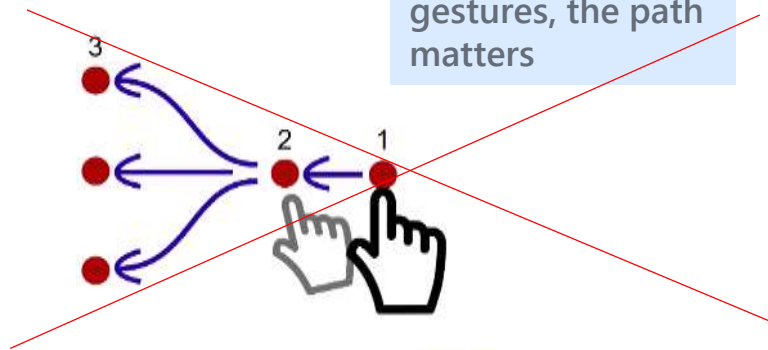


- Orientation
- Mobile Platform

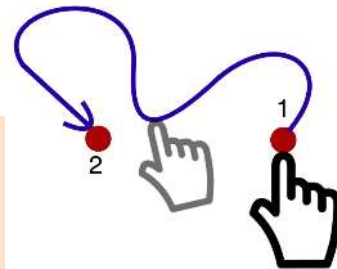


## • Gestures

Path-based gestures, the path matters



Free form gestures, only start or the end point matter



# Web Content Accessibility Guidelines (WCAG 2)



- The WCAG 2 consist of four parts —

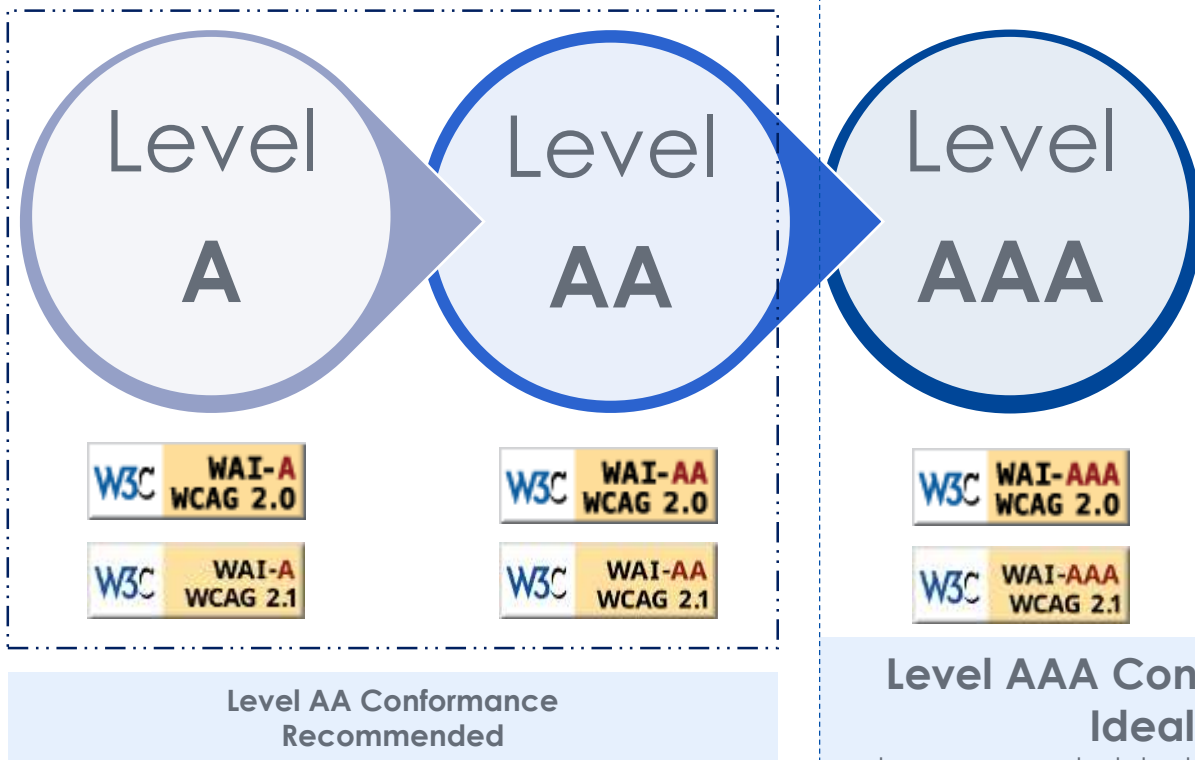


# 4 Principles



Principle	Explanation
<b>Perceivable</b>	<ul style="list-style-type: none"><li>• Information and user interface components must be presentable to users in ways they can perceive</li><li>• It can't be invisible to all of their senses</li></ul>
<b>Operable</b>	<ul style="list-style-type: none"><li>• User interface components and navigation must be operable</li><li>• The interface cannot require interaction that a user cannot perform</li></ul>
<b>Understandable</b>	<ul style="list-style-type: none"><li>• Information and the operation of user interface must be understandable.</li><li>• The content or operation cannot be beyond their understanding</li></ul>
<b>Robust</b>	<ul style="list-style-type: none"><li>• Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies</li><li>• As technologies and user agents evolve, the content should remain accessible</li></ul>

# Level of Conformance



not recommended to be required as a general policy because it is not possible to satisfy all level AAA success criteria for some content



# Success Criteria and Techniques



Guideline 1.3 Adaptable: Create content that can be presented in different ways (for example simpler layout) without losing information or structure.

[Understanding Guideline 1.3](#)

**1.3.1 Info and Relationships:** Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. (Level A)

**1.3.2 Meaningful Sequence:** When the sequence in which content is presented affects its meaning, a correct reading sequence can be programmatically determined. (Level A)

**1.3.3 Sensory Characteristics:** Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, size, visual location, orientation, or sound. (Level A)

*Note:* For requirements related to color, refer to [Guideline 1.4](#).

[How to Meet 1.3.1](#)  
[Understanding 1.3.1](#)

[How to Meet 1.3.2](#)  
[Understanding 1.3.2](#)

[How to Meet 1.3.3](#)  
[Understanding 1.3.3](#)

Success Criteria

Techniques

# Testing Techniques

# Testing Techniques



## Code Scanning

Some accessibility issues can be detected automatically using specialist software and tools.

Example tools -

### Website

- Achecker
- WAVE
- Total Validator Tools
- PDF Accessibility Checker

## Measure Web Accessibility

Monitor AODA and ADA compliance for your audience through intuitive dashboards of AChecker and Lighthouse WCAG 2 AA reports across your websites.



來源: WAVE

# Testing Techniques

## Visual Review



- A look at a website/mobile app can reveal many potential accessibility issues for persons with disabilities
- It is too difficult to read?

Too small?

Insufficient colour contrast?

Example tools –

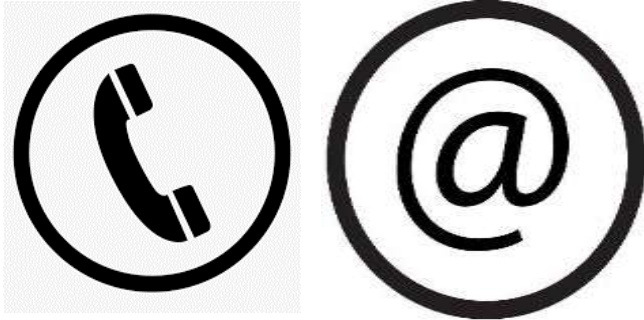
## Website and Mobile App

- Colour Contrast Analyser

# Common Pitfalls



## 1.No alternative text for graphical contents



Source: [Web Accessibility Education](#)

# Common Pitfalls

- **2. Accessible Video**
- Video without subtitle or sign language narration
- Additional subtitle showing ambient sound, giving deaf people a clearer picture



Source: NICbvideos

# More Resources

## More Resources:

- W3C – WCAG

[www.w3.org/WAI/standards-guidelines/wcag/](http://www.w3.org/WAI/standards-guidelines/wcag/)

- Web for all – By Office of the Government Chief Information Officer (OGCIO)

[www.webforall.gov.hk/en](http://www.webforall.gov.hk/en)

- Web Accessibility Recognition Scheme

[www.web-accessibility.hk](http://www.web-accessibility.hk)



# Thank You

For further queries, please email to  
[wars@hkirc.hk](mailto:wars@hkirc.hk)

# WEB/MOBILE APP ACCESSIBILITY

Industry Development Division, Office of the Government Chief Information Officer

February 2022



# Agenda

1. Government Policy
2. Overseas Government Practices
3. Complaint Cases On Web Accessibility
4. Web/Mobile App Accessibility Campaign



# GOVERNMENT POLICY



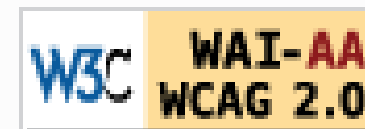
# Policy in Hong Kong

Government has been implementing web and mobile app accessibility guidelines since 1999 and 2013



## WEBSITES

- All Government websites are required to meet **Level AA of WCAG 2.0** or above standard



## MOBILE APPS

- All government mobile apps are required to conform to the “**Baseline Accessibility Criteria for Government Mobile App**”



# OVERSEAS GOVERNMENT PRACTICES



# Overseas Government Practices

Country	Legislation / Guideline	WCAG Version Used
European Union	EN 301 549 “Accessibility requirements for ICT products and services”	WCAG 2.1
New Zealand	Web Accessibility Standard 1.1	WCAG 2.1
Australia	Disability Discrimination Act 1992 (DDA)	WCAG 2.0
Canada	Policy on Communications and Federal Identity	WCAG 2.0
China	中華人民共和國殘疾人保障法	WCAG 2.0 derivative
United States	Section 508 of the US Rehabilitation Act of 1973, as amended	WCAG 2.0



# COMPLAINT CASES ON WEB ACCESSIBILITY





# Complaint Cases (1)

## Inaccessible PDF Published on Government Website

- A NGO issued a press release in June 2012
- Complained about inaccessible PDFs published on Government website



【本報訊】選舉事務處在核實選民登記冊時涉觸犯《殘疾歧視條例》。香港失明人士協進會會長莊陳有昨去信平機會，指選舉事務處在本月15日公佈的臨時選民登記冊及抽樣調查信件，只提供一般文字版本，視障人士無法查閱，隨時在不知情的情況下喪失選民資格。

莊陳有指失明人士看不見選舉事務處發出的抽樣信件，可能連需要核實身份也不知道。「事務處嘅網頁都係只得文字，欠缺無障礙設施，香港話就話無障礙城市，事實仲好落後。」莊陳有已在本月15日去信選舉管理委員會主席馮驊，要求改善，至今仍未獲回覆。

Source: Apple Daily Newspaper



# Complaint Cases (2)

## 盲人勝利 麥當勞網頁去障礙 多間連鎖餐廳網頁 視障者難叫外賣

文章日期：2012年7月23日

【明報專訊】本港不少連鎖餐廳均會在網頁提供「網上訂購」服務，但有視障者組織留意到本港大型連鎖餐廳網頁不設「無障礙」文字版，令視障者無法透過屏幕報讀軟件瀏覽網頁，致全港約12萬名視障者在網上叫外賣障礙重重。有失明者早前透過報讀軟件上網，到麥當勞網頁叫外賣，但該網主頁不斷重複播放音樂，干擾報讀軟件，令他苦無辦法讀到外賣電話及餐單落單，遂於今年2月透過香港失明人協進會向平機會投訴。本報與視障者測試另外4間連鎖餐廳，亦發現不設無障礙文字版，令視障者難「叫外賣」。



## Inaccessible Website for Food Ordering

- Complained about restaurant websites causing issues in online ordering

<http://life.mingpao.com/cfm/basicref3b.cfm?File=20120723/braa02a/gma1.txt>

Source: Apple Daily Newspaper



政府資訊科技總監辦公室  
Office of the Government Chief Information Officer



# Complaint Cases (3)

## Inaccessible Website for Food Ordering Online

**多間連鎖餐廳網頁無障礙情況**

- 麥當勞**
  - 首頁重複播放音樂，干擾盲人屏幕閱讀軟件；網頁設計成以滑鼠控制，盲人無法操作
  - 回應：已改善：關掉音樂，加入純文字檔，包括麥當送熱線，現已研究全面提升網站，以進一步達至無障礙
- 必勝客**
  - 主頁圖片並沒載有文字描述或替代文字 (ALT Text)，網站導航排序並非依序排列，「網上訂購」以圖片展示，要逐一進入才有文字，另盲人無法找到「立即訂購」按鈕
  - 回應：留意到問題，希望今年推出便利視障者訂購的網頁，現階段先由電話服務員提供協助，讀出外賣項目及細節
- 肯德基**
  - 主頁圖片並沒載有文字描述或替代文字 (ALT Text)，熱線電話以沒有文字描述的圖片顯示
  - 如直接進入「網上訂購」頁面，碰到首頁「今期推介」餐單，但無法讀到「登入訂購」、「網上訂購」頁面，其他頁面的按鈕只附連結，無文字描述
  - 回應：截稿前未有回覆
- 板長壽司**
  - 首頁為Flash動畫配直排的文字圖片，軟件斷續讀出不相干單字，無法繼續進入
  - 回應：截稿前未獲回覆
- 吉野家**
  - 首頁為Flash動畫配直排的文字圖片，軟件斷續讀出不相干單字，無法繼續進入
  - 回應：截稿前未獲回覆

<http://hk.news.yahoo.com>

### 上網叫外賣薄餅 找半小時食白果

明報 - 2012年7月23日星期一 上午5:24

電郵 推薦 0 推文 +1 列印

【明報專訊】失明者鄺灼培 (John) 和任博輝網上訂購外賣屢試屢敗，兩人早前協助檢視本港主要連鎖快餐店的網頁，令記者體會他們叫外賣之艱。

例如兩人登入必勝客網頁，由於頁面沒有文字描述或替代文字 (ALT Text)，報讀軟件只能讀出網頁圖片的檔案名字，兩人呆聽30分鐘，才聽到「delivery (外賣)」，但點進去又再遇到大量圖案，要逐一打開，才能知悉按鈕代表的是一人套餐、必勝批還是升級優惠，阿輝無奈說：「那些連結有如抽屜，我們永遠不知裏面有什麼，要逐個逐個打開。」兩人最後決定作罷。

#### 圖像動畫充斥 報讀器讀不到

肯德基網頁情況亦類近，兩人登入「網上訂購」頁面，軟件可讀到首頁「今期推介」的文字，其他頁面的按鈕只附連結，無文字描述。如想改打電話叫外賣，網頁的熱線電話亦只以圖片顯示，報讀軟件無法讀出，兩人最終亦無法完成外賣程序。

至於吉野家，首頁是Flash動畫配以直排的文字圖片，軟件斷續讀出不相干的單字，最終兩人找不到方法登入。另一連鎖店板長壽司的網頁，首頁同樣是Flash動畫，一般人可看到頁頂的外賣電話，但由於整頁以沒載有文字描述的圖片組成，軟件只能重複讀出「板長壽司，和之味集團成員；板長壽司，和之味集團成員……」沒完沒了，兩人最終亦決定作罷。



# Complaint Cases (4)

## Inaccessible Website for Amendment of Programme Choices



### 聯招網兩障礙 視障生難改選

[昔日文章]

文章日期：2012年07月23日

f Like 0

【明報專訊】在剛放榜的中學文憑試，考生只可在「大學聯合招生辦法」網頁修改選科，但該網頁設計為視障生帶來兩大障礙，一是要使用視障生無法操作的滑鼠；二是網頁圖片不設文字描述，令屏幕報讀軟件無法閱讀。平機會檢測後亦指聯招網不太有利視障生，促作改善。

聯招處回覆，將為完全失明學生作特別安排，並繼續檢視需改善地方，但為維持網頁穩定性，今年難以改正所有頁面。

聯招處：將檢視需改善處

香港失明人協進會項目經理高碧姬稱，近月接獲視障學生投訴無法使用聯招網，主要問題是要使用拖拉形式（drag-and-drop）進行學科改選，即要求使用者以滑鼠按着按鈕，拉至另一位置放下，對於只能使用鍵盤操作網頁的視障學生來說並不可行。



# WEB/MOBILE APP ACCESSIBILITY CAMPAIGN



# Web/Mobile App Accessibility Campaign



- Campaign since 2011
- To **facilitate access to online information and services** for all people of the community including persons with disabilities
- To promote wider **adoption of accessibility design** in **websites and mobile apps** of public and private organisations



# Multi-pronged Approach

Government  
Leadership



Fostering  
Awareness

Promulgating  
Guidelines and Tips



Nurturing Expertise &  
Organising  
Recognition Scheme



# What you can help?

- Promote the awareness of web/mobile app accessibility to other people
- Adopt web/mobile app accessibility design in websites, mobile apps or other ICT services
- Observe latest guidelines and standards





# Thank You!

## Web and Mobile App Accessibility Support Team

Email: [wac@ogcio.gov.hk](mailto:wac@ogcio.gov.hk)

Tel. no.: 2582 6078

### Web/Mobile App Accessibility Campaign

[www.webforall.gov.hk](http://www.webforall.gov.hk)

Facebook Page - 無障礙網頁運動



[www.facebook.com/Webforallhk/](http://www.facebook.com/Webforallhk/)

Facebook Page - 政府資訊科技總監辦公室



[www.facebook.com/OGCIOHK/](http://www.facebook.com/OGCIOHK/)



政府資訊科技總監辦公室  
Office of the Government Chief Information Officer



# Q & A

