



Design System

HOW TO SCALE ACCESSIBILITY IN YOUR DIGITAL PRODUCT

Designer for over 14 years

Background in Product design and
Business Process

Created and led the accessibility
initiative at XP Inc.



“ A Design System is a set of standards to manage design at scale by reducing redundancy while creating a shared language and visual consistency across different pages and channels.

nngroup.com



Why use

Work can be created and replicated quickly and at scale.

It alleviates strain on design resources to focus on larger, more complex problems.

It creates a unified language within and between cross-functional teams.

It creates visual consistency across products, channels, and departments.

Educational tool and reference for junior-level designers and content contributors.



Why not use

Creating and maintaining a design system requires time and a dedicated team.

It takes time to teach others how to use the design system.

There may be a perception that projects are static, one-off creations, which generally don't require reusable components.





But I can tell you one thing I know for sure: If the Design System is not accessible, there is no way the final product will be accessible

Sheri Byrne-Haber





YOUR DESIGN SYSTEM IS UNLIKELY TO ADDRESS

Labels and
complementary texts

Page semantic
hierarchy

Description of visual
elements

Business and
product strategy

Flow and concept
of the experience

Content

Usage of the Design
System itself

In most situations, it is not necessary
to differentiate usability from
accessibility, because the two
concepts are complementary

Anna Cook, 2021

**What to do and what steps can
you take to build your
accessible Design System?**

Follow the masters!



Supporting Accessibility

When customizing components, be careful to preserve code that ensures the aria attributes.

Accessible software and assistive technology enable users with disabilities with the products you build. Aura components are created according to W3C that they work with common assistive technologies. We recommend that you follow the [WCAG 2.1 Guidelines](#) for accessibility when developing with the Lightning Component framework. The [WCAG 2.1 Guidelines](#) guide explains the accessibility features on components in the Lightning Component framework. These are also known as base Lightning components.

- Button Labels
- Audio Messages
- Forms, Fields, and Labels
- Using Images and Icons
- Events
- Menus

Accessibility

Overview Color Developers Keyboard

Visual impairments can include low vision, color blindness, and complete blindness. Carbon components are designed to accommodate the entire spectrum of visual impairment, though designers still need to exercise diligence to ensure that the components are used correctly.

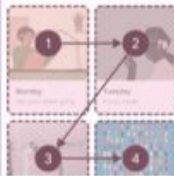
- 4 Color contrast
- 4 Low vision
- 4 Tools
- 4 Resources

Visual hierarchy

To enable the screen reader to read out content in the intended order, it's important for designers to collaborate with developers to test for reading order. In the context of a screen reader, understanding how screen readers will interpret design.

While CSS determines the layout and appearance of a page, screen readers rely on the top-down structure of HTML, so any platform (mobile or web). This structure creates a map for the screen reader to follow when reading the content.

Daily podcasts



An example of how content hierarchy in a screen can be identified in original reading order is to provide for the most visible text, such as all screen readers, map interpret information.

Layout and typography

Material Design's target guidelines can help users who aren't able to use the screen, or who have difficulty with small touch targets, to tap elements in your app.



Touch and pointer target sizes

Touch targets are the parts of the screen that respond to user input, extending beyond the visual bounds of an element. For example, an icon may appear to be 24 x 24dp, but the padding surrounding it comprises the full 48 x 48dp touch target.

For most platforms, consider making touch targets at least 48 x 48dp. A touch target this size results in a physical size of about 10mm, regardless of screen size. The recommended target size for touchscreens elements is 7 x 7mm. It may be appropriate to use larger touch targets to accommodate a larger spectrum of users.



Inclusive design

We all differ in our abilities to see, perceive colors, hear, control our motions, concentrate, and understand concepts. Inclusive design makes room for as many people as possible.



Get inspired

Pay attention to design conventions

Follow widely used technologies

Understand your product



Make sure you understand your product and your organization:

- Goals
- Backlog
- Scalability
- Company organization
- Involved teams
- Internal processes

If your design system already exists, run a **quality test** to understand which **accessibility criteria** it already meets and which it doesn't.

If your company does not have a design system yet (but wants to build one), understanding your final product will also help you better plan the next steps

Prioritize



Align with your team which elements are priorities in your design system;

In cases of refactoring, breaking down the design and technology deliveries will speed up the scalability of accessibility;

If your design system already exists, analyze the elements usage metrics;

Interaction components end up being the most prioritized elements due to their wide usage and the importance of completing core tasks of the application;

Prioritize with the PM and developers so you can take into account variables such as complexity and impacted services/squads;

Create and Specify



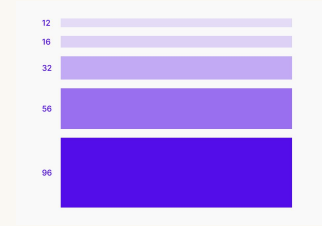
Contrast



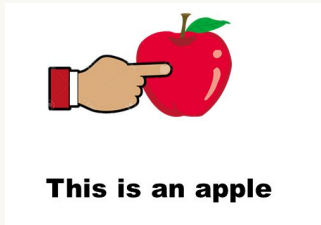
Fonts



Low complexity



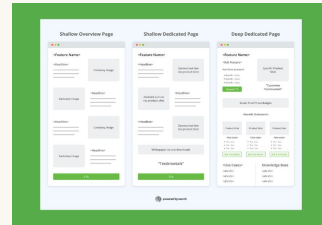
Spacing



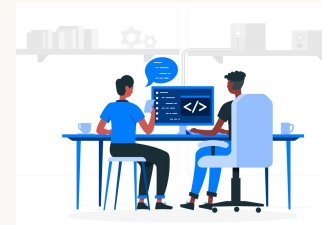
Material honesty



Icons and
images



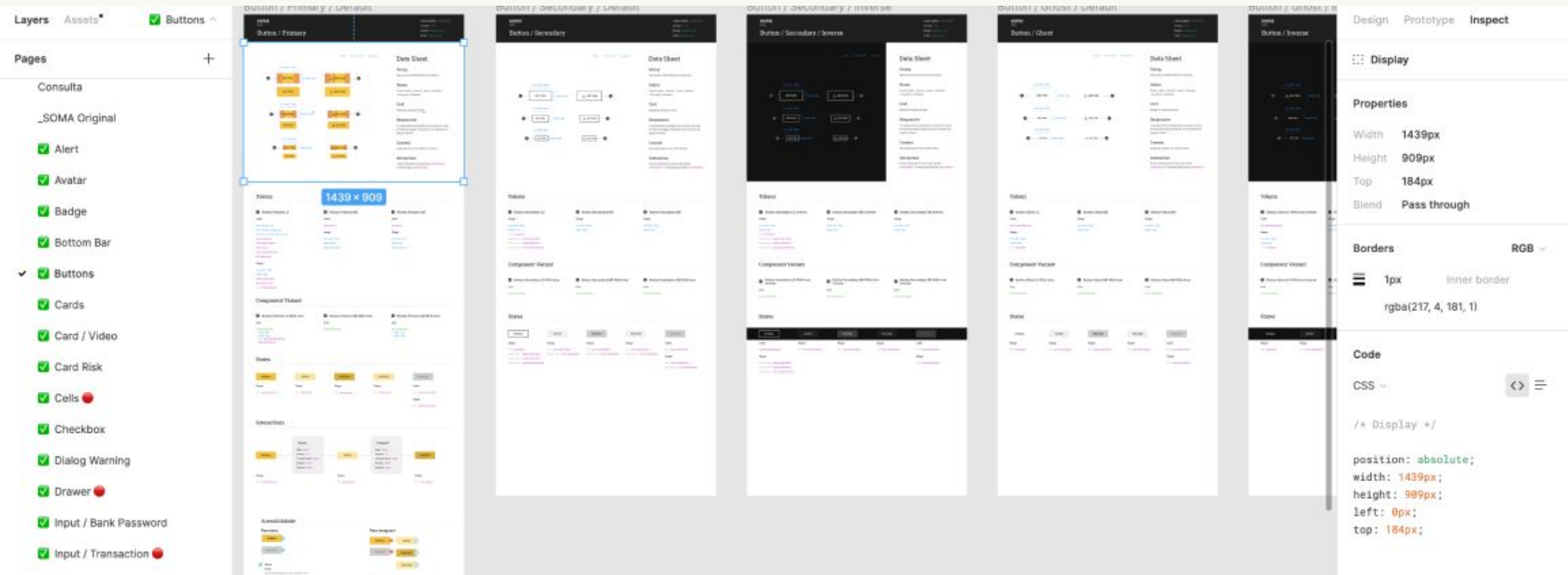
Examples of use

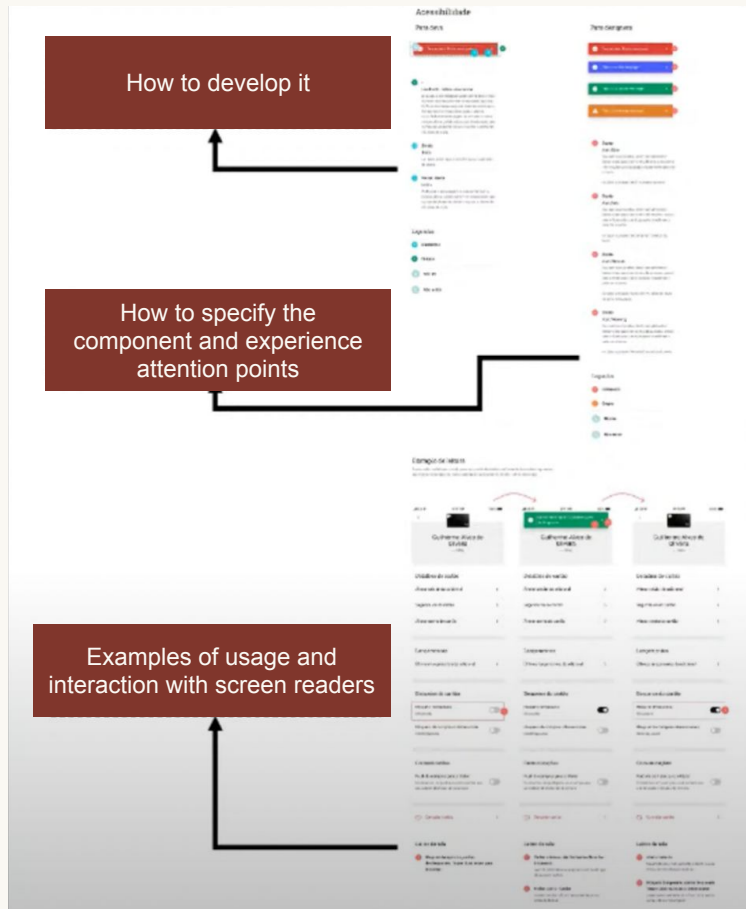


Designers and
developers



Create and Specify





Key benefits

Reading and navigation focus order will be standardized and embedded in the code;

Handy guide for the proper use of labels, complementary texts and the element itself;

Easy to specify new experiences;

Scalability of tweaks in the experiences;

Possibility of customization (eg: if the component does not meet the customer's need);

Tip: Engage a group of ambassadors to discuss use-cases and continuously evolve the elements;

Touch

- ★ When a navigation active indicator a providing feedback is selected
- ★ A touch ripple pa indicator
- ★ The icon switches filled
- ★ The icon changes darker in a light t dark theme

Design checklist

- ☒ **All interactive states**
Includes all interactive states that are applicable (hover, down, focus, keyboard focus, disabled).
- ☒ **All color themes**
Works properly across all four color themes (lightest, light, dark, darkest).
- ☒ **All platform scales**
Includes a desktop scale (UWP, macOS, web desktop) and a mobile scale (iOS, Android, web mobile).
- ☒ **Accessible use of color**
Color is not used as the only visual means of conveying information (WCAG 2.0 1.4.1).
- ☒ **Accessible contrast for text**
Text has a contrast ratio of at least 4.5:1 for small text and at least 3:1 for large text (WCAG 2.0 1.4.3).
- ☒ **Accessible contrast for UI components**
Visual information required to identify components and states (except inactive components) has a contrast ratio of at least 3:1 (WCAG 2.1 1.4.11).
- ☒ **Content design**
UI language and information design considerations have been incorporated into component design.
- ☒ **Defined options**
Includes relevant options (variant, style, size, orientation, optional iconography, decorations, selection, error state, etc.)
- ☒ **Usage guidelines**
Includes a list of dos and don'ts that highlight best practices and common mistakes.
- ☐ **Writing guidelines**
Includes content standards or usage guidelines for how to write or format in-product content for the component.
- ☒ **Internationalization guidelines**
Works properly across various locales and includes guidelines for bi-directionality (RTL).
- ☒ **Keyboard interactions**
Follows WCAG 2.0 standards for keyboard accessibility guidelines and includes a description of the keyboard interactions.
- ☒ **Design tokens**
All design attributes (color, typography, layout, animation, etc.) are available as design tokens.
- ☒ **UI kit**
Includes a downloadable XD file that shows multiple options, states, color themes, and platform scales.
- ☒ **Generated UI kit**
Includes a downloadable XD file, generated by code using design tokens defined in Spectrum DNA, and shows multiple options, states, color themes, and platform scales.
- ☐ **In Spectrum for Adobe XD plugin**
Component is included in the Spectrum for Adobe XD plugin.



Label
Home

Role
Tab

ext.

Cool tips for developers



Enable customization utilizing native tools from devices.

Create placeholders where labels must be filled out for each component.

Beware of browser-specific codes that goes against the concept of a design system.

Remember, the first rule of ARIA is not to use ARIA.

Don't change native semantics with ARIA, use roles accordingly, and remember to cover all the statuses of an interaction element, just inserting ARIA is not enough.

Testing your design system



35%

of the accessibility problems can be identified using tools that validate the code semantic.

65%

of the accessibility problems are related to wrong usability, content, navigation and cannot be identified by these tools.

- Tools to evaluate code semantics:
Lighthouse | Chrome
Wave | Chrome e Firefox
Axe | Chrome, Firefox e Android
Accessibility Suite | Android
Xcode | IOS
Funkify | Chrome
Nocoffee Vision Simulator | Chrome
- Manual testing
- Test with customers and establish criteria for organic feedback

Cool tips for testing

Involve users.

Test on each operating system.

Use the most-used screen reader in the operating system (NVDA, Talk back voice over).

Test if the reading makes sense linearly.

Test if the reading makes sense through interactive elements.

Make sure the elements are properly recognized.

Complement a tool analyzes with a manual test.

Specify the severity of issues.

Meet with the developers and go through the report.

1 All text fields have a screen reader problem. The label of the field is not connected to the field itself. [More details of how it should work here.](#)

Now the screen reader is not only separating the label from the field, but also reading the "start" for the required field.

2 Title hierarchy missing. This H2 should be an H1.

3 There are 3 no script elements. One in the footer and 2 in the header.

```
<noscript><iframe src="https://www.googletagmanager.com/ns.html?id=GTM-TFLZVFW&gtm_auth=&gtm_preview=&gtm_cookies__winx" height="0" width="0" style="display:none;visibility:hidden" id="tag-manager"></iframe></noscript>
```

<noscript>You need to enable JavaScript to run this app.</noscript>

```
<noscript></noscript>
```

4 The label is with the same problem as the text field. The placeholder is being read and should not. [More details of how it should work here.](#)

5 The radio button should be attached to the label and in a option group. The radio button is not being identified by the screen reader.

Group title: I work for a bookkeeping or accounting firm
Option 1, [status] yes
Option 2, [status] no

6 login details title should be H2

7 Show password [button]
Hide password [button]

8 Set as a list and group so the user can "jump" this list.
Title of the list group should be "Password Hint"
Don't focus in the images, integrate the check with the text.

The items should be read:

Training the team



...will allow your them to use the Design System correctly.

...will help you refine the Design System over time based on real use-cases.

The majority of accessibility issues are generated still in the design concept phase, so it is important to make sure your team takes this knowledge into consideration early on.





Incluir

Portuguese form of "to include"

"Dar uma de João sem braço"

Usado quando alguém se faz de desentendido.
Substitua por: "Não se faça de desentendido".

"Retardado, maluco, doido"

Usado como ofensa.
Não use!

"Que mancada"

Usado quando alguém cometeu um deslize.
Substitua por: "Que vacilo"

"Aleijado, manco"

Usado no lugar do termo correto.
Substitua por: "pessoa com deficiência", ou melhor chame a pessoa pelo nome.

"Pessoa normal, pessoa perfeita"

Usado para se referir a pessoas que não têm deficiência.
Não use!

Gritar, gesticular e tocar em pessoas com deficiência auditiva

Fale de frente, para que a pessoa possa ler seus lábios. Não grite. Existem diferentes níveis de audição e frequência, a altura da voz não vai ajudar, além de ser grosseiro se dirigir a alguém dessa forma.

"Você está cego?"

Ou surdo, ou mudo. Usado quando alguém está desatento, não responde conforme a expectativa.
Não use!

"Braço curto"

Usado para se referir a alguém que sempre tenta passar as tarefas para outra pessoa.
Substitua por: pessoa preguiçosa

"Não temos braço para isso"

Usado quando não há recursos suficientes para fazer um determinado trabalho.
Substitua por: "Não temos recursos para isso".

"Fingir demência"

Usado para se referir a situações que a pessoa ignorou ou não reagiu.
Substitua por: faz de conta que não é com você.

Não trate como exemplo de superação

PCD não é um "coitadinho". Não utilize uma pessoa com deficiência para comparar com outras pessoas. Pessoas com deficiência vivem da mesma forma que pessoas sem deficiência: com objetivos, planos e sonhos.

Tenha respeito

Não aponte, não faça piadas com o corpo PCD, não toque sem consentimento, não infantilize.

Lei de contratação de deficientes nas empresas

Lei Nº 8.213, de 24 de junho de 1991

Garante a inclusão de pessoas com deficiência no mercado de trabalho. Apesar da lei, apenas 1% das pessoas com deficiência tem trabalho formal. E são mais de 30 milhões de pessoas em idade para trabalhar.

Incluir

LBi - Lei Brasileira de inclusão - Lei Nº 13.146

Lei Nº 13.146, de 6 DE julho de 2015

Art. 1º É instituída a Lei Brasileira de Inclusão da Pessoa com Deficiência (Estatuto da Pessoa com Deficiência), destinada a assegurar e a promover, em condições de igualdade, o exercício dos direitos e das liberdades fundamentais por pessoa com deficiência, visando à sua inclusão social e cidadania.

Pages of a training material about ableism in portuguese.

You need to give a nudge to the culture and pillars that dictate the day-to-day of employees and projects



THANKS!

majusantos.com