



Universal Design Guidance for Online Public Services



nDA

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Preface

In 2011/2012 the National Disability Authority's Centre for Excellence in Universal Design conducted extensive research into the lived experience of people in Ireland using public sector websites.

This research involved asking over 1,200 people about their experience of these sites, extensive consultation with public sector website managers, end-user representative bodies and Irish web development companies, as well as expert evaluations and user testing of public sector sites. The results of this research are available on the Centre for Excellence in Universal Design's website.

This research found that nearly 50% of survey respondents do not use 10 of the most popular online public services, preferring instead to use the phone or visit an office in person. Clearly there is a lot to be done to encourage Irish citizens to use online public services. The research also found that public sector bodies face many challenges in making their online services engaging, usable and accessible while at the same time ensuring the content remains comprehensive and legally accurate. Working within such boundaries, innovative and creative approaches are essential to ensuring that the needs of the end user are kept central during the process of design, development, maintenance and upgrading of our online public services in Ireland.

This guidance aims to show how Universal Design processes and techniques can be progressively used to enable more people to use online public services with ease and satisfaction. For the web, Universal Design means designing and deploying a website so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability.

The following document offers practical guidance to managers, developers and content creators of public sector websites in Ireland on applying Universal Design principles to maximise the effectiveness of those websites.

Part 1 of this document deals with the process of Universal Design – how to innovate and create usable and accessible online content and services that take the diverse needs of people in Ireland into account
Part 2 looks at the Universal Design of a range of common website features such as search, content, navigation, mobile and accessibility.

All the recommendations contained in this report will cost public bodies little or nothing to implement and are likely to result in better efficiencies for front-line services and as well as better customer satisfaction.

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Part 1: What is Universal Design?

In terms of websites, the goal of Universal Design is to make sites usable by all people, to the greatest extent possible. It is about creating flexible websites that are usable by people with the widest range of capabilities, in the widest range of circumstances, situations and environments.

For the web, it means designing and deploying a website so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability.

Websites and web content that are developed using Universal Design principles will benefit everyone – not just individuals with temporarily or permanently reduced abilities in a specific area. Those benefits are often far greater than originally intended.

1.1 Benefits to site owners

There are many positive reasons to adopt a Universal Design process for websites. Among them are:

- **Service delivery cost** - excellent and universally designed online services will attract users away from higher cost channels. Poor online service may drive them away.
- **Speed and efficiency** – online interactions with service users are delivered rapidly, captured electronically and can be verified by the users before submission. This makes the output of this interaction immediately available for processing without data entry reduces the possibilities for errors and rework
- **Maintainability** – in many cases measures adopted for Universal Design have secondary benefits. Clear, simple content is easier to update and translate. Websites that use technical standards and good practices typically require less maintenance, have better search visibility and are easier to upgrade.
- **Customer satisfaction** – lots of users (and not just under-30s) prefer to deal with a good online service than with other channels. Meeting this demand builds the reputation of the organisation
- **Measurability** – online service delivery through well designed websites is much more readily measurable than other channels. Metrics from the online channel can be used to improve

“Servicing queries via the website requires no staff time as it's self-service, compared with:

- *4 minutes over the phone*
- *11 minutes face to face*
- *15 minutes by email”*

- Public sector web manager

services, measure performance against targets and in some cases help guard against fraud or misuse

- **Cost saving** – as with other design features, including Universal Design from the outset is much less expensive than reworking a site later in the development cycle to overcome usability and accessibility problems

1.2 A Universal Design process for online public services - the 4 Ds and 7 Ps

Universal Design can be seen as a process. The process of Universal Design describes 4 simple stages that can be undertaken when faced with any design task. A design task may be small (the online search form needs improvement) or large (the entire website needs redesigning to better meet users needs and organisational goals).

The 4 Ds are:

- **The Discovery phase** – where you are keeping an open mind, and deferring any decision-making until you have considered a range of alternatives and approaches, and you have collected as much information as is feasible, including new or existing feedback from people (users).
- **The Define phase** - you decide what you want the design to do (functionality); to help achieve this you need to identify the range of people that will be using the design, and consider what they want the design to do.
- **The Development phase** – you are looking at the process of actualising the needs you have identified in the previous stage. This stage typically includes the development of low-fi preliminary designs (paper and pencil) and the process of refining these, using input from a diverse range of users.
- **The Delivery phase** - you are looking at measuring the design to determine how successfully it achieves its goals. You may need to get people to formally review the near final-design with expertise in specific areas.

“Opportunities for users to provide feedback should be integrated into the design of new electronic systems to facilitate suggestions from those that use the systems with a view to ensuring continuous improvement.”
- “eGovernment 2012 – 2015” Action no. 14

In each of these phases we consider the 7 Principles, the 7 Ps of Universal Design (Appendix A) to ensure all requirements are taken into account, inspire design decisions or evaluate what is being developed. Particularly useful principles for the design of online services are:

- **Equitable use** – ensuring that the website is usable and marketable to people of diverse abilities. Designing for diversity ensures that everyone can access, use and understand the site
- **Perceptible information** – necessary information is communicated effectively
- **Flexibility in use** – the design accommodates a wide range of individual preferences, abilities and technologies
- **Simple and intuitive to use** – the site is easy to understand regardless of the user’s experience, knowledge, language skills or current concentration levels
- **Tolerance for error** – the user is encouraged and assisted to complete their transaction online.¹

1.3 Involving people – internal and external

Engagement with a range of stakeholders is an essential part of the Universal Design process to improve your service. Often, users will quickly highlight usability problems that are not at all obvious to site owners who have expert knowledge on the topics about which they publish.

"User experience is often something that comes down to the end of the process, whereas in reality it should be planned from the start and focused on throughout the process."
 - Representative from web design and development industry

When developing a site or redeveloping a section of it, be sure to include a “user requirements” exercise. Widely used techniques include personas, card sorting, usage scenarios, analysis of existing site metrics and user testing and interviews.

Once a site or section is up and running, having a token comment form is not enough – public bodies need to be committed to improving their sites on the basis of feedback from users in a meaningful dialogue, and in a wide range of ways. Include all users – including internal stakeholders such as front-line staff who may be ‘power-users’ of the services. Senior management views are also crucial but they too may need reminding of the importance of considering users’ views in the process.

Among practical ways to encourage user feedback and involvement:

¹ As based on “The Seven Principles of Universal Design”, developed in 1997 by a working group led by the late Ronald Mace in the North Carolina State University: <http://www.universaldesign.ie/explore&discover/the7principles> See Appendix A

- For a large and complex site, consider setting up a user advisory panel to provide regular feedback
- For smaller and less complex sites an annual user testing review may be considered if budgets allow
- Provide clear instructions to gather unsolicited and solicited feedback, in a variety of formats (web form, email, phone)
- Adopt a systematic process for dealing with that feedback, including communication with the user who submitted it
- Consider periodic reviews of user feedback, such as adding it as an open-agenda item in management meetings
- Use the feedback to inform staff training on improving the user experience

1.4 Format of the guidance

The following high-level guidance aims to highlight the most important 10 website features that should be considered. This guidance avoids providing specific measures to implement these principles, but these can be found in the “Learn more” resources provided in the end of each section.



Figure 1 Key areas of Universal Design guidance for online public services

Learn more

NDA/CEUD guidance on user testing:

<http://universaldesign.ie/useandapply/ict/universaldesignforict/usertesting>

Part 2: Universal Design for websites

2.1 Site structure and navigation – provide good information architecture

A well-structured website with navigation that allows users to find key content quickly can contribute strongly to good user experience and successful interaction with the website.

Clear site structure

On many websites, navigation items are not grouped in a user-centric way. They may be grouped by the organisation’s internal structure, or in other ways that appear arbitrary to the user and reduce usability. Information on a single topic may appear in more than one section or not be grouped with other relevant content.

The screenshot shows the Citizens Information website with a navigation bar containing: Home, Categories, My Situation, Find a Centre, Find an Address, and What's New. The 'My Situation' dropdown menu is open, showing two columns of options: 'I am...' (with sub-items like 'A person with a disability', 'Being made redundant', 'Unemployed', 'Starting a business', 'A carer', 'Looking for employment schemes', 'Going to college', and 'See more.....') and 'I want to...' (with sub-items like 'Apply for a medical card', 'Apply for a GP Visit Card', 'Apply for a passport', 'Apply for a driving licence', 'Get a Police Certificate', 'Buy a used car', 'Register to vote', and 'See more.....'). Below the menu, the page content is organized into sections: 'Social Welfare' (with sub-items like 'Back to School Clothing Allowance, Child Benefit Payment, Family Income Supplement'), 'Education and Training', 'Housing' (with sub-items like 'Household Charge, Mortgage Interest Relief, Stamp duty, Applying for local authority housing, Tenants' rights and...'), and 'Moving Country' (with sub-items like 'Visa requirements for entering Ireland, Becoming an Irish citizen through naturalisation, Irish citizenship through birth or...').

Above: CitizensInformation.ie has a clear structure and provides user roles and tasks under “My Situation”

A good site structure (sometimes referred to as “information architecture”) will avoid these problems and sort and present information in ways that make sense to users. It may combine an underlying category-based structure with other user-focused paths into content. These are often user roles (“I am a...”) or tasks (“I want to...”).

Poor navigation

Often but not always related to poor website structure, poor navigation can be a major barrier to usability, with problems such as:

- Too many items to select from in each menu
- Non-standard terminology used in menus. (Why use “get

“Often [the site structure] almost looks like pages copied from a Word document but not structured in any meaningful way.”
- Representative from web design and development industry

in touch" when "contact" is standard?)

- The current active navigation item not being highlighted
- Primary and secondary navigation that are not sufficiently visually different
- Broken navigation metaphor, for example when an item in a secondary navigation menu does not link to another location in the current primary navigation area but to a different part of the site

Learn more

NDA/CEUD guidance on being consistent in structure and navigation:

<http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/designers/non-technical/des-1.1>

CEUD design guidance on effective navigation based on recognised conventions:

<http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/designers/navigation-and-orientation/des-2.1>

Morville, P. and Rosenfeld, L. (1998) **Information Architecture for the World Wide Web Designing Large-scale Web Sites**, O'Reilly Media, Sebastopol, California.

2.2 Graphic design and page structure

Use graphic design and typography to present information clearly, highlighting the most important elements, avoiding barriers to use and making sure users know what to do next

Use fonts carefully

Select fonts and colours carefully to improve the clarity of presentation and user satisfaction. Among the important considerations:

A sans serif font: Verdana

A serif font: Times New Roman

A sans serif font: Verdana

A serif font: Times New Roman

The sans serif font with poor contrast

The serif font with poor contrast

Above: at smaller sizes and small screen size, serif fonts can be harder to read. Low contrast can also affect readability badly

- Choose a font that works well on-screen. Simpler fonts, usually sans-serif, are best. Avoid decorative fonts
- Body text should be at a size that is highly readable on a computer screen with a resolution that is typical of your users. (Site traffic metrics should record visitors' screen resolutions.)
- Site coding must not lock font sizes. Users must be able to resize fonts to suit themselves
- Don't use images of text and don't set font size in pixels
- Ensure that the space between lines of text (leading) is big enough for easy reading
- Set text ragged right rather than justified and make sure line lengths are not excessive
- Avoid ALL CAPITALS, *italic* and underlined text (except for links)

Take care of colour contrast

Ensure that your design has a high enough contrast between text and background colours to meet accessibility criteria and facilitate users. There are many software tools available that will test colour contrast ratios against accessibility criteria.

Apply logical, conventional page structure

Do not expect users to learn an unconventional page structure just for your website. Unless there are very good reasons to do otherwise, you should use the conventions that have been well established:

- **Primary navigation** – usually horizontal near top of page
- **Most important content** – users expect to find this high on the page and at the left or centre
- **Long pages may deter users** – if a page becomes too deep consider breaking it into multiple pages
- **Search box** – is usually in the top right area of the page
- **A breadcrumb trail** – (such as [Home](#) > [About](#) > Structure) can allow users to quickly orient themselves on a page
- **Shoulder navigation** – (sometimes called “utility navigation”) in the top right area is usually for certain standard functions such as Home, About or Sitemap, rather than major divisions of content

There are many more of these conventions. In a three-column layout the right-hand column is usually for extra or optional content. Legal, privacy and accessibility statements are usually in the page footer.

Take care of branding

It is important for users to know who they are dealing with and to establish trust in your organisation. Consistent branding, with the organisation's name and logo in a prominent place near the top of each page, helps to do this. It is important to avoid competition from other branding.

If users have to be sent to a third-party site – for payment processing, for example – they should be warned of this in advance. The link to pay could do this: “**Pay now** on our Acme Co secure payment page”. (Users should always be warned if they are going to be sent to a different site or into a new browser window.)

Learn more

NDA/CEUD guidance on

- creating good contrast - <http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/designers/non-technical/des-1.4>
- providing additional navigation aids - <http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/designers/navigation-and-orientation/des-2.2>

Downloadable book: Research-Based Web Design and Usability Guidelines

- Chapter 6, Page Layout <http://www.usability.gov/pdfs/chapter6.pdf> (PDF 21.9MB)
- Chapter 11, Text Appearance <http://www.usability.gov/pdfs/chapter11.pdf> (PDF 11.2MB)

2.3 Search – make content easy to find on the web and on the site

Searching is one of the primary methods by which users find content on the web. Your website should support and assist searching on search engines and on your site

Support web search

A lot of traffic to your site will start with a search on Google or another web search engine. Your site should support users in finding their way to the most relevant content on your site by:

- Using webmaster tools to make sure the site is indexed by search engines
- Making sure that metadata titles and descriptions are good (see below)
- Checking web analytics and webmaster tools to see what you can improve for web search

About 969,000 results (0.30 seconds)

[Department of Foreign Affairs - Citizenship](#)
www.dfa.ie > Home > Services to the Public
Entitlement to Irish citizenship by birth in Ireland and by descent is explained. Documents required for citizenship by Foreign Births Registration are listed.

[Irish nationality law](#) - Wikipedia, the free encyclopedia
en.wikipedia.org/wiki/Irish_nationality_law
is automatically an **Irish citizen** if he or she is not **entitled** to the citizenship of any ...
A person who is **entitled** to become an **Irish citizen** becomes an **Irish citizen** if: ...

[Becoming an Irish citizen](#)
www.citizensinformation.ie > ... > Moving Country > Irish citizenship
11 Nov 2011 – If you are an **Irish citizen**, you are **entitled** to carry an Irish passport and leave Ireland to travel abroad, to vote in an Irish election and to be ...

Above: for many users, the first glimpses of your content will be in search results pages

Remember that users arriving on your site from a search have probably not seen any other pages on your site and must quickly be able to figure out where they are and where they can go next.

Provide good on-site search

Some users will use your on-site search, either by choice or because it is not obvious where to find the content they want.

To help them:

- Make on-site search look and behave like the web search engines they are most accustomed to
- Present search results clearly, ranked by relevance and without duplicate results
- In the search results page, include the term searched for and the number of matches found
- Allow for misspelled words or variant spellings at least of the most important search terms. For example a search for “driving license” should also find “driving licence”

“Search is a challenge - people are used to using Google search so they expect in-site search functions to be as good.”

- Public sector web manager

Most users will use only the basic search option and dislike having to choose between search types. So the default search on your site should be a simple search, without switches or controls. If you offer an advanced search option, make sure it does not complicate the basic simple search. Perhaps advanced search could be offered only from the results page after a simple search.

Learn more

NDA/CEUD guidance on:

- Simplifying and improving form design - <http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/designers/forms/des-5.1>
- Preventing errors and assisting recovery from errors - <http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/designers/forms/des-5.2>

Web search - Google Webmaster Academy:

<http://support.google.com/webmasters/bin/static.py?hl=en&page=checklist.cs&tab=1095579&form=1095579&rd=1>

On-site search - Jakob Nielsen on search usability: <http://www.useit.com/alertbox/9707b.html>

2.4 Text content – writing well for the web pays off for users and for your organisation

The web is a distinct medium and your text content must be written for the web if it to maximise its value to users and to your organisation

Readable content helps users succeed

How readable and clear website content is to users will often determine how successful their visits are. Content that is difficult to read is a barrier to users achieving their goals. This affects all users, but may be a particularly acute problem for younger and older people, those with low literacy, a cognitive difficulty or a reading-related condition such as dyslexia. Or simply those who are tired and have a low level of concentration, or are in a hurry to find information.

Write for your users

People consume text differently online than they do in print. They read little and are more inclined to scan text. Since you cannot change their behaviour, you must adapt your text content to accommodate them. Use the inverted pyramid structure:

Type of content	Word count
Heading	8 words
Sentences	20 words
Opening paragraph	30 words
Other paragraphs	60 words (2 - 3 sentences)
Web page	600 words

1. Start the text with the key conclusion or fact
2. Present immediately relevant information next, to add detail to the key fact
3. Continue with supporting detail or background information – knowing that few users will read that far
4. Offer links to background or related information if available

Apply other web writing techniques:

- Break text into chunks using short paragraphs, lists and sub-headings to help users scan
- Always use the simplest and clearest language possible
- Apply Plain English principles – whatever the language
- Prefer active verbs (“we provide support for” not “support is provided for”)
- If you must use jargon or abbreviations, explain them at first mention on the page

- Use your organisation name in full on every page (for users who land there from search engines)
- Develop a house style (or adopt a third-party style guide) to ensure consistency
- Adopt word-count targets that are appropriate for your users and your content (see table above)

Train content authors and editors – and their managers – in these techniques. Managers should identify and acknowledge good writing for the web.

Learn more

National Adult Literacy Agency writing and design resources: <http://www.simplyput.ie/>

CEUD guidance for content creators and editors -

<http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/contentproviders>

2.5 Content quality – apply the highest standards

Users will quickly identify quality problems with content on a website and may leave at once if they doubt the quality of information they are getting

Trust is hard to win, easy to lose

Establishing and maintaining the trust of your users is an important element of effective online service. If users do not trust a site's quality they are likely to leave and use an alternative channel.

Among the ways in which low content quality can harm the user experience are:

- **Out-of-date content** – finding one item that is clearly out of date will undermine confidence in all the surrounding content, no matter how good
- **Misspellings** – these inevitably raise doubts along the lines of “if the site cannot get the spelling right, what else might be wrong?”
- **Inconsistency** – for example, using the same terms and the same formats for dates and times is one of the hallmarks of professional publishing. Failing to do so will distract and irritate users



- **Poor images or clip art** – good, relevant images support communication while poor ones do the opposite. Avoid images that are low-quality, irrelevant or clearly bought-in clip art

Content quality control processes

Ensuring that content quality is set to a high level from the outset and maintained there is a matter of quality control process. There is no magic bullet for this. It is a matter of doing many small things well. Among them:

*"Many public sector sites publish obscure information – there is no excuse for publishing information that people cannot understand."
- Member of user representative body*

- Have managers take ownership of the content function and manage it actively
- Establish an editorial process that includes – at the very least – one round of revision and sign-off on all content
- Train content editors so that they know how to prepare web content and have the confidence to recognise content quality
- Support content authors and editors with standards and guidelines, including a house style guide
- Make content work a core part of editors' job definition and work plan – not an add-on that will drop to the bottom of the list of priorities

One of the most valuable processes to ensure content quality is to carry out regular reviews and to include user feedback in these. A review should look at each item in a body of content and assess it against standards and guidelines. It can then be assigned a status such as:

- No change required
- Minor updates needed due to passage of time
- Major rewrite required
- No longer relevant and should be removed

In most cases, content that does not have to be on a website should not be there, obscuring the content that is required.

Learn more

US Government guidance on content review process: <http://www.howto.gov/web-content/manage/keep-content-current/establish-a-review-process>

2.6 Links and microcontent – guiding your users

Links are the street signs of the web and deserve care and consideration. Likewise, microcontent (headings, sub-headings, captions) is much more important than its size would indicate

Write great links to help your users

Links are a defining characteristic of the web and have a major impact on usability. Good links:

- Are two to five words long
- Occur naturally in the sentence
- Describe the target that they link to
- Invite the user to do something with a call to action
- Are not “click here”
- Are simple and direct rather than clever or smart

Examples of linking text and text surrounding it	
Poor	Better
The latest press releases are in the News section of this website	Check out our latest press releases
The annual report can be downloaded	Download the annual report (PDF, 530KB)
The rules document is at http://www.mysite.ie/schemes/rules.htm	Read the rules of the scheme

Links can be added inline (in the text of a page) or separately (at the end of the page or in “learn more” box). Which style of link to use depends on its purpose:

- Links that present a “fork in the road” away from the current page are probably best shown inline.
Example: “You can read [case studies of these projects](#) or watch the [introductory video](#)”
- Links to background or supporting information can be shown separately

Press Releases

September 2012

28 September
[Presentation by the Minister for Social Protection to the Joint Committee on Education and Social Protection in relation to the forthcoming EPSCO meeting and EU Presidency Priorities.](#)

21 September
[Department of Social Protection Press Statement](#)

17 September
[Minister Burton launches the 2010 Actuarial Review of](#)

Above: Long linking text is hard to read

Microcontent – small and powerful

Certain content elements get a lot more attention than others. In addition to headings and links, already discussed, the high-profile content includes image captions and sub-headings. Create and check these with care as they will be read (or scanned) much more often than surrounding text. Remember:

- **Captions** for images should give the information that the user requires to understand the image in the context of the rest of the page. Secondly, they can convey a flavour of the page content to draw the user in. It can be very frustrating for a user to encounter an interesting image and then be unable to easily find out what it is, and why it is relevant
- **Sub-headings** are used to break up long passages of text and to provide signposts to users who are scanning the page. First choose where you need to place a sub-heading. Then pick a word or phrase from the paragraph just after that position to use as the sub-heading. When there is a choice, use an interesting phrase rather than a commonplace one.
- Always use **heading mark-up** correctly, such as the heading tags in HTML. Don't create text that just looks like headings.

How to write good titles and descriptions

Well considered titles and descriptions (metadata) will also help your pages to be found by search users and, once found, encourage those users to visit your site.

These should be different for every page and manually written rather than automatically generated from the site structure (at least for key pages). To write them well:

- Pick out two or three key phrases that are the most distinctive and typical of your page
- Ensure these key phrases use the terms most likely to be used by your users
- Titles should start with the most important key phrase for the page, be under 70 characters and not contain any excess words
- Descriptions should:
 - Include key phrases, or variants of them, at the start
 - Be factual and accurately reflect the content
 - Be less than 156 characters long, including spaces

As well as good metadata, it is helpful to have descriptive file names for pages – (www.mysite.ie/pensions-how-to-apply.htm not www.mysite.ie/display.asp&pageID=493785829453).

Learn more

NDA/CEUD guidance on

- using structure and style to maximise readability and scanning - <http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/content-providers/cp-3>
- making links meaningful <http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/designers/navigation-and-orientation/des-2.3>

BBC, "Text Links Standards v2.1", Future Media Standards and Guidelines –

<http://www.bbc.co.uk/guidelines/futuremedia/accessibility/links.shtml>

WebAIM, "Introduction to Links and Hypertext" – <http://webaim.org/techniques/hypertext/>

W3C Web Accessibility Initiative, "Understanding Metadata" -

<http://www.w3.org/TR/UNDERSTANDING-WCAG20/appendixC.html#understanding-metadata>

2.7 Forms – good design critical for good service

Web forms are a key part of public sector websites, from booking systems or sending feedback to online self-service. Poor forms are unusable and end up being time-consuming for the user and the organisation. Getting their design right is a critical success factor.

Clear instructions on forms

Well-designed and tested forms can greatly enhance the user experience. There should be simple instructions and obvious Next and Back buttons – users should not lose their inputs if they follow a help link or click back to check input on a previous page.

Forms for important tasks should include easy access to online and offline help, including the alternative channels (phone, mail etc) available. Forms should be tested extensively by the developer and with users.

Get the basics right

There are many basic usability rules that you should apply to improve your forms:

1. Don't ask for information you don't need. It annoys users and clutters your form
2. Ensure every form field is labelled with a sensible name and that the label is explicitly attached to the field in the page code
3. Make it clear which fields are mandatory and must be completed
4. Grouping related fields together (for example elements of an address) and giving the group a legend makes it much easier for users to know what to do
5. Many users like to (and some users have to) move between form fields with the tab key. Careful form layout and if necessary using the tabindex attribute in HTML can support this
6. Make the "Next" or "Submit" button obvious, and more prominent than any competing buttons such as "back"
7. If users will need reference numbers or documentation to complete the form, ensure that they know this with a prominent "Before you begin, you will need..." message at the top of the form, or on an intermediate page linking to it
8. Don't make the text in the forms much smaller and with lower contrast than the main page content

Note: If you do not provide your contact information we will not be able to respond to your query.

The information you have given us appears to be incomplete or incorrect:

- > * You need to give us at least two lines of your address in order for us to deal with your request.
- > * Please give details of your query

Subject:

* First Name:

* Surname:

* Address Line 1:

* Address Line 2: * Required

Address Line 3:

Above: "extra" address lines are a required field in this form

Validate user input and give good feedback

Users make mistakes in forms. They leave mandatory fields blank, put impossible values into date fields or items that are not email addresses into an email field.

Sorry, please try again

There's been an unexpected error. Error : 0. Please try it again later.

Continue 

Above: an "unexpected error" message

You can try to reduce the rate of user errors with clear labelling and explicit instructions but mistakes will still happen. When they do, you need to deal with them. To do so:

- Use appropriate HTML choices
- Validate (check) every field when the user goes to submit the form
- Carry out this validation “client-side” in the browser, so the user does not have to wait for the form to be sent to the server to be validated there
- Give clear feedback that shows what field is the problem and state what is the problem
- Highlight problem fields but do not rely on colour alone for highlights, use boxes or text too
- Make sure users do not have to re-enter all their information because of a problem in one field

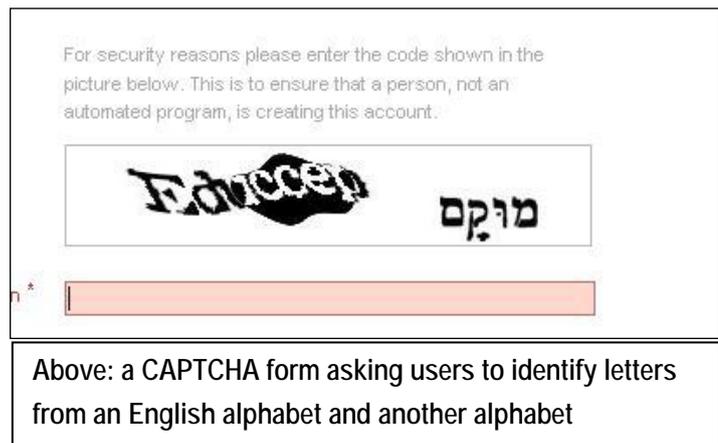
Server-side validation – make it usable too

Not all validation can take place client-side. (For example you may need to check that a username is not already in your database or to check that the form input does not contain malicious code.) If there are errors from server-side validation, present these in a similar way to the client-side validation so there is consistency.

CAPTCHAs

Forms often use CAPTCHA devices to reduce the risk of spam submissions. These always constitute an impediment to legitimate users as well as to spammers.

Where possible, avoid the use of CAPTCHAs. User testing conducted by NDA shows they are very difficult to use for most users and nearly impossible for many people with a disability.



Where anti-spam measures must be adopted in forms, adopt World Wide Web Consortium techniques to allow CAPTCHAs to be accessible. In practice, this means providing the CAPTCHA test in more than one format (for example visual and auditory versions) and providing a text alternative that describes these formats.

Success at last

When users have successfully submitted all fields, you may want to show them a summary of their information and ask them to confirm details, particularly if it is a complex form. On completion (and at every stage of a multi-page form) users should get clear feedback on their progress and what they should do next.

Learn more

NDA/CEUD guidance on forms -

<http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques/developers/forms>

WebAIM: "Creating Accessible Forms" – <http://webaim.org/techniques/forms/>

W3C: "Inaccessibility of CAPTCHA: Alternatives to Visual Turing Tests on the Web"

<http://www.w3.org/TR/turingtest/>

Pennsylvania State University: "HTML and Web page Accessibility - CAPTCHAs"

<http://accessibility.psu.edu/captcha>

2.8 Documents – providing clear, well structured documents on the web

Many public sector bodies now use their website as the main channel for publishing documents. Care should be taken to ensure people know what they are downloading and that the content is usable and accessible.

Creating good quality PDFs, MS Word, and others

When publishing documents to the web, consider the best format and ensure all documents use a clear and consistent style that is easy to read. Document formats such as MS Word and PDF can now be made accessible. This does not happen automatically, and care should be taken to ensure that accessibility is considered in all stages of the document production.

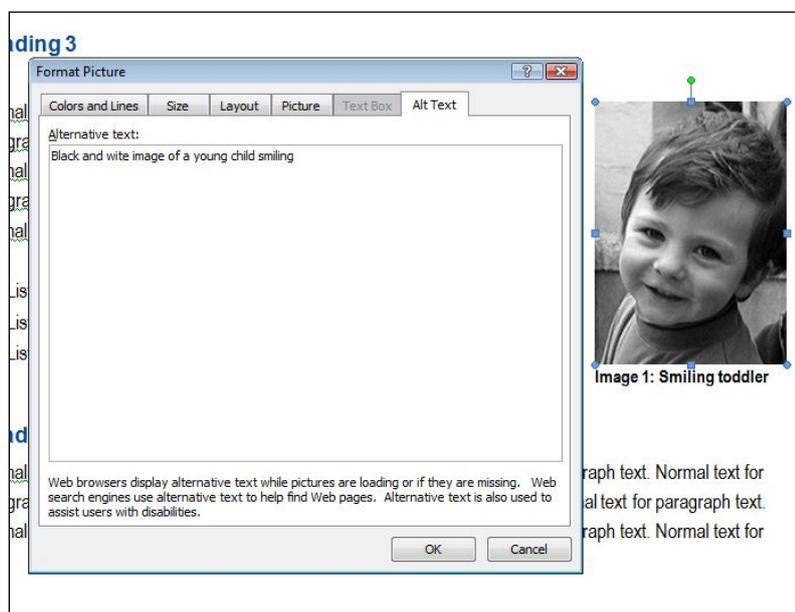
- Shorter content that is a core part of the website should usually be provided as a webpage in HTML
- For all documents, a summary should be provided in HTML, plus a note of the document format and file size.
- Use pre-set formats such as headings, bullets etc in your source document (e.g. MS Word) to format and structure your document. This structure will be carried over into other formats such as PDF, making it more navigable and accessible.
- Ensure accessibility is considered when creating and publishing content in document formats such as MS Word or PDF. This goes for documents created internally as well as documents created by external researchers or print design companies.
- Where a document is not accessible, clearly state how someone may request this document in an accessible format.

How to use documents

Care in preparation can make documents more accessible and more usable for your readers. In addition to other design considerations (for example clear fonts and good contrast) prepare documents with Universal Design in mind. Steps to ensure this include:

- Giving documents a structure using heading styles
- Giving long documents (more than 10 pages) a table of contents
- Providing alternative text (“alt text”) for non-text elements

- Filling out document properties (author, title, subject, keywords) – and consider providing a link back to the website in the comments field if there is not a link in the body of the document
- Saving or exporting your document to PDF instead of using a print-to-PDF driver
- Ensuring accessibility features such as tagging are turned on when saving
- If possible, using PDF editing software that supports accessibility to check the accessibility of the PDF file
- For very long documents and reports, consider breaking the document into chapters for users who may only want to download and read one section.



Above: adding Alt text to an image in Microsoft Word 2007

The “scan to PDF” option on document scanners generally turns scanned text into an image and saves the image as a PDF file. This type of PDF is no longer a text element and requires a full text alternative to be accessible. It is usually best avoided

Learn more
 WebAIM reference on PDFs and accessibility - <http://webaim.org/techniques/acrobat/>
 Adobe Reader accessibility information - <http://www.adobe.com/accessibility/products/reader/>
 Adobe accessibility centre - <http://www.adobe.com/accessibility/>

2.9 Technology / mobile

With the rise of mobile, it’s important that web content is usable on the widest range of technologies and devices that your audience use.

Increasing use of mobile internet – on smartphones, tablets and other devices – is a reality for public service organisations. There are at least 741,000 smartphone owners in Ireland² in addition to tablets like the iPad. According to NDA research the number of people using mobile devices to access online public services is much lower than this.

Web pages have traditionally been designed for presentation on full-scale PCs or laptops, using desktop browsing software. Accessing this content on mobile devices often results in a poor or unusable experience.

Mobile devices present several particular usability problems for web designers. These include:

- Small, low-resolution screens and small fonts
- Poor lighting or glare where they are used
- Limited input options – small keyboards, touchscreen, no mouse
- Slow and sometimes unreliable connectivity
- A wide variety of browsers and operating systems

Design for all devices

To be usable by the widest range of people, sites need to work well on mobile and tablet devices at least at a basic level. Higher levels of functionality on these devices will offer convenience and better user experience to a wider range of users. Aim for platform neutrality, using techniques that adapt each site version to a range of screen sizes and capabilities:

- Mobile and print-friendly styles are a relatively straightforward low-cost option



Above: smartphone ownership in Ireland

" Public bodies will review existing web provision of services to determine if an online or offline "app" based and/or a mobile optimised approach could better facilitate mobile users. - "eGovernment 2012 – 2015" Action no. 9

"Mobile design can be much more accessible by default because of the constraints the platforms put on design."
- Representative from web design and development industry

² Behaviour & Attitudes for Return2Sender, national survey among 1,000 adults. June 2011

- A mobile-optimised site gives mobile users customised content and simplified presentation, but this requires extra work by the publisher to develop and maintain mobile versions of content
- Responsive web design requires even more work in design and coding, but gives smartphone and tablet users full content in a fluid grid layout that adapts to their devices – and all information is in one location

Decide which devices, browsers and platforms to support by checking overall market share (through sites such as Statcounter.com), and research of what your users are currently using (such as site metrics and by carrying out surveys).

Only use apps where appropriate

Apps are in vogue but they have some major disadvantages, including:

- Cost, as different apps are required for each mobile platform
- Being device specific instead of all-inclusive
- The extra effort for users – they must first download and install the app before using it
- Content may not be available to the wider web community – only to people who download the app

Therefore apps should only be used where appropriate, and never as a substitute for a full website. For example, they could be considered for tasks that require intensely feature-rich applications and/or intense data manipulation such as checking real-time transport information, or that take advantage of a device's specific hardware such as its camera or GPS. The use of HTML 5, CSS 3 and ARIA techniques for mobile services should be considered over apps designed for a specific device.

Learn more

Web Accessibility Initiative resources on mobile accessibility – <http://www.w3.org/WAI/mobile/>

2.10 Accessibility

Accessibility is not optional – but it's not as difficult to achieve as you may think.

WCAG is fundamental

Complying with WCAG 2.0 to level AA conformance is a legal requirement for public sector websites, and is fundamental to applying Universal Design to your website. The good news is that many of the recommendations made earlier in this document for usability reasons also align with WCAG guidelines. For example, recommendations on simple language, clear navigation, well-designed forms and good colour contrast all address aspects of WCAG 2.0.

"Where a public body communicates in electronic form with one or more persons, the head of the body shall ensure, that as far as practicable, the contents of the communication are accessible to persons with a visual impairment to whom adaptive technology is available." - Disability Act (2005)

Images frequently cause problems (for example for people using screen readers), but there are simple techniques for accessibility:

- When uploading the image, supply equivalent information through alternative text (Alt text)
- For more complex images (charts, diagrams, graphs), don't just provide Alt text – give a longer description to convey the essential information
- Avoid text within images or provide an alternative



Above: Alt text must convey an image's most important information (not just that this is "Emergency number")

Other design obstacles to accessibility to watch out for include:

- Unclear labels for navigation and important buttons,
- For non-mouse users, having to tab through many items to get to a simple information point such as a form error message on a page
- CAPTCHA problems
- Inaccessible PDF
- Lack of alternative text for video and audio content

Audio and video content – such as embedded videos, animations, audio podcasts and slideshows – are often overlooked too; just as with single images, they need equivalent text to convey what they contain. Techniques to do this for video include subtitles, extended captions, a full transcript, Irish Sign Language, or a good summary of what it is about.

“Easy to read” is a format specifically designed to be both easier to read and easier to comprehend. It is specifically of benefit for people with Intellectual Disabilities but may also benefit younger readers and people with very low literacy levels. Typically, “easy to read” content is supported by images and graphics that help explain the text. Consideration should be given to providing or making available content in this format that is specifically of interest to persons with an Intellectual Disability.

Ensure all public procurement for website design and development services includes accessibility as a mandatory requirement.

Finally, beware of “accessibility churn”. Websites evolve, and accessibility is an ongoing commitment: while a site may comply with WCAG 2.0 at its launch, those standards also need to be maintained as new content and features are added. Regular internal web accessibility reviews will measure your website and its current content against accessibility standards, identifying problems to be fixed to improve the site's accessibility.

An accessibility audit can be entirely manual, though for larger sites the testing can also be supplemented with automated auditing tools. These software tools aren't a magic solution, but they can be quickly applied to a large number of pages to identify certain accessibility problems such as missing Alt text, as well as checking that the site conforms to standards for page mark-up.

Learn more

NDA/CEUD guidance on

- website accessibility auditing – <http://www.universaldesign.ie/useandapply/ict/webaccessibilityauditing>
- Procuring an accessible website - <http://www.universaldesign.ie/useandapply/ict/itprocurementtoolkit>
- guidance on web accessibility for developers, designers and content creators/editors - <http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques>

Web Content Accessibility Guidelines 2.0 - <http://www.w3.org/TR/WCAG/>

Further reading

Universal Design

Centre for Excellence in Universal Design, Ireland: "What is Universal Design?"

<http://www.universaldesign.ie/exploreampdiscover>

Louis Rosenfeld and Peter Morville: "Information Architecture for the World Wide Web: Designing Large-Scale Web Sites", O'Reilly Media (2002)

US Department of Health and Human Services: "Research-Based Web Design & Usability Guidelines", US Government Printing Office (2006)

<http://www.usability.gov/guidelines/>

UniversalDesign.com (private philanthropic initiative)

<http://www.universaldesign.com>

Search

Google Webmaster Academy

<http://support.google.com/webmasters/bin/static.py?hl=en&page=checklist.cs&tab=1095579&from=1095579&rd=1>

Jakob Nielsen: "Search and You May Find" (1997)

<http://www.useit.com/alertbox/9707b.html>

Web content

National Adult Literacy Agency: "Simply Put", online resources on writing and design

<http://www.simplyput.ie/>

National Disability Authority: "Make Your Information More Accessible" (Accessibility Toolkit for Public Sector Staff)

<http://accessibility.ie/MakeYourInformationMoreAccessible>

HowTo.gov: "Establish a Content Review Process" (US Government guidance)

<http://www.howto.gov/web-content/manage/keep-content-current/establish-a-review-process>

BBC, "HTML Metadata Standards v1.2", Future Media Standards and Guidelines

<http://www.bbc.co.uk/guidelines/futuremedia/desed/searchmetadata.shtml>

Web accessibility

W3C Web Accessibility Initiative (WAI)

<http://www.w3.org/WAI/>

Centre for Excellence in Universal Design, Ireland: "IT Procurement Toolkit"

<http://www.universaldesign.ie/useandapply/ict/itprocurementtoolkit>

Centre for Excellence in Universal Design, Ireland: "Web Accessibility Auditing"

<http://www.universaldesign.ie/useandapply/ict/webaccessibilityauditing>

Centre for Excellence in Universal Design, Ireland: "Web Accessibility Techniques"

<http://www.universaldesign.ie/useandapply/ict/webaccessibilitytechniques>

National Disability Authority: "Make Your Websites More Accessible" (Accessibility Toolkit for Public Sector Staff)

<http://accessibility.ie/MakeYourWebsitesMoreAccessible/>

US Social Security Administration: "Creating Alternative Text for Images" (July 2011)

http://www.section508.gov/docs/SSA_Alternative_Text_Guide.pdf

PDFs and accessibility

WebAIM: "PDFs and Accessibility"

<http://webaim.org/techniques/acrobat/>

Adobe: "Adobe Reader Accessibility"

<http://www.adobe.com/accessibility/products/reader/>

Adobe accessibility centre

<http://www.adobe.com/accessibility/>

Mobile accessibility

W3C Web Accessibility Initiative: "Mobile accessibility" (September 2012)

<http://www.w3.org/WAI/mobile/>

Ethan Marcotte: "Responsive Web Design", A List Apart (May 2010)

<http://www.alistapart.com/articles/responsive-web-design/>

BBC: "Mobile Style Guide - Global Visual Language for the mobile web" (June 2009)

http://downloads.bbc.co.uk/guidelines/mobile_guide_v1.1_compressed.pdf

Forms

Government of Canada Treasury Board Secretariat: "Improving the accessibility of forms" <http://www.tbs-sct.gc.ca/ws-nw/wa-aw/mwsa-rswa/form-eng.asp>

WebAIM: "Creating Accessible Forms"

<http://webaim.org/techniques/forms/>

Appendix A: 7 Principles of Universal Design

Source: <http://www.universaldesign.ie/exploreampdiscover/the7principles>

Principle 1: Equitable Use

The design is useful and marketable to people with diverse abilities.

Principle 2: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

Principle 3: Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Principle 4: Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Principle 5: Tolerance for Error

The design minimises hazards and the adverse consequences of accidental or unintended actions.

Principle 6: Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of fatigue.

Principle 7: Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

Appendix B: Accessibility Statement Template

Source: <http://accessibility.ie/MakeYourWebsitesMoreAccessible/AccessibilityStatementTemplate.html>

Accessibility Statement

Our commitment and approach to maintaining an accessible website

[Your organisation's name] is committed to:

- **maintaining an accessible website.** We state our commitment to this in [a document name, such as a Customer Charter].
- ensuring that this website achieves "Level AA" [conformance](#) to the [Web Content Accessibility Guidelines \(WCAG\) 2.0](#), to comply with the [National Disability Authority's Code of Practice on Accessibility of Public Services and Information Provided by Public Bodies](#). (The National Disability Authority's [Centre for Excellence in Universal Design](#) has an introduction to [policy and legislation](#) relevant to Universal Design in Ireland.)
- ensuring that all new information on the website will achieve "Level AA" conformance to the Web Content Accessibility Guidelines (WCAG) 2.0.
- **including accessibility when we procure** 3rd-party systems or upgrades to existing systems.

1. This website's conformance with official accessibility guidelines

The website currently has [the conformance rating given in the last web accessibility audit] conformance to the Web Content Accessibility Guidelines (WCAG) 2.0. Our most recent web accessibility audit for this website was on [date of the last web accessibility audit].

2. Areas for improvement and time-lines

We are aware of some areas on the website where we could improve accessibility. We are currently working to achieve this. We hope that this website will achieve "Level AA" conformance to the Web Content Accessibility Guidelines (WCAG) 2.0 by [deadline for conformance].

Areas for improvement, time-lines for improvement, and alternatives			
Section of website	Need for improvement	Time-line for improvement	Alternative access
Section of website	Need for improvement	Time-line for improvement	Alternative access
[Name of	[First accessibility problem,	We hope to have	If you have problems using the [name]

Areas for improvement, time-lines for improvement, and alternatives			
Section of website	Need for improvement	Time-line for improvement	Alternative access
section of website]	such as incorrect use of headers, reliance on a mouse, insufficient colour contrast, and so on]	improved the accessibility of the [name] section of the website by [deadline].	section of the website, call us on [phone number] and ask to speak to [part of your organisation]. You can also write to us at [address of the organisation]. [Adjust this cell as necessary]
[Name of section of website]	[Second accessibility problem here, such as incorrect use of headers, reliance on a mouse, insufficient colour contrast, and so on]	We hope to have improved the accessibility of the [name] section of the website by [deadline].	If you have problems using the [name] section of the website, call us on [phone number] and ask to speak to [part of your organisation]. You can also write to us at [address of the organisation]. [Adjust this cell as necessary]

3. How to send feedback on this website's accessibility

We welcome feedback on the accessibility of this website.

- Email us at [\[email address\]](#)
- Fax us on [fax number].
- Phone us on [phone number].
- Visit us at [address], Ireland.
- Write to us at [address], Ireland.

4. Accessibility features of this website

[First feature, such as resizable text]

[Description of how this feature can help users]

[Another feature, such as compatibility with screen-readers]

[Description of how this feature can help users]