SNS COLLEGE OF TECHNOLOGY

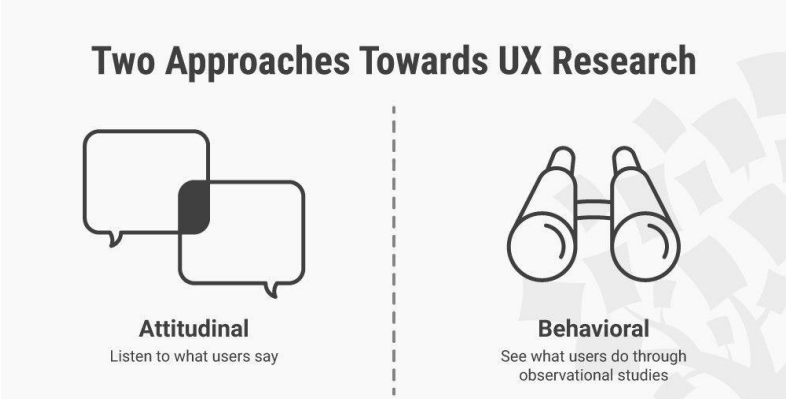
COIMBATORE - 35

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (UG & PG)

19CSE315 - UI & UX DESIGN

The two approaches towards User Experience Research.

- Attitudinal – you listen to what users say—e.g., in interviews.
- Behavioral – you see what users do through observational studies.



The reasons for doing UX design.

- To create a product that is truly relevant to users
- To create a product that is easy and pleasurable to use
- To have the return on investment (ROI) of user experience design.

The UX tool box to defines UX strategy

- **Stakeholder interviews**
- **Prototyping tools**
- **User interviews**
- **Sector expert interviews**
- **Competitive analysis tool**

Elements of Usability Testing

- Facilitator, the tasks, and the participant.

Usability testing Vs user testing.

User testing essentially asks if this particular kind of user would want this particular kind of product—or what kind of product would benefit them in the first place. It is entirely user-focused.

Usability testing, on the other hand, is more product-focused and looks at users' needs in the context of an existing product (even if that product is still in prototype stages of development). Usability testing takes your existing product and places it in the hands of your users (or potential users) to see how the product actually works for them—how they're able to accomplish what they need to do with the product.

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1. The design strategies in UX design.

UX strategy is a strategic planning process that takes into account not only the goals of the business but also the needs of the real consumers of the brand and connects each customer touchpoint with a user experience that the company intends to create.

A UX strategy program includes an understanding of the current state of your project, the development of a vision for the future user experience.

How to create a UX strategy?

When building a strategy the designer needs to understand the main idea of the product, its goals, and objectives. It is also a time of market research and understanding the business model behind this project. During this period the core functionality of the product should be decided and discussed, as well as some basic schedule and roadmap for the design milestones.

6 steps to create a UX strategy

Step 1: Evaluate the current state

It is worth starting to prepare a strategy by looking around and assessing the current state of the product and what global challenges the business faces. It is very useful if there is a business plan that you can rely on. But even if there is none, you will have to fill in the gaps of missing data through interviews with stakeholders.

- **Common tasks that the business should solve**. For example, test the effectiveness of a business model, win over users' loyalty, retain customers, and so on. Understanding such basic goals allows you to set the right focus from the very beginning. UX strategy cannot (and should not) be created without considering the needs of the business.
- **Problems that you already know about.** For example, user churn increases, annual recurring revenue does not grow.
- **The resources you have.**

Step 2: Set your goals, UX vision, and proof of concept

Once it becomes clear what is happening with the product and with the business right now, it's time to think about how you would like the product to be perceived in the future.

Step 3: Define focus areas and the strategy scope

We adopt the strategy for a certain period of time. It can be 6 months, after which we hold a retrospective and discuss whether it needs to be updated or you can take a longer period (but then you need to have intermediate control points).

When talking about focus areas, we usually highlight several points.

Step 4: Create guidelines

One of the most important parts of the strategy is a set of specific rules, adherence to which will allow you to achieve your goals. Guiding principles define what approaches to take to solve the issues your business is facing.

Step 5: Develop a plan

Everything we talked about before had a single purpose: to understand what actions to take in order to reach your final goal. For that reason, you need a high-level plan. This "plan" is rather the list of activities you need to take to solve the business problems and meet user needs.

For example, a part of your plan may look like this:

- Conduct user research
- Develop user personas (or validate existing ones).
- Create a prototype.
- Start usability testing on prototypes.
- Develop a design system.
- Conduct the content audit and align it with the strategy.

Step 6: Define what metrics to track

An essential part of your strategy should be defining metrics that will help you assess whether what you are doing is helping you achieve your goals. It is better to immediately determine how often you will track changes in metrics. It depends on the metrics, but you can take checkpoints every 2-4 weeks as the base case.

How do I become a UX strategist?

- **UX research:** Having a good grasp of qualitative and quantitative research methods ensures you're able to validate your strategy.

- **Negotiation:** Your job will involve balancing the needs of the user with business interests.

- **Design thinking:** Having a strong foundation in UX design best practices can help approach design problems more creatively and effectively.

- **Communication:** A big part of developing a UX strategy is learning more about business stakeholders and target users.

- **Leadership:** As a UX strategist, you'll often play a leadership role within the design team.

- **Business acumen:** Understanding business strategy empowers you to bridge the gap between the user and the company.

2. The Information architecture in UX design process.

Information architecture (IA) is, like a blueprint, a visual representation of the product's infrastructure, features, and hierarchy. The level of detail is up to the designer, so IA may also include navigation, application functions and behaviors, content, and flows. There is no set limit to the size or shape of IA; nevertheless, it should encompass the generalized structure of the product so anyone (theoretically) should be able to read it and understand how the product works.

How to Design Information Architecture

There are two major requirements for actually constructing IA: organizing it through a visual hierarchy (that is, a hierarchy of features, functions, and behavior) and creating a legend for displaying different types of features, interactions, and flows. With a standard flowchart, the shapes follow specific requirements (rectangles are processes, diamonds are decision points, etc.); however, following that nomenclature isn't a requirement.

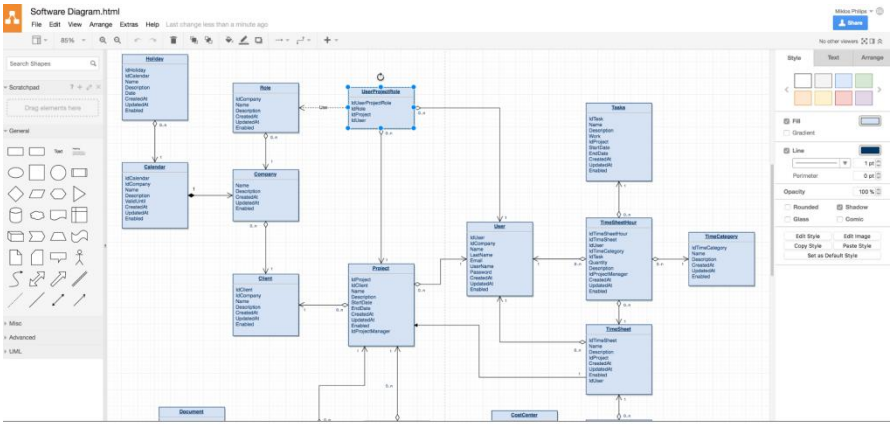
In other words, the most important factors to building your IA are where individual components of the architecture are placed (hierarchically), and how they're labeled and displayed.

Understanding and Showing Visual Hierarchy

The most challenging aspect of creating new information architecture is almost always in constructing it hierarchically. It's a common misconception that IA must be built from the top down.

The Best Information Architecture Tools

- Draw.io is excellent for flowcharting, creating user flows and information architecture, and with Drive functionality, multiple people can work on the same document and see changes live.



- Lucidchart is another great tool that provides a slightly better experience than Draw.io and has additional benefits like pre-built templates, many more integrations, a mobile app and support for enterprise.
- Omnigraffle and Visio are long-time industry mainstays and work excellently for building and maintaining an IA design, though Visio is online only (the older offline version is Windows-only) whereas Omnigraffle is Mac-only and requires separate purchases for the MacOS and iOS versions. OmniGraffle has one benefit over the major competitors in that it provides JavaScript

and AppleScript automation, which for most designers may be unnecessary, but typically, full-time information architects appreciate it.

Example :

Information Architecture Best Practices

Don't Focus on Hierarchy, Focus on Structure

Hierarchy is adjustable. The homepage will always be the homepage, but where it leads, how users get to those places, and everything in between and beyond is determined later.

All Processes Should Be Logical

Even though the IA in the UX process is for user interactions, every step of the way has to make sense. Registration screens shouldn't lead to settings, a camera function shouldn't jump to a map view…the list goes on.

Remember the UX Process

A common mistake is to just *make* IA, without resources, research, or other assets or work. That's like telling an author to write a book without an outline, or a programmer to code an app without prototypes.

You Are the Cartographer

Cartographers take everything about a map into consideration, from mountain ranges to state borders. Just like map makers, designers determine what goes into the IA design. Individual pages, specific user behaviors, context for decision points… and so on.

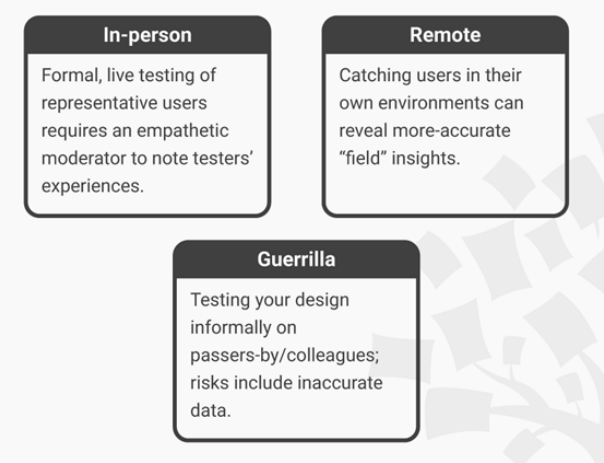
3. The importance of Usability Testing.

Usability testing is one of the user experience research methods, usually a qualitative one, and it is the core of UX research. A user should interact with a digital product without frustration and easily accomplish set goals.

The purpose of usability testing.

- Identify the product's main pain points.
- Check if users understand the navigation.
- Observe how easily and quickly people accomplish tasks.
- Validate the value proposition of an app or website. Do your potential customers understand it?
- Test competitors' solutions. (You can test competitors' solutions with the target group to gain insights on what could be changed or improved in your product.)

Types of usability testing



Usability testing process

1. Plan

- **Define what you want to test**. Ask yourself questions about your design/product. What aspect/s of it do you want to test? You can make a hypothesis from each answer. With a clear hypothesis, you'll have the exact aspect you want to test.
- **Decide how to conduct your test** – e.g., remotely. Define the *scope* of what to test (e.g., navigation) and stick to it throughout the test. When you test aspects individually, you'll eventually build a broader view of how well your design works overall.

2. **Set user tasks**

- **Prioritize the most important tasks to meet objectives** (e.g., complete checkout), no more than 5 per participant. Allow a 60-minute timeframe.
- **Clearly define tasks with realistic goals**.
- **Create scenarios where users can try to use the design naturally**. That means you let them get to grips with it on their own rather than direct them with instructions.

3.Recruit testers

- Know who your users are as a target group. **Use screening questionnaires** (e.g., Google Forms) to find suitable candidates. You can **advertise and offer incentives**. You can also find contacts through **community groups**, etc. If you test with only 5 users, you can still reveal 85% of core issues.

4.Facilitate/Moderate testing

- Set up testing in a **suitable environment**. **Observe and interview users**. **Notice issues**. See if users fail to see things, go in the wrong direction or misinterpret rules. When you record usability sessions, you can more easily count the number of times users become confused. **Ask users to *think aloud* and tell you *how they feel*** as they go through the test. From this, you can check whether your designer's mental model is accurate: Does what *you* think users can do with your design match what these *test users* show?

Keep usability tests smooth by following these guidelines.

1) **Assess user behavior** – Use these metrics:

Quantitative – time users take on a task, success and failure rates, effort (how many clicks users take, instances of confusion, etc.)

Qualitative – users' stress responses (facial reactions, body-language changes, squinting, etc.), subjective satisfaction (which they give through a post-test questionnaire) and *perceived* level of effort/difficulty

2) **Create a test report** – Review video footage and analyzed data. Clearly define design issues and best practices. Involve the entire team.

Overall, you should test not your design's functionality, but users' *experience of it*. Some users may be too polite to be entirely honest about problems. So, always examine *all* data carefully.

4. The various Prototyping tools for UI/UX design process.

A prototyping tool enables a designer to weave visuals, navigational elements, and interactions together to give a solid representation of how a design will behave and feel. It's an essential tool in any UI/UX designer's arsenal.

Prototypes are an opportunity to try things out and fine-tune the details. They're an essential tool in communicating to stakeholders, and decision makers, how all of the elements of an idea will function together.

1. Figma

Figma is an all-in-one tool that makes collaboration and accessibility easy for UX designers, developers, and anyone else on a team with a browser-based, cloud-hosted platform.

Consistency is a priority in web design, and you can use Figma's flexible styles to control the appearance of text, grids, and other elements across a project. And a variety of useful plugins, like Autoflow for illustrating user flows, Figmotion for creating animations, and many others, enhance Figma's functionality.

2. InVision Studio

InVision has a well-established reputation, and their dedication to rolling out new functionality and adding to their design platform makes them a favorite among many designers.

With a host of well-designed tools, InVision gives designers the power to put together functional prototypes quickly and to share them with others. It offers so many nice features, including a handy vector drawing tool, repeatable components that can be changed sitewide, and tools for creating animations and other dynamic visual effects.

Collaboration and communication are also strengths of InVision. Freehand lets team members draw, add notes, and offer feedback. And through LiveShare, a prototype can be demonstrated with full interactivity. InVision makes it easy for team members to stay connected and work together throughout the course of a project.

3. Adobe XD

Adobe XD offers a vector-based system for putting together prototypes, including tools for creating interactions, transitions, and other types of dynamic functionality. Because it's vector based, scaling and resizing elements is no problem.

Adobe XD work well alongside other Adobe family apps like Illustrator and Photoshop. It's nice to be able to edit Adobe images, like a .psd, right in the application.

From UI design to UX design, Adobe XD covers all the tools a designer needs from conceptualization through high-resolution prototypes. And they're continually adding to this product with monthly updates that expand its functionality.

4. Webflow

Webflow takes care of two jobs at once. While you're designing and building a high-fidelity prototype, you're creating a live website that's complete with all of the HTML, CSS, and associated JavaScript. You don't end up with just a mockup — you'll have the real deal.

With an intuitive drag-and-drop interface, a powerful CMS, and the capability to create advanced animations, transitions, and microinteractions, Webflow makes it possible to create any type of professional-level website.

5. Axure RP 9

Axure RP 9 puts the power of wireframing and prototyping all in one package. It allows designers to create low to high resolution interactive prototypes of websites and apps, all without having to code.

Along with what you need to build the visuals, interactivity, and organization, Axure RP 9 also offers a comprehensive documentation tool, which makes keeping track of notes, tasks, and other important assets organized and accessible to those who need to see it.

Axure RP 9 also facilitates a better handoff to developers by letting a prototype be published on their cloud, with all of the code, specifications, and other assets they would need to build it.

6. Origami Studio

For designers who need a more advanced system, Origami Studio offers powerful prototyping tools for websites and mobile apps. Central to Origami Studio is a patch editor that lets you build logic, behaviors, animations, and interactions. It comes with many prebuilt patches, and the site says you'll most likely use just 15–20 of these for most of your prototyping work.

Origami Studio does have a bit of a learning curve that can be daunting at first. But the payoff of knowing how to use their prototyping tools and pulling off sophisticated prototypes makes it well worth learning. This power, along with its compatibility in working with Sketch, makes Origami Studio an important tool for designers who want to go above and beyond standard prototyping.

7. Fluid UI

Fluid UI's software makes for lightning-fast prototyping. With ready-made libraries for material design, iOs, and Windows, as well as gestures, Fluid UI gives you so much to get started with. And their simple user interface makes it super easy to put these components together.

5. The various research methods in User experience design

UX (user experience) research is the systematic study of target users and their requirements, to add realistic contexts and insights to design processes. UX researchers adopt various methods to uncover problems and design opportunities. Doing so, they reveal valuable information which can be fed into the design process.

There are two main types of user research: quantitative (statistics: can be calculated and computed; focuses on numbers and mathematical calculations) and qualitative (insights: concerned with descriptions, which can be observed but cannot be computed).

Research Methods - types of user research performed at each phase of a project.

Card Sorting: Allows users to group and sort a site's information into a logical structure that will typically drive navigation and the site's information architecture. This helps ensure that the site structure matches the way users think.

Contextual Interviews: Enables the observation of users in their natural environment, giving you a better understanding of the way users works.

First Click Testing: A testing method focused on navigation, which can be performed on a functioning website, a prototype, or a wireframe.

Focus Groups: Moderated discussion with a group of users, allowing insight into user attitudes, ideas, and desires.

Heuristic Evaluation/Expert Review: A group of usability experts evaluating a website against a list of established guidelines.

Interviews: One-on-one discussions with users show how a particular user works. They enable you to get detailed information about a user's attitudes, desires, and experiences.

Parallel Design: A design methodology that involves several designers pursuing the same effort simultaneously but independently, with the intention to combine the best aspects of each for the ultimate solution.

Personas: The creation of a representative user based on available data and user interviews. Though the personal details of the persona may be fictional, the information used to create the user type is not.

Prototyping: Allows the design team to explore ideas before implementing them by creating a mock-up of the site. A prototype can range from a paper mock-up to interactive HTML pages.

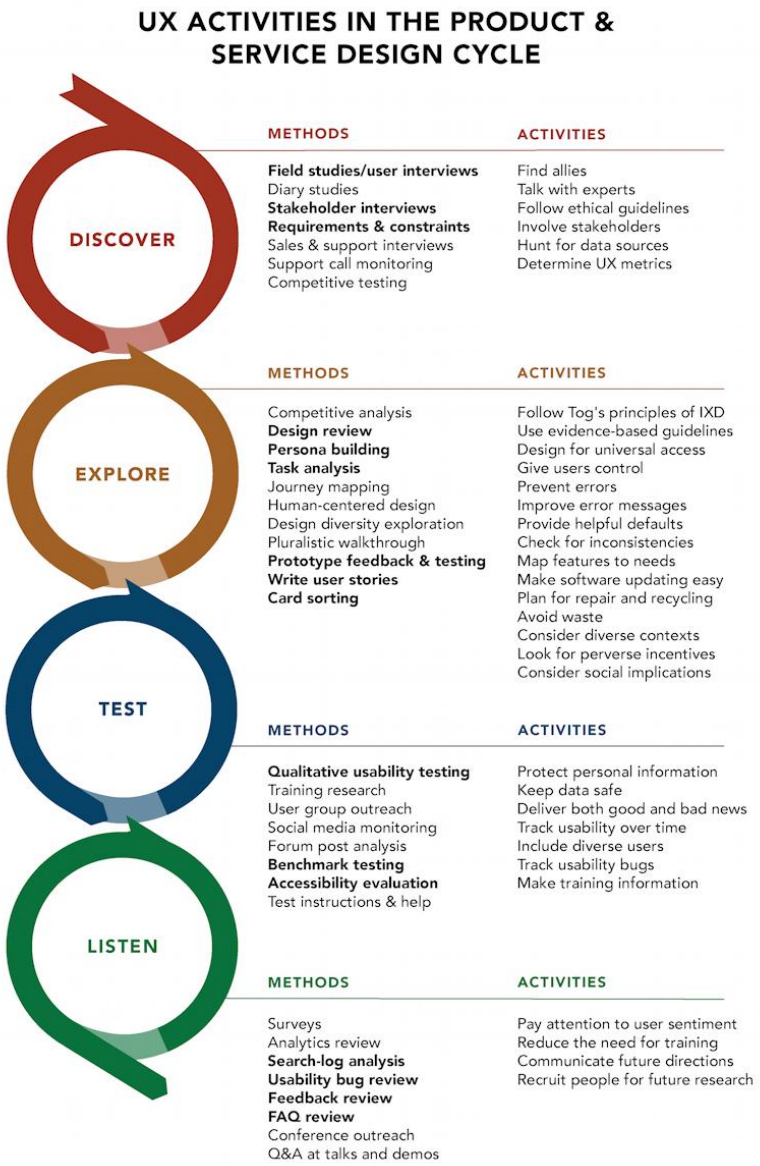
Surveys: A series of questions asked to multiple users of your website that help you learn about the people who visit your site.

System Usability Scale (SUS): SUS is a technology-independent ten-item scale for subjective evaluation of the usability.

Task Analysis: Involves learning about user goals, including what users want to do on your website, and helps you understand the tasks that users will perform on your site.

Usability Testing: Identifies user frustrations and problems with a site through one-on-one sessions where a "real-life" user performs tasks on the site being studied.

Use Cases: Provide a description of how users use a particular feature of your website. They provide a detailed look at how users interact with the site, including the steps users take to accomplish each task.



6. The various design testing methods and techniques in User Experience design.

1. Problem Interviews

This testing method only works if you're solving a problem. It's not as useful for products or features that are minor optimizations or nice-to-haves.

Benefits:

- Ensuring people have the problem you're solving
- Ensuring you know who those people are
- Validating your marketing channels

How to do it:

1. Create proto-personas of the people you are solving for with the help of a user persona template.
2. Write a discussion guide focused on the problem you're solving for them (not on your product).
3. Optionally, include two scales on your discussion guide - one for how much your interviewee aligns with your proto-persona and one for how much your interviewee experiences the problem

4. Source people in line with your proto-persona (this is how you validate your marketing channels. If you can't find people to interview, how will you market this product or feature to them?)
5. Interview them
6. Synthesize the interviews. Look at how your interviewees scored on your two scales. Using the anecdotes you heard, assess how much evidence you have that your target customer experiences the problem you're solving.

What it validates:

- Your target customer (which may be existing or maybe a new market)
- The problem you're solving
- Your marketing channels

2. Value Surveys

Anthony Ulwick's outcome-oriented survey technique allows you to develop more confidence in the value you're creating.

Benefits:

- Gaining more confidence about what your customers value

How to do it:

1. Conduct problem interviews
2. Articulate what your customers want to achieve (aka outcomes)
3. Create a survey that asks your customers to rank the outcomes by importance (how much they matter to them)
4. Analyze survey results and prioritize outcomes by the importance

What it validates:

- The problem you're solving
- How valuable solving that problem is to your customers
- What existing alternatives people are using now and how much they solve the problem

3. Landing Page/Announcement Tests

In exchange, you ask for personal contact info or better yet - pre-orders.

Benefits:

- Stronger validation of your marketing channels
- Building an interest or pre-order list

How to do it:

1. Create a marketing plan around how and where you plan to reach your customers
2. Define how much to share about your product and what kind of interest you want to see (sign-ups, emails, pre-orders, etc)
3. Design your messaging and capture mechanism (a landing page, an email campaign)
4. Launch it and start marketing

What it validates:

- Your marketing channels
- Demonstrated interest in your value proposition
- UI design process

4. Feature Fakes

If you have an existing product, you can start building a feature without building the entire thing. You can use feature fakes to see if customers will even try to access what you're designing. If they won't tap or click on something, it may not be worth building the actual feature.

Benefits:

- Testing discoverability of a feature
- Gauging interest in a feature

How to do it:

1. Define your feature thoughtfully
2. Design the indicator that allows people to access your feature (for example, the button or toggle or message)
3. Build the indicator
4. When people hit the indicator, show them a message that explains why the feature isn't functioning. You could let them know it's not available yet and save emails for notification later or you could show an error message and give them a way out.

What it validates:

- That your feature is discoverable
- That people are interested in trying it

5. Price Tests

Price testing is becoming more personalized and dynamic as data intelligence gets more sophisticated and scary. The simplest price tests are basically AB tests of pricing. More complex tests target specific user behavior to optimize prices contextually.

Benefits

- Optimizing pricing

How to do it:

1. Complete a competitive analysis of your pricing
2. Define your pricing test range
3. Research and define how you'll test the pricing. (For example, on iOS, you can't always put two pricing variations in the App Store. You may have to run introductory pricing, free trials, or use a web landing page to test pricing.)
4. Run an A/B/n test with your pricing changes (You can either actually charge different amounts or you could run a price test as a feature fake or as a pre-order and not actually take money.)

5. Collect and analyze results

Note - you can also run a price test more qualitatively by showing customers prices for items to get their reactions. This is less reliable than having people pay for things or indicate that they are trying to pay for something but it's better than not learning anything at all.

What it validates:

- How many people will pay for a product/service
- Who will pay for that product/service

6. Rollouts

If all other validation methods fail you, there are always rollouts. Sometimes, it's not worth building the fidelity you need to have a high confidence test and it makes more sense to ship something and monitor its performance. That's where rollouts come in.

Benefits

- Any software release that carries risk (so probably most of them)

How to do it:

1. Set up a tool to manage production rollouts. For the web, you can use an AB testing tool or you can use a feature flagging tool like LaunchDarkly or Rollout.io. Apple and Google both have this built into their platforms.
2. Define what metrics/information you'll watch to determine if your release is successful and to roll it out to a larger percentage.
3. Add the flag to your code
4. Deploy your code and set your rollout criteria
5. Roll it out
6. Review your metrics and make a call whether to roll out to a wider audience
7. Repeat until it's at 100% or you decide to halt the release because of an issue

What it validates:

- That your release isn't damaging the current experience or metrics
- Possibly that it's having its intended impact (this will depend on how much you can isolate the release from outside variables like marketing efforts or other teams' work)