An Accessible Design Framework

Enabling designers to proactively embed accessibility considerations into all aspects of their work

March 20, 2024

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Meet Karen Hawkins

Karen Hawkins, CPACC

Principal of Accessible Design,

Level Access

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MY OBJECTIVE

Provide designers with a framework to design with accessibility in mind, as well as check their work or the work of others for accessibility.

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Agenda

- The framework
- Applying the framework
- Summary and questions

The framework

Definition of “Human Factors”

by the Human Factors and Ergonomics Society

Human Factors is a body of knowledge about human abilities, human limitations, and other human characteristics that are relevant to design. Human Factors engineering is the application of Human Factors information to the design of tools, machines, systems, tasks, jobs, and environments for safe, comfortable, and effective human use.

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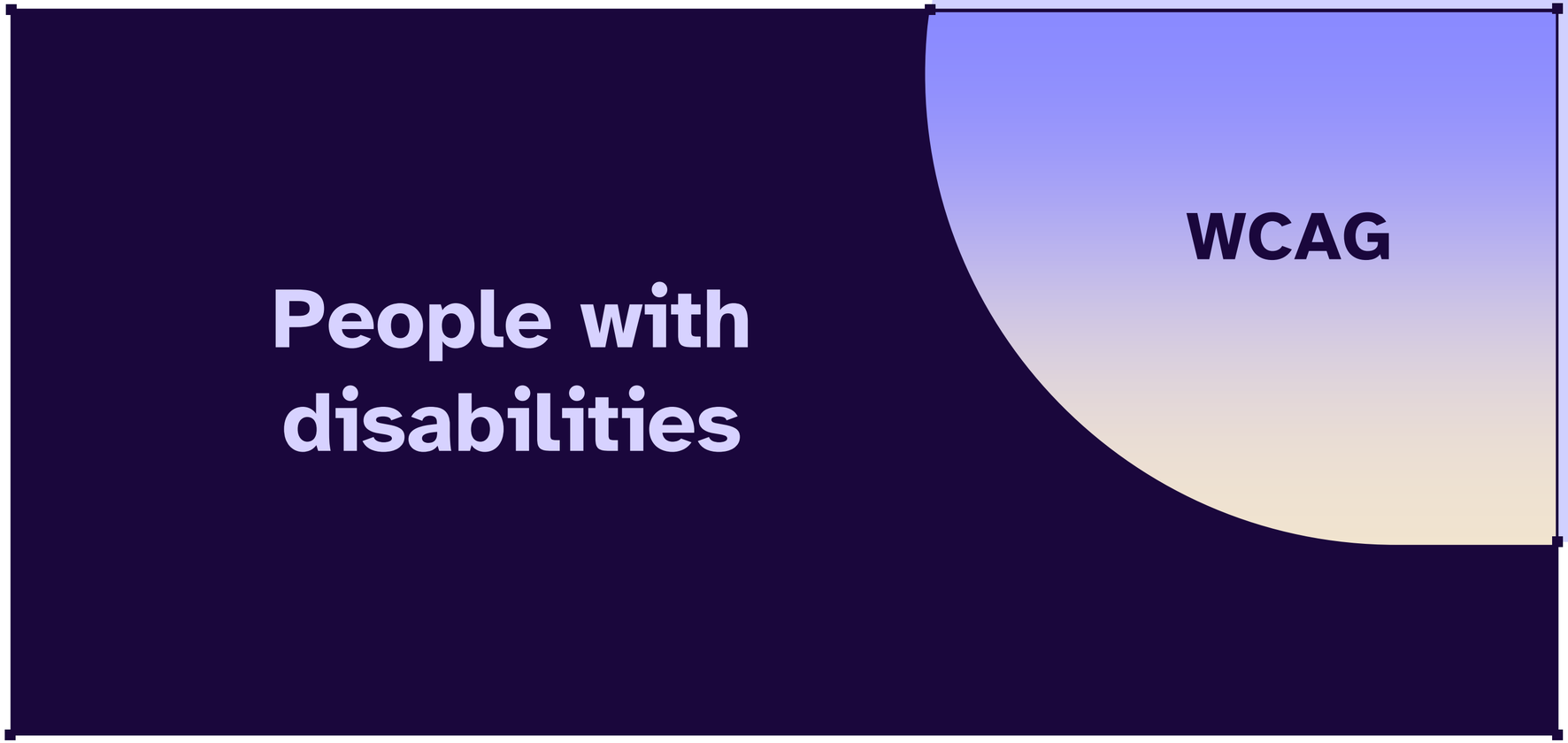
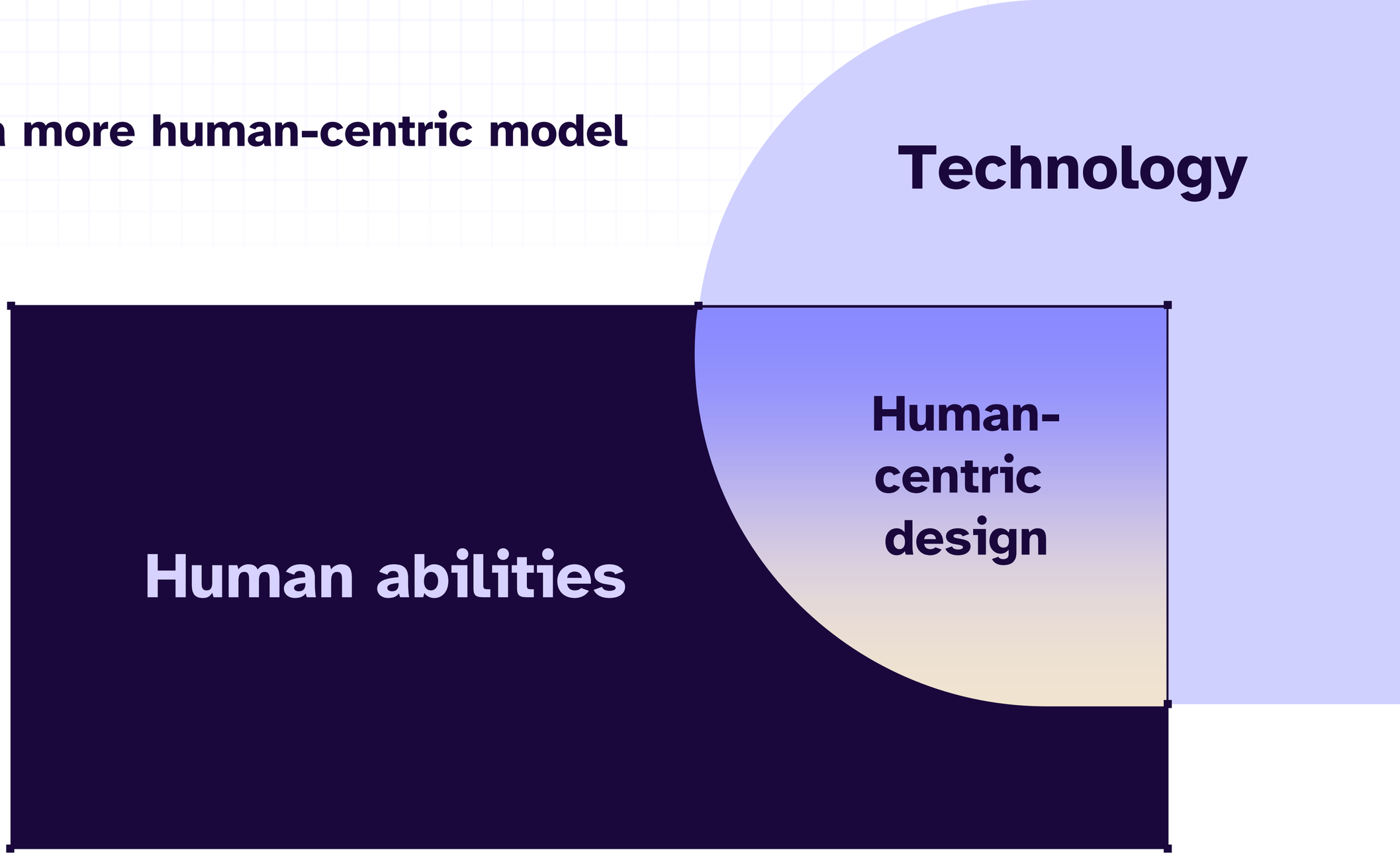
Human Factors sits at the intersection of people and technology

WCAG is a guide for designing interfaces where people meet technology

WCAG is perceived to be about people with disabilities and assistive technology



We need a more human-centric model



KEY TAKEAWAY

Our scope of design is a system that includes an able yet flawed human, as well as the set of technologies that enable them to execute their desired tasks in digital environments.

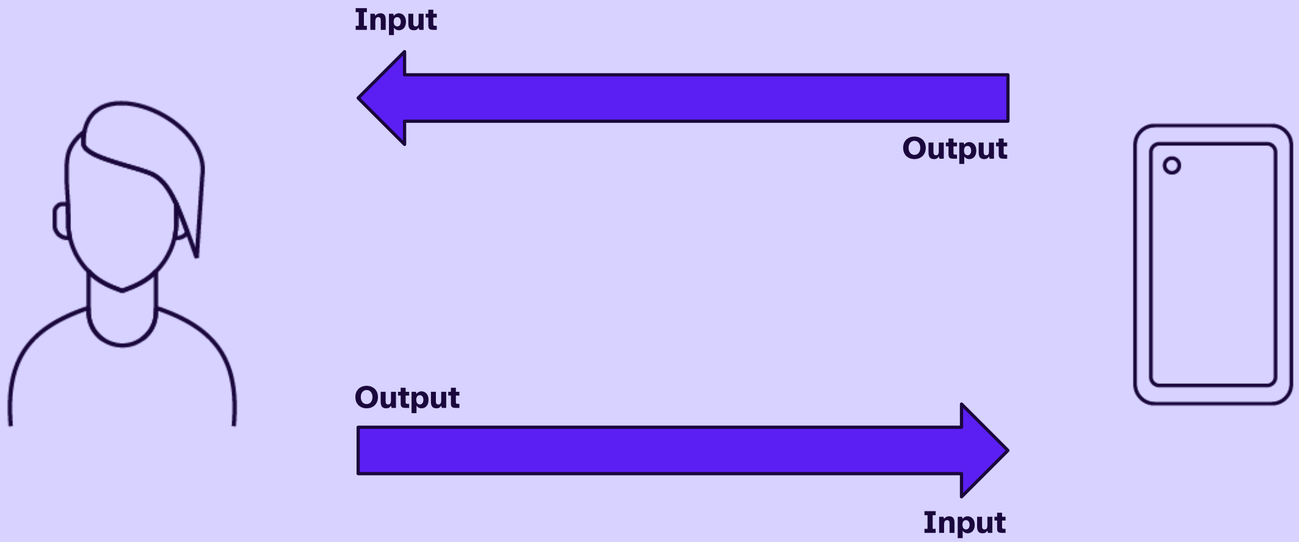
KEY TAKEAWAY

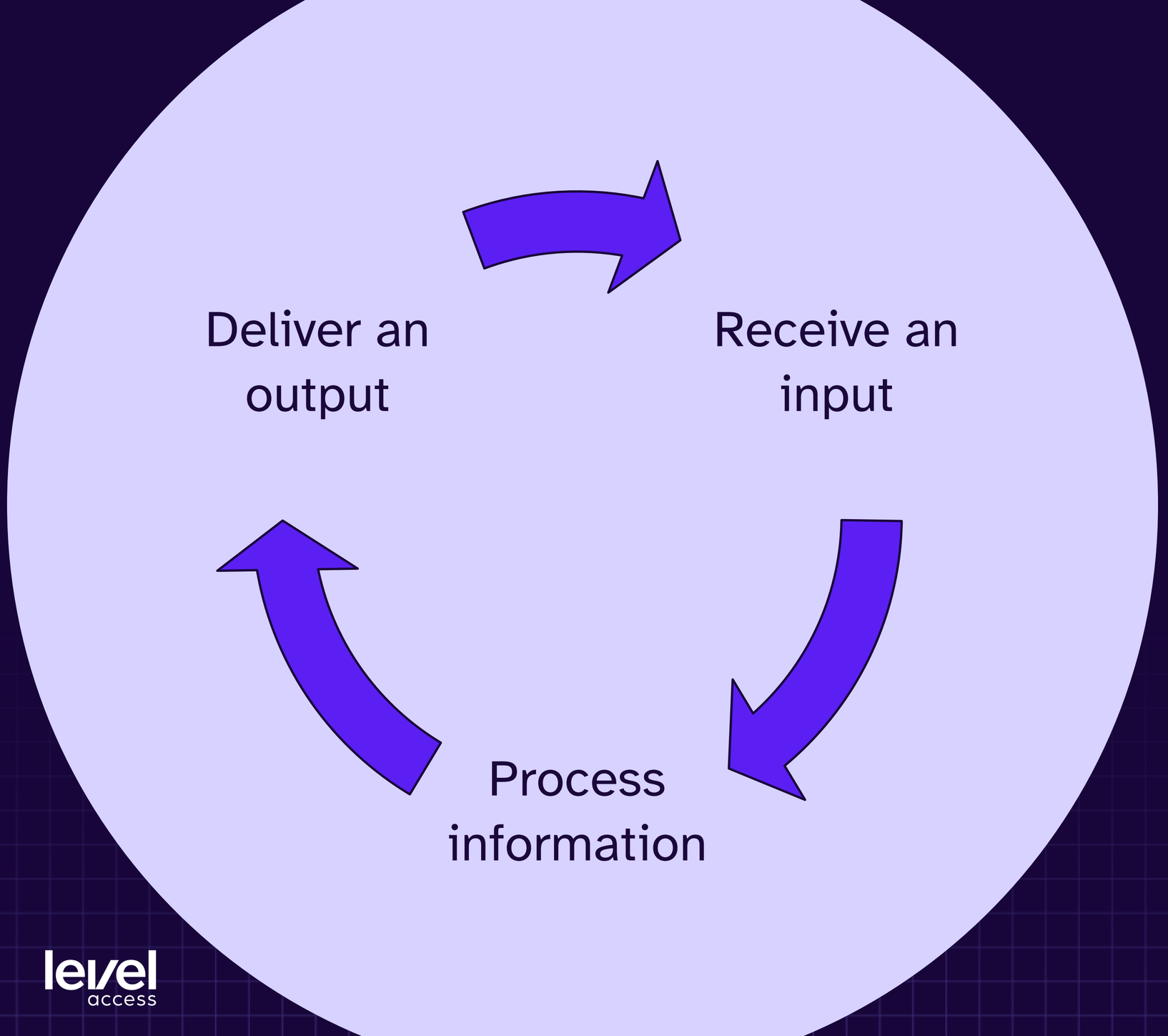
We need to design for human abilities and limitations, and for technology's abilities and limitations, all within a given environment or context.

NOTE

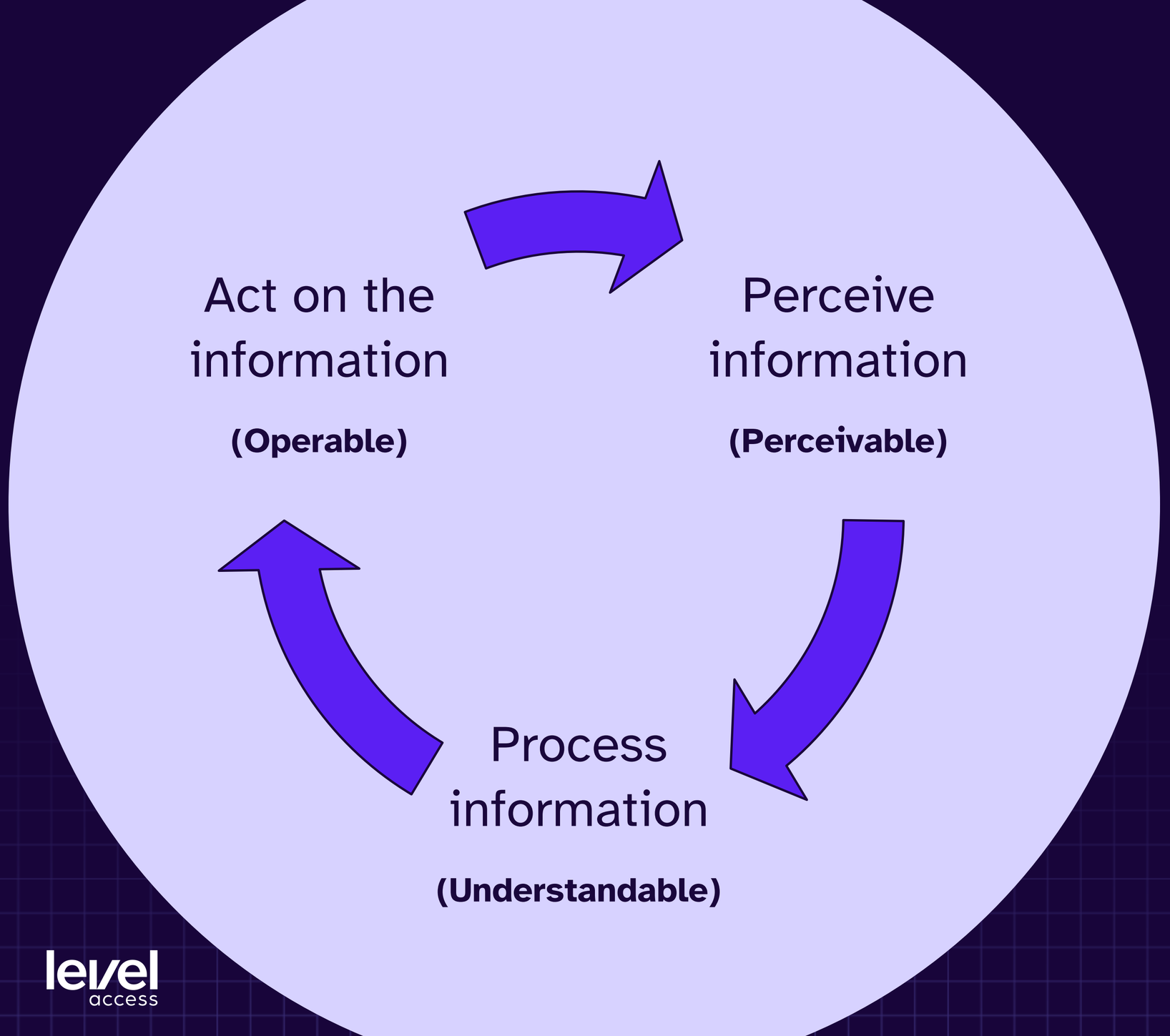
What’s missing is a focus on the technology.

Within this system, there is a process of information exchange.





Our brains function like basic computers: in sequence



WCAG can be mapped to information processing theory

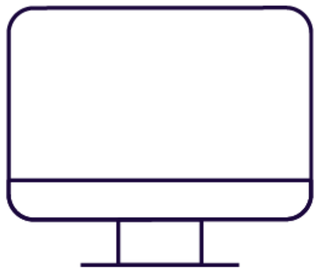
KEY TAKEAWAY

Ask yourself:

- Is the user able to get all the relevant information?
- Is the information easy to understand?
- How can the user act on that information?

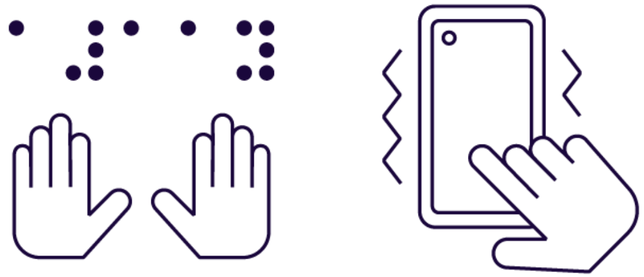
Design for technologies to help humans perceive information

In support of perceivability



Visual interfaces enable visual perception

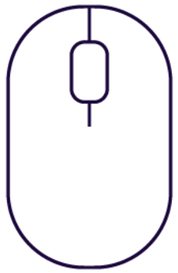
Voice interfaces enable auditory perception



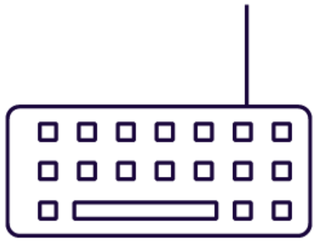
Touch interfaces enable touch perception

Design for technologies to help humans take action

In support of operability



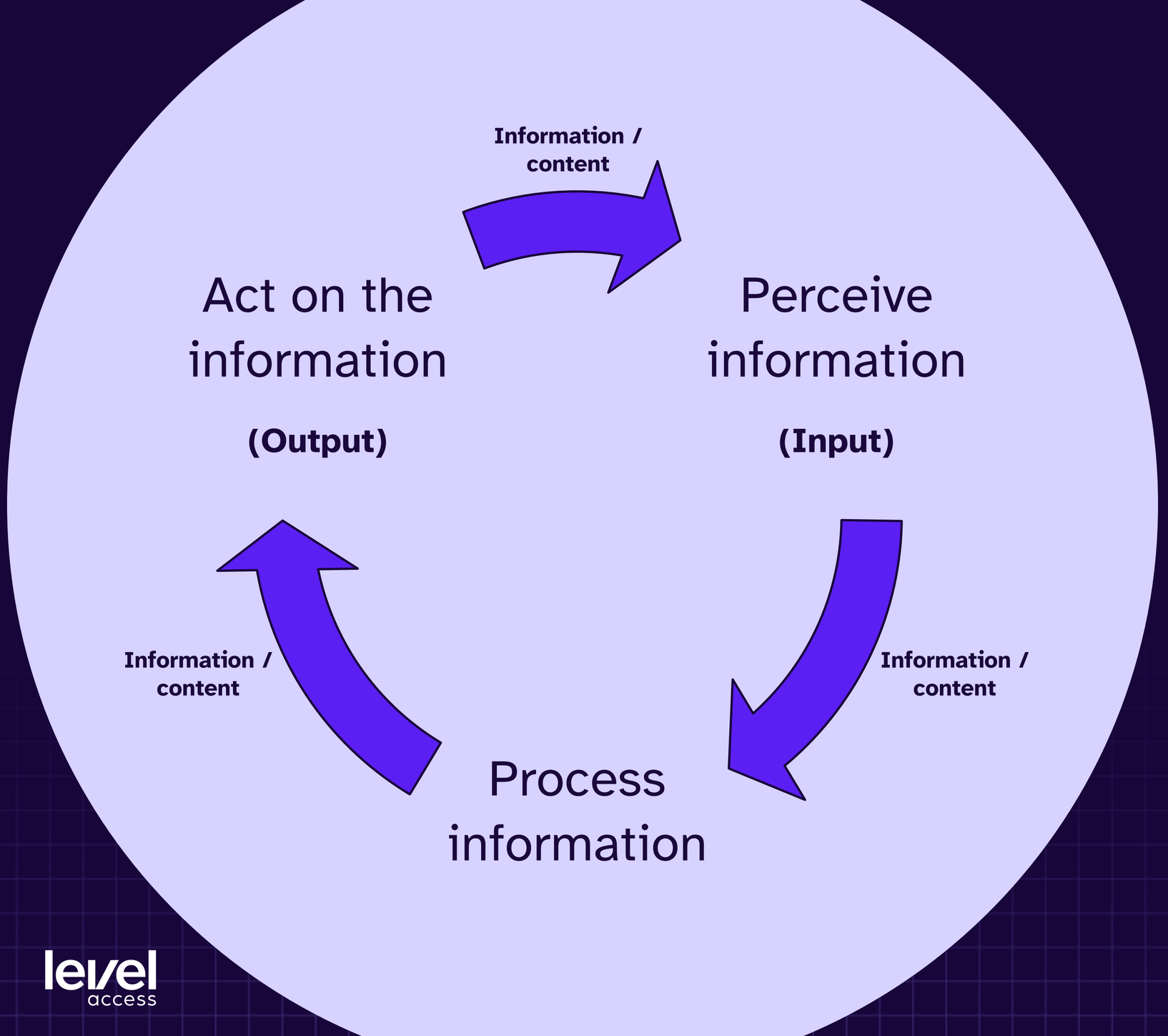
Pointers



Keyboard interfaces

Motion

Speech recognition



Information moves through the system

- Output quality is dependent on input quality
- If input quality is degraded, output quality is degraded

KEY TAKEAWAY

It’s the quality of the content that’s important to help people understand it.

KEY TAKEAWAY

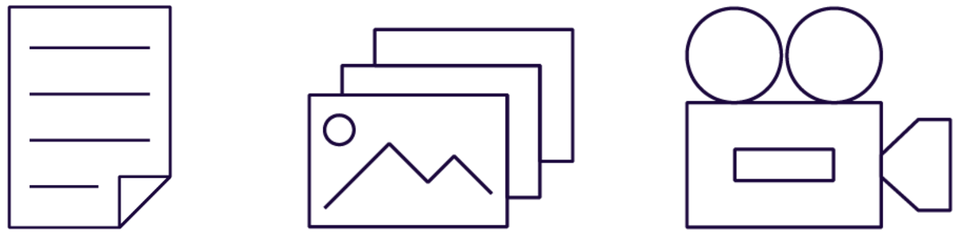
Content can be thought of as a technology that enables the understandability of the system.

KEY TAKEAWAY

Content needs to be thoughtfully designed so it can move through the system quickly and efficiently.

Design for technologies to help humans understand

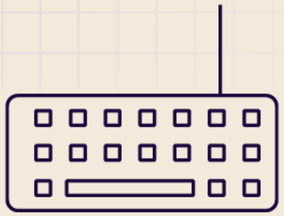
In support of understandability



High quality content

KEY TAKEAWAY

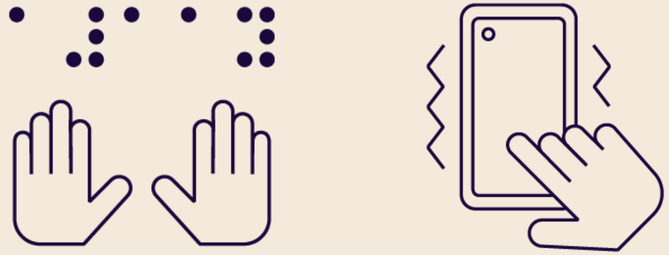
Technology / experience scope of design



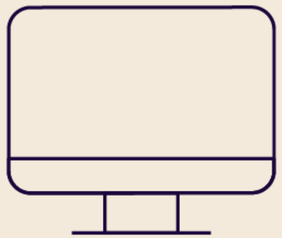
Keyboard interfaces

Speech recognition

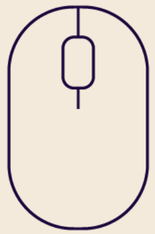
Voice interfaces



Touch interfaces

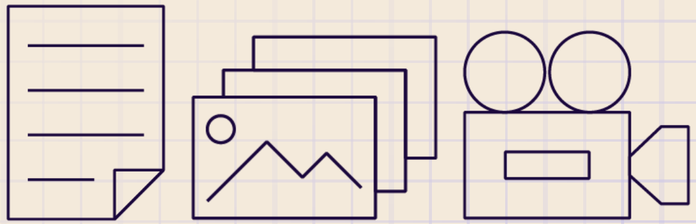


Visual interfaces



Pointers

Motion



High-quality content

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MY GOALS FOR THIS FRAMEWORK

Adoption and Stickiness

FRAMEWORK REQUIREMENTS

1. Map to our mental model of design.

2. Fold into our natural design processes.

ONE

Our mental model of design is componentization

Variable components

CARDIGANS AND SWEATERS

Playtime Sweater

Colors

Selected Color: Mint

Sizes

S M L

Selected Size: Medium

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Add to Cart

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More Details

Reusable elements

HOT
DEAL

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Playtime Sweater

Colors

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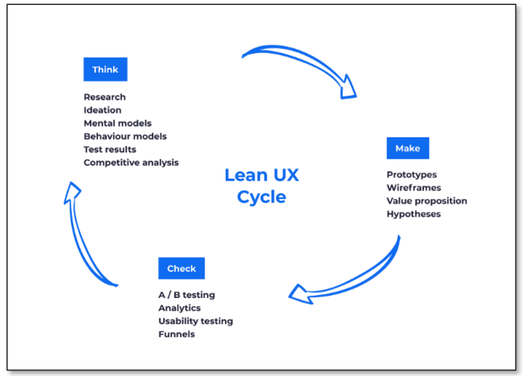
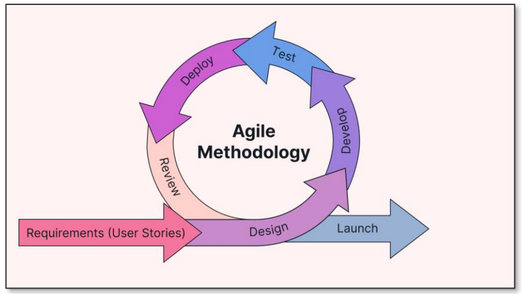
TWO

Our design process is iterative

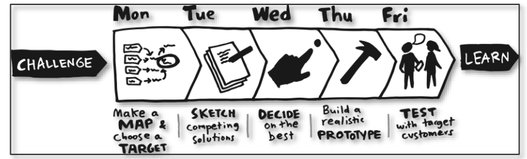
Lean UX



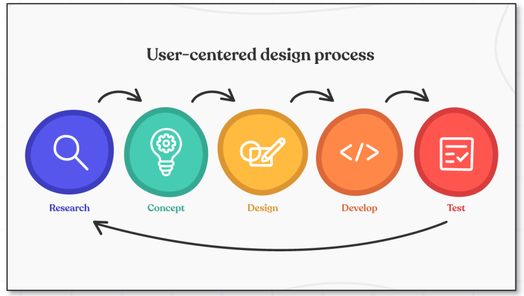
Agile



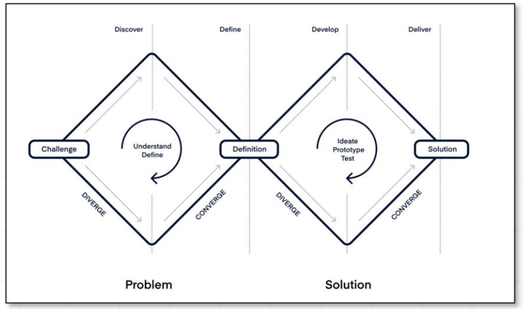
Design sprints



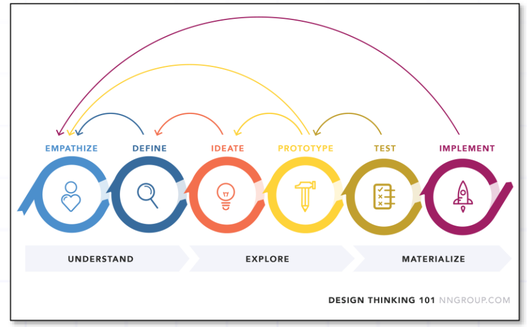
User-centered design



Double diamond



Design thinking



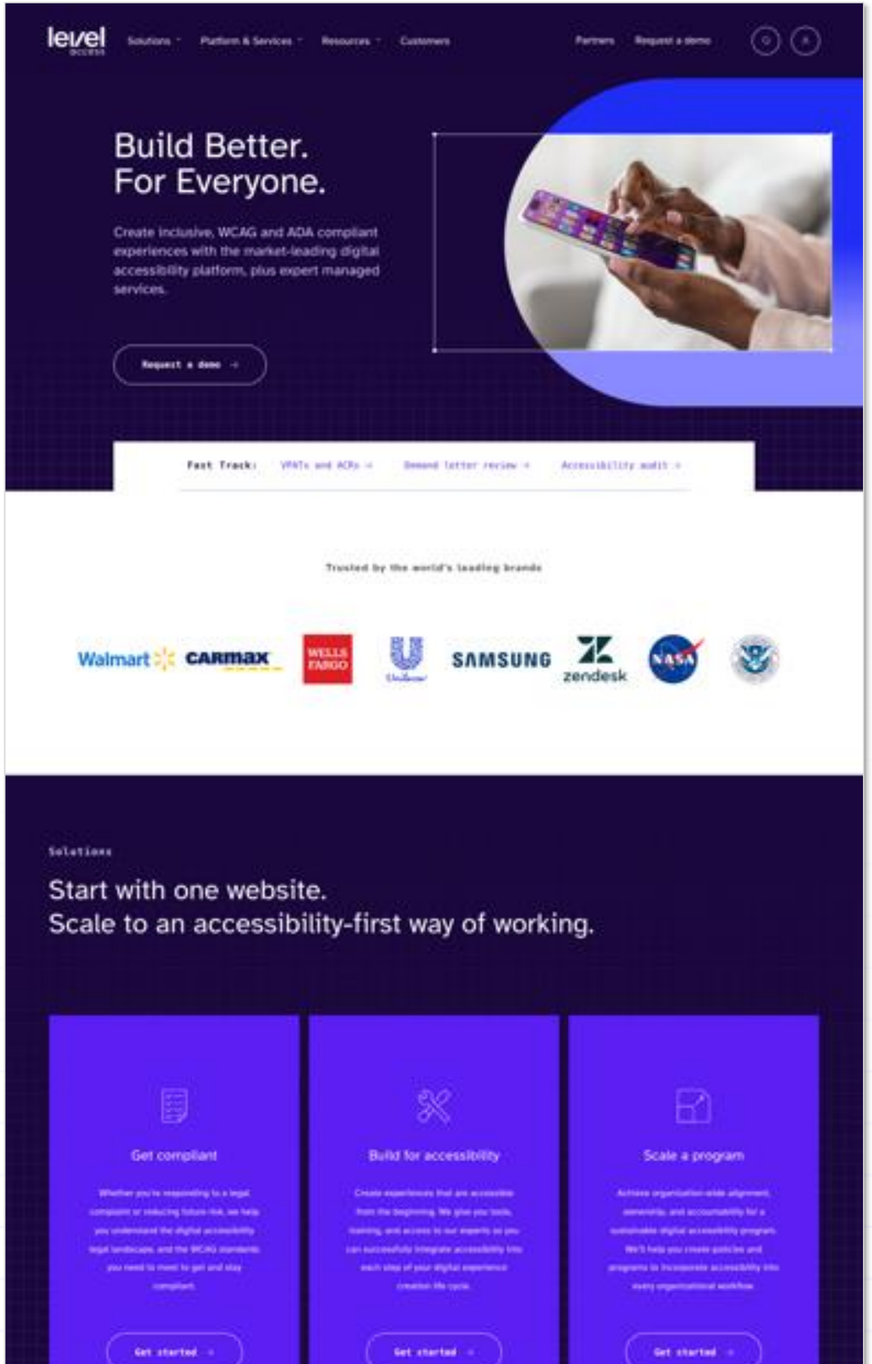
NOTE

What’s missing from an accessibility standpoint is rigor in that iteration.

KEY TAKEAWAY

Appropriately design the features and functionality against which the realized page will be tested.

Manual evaluations require iterating over various perspectives



- Animation
- ARIA and dynamic content
- Authoring tools
- Charts and graphs
- Color and contrast
- CSS
- Custom controls
- Data tables
- Embedded media and object elements
- Focus control
- Forms
- Frames
- Image maps
- Images
- Keyboard accessibility
- Language and content
- Layout tables
- Links
- Lists
- Live regions
- Multimedia
- Navigation
- Page structure
- Typography

KEY TAKEAWAY

To cover the full set of accessibility requirements, you need to comb over your designs multiple times, each time with a different perspective:

- **Can they perceive all pertinent information?**
- **Can they understand all the information?**
- **Can they execute the actions they want to take?**

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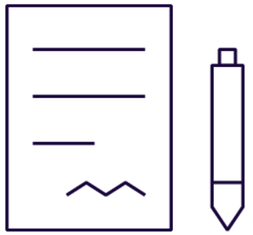
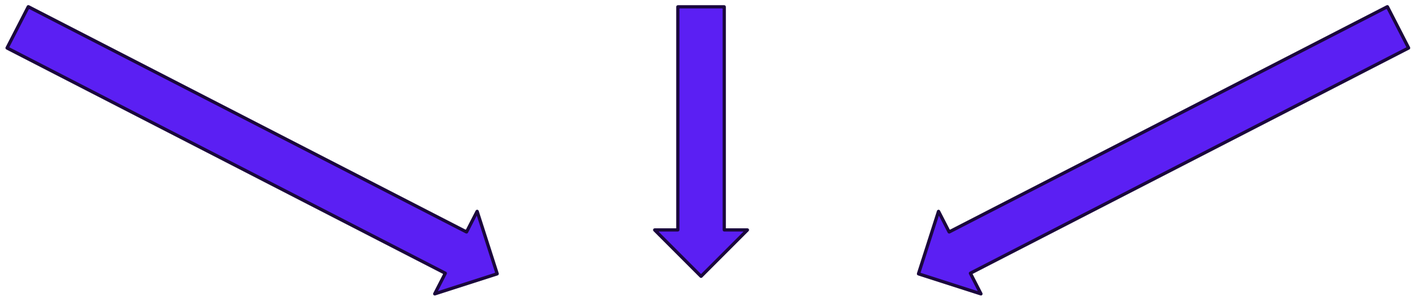
Experience creation involves including three types of accessibility requirements

Design requirements

Content requirements

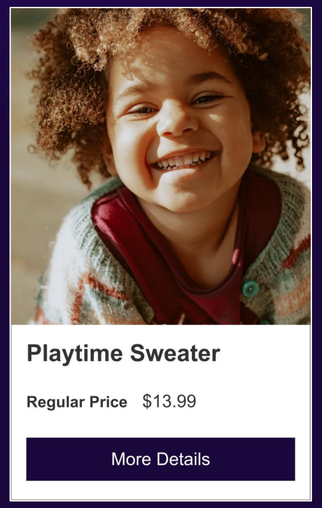


Documentation requirements

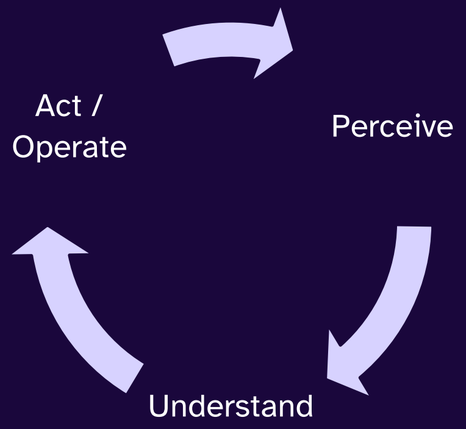


Experience

The Accessible Design Framework

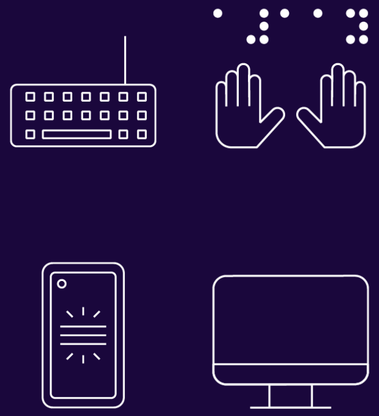


For any component design in any viewport



In each phase of the information exchange process

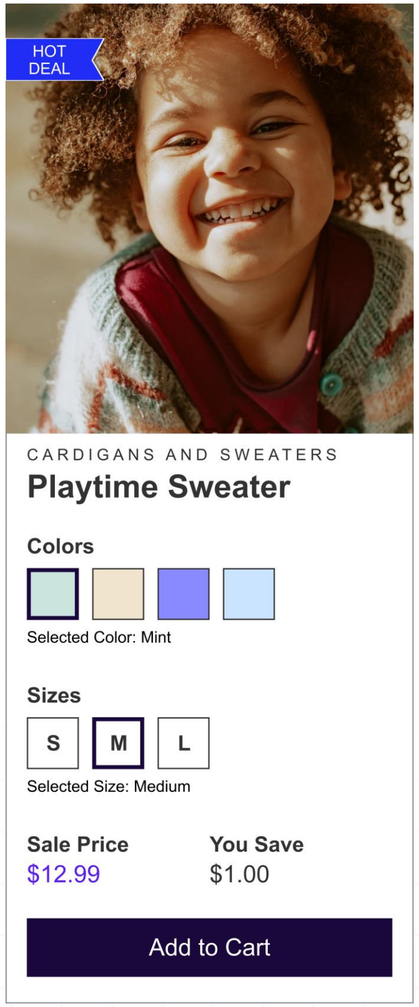
Apply relevant accessibility requirements and best practices

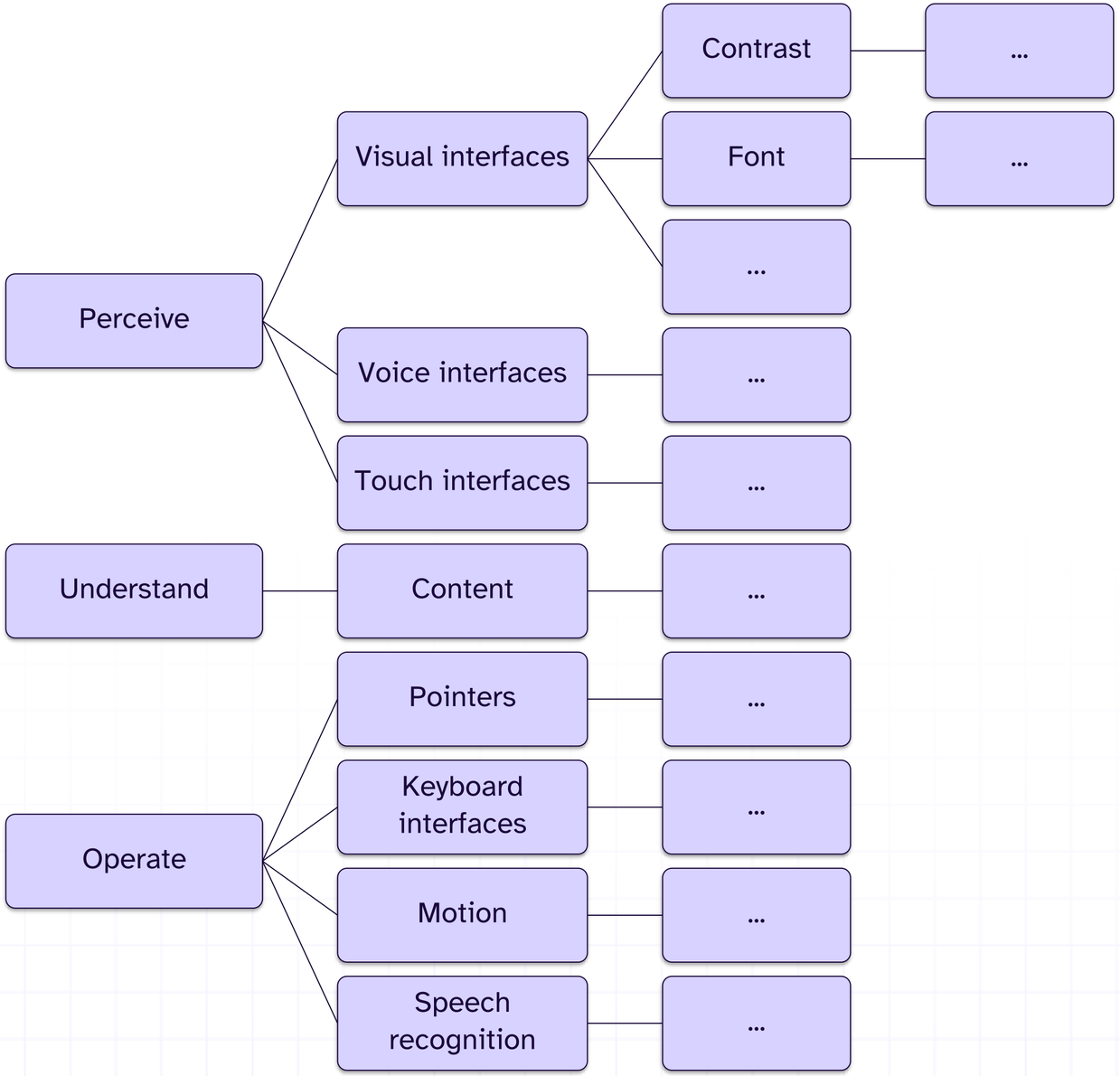


For each technology or experience

Applying the framework

Product card example

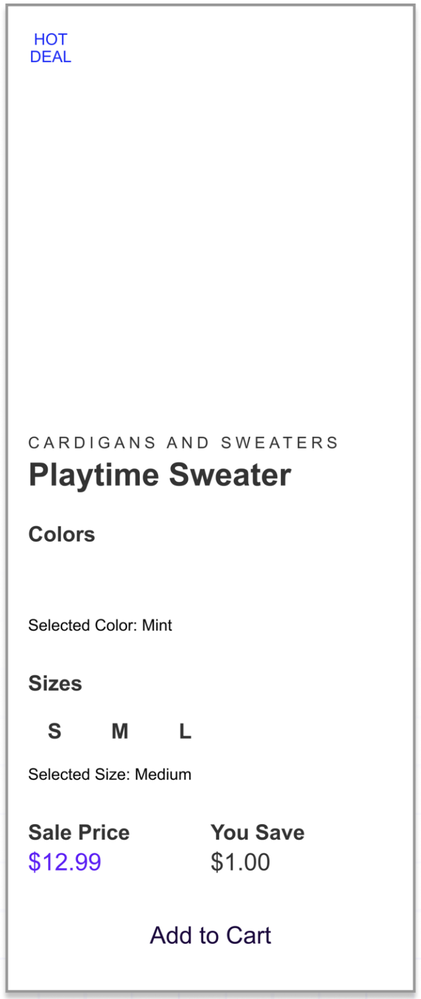


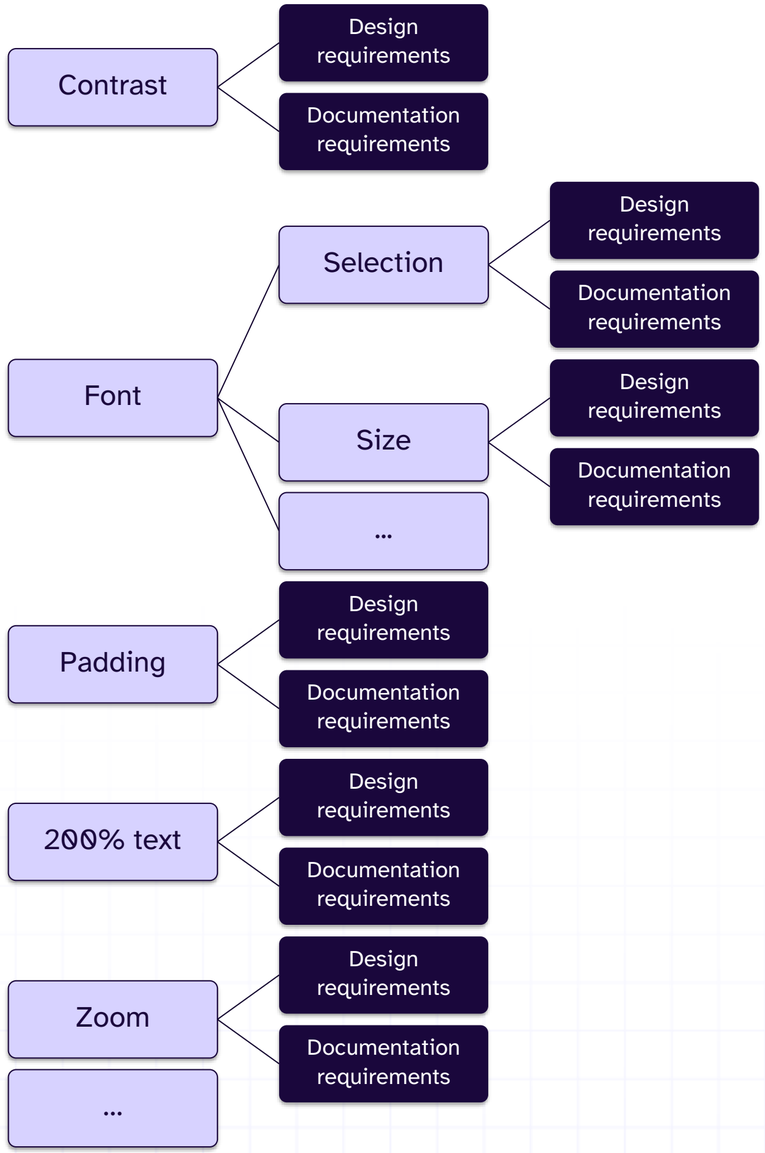


Text perceivability for visual interfaces

Concerns for this component include:

- Color usage
- Font selection and size
- Padding between letters, words, lines, and paragraphs
- How the component handles text at 200% and zoom to 400%

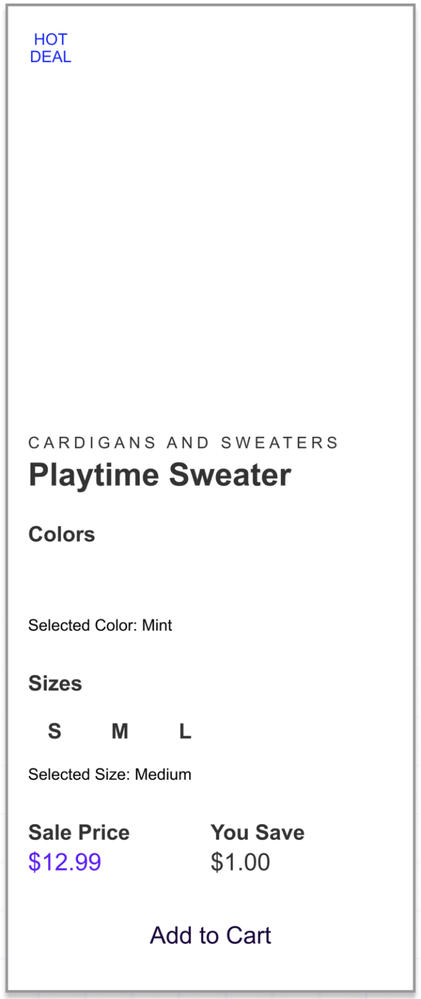


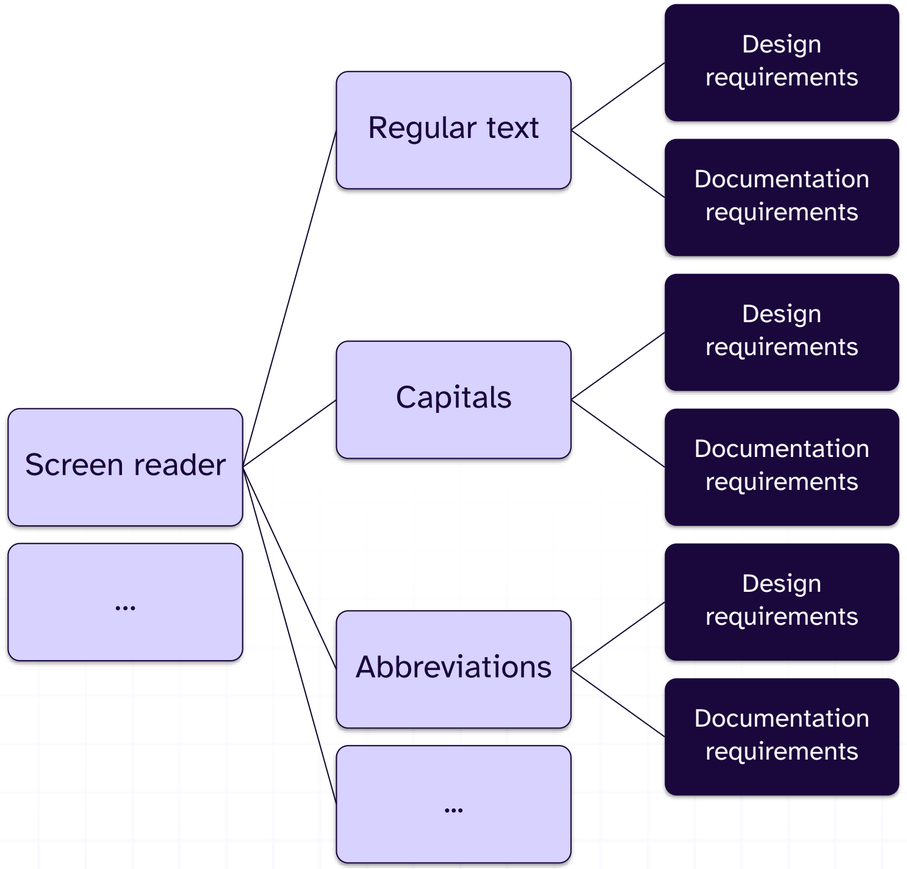


Text perceivability for voice interfaces

Concerns for this component include:

- Capitals being read aloud as individual letters (as opposed to words)
- Sizes being read aloud as individual letters (as opposed to words)

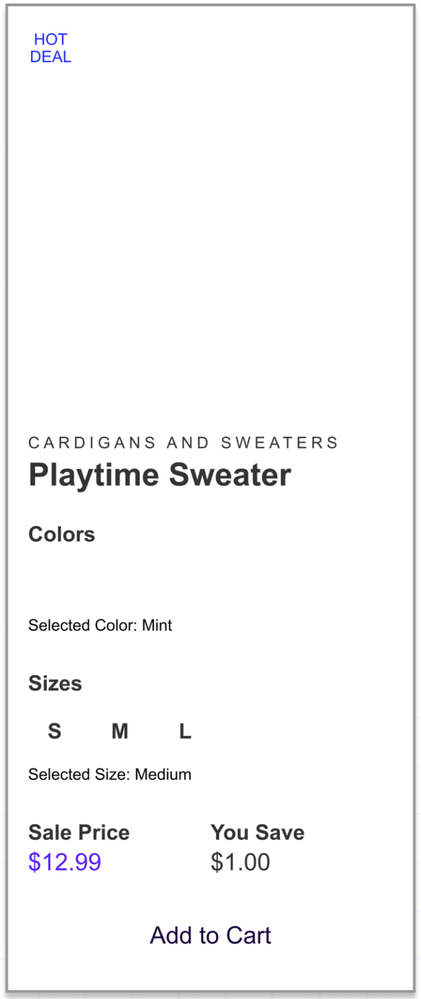


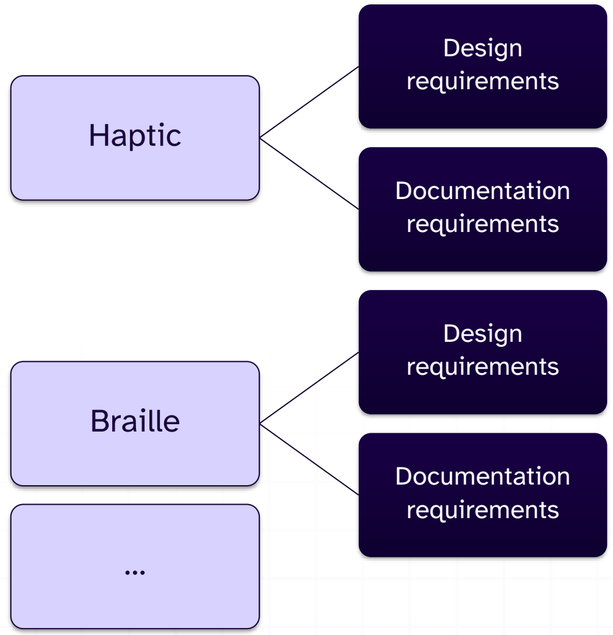


Text perceivability for touch interfaces

No touch concerns for text

in this component

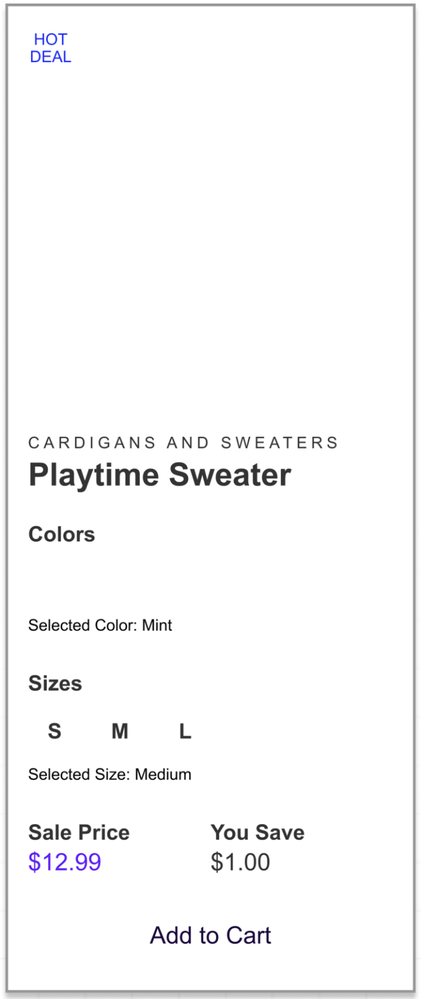


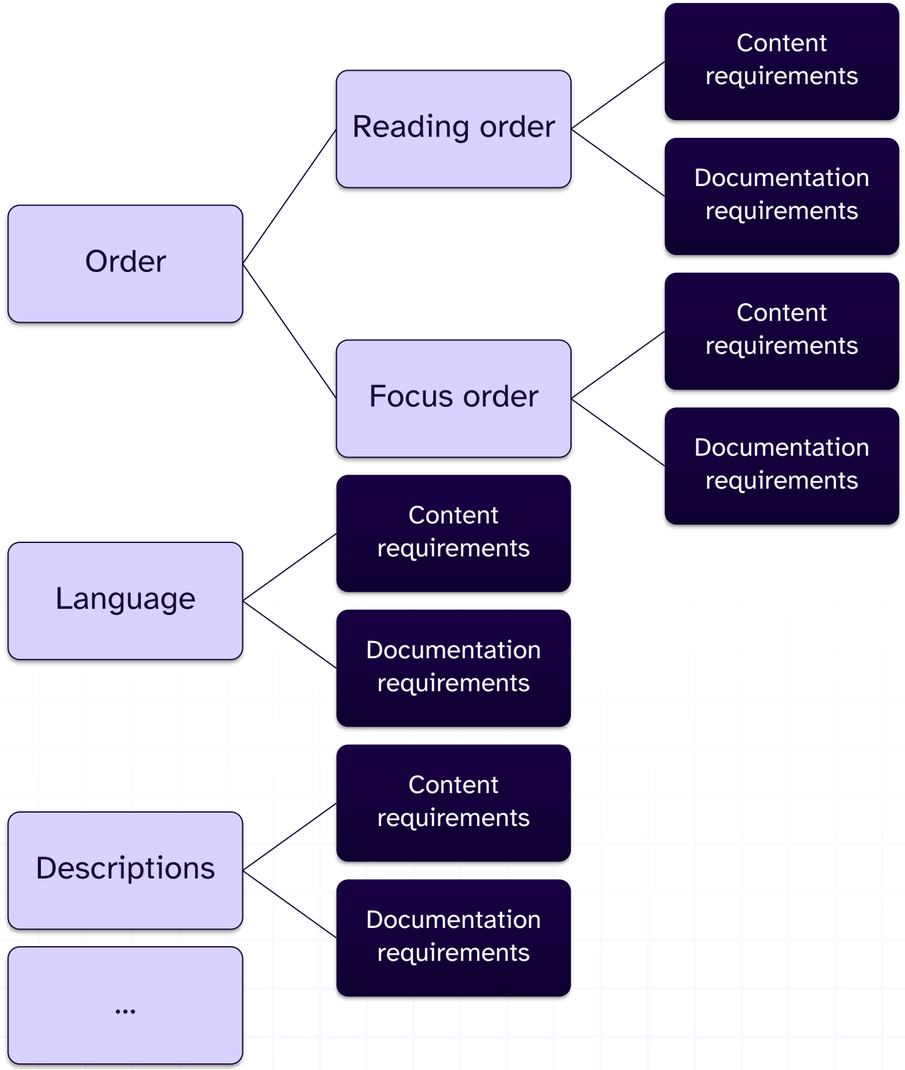


Text understandability

Concerns for this component include:

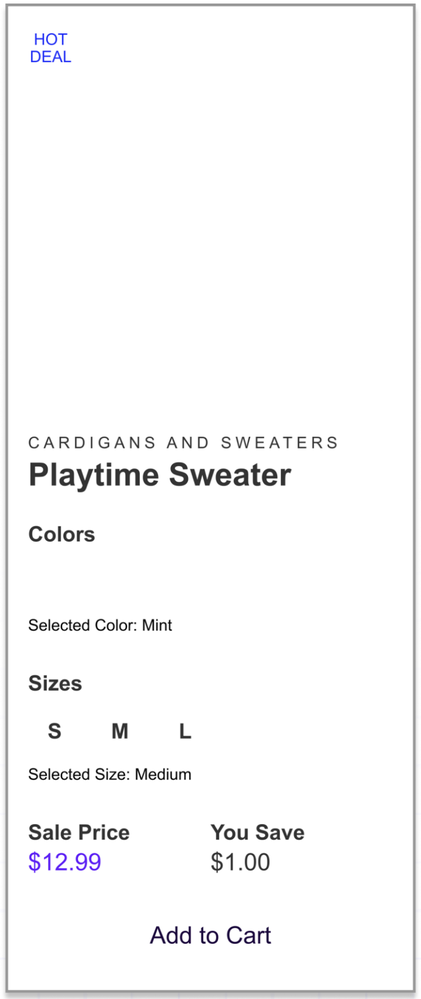
- Reading order / focus order
- Plain language
- Meaningful descriptions

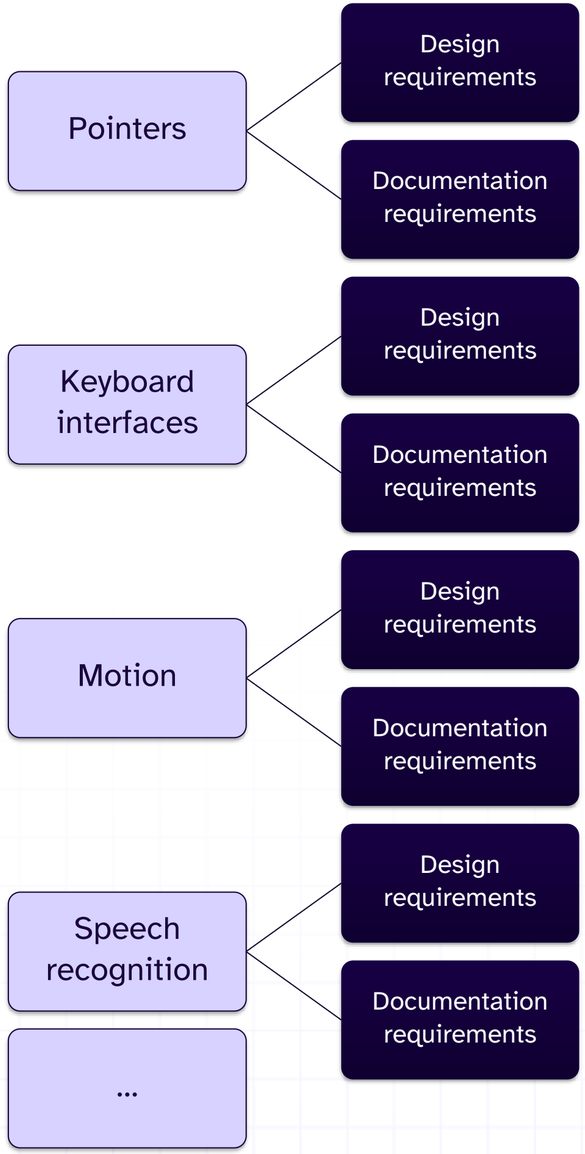




Text operability

No operability concerns for text in this component





Apply the framework to all elements

Frames

Buttons

Colors

Selected Color: Mint

Sizes

S M L

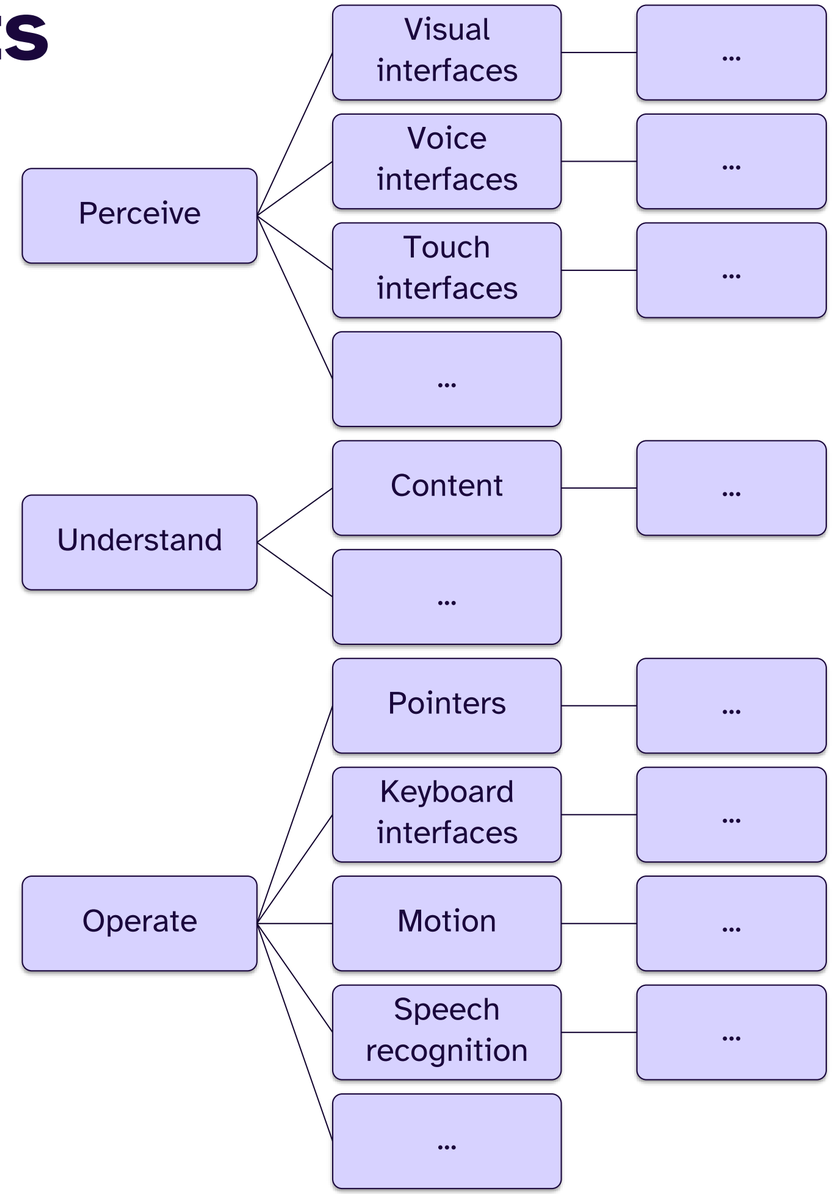
Selected Size: Medium

Add to Cart

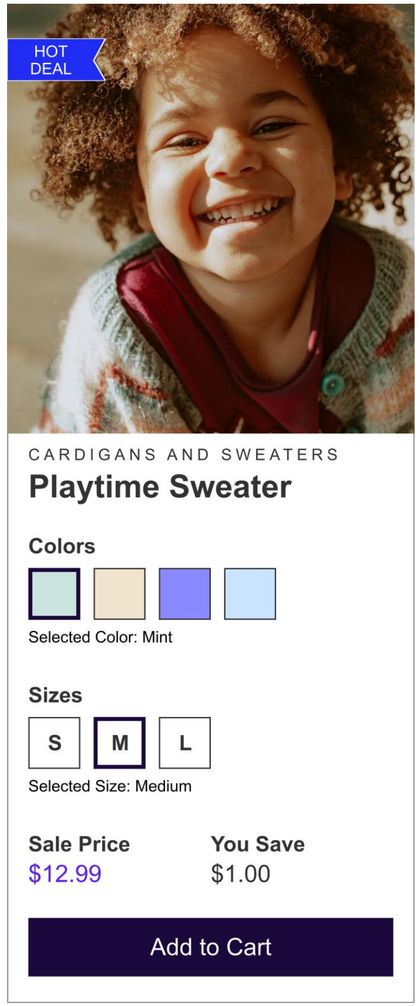
Images

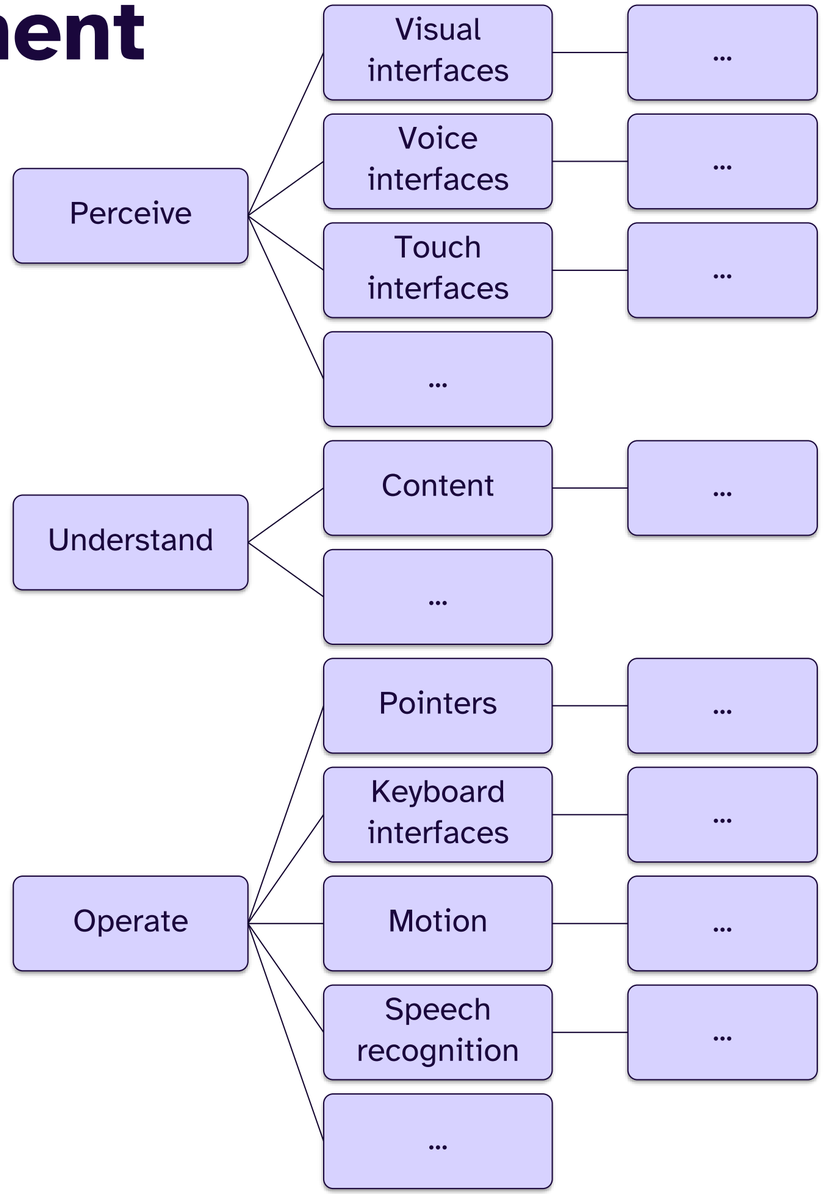
Links

Playtime Sweater



Apply the framework to the component





NOTE

This framework provides your scaffolding. You need additional guidance on accessibility requirements.

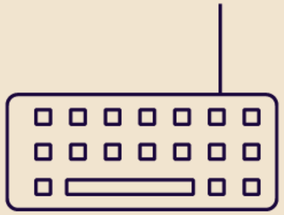
Summary and questions

Key takeaways summarized

- Our scope of design is a system that includes an able yet flawed human, as well as the set of technologies that enable them to execute their desired tasks in digital environments.
- Design for human abilities and limitations, and for technology's abilities and limitations, all within a given environment or context.
- It’s the quality of the content that’s important to help people understand it.
- Content can be thought of as a technology that enables the understandability of the system.
- Content needs to be thoughtfully designed so it can move through the system quickly and efficiently.
- Appropriately design the features and functionality against which the realized page will be tested.
- To cover the full set of accessibility requirements, you need to comb over your designs multiple times, each time with a different perspective:
  - Can they perceive all pertinent information?
  - Can they understand all the information?
  - Can they execute the actions they want to take?

Paramount takeaway

Iterate to design for many technological experiences



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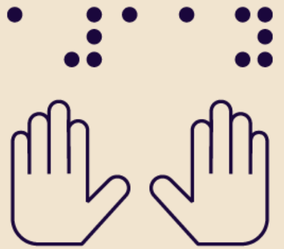
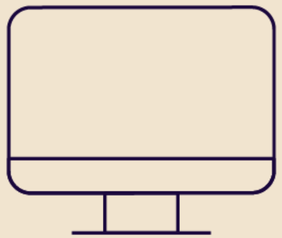
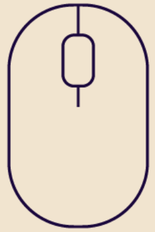


Touch interfaces

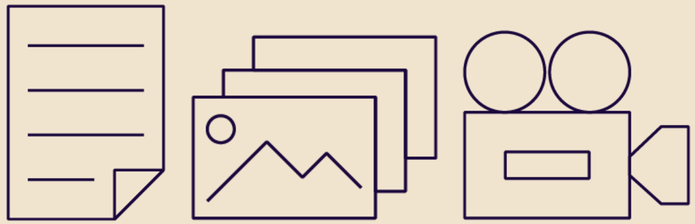


Visual interfaces



Pointers

Motion



High-quality content

level access

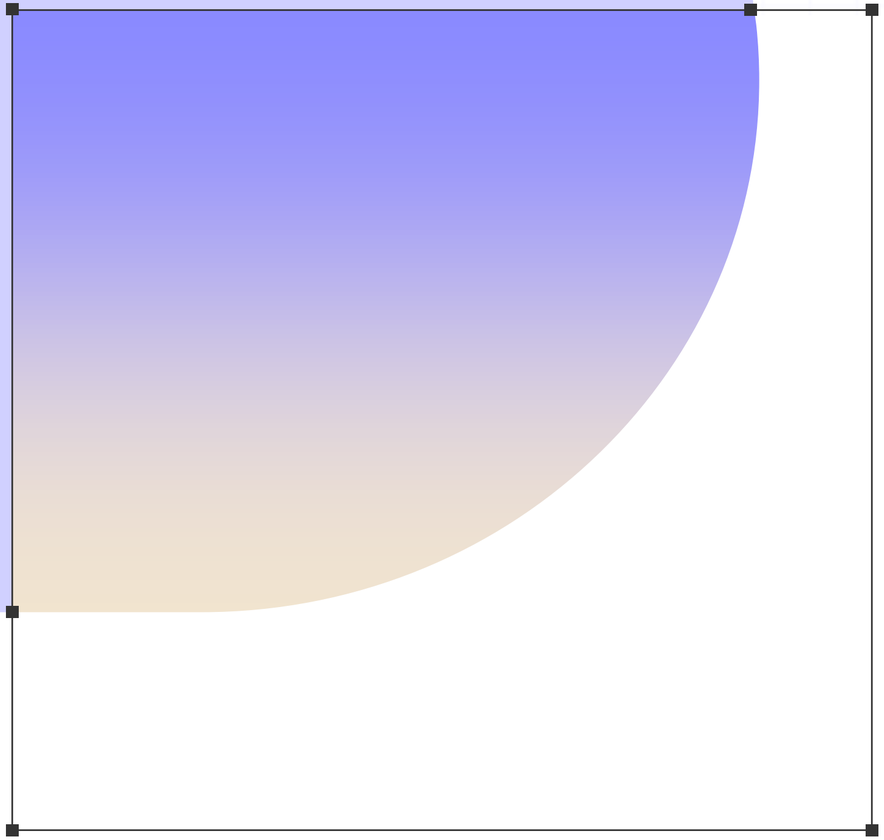
NOTE

Article and examples coming soon!

We're Hiring

We're building more than a team. Everyone is welcome!

Come chat with us at **Booth 609** for more details!



Questions?

Thank you