

# Gatekeepers to Gardeners

Design Systems for Every Developer

Maryann M. Bell

Senior Engineering Manager @ Adobe

Our platform, Ethos, serves all of Adobe

**3K**

developers using Ethos  
across Adobe

**3.5K**

services on Ethos  
from across Adobe

**18K**

deployments to production  
in the last 3 months

# Goals of every developer

1. Make cool stuff
2. Deliver quickly
3. Work well together

# We were working with limited resources

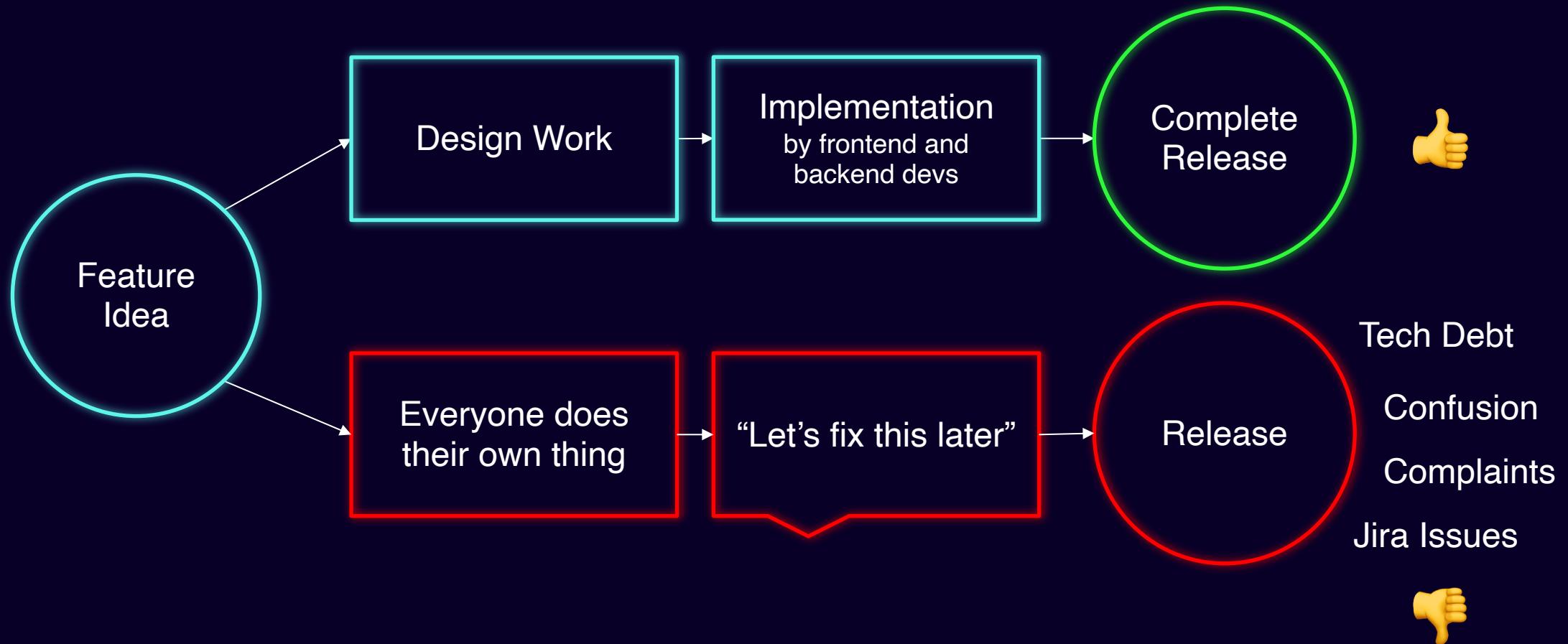


Backend & systems  
developers

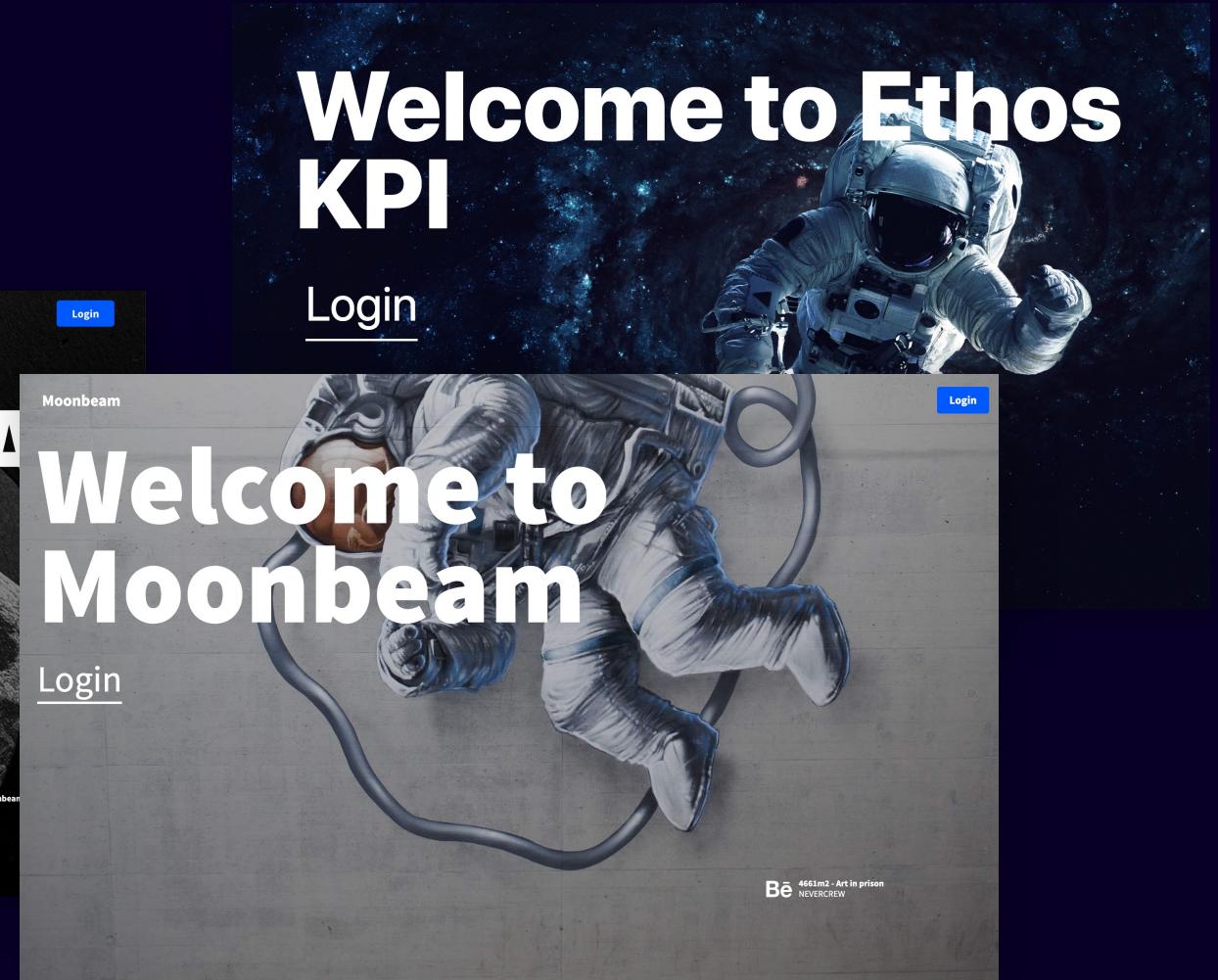
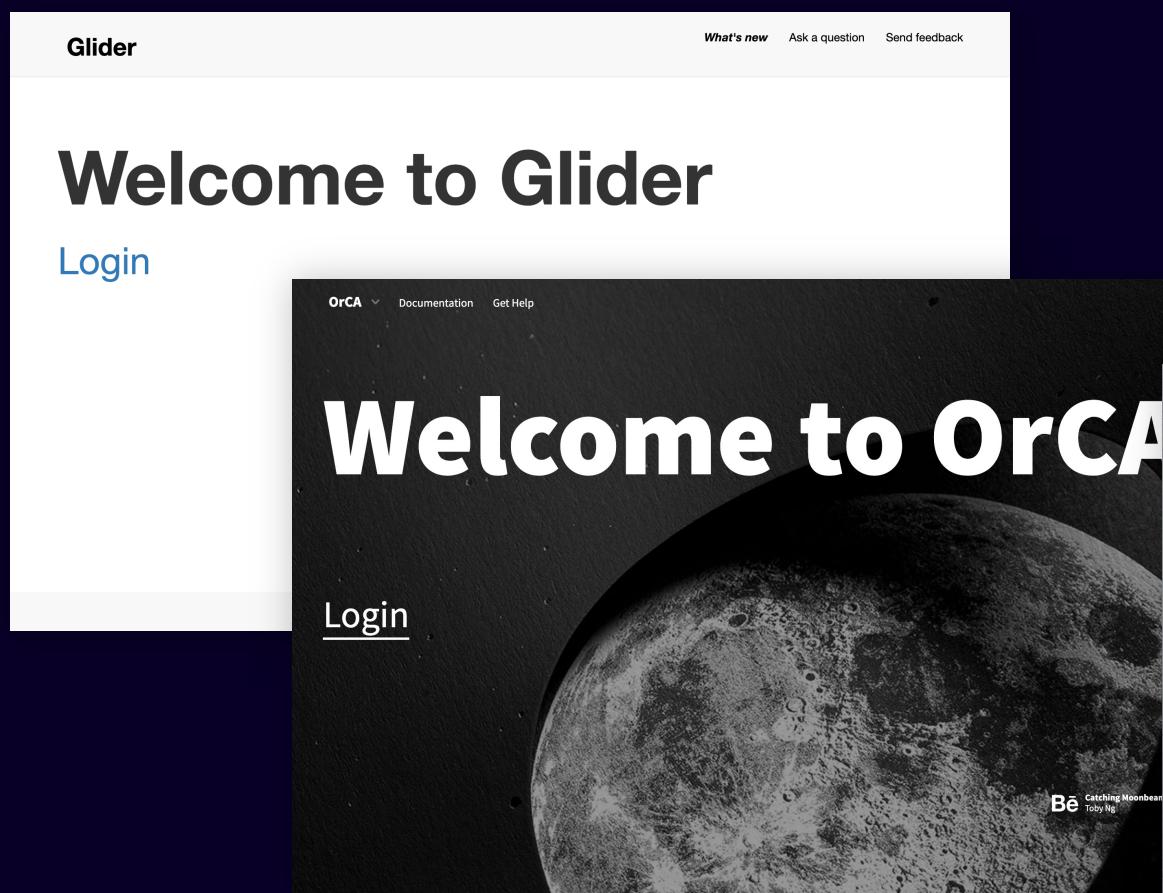


Frontend  
developers / designers

# Feature development was a problem



# The problems were showing up in our product



# Goals of every developer

- ~~1. Make cool stuff~~
- ~~2. Deliver quickly~~
- ~~3. Work well together~~



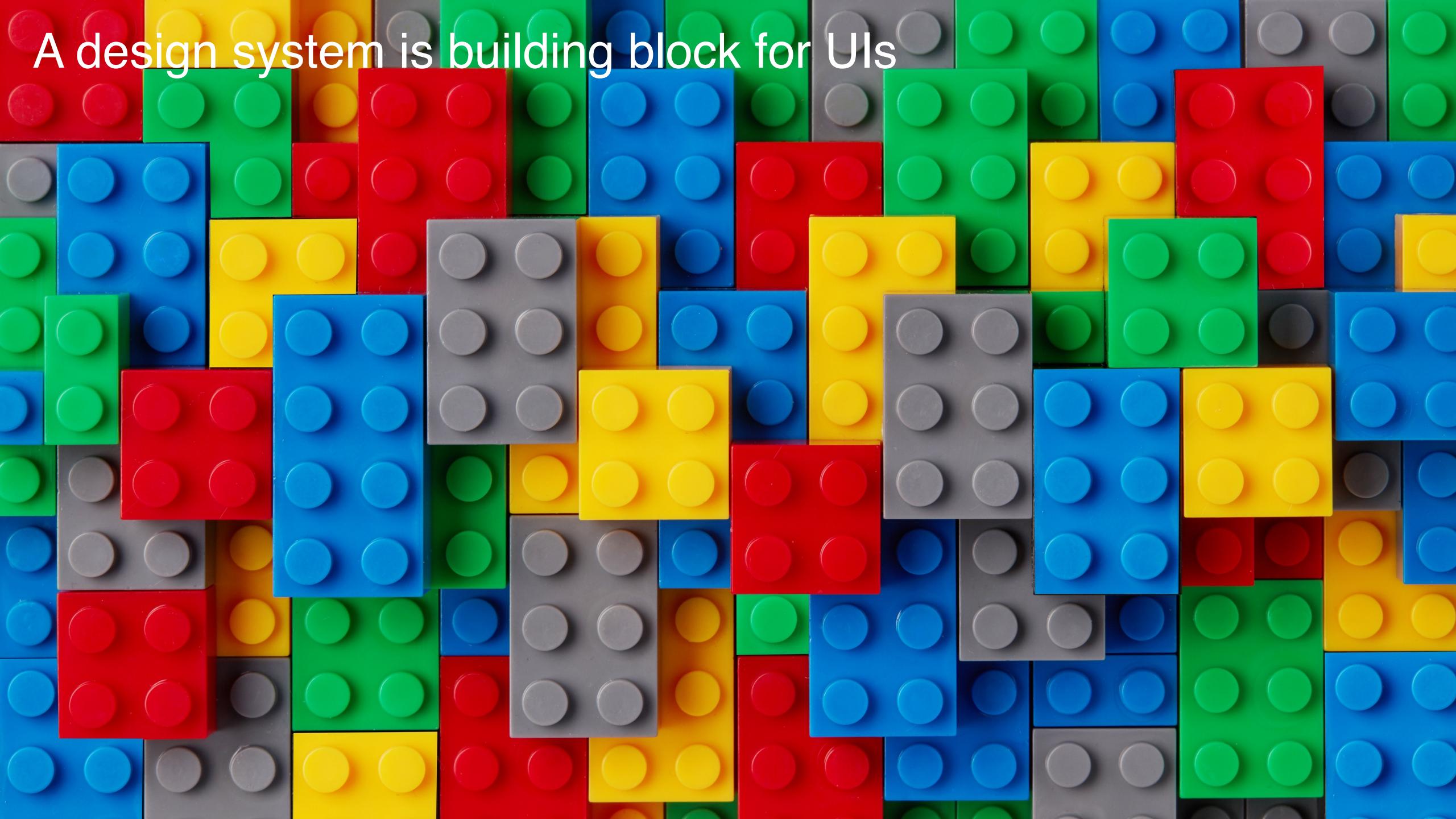


A design system is...

A design system is a collection of  
**reusable functional elements–**  
**components and patterns–**  
guided by clear standards that product teams  
use to create a consistent experience across a  
range of products.

<https://xd.adobe.com/ideas/principles/design-systems/>

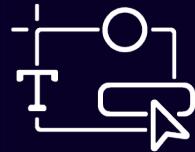
A design system is building block for UIs



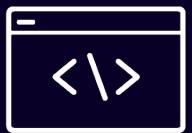
# 4 parts of a design system



Principles & Guidelines



UI Toolkit

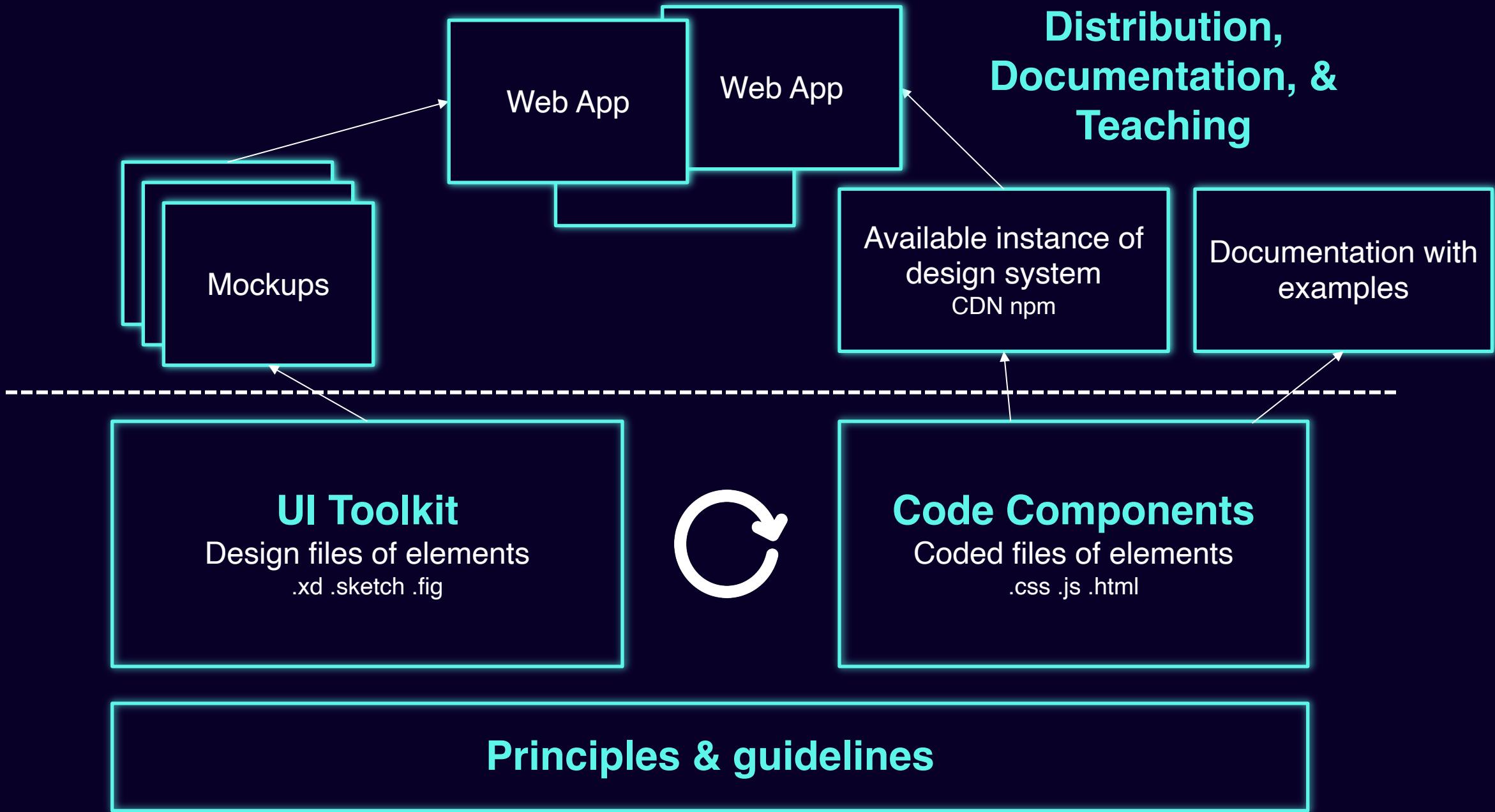


Coded Components

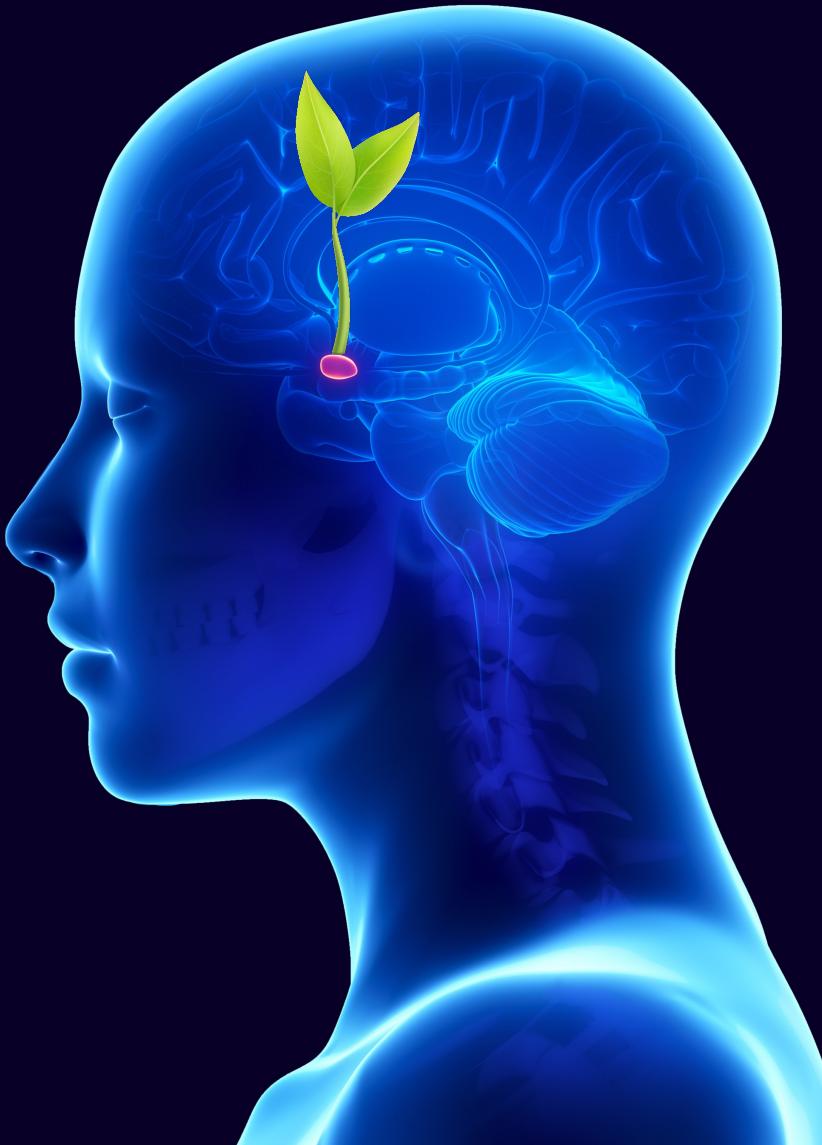


Distribution, Documentation,  
& Teaching

## Distribution, Documentation, & Teaching



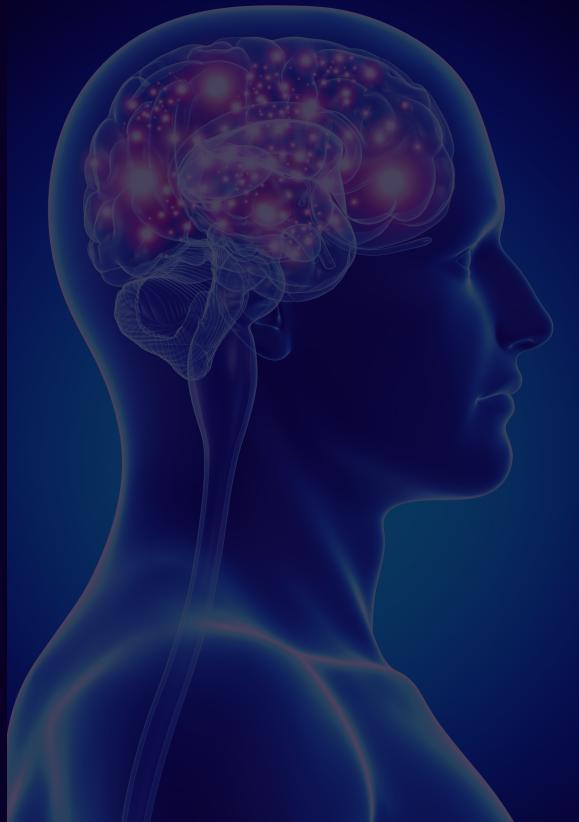
A seed was planted for an Ethos design system



**Adopting a design system mindset  
will help scale the impact of your  
frontend work while empowering and  
unblocking every developer.**

# Gatekeeper to gardener mindset

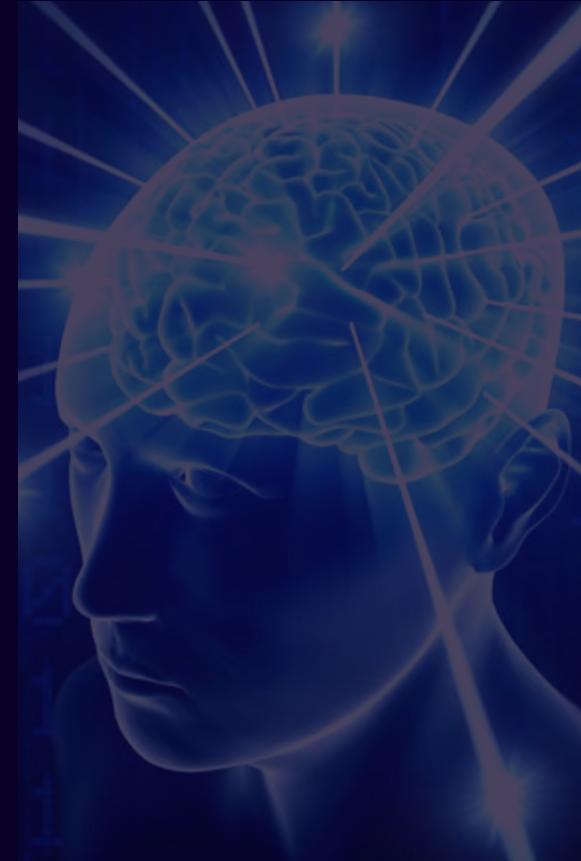
Let people into the garden.



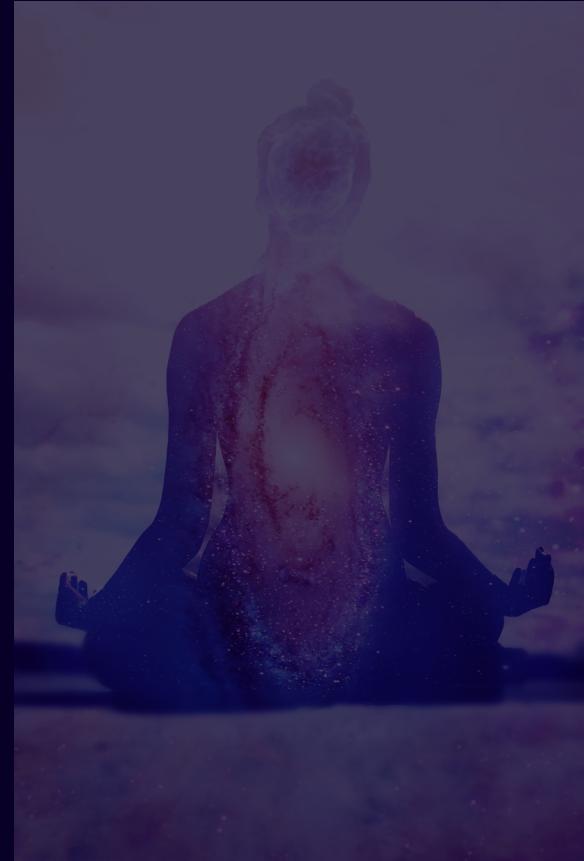
Give people the tools to do what they want.



Think beyond your own plot of land.

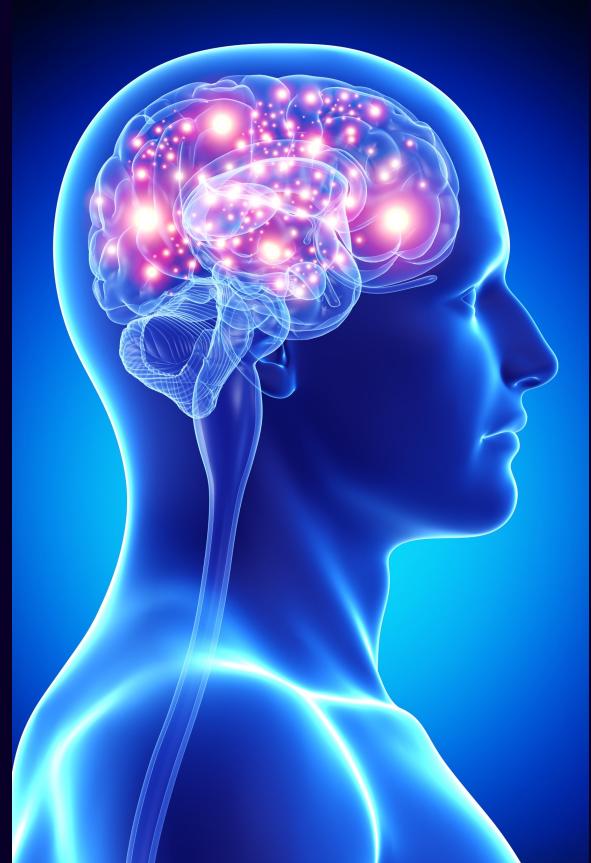


Remove the walls.



# Gatekeeper to gardener mindset

Let people into the garden.



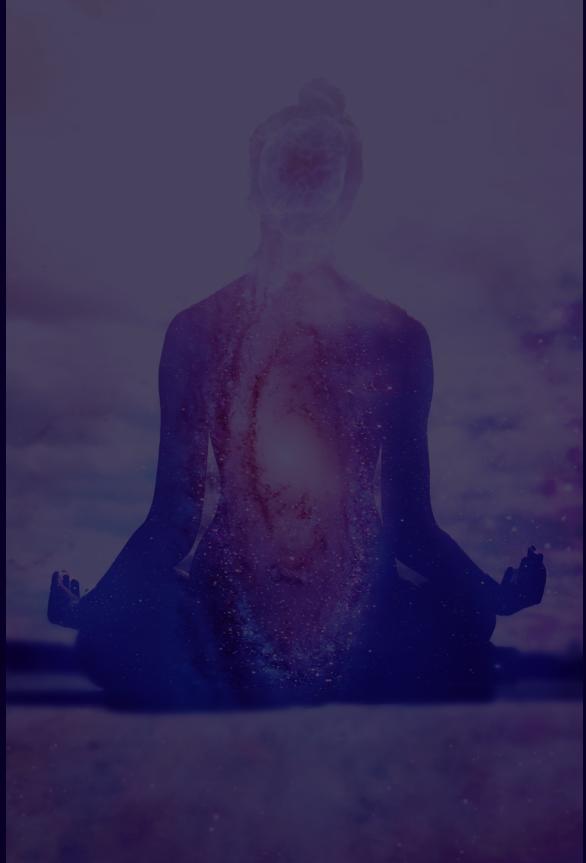
Give people the tools to do what they want.



Think beyond your own plot of land.



Remove the walls.



# A list of benefits if you'd like to convince someone

1. **Scale** the impact of frontend work
2. Only solve problems once – **don't duplicate** work
3. Create **consistent** user experiences
4. Make UI development **quicker and easier**
5. **Democratize** UI design and development

Caveat: Is it the right time?

Introducing ...



# Stardust

# Take an iterative approach

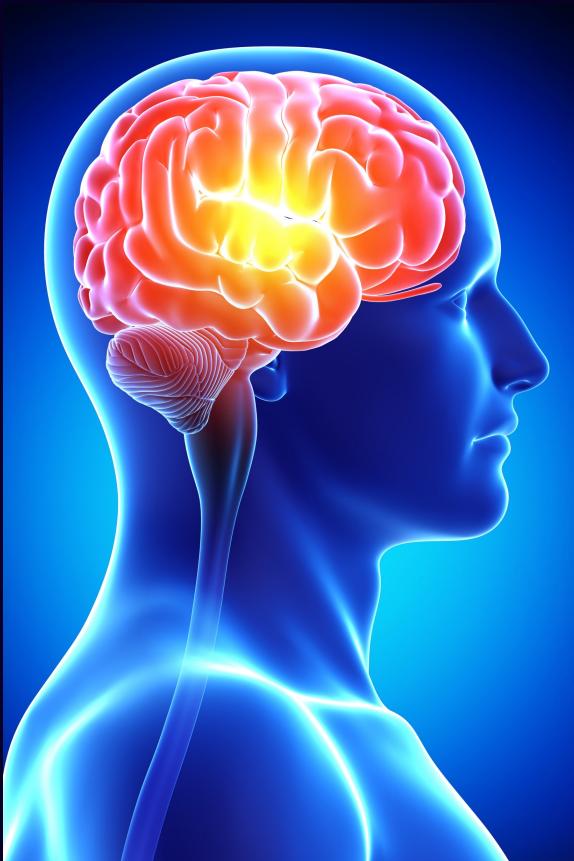
- You can start today
- You can start by yourself
- Start taking small steps now
- Plan to iterate

# Gatekeeper to gardener mindset

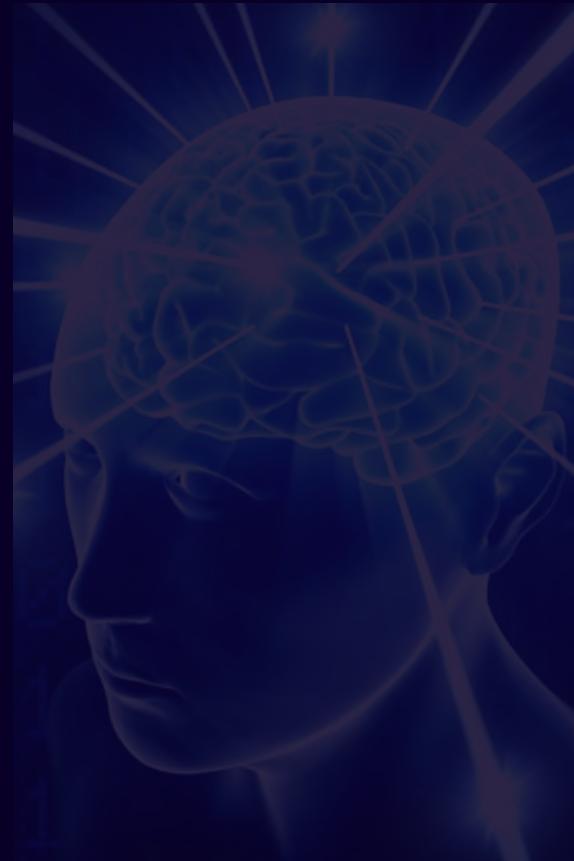
Let people into the garden.



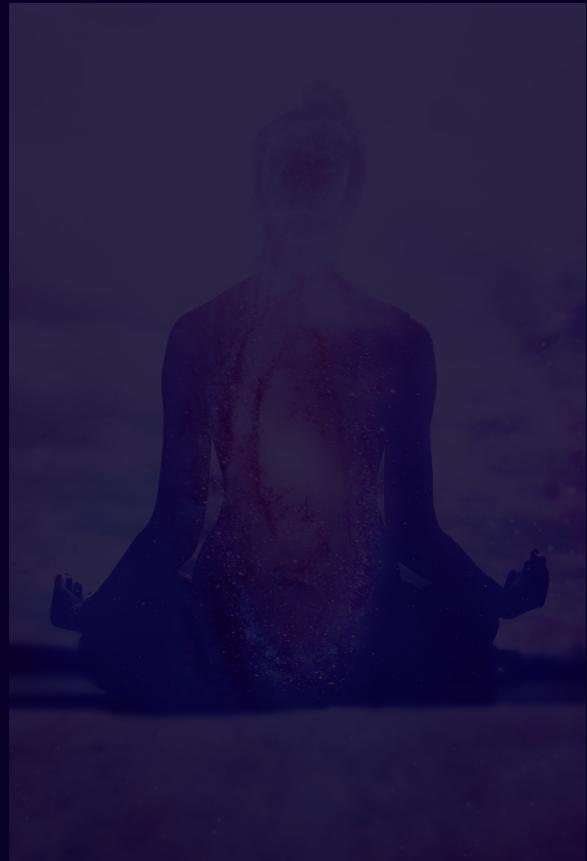
Give people the tools to do what they want.



Think beyond your own plot of land.



Remove the walls.





Principles & Guidelines



UI Toolkit



Coded Components



Distribution, Documentation,  
& Teaching

# Make key decisions at the beginning

- What matters? What doesn't?
- Methodologies
  - BEM vs Sass
- How many components to start with
- Flexible vs opinionated
- Tools and languages to use

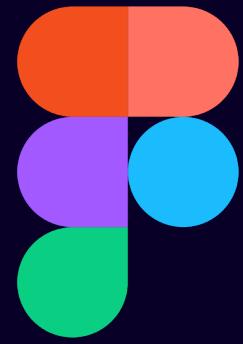
# Choose the parts of your system

**Design tool**  
for the UI toolkit

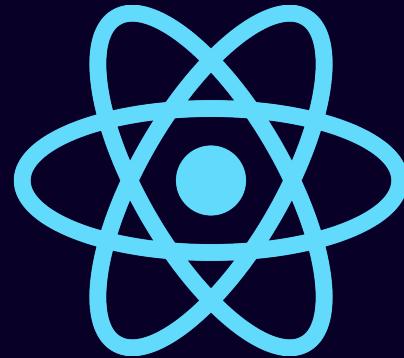
**Primary language**  
for coded components

**Documentation tool**  
to showcase components

# The standard I recommend now



Figma



React



Storybook

 Find components /

## COMPONENTS

ActionList

ActionMenu

AvatarStack

AvatarToken

## Button

Default Button

Primary Button

Danger Button

Invisible Button

Outline Button

Icon Before Button

Icon Button

Watch Counter Button

Watch Icon Button

Caret Button

Block Button

Disabled Button

Link Button

## Primary

Controls (2)

Actions

Story

Interactions

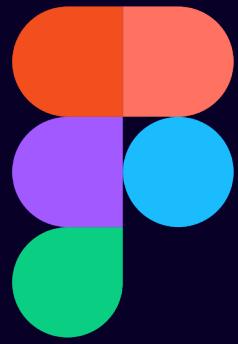
Accessibility

Performance

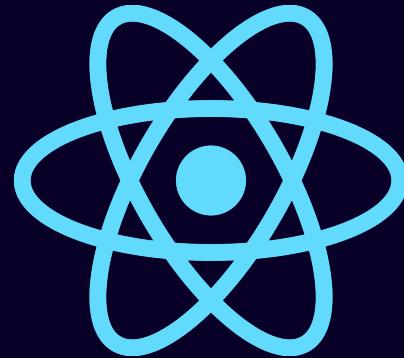
```
1 (args: ButtonProps) => {
2   return (
3     <Button {...args} variant="primary">
4       Primary
5     </Button>
6   )
7 }
```



# The standard I recommend now



Figma



React



Storybook

# What we went with at the time



**Sketch**



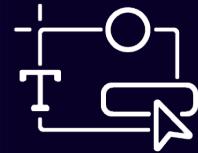
**CSS**



**Custom  
PHP**



Principles & Guidelines



UI Toolkit



Coded Components



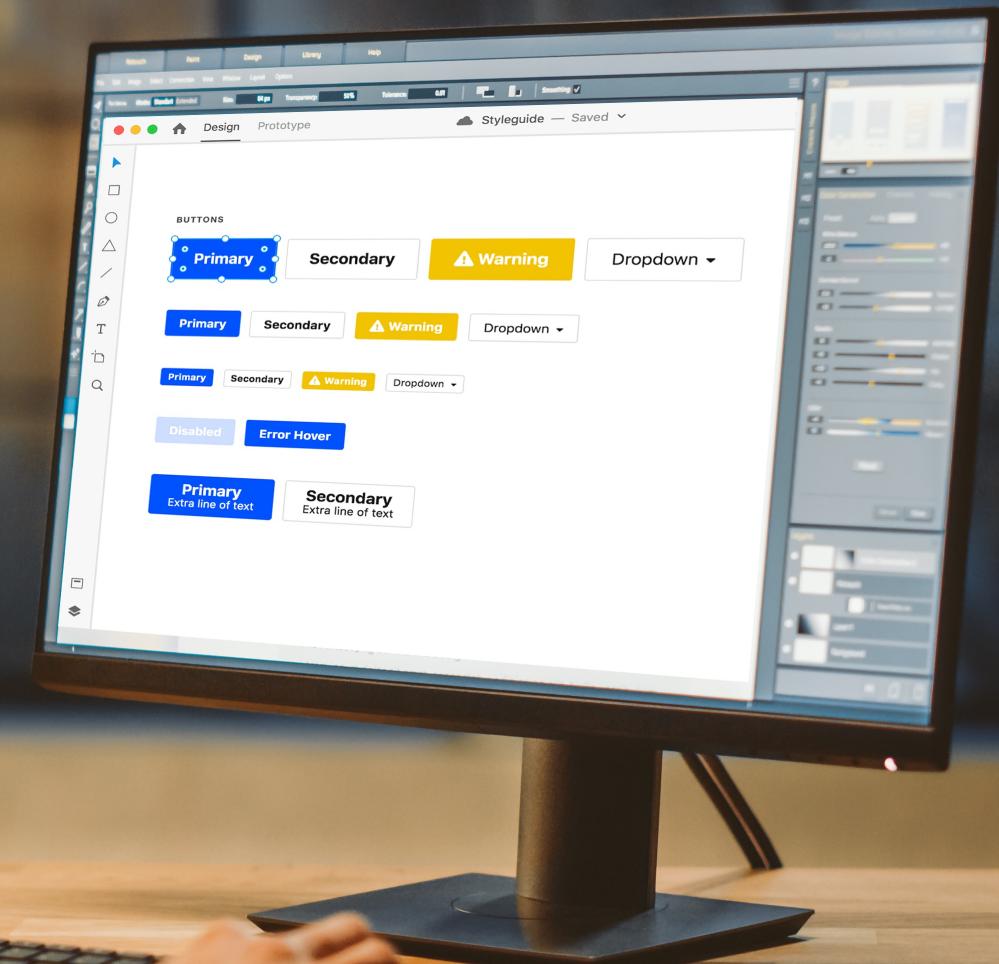
Distribution, Documentation,  
& Teaching

# Audit the existing code & design

The image consists of six screenshots of the Moonbeam application interface, arranged in two rows of three. Each screenshot shows a different stage of the deployment process or control interface.

- Screenshot 1 (Top Left): Deploy to adobe-platform/ethos-homepage?**
  - Header: Moonbeam, adobe-platform/ethos-homepage, Services, Admin, Documentation, Stats, Pulls, History, Currently Deployed, Create a Trouble Ticket, mabell.
  - Main Content: "Deploy to adobe-platform/ethos-homepage?" with buttons "Join the deploy queue" (circled in pink) and "Skip the queue". Below is a horizontal pipeline diagram with stages: Deploy Branch, BUILD, IMAGE SCAN, STAGE, FARGATE-DEV, PRODUCTION, FARGATE-PROD.
  - Recent Builds: Shows a successful build for "Herm Wong's session ended in a successful merge!" (Deploy #899860, 4 days ago).
  - FARGATE-PROD, FARGATE-DEV, IMAGE SCAN sections show logs for various deployments.
- Screenshot 2 (Top Middle): You are in the queue for moonbeam-test/moonbeam-4-show**
  - Header: Moonbeam, moonbeam-test/moonbeam-4-show, Services, Admin, Documentation, Stats, Pulls, History, Currently Deployed, Create a Trouble Ticket, mabell.
  - Main Content: Pipeline diagram and "Recent Builds" section showing a recent rollback by Nina Berg.
  - Deploy Queue: Shows Nina Berg is not currently building. Buttons "Join again" (circled in pink) and "Jump" are available.
- Screenshot 3 (Top Right): You are in the queue for moonbeam-test/moonbeam-4-show**
  - Header: Moonbeam, moonbeam-test/moonbeam-4-show, Services, Admin, Documentation, Stats, Pulls, History, Currently Deployed, Create a Trouble Ticket, mabell.
  - Main Content: Pipeline diagram and "Recent Builds" section showing a recent rollback by Nina Berg.
  - Deploy Queue: Shows Nina Berg is not currently building. A confirmation dialog box is open: "Are you sure you want to cancel this user's deploy? This may take some time." Buttons "Cancel" and "OK" are shown, with "OK" circled in pink.
- Screenshot 4 (Bottom Left): You are in control of moonbeam-test/moonbeam-4-show**
  - Header: Moonbeam, moonbeam-test/moonbeam-4-show, Services, Admin, Documentation, Stats, Pulls, History, Currently Deployed, Create a Trouble Ticket, mabell.
  - Main Content: Pipeline diagram and "Recent Builds" section showing a recent rollback by Nina Berg.
  - Control Buttons: "Current pulls below" (circled in pink), "Leave Control", and "Autopay" (checkbox checked).
  - Pull Requests: Lists several pull requests with status icons and "Info" and "Deploy" buttons. One pull request for "my-new-file" is highlighted with a pink circle around the "Deploy" button.
- Screenshot 5 (Bottom Middle): You are in control of moonbeam-test/moonbeam-4-show**
  - Header: Moonbeam, moonbeam-test/moonbeam-4-show, Services, Admin, Documentation, Stats, Pulls, History, Currently Deployed, Create a Trouble Ticket, mabell.
  - Main Content: Pipeline diagram and "Recent Builds" section showing a recent rollback by Nina Berg.
  - Control Buttons: "Select pull requests" (circled in pink), "Leave Control", and "Autopay" (checkbox checked).
  - Pull Requests: Lists several pull requests with status icons and "Info" and "Deploy" buttons. One pull request for "my-new-file" is highlighted with a pink circle around the "Deploy" button.
- Screenshot 6 (Bottom Right): You are in control of moonbeam-test/moonbeam-4-show**
  - Header: Moonbeam, moonbeam-test/moonbeam-4-show, Services, Admin, Documentation, Stats, Pulls, History, Currently Deployed, Create a Trouble Ticket, mabell.
  - Main Content: Pipeline diagram and "Recent Builds" section showing a recent rollback by Nina Berg.
  - Control Buttons: "Current deploy below" (circled in pink), "Leave Control", and "Autopay" (checkbox checked).
  - Deploy Details: "Deploy #15779 will merge PRs into master branch upon Mark as Good. Open temporary branch on GitHub commit 61661846." and "Thoughts on PRs (#8) Open GitHub commit 61661846".
  - Deployment Environment: "NEXT Environment: BUILD".
  - Deployment Projects: "Created deploy branch." and "Projects to build on BUILD" (checkbox checked for "build-makefile").
  - Action Buttons: "Restart entire process", "Rollback BUILD", and "Proceed to BUILD" (circled in pink).

# Create the UI toolkit using your design tool

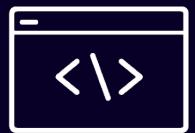




Principles & Guidelines



UI Toolkit



Coded Components



Distribution, Documentation,  
& Teaching

# Create the coded components

The screenshot shows a GitHub repository page for `adobe-platform/stardust`. The user is viewing the `Code` tab for the `master` branch. The URL in the address bar is `stardust/app/assets/stylesheets/components/`. The list of files in the `_buttons.scss` file is highlighted with a blue box.

File	Description
<code>_avatars.scss</code>	adding avatars to stardust
<code>_base.scss</code>	Edits for PR feedback
<code>_blurbs.scss</code>	Re-adding some missing Stardust styles
<code>_buttons.scss</code>	adding spacing b/w buttons
<code>_checks.scss</code>	Re-adding some missing Stardust styles
<code>_forms.scss</code>	Edits for PR feedback
<code>_grid.scss</code>	Edits for PR feedback
<code>_highlights.scss</code>	Edits for PR feedback
<code>_icons.scss</code>	Re-adding some missing Stardust styles
<code>_links.scss</code>	Re-adding some missing Stardust styles
<code>_list-groups.scss</code>	Added table partial styling & example

```
326 lines (255 sloc) | 4.97 KB

1 // 
2 // Buttons
3 //
4
5 $btn-padding-y: 8px;
6 $btn-padding-x: $btn-padding-y * 1.8;
7
8 .rf-btn,
9 .rf-btn[type="button"],
10 %rf-btn {
11   -webkit-appearance: initial;
12   border: 1px solid transparent;
13   border-radius: $border-radius;
14   cursor: pointer;
15   display: inline-block;
16   font-weight: bold;
17   height: auto;
18   line-height: 1.1em;
19   padding: $btn-padding-y $btn-padding-x;
20   position: relative;
21   text-align: center;
22   text-decoration: none !important;
23   touch-action: manipulation;
24   vertical-align: middle;
25   white-space: nowrap;
26   user-select: none;
27
28 @include hocus {
29   outline: none;
30   text-decoration: none !important;
31 }
32 }
```

# As you expand coverage, track with CSS namespace

```
[class^="rf-"],  
[class*=" rf-"] {  
    outline: 5px solid #ff00ff;  
}
```

Moonbeam moonbeam/moonbeam Admin Documentation Stats Currently Deployed Pulls History mabell Logout

### Deploy to moonbeam/moonbeam?

[Join the deploy queue](#) [Skip the queue](#)

**Recent Builds**

berg is currently deploying 2 pull requests. ONGOING

Deploy #7153: 32 minutes ago

PULL REQUESTS INCLUDED

- Add ENFORCE\_GITHUB\_SECRETS flag [Open on Github](#)
- Some rake tasks to fetch data [Open on Github](#)

IMAGE SCAN ▾ LOGS

image-scan #44232 16 minutes ago

CONTAINER-BUILD ▾ LOGS

docker-build #44230 16 minutes ago

Devyn Krevat is currently deploying 1 pull request. ONGOING

Deploy #7152: Added models for BuildRequests ... an hour ago

Kevin Ran's session ended in a successful merge! SUCCESS

Deploy #7150: docs/moonbeamer-handbook/mi... 3 hours ago

Toby Dunkelberg left control and the session was rolled back. ROLLBACK

Deploy #7141: Update & Fix Navbar Current... 19 hours ago

**Deploy Queue**

1 Devyn Krevat is on DEV-ENVS deploying Added models for BuildRequests and ControlSessions to Swagger API, ad... IN CONTROL  
Remove From Control [Open commit in Github](#) an hour

2 berg is on IMAGE SCAN deploying Add ENFORCE\_GITHUB\_SECRETS flag; Some rake tasks to fetch data SECONDARY  
Remove From Control [Open commit in Github](#) 32 minutes

# Gatekeeper to gardener mindset

Let people into the garden.



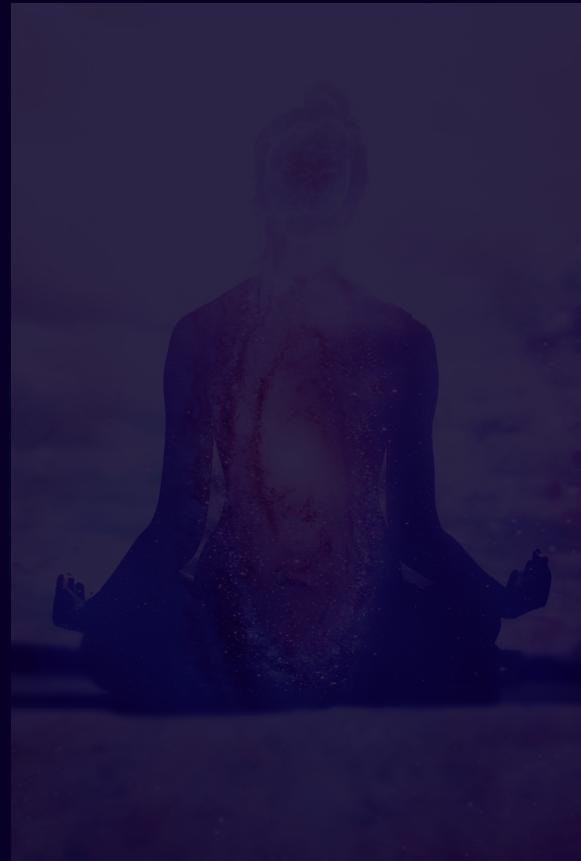
Give people the tools to do what they want.



Think beyond your own plot of land.

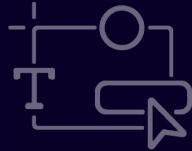


Remove the walls.





Principles & Guidelines



UI Toolkit



Coded Components



Distribution, Documentation,  
& Teaching

# Document & Distribute



Stardust

Stardust Github Repository

Avatars

Blurbs

Buttons

Checkboxes

Forms

Grid

Icons

Links

List Groups

Logs

Messaging

Modals

Notes

Notices

Panels

Pills

Tables

Tooltips

## Buttons

### Button Types

Primary

Secondary

Link

Dropdown ▾

Warning

Error

```
<a href="#" class="rf-btn rf-btn--primary">Primary</a>
<a href="#" class="rf-btn rf-btn--secondary">Secondary</a>
<a href="#" class="rf-btn rf-btn--link">Link</a>
<a href="#" class="rf-btn rf-btn--dropdown">Dropdown</a>
<a href="#" class="rf-btn rf-btn--warning">Warning</a>
<a href="#" class="rf-btn rf-btn--error">Error</a>
```

### Button Sizes

Button

Button

```
<a href="#" class="rf-btn rf-btn--small">Button</a>
<a href="#" class="rf-btn rf-btn--large">Button</a>
```

### Types + sizes

Primary

Warning

Secondary

Link

Dropdown ▾

Error

Primary

Secondary

Warning

Link

Dropdown ▾

Error

### Type + size usage:

```
<a href="#" class="rf-btn rf-btn--<type> rf-btn--<size>"> Button </a>
```

adobe-platform/stardust: Ethos x Stardust x UNREGISTERED Search

git.corp.adobe.com/adobe-platform/stardust

adobe-platform / stardust Public

Watch 4 Fork 6 Star 2

Code Issues Pull requests 2 Projects Wiki Security Insights Settings

master 19 branches 0 tags Go to file Add file Code

moonbeam Merged 1 PR(s): ... 2925183 on Oct 12, 2020 138 commits

.glider Revert "Glider : save user inputs for orca-onbo... 4 years ago

app Add link for reference 2 years ago

lib Bump to the right version 4 years ago

.gitignore Revert "Glider generated service code" 4 years ago

Dockerfile Add 1.0.0 CDN 3 years ago

Gemfile Revert "Glider generated service code" 4 years ago

Makefile First PR - Updating README 4 years ago

README.md Change stardust service links from http to https 3 years ago

Rakefile Initial commit 5 years ago

docker-compose.yml Adding docker-compose file for onboarding 4 years ago

ethosstyles.gemspec use sassc 2.0 4 years ago

new\_http\_headers.conf Add 1.0.0 CDN 3 years ago

service\_spec.yml Merge pull request #31 from krevat/dns-good 3 years ago

About Ethos's design system

Readme 2 stars 4 watching 6 forks

Releases No releases published Create a new release

Contributors 7

Languages

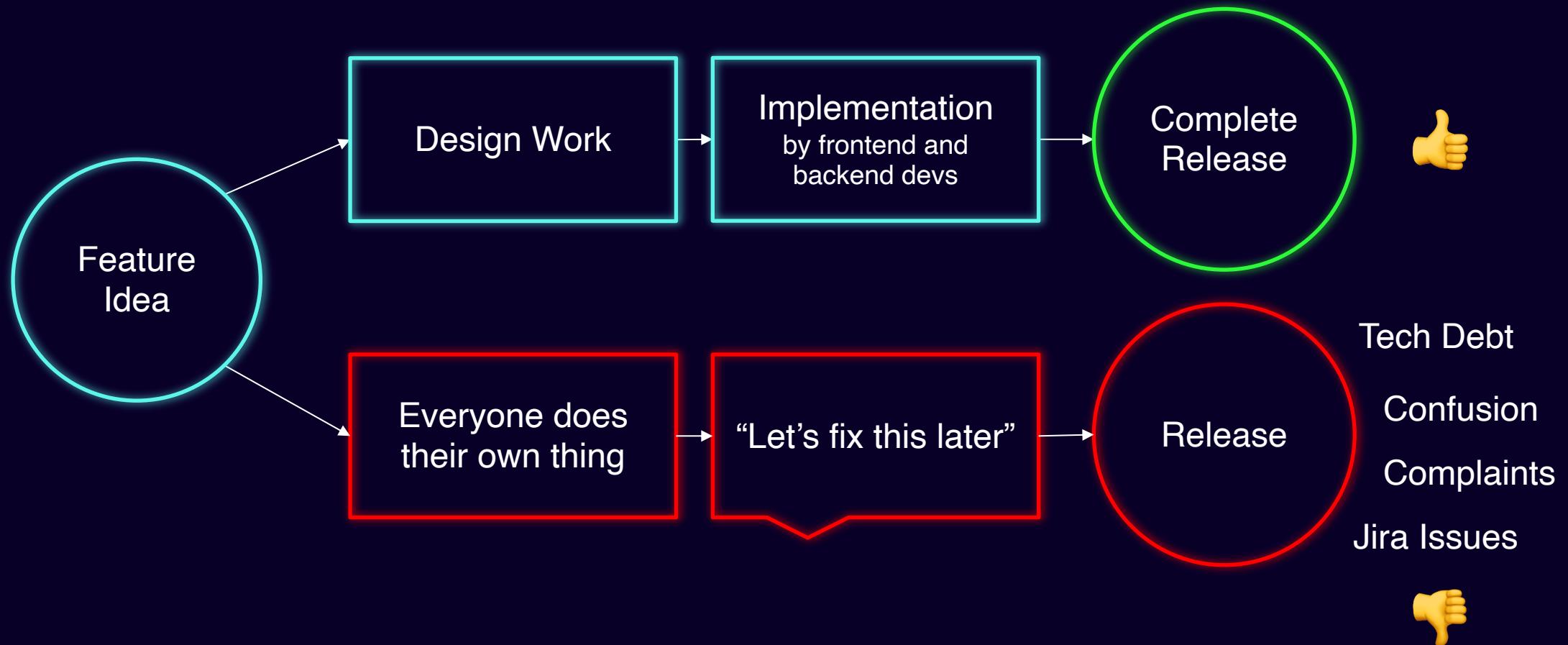
Languages	Percentage
CSS	87.6%
Hack	4.7%
Ruby	0.2%
PHP	6.7%
JavaScript	0.6%
Dockerfile	0.1%

# Use the community playbook to expand knowledge

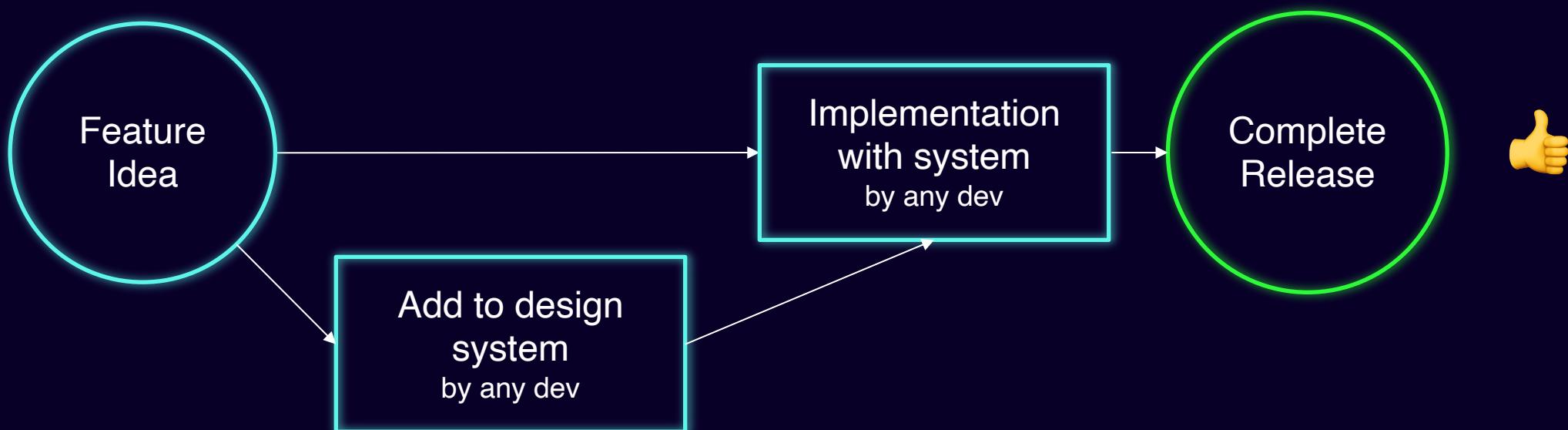
- Slack channel
- In-person training sessions / bootcamps
- Office hours
- Community sessions / brown bags
- 1:1 screenshares
- Don't forget to record!

What were the results?

# Old development lifecycle



# New feature lifecycle

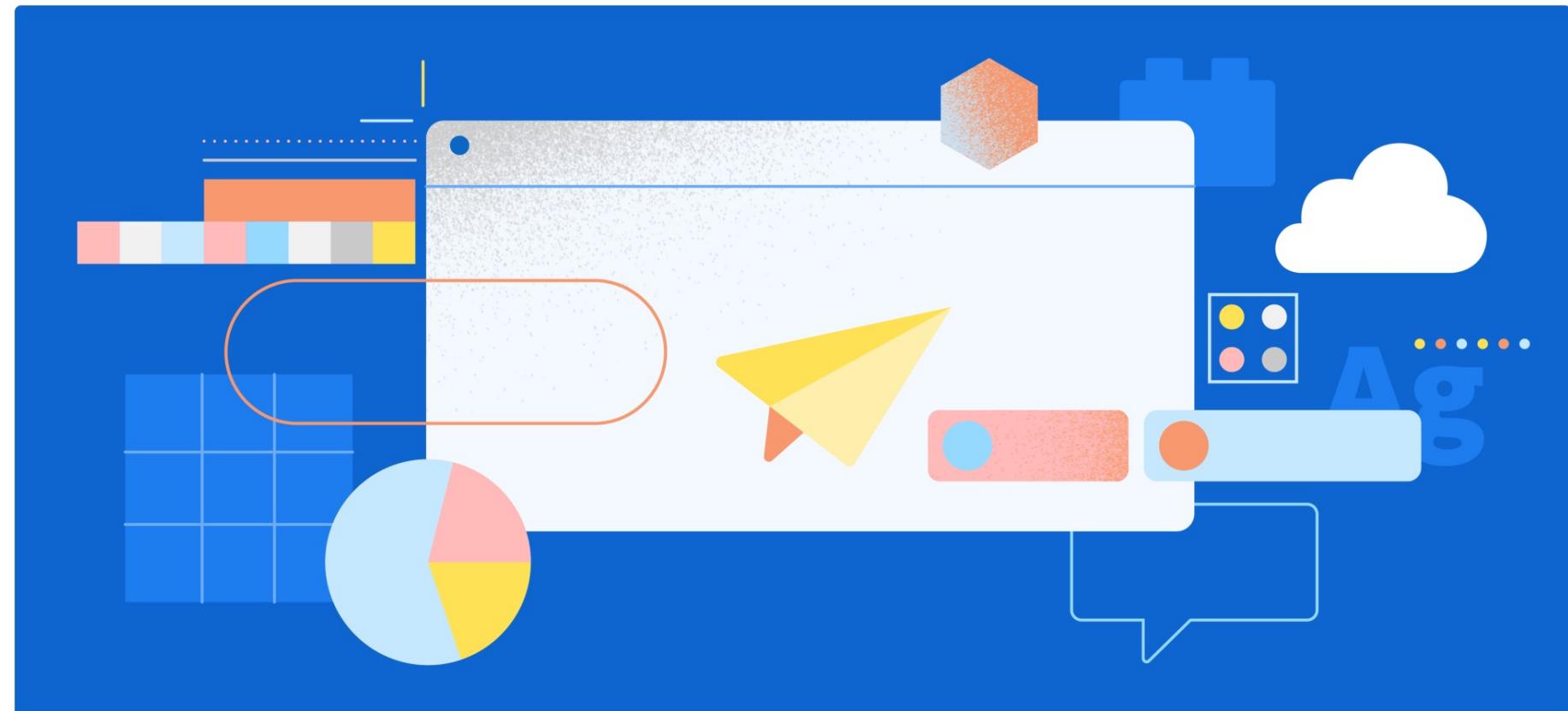


Just when things were turning  
around...

[Spectrum](#)[Foundation](#)[Content](#)[Components](#)[Patterns](#)[Tools and resources](#)[Support](#)[Spectrum CSS](#)[React Spectrum](#)[Spectrum Web Components](#)

# Spectrum, Adobe's design system

Spectrum provides components and tools to help product teams work more efficiently, and to make Adobe's applications more cohesive.



# Gatekeeper to gardener mindset

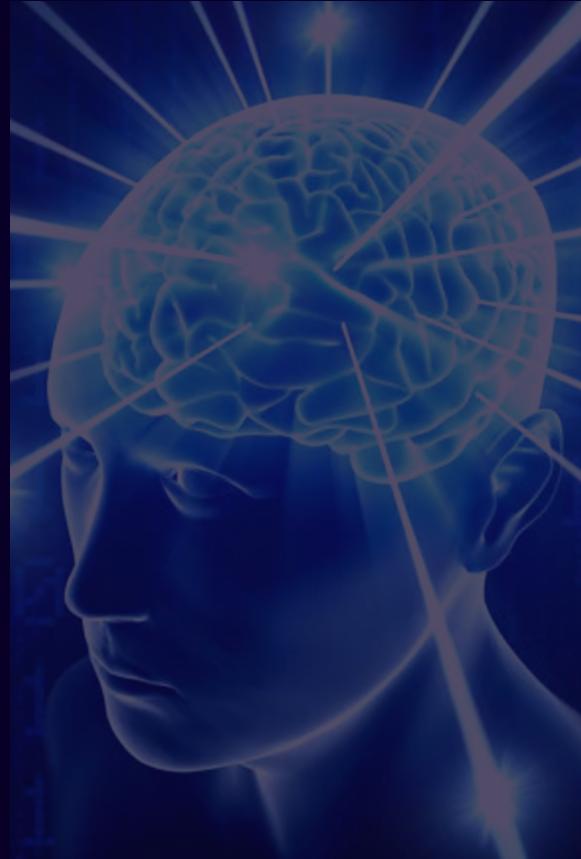
Let people into the garden.



Give people the tools to do what they want.



Think beyond your own plot of land.



Remove the walls.



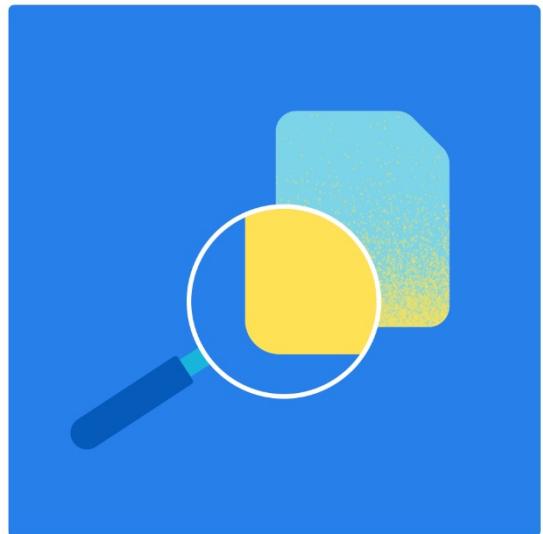
## Spectrum

[Principles](#)[What's new](#)

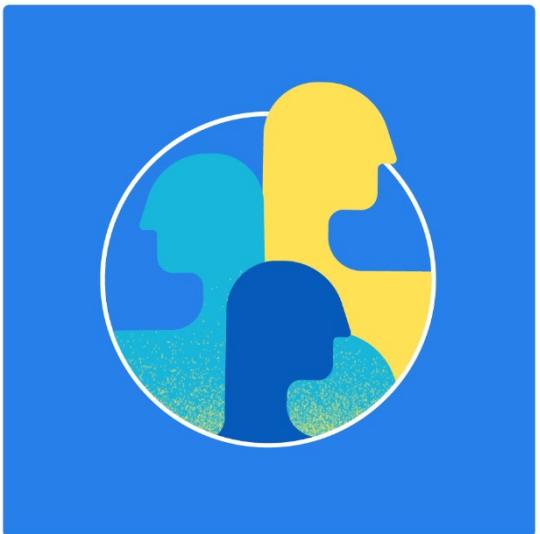
## Foundation

[Design tokens](#)[Platform scale](#)[Theming](#)[Color](#)[Typography](#)[Object styles](#)[Motion](#)[States](#)[Iconography](#)

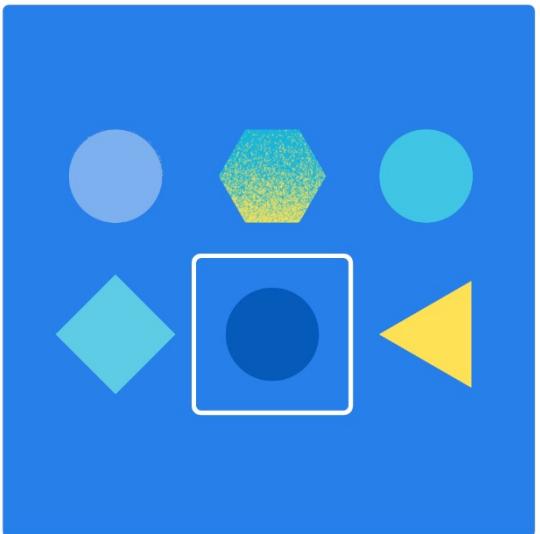
# Principles

**Rational**

Spectrum is based on real-world situations. Every component, pattern, and principle is informed by research and thoughtful testing.

**Human**

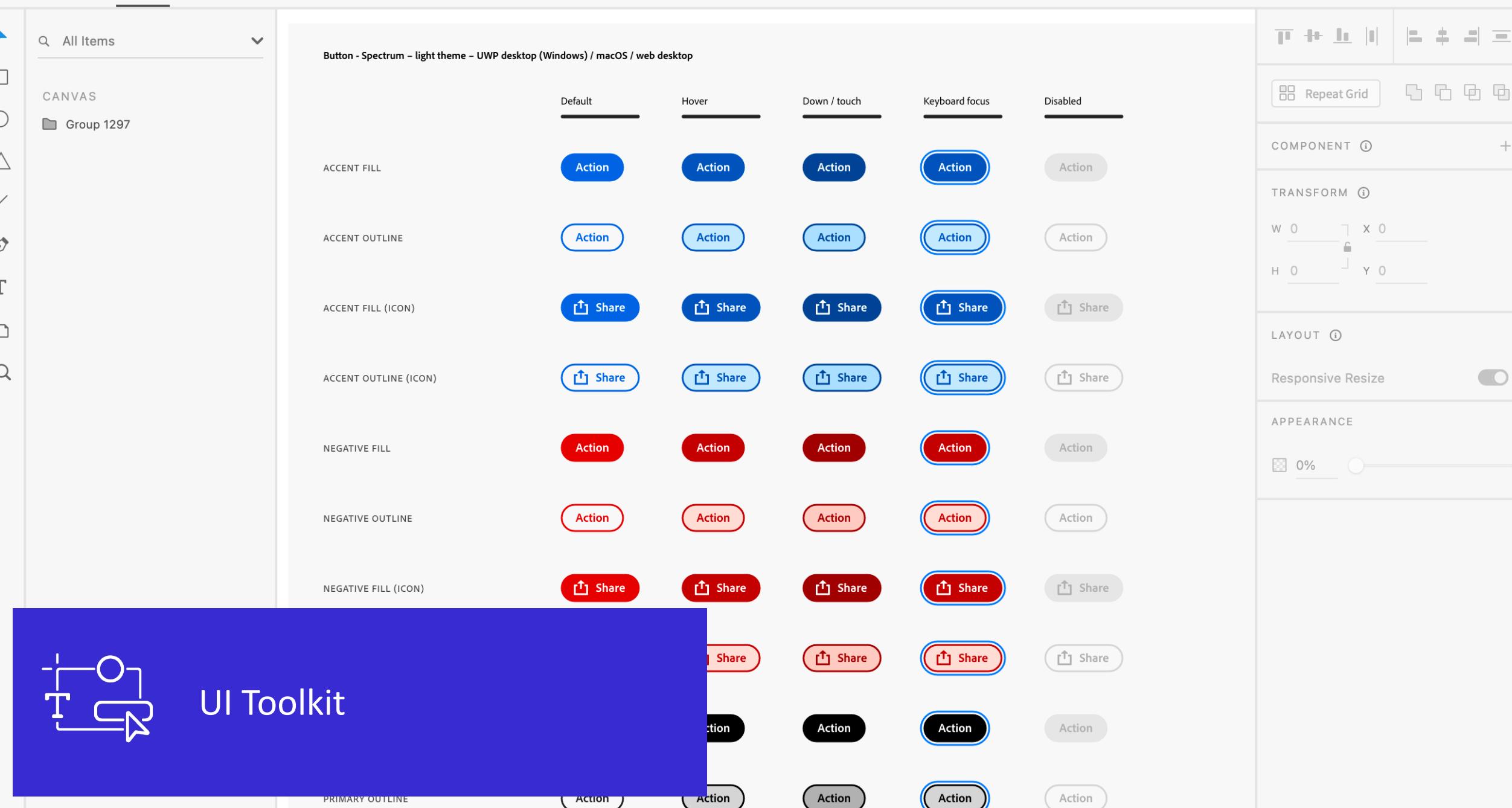
Spectrum places customer needs first. It's deeply committed to a high standard of accessibility, honesty, and respect for user attention.

**Focused**

Spectrum strives to deliver what's needed, when it's needed. No unnecessary decoration or irrelevant content.



## Principles & Guidelines



[main](#) ▾[react-spectrum/packages/@react-spectrum/button/src/Button.tsx](#) / <> Jump to ▾[Go to file](#)

...

devongovett Button and ActionButton design updates ([#3650](#)) ✓

Latest commit d264e8e 2 days ago

[History](#)

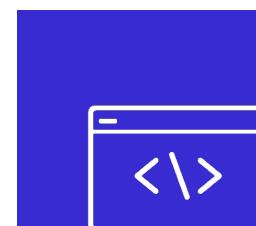
8 9 contributors



106 lines (101 sloc) | 3.7 KB

[Raw](#)[Blame](#)

```
1  /*
2   * Copyright 2020 Adobe. All rights reserved.
3   * This file is licensed to you under the Apache License, Version 2.0 (the "License");
4   * you may not use this file except in compliance with the License. You may obtain a copy
5   * of the License at http://www.apache.org/licenses/LICENSE-2.0
6   *
7   * Unless required by applicable law or agreed to in writing, software distributed under
8   * the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR REPRESENTATIONS
9   * OF ANY KIND, either express or implied. See the License for the specific language
10  * governing permissions and limitations under the License.
11 */
12
13 import {
14   classNames,
15   SlotProvider,
16   useFocusableRef,
17   useHasChild,
18   useSlotProps,
19   useStyleProps
20 } from 'react-spectrum-util';
```



Coded Components



INTRODUCTION

Getting Started

Versioning

CONCEPTS

Layout

Styling

Testing

Theming

Server Side Rendering

Drag and Drop



APPLICATION

Provider

LAYOUT

Flex

Grid

# Button

Buttons allow users to perform an action or to navigate to another page. They have multiple styles for various needs, and are ideal for calling attention to where a user needs to do something in order to move forward in a flow.

install    `yarn add @adobe/react-spectrum`

added    3.0.0

usage    `import {Button} from '@adobe/react-spectrum'`



[View guidelines](#)  
Spectrum



[View repository](#)  
GitHub



[View package](#)  
NPM

## Example

```
<Button variant="cta">Save</Button>
```

`Save`

Distribution,  
Documentation & Teaching

Icon only

## Contents

[Example](#)[Content](#)[Accessibility](#)[Internationalization](#)[Events](#)[Props](#)[Visual options](#)[Call to action](#)[Primary](#)[Quiet primary](#)[Secondary](#)[Quiet secondary](#)

# We decided to shift to using Spectrum

- Stop duplicating work
- Become contributors to a wider system
- Expand past Adobe through OSS

What's it like now?

# Team is enabled with easiest workflow yet



# State of the product

Ethos Home > Services > Dashboard

adobe-platform/ethos-homepage

Details: This service is currently locked. [Unlock service](#)

Environment variables & secrets

Service details: See information for your service spanning across multiple environments and regions.

Environment variables & secrets: View all environment variables and secrets belonging to this service.

Delete this service: Services cannot be deleted when locked. Unlock the service first and try deleting your service again. [Delete service](#)

Ethos Home > Services > Dashboard

adobe-platform/ethos-homepage

Launch your code on Ethos!

Get to production in minutes, not months. Ethos delivers self-service provisioning, pipelines, tooling, compliance, and security controls "as-a-service".

Cluster Availability										Adobe Datacenter	AWS	Azure	No issues	Within SLA	Below target SLA
Filters	Provider	Cluster	Env	Region	Owner	Test	OCT 30	OCT 29	OCT 28	OCT 27	OCT 26	OCT 25	OCT 24		
Providers	aws	Ethos01	PROD	JPN3	CT	Canary	✓	✓	✓	✓	✓	✓	✓		
Clusters	aws	Ethos01	PROD	IRL1	CT	Canary	✓	✓	✓	✓	✓	✓	✓		
Environments	aws	Ethos01	PROD	VA6	CT	Canary	✓	✓	✓	✓	✓	✓	✓		
Regions	aws	Ethos02	PROD	IRL1	CT	Canary	✓	✓	✓	✓	✓	✓	✓		
Owners	aws	Ethos02	PROD	OR2	CT	Canary	✓	✓	✓	✓	✓	✓	✓		
Measurement tests	aws	Ethos02	PROD	JPN3	CT	Canary	✓	✓	✓	✓	✓	✓	✓		
	aws	Ethos03	PROD	VA6	CT	Canary	✓	✓	✓	✓	✓	✓	✓		
	aws	Ethos03	PROD	IRL1	CT	Canary	✓	✓	✓	✓	✓	✓	✓		
	▲	Ethos05	PROD	VA7	CT	Canary MSI	✓	✓	✓	✓	✓	✓	✓		
	▲	Ethos05	PROD	VA7	CT	Canary	✓	✓	✓	✓	✓	✓	✓		
	aws	Ethos06	PROD	VA6	DX	Canary	✓	✓	✓	✓	✓	✓	✓		
	aws	Ethos06	PROD	IRI1	DX	Canary	✓	✓	✓	✓	✓	✓	✓		

Ethos Home > Namespaces

PaaS namespaces

All PaaS namespaces

Filter namespaces

+ Create PaaS namespace

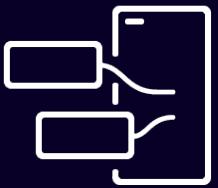
Download kubeconfig.yml

- ns-personal-mabell personal
- ns-team-experience-edge--ioni-argo-demo-deploy--1120f-38e9793d
- ns-team-naytest--testcanary-deploy--ab8be1e4--namespa-ebc2daef
- ns-team-ethos-bootcamp-mathwani--mm-bl-0512-1-deploy--d5a32bd8
- ns-team-mabell-ethos-tutorial--mabell-flex-test-depl-29212137
- ns-team-adobe-platform--ethos-argo-workflows-resource-ade3b1a1
- ns-team-naytest--demojune6-deploy--1a987996--namespa-...

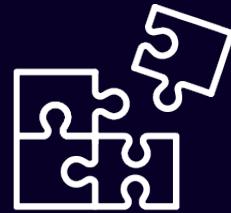
# We're constantly improving and re-evaluating



**Mindsets**  
take time to change



**Open source**  
design system conflicts

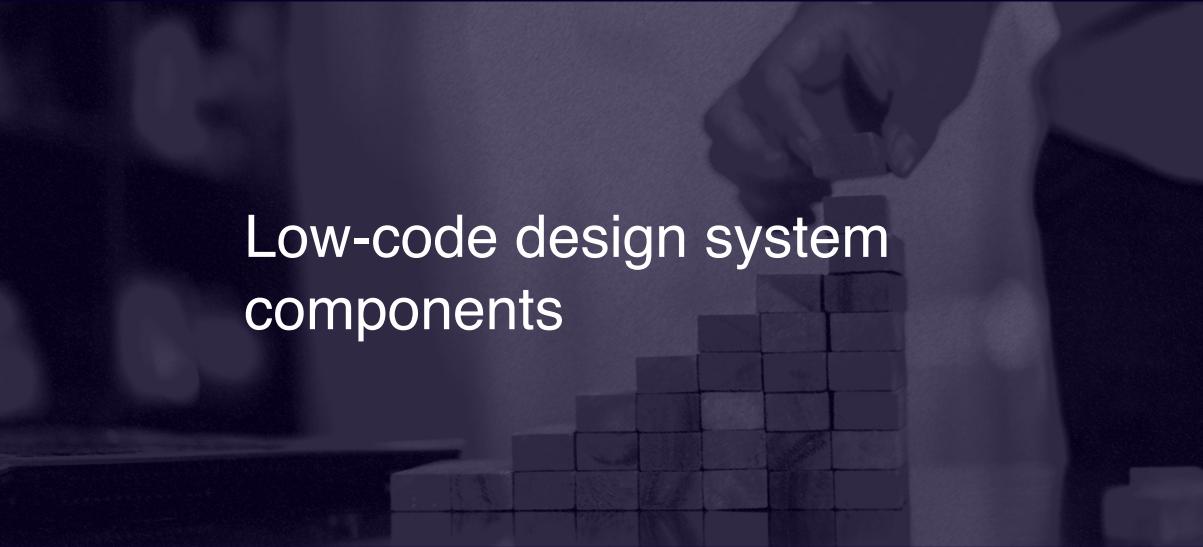


**Knowledge gap**  
with frontend tech

# What's next in design systems?



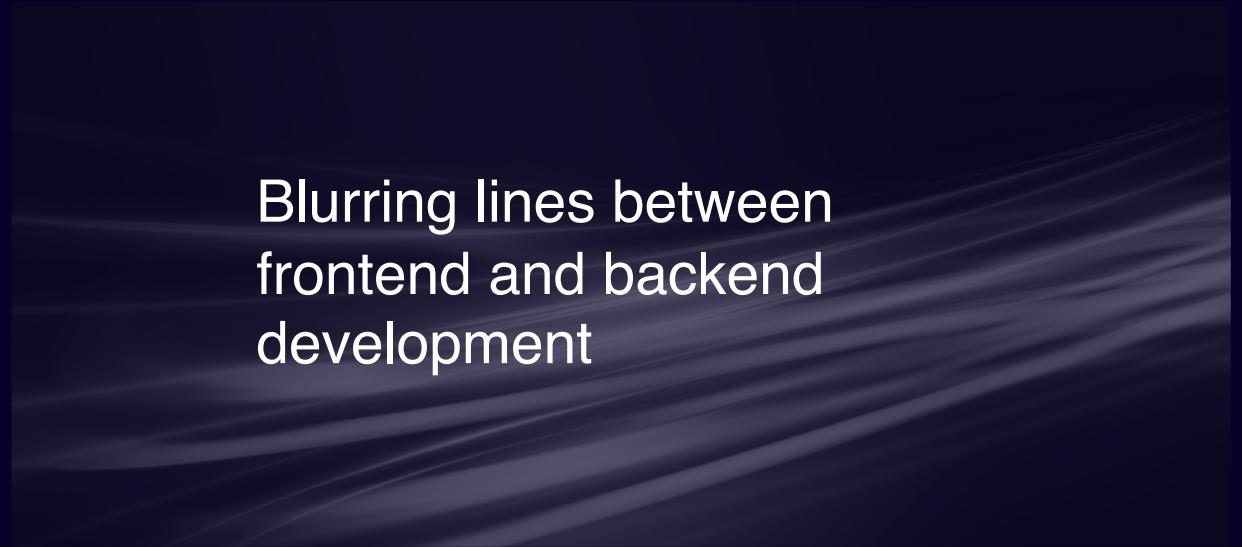
Designer & developer  
tooling growing closer  
together



Low-code design system  
components



AI-assisted design systems



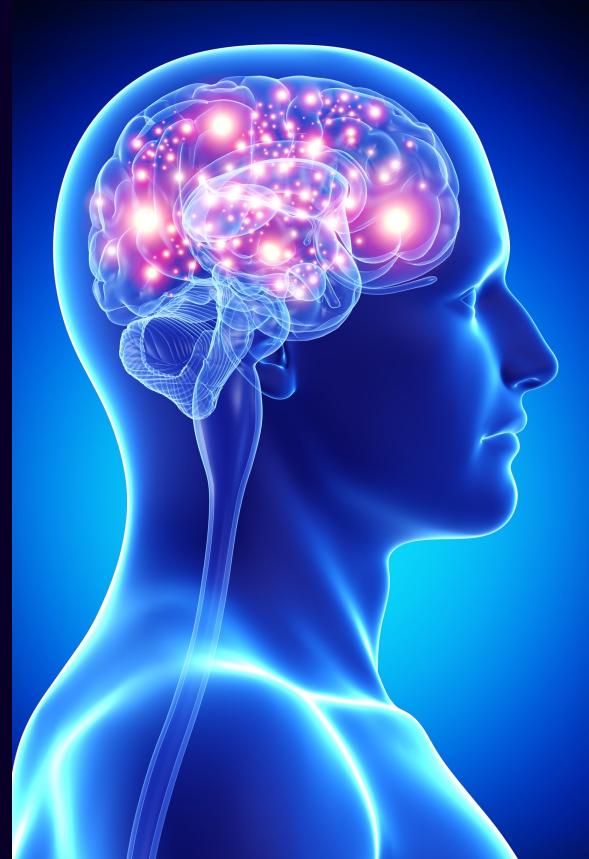
Blurring lines between  
frontend and backend  
development

# If I had to start today...

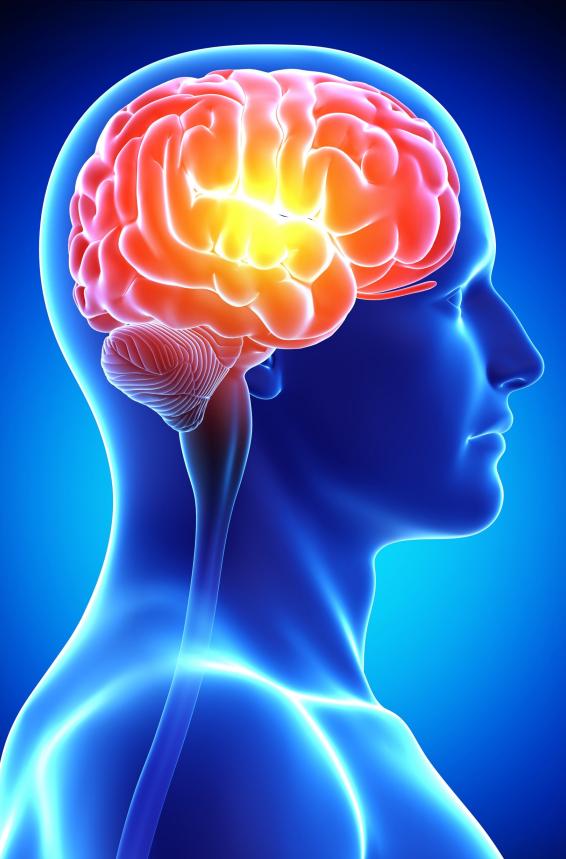
- Build all pieces in parallel
- Use standard tooling
- Don't start from scratch

# Gatekeeper to gardener mindset

Let people into the garden.



Give people the tools to do what they want.



Think beyond your own plot of land.



Remove the walls.



Letting go of control and helping  
people do what they want to do will  
empower every developer.

# Thank you!

**Connect with me:**

Find me after this talk!

Twitter: <https://twitter.com/maremarebell>

LinkedIn: <https://www.linkedin.com/in/maryannbell>



View & download  
slides

# Resources

- Storybook Tutorial
  - <https://storybook.js.org/tutorials/design-systems-for-developers/react/en/introduction/>
- Design Systems: Step-by-Step Guide to Creating Your Own
  - <https://www.uxpin.com/create-design-system-guide/>
- CSS Namespaces
  - <https://csswizardry.com/2015/03/more-transparent-ui-code-with-namespaces/>
- Spectrum, Adobe's Design System
  - <https://spectrum.adobe.com/>
- UX Tools Design System Survey 2020
  - <https://uxtools.co/survey-2020/#design-systems>