Mastering the art of crafting code-aligned UI kits





Jan Toman

Design System Lead, Productboard





Jan Toman

Design System Lead



productboard We're hiring! Productboard helps product managers understand what customers need, prioritize what to build next, and rally everyone around the roadmap. Previously working at C Livesport Czech News Center 22 00







🄰 @HonzaTmn



Let's talk about design systems









(Documentation)

Source & assets: SuperFriendly





(Documentation)

Source & assets: SuperFriendly









Component Library





How component API choices affect usability

Making changes (and not breaking things)

What will we learn today?





Aligning Figma with code





How component API choices affect usability



 \diamond

What's component API?

The way each component can be controlled and configured.



Component API in React

•••

>

<ButtonPrimary size="large" icon={<FloppyDiskIcon />} isSubmit onClick={saveFormCallback}

Save form </ButtonPrimary>



Component API in Figma

The way each component can be controlled and configured.



Layers

Not to confuse with Figma REST or Plugin API!



Variant controls



Component API example: AlertBanner

8 Describe your message

A longer message description, that could stretch up to more lines when needed. Like this one, for example.

X

MESSAGE ACTION SECOND ACTION



Layers

Variant controls



Previews in assets panel



Designing APIs for components that only people who will only use our design system.

I will use is a completely different discipline than creating components that are understandable to



API approach #1 – Optimized for me

All variants we need

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Our component definiton

| ButtonStatus | | | | |
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- Simple for maintenance
- More visual flexibility

Consumer using a component



Cons 👎

- Need to know aspects of visual language
- Need for "how to use" guideline
- More cognitive load for change
- It will lead to inconsistencies (eventually)



API approach #2 – Optimized for others

All variants we need

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Our component definiton

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Benefits 👍

- It's clear what's supported
- Intuitive component API
- No need to know design language
- Less cognitive load
- No room for incosistency Centralized control over visual look



Consumer using a component



Cons 👎

- Harder for maintenance
- Possibly larger library size



Knowing all components and variants in the system

% The inner structure of each component

Solution Contemporary Contempor

Hastery in all the Figma quirks & hacks

UI kit maintainer

UI kit consumer

| Yes | No |
|-----|------|
| Yes | No |
| Yes | Some |
| Yes | Some |



Knowing all components and variants in the system

X The inner structure of each component

Solution Contemporary Contempor

Hastery in all the Figma quirks & hacks

UI kit maintainer UI kit consumer

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| Yes | \rightarrow | No | No |
| Yes | \rightarrow | Fading | Some |
| Yes | \rightarrow | Yes | Some |



How should we design API for our **UI kit components in Figma?**

Should it be flexible or constrained?

Will consumers need to know details of product visual language?

What is API approach for our code components?

Will it be used only be me, or also by others?







2 Design Systems Designers

> productboard



(one until August 2021)







35 weekly active editors on our Figma plan

> productboard









Design System Designer

> productboard

Ul kit maintainers vs. consumers



Product Designers UX Writers Design Managers Product Managers Content Editors

•••



If we're able to **save at least 10 seconds everytime a consumer uses a component** from our UI kit, it's more important to **optimize our UI kit for usability** rather than maintainability.



How might we create UI kits that...

...designers will love using? ...won't break with future changes? ...will be aligned with code?



How might we create UI kits that...

...designers will love using? ...won't break with future changes? ...will be aligned with code?

Have each distinctive variant as a separate component

Having button types as variants would require more cognitive load for designers **when looking for a specific button**.

It will improve discoverability of all distinctive variants in the system and speeds up the work with UI kit.

| Layers Assets [•] | | De | eck ∨ |
|----------------------------|---|----|------------|
| Q almighty button | × | Ξ | Ц . |
| Label | | | |
| Almighty button | | | |







It's slow to select the right button 🕩





When to consider splitting variants into more components?



Some properties are not applicable to all component variants

| | Primary | Danger | Ghost | ButtonPrimary | ButtonDanger | ButtonGhost |
|-----------|---------|--------|---------------------|---------------|--------------|-------------|
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| _۱_ | | | | | | |

Some common variants have visually distinctive types or different use cases



Some key variants are more commonly used by consumers



Some variant property causes large number of permutations



Set the most frequent variant as default

Is centered tooltip the most commonly used? Are people using the small buttons the most often?

Having it as a default variant saves clicks everytime when a designer needs to use it.



| Libraries | | | | | | × |
|------------------|----------------------------------|------------------------|--------------------|--|-------------------|---|
| < Tooltip | | | | | | |
| Tooltip content. | Description Available in React. | Total 646 instances | Used by 3 teams | Used in 31 files | | |
| All variants | | | | | | |
| Variant name | | | | Instances (total) \downarrow Detache | es (last 30 Days) | |
| 🚥 Top, Center | | | | 362 | 0 | > |
| - Right, Center | | | | 175 | 0 | > |
| - Left, Center | | | | 43 | 0 | > |
| 📥 Bottom, Cente | er | | | 30 | 0 | > |
| 🚥 Top, Start | | | | 12 | 0 | > |
| | | | | | | |



Provide common pres for complex compone

Tables are great example of very complex component. It's hard to use for designers, plus there is no good support from Figma to handle tables.

How might we make it easier for designers to compose tables?

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|----|------------------------------|--------------------------|------------|-----------------|
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When used by consumers: effective way to compose tables

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Cable Column Text

Available subcomponents:

- Table Cell Text.
- Table Header Cell
-

If you want to update properties of checkbox (e.g. change alignment or make text emphasized), select respective row and change the variant there.

Condensed:



How might we create UI kits that...

...designers will love using? ...won't break with future changes?







Designers often don't update the library because they're afraid that their designs and prototypes will break with the update.



Love to pull component updates



4:23 PM · Jun 16, 2021 · Twitter Web App

Source: https://twitter.com/joeyabanks/status/1405169039161319427

Resetting overrides

| 000 | Sugar Rush Vanellope von Schweetz 1 ⊡ So that would be a nice feature - to be able tor revert back to old views - to have just in case similar to how google drive works |
|-----|--|
| RR | Hogwarts Rowena Ravenclaw 6 ■ Hi is there the ability to do a multi-select dropdown field? For example, I want to assign engineering teams to the feature |
| | Berk Village Toothless 1 I Hey, I just forgot to mention. Another thing that bothers me is that I need to look to the right side of the screen to process the notes. |
| 2 | Avengers Tower Tony Stark 1 UI is absolutely beautiful, but sometimes the grey-on-white is somewhat hard to read. |

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Before update



After update



Preventing breaking changes

Base components







Canvas organization



Setup page with components examples

Great way to not just see all components in one place, but also seeing how they affect each other.

Bonus: It's prepared for possible automated visual regression testing in the future (e.g. via Figma REST API).





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Source: Github Primer Web UI kit


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How might we create UI kits that...

...designers will love using? ...won't break with future changes? ...will be aligned with code?





Component Library



Design tokens





What are design tokens?







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Tips and trick for aligning design tokens in Figma and in code



 \diamond

Always add name of the token to Figma style name

It will help developers to quickly get a name of the **code variable directly from the Figma Inspect panel**.

If you need to support more formats of code variables, pick the one that has the most developers in the company.

Note: Adding code variable name won't work, because descriptions are not visible in Figma Inspect panel.



Other examples

| <pre>/* Elevations / Level 2 - Medium [boxShadow.level2] */ box-shadow: 0px 3px 10px rgba(63, 71, 79, 0.15);</pre> | <pre>/* Foreground/Base [color.foregroundBase] */ color: #30363C;</pre> |
|--|--|
| <pre>/* New brand / Midnight 900 [color.midnight900] */ color: #000C2C;</pre> | <pre>/* Fields/Outline [boxShadow.fieldsOutline] */ box-shadow: inset 0px 0px 0px 1px #D4DBE1;</pre> |



Leverage tooling to keep design tokens in sync automatically











What about components?



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Align component API across different implementations

It won't be perfectly aligned because of tooling gap and imperfections, but there is no need to have "type" in React and "variant" in Figma.

Make the connection clear whenever possible.



<ButtonPrimary icon="save" size="large"

· · · · >

Save form </ButtonPrimary>







I absolutely love how @figmadesign's variants functionality has allowed us to better align with code.

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9:46 PM - Aug 2, 2021 - Twitter Web App

Source: https://twitter.com/chrisd008/status/1422282553545957384



When it comes to working on design systems, one thing I've learned is how much of a positive difference it can make to match variant properties & names in Figma with what's reflected in code. Any opportunity to bring designers & engineers closer always feels like such a big win.

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6:51 PM · Oct 1, 2021 · Twitter Web App

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https://medium.com/eightshapes-llc/crafting-ui-component-api-together-81946d140371





What's our process for bringing component API in Figma closer to our code?



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Designers collaborate on component API with developers











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Redlines in Figma

N Specs in Notion

Alternative hover label

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STEP 4

Adjust Figma variant properties to match agreed component API.

Design Systems Designer

```
type Props = Pick<
  ButtonPrimitiveProps,
  'external' | 'href' | 'onClick' | 'onBlur' | 'title';
> & { -
  children: string; // differs from ButtonPrimitive children type.
  isEmpty?: boolean;
  alternativeLabel?: string; // Label that is displayed on hover
  type: "neutral" | "yellow" | "blue" | "red" | "lime" | "gray" | "purple" | "orani
} & GlobalProps & LayoutProps;
```





API consistency is great, but... When not to align API in Figma with code?

- When it would make a component less usable for designers
- When it causes large amount of variant permutations (e.g. boolean/toggle properties)
- When it's not effectively doable in Figma (e.g. nesting content like in HTML)







Provide great UI kit experience by preventing breaking changes





Co-design component API together with developers





Schema by Figma



Jan Toman

Design System Lead Productboard



