

# Accessibility and Usability

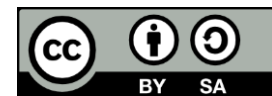
## 可及性与可用性

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# This session

## 本节内容

- What is accessibility? 什么是可及性?
- What are our responsibilities? 我们的责任有哪些?
  - Social 社会的
  - Ethical 伦理的
  - Legal 法律的
- Basic aspects of Accessibility 可及性的基本层面
- Guidelines 指导准则
- Problems 存在的问题

# The Web

## 网络

'The power of the Web is in its universality. **Access** by everyone regardless of disability is an essential aspect.'

“网络的力量在于它的普遍性，一个重要的方面是每个人都可以使用无论他健全与否”



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<https://www.flickr.com/photos/itupictures/16662336315>

Tim Berners-Lee 2001, W3C Director

<http://www.w3.org/standards/webdesign/accessibility>

# Accessibility? 可及性?

- Web accessibility 网络可及性
  - make your product accessible to all Internet users  
使你的产品对所有的网络用户都是可以访问使用的
  - both disabled and non-disabled  
健全人士和非健全人士
  - regardless of what browser or device they're using  
无论他们使用的是什么浏览器或是设备
- Many different interpretations 很多不同的解释
  - Technical 技术的
  - Legal 法律的
- Focus on reaching as many people as possible  
重视于可普及到尽可能多的人

# Web design aims

## 网页设计的目的

- Understanding of the importance of accessibility  
理解可及性的重要性
  - the difficulties people may encounter  
人们可能会遇到的困难
  - legal and social requirements  
法律和社会要求
- Awareness of important elements in web design  
意识到网页设计的重要元素
  - pages that are coded for interoperability  
互通性页面的编码
  - content that is understandable and navigable  
可理解和可导航的内容
- Awareness of available tools  
意识到可用的工具

# Who needs *Accessible Design*?

## 谁需要可及的设计?

# We all do!每个人!

Accessible web content benefits everyone:

可及的网页内容使每个人都受益:

- Book flights / hotel 预定机票 / 旅馆
- Online banking 网上银行
- Use tablet or smart phone 使用平板电脑或智能手机
- Search for the right University programme  
搜索正确的大学学科
  - Being able to FIND and access the information  
可以找到并获得其信息

# But particularly 特别是

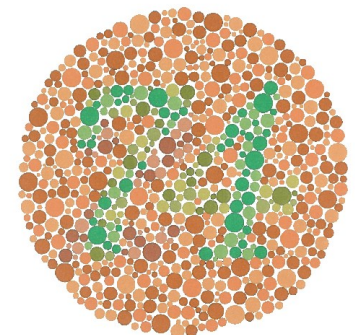
- People who have problems with 有以下问题的人们
  - Vision 视觉
  - Hearing 听觉
  - Movement 行动
  - Reading or understanding text 阅读或理解文段
- People who can not use a mouse or keyboard 无法使用鼠标或者键盘的人们
- People using screen readers 使用屏幕阅读器的人们
- People who are colour blind 存在色彩识别障碍的人们
- People with cognitive disability 存在认知障碍的人们
- Profoundly deaf people 深度耳聋的人们
- Slow Internet connection or a mobile phone 缓慢的互联网链接或是手机设备



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# Why should we care? The Social/Ethical Side

## 我们为什么需要关注？社会／伦理角度

- Those with disability NEED online services  
非健全人士需要网络服务

Blind and disabled people benefit from the Internet more than anyone else.  
盲人和非健全人士能从网络中获得更多的益处

Good design can make websites, information, products, services and buildings accessible to them.

好的设计可以使网络，信息，产品，服务和建筑对他们来说可及并可使用的

# Those that need it the most 最需要它的人

- Are often not able to access 经常无法访问
- UK Office for National Statistics (May 2015): 27% of disabled adults had never used the internet compared to 11% non-disabled adults  
英国国家统计局（2015年5月）：27%的非健全成年人从未使用过互联网而健全成年人的数据为11%

# Why Should We Care? The Legal Side

## Chinese legislation

### 我们为什么要关注？ 法律角度 中国立法

- Law on Protection of the Disabled (1990)  
非健全人士保障法 (1990)
- Extended: [Protection of Persons with Disabilities](#) (2008)  
扩充修订：非健全人士保障法 (2008)
  - ‘so the disabled may participate in social life on an equal basis’  
‘所以非健全人士可以平等地参与社会生活’

# Why Should We Care? The Legal Side 1 UK

## 我们为什么要关注？英国的法律角度1

- [Disability Discrimination Act \(1995\)](#) 非健全人士反歧视法（1995）
  - Applies to 'goods facilities and services' supplied to all customers of businesses in the UK  
适用于所有为客户提供“商品设施和服务”的英国企业
- [Disability Discrimination Act \(2005\)](#) 非健全人士歧视法（2005）
  - Extend the duty of 'reasonable adjustment' 扩充“合理调整”的义务
- [Disability and Equality Act \(2010\)](#) 非健全人士平等法（2010）
  - Introduced - concept of 'unfavourable' treatment (rather than less favourable comparator)
  - Equality Act 2010 [follows EU directives] “2010年平等法” [遵循欧盟指令]
  - [Legislation / Guidance](#) 立法／指导
- [The Mental Capacity Act \(DOH 2005\)](#)  
精神能力法案（DOH 2005）
- Quality Assurance Agency (QAA) Code of Practice on Students with Disabilities 质量保证局 不健全学生实践守则
  - Students with disabilities should have a learning experience comparable to the able bodied 非健全学生应有与健全学生一样的学习体验

# Why Should We Care? The Legal Side 2 UK

## 我们为什么要关注？英国的法律角度2

- [Human Rights Act \(1998\)](#) 人权法案 (1998)
  - Public bodies must ensure right to education and prohibition of discrimination 公共机构必须确保受教育的权利并禁止歧视
- Human Rights Act (2008) amendment  
人权法案 (2008) 修正案
  - Article 14 prevents discrimination because of disability  
文章14阻止由于非健全所存在的歧视
- UK Government public consultation on 'Delivering Inclusive Websites' (2009).  
英国政府关于“提供包容性网站”的公众咨询 (2009)
- British Standards Institute BS8878 (2010)  
英国标准协会BS8878 (2010)
  - Web accessibility – Code of Practice 网络可及性 – 实施规则
  - Equality and Human Rights Commission: [Accessibility statement](#)  
平等和人权委员会：可及性声明

# Litigation and the Web

## 诉讼和网站

- First legal case completed (Australia)  
第一个法律案件（澳大利亚）
  - *Maguire vs SOCOG* (1999): Sydney Organising Committee for Olympic Games  
Maguire vs 悉尼奥运会组委会（1999）
  - Blind user couldn't use website as they hadn't provided *alt* attributes  
盲人用户无法使用网站，因为他们没有提供alt属性（代替影音显示在浏览器中的内容）
- Southwest airlines, sued by blind users (USA)  
Southwest airlines, 由盲人用户起诉（美国）
  - Federal appeals court ruled that Web publishers are not required to comply with Disabilities Act  
联邦上诉法院裁定，网络出版商不需要遵守不健全人士法案  
(<http://www.deque.com/blog/airlines-web-accessibility-litigation/>)

# Standards Compliant Code

## 符合标准的代码

- W3C HTML, HTML5 & CSS standards are designed to promote accessibility  
W3C HTML, HTML5 及 CSS 旨在促进可及性
- Valid code will 有效代码将:
  - Help towards creating accessible web pages  
帮助创建可访问的网页
  - Work across a wide range of software and devices  
跨软件和跨设备工作
  - avoids the costs of multiple versions of content  
避免多个版本内容造成的成本
- Need to remain compliant? 需要持续符合?
  - Standards constantly changing 不断变化的标准
  - Needs constant monitoring 保持核查

# Webpage: Separation of Form and Content

## 网页：分离表单和内容

- Use CSS style sheets to format text  
使用CSS样式表规定文本的格式
  - Gives user maximum control of the appearance of a page  
给以用户对页面外观的最大控制权
  - Allows adjustments to browser  
允许调整浏览器
- Use headers (h1, h2 etc), lists (ul, ol, dd) etc. (block level elements to give structure to a document not formatting)  
使用headers (h1, h2 等), lists (ul, ul, dd)等 (块级元素给文档的结构而不是规定格式)
- Do NOT use tables to control layout  
不要用tables去控制页面排版
- Tables are block level elements Tables是块级元素
- Use CSS to fix position of web page content  
使用CSS去固定网页内容的位置



# Some easy visual rules

## 一些简单的视觉规则

- Avoid reliance on **colour** to give information  
避免依赖颜色来提供信息
  - Any information given using colour should be given by another cue  
由颜色给出的任何信息都应该给出额外的提示
  - Common use is **red** for a required field, or error message  
最常见的是用在必填字段或错误消息中使用的红色
- Have adequate contrast between foreground and background  
前景和背景要有足够的对比度
  - Accommodates contrast both the visually impaired and those using black and white screens
  - 使视觉障碍者和使用黑白屏幕的人都能适应的对比度

## Some easy visual rules 一些简单的视觉规则

- Sans-serif fonts are clearest on screen  
无衬线字体在屏幕显示上最清晰
  - Arial, Helvetica, Verdana are recommended  
推荐: Arial, Helvetica, Verdana
  - Use font family as 'fall-back' - sans-serif  
在编码中使用font family作为候补 – 无衬线字体
- **Very large text is not a good idea!**  
**非常大的字体不是一个好办法!**

# Navigation

## 导航栏

- Provide clear and consistent navigation  
提供清晰一致的导航栏
- The target of links should be made clear by using descriptive link text  
通过链接描述性文本使链接的目标变得更明确
  - `<a href="my_doc.pdf" title="My document in PDF">PDF</a>`

# Clear and Simple documents are best

## 清晰简单的文档是最好的

- Use simple vocabulary and clear grammar  
使用简单的词汇和清晰的语法
- Use a consistent style and layout across a site  
在网站上使用一致的样式和布局
- Navigation in the same place on each page  
每个页面的导航栏都在相同的位置
- Provide an overview of site content e.g. a site map  
提供网站内容总览，如：网站地图
- Avoid the use of colour that would be difficult for those who are colour-blind  
避免使用可能给色盲造成困难的颜色
- Split up page with whitespace  
使用空白区域分隔页面
- Avoid large blocks of text  
避免大块文本

# W3C and Web Accessibility

## W3C和网络可及性

- Web Accessibility 网络可及性
  - <http://www.w3.org/standards/webdesign/accessibility>
- Web Content Accessibility Guidelines (WCAG) 2.0  
网络内容无障碍方针 (WCAG) 2.0
  - <http://www.w3.org/TR/WCAG20/>
  - Perceivable 可感知的
  - Operable 可操作的
  - Understandable 可理解的
  - Robust 稳健的
- Web Content Accessibility Guidelines (WCAG) Overview  
网络内容无障碍方针 (WCAG) 总览
  - <http://www.w3.org/WAI/intro/wcag.php>

# Mobile Devices and Accessibility

## 移动设备和可及性

- IOS system (Apple) ios系统（苹果）

<https://developer.apple.com/ios/human-interface-guidelines/interaction/accessibility/>

- Android system 安卓系统

<https://developer.android.com/guide/topics/ui/accessibility/index.html>

# Chinese Web Accessibility Community Group

## 中国网络可及性社区组

<https://www.w3.org/community/cnwa/>

- W3C/WAI教育和拓展工作组的年初电话会议
- Tencent accessibility instructions 腾讯网无障碍说明  
<http://www.qq.com/accessibility/>
- Accessibility Union 信息无障碍产品联盟  
<http://accessibilityunion.org/about>
- Lack of awareness not lack of technical skills  
缺乏意识而不是缺乏技术
- Evaluation of web accessibility in China: changes from 2009 to 2013  
评估中国的网络可及性：从2009到2013的变化

# WCAG 2.0 Priority Checkpoints

## 网络内容无障碍方针2.0优先检查点

- Provide text alternatives for non-text content.  
为非文本内容提供文本替代
- Provide captions and other alternatives for multimedia.  
为多媒体提供字幕和其他替代方法
- Create content that can be presented in different ways  
创建可以用不同方式呈现的内容
- Make it easier for users to see and hear content.  
使用户更容易看到和听到内容
- Make all functions usable from a keyboard.  
使所有功能都可通过键盘操作
- Give users enough time to read and use content.  
给使用者足够的时间去阅读和使用内容
- Do not use content that causes seizures.  
不要使用造成不适感的内容
  - i.e. flashing visual content 闪烁的视觉内容



# WCAG 2.0 Priority Checkpoints

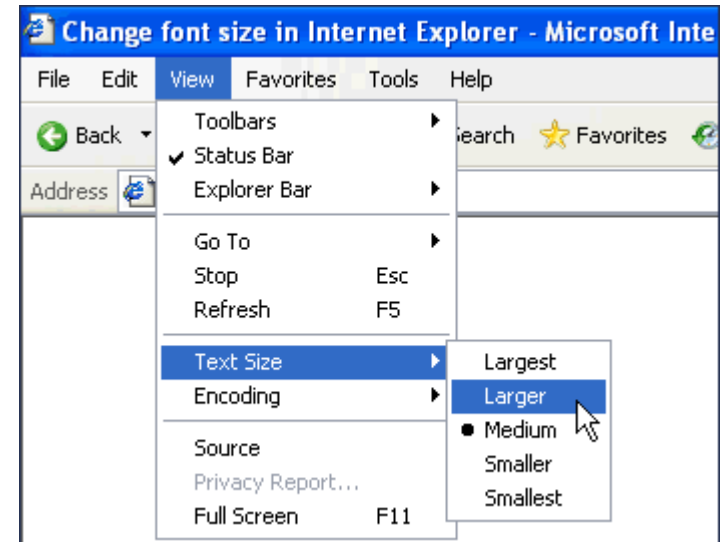
## 网络内容无障碍方针2.0优先检查点

- Help users navigate and find content.  
帮助用户浏览和查找内容
- Make text readable and understandable.  
使文本可读并可理解
- Make content appear and operate in predictable ways.  
使内容以可预测的方式显示和操作
- Help users avoid and correct mistakes.  
帮助用户避免和纠正错误

# Measurements – especially font size

## 方法 – 尤其是字体大小

- Relative font sizes make websites more accessible and easier to read  
相对字体大小使网站更易于访问和阅读
- People should be able to change the size  
人们应该可以改变字体大小
- Needs to be easy to change size  
需要容易改变大小
  - Within the browser  
在浏览器中
  - With the mouse wheel  
通过鼠标滚轮
  - Buttons on site  
网站上的按钮



[Site map](#) | [About this site](#) | Font size:

[More viewing options](#)

Search

Powered by Google ([View top searches](#))

# Measurements... suggestions?

## 方法...建议?

- Em is a relative unit. Em是一个相对单位
  - the measurement of an em is the width and height of the letter M  
对于em的测量是字母M的高度与宽度
- Use ems, not pixels. 使用ems，而不是像素值
- In order for text to be resized it needs to be a relative not a fixed unit of size.  
为了调整文本大小，它需要是一个相对而不是固定的大小单位
- Set the body font size in terms of percent and everything else in ems  
设置文本字体大小使用百分比和ems单位
- Then the font size should look roughly the same across all browsers.  
在所有的浏览器中字体的大小应看起来大致相同

# What about Flash?

## 关于Flash?

- Flash is now DEAD – do not use it  
Flash现在已经废弃了 – 不要使用它
- Wont display in iPhone / iPad and most browsers  
无法在iPhone/iPad和大多数浏览器中显示

Image of Flash on a gravestone

# Accessibility Evaluation and Testing

## 可及性的评估与测试

- Automated evaluation 自动评估
  - Validate your (X)HTML/HTML5 验证你的(X)HTML/HTML5
  - Use WAVE 使用WAVE网站
  - WAVE Web Accessibility Tool <http://wave.webaim.org>  
WAVE网络可及性评估工具
- Always start with a manual review of the site  
网站进行评估一般开始于手动审核
  - Look for 'Tag abuse' 查找“标签滥用”
  - Check for Keyboard accessibility 检查键盘在网站中的可使用性
  - Check in a Screen Reader (if possible) 在屏幕阅读器中检查（如果可能）
  - Look at checkpoints on W3C site 查看W3C网站上的检查点
- User testing 用户测试
- Iterative process - repeat as necessary!  
迭代过程 - 根据需要重复！

# Conclusion

## 总结

- Accessible design is important to make sure webpages  
可及设计对网页的重要性：
  - Work on as many platforms as possible  
确保在尽可能多的平台上工作
  - Can be used by as wide a variety of people as possible  
确保可以由尽可能广泛的人们使用
  - Do not prevent use because of lack of thought  
避免因为缺乏想法而阻止使用
- The legal aspect 法律角度
- Social element too 社会元素
- All websites should be accessible to all  
所有网站对所有人都应该是可以使用的
- Accessible design makes the web easier for EVERYONE  
可及设计使网站的使用对每个人都更容易