

# Accessible cookie notices

Research insights and recommendations



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## About the report

This report describes the end result of a project carried out by the Norwegian Computing Centre and the Funka Foundation, with funding from the Norwegian Directorate for Children, Youth and Family Affairs during 2024.

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## Introduction

Most websites use cookies to collect visitor information, typically to enhance user experience, such as remembering language preferences or storing shopping carts. Under privacy regulations, websites must inform users about cookie usage and obtain their consent. However, the process of consenting to cookies can be challenging, particularly for individuals with cognitive impairments or those using assistive technologies. Difficulties include understanding the provided information, navigating cookie pop-ups, and grasping the consequences of their choices

As the EU Accessibility Act (EAA) is implemented across the EU and Norway, there will be increased focus on ensuring online services, including e-commerce, are accessible to all. Despite the widespread use of cookies, no systematic studies have examined the clarity and accessibility of cookie consent processes. This report presents the results of a project that has evaluated the accessibility of cookie notices and examined their impact on users with disabilities.

The project was conducted by the Norwegian Computing Centre and Funka Foundation, with funding from the Funded by the Norwegian Directorate for Children, Youth, and Family Affairs (Bufdir). The project analysed cookie banners from a selection of public and private websites. Methods included literature review, expert evaluations, usability testing, and a survey. The results will inform guidelines to help website owners ensure that their cookie notices are accessible and inclusive to everyone. Universally designed cookie consent mechanisms are essential to ensure that all users, regardless of ability, can use digital services without barriers and feel confident in their data privacy choices.

## Literature review

The first step in the project was to conduct a literature review drawing from scientific studies, summary papers, and grey literature from the past decade. The purpose of the literature review was to get an overview of the state of research regarding cookie banners and accessibility, as well as to inform the selection of cookies for further evaluation.

Search terms included “web cookies,” “GDPR privacy,” “usability,” “accessibility,” and “dark patterns,” with Google Scholar used to identify relevant sources. Ten studies were reviewed, with four focusing on non-technical aspects, five on technical aspects, and one covering both. The non-technical review explored user perception, design, ethics, and archetypes of cookie banners, revealing that design influences behaviour and that simplified choices (e.g., accept/reject) led to more user engagement. Some studies found that large banners discouraged website interaction, while others suggested blocking notices improved informed decision-making. Users tended to trust websites based on overall design rather than cookie banner details. The technical review addressed usability, accessibility, and dark patterns, showing that poor contrast and missing headings created challenges for visually impaired users. Studies also found that users often misunderstood the consequences of dismissing cookie banners, with pre-selected options influencing unintended choices. Additionally, deceptive design elements, such as misleading text and confusing structures, were identified as key concerns affecting user decisions.

## Cookie banner archetypes

To select banners for expert evaluations and usability tests, a classification system was developed based on literature and direct observation of Norwegian websites. The archetypes were categorised by design, content, choices, behaviour, and accessibility features:

- **Design & Layout:** Banner position (top, bottom, left, right, centre), size (small, medium, large), font size, and button styles.
- **Content & Language:** Amount of text, technical vs. simplified language, and language consistency with the website.
- **Choices & Options:** Types of consent options (e.g., accept/reject, multiple settings), opt-in vs. opt-out, and organisation of settings (links, tabs, or all options upfront).
- **Behaviour & Patterns:** Modal blocking vs. non-blocking banners, sticky notices, automatic hiding, conflicts with other pop-ups, and mobile vs. desktop differences.

- Understanding & Accessibility: Inclusion of additional information (privacy links, tabs, or inline content) and visual aids (icons, images).

## Website selection

A diverse selection of websites was analysed for expert evaluation and user testing. The goal was to cover different archetypes while including major Norwegian sites across various sectors. The final selection included seven sites from different sectors and representing a variety of the identified cookie archetypes:

- Finn.no (online marketplace)
- HLF.no (hearing-impaired association)
- Skatteetaten.no (Norwegian Tax Administration)
- Bufdir.no (children, youth, and family affairs agency)
- Google.no (global technology company)
- Facebook.no (social media platform)
- Veidekke.no (construction and property development)

# Expert evaluation

## Technical expert evaluation

The technical expert evaluation assessed the cookie banners against a selection of WCAG A and AA guidelines that are relevant for this type of element. Seven cookie banners were tested using screen readers (Windows Narrator, VoiceOver, TalkBack). Two researchers conducted separate evaluations, then compared results. The goal was to find and highlight common accessibility issues across the sample of cookie banners.

Seventeen WCAG success criteria were evaluated, grouped into categories:

- Icons & Graphics (SC 1.1.1)
- Source Code (SC 1.3.1, 3.1.1, 3.1.2, 3.3.2, 4.1.2, 4.1.3)
- Text Flow (SC 1.3.4, 1.4.4, 1.4.10)
- Contrast & Colours (SC 1.4.1, 1.4.3)
- Keyboard Navigation (SC 2.1.1, 2.4.3, 2.4.7)
- Headings & Links (SC 2.4.4, 2.4.6)

The analysis revealed four main categories of accessibility issues in the audited cookie banners:

- Semantic accessibility errors (e.g., incorrect markup, missing labels)
- Text flow Issues (e.g., poor adaptation to different screen sizes)
- Low contrast and incorrect colour use
- Keyboard navigation issues

## Semantic accessibility errors

These errors relate to WCAG criteria such as non-text content, info and relationships, link purpose, and labels. Issues included:

- Incorrect coding of cookie banner elements (e.g., missing or incorrect labels, misuse of HTML elements).
- Hidden elements that attract focus unnecessarily.
- Incorrect alt-text for images (e.g., a logo labelled only as “logo”).
- Markup errors (e.g., misuse of <div> and <span> for lists or headings).

## Text flow issues

Errors in adapting text to different devices and screen sizes:

- Text disappears in landscape mode (bufdir.no).
- Cookie banners obscure privacy policies at 200% zoom (google.com, veidekke.no, skatteetaten.no, bufdir.no, facebook.com).
- Most sites (except google.com) require excessive scrolling or fail to display content properly at 320x256 pixels resolution.

## Low contrast and incorrect colour use

These errors relate to contrast and colour use guidelines:

- Low contrast on text and buttons, making them hard to read.

## Keyboard navigation issues

Errors related to keyboard accessibility and focus visibility:

- Focus is not on the cookie banner when the page loads.
- Users must tab through the entire page to reach the banner.
- No shortcut to quickly access the banner (e.g., skatteetaten.no requires 40+ key presses).

These issues highlight major accessibility gaps that impact user experience, especially for those relying on assistive technologies.

## Cognitive accessibility expert evaluation

It has been documented in research that the EN standard and the requirements in WCAG do not cover the need for cognitive accessibility to the same extent as the requirements for technical accessibility<sup>1</sup>. In order to investigate cognitive accessibility in cookies, we have therefore chosen to go beyond the EN standard and WCAG and look at criteria developed in

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<sup>1</sup> European Commission: Directorate-General for Communications Networks, Content and Technology, Kjellstrand, S., Laurin, S., Mohamed, S. and Chowdhury, N., Inclusive web-accessibility for persons with cognitive disabilities – Pilot project study – Final report, European Commission, 2022, <https://data.europa.eu/doi/10.2759/3048>



research projects and by standardisation organisations in other contexts. The aim was to investigate whether the selected cookies follow recognised guidelines for cognition, rather than to determine whether they meet legal requirements. The cookies were assessed against criteria covering four basic areas of cognitive accessibility in digital interfaces: Attention (focusing, directing attention, shifting focus); Reading; Initiating, organising and performing a task; Avoiding errors. This categorisation of cognitive user needs online was developed in a Swedish Vinnova-funded research project on measurable requirements for cognitive accessibility in digital interfaces

List of requirements used as a basis for the assessment:

Attention:

- Content is organised into well-defined groups using lists, headings and other visual aids. Source: ISO 21801-1 2020 Cognitive Accessibility Part 1 - General guidelines
- The interface should enable users to obtain different amounts of information according to their own needs (new users may need more information than experienced users of the same interface). Source: ETSI EG 203 350 - Human Factors' Guidelines for the design of mobile ICT devices and their related applications for people with cognitive disabilities'

Reading:

- There is a method/feature that shows specific definitions of words and phrases that are used in an unusual or limited way. This also applies to figurative language and jargon. Source: WCAG 3.1.3 Level AAA
- Symbols or illustrations are added to enhance understanding of text-based information. Source: ETSI EG 203 350 - Human Factors' Guidelines for the design of mobile ICT devices and their related applications for people with cognitive disabilities'

Initiating, organising and performing a task:

- Choices and options that can be made, and decisions that must be made, must be presented in an understandable way. Source: ISO 21801-1 2020 Cognitive Accessibility Part 1 - General guidelines

Prevention of errors:

- WCAG 2.1 criterion 3.3.6 (level AAA)

The evaluation showed that all the reviewed cookie banners had in common that the designer has been more concerned with structuring the text than with providing explanations and support for understanding what is in the cookie.

All cookies showed a structuring of the text through bulleted lists or headings.

However, none of them provided explanations of the often-technical words used, either in the main text itself or in a link. A few of the cookies used images support to support the text, but most do not. In addition, only one of the cookie banners has information in the cookie, or in a link to the website about how the user can change the settings after having made a choice.

Overall, the lack of support for understanding the text and the lack of support for avoiding errors makes it difficult for the user to handle cookies in a conscious way, with control over the process.

The requirement that the choices and options that can be made should be presented in an understandable way is met by five of the seven cookies reviewed. This is a basic requirement to fulfil the spirit of the GDPR law, i.e. that users should have control over their data. If you don't understand from the description in the cookie banner which options are available and what they mean, it is very difficult to take control as a user. Note that it is not enough to have two response options (accept/reject) to fulfil the requirement, but the choices must be described or presented so that the meaning of the choices is clear.

# Usability test

## Methodology

In the next phase of the project, we conducted usability tests to investigate the accessibility and usability of Cookie Banners on four different websites: finn.no, bufdir.no, skatteetaten.no and facebook.com. In total, twelve testers with different types of disabilities participated to ensure that we covered a wide variety of needs. Each tester conducted tests on 3-4 of these websites. Tests were conducted both in person and via Teams. The testing order for the cookie banners was changed for different participants.

We used the thinking aloud method, whereby test subjects verbalised their thoughts while completing the tasks. This allowed us to gain insight into their cognitive processes and understand difficulties and barriers they faced in real time. The tests were designed to analyse users' interaction with cookie banners, their ability to find them, make choices and adjust cookie settings.

## Results

All users were instructed to navigate the websites and interact with the cookie banners on their own. Their experiences and any barriers were documented in detail, and we collected both quantitative and qualitative data to analyse their user experience.

We identified three different user archetypes among the participants:

- Those who accept all cookies (4 users).
- Those who try as far as possible to reject all cookies (4 users).
- Those who choose to accept or reject depending on the context (4 users).

All users had in common that they wanted to deal with the cookie issue as quickly as possible. Several users pointed out that if the cookie banner didn't bother them, they didn't always respond but left it in place. This was particularly common among screen reader users.

Some users are unsure about what cookies are, as well as when and why they are needed, which influenced their behaviour. About half of the users had a negative view of cookies and cookie banners.

None of the users knew how to find their way back to the cookie banner after making their choice, probably because this option is often missing on many pages.

For banners with more text than could be seen without scrolling (such as on Facebook) no user scrolled to read more unless explicitly asked to do so.

Some users struggled to find the banner of Skatteetaten, as it blended into the background and was perceived as part of the page. The widely spaced button design reduced user interaction time. The settings of Skatteetaten were perceived as confusing, and some users were annoyed that there was a checkbox that could not be unticked.

Several users found it difficult to understand what the different choices meant, as the pages tested were worded differently, leading to a new experience with each interaction. Several users expressed a desire to avoid long settings pages, in which case it was easier to just accept all cookies.

## Insights

An interesting insight from the user tests is that there are clear needs and wishes that are common to several functional groups.

- a) It is important that the banner is in the same place 'as usual' to be able to move on quickly and not have to look around. For screen reader users and users with limited reach and manipulation skills, it is difficult to orientate themselves by looking around.  
For people with low interest in technology, limited cognition, language or learning, having to look around is stressful and drains patience and energy.
- b) It is important that the text is not too long and complicated. For screen reader users, it will be difficult to know when the instruction is coming as it is difficult to get an overview of the text. For people with limited cognition, language or learning, it is challenging to get through long texts. For all groups, it is difficult to understand concepts that are not standardised (jargon).
- c) Visual cues to buttons (primary or secondary) work poorly for most people. These cues are not picked up by screen readers and people with limited cognition, language or learning or with low interest in technology do not recognise why some buttons look different.

## Survey

To get a broader view on how persons of different abilities perceive and handle cookies, we conducted an online survey with participants from Norway and Sweden as well as other EU countries.

A total of 151 persons responded to the survey. 74% of the participants reported no disabilities, 24% reported having a disability and 2% preferred not to disclose whether they had a disability.

## Key results

The key take-away from the survey was that cookie banners pose important barriers to persons with a disability

Respondents with disabilities found cookie banners more difficult than those without. 50% of respondents with disabilities found banners difficult to use, while the corresponding figure among respondents without disabilities was 41%.

The difference was even larger when it comes to making choices in cookie banners: 64% of respondents with disabilities found making choices difficult, while 44% of respondents without disabilities found it difficult.

From the free-text fields in the survey it became apparent that many people find cookie notices confusing, annoying and time-consuming, so they often just accept all cookies to move on quickly. Common issues reported by the respondents include:

- Incompatible interfaces: The variation in appearance and placement of options creates confusion, making it difficult to find the 'accept only necessary' or 'reject all' options.
- Hidden or complicated choice: Many people find the choice to accept only necessary cookies too hidden, often requiring multiple clicks or navigating long lists.
- Too much text: Long and complicated texts are off-putting and perceived as legally difficult to understand.
- Poorly adapted to mobile phones: Notices are often difficult to handle on mobile phones as they cover too much of the screen.
- Sense of manipulation: Many people feel that the design is designed to make the user accept all cookies, by highlighting acceptance buttons with colours or placement.

- Accessibility issues: Notifications are not always adapted for people with different disabilities, which makes navigation and choices difficult.

The respondents also made several suggestions on how to simplify the management of cookie notifications:

- Standardisation: create a uniform structure for all notifications where options such as 'accept all', 'necessary only' and 'reject all' are clear and consistent.
- Simpler interface: Have a simple choice between accepting or rejecting all cookies, with the option to go deeper for more specific settings if desired.
- Concise and clear text: Using easy-to-understand text that quickly explains what each choice means, and larger and more contrasted buttons.

## Summary discussion

The expert evaluation revealed several accessibility issues on the evaluated websites. The technical analysis identified various semantic accessibility errors, which are part of a broader problem within the ICT sector and web accessibility. While these errors may seem minor on their own, they can create significant barriers for users, particularly those with disabilities. This highlights the importance of thorough technical testing to ensure universal design and accessibility for all users.

The cognitive evaluation showed that cookie banners tend to focus more on structuring text rather than providing clear explanations, making it difficult for users to understand and manage their cookie preferences. This raises concerns about whether the current approach to presenting information in cookie banners is effective or if more user-centred solutions that prioritise clarity and comprehension are needed.

Although the expert evaluation covered only a limited number of websites, the findings confirm ongoing issues with universal design in the digital space. Addressing these problems will require a balance between usability and legal compliance, a challenge that underscores the need for further research on how to create technical solutions that meet both user needs and regulatory requirements.

The user testing, while not representative of the entire population, covered a range of user groups and revealed several recurring challenges related to cookie banners. A key finding was the importance of consistent banner placement. Users preferred banners to appear in familiar locations to avoid unnecessary navigation difficulties. This was particularly relevant for screen reader users and individuals with limited mobility, as navigating an unpredictable interface can be frustrating.

Another major issue was the complexity of the text within cookie banners. For screen reader users, it was difficult to determine when and where key instructions appeared, while those with cognitive, language, or learning difficulties struggled with long and complicated instructions. The use of non-standardised terminology further contributed to confusion, making it harder for all users to understand the content. Visual cues distinguishing different types of buttons were also problematic, as they were not always recognised by screen readers, and users with cognitive difficulties often failed to grasp their significance.

The survey findings indicated that users with and without disabilities exhibit similar tendencies when it comes to cookie preferences. Many respondents rejected cookies by

default, likely due to a general mistrust or lack of understanding of how cookies function. However, more users accepted cookies without reviewing the details than those who took the time to customise their settings. This suggests that the customisation process may be too complex or time-consuming for most users.

In general, users with disabilities found cookie banners more difficult to navigate, read, and interact with compared to those without disabilities. However, even among respondents without disabilities, a significant number, reported difficulties in handling cookie notifications. Readability was a particularly pressing issue, with over half of respondents with disabilities stating that the text in cookie banners was difficult to read. This suggests that the language used is not sufficiently clear or accessible. Even among users without disabilities, many reported similar struggles.

It is important to note that the survey sample was not randomised, as participants were recruited through disability organizations and online forums. This could have influenced the results, as these respondents may be more aware of accessibility issues than the general population. Nonetheless, the study provides valuable insights, as it is one of the few focusing specifically on the experiences of people with disabilities in relation to cookie banners. By combining quantitative and qualitative data, the study offers a deeper understanding of accessibility challenges and potential solutions.



# Checklist for accessible cookie notices

To create accessible and user-friendly cookie notices, it is essential to prioritise transparency, clarity, and ease of interaction. Building trust should be a key focus, ensuring that users clearly understand who is collecting their data and for what purpose.

The following checklist summarises the main recommendations of the study on how to make cookie notices accessible to everyone.

## 1. Design and visibility

- a) Ensure that the cookie banner is visible immediately on the first visit to the website. It should be easy to find and not hidden or difficult to access.
- b) Make sure the cookie banner is at the beginning of the reading order.
- c) Keep the banner simple and focused, without too much text.
- d) Use a clear and large design that stands out so that users can quickly understand its purpose and what is expected.
- e) If the cookie banner is placed on a smaller screen, make sure it takes up enough space to be easy to interact with.

## 2. User-friendly options

- a) Offer three clear and simple options for users:
  - Accept all cookies: a choice that makes it easy to quickly accept all cookies.
  - Decline optional cookies: An option that allows users to choose to accept only necessary cookies and decline the optional ones.
  - Customise yourself: An option that gives the user full control over their cookie settings and allows them to choose exactly which cookies to accept.
- b) Ensure that each option is clear and easy to understand, so that users can quickly make an informed decision.

## 3. Clarity and transparency

- a) Be clear about what the different cookie options mean for the user, and what they can expect from the website's functionality depending on their choice.
- b) If the cookie contains longer texts that provide more detailed information on, for example, how you or your partners use data, put this in collapsible sections or as links so that the user can choose how much information they want to see.

## 4. Comprehensibility

- a) Use easy-to-understand terms instead of technical concepts to make it easy for all users to make an informed decision.
- b) Where possible, provide links to explanations of the words and concepts used

## 5. Ease of navigation

- a) Provide users with the ability to quickly and easily accept or reject all cookies with a single click, without having to go through multiple steps.
- b) Ensure that there is a clear and easily accessible link for users who want to change their choices or get more information about cookies and their purpose.

## 6. Technical accessibility

- a) Ensure that the cookie banner works well on both desktop and mobile devices.
- b) Ensure that the cookie banner is accessible to users with different types of assistive technology.
- c) Check that the cookie banner complies with relevant accessibility standards (WCAG2.1/EN301549).

## 7. User-friendly settings

- a) Provide a simple and intuitive method for users to change their cookie settings at any time after making an initial choice.
- b) Ensure that users do not have to look far to find where they can change their settings. Provide a clear link or button to get back to the cookie choices.