

# A11Y

Let's deliver inclusive user experiences!

# About me – And what I do



**Andreas Helge**

Functional Lead  
Digital Accessibility

- I'm Andreas and I live and work near Munich, Germany
- I studied design and worked in front-end development.
- Today I work as a Quality Manager for Allianz Technology and be part of a team that makes sure that enterprise software becomes more accessible and usable for everyone.

# The Global Goals – For Sustainable Development.



# A product for more than one target group



[Nike Go FlyEase](https://www.nike.com/go-flyease)

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Have you ever needed to get a stroller or wheeled luggage onto the sidewalk when crossing a street?

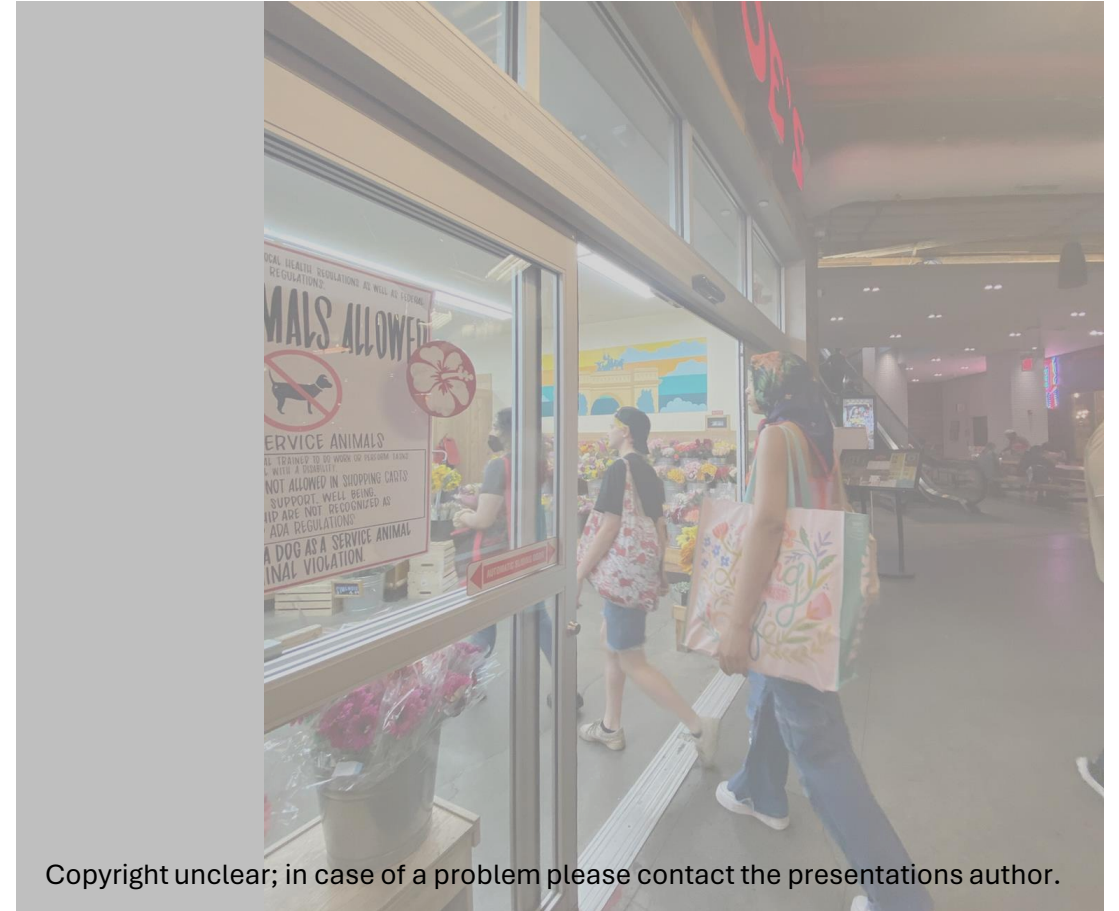
**Thanks to the ramps and  
curb cut ramps!**



Copyright unclear; in case of a problem please contact the presentations author.

Have you ever found it difficult  
to push a door to open  
especially when your hands are  
full with shopping bags? Or a  
smartphone ;-)

**Thanks to the automatic  
doors!**



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# EAA Requirements

in a Nutshell



# EAA Requirements in a Nutshell



- Europe: European Accessibility Act ([EU Richtlinie 2019/882](#))
- Germany: [Barrierefreiheitsstärkungsgesetz](#)
- Italy: Law 4/2004 (“legge Stanca”) & Decree 82/2022
- France: [Article 47 - Loi n° 2005-102](#)
- UK: [Equality Act 2010](#) (not EU a11y act)
- Common ground based on international standards
  - [WCAG 2 Level AA](#) (updated in October 2023)
  - [EN 301 549 V3.2.1](#)
- The law addresses the following topics:
  - Generic requirements
    - Activation of accessibility features, biometrics
  - ICT with two-way voice communication
  - ICT with video capabilities
  - Web
    - incl. authoring tools that must support authors to create accessible content
  - Non-web documents
  - Software
    - Including mobile apps
  - Documentation and support services
    - Activation of accessibility features

*ICT: Information and Communication Technology*




# Risks, Lawsuits, and Litigation

## Risks

- Bad press / Damage of reputation
- Admonition letter
- Associations' right to sue
- Germany: Application for verification of accessibility by the respective state authority for market surveillance

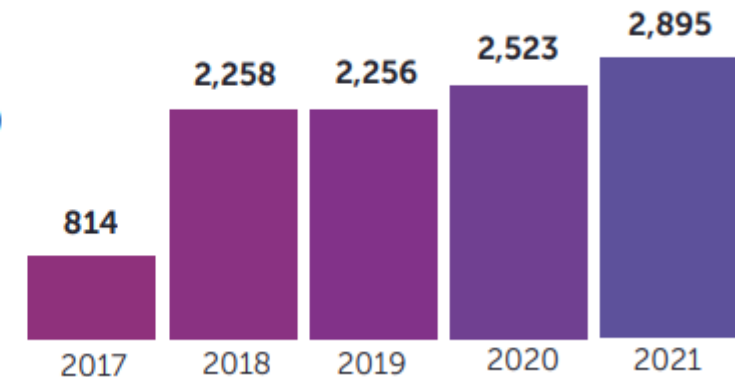
## Lawsuits

- **43.3%** of organisations surveyed reported the litigation trends have motivated them to move faster to achieve accessibility **compliance**
- **18.0%** of organisations surveyed have been sued **more than once** because of digital accessibility

 *Please contact your (local) legal or compliance department for a better understanding of the risks to your organisation.*

ADA Title III Website Accessibility  
Lawsuits in Federal Court (2017-2021)

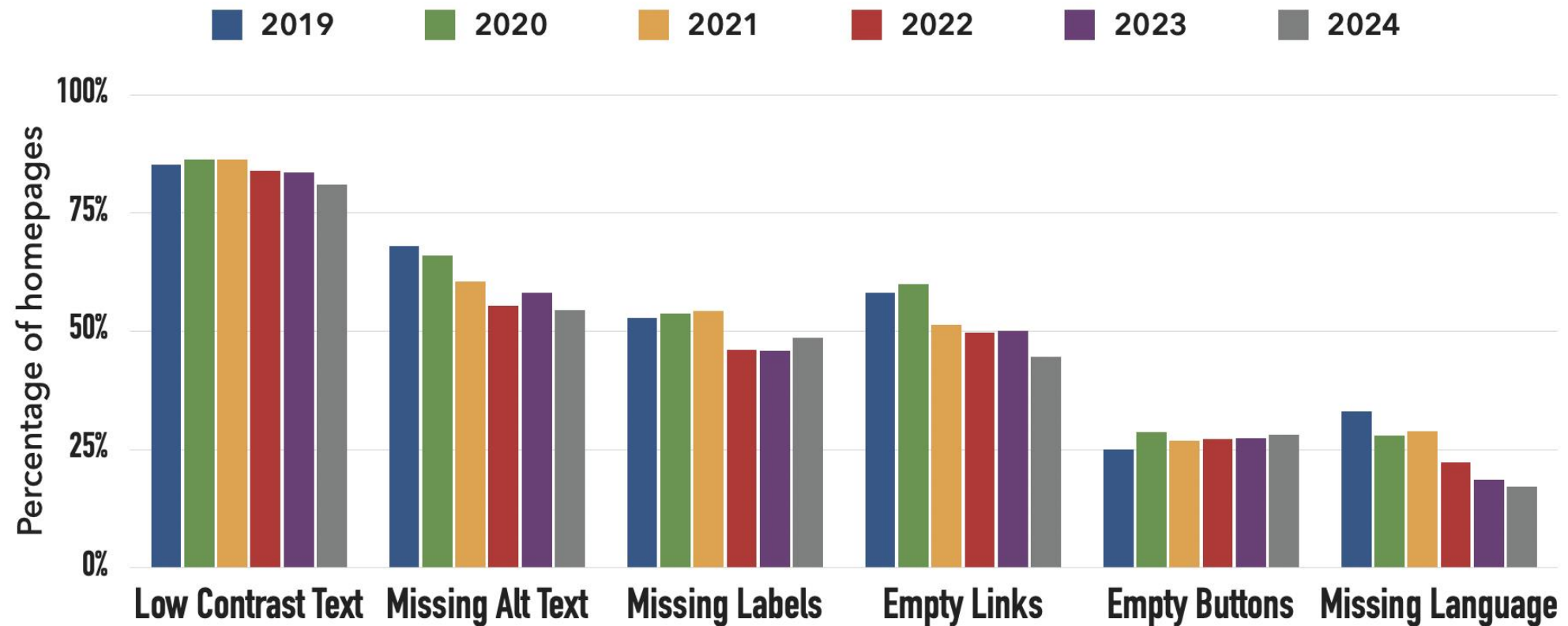
[Source: Seyfarth Shaw LLP](#)



# Let's start testing

Some requirements that are easy to identify

**From a user perspective,  
what do you think are the most common accessibility problems?**



# **From a screen reader user perspective, what do you think are the most problematic items?**

In order, the most problematic items are:

1. CAPTCHA - images presenting text used to verify that you are a human user
2. Interactive elements like menus, tabs, and dialogs do not behave as expected
3. Links or buttons that do not make sense
4. Screens or parts of screens that change unexpectedly
5. Lack of keyboard accessibility
6. Images with missing or improper descriptions (alt text)
7. Complex or difficult forms
8. Missing or improper headings
9. Too many links or navigation items
10. Complex data tables
11. Inaccessible or missing search functionality
12. Lack of "skip to main content" or "skip navigation" links

# Let's start testing. No, seriously.

- Low contrast text
- Missing alternative text for images
- Missing form input labels
- Empty links
- Empty buttons
- Missing document language

# Lighthouse Tests (Chrome/Edge)

The screenshot shows the Allianz website's "Berufsunfähigkeitsversicherung Rechner" (Disability Insurance Calculator). The page has a dark blue header with the Allianz logo, contact number (0800 4720 115), and a user profile (Gunter Weise). The main content area is divided into three sections: 1. Persönliche Daten (Personal Data), 2. Versicherungsdauer (Insurance Duration), and 3. Wählen Sie Ihre monatliche Rente oder Ihren monatlichen Zahlbeitrag frei aus. (Choose your monthly pension or monthly contribution). A Lighthouse accessibility audit is open on the right side of the browser window, showing a score of 86. A black callout box with white text is overlaid on the page, stating: "Die möglichen 100% entsprechen je Komplexität der Seite 5%, 30% oder auch mal 50%." (The possible 100% correspond to the complexity of the page 5%, 30% or even 50% times).

Bei der Allianz bereits ab 28,37 € monatlich! ⓘ

## Berufsunfähigkeitsversicherung Rechner

1. Persönliche Daten

Mein Geburtsdatum

01 . 12 . 2003

Raucherstatus ⓘ

Nichtraucher Raucher

Mein Beruf ⓘ

Bitte geben Sie die ersten Buchstaben ein

2. Versicherungsdauer

Alter bei Versicherungsende ⓘ

67 Jahre

3. Wählen Sie Ihre monatliche Rente oder Ihren monatlichen Zahlbeitrag frei aus.

Monatliche Berufsunfähigkeitsrente ⓘ

1000 €

Ihr aktueller monatlicher Zahlbeitrag ⓘ

28.37 €

Kontakt

Lighthouse Score: 86

Accessibility

There were issues affecting this run of Lighthouse:

- There may be stored data affecting loading performance in this location: IndexedDB. Audit this page in an incognito window to prevent those resources from affecting your scores.

NAMES AND LABELS

- Image elements do not have [alt] attributes
- Elements with visible text labels do not have matching accessible names.
- Links do not have a discernible name

These are opportunities to improve the semantics of the controls in your application. This may enhance the experience for users of assistive technology, like a screen reader.

NAVIGATION

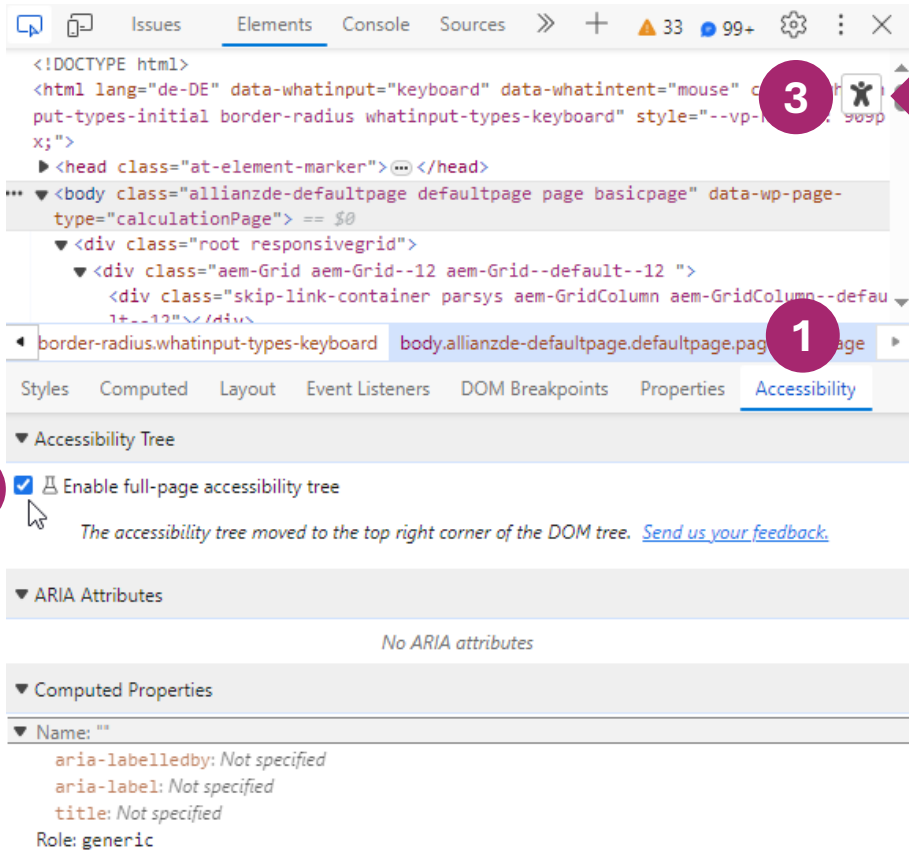
- Heading elements are not in a sequentially-descending order

These are opportunities to improve keyboard navigation in your application.

ADDITIONAL ITEMS TO MANUALLY CHECK (10)

These items address areas which an automated testing tool cannot cover. Learn more in our guide on [conducting an accessibility review](#)

# Accessibility Tree



1

2

3

Issues Elements Console Sources > + 33 99+ ⚙️ ⋮ ✕

```
<!DOCTYPE html>
<html lang="de-DE" data-whatinput="keyboard" data-whatintent="mouse" class="whatinput-types-initial border-radius whatinput-types-keyboard" style="--vp-height: 909px;">
  <head class="at-element-marker">...</head>
  <body class="allianzde-defaultpage defaultpage page basicpage" data-wp-page-type="calculationPage"> == $0
    <div class="root responsivegrid">...
      <div class="aem-Grid aem-Grid--12 aem-Grid--default--12">...
        <div class="skip-link-container parsys aem-GridColumn aem-GridColumn--default--12">...
          <div class="border-radius.whatinput-types-keyboard">...
            body.allianzde-defaultpage.defaultpage.page.basicpage

border-radius.whatinput-types-keyboard body.allianzde-defaultpage.defaultpage.page.basicpage
```

Styles Computed Layout Event Listeners DOM Breakpoints Properties Accessibility

▼ Accessibility Tree

☒ Enable full-page accessibility tree

The accessibility tree moved to the top right corner of the DOM tree. [Send us your feedback.](#)

▼ ARIA Attributes

No ARIA attributes

▼ Computed Properties

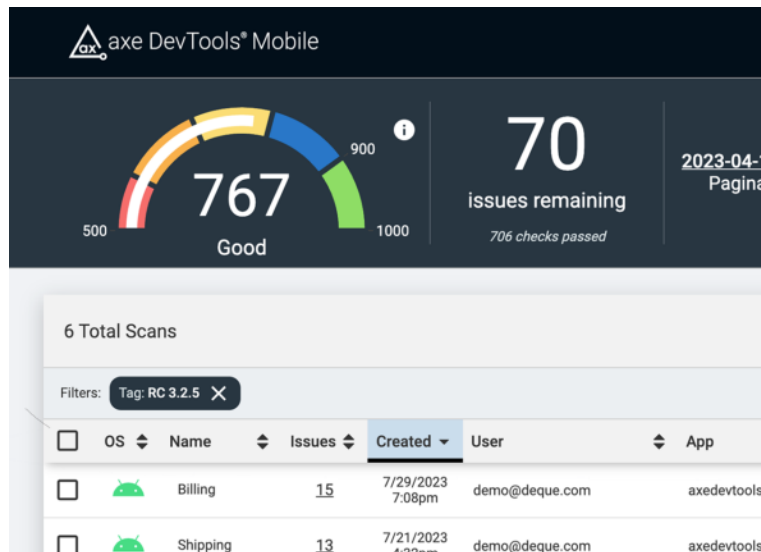
▼ Name: ""

aria-labelledby: Not specified  
aria-label: Not specified  
title: Not specified  
Role: generic

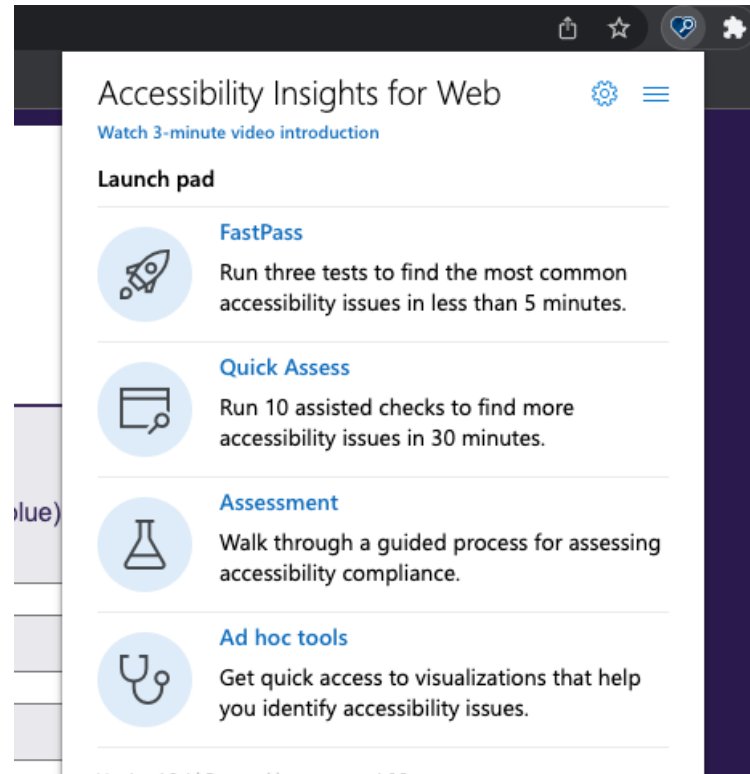
```
... <!DOCTYPE html> == $0
<html lang="de-DE" data-whatinput="mouse" data-whatintent="mouse" class="whatinput-types-initial border-radius whatinput-types-keyboard whatinput-types-mouse" style="--vp-height: 909px;">
  <head class="at-element-marker">...</head>
  <body class="allianzde-defaultpage defaultpage page basicpage" data-wp-page-type="calculationPage">
    <div class="root responsivegrid">...</div>
    <script src="https://as-leben.allianz.de/sbv-ir/scripts/require.js"></script>
    <script src="https://as-leben.allianz.de/sbv-ir/scripts/omDomain.js"></script>
    <script src="https://as-leben.allianz.de/sbv-ir/scripts/all-8294b490bb.js"></script>
    <script src="https://ropo-tools.allianz.de/butool/bum-angular.js"></script>
    <script src="https://as-leben.allianz.de/sbv-ir/scripts/bootstrap.js"></script>
    <div class="c-breadcrumb__container">...</div>
    <script src="/etc.clientlibs/onemarketing/platform/clientlibs/gdpr/main.min.7e05aa...js"></script>
    <script src="/etc.clientlibs/onemarketing/platform/clientlibs/main.min.8cb3be0...js"></script>
    <script src="/etc.clientlibs/onemarketing/azde/aem-core/clientlibs/generated/common.min.49a2d34...js"></script>
    <script src="/etc.clientlibs/onemarketing/azde/aem-core/clientlibs/generated/common/global.min.f70d852...js"></script>
    <script src="/etc.clientlibs/onemarketing/azde/aem-core/clientlibs/global-components.min.69ff909...js"></script>
    <script src="/etc.clientlibs/onemarketing/azde/aem-core/clientlibs/main.min.d41d8cd...js"></script>
    <div class="cloudservice 3rdparty-javascript-cloudservice">...</div>
    <script src="https://www.allianz.de/azutils/prod/azutils/azutils_plugins.min.js" async></script>
    <div class="c-tooltip--clone js-fix-overflow--position-close c-tooltip c-tooltip--v2 js-toggle-tooltip js-tooltip-adaptable js-tooltip-fix-overflow c-tooltip--white c-tooltip--top" style="width: 26px; height: 26px; top: 136px; left: 50%;">...</div>
    <div class="c-tooltip--clone js-fix-overflow--position-close c-tooltip c-tooltip--v2 js-toggle-tooltip js-tooltip-adaptable js-tooltip-fix-overflow c-tooltip--white c-tooltip--top" style="width: 26px; height: 26px; top: 136px; left: 50%;">...</div>
```



# Testen auf offenen Geräten

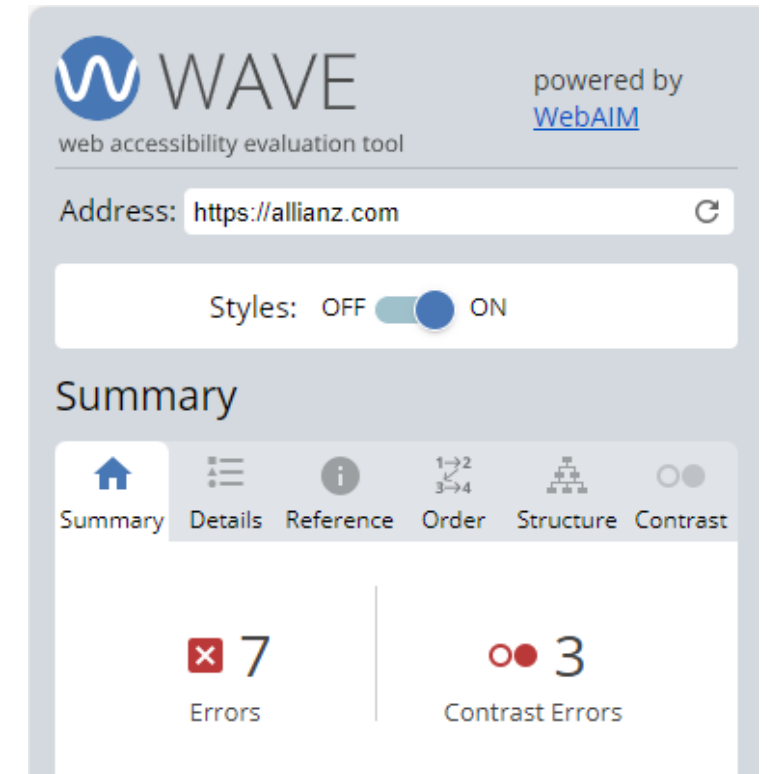


[axe: Accessibility Testing Tools and Software \(deque.com\)](#)



**Favorit**

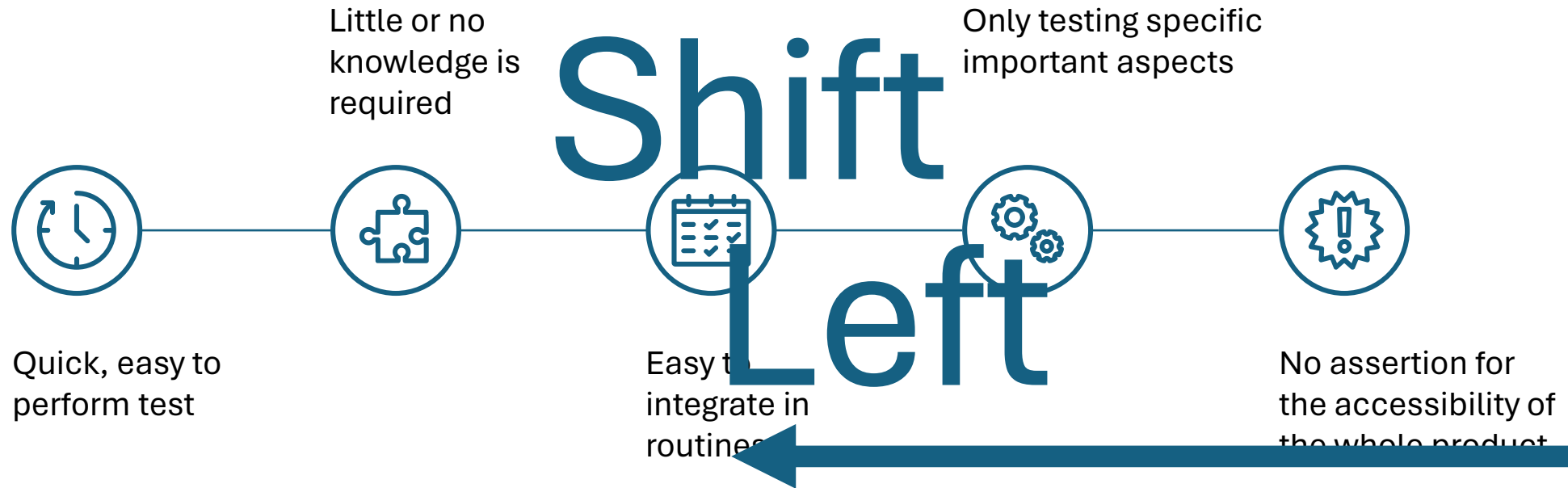
[Accessibility Insights](#)



[WAVE Chrome, Firefox, and Edge Extensions \(webaim.org\)](#)

Integrate  $a_1 1y$

# Shift Left – test early



# Extend test coverage

Impulse for next level inclusiveness

# Extend test coverage

- We looked for an easy-to-solve problem for our POC for the Angular library:
- Simple problem as an example: screen reader user find unreadable “content” in buttons of applications.

↓ DOWNLOAD

NEXT →

→ DETAILS



```
<button nxButton="primary" type="button">  
  <nx-icon name="download" class="nx-margin-right-2xs"></nx-icon>Download  
</button>
```

# Extend test coverage

- Solution: We came up with a rule and the idea to use the power of axe and add an individual rule

If

"<nx-icon>" is child of "<button>"

it must have

the attribute "aria-hidden"

with the value "true".

```
// lib/rules/az-itmp-ensure-main.json
{
  "id": "az-itmp-nx-icon-aria-hidden",
  "selector": "button > nx-icon",
  "tags": ["cat.aria", "az"],
  "metadata": {
    "description": "Ensures nx-icons in buttons have a truthful aria-hidden",
    "help": "nx-icons in buttons must have aria-hidden set to true"
  },
  "preload": false,
  "all": ["aria-hidden-true"],
  "any": [],
  "none": []
}
```

# Extend test coverage

- Don't forget to include the custom rules to make them available for all tests.
- Start testing with extend coverage.

```
// lib/core/base/metadata-function-map.js
import ariaHiddenTrueEvaluate from '../../checks/aria/aria-hidden-true-evaluate';
import roleMainEvaluate from '../../checks/shared/role-main-evaluate';
import tagMainEvaluate from '../../checks/shared/tag-main-evaluate';

const additionalMapping = {
  'aria-hidden-true-evaluate': ariaHiddenTrueEvaluate,
  'role-main-evaluate': roleMainEvaluate,
  'tag-main-evaluate': tagMainEvaluate
};

Object.keys(additionalMapping).forEach(key => {
  metadataFunctionMap[key] = additionalMapping[key];
});
```