

## Guidelines for public sector authorities

This is an openly published report based on deliverables of the Pilot Project Pilot “We4Authors” on Web accessibility for web authoring tools producers and communities (LC-00788801) lead by Funka in collaboration with CTIC and funded by the European Commission.

In the report, we use the term CMS (Content management System) as synonymous to authoring tool.



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# Guidelines

## What is accessibility

Accessibility means that all users, no matter of ability, should have the possibility to use online content and services. Another way of putting it is that accessibility is a way of making sure your website is usable for as many people as possible. Yet another perspective is that accessibility is a human right, as described in the UNCRPD.

The target audience for accessibility is not just people with disabilities. Accessibility concerns everyone. If accessibility is in place it goes unnoticed. If it is not in place, some of us will be entirely excluded from the information, some will have serious problems reading and understanding it and the rest will be rather annoyed.

Other groups that benefit from accessibility are for example many elderly, people using mobile devices, non-native speakers, users under stress and users with slow network connections. If we live long enough, most of us will experience some kind of impairment which makes accessibility important for us, either temporary after an accident or because of illness or ageing.

## Accessibility in authoring tools

Digital accessibility can be divided in three parts:

- Technical/development
- UX/design
- Content

The technical part of accessibility is the code that is provided by the authoring tool, templates and other kinds of functions. Technical accessibility is especially important for users of assistive technology. If the technical accessibility fails, users with assistive technology can be totally excluded from the content. The authoring tool has a big impact on the technical accessibility.

The UX/design part is the user interface, how the website or service looks, how readable it is and how the user navigates. This is of course important for all users, but even more for users with cognitive, visual, motor or learning disabilities. The authoring tool can create problems in the UX/design of the website, especially if the templates used are not accessible. When the web author creates a form or a table using a function in the authoring tool, the result can be accessible or non-accessible depending on how the function is created.

The content part covers text, images, video, illustrations, audio and every other kind of content. This is of course important to all users, but even more for users with different kinds of disabilities. The authoring tool can support the web authors in publishing content in an accessible way, by providing tool tips and easy instructions.

## Web Accessibility Directive

An EU directive is an EU-wide legislation that is implemented nationally in each member state.

The European Web Accessibility Directive is a minimum harmonization directive. The directive says that public sector bodies and other organisations that are more than 50% publicly owned, financed or managed must comply with minimum accessibility requirements. Each member state has to transpose the directive into national legislation. Countries that have had accessibility regulations before are updating their laws and countries that did not have previous legislation in the field are creating new laws. The member states are free to go beyond the minimum requirements when it comes to scope and coverage.

The scope of the directive is websites, extranets, intranets, documents and apps. There are exceptions:

- Public broadcasters (usually covered by other accessibility regulations)  
NGOs, but only if they do not provide services that are essential to the public or specifically aimed at persons with disabilities
- Live video and audio
- Online maps, as long as an accessible alternative is provided for maps intended for navigation
- Third party content (out of control of the website owner)
- Reproduction of heritage collections (for example ancient manuscripts)

Member states may also exclude content of schools, kindergartens and nurseries, but not essential administrative functions.

Requirements of compliance with the directive is done stepwise:

### 23 September 2019

- Websites, extranets, intranets and documents published **after** 23 September 2018 shall comply with the directive.
- Content for closed groups (extranets and intranets) published **before** 23 September 2019 shall comply with the directive after they have undergone a substantial revision.

### 23 September 2020

- Websites, extranets, intranets and documents published **before** 23 September 2018 shall comply with the directive.
- Content for closed groups (extranets and intranets) published **after** 23 September 2019 shall comply with the directive.
- Pre-recorder audio and video published **after** 23 September 2020 shall comply with the directive.

### 23 June 2021

- Apps shall comply with the directive.

## Enforcement

- The enforcement of the Web Accessibility Directive is done in three ways:
- Each member state regularly monitors the compliance of the Web Accessibility Directive using a methodology provided by the European Commission. The result of the monitoring is reported to the European Commission.
- Each public sector body publishes an Accessibility Statement declaring the level of accessibility of the interface in question.
- End users have the possibility to require content in alternative formats, should they not be able to Access the content on the website. If the alternative format is not provided within a reasonable time, end users can send a formal complaint to a national ombudsman or similar.

The public sector body is obliged to provide a feedback mechanism and inform about the complaints mechanism. If the public sector body does not comply and also does not provide an accessible alternative in due time, it can be fined.

## Accessibility requirements

The Web Accessibility Directive states that websites and apps covered by the directive must be perceivable, operable, understandable and robust. Presumption of conformity is based on the EN301549 v.2.1.2, which contains the WCAG 2.1 AA. Annex A of the EN-standard contains a table showing which requirements are relevant for compliance with the directive. Annex C contains the determination of compliance.

## User needs

In the implementation acts of the Web Accessibility Directive, 9 different user needs are covered:

- Usage without vision
- Usage with limited vision
- Usage without perception of color
- Usage without hearing
- Usage with limited hearing
- Usage without vocal capability
- Usage with limited manipulation or strength
- Minimize photosensitive seizure triggers
- Usage with limited cognition

## Assistive technology

**Assistive technology** (AT) is a device (product or service) that help people with disabilities to overcome barriers in the society, for example a wheelchair for a person who have a difficulty walking. AT provides greater independence and is important to achieve accessibility. When it comes to ICT, AT can support users with input or output, compensating for the impairment of the user. Sometimes the AT is enhancing the form, for example dyslectics may need the content to be highlighted and visually impaired may need it magnified. Sometimes the AT transform one method of presentation to another, such as transforming text to speech or text to braille.

The list below is a high-level overview of the most common kinds of AT.

## AT for input

### Alternative Keyboard solutions

There are users who, regardless of assistive technology, can't use a mouse at all. They depend on keyboards. Anything that can be done with a mouse can be done with a keyboard as long as programs, applications, services and websites are constructed according to standard.

For many users however a keyboard in itself may be hard to use. The keys may be hard to hit without hitting several others at the same time, the different buttons and functions may be difficult to understand for persons with cognitive disabilities, for people with moving disabilities the buttons of a keyboard may be difficult to reach. As a result of this there are many different solutions designed to aid users when using their keyboards.

Many people with motor impairments use a virtual keyboard instead of a physical one. The virtual keyboard appears on screen where the users then click the desired keys. For people with difficulty accessing large surfaces there are smaller keyboards and for people with learning disabilities there are keyboards with programmable keys.

Please note that even if the user can use a computer without the use of a mouse there is always a need for some kind of keyboard to use it effectively.

### Alternative mice solutions

Most users navigate using a mouse and most interfaces are designed with mouse navigation as a first priority. People, who suffer from rheumatism, different paralysis impairments, repetitive strain injury and so on, however may experience difficulty using a mouse. For this group of users there are a lot of different solutions. There are head mice, for people who can't move or use their arms at all. There are roll-mice, joysticks and mice with different button solutions for people who have problems handling an ordinary mouse.

### Alternative input devices

For users with different kinds of motor impairments, there is a wide variety of input devices. Most of them are used together with a virtual keyboard showing on the screen. The assistive technology includes devices for the user to provide input with the voice, the eyes, the breath, a pointer attached to the head or another part of the body, buttons or clickers that are placed exactly where the user can reach them in a comfortable way etc.

### Braille display

A braille display is a tactile alphabet that makes it possible to "feel" the letters thus become readable. For people who are both deaf and blind braille is the only way of accessing information via computer, but many who are severely visually impaired use braille as a complement to speech during computer use. A braille display functions basically as a speech synthesis but instead of providing information with sound it does so with braille.

## AT for output

### Screen readers

A screen reader's task is to transform what is displayed graphically to other forms of expression such as speech or braille. Dyslectics may have the need for text to be presented in alternate forms of visual presentation. Blind or visually impaired on the other hand may in addition to that also need structure presented in an alternative manner. How different screen readers work depend on the disability.

## Speech synthesis

Speech syntheses are often used in combination with a screen reader. It is the synthesis that transforms text to speech. The screen reader assists the user in finding the text and sending it to the synthesis while the synthesis itself converts text to speech.

## Magnifying software

By using magnifying software, the visually impaired can magnify parts of or entire screens. Most browsers today have the ability to enlarge text and alter background colors. Some of them let you enlarge the page with as much as 1000 %. One major disadvantage with magnifying software is that it is easy to lose one's general view.

## Reading and writing support

For users with difficulty to read and write there are a lot of different assistive technologies. In addition to screen readers and speech synthesis, there is software that transforms speech to text, spellchecks, synonym suggestions and software that either present text magnified or in fonts and colors preferable to the user.

## User testing with persons with disabilities

For any authoring tool to provide accessibility, a close collaboration with end users are essential. Standards and regulations provide the minimum requirements, but to really understand how to create solutions that really work for all users, testing is needed. This is especially true when it comes to testing with assistive technology. For example; it is possible to download demo-versions of the most commonly used screen readers, but a sighted developer will not intuitively understand how blind users use the AT if he or she never saw a blind user in action. There is also quite a difference between what is theoretically possible to do with AT and what AT-user actually do.

## Setting up a test panel

A test panel of users with disabilities should, as any other test panel, be as broad as possible when it comes to at least age, gender, level of education, geography and technical interest or maturity. All the user groups of the EN301549 should be covered:

- Usage without vision
- Usage with limited vision
- Usage without perception of color
- Usage without hearing
- Usage with limited hearing
- Usage without vocal capability
- Usage with limited manipulation or strength
- Minimize photosensitive seizure triggers
- Usage with limited cognition

## Finding users

It is important to create a network of end users with disabilities who can help you test for accessibility issues during drafting, prototyping, designing and developing in an iterative way. Testing only at the end of the process will not result in accessibility. To attract end user as testers, it is important to remember that these individuals are experts. They should be

paid like the experts they are and, they have the right to receive feedback about the results of the development, to acknowledge how important their input is.

The disabled persons organisations may be a good way to reach users, but remember they are NGOs, often with limited resources and many volunteers. If an organization is helping you to put together a test panel, the organization should be paid like any other service provider.

### **Specific accessibility needs during testing**

When performing user tests with persons with disabilities, it is of course very important to understand the specific needs of the users. Make sure you ask the users about any needs they may have, like interpreter, transportation, orientation, dietary restrictions or anything else important to them. Encourage users to bring their own computer or smart phone, especially if they use AT. This make the test situation much more “real” and you can focus on testing the relevant interface or object. If the users need to accommodate to AT, settings or preferences that are new to them, the test results will be less valuable and clear. It also becomes hard for you to understand what is causing the problem detected in the tests. When users bring their own tech, this also means you have to allow more time for each test compared to if you have the same computer for everyone, since setting up will take time for each tester.

## Procurement process

### Before procuring an authoring tool

From an accessibility perspective, there are a couple of basic questions you need to ask yourself before choosing your authoring tool. For example; What tool are you using today, do you know what possibilities it has to support accessibility? If you are not happy with the accessibility support the tool is providing, do you know it that has to do with the version you are using, the supplier who developed it for you or the specifications you used when ordering it? There may be possibilities in the current platform that you do not know about.

Another way to prepare is to benchmark with other organisations that are similar to your own. What tool to they use? What are they happy with and what is not working well? By learning from your peers, you can avoid mistakes and make better decisions.

If you are deciding to look for a new tool:

Make sure you know what limitations there may be in your technical environment.

Think carefully about the total costs when choosing between open source and licensed tools. If you do not have development competences inhouse, open source may end up being just as expensive as the licensed products.



A tool with many partners or suppliers to choose from gives you more flexibility and makes you less dependent on a specific vendor.

## Requirements for accessibility

One of the most important parts of procuring accessible is to use clear requirements. You should of course base your accessibility requirements on the EN301549/WCAG standards, but only referring the technical standards is usually not enough. It is the interpretation of the standard, the actual solution provided, that makes your website accessible. So, when creating your technical specifications, make sure to describe what outcome you are looking for, not only specifying the standard to be fulfilled.

A good way to check if the supplier has the required competence when it comes to accessibility is to ask for

- Reference websites that comply, including compliance report or similar
- Reference clients who can ensure that accessibility issues were taken care of
- Descriptions of how the supplier works with end users with disabilities
- Descriptions of how end user testing is made

There does not seem to be any quality assurance for accessibility when templates, modules and other items are provided to go with the authoring tool. Some authoring tools provide templates to go with the CMS itself, whereas others have partners providing templates and yet others have a third party-market for templates. There are also authoring tools that claim their templates are for inspiration and demonstration purposes only. Be very careful when making use of templates, since research has found that neither the producers, providers nor suppliers take responsibility for the accessibility of the templates.

Another successful strategy is to be clear already in the call for tender that you are going to use a third-party expert to control the accessibility, and that you are going to include compliance in the contract, as part of a requirement to get paid.

## Testing during procurement

Testing is sometimes seen as something to be done at the end, or during development. That is of course true, but do not forget to test during procurement as well. This can save both time and money and is key to making sure you buy the right thing.

Make sure that there is time enough in the process to perform testing.

In the EN301549, Annex B can be used for comparing bids. It contains a table that shows the relationship between the user needs and the technical requirements.

When procuring a website, you are buying something that does not yet exist. Therefore, mutual understanding and trust can sometimes be almost as important as competence. You are of course not allowed to choose a supplier because the staff is nice, but if you use the

possibility of negotiation in your procurement process, you can make sure things like good communication skills is an award criterion.

The accessibility requirements of the Web Accessibility Directive; Perceivable, Operable, Understandable and Robust are stated in the EN301549 v.2.1.2/WCAG 2.1 AA.

When testing for accessibility, you can for example use the internationally acknowledged accessibility evaluation methodology of W3C, called WCAG-EM<sup>1</sup>.

To make sure you catch all potential accessibility issues, you need to do manual testing, but you can use automatic testing tools to support you.

To test for accessibility, each success criterion of the standard(s) must be divided into smaller parts, to cover all aspects of the requirement depending on situation and context. For example, the success criterion 1.3.1

”Information, structure and relationships conveyed through presentation can be programmatically determined or are available in text”, can be broken down to a series of specific tests (below are just some examples):

- Text that is visually indicated to be a heading is coded as a heading
- The heading structure begins with a main heading and does not skip levels
- The heading structure is logical and represents the hierarchy of the content
- Lists are correctly coded and used in a correct manner
- Paragraphs are created correctly using the p element
- Forms are coded correctly with form elements
- Labels are linked to corresponding form object
- Sections of forms are grouped
- Error messages are tied to their respective form field
- Headings for tables are coded with the caption element
- Row and column headings are coded with the element
- The scope attribute is used in order to set a direction for all line and column headings

Each of the tests should then be validated as a pass or fail or not applicable. The test result can also be a partial fail, when the result can be debatable, or when the result is not a clear fail but at the same time not the best solution from an accessibility point of view. When you are uncertain about the interpretation of the result, do ask certified accessibility experts who have experience in the field to help you out.

## Contract – make sure to use it

Do not leave the contractual issues entirely to the legal or administrative offices. In the contract, you have a fantastic opportunity to make sure the supplier is delivering what you agreed to.

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<sup>1</sup> <https://www.w3.org/TR/WCAG-EM/>

If you have internal competence to audit the delivery, that is of course positive. But when it comes to areas of financial importance - and potential conflict – consider using a third party for the controlling part. It may make it easier to decide if something is actually compliant or not. This whole process is much easier to succeed in if you have made it clear from the start that there will be an (external) audit made.

Whatever you do, do not pay before you are satisfied. You must make sure that at a part of the payment is connected to approval of the delivery when it comes to accessibility. For inspiration, you can look at how your standard contract handles for example delays. Accessibility should be treated at least as strict as late delivery.

Of course, there should also be some kind of guarantee covering bug fixes etc that occur after the first period after release, since some issues may be hard to catch before you start actually using the website.

## Development phase

During the development phase, make sure to appoint someone to be responsible for accessibility in the internal project team. This does not mean that one person should do everything, but since there are so many aspects to consider and decisions are often taken in an agile way when developing a website, it is valuable to have one person focusing on accessibility so it is not forgotten in any perspective. In larger projects or organisations, there will be need for one person responsible for accessibility in each part of the project, in each team or in a role-based manner. Accessibility concerns almost every aspect of the project, so it is important that it is on the agenda during from start to end.

Make sure to have a documented testing procedure in place before the project starts. The procedure should, depending of the size and character of the project, specify for example:

- When do we test for accessibility?
- What platforms do we use?
- What AT do we use?
- When do we test internally and when do we test externally?
- When do we test with users?
- Which test criteria do we use?
- How do we document the result?
- How do we prioritise the back log?

etc

Successful testing takes time. Make sure to plan for the testing well in advance. For some parts of the testing, the website needs to have content and that means that the web authors performing the tests must have had training in the new or updated authoring tool.

## Maintenance of the website

When the project is finished, accessibility is sometimes less of a priority. But a website that is accessible when delivered can easily become inaccessible if the web authors do not publish in an accessible manner.

Important things to remember during maintenance:

- Make sure that the manuals and instructions for publishing include accessibility features. That is usually more efficient than providing specific accessibility manuals on the side.
- Train the authors regularly in accessibility and let them meet end users with disabilities and try AT. Ask staff with varying abilities if they would be interested to inspire their colleagues.
- Do not let untrained users or users who do not publish regularly do everything on the website.
- As the website evolves, do make regular spot checking to check for accessibility issues.
- Pose the same accessibility requirements on all added functionality and third-party products.

## Training and resources

There are several ways to enhance your internal knowledge about accessibility and a wide variety of resources that can be used. There is a whole industry providing all sorts of training, testing and support, but also resources that are free of charge.

One particularly valuable way of ensuring that your staff has the right competence is to make sure they are certified in web accessibility by the International Association of Accessibility Professionals, IAAP.

<https://www.accessibilityassociation.org/certification>

You do not need to be a member to be certified, but membership is of course a good way to keep up to date with what is happening in the industry and also a very good opportunity to get in contact with the thought leaders of the industry.

<https://www.accessibilityassociation.org/>

To prepare for the certification exam, the body of knowledge which contains the building blocks of the certification is free of charge.

<https://www.accessibilityassociation.org/exampreparation>

There are also accredited training providers that offer preparatory courses.

<https://www.accessibilityassociation.org/exampreparation>

There are also other free online training resources in web accessibility, for example:

W3C training:

<https://www.w3.org/blog/category/training/>

ITU training:

<https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Self-Paced-Online-Training-on-ICT-Accessibility.aspx>

MOOCAP training provided by 8 European Universities, funded by the EU:

[https://moocap.gpii.eu/?page\\_id=839](https://moocap.gpii.eu/?page_id=839)

Webaim has a list of online resources

<https://webaim.org/resources/>