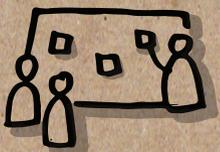


THE
WHAT HOW & WHY
of **DESIGN**
SYSTEMS

by ANDREA HOCK



Adobe Creative Residency



INSTAGRAM
@andrea.hock



YOUTUBE
AndreaHock



MEDIUM
andrea_hock0



TWITTER
@andrea_hock0



DRIBBBLE
andrea_hock

CONTENTS

- 1. What is a Design System**
- 2. Why Use a Design System**
- 3. When to Implement One**
- 4. Step 1: Getting Buy-In**
- 5. Step 2: Design Principles & Plan**
- 6. Step 3: Take a UI Inventory**
- 7. Step 4: Build It**
- 8. How to Iterate**
- 9. How to Measure Success**

PART 1

What is a Design System?

Think of every single thing that makes up your product- layouts, typography, grids, colors, icons, coding conventions, voice and tone, etc. All of these interrelated independent parts can be used in other areas. For instance, a button can be used in a page layout, a form, an overlay, etc. It's all about how these components can work together, and the rules that guide them.

First, let's start by explaining some different terminology so we can figure out how these things all work together.

Terminology

Styleguide

The documentation for the visuals. Includes all of the things that you think a designer would use: typography, icons, color, illustrations, etc.

Visual Language

Overarching guide to what the brand feels like (versus a styleguide is how to accomplish that).

Pattern Library

Also called “component library”. Includes forms, form elements, images, navigation, overlays, etc.

Brand Guidelines

Non-aesthetic parts of a design. Includes principles, tone and voice, grammar, etc. This tells both the users and the company who you are and what your narrative is.

CSS Framework

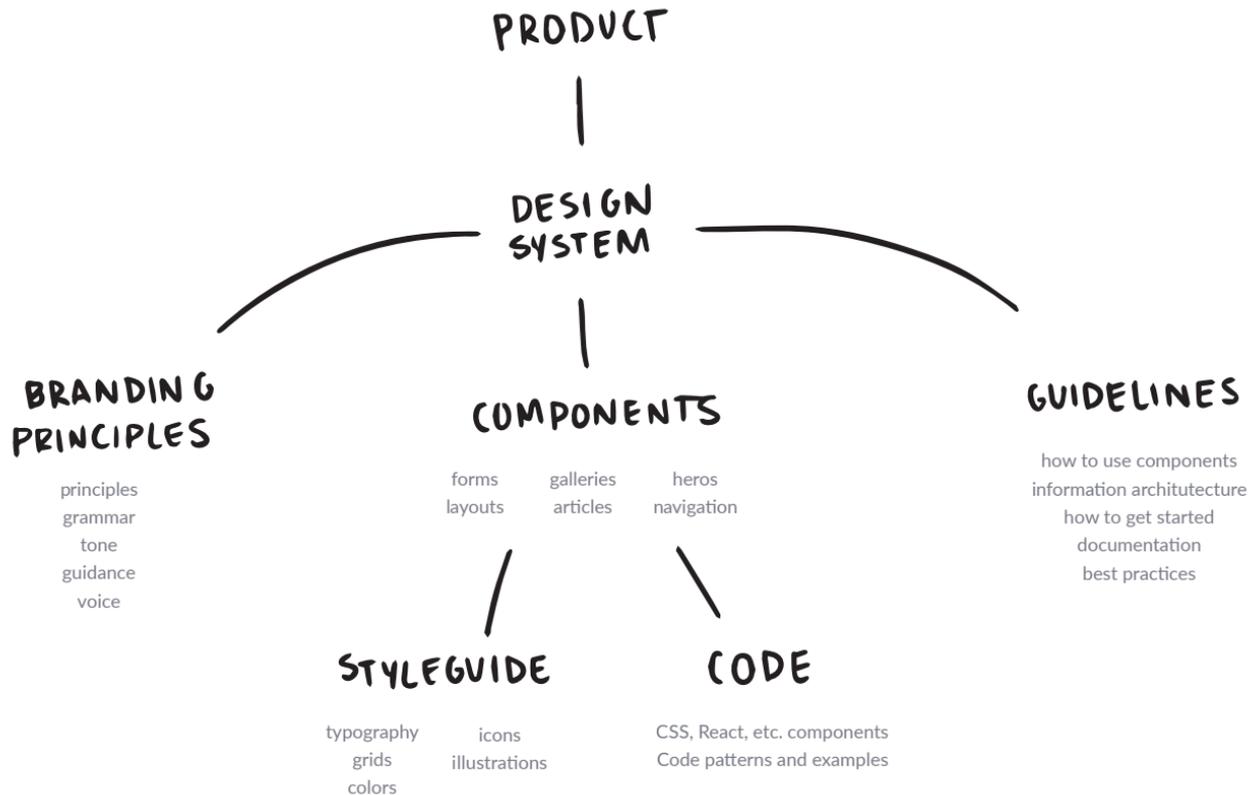
Front-end code that developers use to build a product.

**A design system is ALL
of these things!**

It's a complete collection of components and guidance (in both design and code) for organizations to build products.

I really like how Kim Williams described what a design system looks like in the DesignBetter.co podcast. She explained that you can normally see all of the different seams that are working on different parts. And if you're able to remove the seams, it seems like one cohesive effort. You can really tell as you move from one experience to the next who is working on what. But instead it should be a seamless journey. So a design system is the glue to remove the spaces between products so everything feels wholistic.

The diagram to the right explains the various parts that make up a design system.



BY ANDREA HOCK

What's Needed

The physical parts that are usually in a design system are:

- **a UI Kit or pattern library**
- **the brand guidelines and principles**
- **the code or framework**
- **guidance for the components**

Design systems aren't all the same, nor do they need to be because every company is different and has different needs, but these are the usual items included. So it's not just a single illustrator file- in that case you're missing all of the guidance!

It's a Product

I think the only way for a design system to really be implemented and continued to be used is to treat it like a product. And this isn't a new idea, lots of people have been treating their design systems like this in order to keep it integrated. So it should be a product serving your main product.

PART 2

Why Use a Design System?

“Think of it a little like trying to build a house out of Lego, but instead of bricks, you’re given a single block of plastic, perfectly carved into the shape of a pre-built house. Great! Job done. But if you want a different house? You’re going to need a whole new house-shaped block. Wouldn’t it be nicer to have bricks that can be detached and reassembled as required?”

-Dan Eden



Fun fact: Google was using 42 different shades of blue before they had Material Design!

No Hand-Holding Required

A design system is to help everyone easily understand the decisions you made and have one single source of truth. If you build one correctly, you should be able to ship software with no guidance and without having anyone as a blocker- not that you shouldn't communicate, but that's what a successful one would look like.

Improve the Workflow

When you don't have to design every component from scratch every time, it speeds up the process immensely. It doesn't make sense to have to reinvent the wheel every time.

Consistency

It makes users uncomfortable if your products don't all match. That creates a brand that doesn't seem unified and might be giving off the wrong message to your audience.

Communication

It's not only bad for your audience, but also for your internal team. When you're working in an enterprise company, things can get very complicated very quickly. Design systems can reduce the interpretation of the specs since they can be misunderstood if you don't have one single source of truth. It makes all of your elements very clear, with consistent naming conventions and reusable styles. When you start to introduce conventions, processes start to flow easier among teams. There's no room for deviation when everything is solidly defined.

Culture

When people are job-searching, they appreciate companies that value design. When designers are more respected, they'll want to share more and do a better job.

Focus on Other Things

If you have a system in place that lets you work faster, it helps designers finish projects faster, and perhaps work on other things they would have otherwise not gotten able to work on. This might be illustrations, animations, learning new apps or techniques, or any other kind of finessing to take your product to the next level.

Save Money

If you're not reworking the same elements every time, you're saving time and therefore money. And if you're a freelancer and you're billing your clients for time, you can instead bill them for other work.

Increase Bus Count

If only one person has all of the sole knowledge of what and why certain designs were chosen, that's a high risk because they could leave the company at any time and leave you to start all from scratch. Bus count literally means the measurement of risk based on how many people could "get hit by a bus"! Spread the knowledge to lower risk.

PART 3

When to Implement One

Here are some more specifics if you're unsure of if you should put in the time to make one. This is actually the first step in creating a design system- finding a need.



Inefficiencies

When you're starting to get redundancies in your code because you have different designers who are creating a lot of the same items, it might be a good time to create a design system. Your organization might have multiple websites and they should all follow the same guidelines.

Scale

When your organization has been growing a lot, and you've got enough people that start touching the design is when you start to really need one. Ideally you would want to make a design system before it's too painful and before output is very slow, but usually companies only think about creating one after the fact.

PART 4

Step 1: Getting Buy-In

Uphill Battle

It's hard to sell a design system because people know that the resources that they spend on building it aren't spent on actually building and shipping a product. So definitely expect pushback!

Find Out Who is Involved

Think about all of the people that will be effected by it. This includes not only designers, but also engineers, program managers, stakeholders, product teams, and business teams like marketing and legal.

Do Preliminary Research

Before talking to anyone, you should do your research. Print out as much documentation to back up why you think this is a good idea.

Get Consensus

Since there are so many different groups that the design system will touch, you need to get consensus from all different groups of your organization. This can be difficult for larger orgs. It really only works if people actually use it though, so adoption is very important.

Start with Peers

Before going directly to the top, get advocacy from your peers. Find other people who are passionate about the company's brand. Once you have strength in numbers, then you can begin to sell it to the people with a budget and authority. If you try to please too many people, you'll lose momentum. It might be best to have one liason from each team.

Show Value in Their Language

Start educating your initial few folks first, and train them to sell it like you. Have them explain what it is and what its benefits are. Be cognizant of who you're talking to. Ask each team what their problems are, and make sure you're talking their language and what's in it for them.

For developers, their problems are time reworking the code and confusion around what the latest ui is. For them, it's good to show visuals of where the inconsistencies are.

For the business side, their problems are money and the image of the entire brand. Don't say 'we need a design system'- explain why. Show them real data of the time spent creating specs versus actually creating new designs. This would show them how you would save money in time spent on redundant efforts. And talk to them about how it's a better experience for the user if the brand is cohesive.

Be Realistic

Show estimations of how long it will take, and be transparent about what things might be pushed back when you instead focus on this. Listen to their concerns, and meet people where they're at.

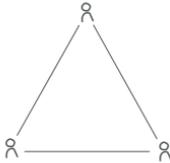
Core Purposes

At the end of the day, you should all rally around one core purpose. Everyone wants the company to do well. So that will be whatever is best for the business, which is probably what is best for the user.

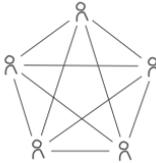
Prevent too many cooks

The more people you talk to, the harder it is to get buy-in.

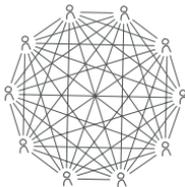
3 people, 3 lines



5 people, 10 lines



10 people, 45 lines



14 people, 91 lines



Kills Product



PART 5

Step 2: Design Principles & Plan

Next is where everyone converges on your ideas. In this step you'll want to include as many people as possible. Ask everyone for their values, vision, methods, and goals.

Determine Design Principles

These will be the thing that people reference when there's a problem. Here you'll want to get everyone involved. Get them started by asking some basic, open ended questions. Ask them what they think is most important to the business. Think about what's unique about what you're providing. They can answer this via polls any way you want- in email, 1:1 interviews, or google forms- anonymous or not. When you start to hear the same things, that's where you'll find your principles. List them in order of priority.

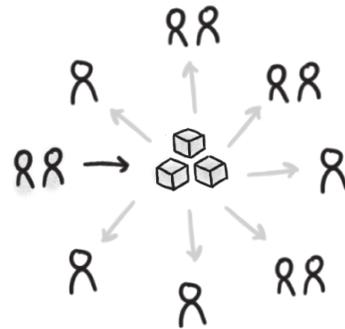
Determine Business Goals

Determine how your success will be measured from the beginning. This includes the cost and time required, what the priorities are, and the strategy to follow through on those priorities. Look to management for these answers.

Resources/ Who Creates It

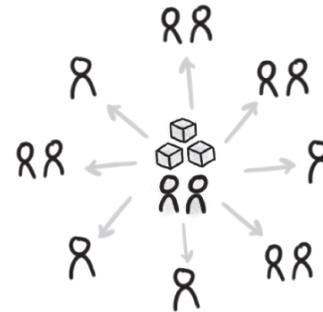
Figure out who is going to be the team that's making the design system. You want to have collective ownership with multiple people owning it so that when people leave, that knowledge isn't lost. There are a few ways you can go about this: a solitary, centralized, or federated design team. Check out the list on the next page.

How will you build your design team?



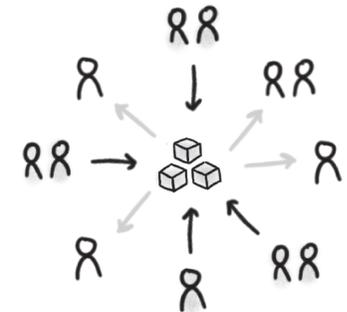
SOLITARY

One person manages the design system.



CENTRALIZED

Specific team dedicated to managing the design system.



FEDERATED

1-2 people from several teams work in both.

BY NATHAN CURTIS

FROM 'TEAM MODELS FOR SCALING A DESIGN SYSTEM'

[HTTPS://BIT.LY/2R73PSU](https://bit.ly/2R73PSU)

BRAINSTORM

Questions to Ask Your Coworkers

Use these questions as a guide to help determine your design principles and plan:

What is your vision for the company?

What do you value most?

How do you measure success?

What are your obstacles?

What methods do you use to do you work?

What are some areas of risk that you foresee?

Use this space to brainstorm principles.

PART 6

Step 3: Take a UI Inventory

Next is where everyone converges on your ideas. In this step you'll want to include as many people as possible. Ask everyone for their values, vision, methods, and goals.



UI Inventory Tip: Focus on things that are more specific to your organization. For instance, Netflix might focus more on advertisements, while a tax company might focus on forms and data entry.

Go Through and Audit Everything

Find what's inconsistent. One way to do it is to find everything that's wrong. So go through every single screen you have on every platform and look for inconsistencies. Group them into different categories, such as navigations, dropdowns, headers, etc. Then group those into subcategories, such as button statuses. Another way to do it is to find what's right (this method works if you already have a solid amount of projects to look through). Look through what you already have and find the patterns you like.

Physical or Digital

You can either do this ui inventory digitally or physically. If you do it physically, you would print all of the pages out, cut them up, and find patterns that way. This way is a fun tactile way to get more people involved. You can also do it digitally by taking screenshots of all of these items. There are great resources out there that you can use to help guide you, such as UI inventory worksheets.

Consolidate

Once you're done exploring all of your existing interactions, you can consolidate what you have. Start reconfiguring them into repeating patterns. Once you do that, you can start to create one master file or url where everything is contained to be reused.

PART 7

Step 4: Build It

So now you've done your ui inventory, and you have a list of items that you want to solve and start reconfiguring and consolidating.



Fun Tip: Give your design system a name! Trello's is called Nachos ("It's all about quality ingredients"), Zendesk's is called Garden ("Where we grow UI components"), Microsoft's is Fluent ("The physical world is our vocabulary"). Their names relate directly to the tone of the brand, and it matches their catchphrase. So feel free to think of something that fits your company to help build comradery around it.

Organize It

Decide how to organize it while you're building it. That might be in Jira, Trello, or Confluence for a large business. For a small business it can be in a Google doc. It doesn't have to be fancy at first!

Components and Processes

Create both the components, and processes for how to use them. Define components based on if they can be isolated by themselves and still make sense. Provide examples wherever possible.

URL

Everyone in your org should have access to the design system for it to work well. The best way to make sure everyone is updated to the latest version is to make it one source of truth with some sort of url. If it's a pdf, I can assure you that everyone will just loose it, use the wrong version, and not use it. A smaller company can use an internal wiki site if keeping up with a website is too much work. The first version should have resources for both designers and front-end code for developers. Work directly with the teams to make sure it's actually integrated into their workflows whatever way works best for them.

Keep it Simple

The first version should be super simple. Start with the basic necessities like buttons and forms. Try to get to the very bottom of the hierarchy of your components. Don't make too many rules, because teams might ignore it if there's too much to read.

Reasoning

Make sure you remember to add the reasoning behind why you chose certain elements and how they should be used. The reasoning should align with the principles that you initially decided on. For instance, Netflix chose their idea of “stacks” because they have a ton of different platforms, so they need to be able to expand and detract for the different sizes, whether it’s a billboard, phone, or newspaper.

Downloadable Parts

Include as many barebones downloadable parts as you can. That can be brand guidelines, the individual components, a grid system, and pieces of code. The components can be parts like headers and footers and other starter templates. Make it as easy as possible for the people using your system to find things.

Agnostic

Keep the components as agnostic as you can so they work for many different cases. Technology changes very quickly, especially coding languages, so try to think about the longevity of what you’re using.

Let Everyone Know

Then let everyone know that you have this new design system! This might be different for small companies vs large companies. You might post notices around the office, use email, Basecamp or Slack. The best way is to distribute it through every channel you have in your company.

PART 8

How to Iterate

To keep your design system from slowly losing traction, you have to remember that it's a living project and can't be something on the side.

Create Processes

You've already decided who contributes at the beginning, but you might need to change that. Use one central place to file bugs, and decide who files them when you see discrepancies. You can either update the whole system all at once, or bits and pieces as you go. If you update once a year, you have to wait awhile until the next update, and people might deviate from it. But if you update continuously, you get real-time updates, and it's a bit more manageable.

Remind People to Use It

It's inevitable that people will forget or not want to use it. That's ok-keep reminding them until it becomes habit for them. Whenever you have new hires, you can use them as an opportunity to get people to adopt the system and act like it's part of the protocol.

Simplify

Wherever you see problems, look for where you can simplify. If the system is too complicated and you have a smaller team, it will be hard to keep up with and maintain. And if you have to update a lot of things manually, invest in the time to figure out how you can automate those.

Make Adjustments

Make adjustments after the different teams use the system and find places where the components you specified don't fit. Not everything has to follow the components you made exactly. If there's a special case and you need a new component, research to determine why it's needed.

Act Like It's a Product

Treat the design system itself like a product to make sure it gets iterated on. So make releases and updates a cyclical thing.

Allow Contributions

Don't fall in love with it, so there is room for change. Allow for flexibility so that everyone can feel like they are able to contribute. Let people request components or behaviors. Reach out and ask people for feedback since they're the users of your design system. Keep the backlog accessible to anyone who wants to see it, and have weekly meetings to get feedback, with 1 or 2 reps from each team, or office hours or design reviews.

Company-Wide Yearly Review

Continuing to communicate frequently is very important. Make it a yearly event in the company to align on your principles. Based on how things go the first year, you might need to redefine goals and principles. Share what you've learned with data on the time and money you saved.

Never Done

A design system will always need to be iterated on. It's a living, breathing thing, and just like your company grows, the design system needs to evolve and grow with it. Some components will need to be modified and some will need to be removed. But as it continues to grow, you can tighten the loop of building, measuring, and learning.

PART 9

How to Measure Success

Now you can go and implement what you did in your own organization! You want to do usability testing to see if users notice, and if so, how they feel about the changes. Get both quantitative and qualitative results.

The end goal is to make the jobs of designers and engineers easier and tighten the strings between teams. Ask yourself if that was accomplished.

Quantitative Feedback

What actions are users taking, and is that different than before you implemented the system? This will help you figure out what design features are hard or easy to use. Do this type of research when you have a working product, either at the beginning or end of a design cycle. You'll want to have fewer participants than you would with qualitative feedback so you can have them discuss and explain their reasoning.

Qualitative Feedback

This will help you figure out if the tasks were easy to perform. You can do this at any time during the redesign, and you'll want to have as many participants as possible since it's more of a metrics type of research.

Branding/ Market Research

See how users feel about the actions they're taking and the product as a whole. How do they feel about the brand itself now? Do you see a visible change in the product? When you interact with the org's different products, does it feel like they're from one cohesive brand?

Internal Feedback

Look inward and see how many teams actually adopted the design system. How smoothly is the product being built now, and is it sustainable from both a design and dev perspective? Does it feel like a connected organization that communicates better? Are decisions that are made internally reflecting the brand or diverging from it? If so, what is missing from your system?

PART 10

Resources

Online Examples

Google's "Material Design"

Trello's "Nachos"

Salesforce's "Lightning"

Netflix's "The Stack"

Shopify's "Polaris"

Apple's "Human Interface Guidelines"

Books

NASA Graphic Standards Manual

New York Metro Graphic Standards Manual

Smashing Magazine's 'Design Systems'

Websites

[Styleguides.io](https://styleguides.io)

<https://github.com/alexpatel/awesome-design-systems>

People to Follow

@brad_frost

@jina

@broccolini

@danmall

@nathanacurtis



Adobe Creative Residency

The Adobe Creative Residency empowers talented individuals to spend a year focusing on a personal creative project, while sharing their experience and process with the creative community.

<https://www.adobe.com/about-adobe/creative-residency.html>