



Making Waves

Accessibility

Tips and guidelines for design and front-end.

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November 2019



WCAG 2.0

Three levels:

A

AA

AAA

WCAG 2.0 AA has been required by Norwegian law since 2014 (both public and private sector).

AAA is not required, and usually an overkill.

<https://uu.difi.no/krav-og-regelverk/wcag-20-standarden>

<https://www.w3.org/TR/WCAG20/>

Contrast

Contrast

1.4.3 Contrast (Minimum)

Text should have a contrast ratio of at least 4.5:1

Large* text should have a contrast ratio of at least 3:1

***Large text =**

18 point (24px) or larger.

Bold 14 point (18.5px) or larger.

(1pt = 1.33px)

Except

Text that is part of an inactive user interface component or that is pure decoration. Text that is part of a **logo or brand name** has no contrast requirement.

Foreground Color

#000000



Lightness



Background Color

#FFFFFF



Lightness



Contrast Ratio

21:1

[permalink](#)

Pure black on white has the highest possible contrast.

Normal Text

WCAG AA:

Pass

WCAG AAA:

Pass

The five boxing wizards jump quickly.

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

Large Text

WCAG AA:

Pass

WCAG AAA:

Pass

The five boxing wizards jump quickly.

Foreground Color

#0066FF



Lightness



Background Color

#FFFFFF



Lightness



Contrast Ratio

4.83:1

[permalink](#)

This color passes.

(AAA is not within scope of the law and usually an overkill).

Normal Text

WCAG AA: **Pass**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Large Text

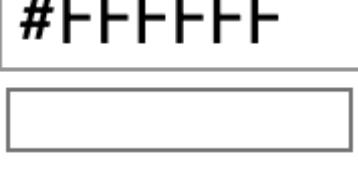
WCAG AA: **Pass**

WCAG AAA: **Pass**

The five boxing wizards jump quickly.

Foreground Color

#FFFFFF



Lightness



Background Color

#0066FF



Lightness



Contrast Ratio

4.83:1

[permalink](#)

Normal Text

WCAG AA: **Pass**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**

WCAG AAA: **Pass**

The five boxing wizards jump quickly.

Same color inverted. (Makes no difference).

Foreground Color

#FFFFFF



Lightness



Background Color

#FF6600



Lightness



Contrast Ratio

2.93:1

[permalink](#)

Normal Text

WCAG AA: **Fail**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

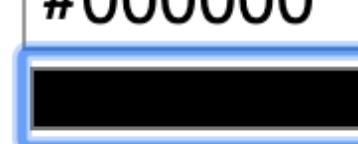
Large Text

WCAG AA: **Fail**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

This orange fails, although it may be perceived about as dark as the blue.

Foreground Color
#000000

Lightness 

Background Color
#FF6600

Lightness 

Contrast Ratio
7.15:1
[permalink](#)

Normal Text

WCAG AA: **Pass**
WCAG AAA: **Pass**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**
WCAG AAA: **Pass**

The five boxing wizards jump quickly.

Many will argue that the contrast to white (previous slide) was more visible than this.

Foreground Color

#0088FF



Lightness



Background Color

#FFFFFF



Lightness



Contrast Ratio

3.52:1

[permalink](#)

This color passes for large text only.

Normal Text

WCAG AA: **Fail**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Contrast

Contrast

Contrast

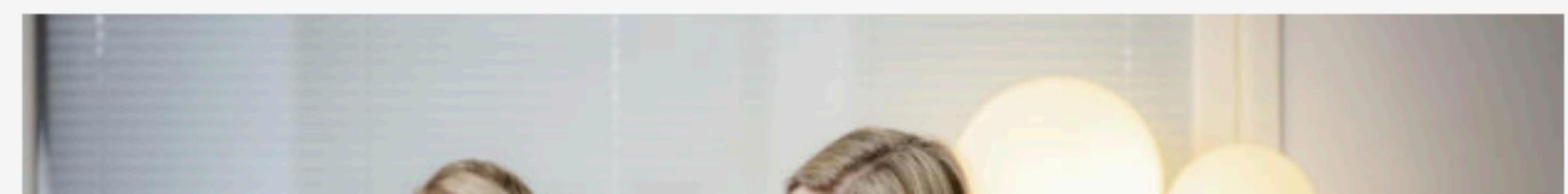
Contrast

Contrast

Contrast

[Våre tjenester](#)[Om oss](#)[Logg inn](#)[Strøm](#)[Lade elbil](#)[Fjernvarme](#)[Avfall og energigjenvinning](#)

Våre tjenester



WAVE
web accessibility evaluation tool

powered by [WebAIM](#)

Styles: OFF ON

Contrast

Summary Details Reference Structure Contrast

Click a Contrast icon below or within the web page to view details.

Foreground Color: #FFFFFF
Background Color: #5AC37D

Lightness:

Contrast Ratio: 2.2:1

Text Size: Normal

Normal Text: [Sample](#)
AA: [Fail](#)
AAA: [Fail](#)

Large Text: [Sample](#)
AA: [Fail](#)
AAA: [Fail](#)

[Desaturate page](#)

h1

Very Low Contrast
Very low contrast between foreground and background colors.

REFERENCE CODE

Strøm

Våre tjenester Om oss Lade elbil Fjernvarme Avfall og energigjenvinning

fortum

Bli med på endringen

Vi resirkulerer plastemballasje

h4

Use of color

1.4.1 Use of Color

Color must not be used as the only visual means of conveying information..

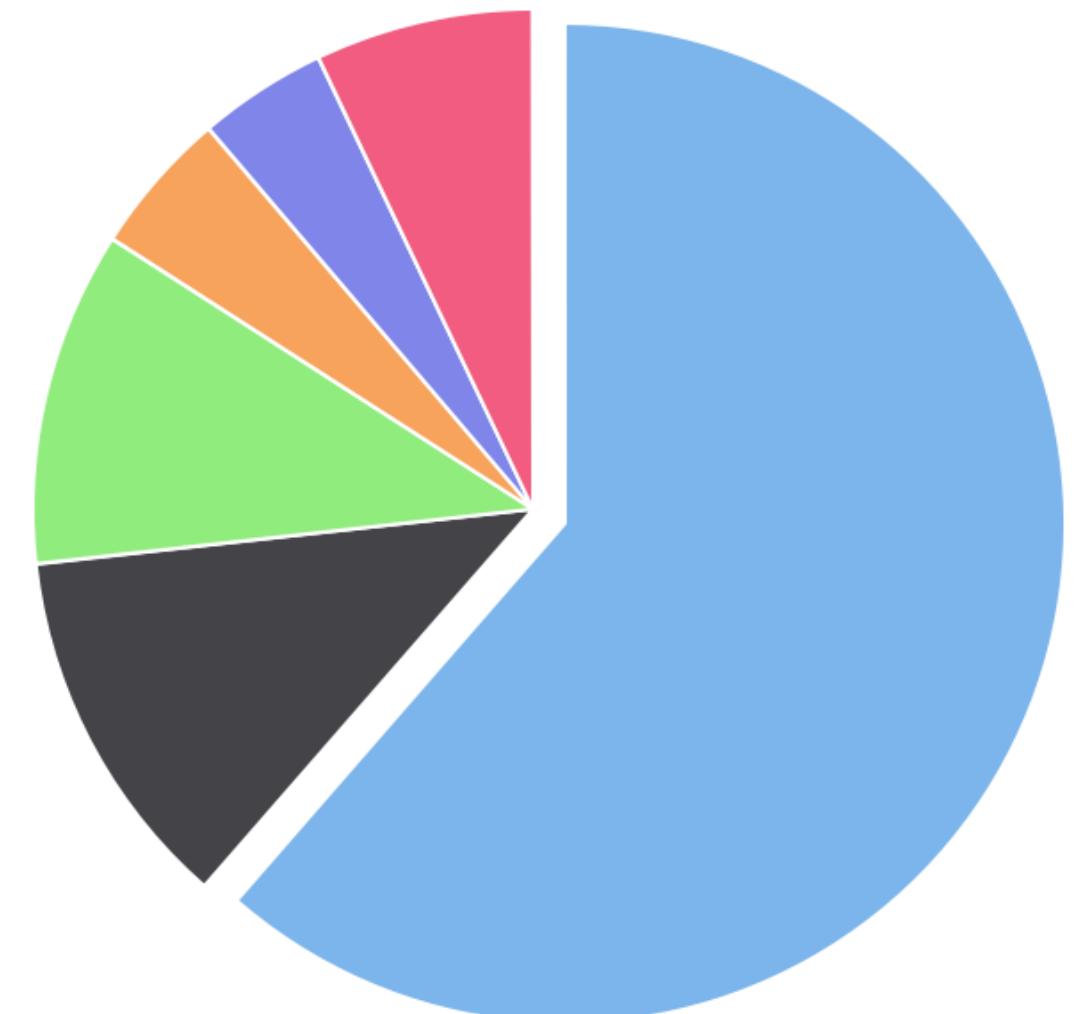
.. indicating an action, prompting a response, or distinguishing a visual element.

If there was a link [here](#), this way of showing it would fail.

If there was a link [here](#) though, this way of showing it would be ok.

This way here would also be ok.

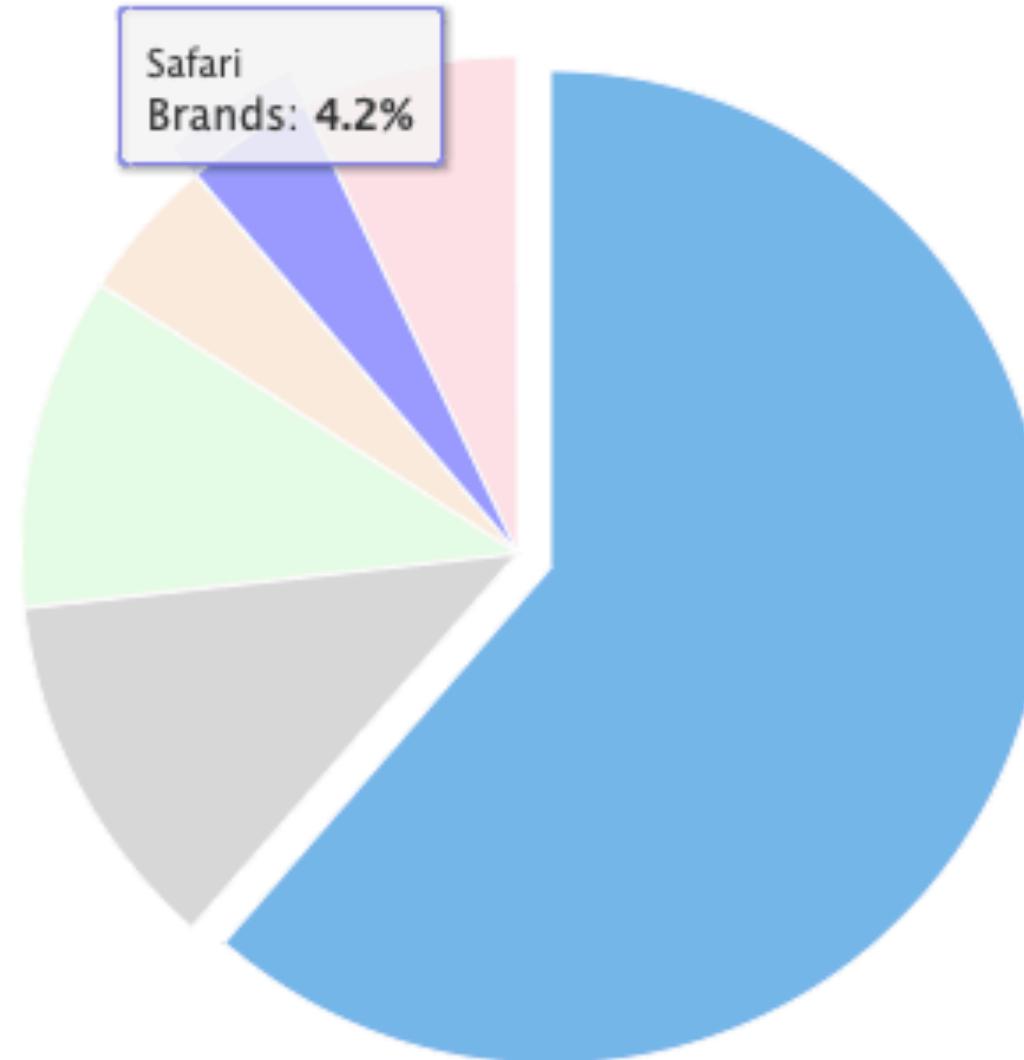
Browser market shares in January, 2018



● Chrome ● Internet Explorer ● Firefox ● Edge ● Safari ● Other

Highcharts.com

Browser market shares in January, 2018



● Chrome ● Internet Explorer ● Firefox ● Edge ● Safari ● Other

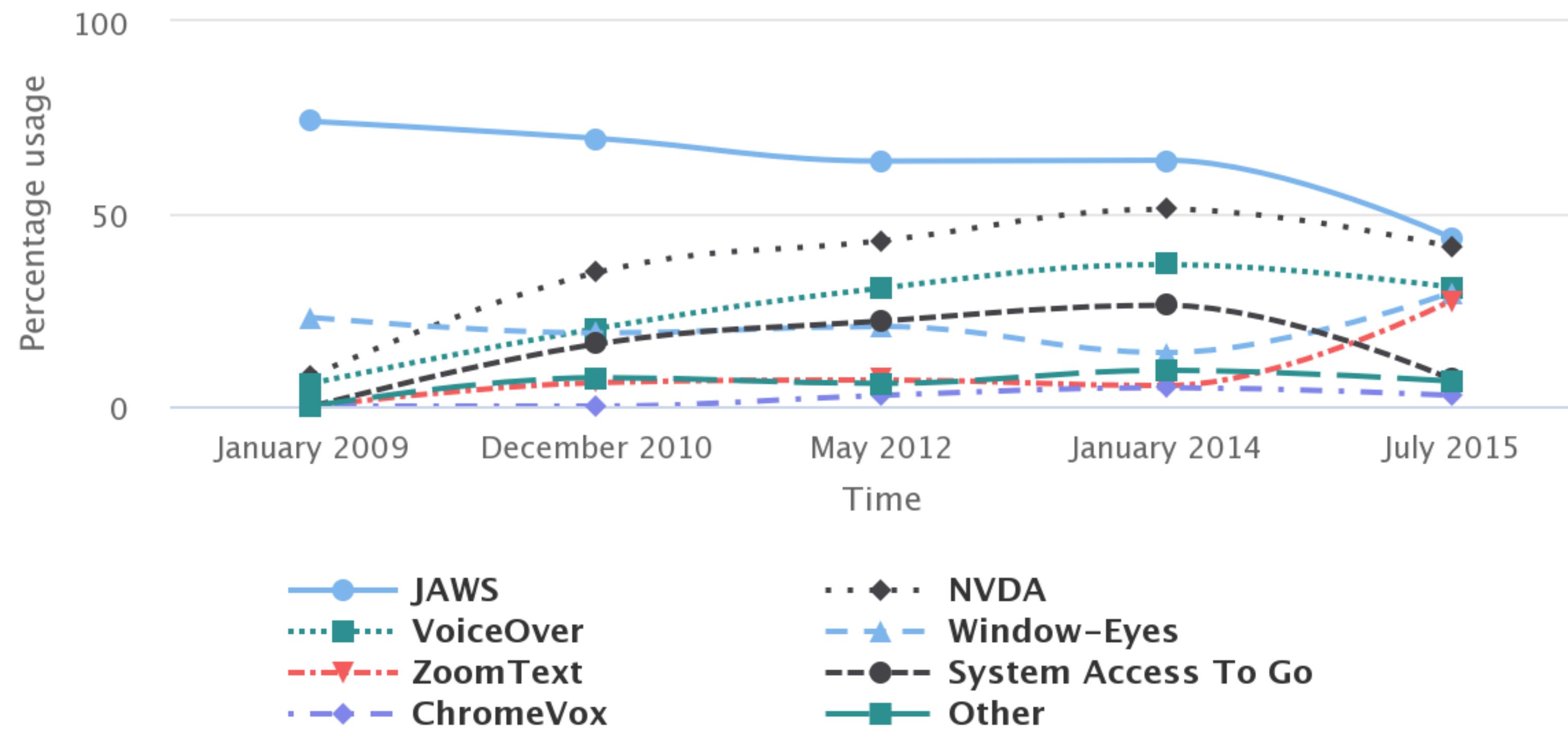
Highcharts.com

This chart would fail if it were static, since it uses only color to identify relationships between text and slices.

But it shows the relationships through interactivity (mouse **hover**). Interaction must also be possible with **keyboard** and **touchscreen**.

Desktop screen readers from 2009 to 2015

Click on point to visit official website

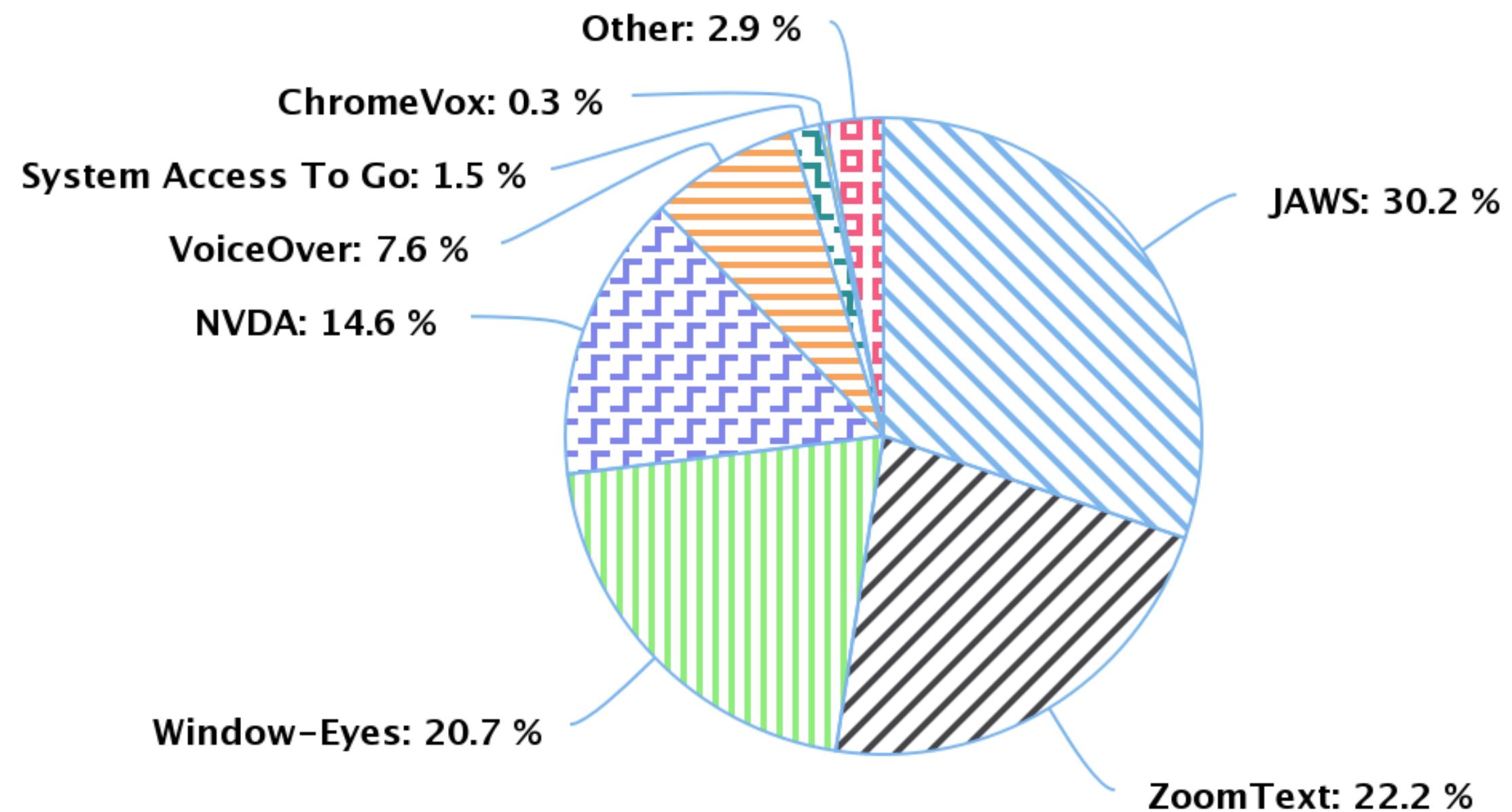


Most commonly used desktop screen readers from January 2009 to July 2015 as reported in the Webaim Survey. JAWS remains the most used screen reader, but is steadily declining. ZoomText and WindowEyes are both displaying large growth from 2014 to 2015.

Highcharts.com

Desktop screen readers

Click on point to visit official website



Most commonly used desktop screen readers in July 2015 as reported in the Webaim Survey.
Shown as percentage of respondents. JAWS is by far the most used screen reader, with 30% of
respondents using it. ZoomText and Window-Eyes follow, each with around 20% usage.

Highcharts.com

Patterns can get chaotic.

If a segment is small, it can be hard to determine the pattern inside.

WCAG 2.1

EU Web Accessibility Directive

WCAG 2.1

EUs webdirektiv om universell utforming av offentlige nettsteder og mobilapplikasjoner (WAD) og WCAG 2.1 blir en del av norsk rett. Endringene er foreslått å tre i kraft fra 1. juli 2020, med en overgangsperiode på 6 måneder. **De nye kravene vil da gjelde fra 1. januar 2021.**

<https://uu.difi.no/krav-og-regelverk/webdirektivet-og-wcag-21/wcag-21-standarden>

<https://www.w3.org/TR/WCAG21/>

(Det er ikke 100% sikkert at 2.1 reglene vil gjelde alle private nettsider.)

De lovpålagte kravene i WCAG 2.0 er minimumskrav. Standarden inneholder også andre suksesskriterier, men som ikke er med i forskriften. Under har vi listet opp de resterende kriteriene.

Ved innføring av EUs webdirektiv i norsk rett, vil 1.2.3 Synstolking eller mediealternativ (forhåndsinnspilt) (Nivå A) og 1.2.5 Synstolking (forhåndsinnspilt) (Nivå AA), bli en del av regelverket.

1.2.3 Synstolking eller mediealternativ (forhåndsinnspilt, Nivå A) »

KORT FORTALT: Tilby en beskrivende tekst eller et lydspor med beskrivelse for videoer som ikke er direktesendt.

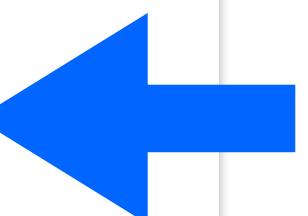
1.2.5 Synstolking (forhåndsinnspilt, nivå AA) »

KORT FORTALT: Tilby synstolking til alle videoer som ikke er direktesendinger.

From uu.difi.no

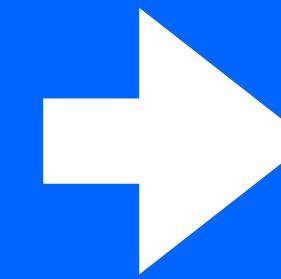
<https://uu.difi.no/krav-og-regelverk/wcag-20-standarden/ikke-lovpalagte-krav>

Currently we have some exceptions from WCAG 2.0 in Norway. The two listed here (for time-based media) will become part of the requirements when the EU web directive is included in our law.



Only required if there is relevant visual content that is not presented in the existing audio.

Non-text contrast



WCAG 2.1



1.4.11 Non-text Contrast

The visual presentation of the following have a contrast ratio of at least 3:1 against adjacent colors:

User Interface Components

Visual information required to identify user interface components and states.

Except

Inactive components or where the appearance of the component is determined by the **user agent** and not modified by the author.

Graphics

Parts of graphics required to understand the content.

Except

When a particular presentation of graphics is **essential*** to the information being conveyed.

*if removed, would fundamentally change the information or functionality of the content, and information and functionality cannot be achieved in another way that would conform

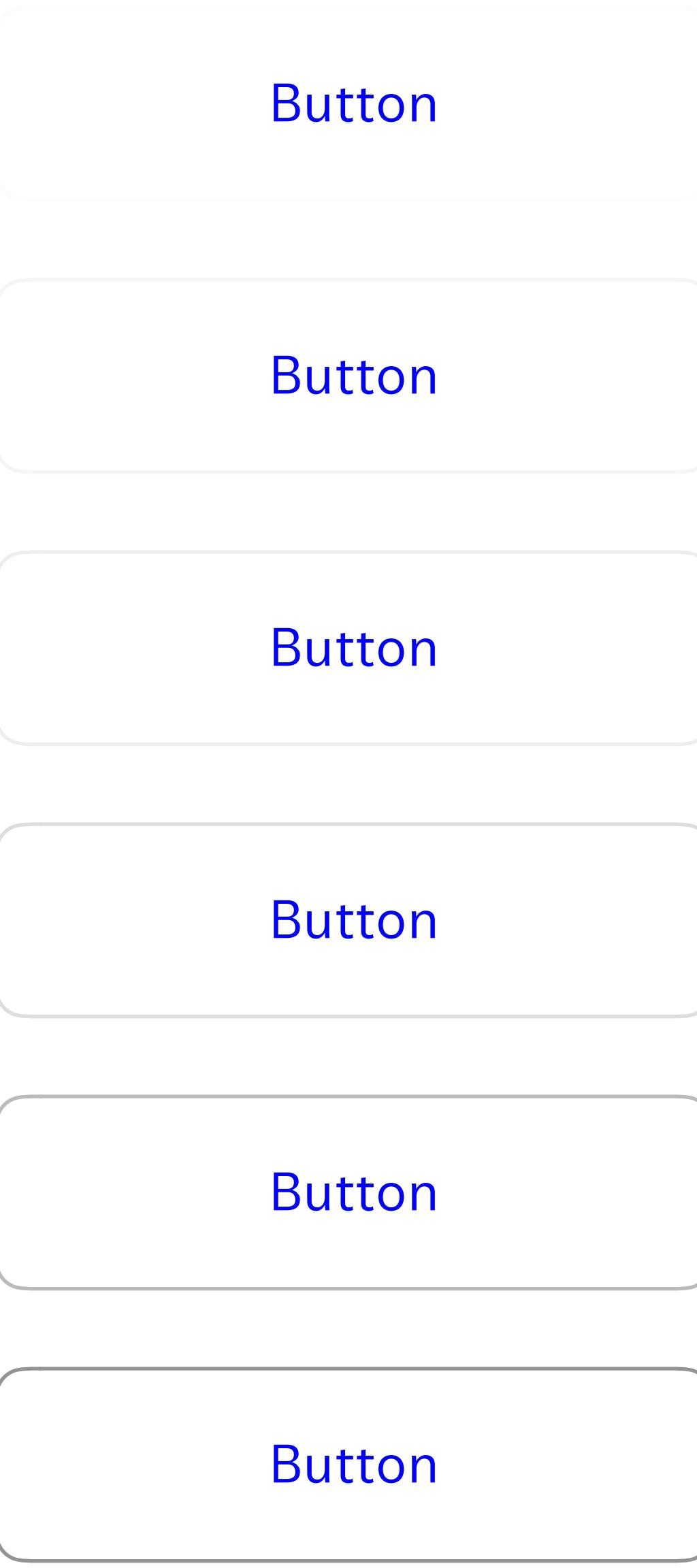
Interface components, outside and inside contrast requirements.

Name:

Button

Name:

Button



Button

Border: **#fcfcfc**

Button

Border: **#f5f5f5**

Button

Border: **#eee**

Button

Border: **#ddd**

Button

Border: **#bbb**

Button

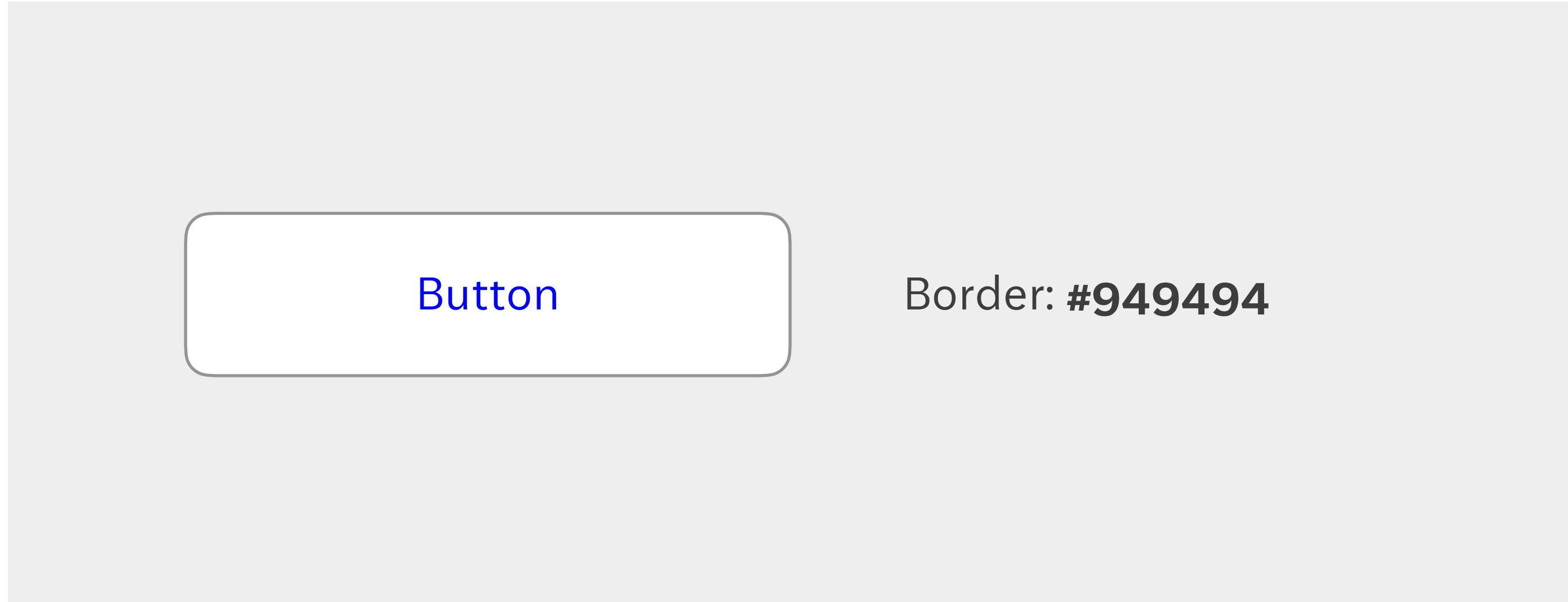
Border: **#949494**

(≈Minimum for grey on white).

Designers will disagree on what is visible enough here. That's why it's not up to us to decide.

Beware of wandering too close to minimum.

This border color is barely compliant on white. It fails on a light grey.



First name

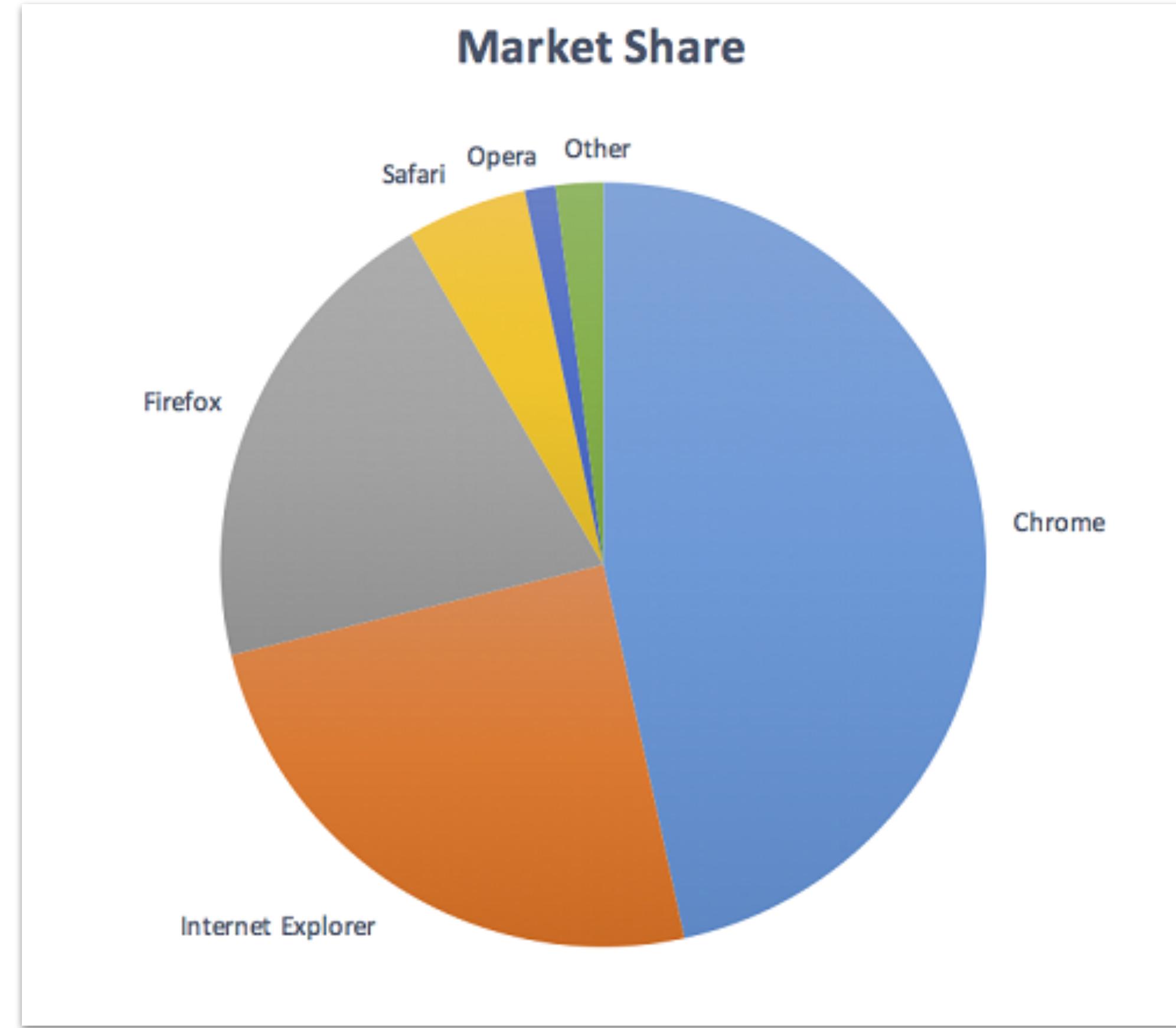
Last name

Email

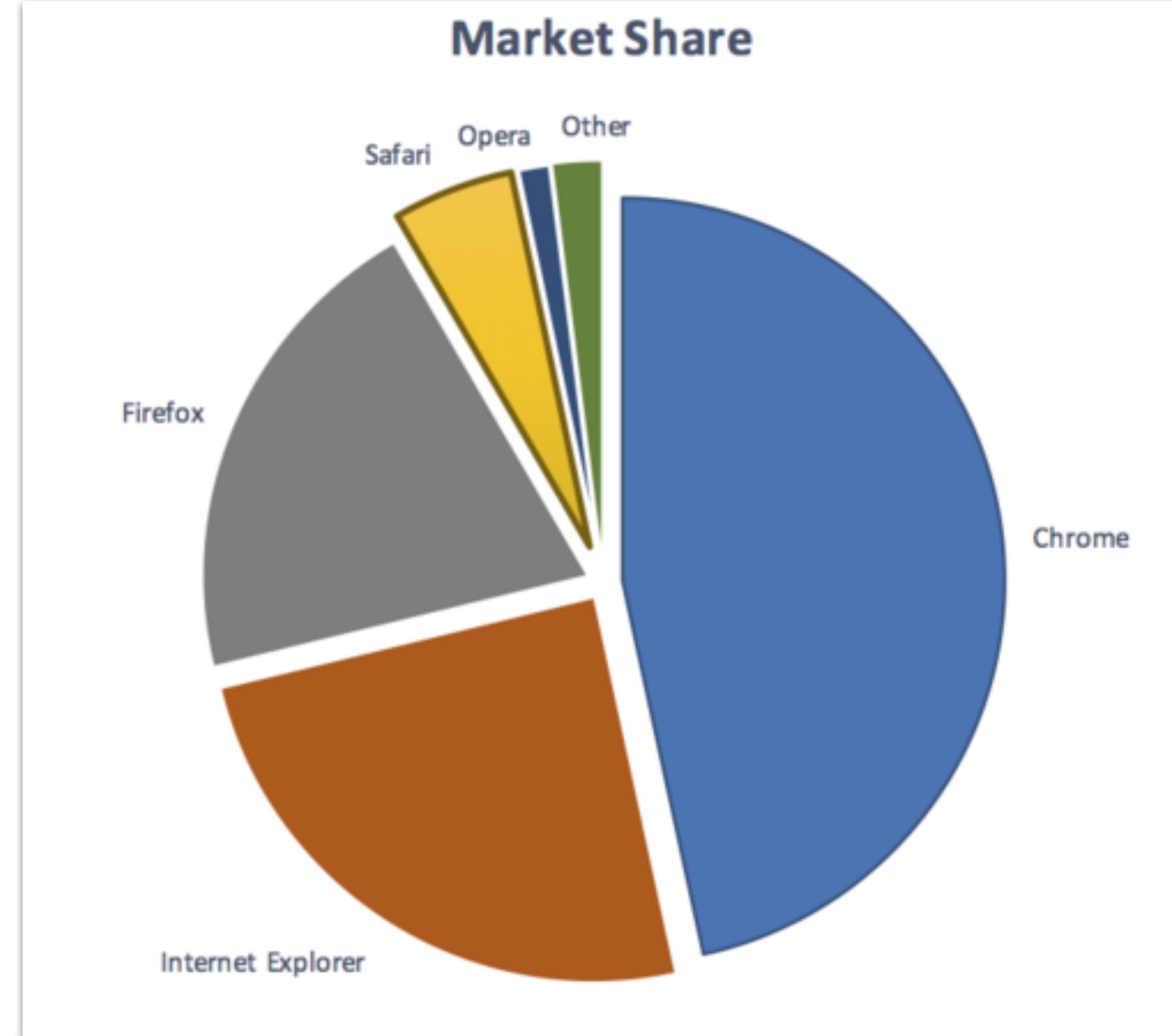
[Save](#)[Cancel](#)

Exception

A button which has a distinguishing indicator such as position, text style, or **context** does not need a contrasting visual indicator.



Contrast between slices is insufficient.



Space between slices and some use of border keeps this within 3:1 contrast.

article discussion edit this page history

Eye tracking

From Wikipedia, the free encyclopedia

This article includes a list of references or external links, but its sources remain unclear because it has insufficient inline citations. Please help to improve this article by introducing more precise citations where appropriate.

Eye tracking is the process of measuring either the point of gaze ("where we are looking") or the motion of an eye relative to the head. An eye tracker is a device for measuring eye positions and eye movements. Eye trackers are used in research on the visual system, in psychology, in cognitive linguistics and in product design. There are a number of methods for measuring eye movements. The most popular variant uses video images from which the eye position is extracted. Other methods use search coils or are based on the electrooculogram.

Contents [hide]

- 1 History
- 2 Tracker types
- 3 Technologies and techniques
- 4 Eye tracking vs. gaze tracking
- 5 Eye tracking in practice
 - 5.1 Eye tracking while driving a car in a difficult situation
 - 5.2 Eye tracking of younger and elderly people in walking
- 6 Choosing an eye tracker
- 7 Applications
 - 7.1 Commercial applications
- 8 Notes
- 9 References
 - 9.1 Commercial eye tracking
- 10 See also

History

In the 1800s, studies of eye movements were made using direct observations. In 1879 in Paris, Louis Émile Javal observed that reading does not involve a smooth sweeping of the eyes along the text, as previously assumed, but a series of short stops (called fixations) and quick saccades.^[1] This observation raised important questions about reading, which were explored during the 1900s: On which words do the eyes stop? For how long? When does it regress back to already seen words?

Edmund Huey^[2] built an early eye tracker, using a sort of contact lens with a hole for the pupil. The lens was connected to an aluminum pointer that moved in response to the movements of the eye. Huey studied and quantified regressions (only a small proportion of saccades are regressions), and show that some words in a sentence are not fixated.

Exception

“..when a particular presentation of graphics is essential to the information being conveyed.”

For a heat map such as this, it would be difficult / impossible to **maintain contrast without losing meaning**. The low contrast is an integral part of the graphics.

One solution where an infographic can not be made accessible on its own, is to have a **transcript**.

3 rules of color and contrast

- *Text minimum contrast 4.5:1.*
- *Interface component minimum contrast 3:1.*
- *Don't use color alone...*

Button

Text: #00f

> Button

Text: #00f

Button

Text: #00f

Border: #ddd

Button

Text: #00f

Border: #00f

Button

Text: #00f

Background: #ddd

Button

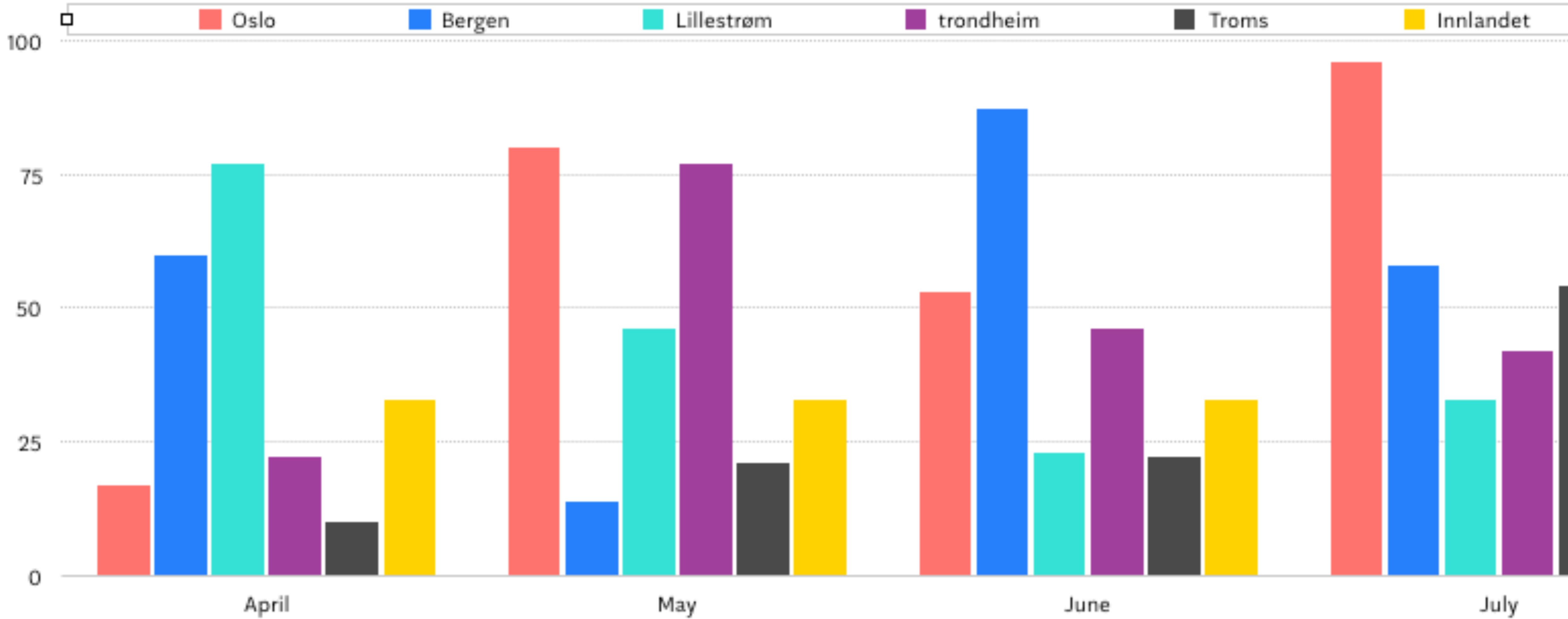
Text: #fff

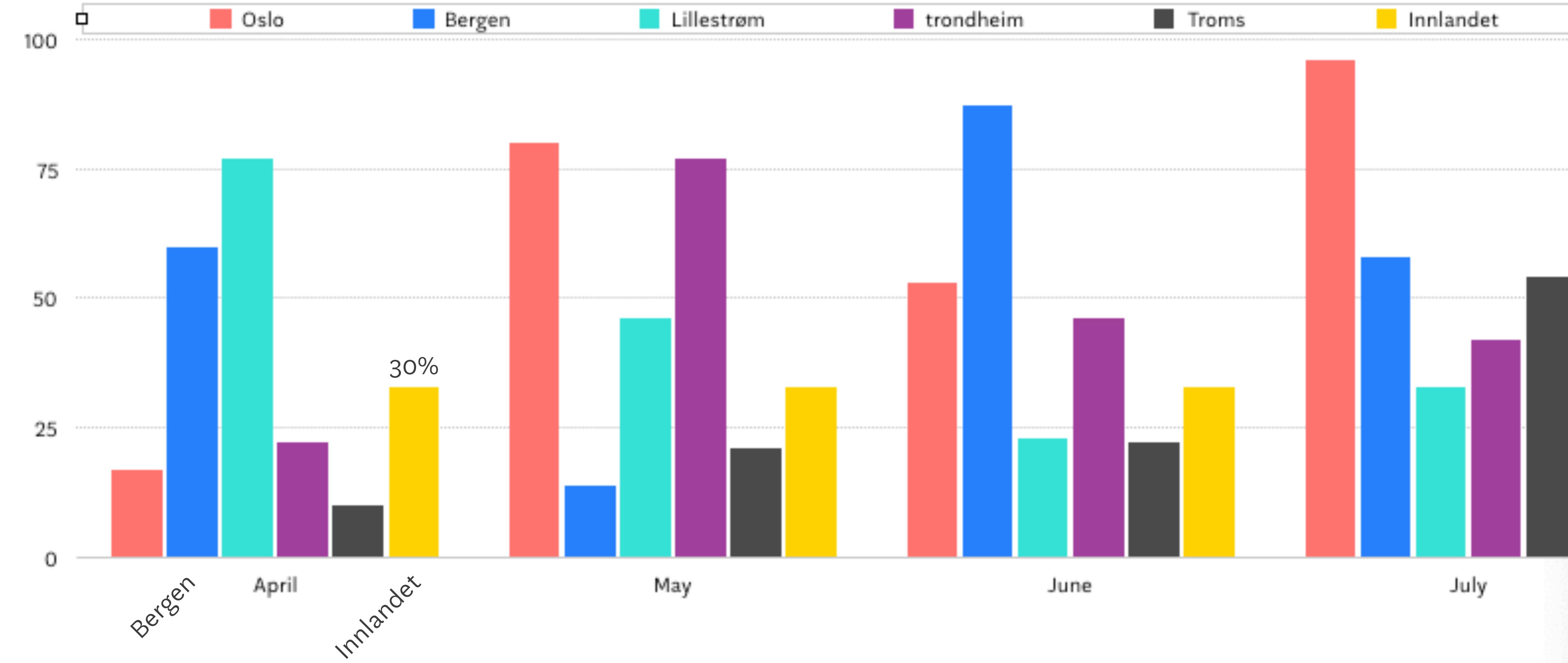
Background: #00f

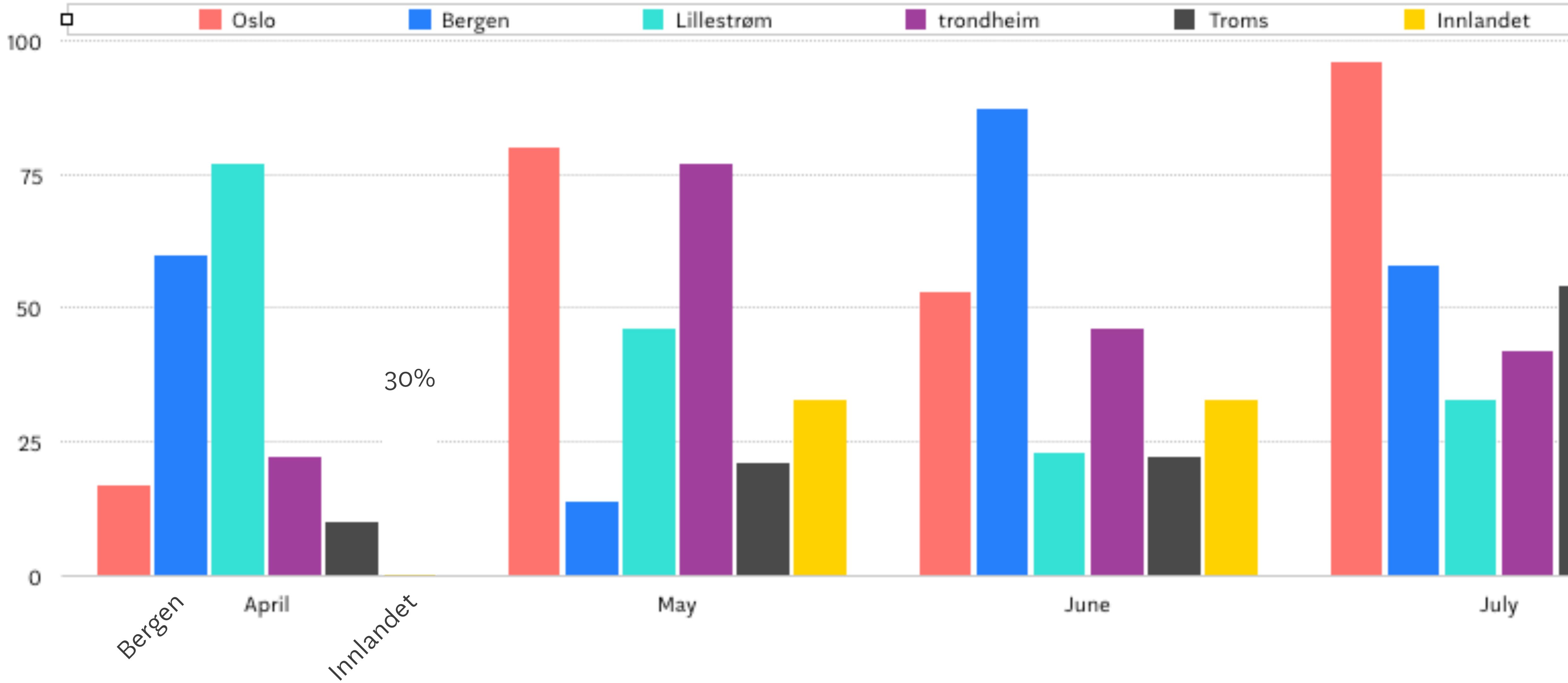
- Text minimum contrast 4.5:1.

- Interface component minimum contrast 3:1.

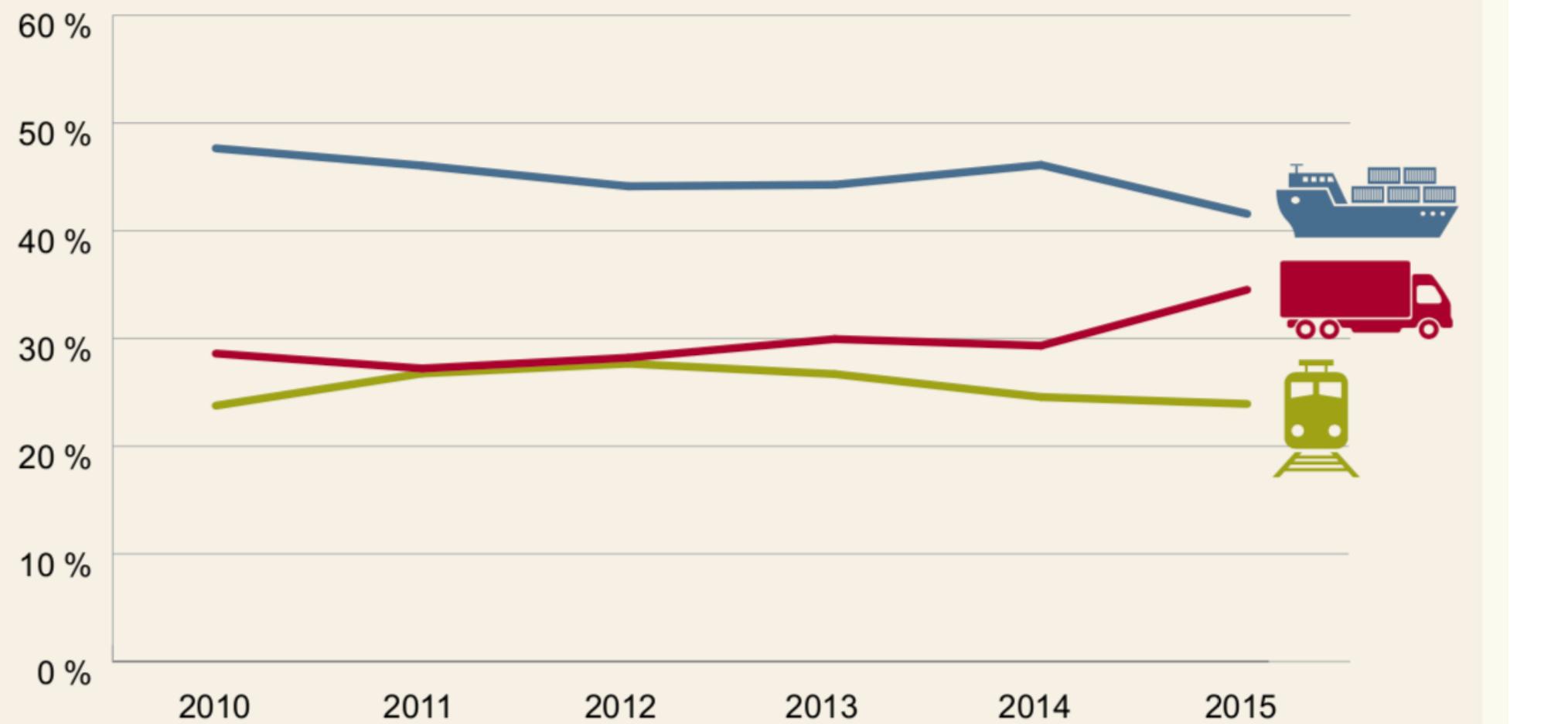
- Don't use color alone...





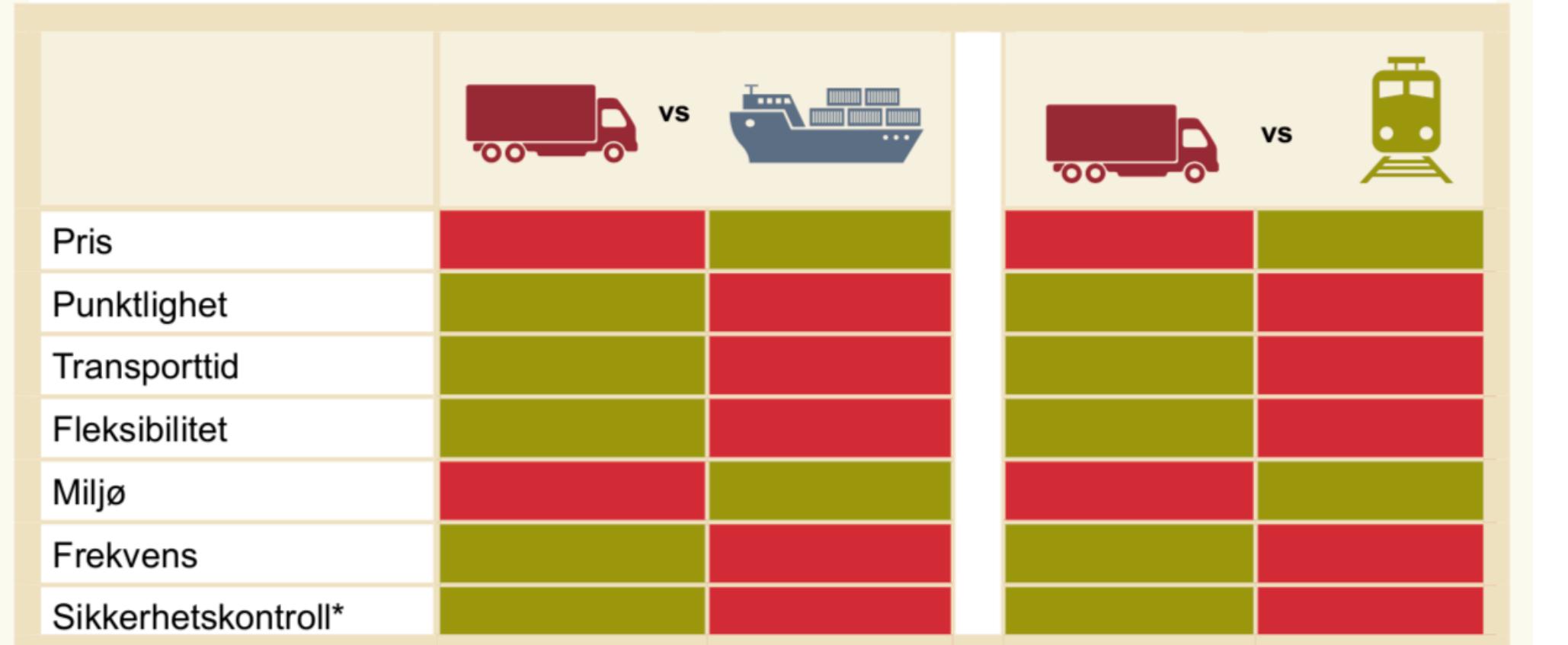


Utvikling i andeler av godstransporten (i tonnkilometer) der det er konkurranse mellom transportformene, i perioden 2010–2015

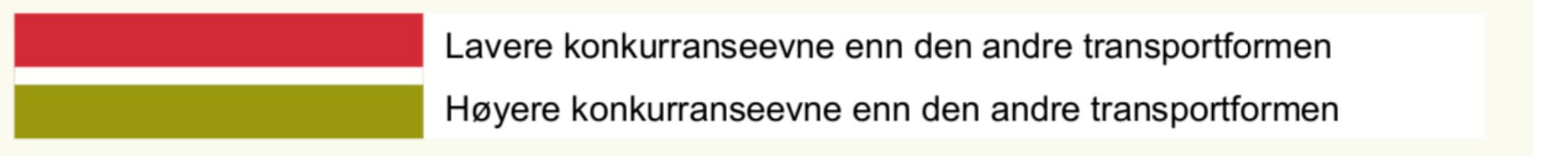


Kilde: Grunnlagsdata fra SSB, sammenstilt av TØI

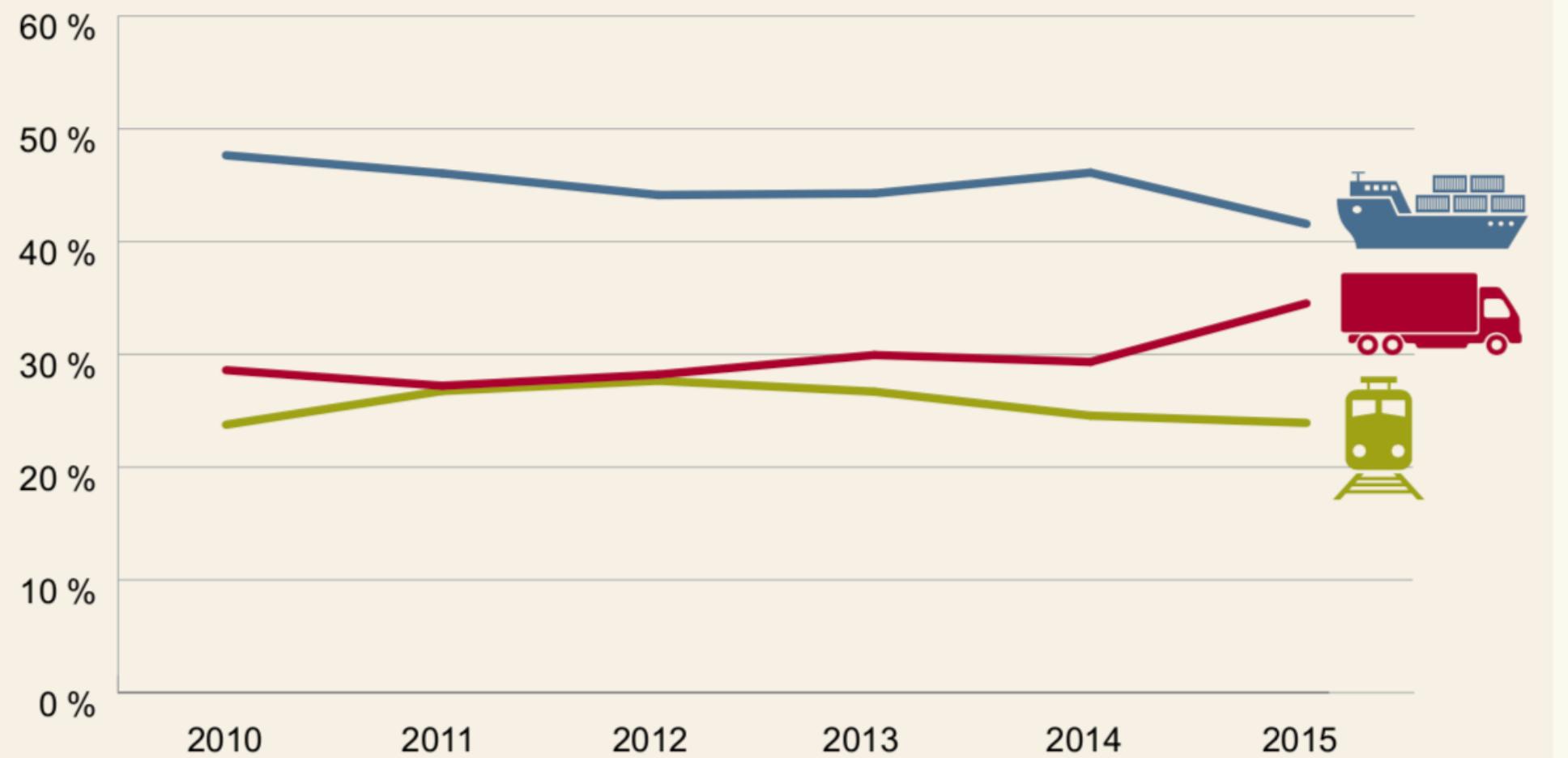
Konkurranseevnen til veitrafikk sammenlignet med sjø- og jernbanetrafikk på strekninger der det er konkurranse



*Inkluderer tilgang til infrastrukturen (sertifikater og lisenser) og kontroller av / tilsyn med transportene



Utvikling i andeler av godstransporten (i tonnkilometer) der det er konkurranse mellom transportformene, i perioden 2010–2015

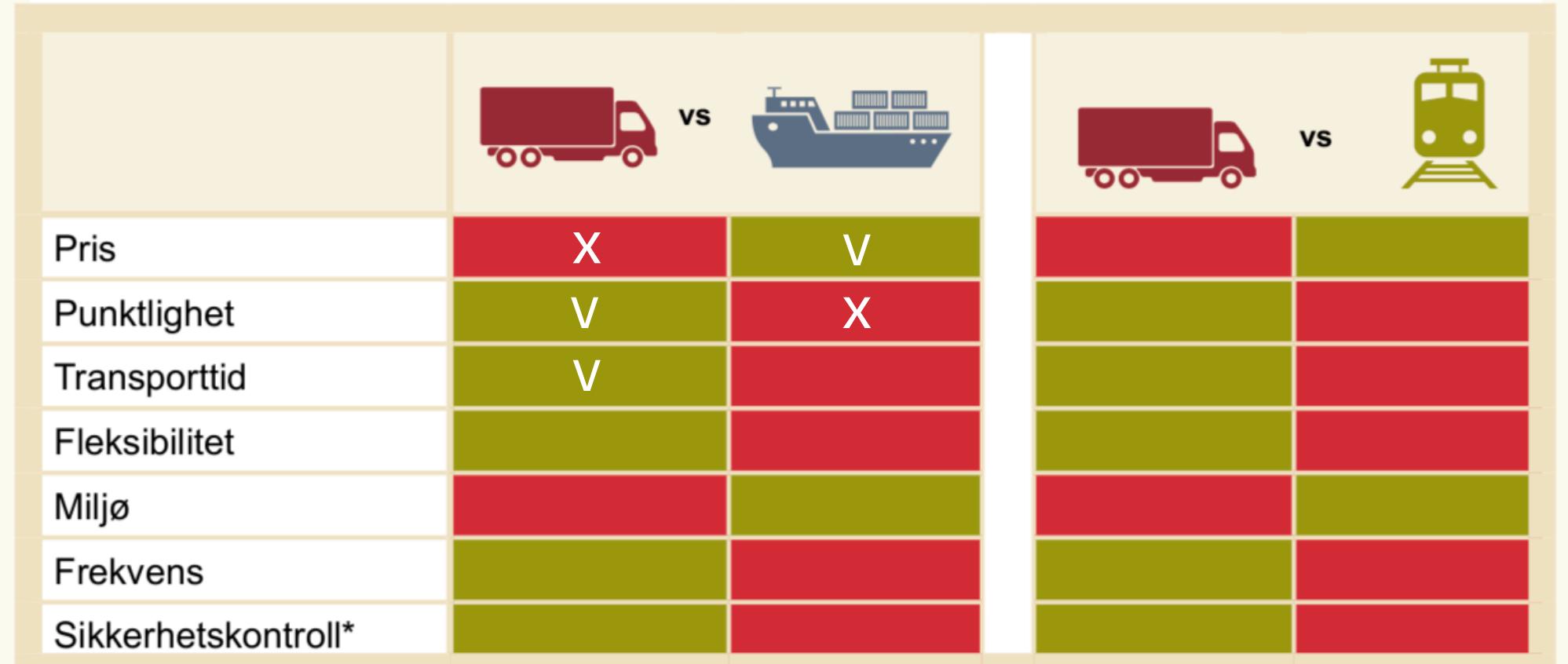


Kilde: Grunnlagsdata fra SSB, sammenstilt av TØI

This color has insufficient contrast.



Konkurranseevnen til veitrafikk sammenlignet med sjø- og jernbanetrafikk på strekninger der det er konkurranse

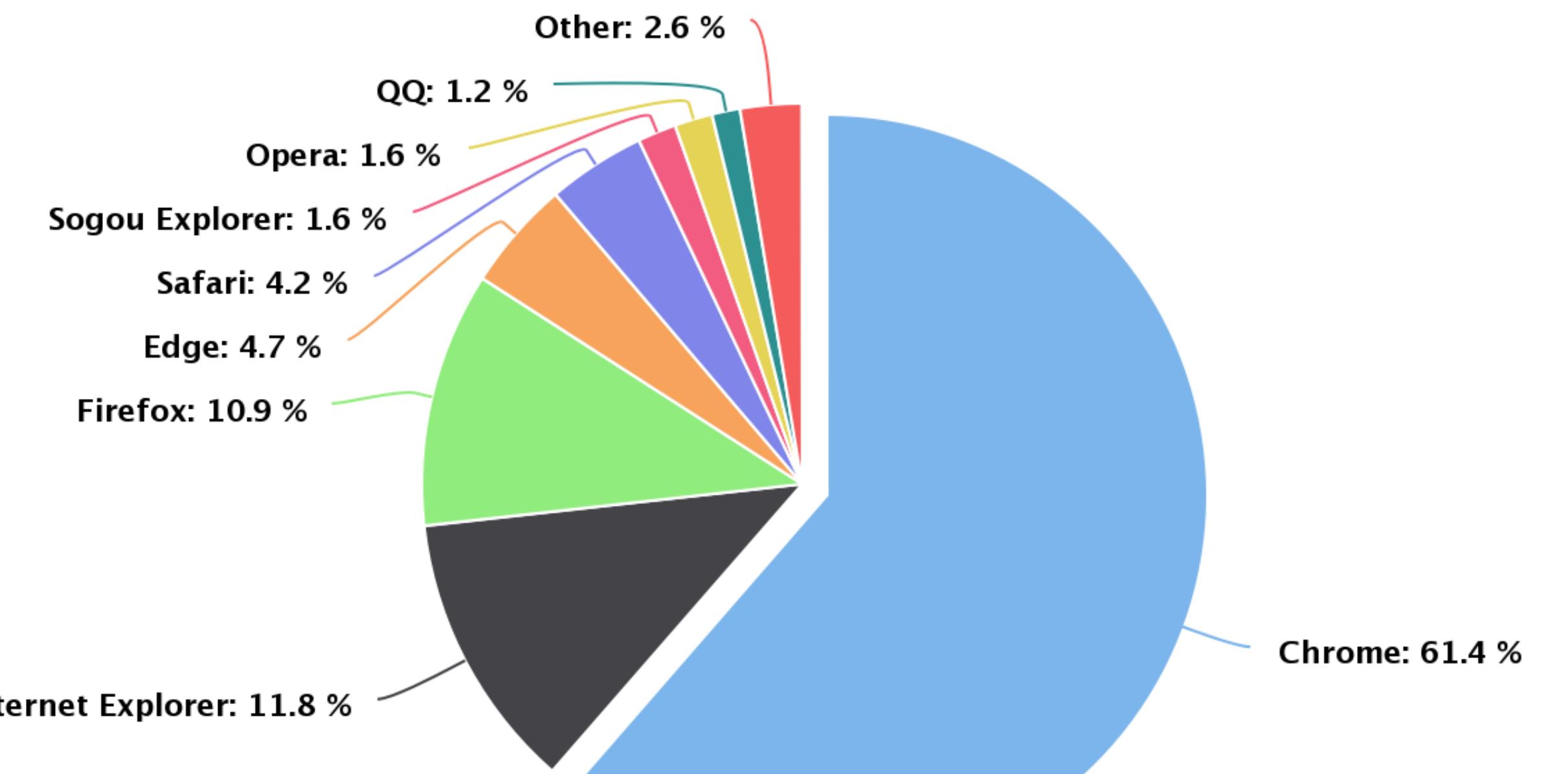


*Inkluderer tilgang til infrastrukturen (sertifikater og lisenser) og kontroller av / tilsyn med transportene

X	Lavere konkurranseevne enn den andre transportformen
V	Høyere konkurranseevne enn den andre transportformen

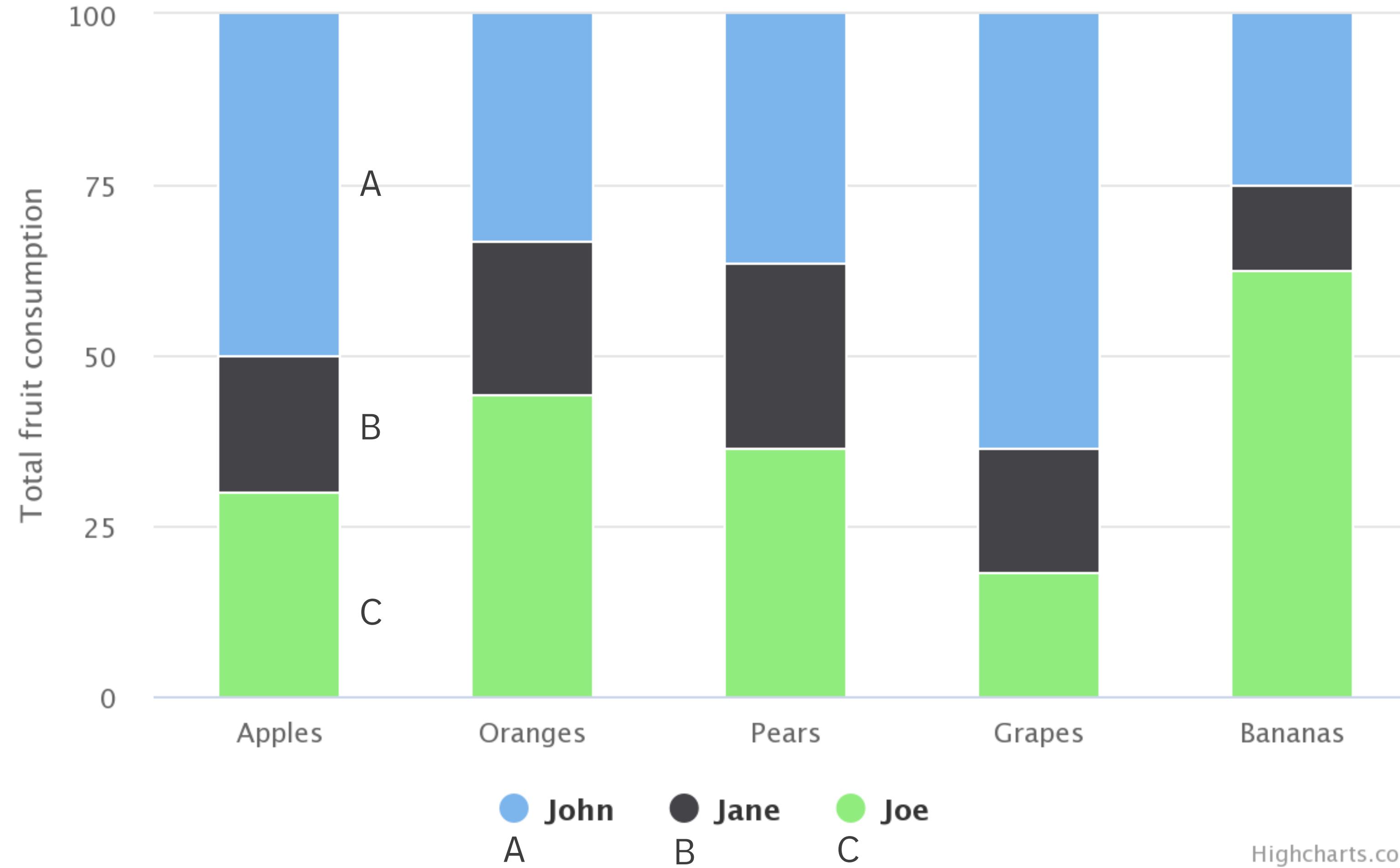
Symbols in addition to color.

Browser market shares in January, 2018



This approach makes the information accessible by itself, independent of the graphics.

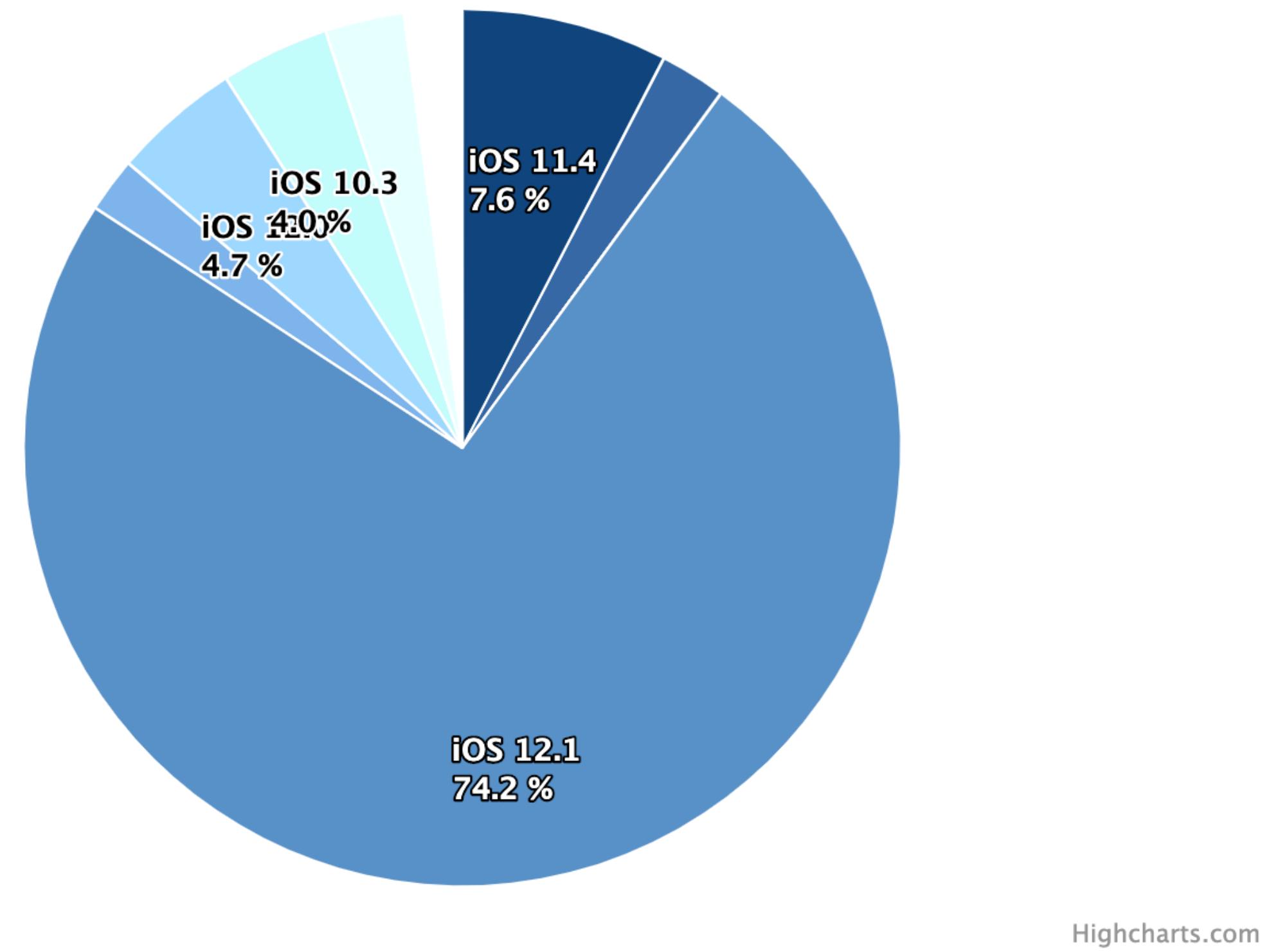
Stacked column chart



(Not an optimal example).

If space is a challenge, you could for example use a letter reference.

Letters could also be initials or other short form, but be careful :) And be careful with numbers as reference.



Mobile & Tablet iOS Version Market Share Worldwide

Category	Share
iOS 11.4	7.32
iOS 11.2	2.35
iOS 12.1	71.48
iOS 11.3	1.95
iOS 12.0	4.54
iOS 10.3	3.86

You could include the data table used for the graph. This also works on its own, independent of the graphic.

The data table also works for screen-readers (if coded correctly).

The data-table can be expand- / collapsible.

In the data table there could also be other key info, such as which is the highest and lowest value.

Sales of Apple Mac Computers

Source: Apple

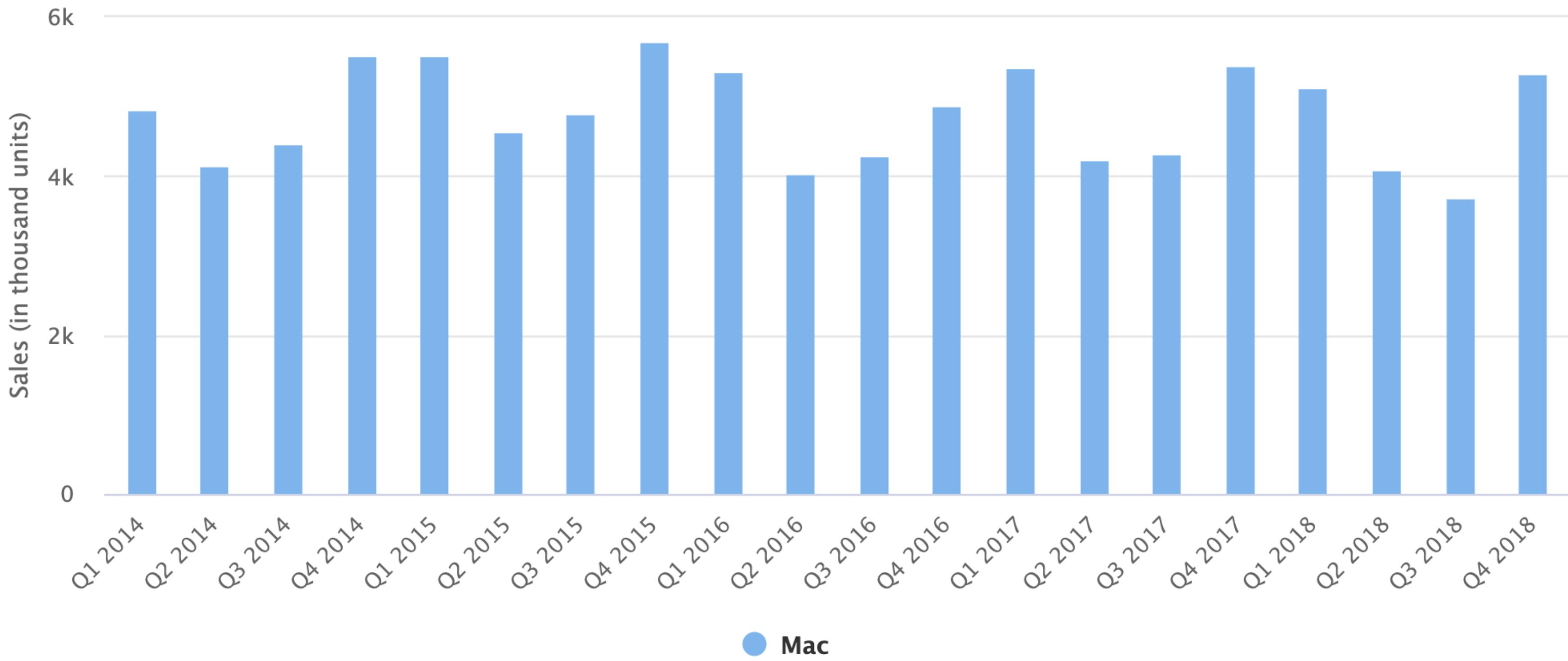


Chart with manually written transcript.

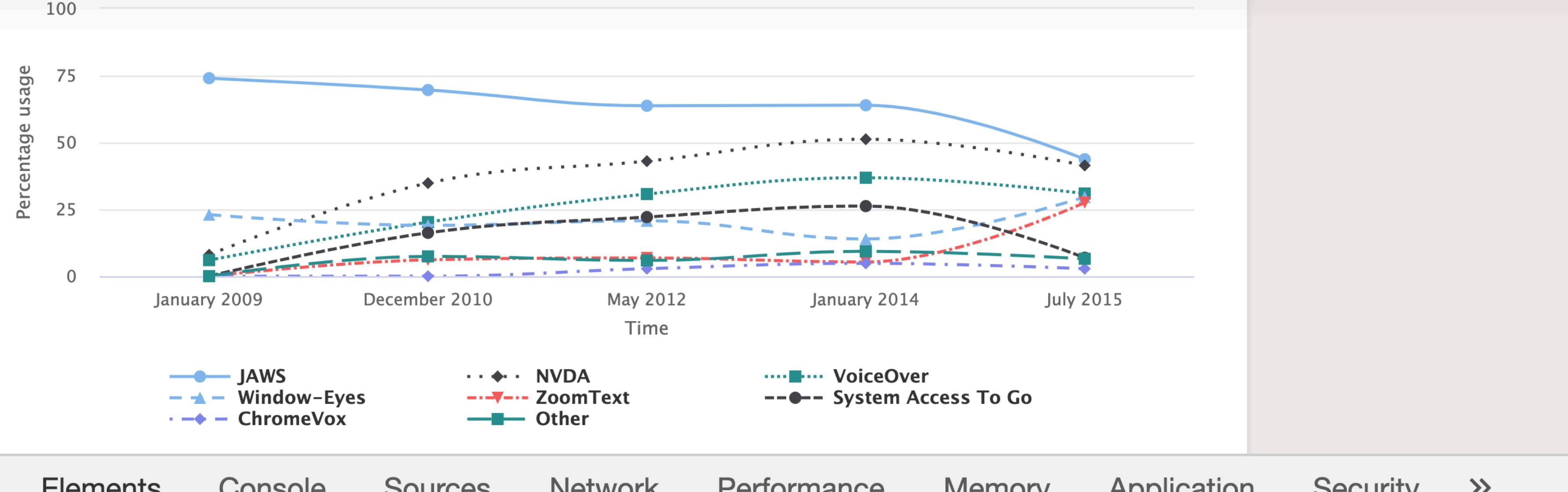
Description can be expand- / collapsible.

Description can be linked (placed somewhere else on the page, or even on a different page).

This chart shows global sales figures for Apple Mac computers during the last 5 years (2014-present). The numbers indicate that sales increase dramatically in every 4th quarter, remain high in the 1st quarter, then decline rapidly in the 2nd and 3rd quarters. This tendency can be explained by Apple holding its annual event (where it showcases new devices) during Q4 -- users buy the newest Macs during Q4 and subsequent Q1, but prefer to wait for newer devices during time periods of Q2 and Q3.

Front-end

- Use **<figure>** and **<figcaption>** to associate graphics with description.
- You can have a **link** in the figcaption to a description somewhere else on the page or on a different page.
- If parts of the description is only for **screen-readers**, you can hide it (using the proper method).



Accessible svg with aria

From Highcharts, with their accessibility API.

<https://www.highcharts.com/blog/post/best-chart-accessibility-practices/>

<https://css-tricks.com/accessible-svgs/>

https://www.w3.org/wiki/SVG_Accessibility/ARIA_roles_for_charts

```

Elements Console Sources Network Performance Memory Application Security >
highcharts-spline-series highcharts-color-0 highcharts-tracker" transform=
"translate(70,60) scale(1 1)" style="cursor:pointer;" aria-hidden="false"
role="region" tabindex="-1" aria-label="JAWS, line 1 of 8 with 5 data
points." opacity="1">
  <path fill="#7cb5ec" d="M 72 45.75999999999999 A 0 0 0 1 1 72
  45.75999999999999 Z" class="highcharts-halo highcharts-color-0" data-z-
  index="-1" fill-opacity="0.25" visibility="hidden"></path>
  <path fill="#7cb5ec" d="M 72 49.75999999999999 A 4 4 0 1 1
  72.0039999933333 49.75999800000016 Z" opacity="1" class="highcharts-
  point highcharts-color-0" tabindex="-1" role="img" aria-label="1.
  January 2009, 74. JAWS" stroke-width="0.0007992249455124334" style=
  "outline: none;"></path> == $0
  <path fill="#7cb5ec" d="M 216 57.504000000000005 A 4 4 0 1 1
  57.504000000000005 Z" class="highcharts-halo highcharts-color-0" data-z-
  index="0" fill-opacity="0.25" visibility="hidden"></path>

```

Keyboard navigation :focus

WCAG 2.0

2.4.7 Focus Visible

Any keyboard operable user interface has a mode of operation where the **keyboard focus indicator is visible**.

Focus style must also follow the color and contrast rules:

Name:

- Interface component minimum contrast 3:1.

City:

- Don't use color alone to identify an interface component.

Phone:

Exception

Browser default (debated).

Styling this is recommended. Since browser default is not great, and also you can make it coherent with your overall look and feel

Name:

City:

Phone:

Beware of context.

Inverted to white, to be visible on the dark background.

Non-text content

WCAG 2.0

1.1.1 Non-text Content

All non-text content that is presented to the user has a **text alternative** that serves the equivalent purpose (some exceptions).

UNIFORUM

[Forsiden](#) [Nyheter](#) [Debatt](#) [Uniforum meiner](#) [Om Uniforum](#)

Søk i Uniforum

Søk

 [Tips oss!](#)

UiO brukar kunstig intelligens for å forklara biletet for synshemma

Seks av ti biletet på nettsidene til UiO manglar utfylling med ein omtale av biletet for blinde og svaksynte. No har UiO tatt i bruk kunstig intelligens for å få dette med.

Av Martin Toft

Publisert 17. okt. 2019 04:30

Del på 

NYSKAPING: Dei brukar kunstig intelligens for å få lagt inn forklarande tekst til biletet for blinde og svaksynte på UiOs nettstad. – Det er ein liten innovasjon, seier underdirektør Ivar Holm i USIT (t.h.) Her står han saman med Tomm Eriksen som leier gruppa for brukaropplevingar og leiar for UiOs skyteam, Karine Fluge Ulleberg.

Foto: Ola Gamst Sæther

Universitetet i Oslo skal ha universell utforming av alle sine offentlege tenester. Det gjeld også alle biletet som blir lagde ut på nettsidene til Universitetet i Oslo. Derfor skal alle som legg ut biletet, også fylla ut den alternative teksten om kva eit biletet inneheld, om det er ein mann, ei kvinne, eit barn eller ein bygning.

Elements Console > ::x

```

</div>
►<span class="vrtx-authors">...
</span>
►<div class="vrtx-date-info">...
</div>
▼<div class="vrtx-introduction-
image" style="width: auto; margin-
left: 0px; float: none;">
...
 == $0
►<div class="vrtx-imagetext">...
</div>
</div>
►<p class="elm-has-own-text">...
</p>
►<p class="elm-has-own-text">...
</p>
►<div class="vrtx-facts-container
vrtx-container-right">...</div>
<h3>Forklarande tekst til biletet
</h3>
►<p class="elm-has-own-text">...
</p>
...
#vrtx-main-user div img
Styles Computed Event Listeners >
Filter :hov .cls +
element.style {
    width: auto;
}
body
img:not([src$='spacer.gif']) {
    max-width: 100%;
    height: auto;
}
article, aside, audio, canvas,
caption, details, div, figure,
footer, header, hgroup, iframe, img, mark
style.css:1002
style.css:70

```

Shortcuts
Facebook

Rhodri Marsden

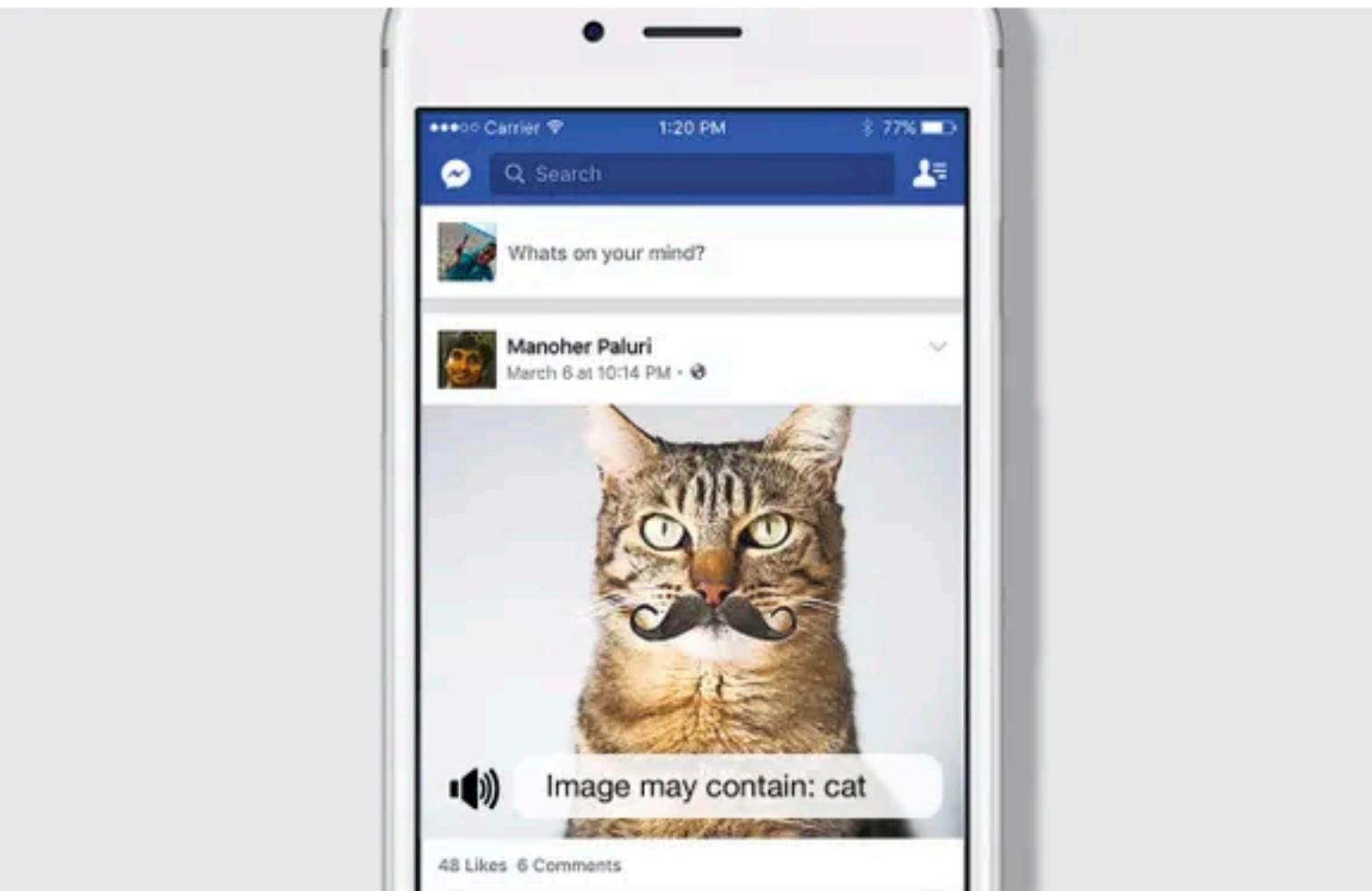
Sun 10 Apr 2016 16.00 BST



132 | 20

'Image may contain... cat?' - now Facebook can talk you through your photos

Blind users of the social network can have images described to them – although we shouldn't stop captioning and tagging just yet

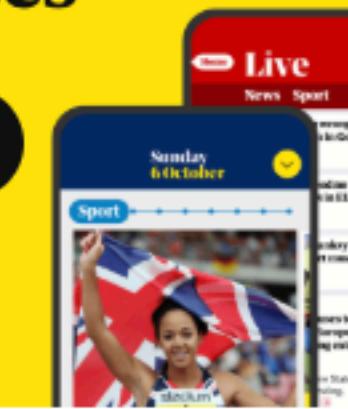


▲ Cat with moustache. Photograph: GNM

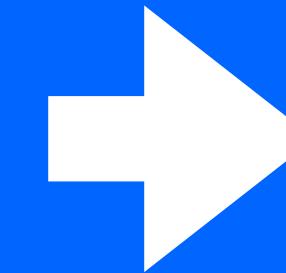
If you post a picture of a cat on Facebook, a bunch of people will immediately identify it as a cat – but now Facebook automatically knows it's a cat, too. This could be seen as another invasion of our online privacy, but for the visually impaired it's incredibly useful: with the help of Apple's VoiceOver software, phones and tablets using the Facebook app can now tell you what might be in the picture. "Image may contain: cat," the audio software says when I tap on the photo. Correct! So I

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Text Spacing



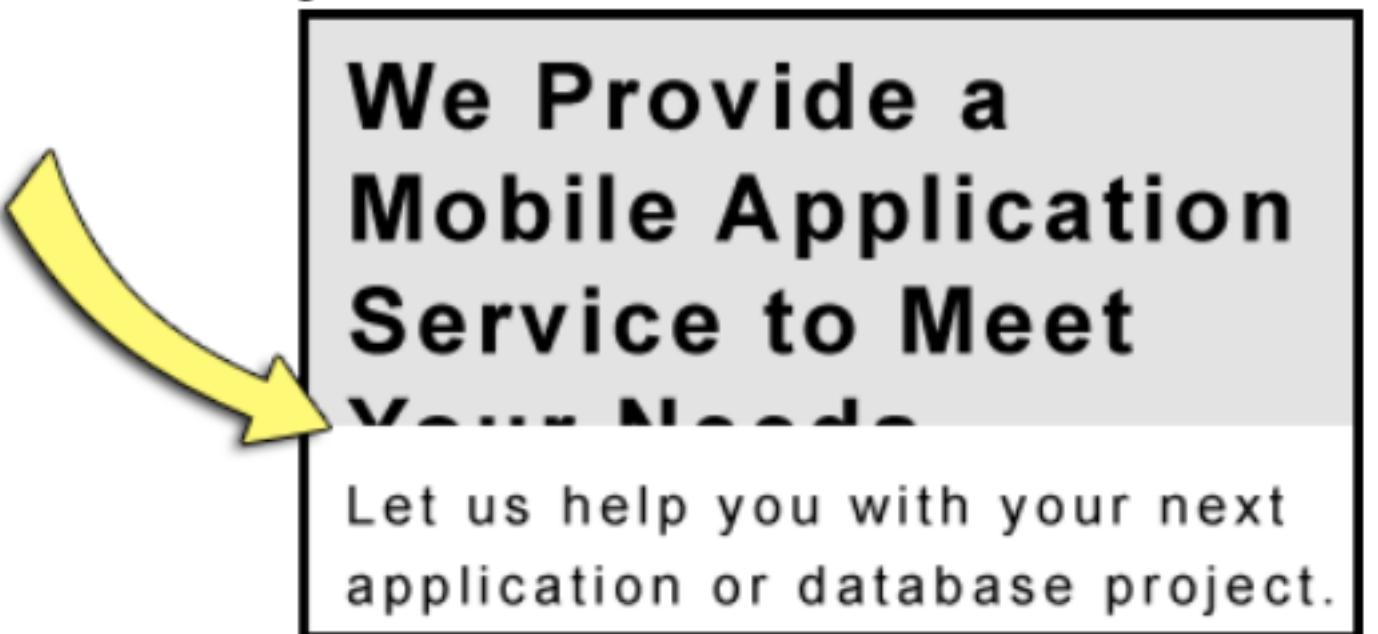
WCAG 2.1

Success Criterion 1.4.12: Text spacing

In content implemented using markup languages that support the following text style properties, **no loss of content or functionality occurs by setting all of the following** and by changing no other style property:

- Line height (line spacing) to at least 1.5 times the font size;
- Spacing following paragraphs to at least 2 times the font size;
- Letter spacing (tracking) to at least 0.12 times the font size;
- Word spacing to at least 0.16 times the font size.

Figure 1 Vertical text cut off is a failure.



Important: This is about the ability the user has to **override** the above.

Tables

Fruktkonsum

	Epler	Pærer	Bananer
Kjetil	10	1	3
Emmy	6	8	1
Gro	1	7	4

```
▼<table>
  <caption>Fruktkonsum</caption>
  ▼<tbody>
    ▼<tr>
      <td></td>
      <th scope="col">Epler</th>
      <th scope="col">Pærer</th>
      <th scope="col">Bananer</th>
    </tr>
    ▼<tr>
      <th scope="row">Kjetil</th>
      <td>10</td>
      <td>1</td>
      <td>3</td>
    </tr>
    ▼<tr>
      <th scope="row">Emmy</th>
      <td>6</td>
      <td>8</td>
      <td>1</td>
    </tr>
    ▼<tr>
      <th scope="row">Gro</th>
      <td>1</td>
      <td>7</td>
      <td>4</td>
    </tr>
  </tbody>
</table>
```

Forms

WAI-ARIA

If you can use standard HTML, then do that.
Aria is meant to fill the gap where there are no appropriate standard semantics.

Don't do this! → <button role="button">

<https://www.w3.org/TR/wai-aria-1.1/>

First name

```
<label for="firstName">First name</label>
<input
    type="text"
    id="firstName"
    autocomplete="given-name"
    required
>
```

First name

Required

```
<input  
  ...  
  aria-invalid="true"  
  aria-errormessage="firstNameError"  
>  
<p id="firstNameError" role="alert">Required</p>
```

- Yes No

```
<label>
  <input type="radio">Yes
</label>
```

3. Vedlegg

Beskrivelse av vedlegg

	Gruppe	Nr. fra - til	<input type="checkbox"/> Ikke relevant
Situasjonsplan, avkjøringsplan	D	10 - 30	<input type="checkbox"/>
Tegninger	E	-	<input checked="" type="checkbox"/>
Redegjørelser/kart	F	-	<input type="checkbox"/>
Erklæring om ansvarsrett	G	-	<input type="checkbox"/>
Gjennomføringsplan	G	-	<input type="checkbox"/>
Boligspesifikasjon i matrikkelen	H	-	<input type="checkbox"/>
Uttalelse/vedtak fra annen offentlig myndighet	I	-	<input type="checkbox"/>
Andre vedlegg	Q	-	<input type="checkbox"/>

4. Ansvarlig søker for tiltaket

Kontaktinformasjon

```

<div _ngcontent-tan-c11 class="tableForm slimFields">
  <caption _ngcontent-tan-c11 class="invisible">Vedlegg</caption>
  <thead _ngcontent-tan-c11>
    <tr _ngcontent-tan-c11>
      <th _ngcontent-tan-c11 id="table1col1" scope="col">Beskrivelse av vedlegg</th>
      <th _ngcontent-tan-c11 id="table1col2" scope="col">Gruppe</th>
      <th _ngcontent-tan-c11 id="table1col3" scope="col">
        " Nr. "
      </th>
      <th _ngcontent-tan-c11 id="table1col4" scope="col">...</th>
    </tr>
  </thead>
  <tbody _ngcontent-tan-c11>
    <tr _ngcontent-tan-c11>
      <th _ngcontent-tan-c11 id="table1row1" scope="row">Situasjonsplan, avkjøringsplan
      </th>
      <td _ngcontent-tan-c11>D</td>
      <td _ngcontent-tan-c11>
        <div _ngcontent-tan-c11 class="joinedInputs">
          <input _ngcontent-tan-c11 aria-labelledby="table1row1 table1col3
            table1col3segment1" class="text xxShort" type="text" value="0"/>
          " - "
          <input _ngcontent-tan-c11 aria-labelledby="table1row1 table1col3
            table1col3segment2" class="text xxShort" type="text" value="0"/>
        </div>
      </td>
      <td _ngcontent-tan-c11>...</td>
    </tr>
  </tbody>
</div>

```

Velg beregningsregel som er angitt i gjeldende plan*	<input type="button" value="Velg"/>	<input type="button" value="i"/>
a. Grad av utnytting iht. gjeldende plan	12 %	
Tomteareal		
b. Byggeområde/grunneiendom Dersom areal ikke er fremkommet av målebrev, beskriv nærmere i vedlegg.	123 m ²	Vedlegg nr.: D -
c. Eventuelt areal som trekkes fra iht. beregningsregler	- 120 m ²	
e. Beregnet tomteareal (b - c) eller (b + d)	= 123 m ²	
Grad av utnytting		
Arealbenevnelse		
BYA - Bebygd areal		
f. Beregnet maks. byggeareal iht. plan (jf. a. og e.)	123 m ²	
g. Areal eksisterende bebyggelse	- m ²	
h. Areal som skal rives	+ 120 m ²	
i. Areal ny bebyggelse	+ 120 m ²	
j. Parkeringsareal på terren	+ 120 m ²	
k. Areal byggesak	= 123 m ²	
Beregnet grad av utnytting	= 12 %	Vedlegg nr.: D -
Vis eventuelt underlag for beregningen av grad av utnytting i vedlegg.		

```

<tbody _ngcontent-cfo-c11>
  <tr _ngcontent-cfo-c11>
    <th _ngcontent-cfo-c11 class="tableRowHeading noBorder" colspan="3" id="table1heading2" scope="col">Grad av utnytting</th>
  </tr>
  <tr _ngcontent-cfo-c11>
    <th _ngcontent-cfo-c11 class="noBorder" scope="col">Arealbenevnelse</th>
    <th _ngcontent-cfo-c11 class="noBorder" colspan="2" scope="col">BYA – Bebygd areal</th>
  </tr>
  <tr _ngcontent-cfo-c11 id="table1row7" scope="row">
    <p _ngcontent-cfo-c11>f. Beregnet maks. byggeareal iht. plan (jf. a. og e.)</p>
  </th>
  <td _ngcontent-cfo-c11 colspan="2">
    <div _ngcontent-cfo-c11 class="inputWrap withSuffix">
      <input _ngcontent-cfo-c11 aria-describedby="table1heading2" aria-labelledby="table1row7" class="text xShort rightText" type="text" value="123" /> == $0
      <span _ngcontent-cfo-c11 class="suffix">...</span>
    </div>
  </td>
  </tr>
  <tr _ngcontent-cfo-c11>...</tr>
  <tr _ngcontent-cfo-c11>...</tr>
  <tr _ngcontent-cfo-c11>...</tr>
  <tr _ngcontent-cfo-c11>...</tr>
  <tr _ngcontent-cfo-c11>...</tr>
  <tr _ngcontent-cfo-c11>...</tr>
</tbody>
<tbody _ngcontent-cfo-c11>...</tbody>

```

Selgeren tar følgende forbehold for gjennomføring av kontrakten:

- Det tas forbehold om at igangsettingstillatelse er gitt innen DATO .
- Det tas forbehold om at det er gitt BYGGELÅN innen DATO.
- Det tas forbehold om at ANTALL boliger av totalt ANTALL boliger er solgt innen DATO.
- Det tas forbehold om at ANTALL boliger av totalt ANTALL boliger, inkludert minst TYPE BOLIG er solgt innen DATO.

```

...<div _ngcontent-eqj-c11 class="tickSentence" id="sentence2">
  <input _ngcontent-eqj-c11 aria-labelledby="sentence2" type="checkbox" value="0" checked="checked"/>
<div _ngcontent-eqj-c11 class="sentenceForm">
  " Det tas forbehold om at det er gitt "
  <label _ngcontent-eqj-c11 class="floatLabel">
    <input _ngcontent-eqj-c11 class="text xShort" required="" type="text" value="BYGGELÅN" />
    <span _ngcontent-eqj-c11>byggelån</span>
  </label>
  " innen "
  <label _ngcontent-eqj-c11 class="floatLabel">...</label>
</div>
</div>
```

Disclaimer: This one is a bit experimental, especially since there are interactive elements inside the element that serves as label.

Please test before use.

```
<fieldset>  
<legend>Kontaktinformasjon</legend>
```

Kontaktinformasjon

 [Velg fra kontaktliste](#)

Firmanavn

Kontaktperson

Telefon arbeid

Mobiletelefon

```
}-->  
▼<div _ngcontent-xnx-c0>  
  <router-outlet _ngcontent-xnx-c0></router-outlet>  
  ▼<app-design-three _nghost-xnx-c11>  
    ►<header _ngcontent-xnx-c11 class="formHeader">...</header>  
    ▼<div _ngcontent-xnx-c11 class="formContainer">  
      ►<div _ngcontent-xnx-c11 class="area">...</div>  
      ►<section _ngcontent-xnx-c11 class="chapter">...</section>  
      ▼<section _ngcontent-xnx-c11 class="chapter">  
        <h2 _ngcontent-xnx-c11 class="chapterHeading">2. Tiltaksbeskrivelse</h2>  
        ►<div _ngcontent-xnx-c11 class="area">...</div>  
        ►<div _ngcontent-xnx-c11 aria-labelledby="groupHeading3" class="area" role="group">...</div>  
      </section>  
      ►<section _ngcontent-xnx-c11 class="chapter">...</section>  
      ▼<section _ngcontent-xnx-c11 class="chapter">  
        <h2 _ngcontent-xnx-c11 class="chapterHeading">4. Ansvarlig søker for tiltaket</h2>  
        ...  
        ▼<div _ngcontent-xnx-c11 aria-labelledby="groupHeading3" class="area" role="group"> == $0  
          ▼<h3 _ngcontent-xnx-c11 class="areaHeading" id="groupHeading3">  
            ::before  
            "Kontaktinformasjon"  
          </h3>  
          ►<ul _ngcontent-xnx-c11 class="optionsList">...</ul>  
          ►<div _ngcontent-xnx-c11 class="field">...</div>  
          ►<div _ngcontent-xnx-c11 class="field">...</div>  
          ►<div _ngcontent-xnx-c11 class="siblings horizontal">...</div>  
          ►<div _ngcontent-xnx-c11 class="field">...</div>
```

role="group"
aria-labelledby="groupHeadingID"

Bører tiltaket **eksisterende eller fremtidige arbeidsplasser?**

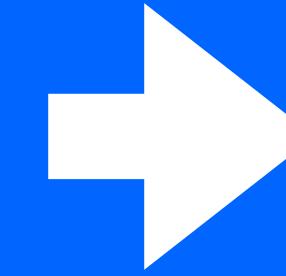
Ja Nei

```
<div _ngcontent-xnx-c11 class="formContainer">
  <div _ngcontent-xnx-c11 class="area">
    <div _ngcontent-xnx-c11 class="field">...</div>
  ...
  <div _ngcontent-xnx-c11 aria-labelledby="radiogroupHeading1" role="radiogroup"> == $0
    <p _ngcontent-xnx-c11 id="radiogroupHeading1">...</p>
```

role="radiogroup"

<https://www.w3.org/WAI/tutorials/forms/grouping/>

Status messages



WCAG 2.1

Success Criterion 4.1.3 - Status Messages

Status messages can be programmatically determined through role or properties such that they can be presented to the user by assistive technologies without receiving focus.



25 hits for “**performance**” in this document:

[< Previous](#) [3 of 25](#) [Next >](#)

[Filter document >](#)

[> Table of contents](#)

[> Document information](#)

[> Figures and tables](#)

[> Amendments and corrigenda \(1\)](#)

[> Version history](#)

[> Bookmarks and highlights](#)

This document defines metrics for the charging **performance** of electronic fee collection (EFC) systems in terms of the level of errors associated with charging computation.

This document is a toolbox standard of metrics. The detailed choice of metrics depends on the application and the respective context.

This document describes a set of metrics with appropriate definitions, principles and formulations, which together make up a reference framework for the establishment of requirements for EFC systems and their later examination of the **charging performance**.

The charging **performance** metrics defined in this document are intended for use with any Charging Scheme, regardless of its technical underpinnings, system architecture, tariff structure, geographical coverage, or organizational model. They are defined to treat technical details that can be different among technologies and vendors or vary over time as a “black box”.

They focus solely on the outcome of the charging process, i.e. the amount charged in relation to a pre-measured or theoretically correct amount, rather than intermediate variables from various components as sensors, such as positioning accuracy, signal range, or optical resolution. This approach ensures comparable results for each metric in all relevant situations.

The metrics are designed to cover the information exchanged on the Front End interface and the interoperability interfaces between Toll Service Providers, Toll Chargers and Road Users as well as on the End-to-End level.

```

    ▶ <div class="documentSettings">...</div>
    ▷ <div class="searchDocument">
        ▷ <div class="inputArea">...</div>
        ▷ <div class="results">
            ...
            ▷ <p class="info" role="status"> == $0
                <mark class="searchMark">25</mark>
                " hits for "
                <strong>"performance"</strong>
                " in this document:"
            </p>
            ▷ <div class="prevNext">...</div>
            </div>
        </div>
    ▷ <div class="filterDocument">...</div>
        <a class="skip" href="#mainContent">Skip to conte
    ▷ <section>...</section>
    ▷ <section>...</section>
    ▷ <section style="opacity: .5" title="Deprecated">
        <section>...</section>
        <section>...</section>
    ▷ <section class="highlightsEtc">...</section>
    </div>
    <!-- end inner -->
</div>
<!-- end navigation column -->
    ▷ <div class="primaryColumn">...</div>
    <!-- end primary column -->
</div>
<!-- end wrapper -->
</main>
<!-- temporary script. not for production -->
<script src="../Scripts/tempscript-min.js"></script>
</body>
</html>

```

role="status"

role="status"

Will announce the **entire contents** of element if something changes.

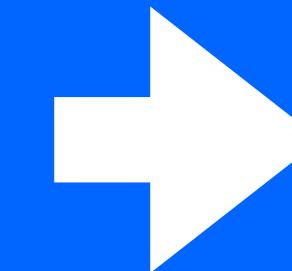
aria-live="polite"

Will announce **only changes** within element.

“**Polite**” means that the screen reader will **wait** for any other actions to finish before announcing.

aria-live="assertive" will announce **immediately**.

Content on hover or focus



WCAG 2.1

Success Criterion 1.4.13 - Content on hover or focus.

Where receiving and then removing pointer hover or keyboard focus triggers additional content to become visible and then hidden, the following are true:

(There are usually more predictable and accessible means of adding content to the page, which authors are recommended to employ.)

Dismissable

A mechanism is available to dismiss the additional content without moving pointer hover or keyboard focus (such pressing escape), unless the additional content communicates an input error or does not obscure or replace other content.

Hoverable

If pointer hover can trigger the additional content, then the pointer can be moved over the additional content without the additional content disappearing;

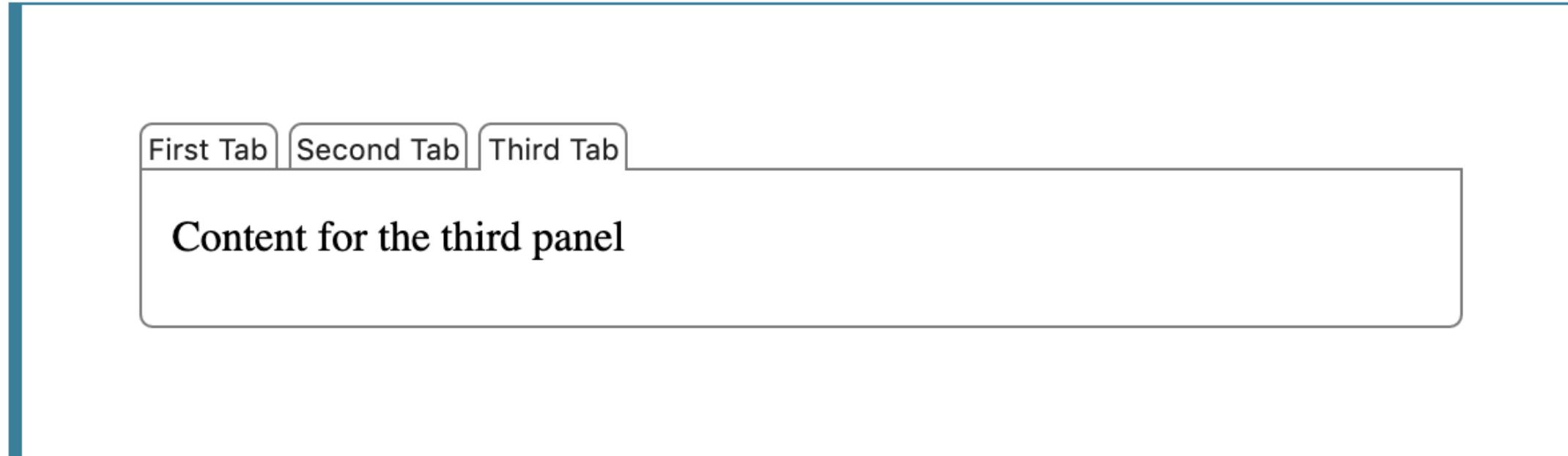
Persistent

The additional content remains visible until the hover or focus trigger is removed, the user dismisses it, or its information is no longer valid.

Except: If controlled by **user agent** (such as the **title** attribute).

<https://www.w3.org/WAI/WCAG21/Understanding/content-on-hover-or-focus.html>

Expansions



```
▼<html>
  ▶<head>...</head>
  ▶<body>
    ▶<div class="tabs">
      ...<br/>
      ▶<div role="tablist" aria-label="Sample Tabs">
        <button role="tab" aria-selected="false" aria-controls="panel-1" id="tab-1" tabindex="-1">
          First Tab
        </button> == $0
        <button role="tab" aria-selected="false" aria-controls="panel-2" id="tab-2" tabindex="-1">
          Second Tab
        </button>
        <button role="tab" aria-selected="true" aria-controls="panel-3" id="tab-3" tabindex="0">
          Third Tab
        </button>
      </div>
      ▶<div id="panel-1" role="tabpanel" tabindex="0" aria-labelledby="tab-1" hidden="true">...</div>
      ▶<div id="panel-2" role="tabpanel" tabindex="0" aria-labelledby="tab-2" hidden="true">...</div>
      ▶<div id="panel-3" role="tabpanel" tabindex="0" aria-labelledby="tab-3">...</div>
```

- **aria-controls** to establish relationship between button and target.
- **aria-expanded** to signify button state.
- **aria-labelledby** to use button as tab label.
- (Move focus to target when opening).
- (Enable use of arrow-keys to move between tabs).

https://developer.mozilla.org/en-US/docs/Web/Accessibility/ARIA/Roles/Tab_Role

Modals

- [Browse](#)
- [Report](#)
- [Related](#)
- [Design](#)

Modal

Following is
Address" bu
features sec
dialog.

Similar exam

- [Alert Di](#)
- [Date Pi](#)

Add Delivery Address

Street:

City:

State:

Zip:

Special instructions:
For example, gate code or other information to help the driver find you

Buttons: Verify Address | Add | Cancel

Elements | Console | Sources | Network > | : | X

```

▶ <head>...</head>
▼ <body class="has-dialog">
  ▶ <nav aria-label="Related Links" class="feedback">...</nav>
  ▶ <main>...</main>
  ▶ <nav>...</nav>
  ▼ <div id="dialog_layer" class="dialogs">
    ▼ <div class="dialog-backdrop active">
      <div tabindex="0"></div>
    ...
    ... ▼ <div role="dialog" id="dialog1" aria-labelledby="dialog1_label" aria-modal="true" class="default_dialog"> == $0
      <h2 id="dialog1_label" class="dialog_label">Add Delivery Address</h2>
      ▶ <div class="dialog_form">...</div>
      ▶ <div class="dialog_form_actions">...</div>
    </div>
    <div tabindex="0"></div>
  </div>
  <!-- Second modal to open on top of the first modal -->
  ▶ <div id="dialog2" role="dialog" aria-labelledby="dialog2_label" aria-describedby="dialog2_desc" aria-modal="true" class="hidden">...</div>
    <!-- Dialog that replaces dialog 1. -->
  ▶ <div id="dialog3" role="dialog" aria-labelledby="dialog3_label" aria-describedby="dialog3_desc" aria-modal="true" class="hidden">...</div>
  ▶ <div id="dialog4" role="dialog" aria-labelledby="dialog4_label" aria-describedby="dialog4_desc" class="hidden" aria-modal="true">...</div>
</div>
<script>...</script>
</body>
</html>

```

- Move focus to modal when opening.
- Prevent tabbing outside (trap tab).
- Enable closing with Escape-key.
- When closing, set focus back on launching element.
- If modal closes on click outside, consider consequences of accidental closing.

- Date Picker Dialog example: Demonstrates a dialog containing a calendar grid for choosing a date.

Example

Notes

...
Lorem ipsum
Ab, similique,
cumque num
possimus ass

Confirmation

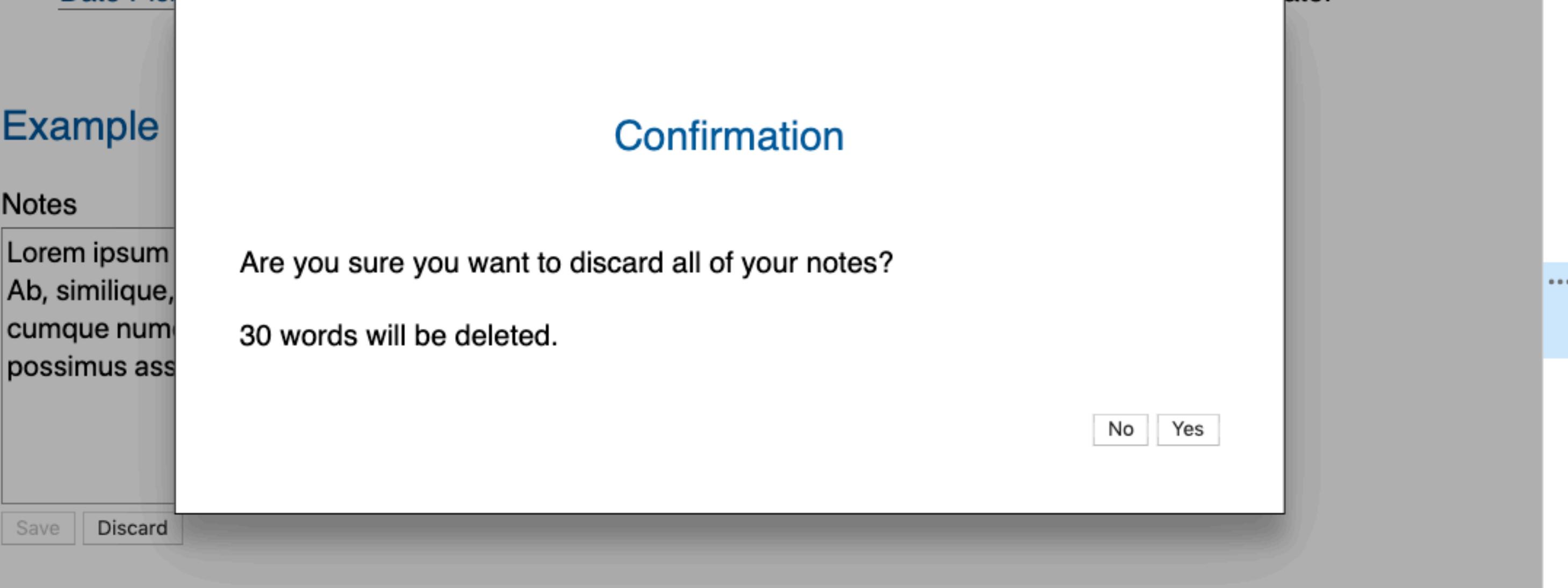
Are you sure you want to discard all of your notes?

30 words will be deleted.

role="alertdialog"

- Should only be used when user's immediate attention is required.
- Content will be announced by screen-reader.

<https://www.w3.org/TR/wai-aria-practices/examples/dialog-modal/alertdialog.html>



```

<button type="button" aria-controls="notes" id="notes_save" disabled="true">Save</button>
<button type="button" aria-controls="notes" id="notes_discard" onclick="openAlertDialog('alert_dialog', this)">Discard</button>
<div role="alert" id="alert_toast" class="toast hidden">Nothing to discard.</div>
<div class="dialog-backdrop no-scroll active">
  <div tabindex="0"></div>
  ...
  <div id="alert_dialog" role="alertdialog" aria-modal="true" aria-labelledby="dialog_label" aria-describedby="dialog_desc" class="default_dialog"> == $0
    <h2 id="dialog_label" class="dialog_label">Confirmation</h2>
    <div id="dialog_desc" class="dialog_desc">...</div>
    <div class="dialog_form_actions">...</div>
  </div>
<div tabindex="0"></div>
</div>
</div>

```

WHAT DOES A11Y EVEN MEAN?

By Matt on 01 September 2016 web, Design, Development

