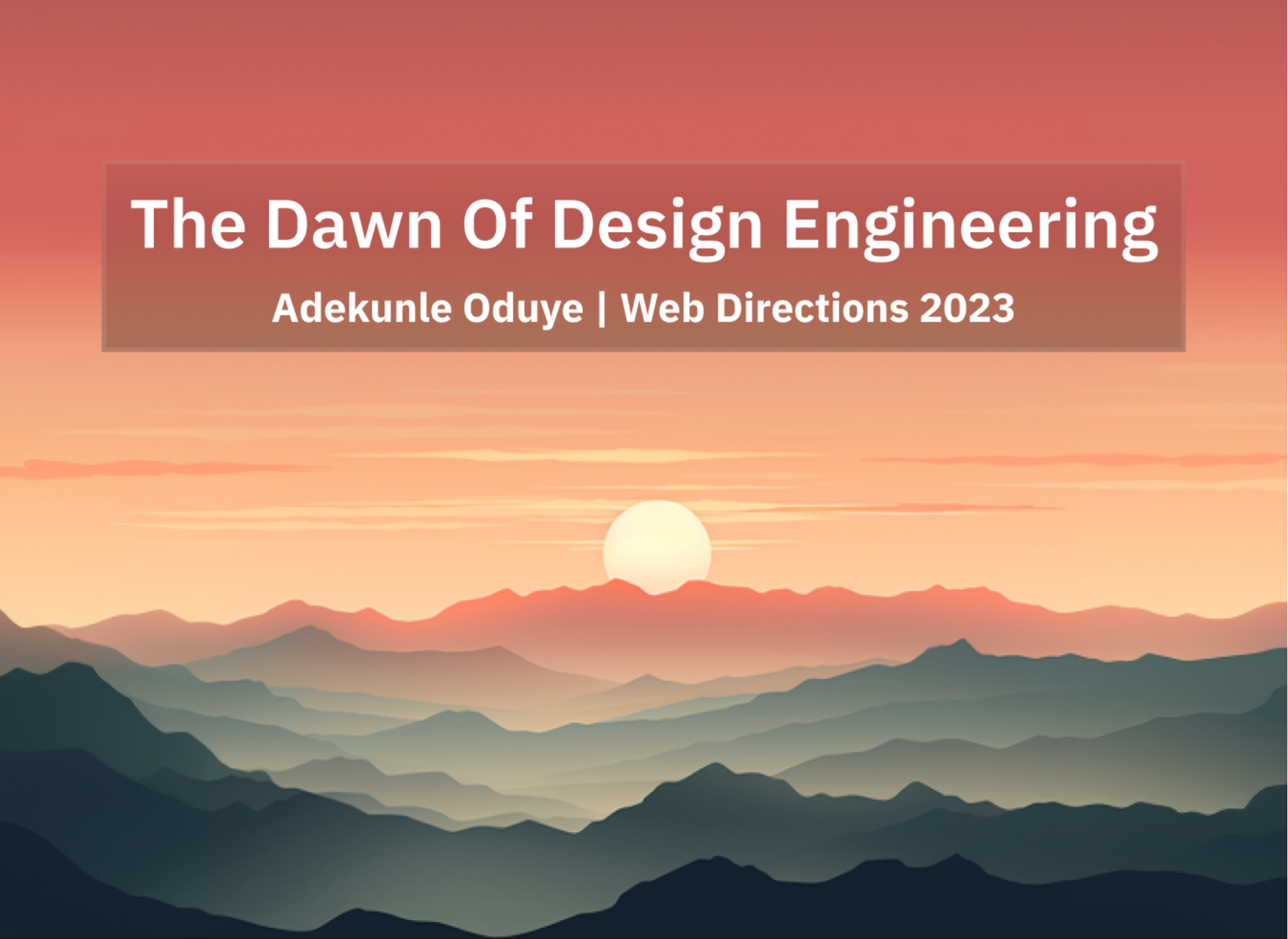
The Dawn Of Design Engineering

Adekunle Oduye | Web Directions 2023



Talk Overview

- The meaning of design engineering and the key roles within them
- The four principles of design engineering
- How design engineering can positively impact the product development process

Link to Slides



https://bit.ly/design-engineering-web-directions-2023

My Career Journey

Roles I've had in the past:

- Web Designer
- Front-end Developer
- Product Designer
- Front-end Engineer
- Design Technologist
- UX Engineer

The industry wants you to put you in a box

But very few of us are one dimensional

What is a Design Engineer?

It's the specialization in the intersection of design and engineering.

Design Engineer Principles

Value

Does our product add value and solve problems for our users?

Usability

Can users figure out how to use it?

Feasibility

Will engineers be able to build the features within the time, resources, and technology available?

Business Viability

Will this solution benefit the business?

There are conflicts in being a "unicorn"

People try to impose their limitations on to others

It isn't easy being design engineer

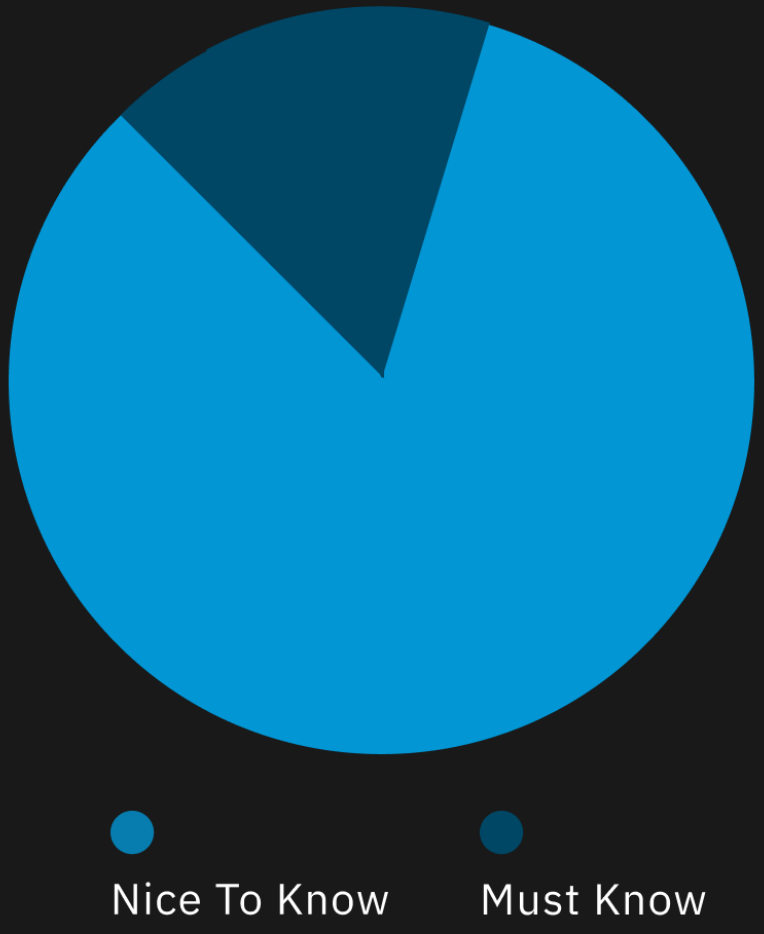

“If you’re passionate,
you can learn anything.”
- Eddie Lou, Design Engineering Handbook

Pareto's Rule or 80/20 Rule

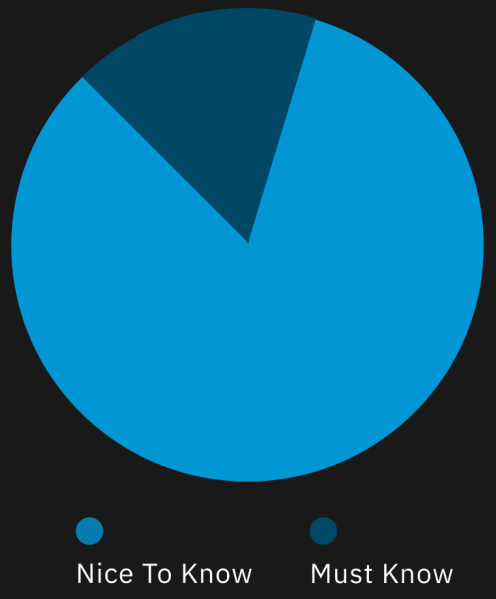
Roughly 80% of the effects come from 20% of the causes.

https://en.wikipedia.org/wiki/Pareto_principle

Visualize pareto principle for a skill

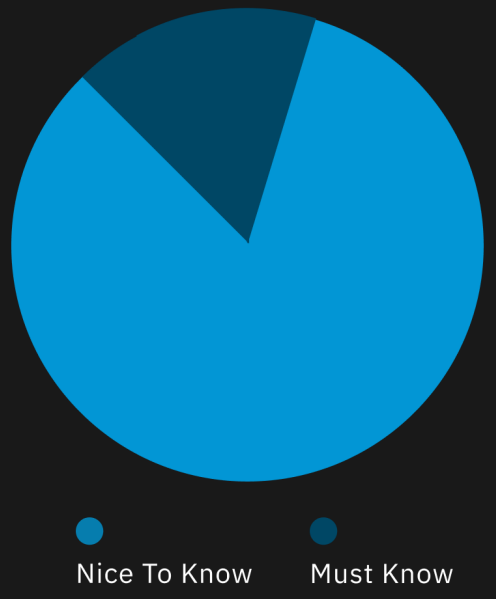


Design: Must know



- Line
- Color Theory
- Space
- Shape
- Typography

Engineer: Must know



- Data types
- Operators
- Conditionals
- Functions
- Objects

Johnny Kim: Navy seal, doctor and astronaut



Credits: Allkpop Article | Interview

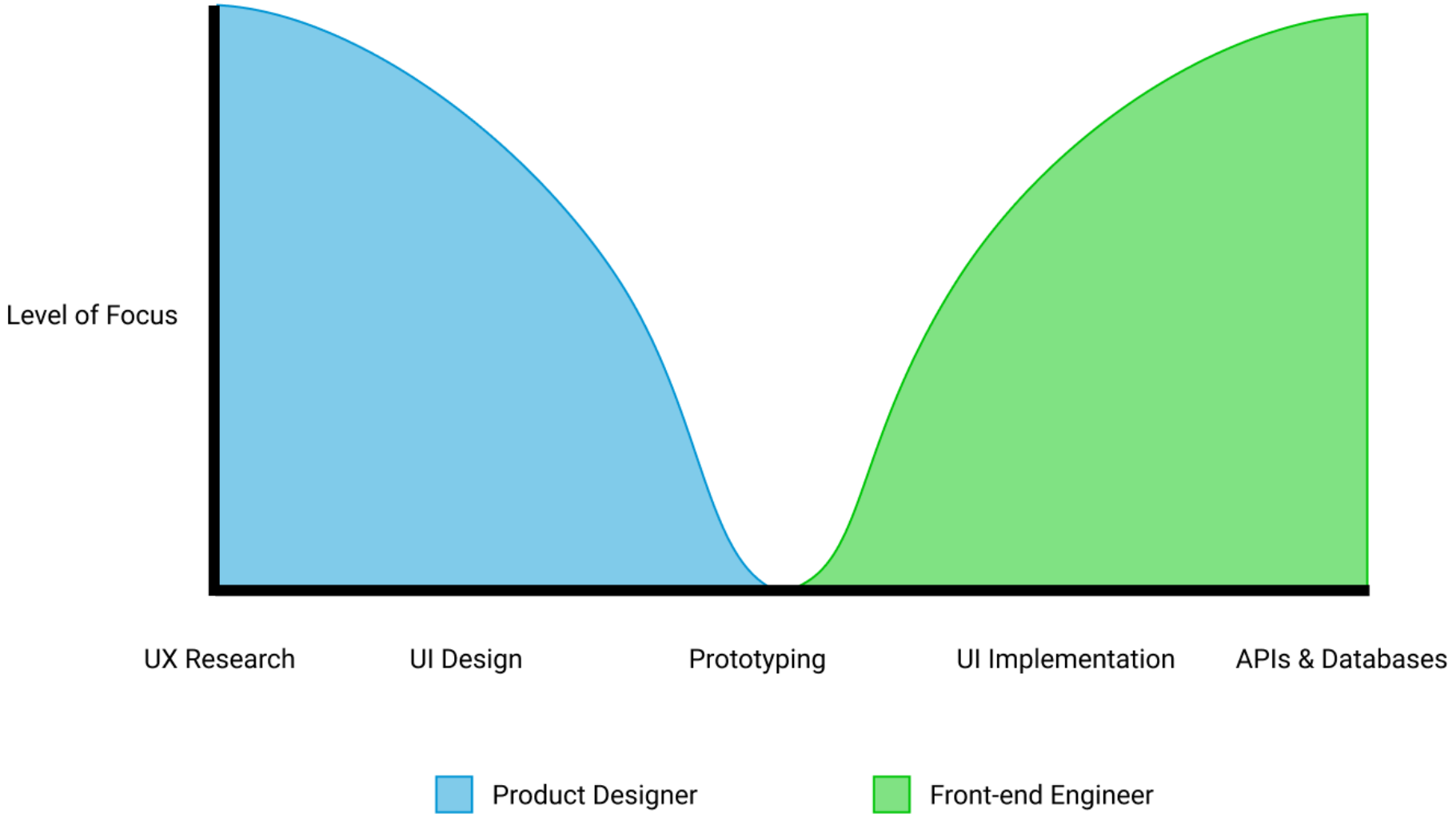
As products get more complex, the separation between design & engineering grows wider

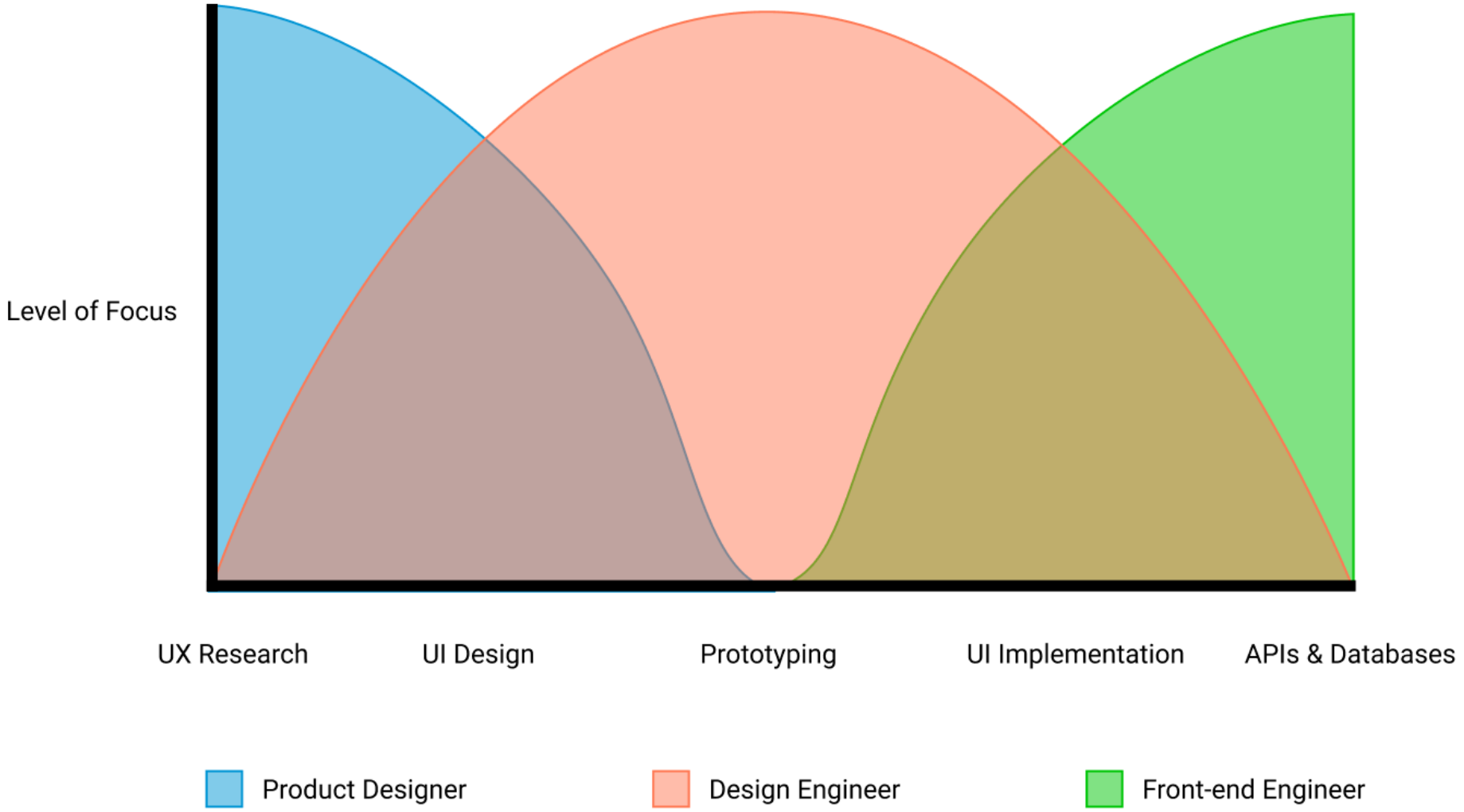
Positives of having design engineers:

- Improve cross-functional communication & collaboration
- Reduce friction
- Allow exploration of innovative ideas

Improve cross-functional communication & collaboration

By default, design engineers are bilingual.


Level of Focus
UX Research
UI Design
Prototyping
UI Implementation
APIs & Databases
Product Designer
Front-end Engineer


Level of Focus
UX Research
UI Design
Prototyping
UI Implementation
APIs & Databases
Product Designer
Design Engineer
Front-end Engineer

Build the right thing
then the thing right

Design engineer key roles:

- Design Technologist
- UI/UX Engineer

What does a Design Technologist do?

Rapid prototype ideas in order to validate future features.

What does a UI/UX Engineer do?

Develop production-level code that is accessible, performant and scalable.

Design engineer focus areas:

- Tooling
- Prototyping
- Design systems

Tooling: Brand color values via Slack

- PR Create SlideCard Component
- Made adjustments to PR based on feedback

Friday, August 14th

Today:

- Create PR for SlidingCard a11y enhancements and SwitchAccountsPane
- Start on Recreate Notification Menu

Blockers:

- Have to work on a couple Wink tasks and create development goals today

(edited)

Thursday, August 20th

Adekunle Oduye 🌴 3:17 PM

https://mailchimp.slack.com/files/UHV364L9J/F01969GTZQV/image.png

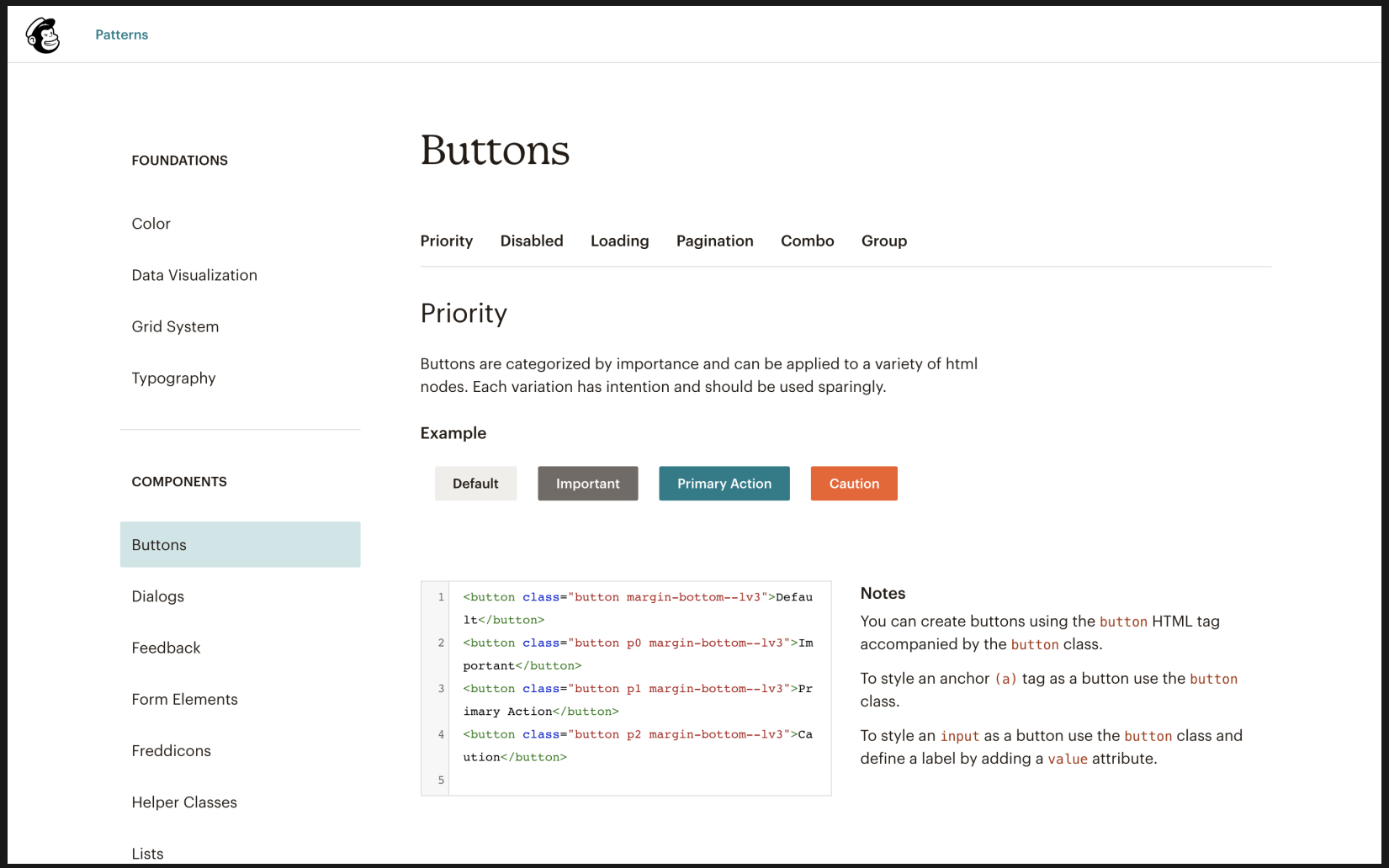
image.png



Jot something down

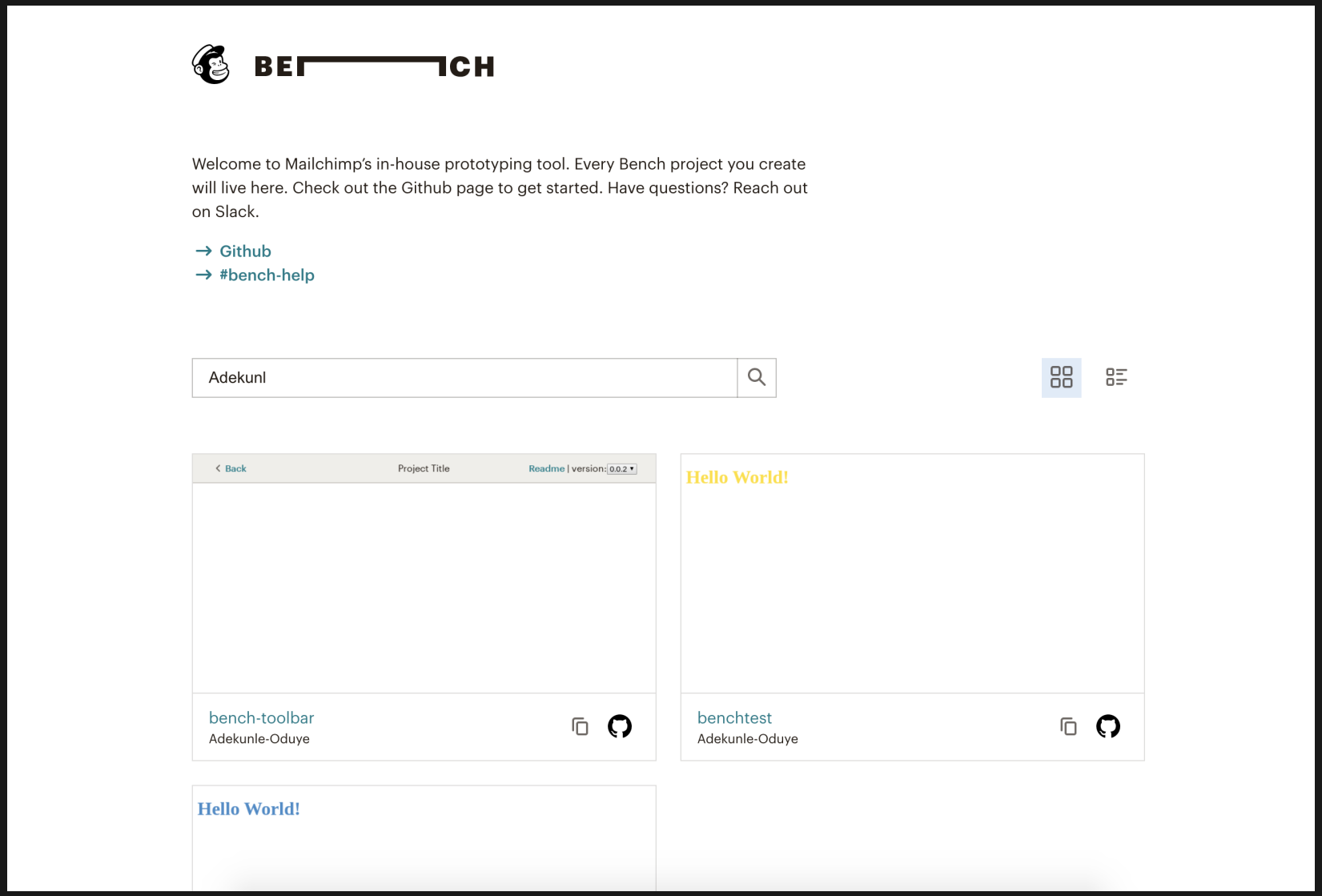
B I Aa

Mailchimp's Design System



Credits: Documentation Site

Bench: Mailchimp's Prototyping Tool



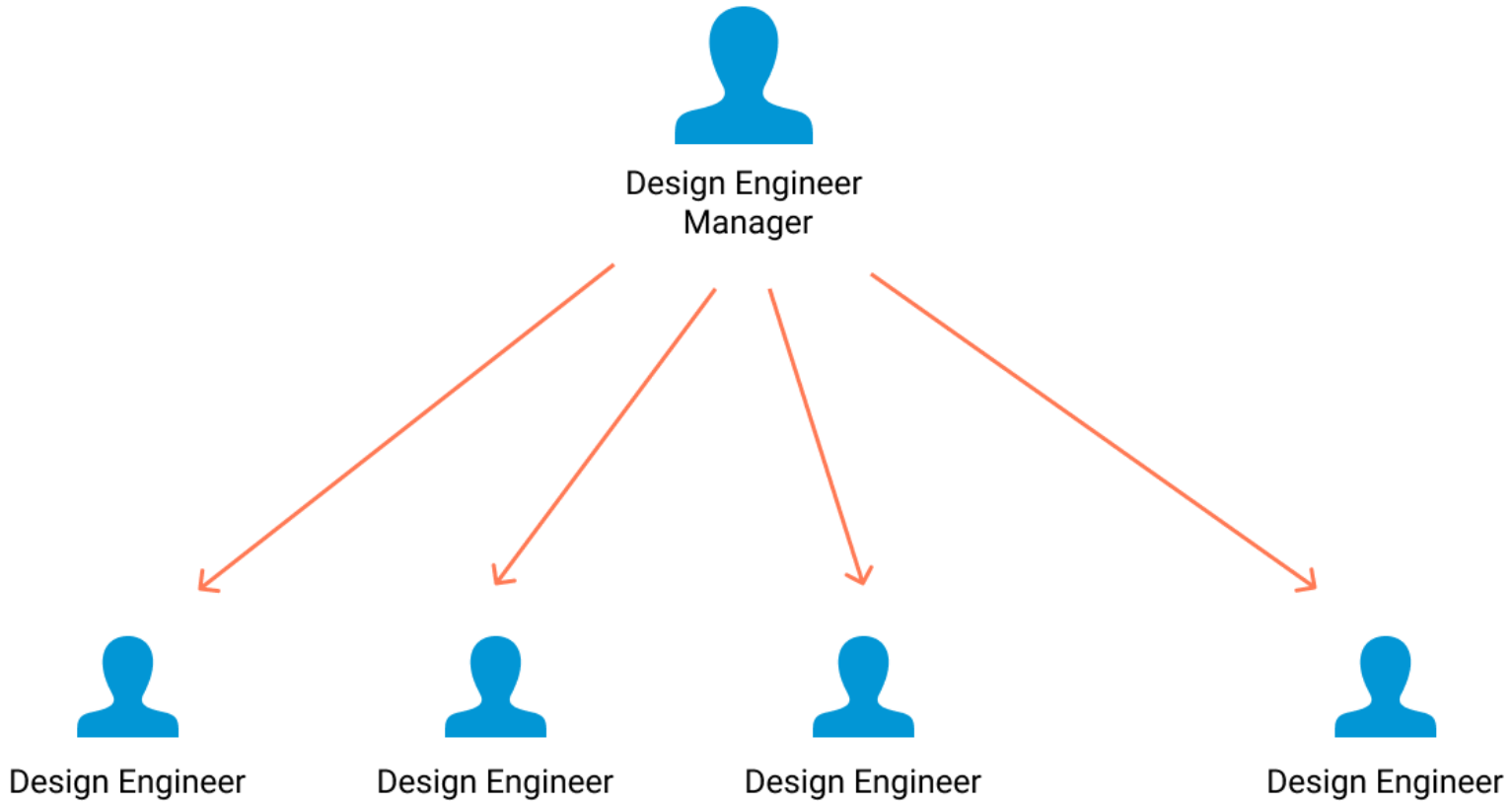
Reduce friction

Incorporate design engineers into organization

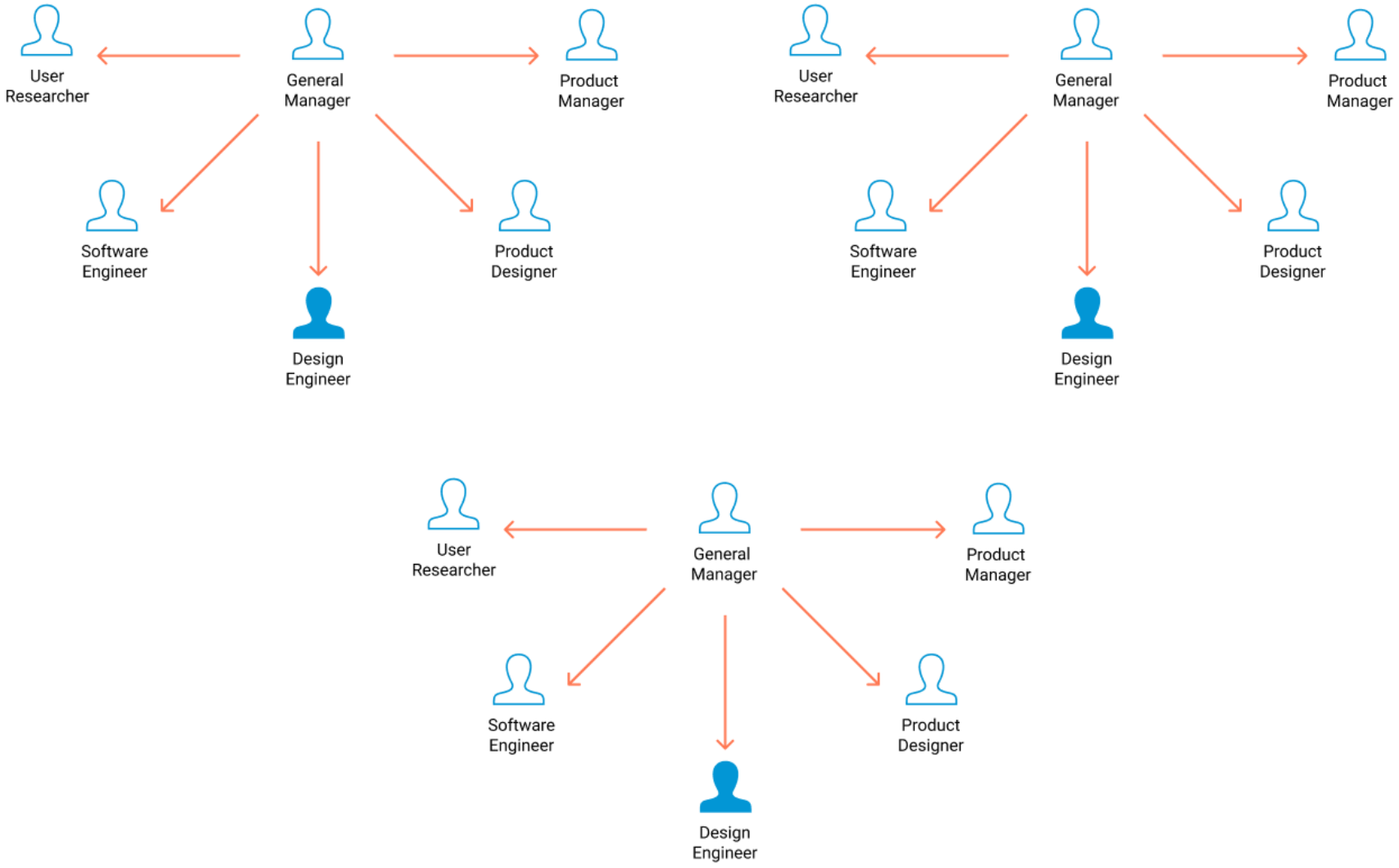
Should it live under design, engineer or product?


"Organizations that recognize the opportunity in the gap between design and engineering will outpace those that fail to invest in it."
- Natalya Shelburne, Design Engineering Handbook

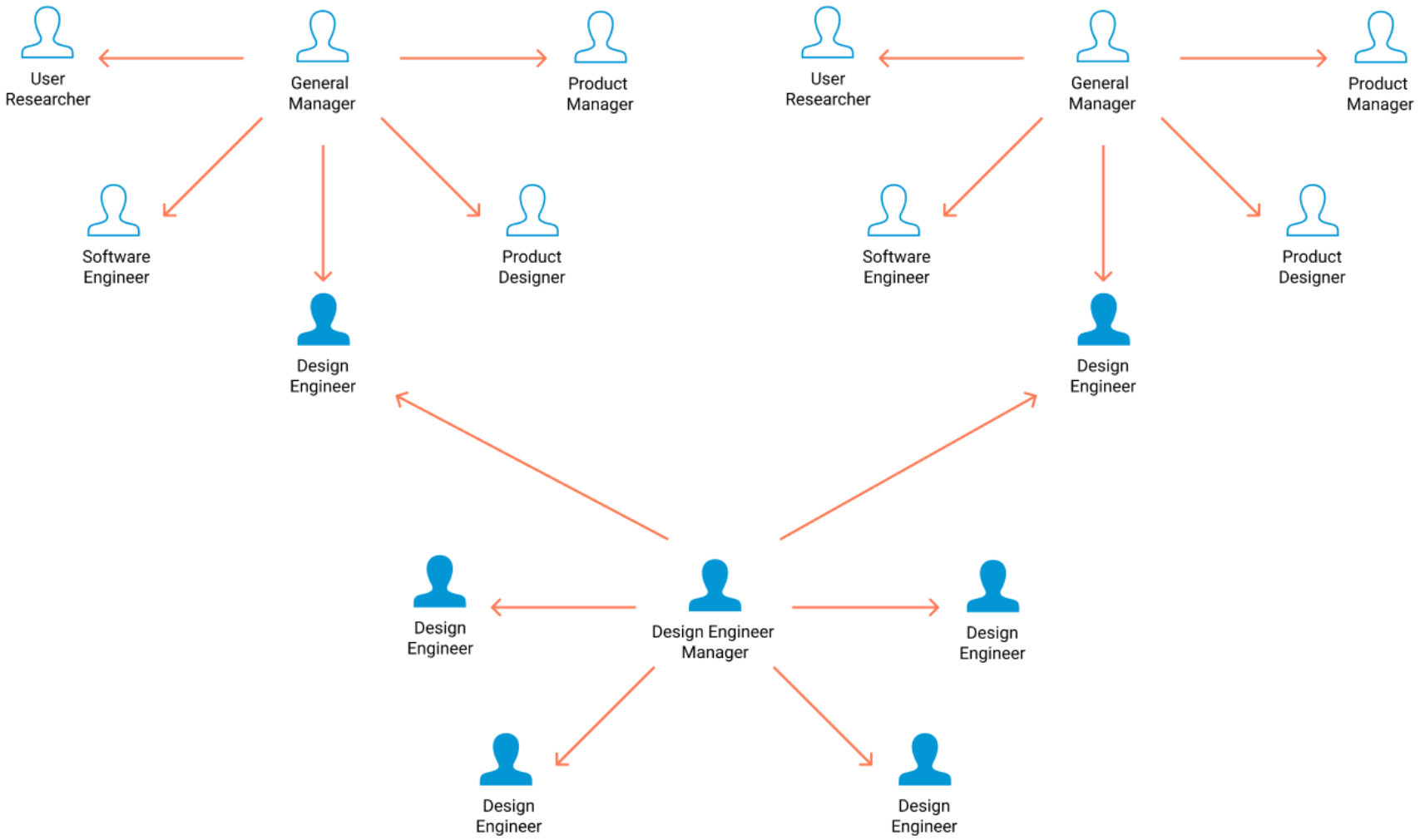
Centralized model



Decentralized model



Hybrid model

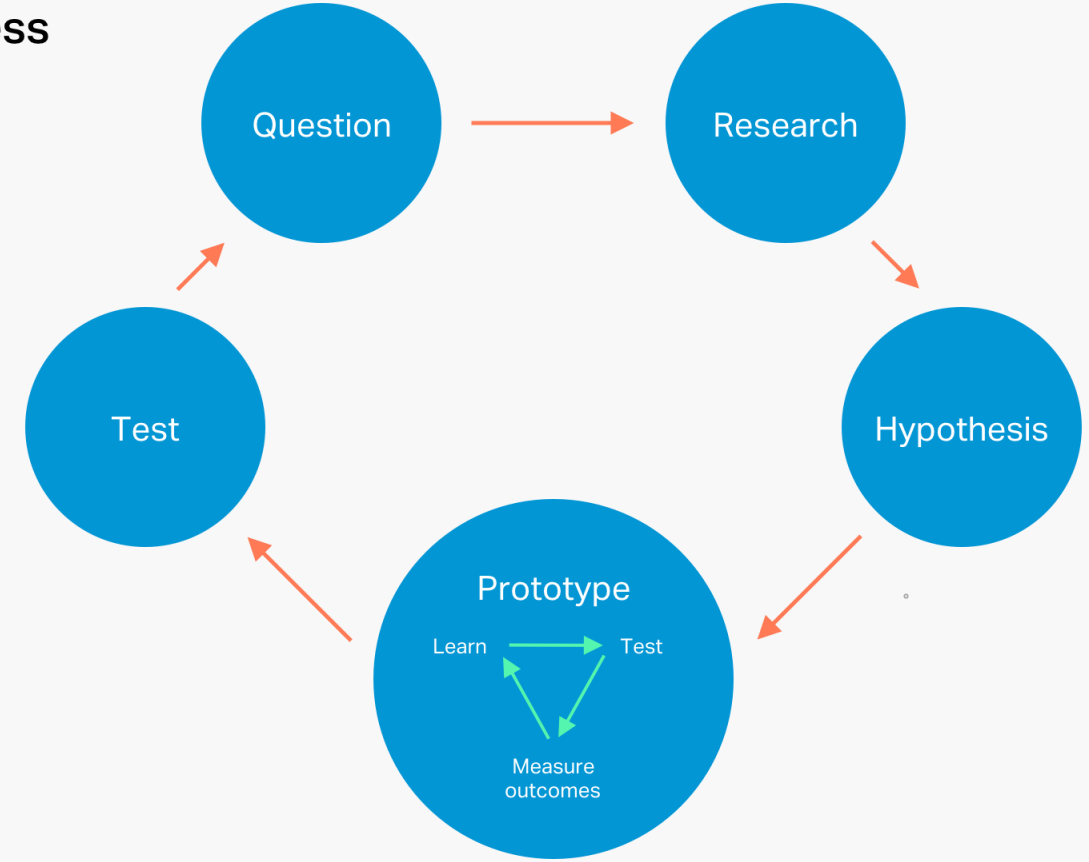


"Technologies come and go, but the willingness to be curious is a lasting key trait for all members of a thriving design engineering organization."

- Kim Williams, Design Engineering Handbook

Allow exploration of innovative ideas

Design Process



The iterative cycle of the design process

www.designbetter.co/design-engineering-handbook

Noise / Uncertainty / Patterns / Insights

Clarity / Focus

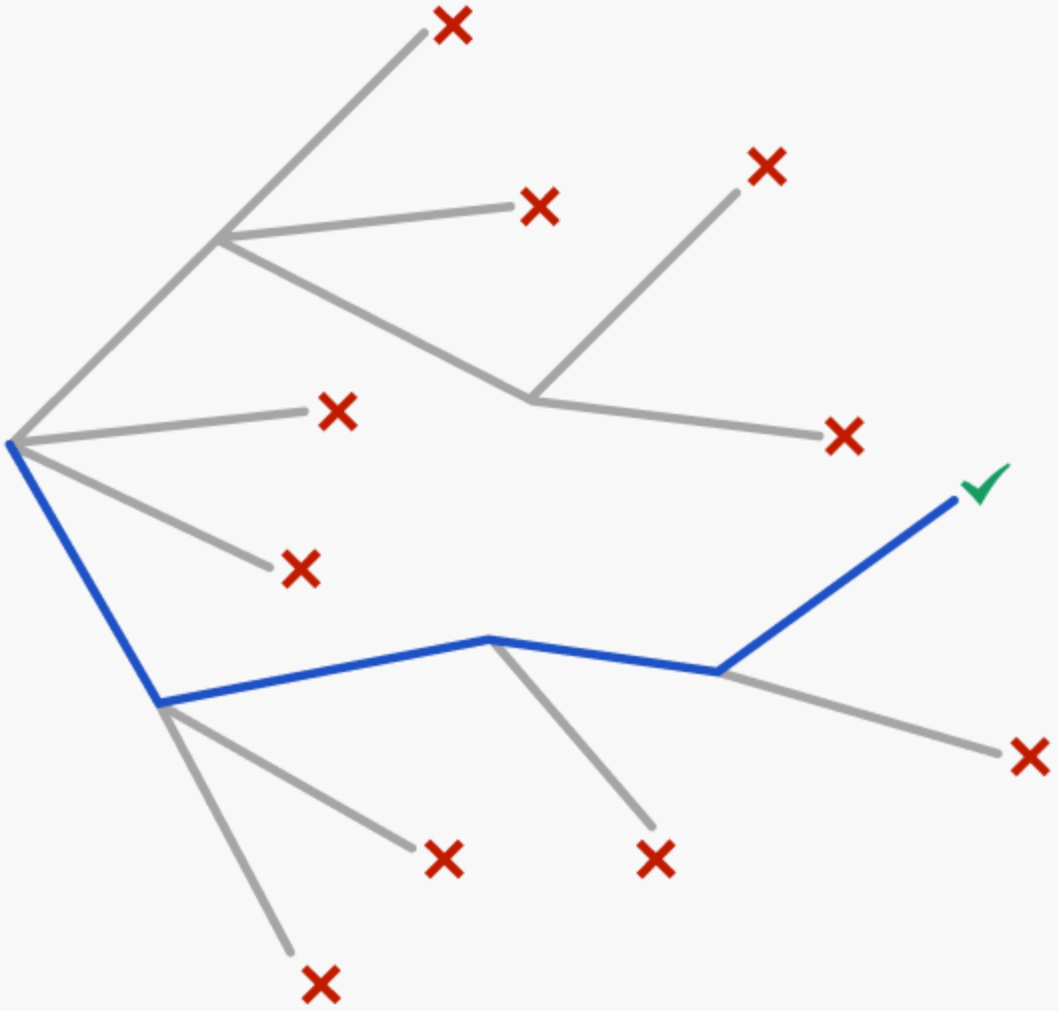


Research & Synthesis

Concept / Prototype

Design

The Design Squiggle (Fuzzy front-end a.k.a.) [source]



Branching exploration [source]

Handoff Process



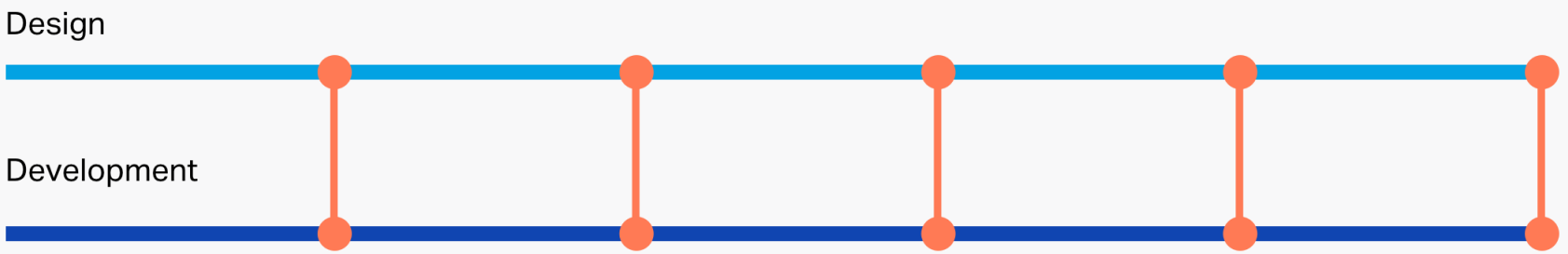
Handoff

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Handoff Process



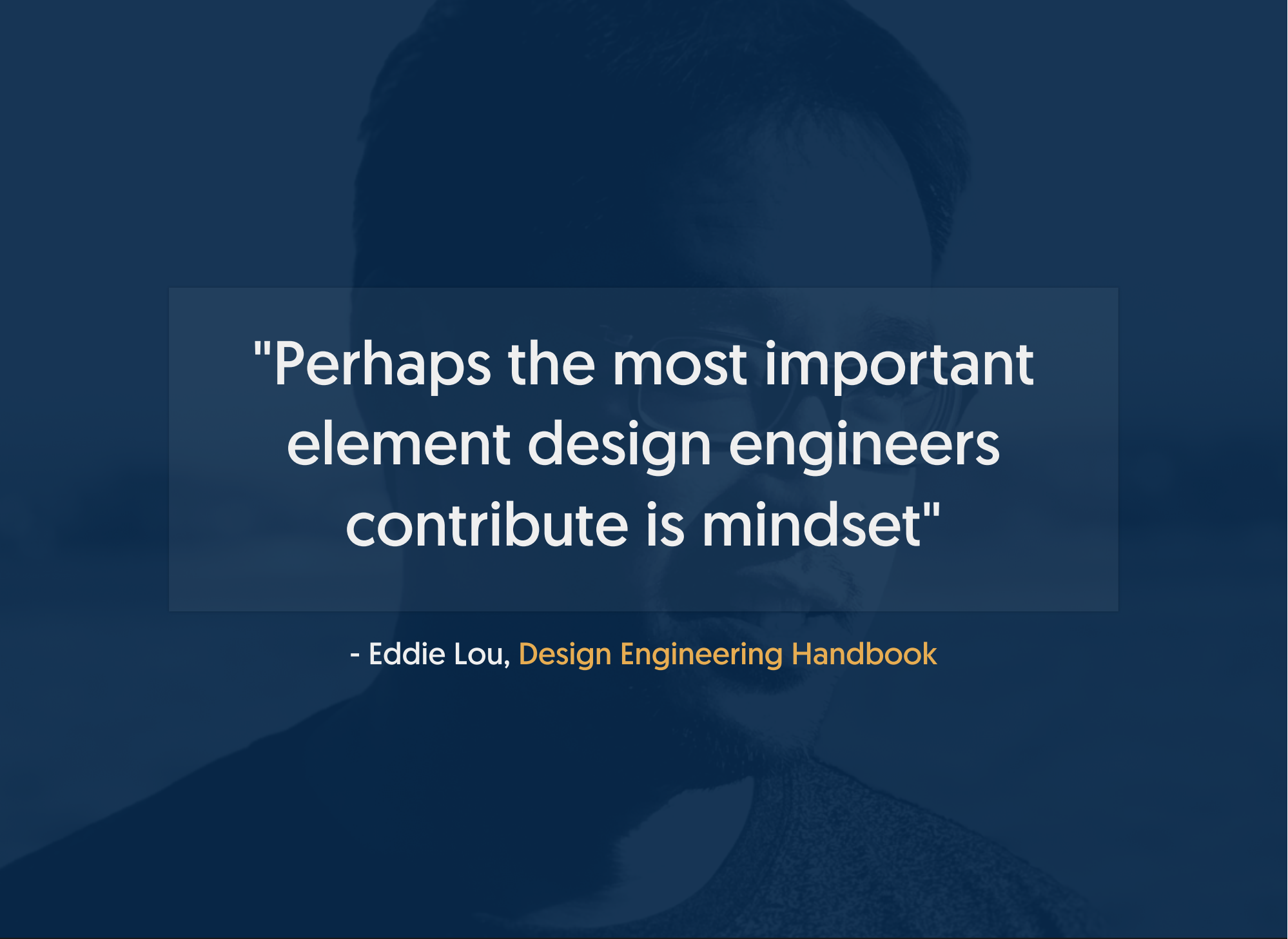
Handshake Process



Handoff vs. Handshake

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Being comfortable with ambiguity is a **must**.



"Perhaps the most important element design engineers contribute is mindset"

- Eddie Lou, Design Engineering Handbook

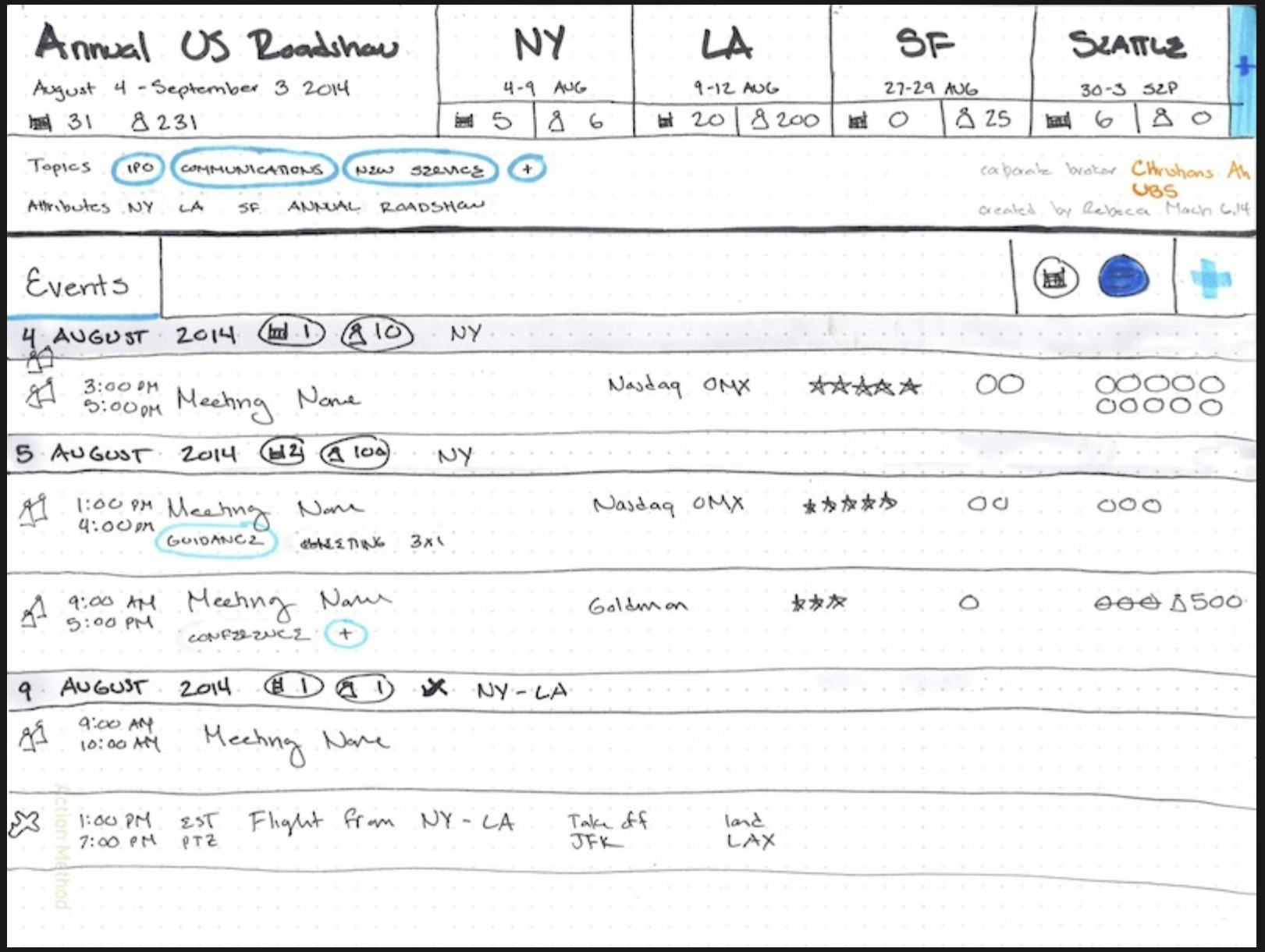
Prototyping


“If a picture is worth 1000 words, a prototype is worth 1000 meetings.”
- Tom & David Kelley, IDEO

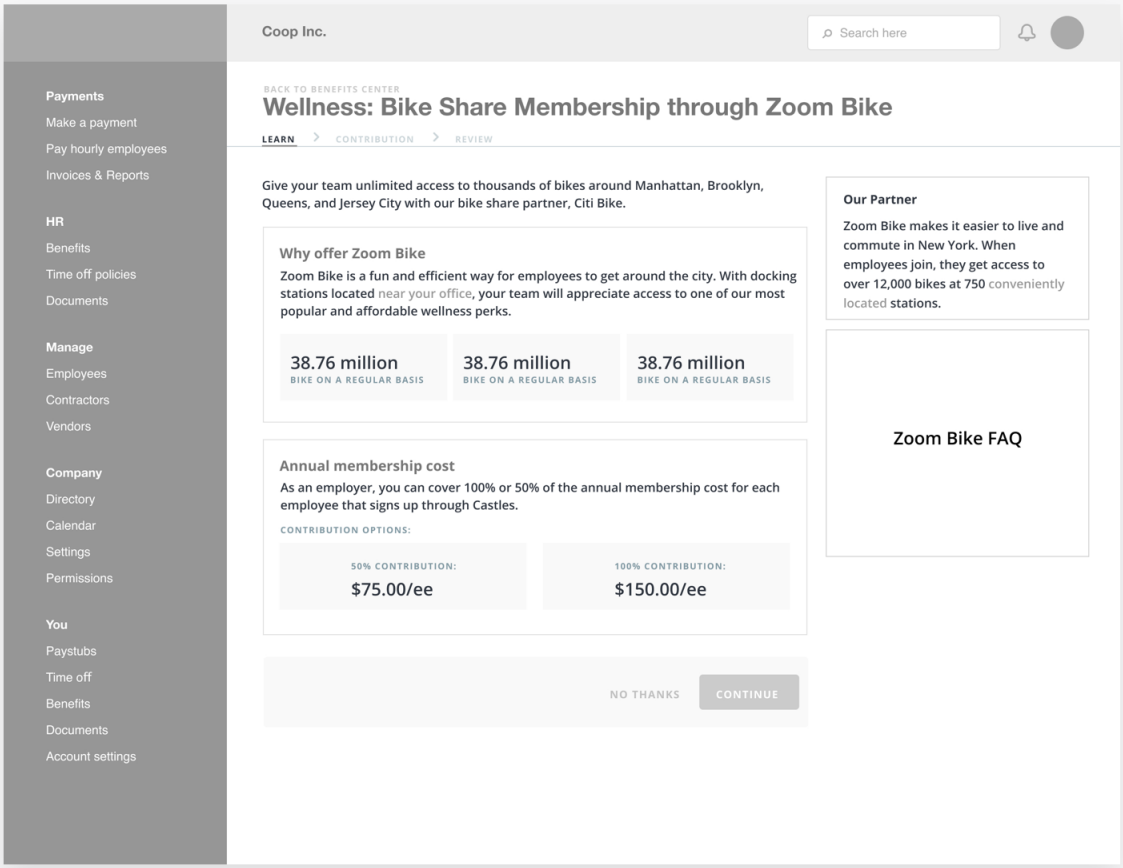
Prototyping benefits

- Selling ideas to stakeholders
- Uncover potential edge-cases
- Improve micro-interactions

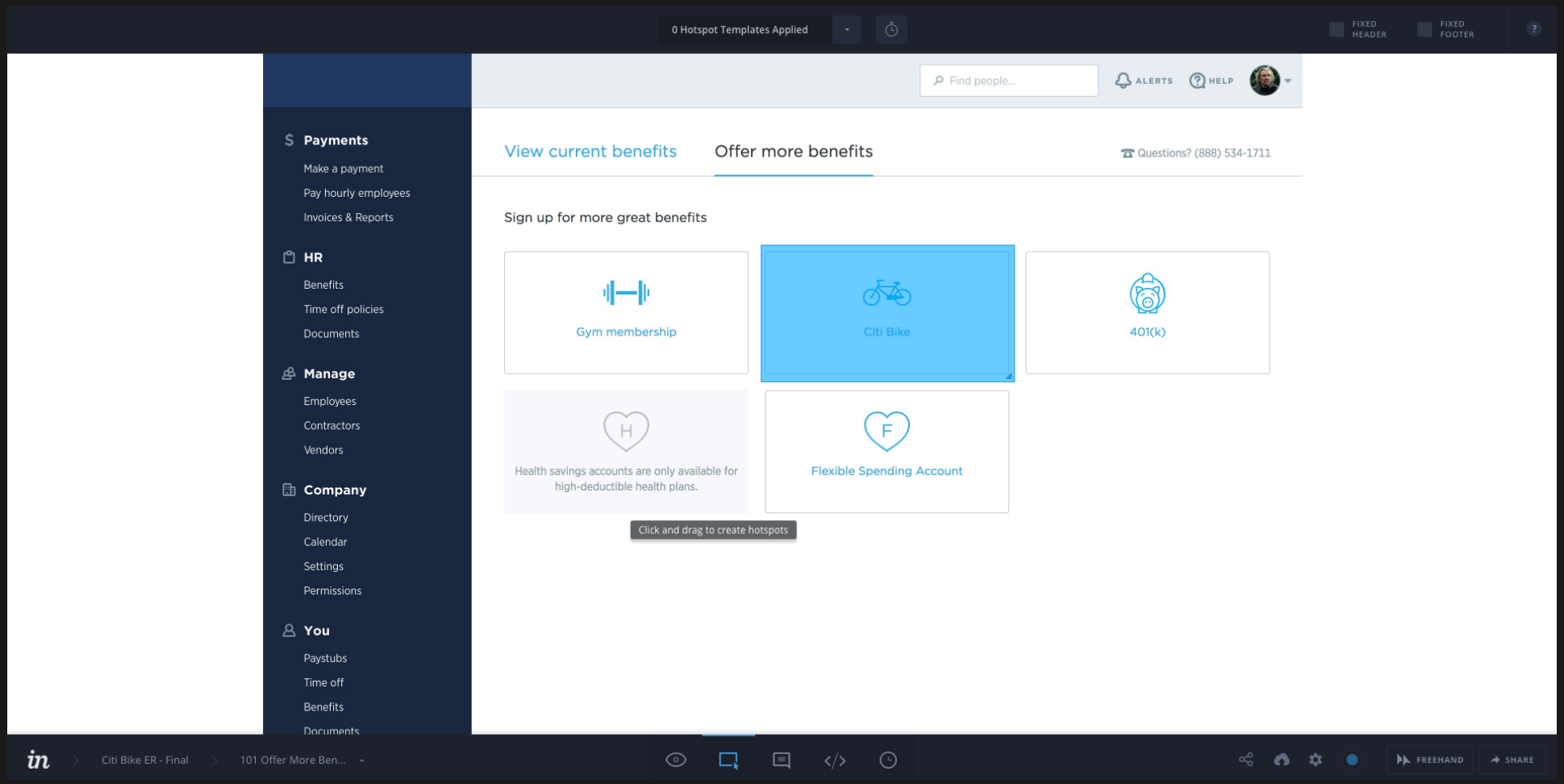
Prototype Methods



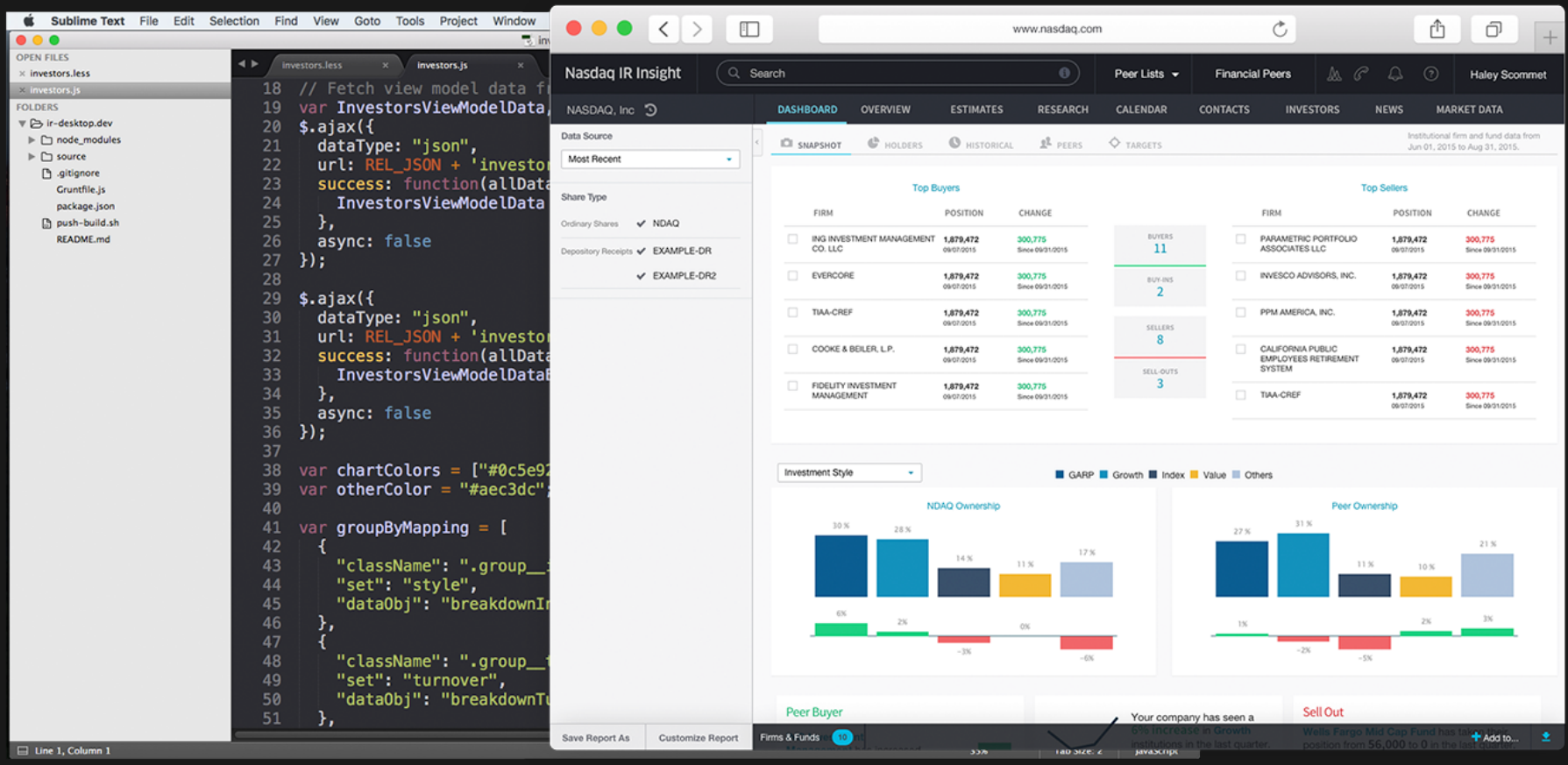
Paper Prototype



Wireframe Prototype



Static Prototype - Invision



Interactive Prototype

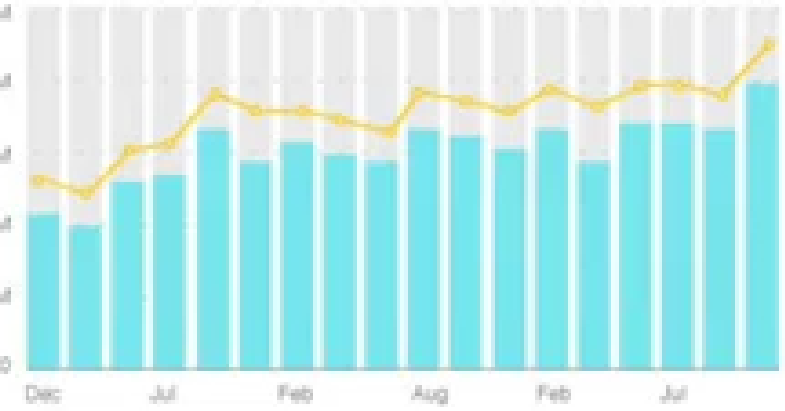
prototypes.prodaqo.mx/IR-Desktop/release/v0.0.18.1/build/investors/#

The Nasdaq OMX Group, Inc.

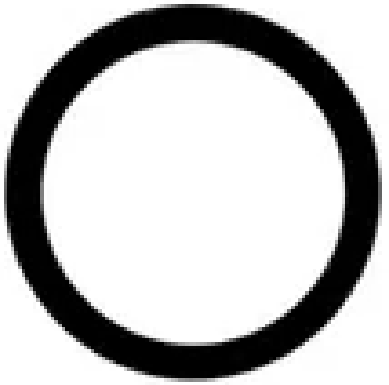
Search

ESTIMATES | RESEARCH | CALENDAR | CONTACTS | INVESTORS | OWNERSHIP | NEWS

wnerships



Portfolio Breakdown



Portfolio Size: 100 Billion

Financials:	43%
Energy:	21%
Health Care:	10%
Industrials:	8%

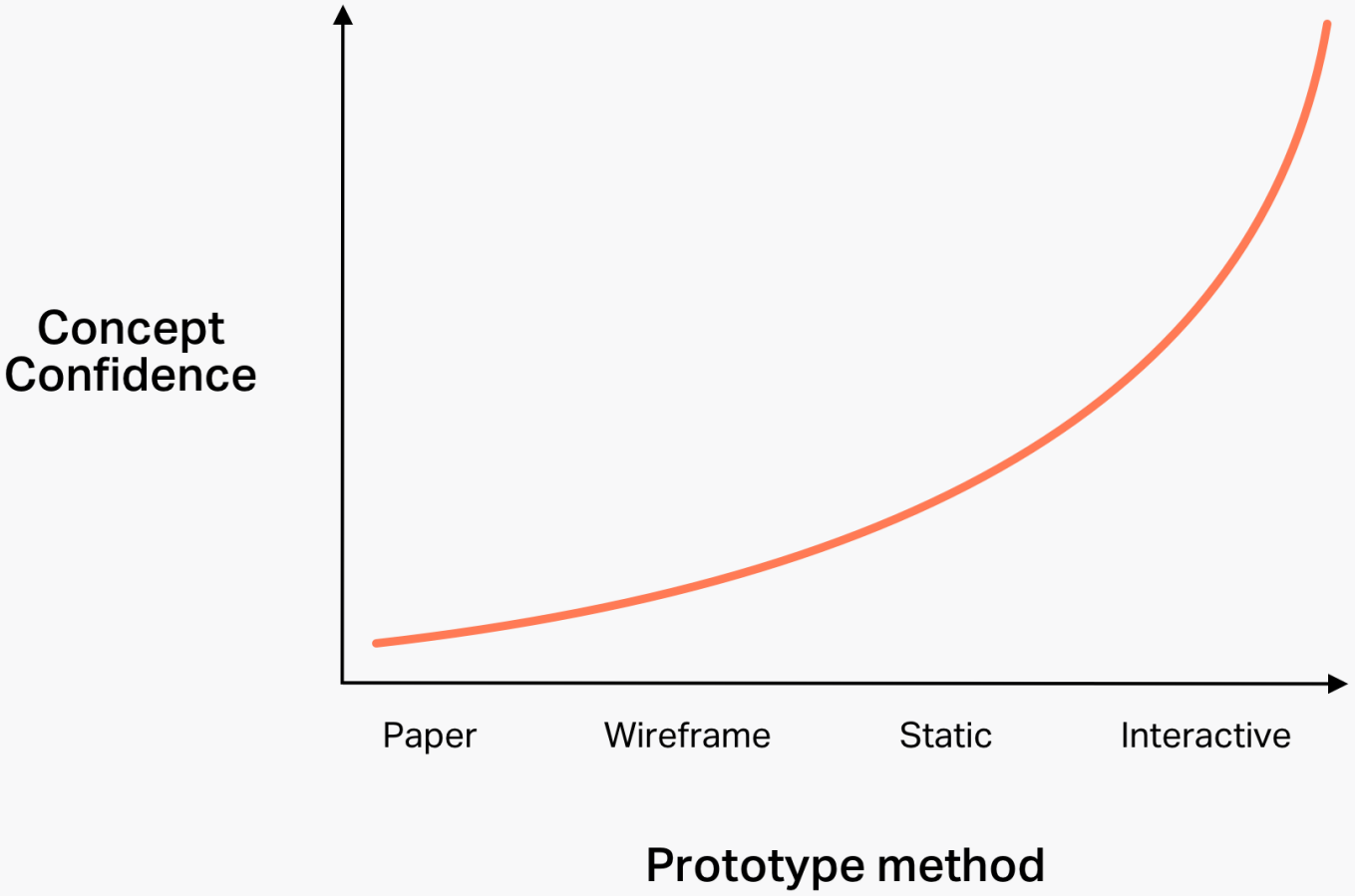
Top 25 Holders

FIRM	POSITION/ INTERACTIONS
TIAA-CREF	5,707,940 10/15
Evercore Trust Company, N.A.	4,822,114 10/15

Upside

FIRM	POSITION/FWP	UPSI
Roaring Blue Lion Capital Management, L.P.	96,700 166,500	69,8
Wells Fargo Bank, N.A.	84,598 4,592,313	4,507,7

The idea should drive which prototype method to use.



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Prototype hypothesis

- Hypothesis Statement
- Success/failure criteria
- Results

💡 **What-you-see-is-what-you-get messages can be displayed seamlessly alongside existing messages in the database.**
✅ Older messages continue to display correctly alongside newer WYSIWYG-formatted messages.
✅ The search infrastructure can be modified to return results from both formats.
❌ All old messages need to be migrated to a new format to support WYSIWYG.
Result: Success. This was one of the early prototypes that paved the way for the large WYSIWYG engineering project.

Example of hypothesis: https://slack.engineering/prototyping-at-slack/

Don’t get too attached to the design.

Don’t get too attached to the ~~design~~ prototype.

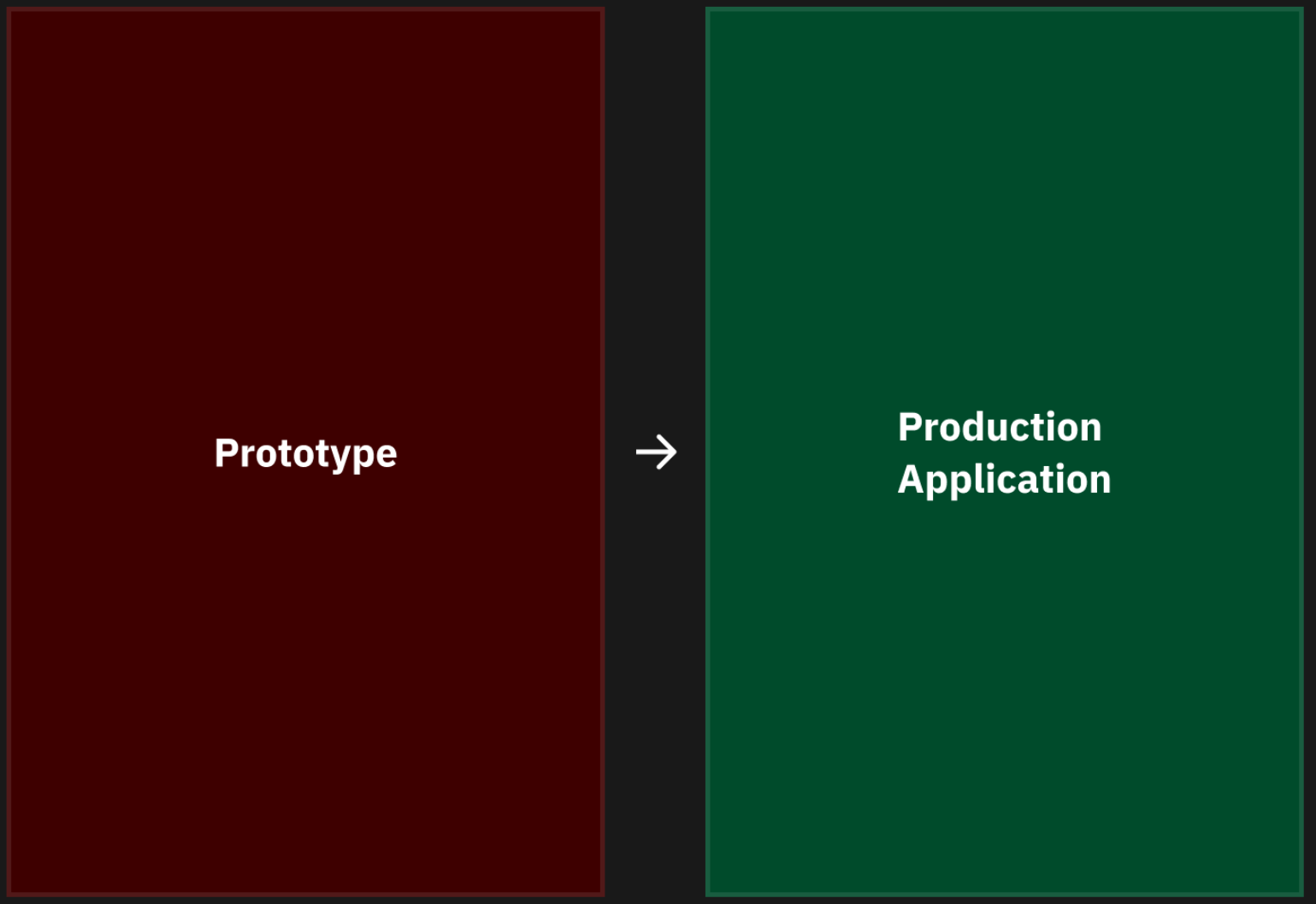
Design isn't finished until it is in production.

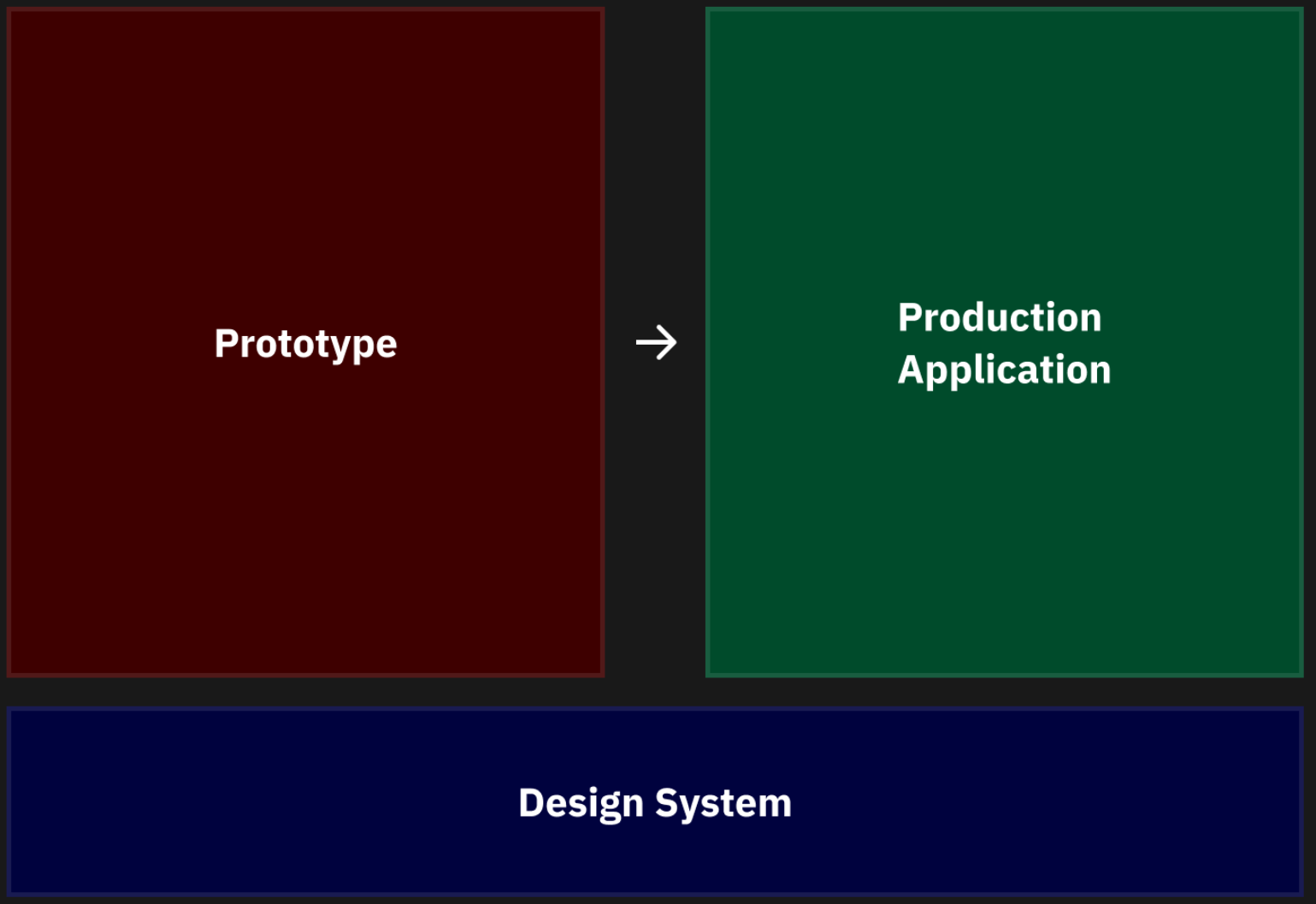
Utilize a prototype for production.

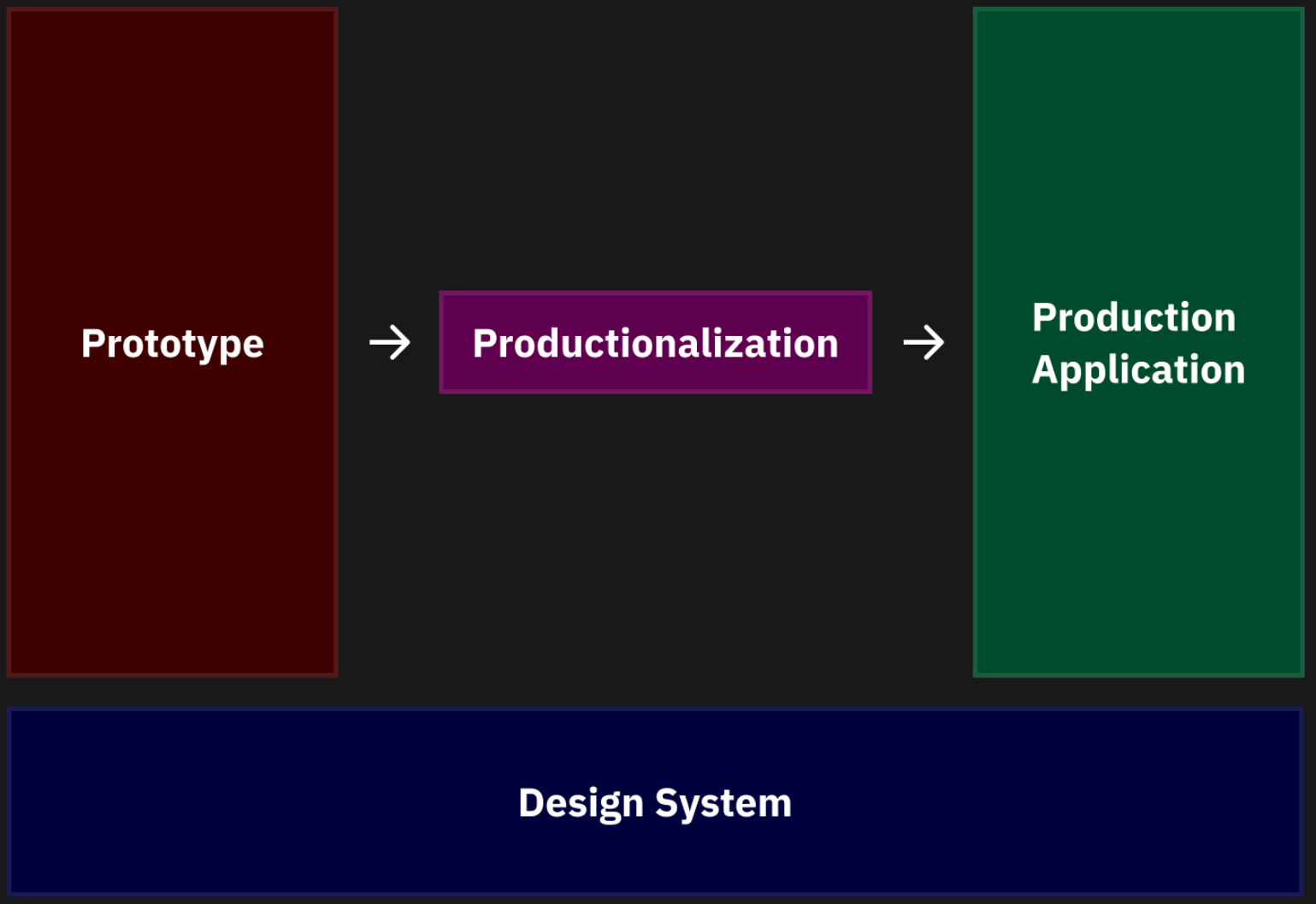
What is productionalization?

"The process of turning a prototype of a design into a version that can be more easily mass-produced."

https://en.wikipedia.org/wiki/Productionisation


Prototype
Production
Application


Prototype
Production
Application
Design System

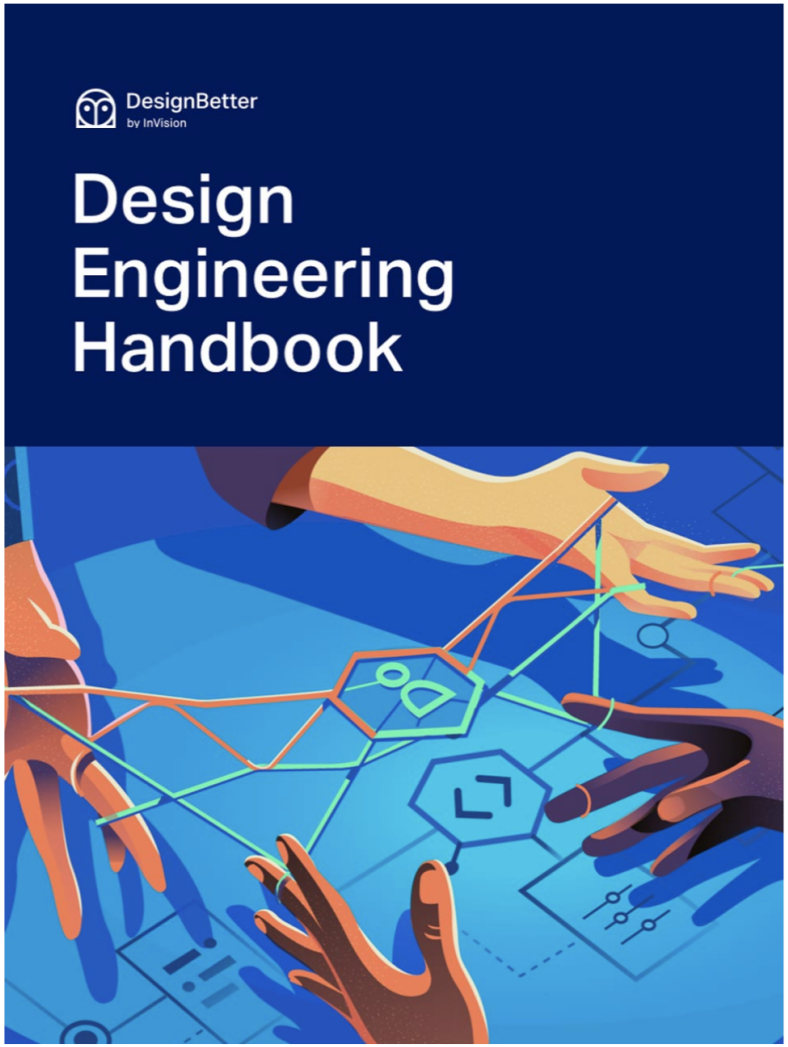

Prototype
Productionalization
Production Application
Design System

Takeaways

Create space for hybrids to thrive.

Adjust the process to allow time for exploration & validation.

Focus on building the right thing then the thing right.



Design Engineering Handbook

By Natalya Shelburne, Adekunle Oduye, Kim Williams, Eddie Lou

Learn how *design engineering*, an essential discipline to creating great products, brings together form and function. Written by industry leaders from Indeed, *The New York Times*, and **Minted,** this book will help you integrate engineering and work more efficiently as a team.

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