Prototyping: why, what, how?

Prototyping is the process of building and testing "low-cost models" of a product, service, campaign, program, or perhaps workshop to improve the design of the finished solution by testing its "usability, functionality, and feasibility". Since prototyping is used for every form of a solution, this guidance will refer to everything that encompasses products to services as "concepts". Depending on what the end concept is, one can utilize either physical or digital prototyping. Before investing too much in a fully operational prototype, you need to first test whether the solution is something that the user will want to engage with and how the solution can be best designed to meet the user's needs and wants. A prototype is a "simple experimental model of a proposed solution used to test or validate ideas, design assumptions and other aspects of its conceptualization quickly and cheaply, so that the designer/s involved can make appropriate refinements or possible changes in direct".

Why is it important to build a physical-digital prototype?

1. **Story time.** Prototypes tell a story and allow stakeholders and clients to "more easily imagine that this thing could actually exist."  
2. **Iterate, iterate, iterate.** With every version of a prototype, you should be collecting data on which aspects of the product or service resonate with the user and which do not.  
3. **Show me the money.** When testing a prototype, the feedback from users can be used to make a strong case to investors to invest in your solution if they express that the product or service delivers value.  
4. **Better now than later.** It is better to work out the issues of a product or service before large sums of money are invested in a more finished product. It is easier to work out kinks at an earlier stage before the solution is scaled.

What should a prototype look like?

Factors such as time and budget impact the complexity of a prototype, however what is most important to achieve is a prototype capable of validating the concept that you are looking to test.

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3 Dam, Rikke Friis. & Siang, Teo Yu, 2020, Design Thinking: Get Started with Prototyping. [https://www.interaction-design.org/literature/article/design-thinking-get-started-with-prototyping](https://www.interaction-design.org/literature/article/design-thinking-get-started-with-prototyping)  
There is no one way to create a prototype. What unites different forms of prototypes is that “they are tangible forms of your ideas.”

They can materialize as sketches on a piece of paper, storyboards, and even role playing to demonstrate how end users would engage with a service and those delivering the services.

What about mobile applications?

There are links below to applications that can help you develop digital mobile application prototypes. The lowest cost options for simulating the interface of a mobile application are Apple Keynote or Microsoft PowerPoint. By adding hyperlinks to text or images, you can simulate clicking through the application and transitions to different pages. “You can export the prototype as a video, which works as another effective format for demoing a design.”

What if I am designing a website?

Wireframes are often used in the early stages of designing websites as they help “establish the basic structure of a page before visual design and content is added.”

Wireframing is “a way to design a website service at the structural level” as it usually lays out “content and functionality on a page which takes into account user needs and user journeys.”

Wireframes can be built digitally on applications such as Microsoft Visio or hand-drawn. They do not tell the whole story of product or solution, but “help to clarify designs” and are the “right medium for deciding core things, such as the overall structure and information architecture.”

How should I document testing of a prototype? What data and information should be collected?

A prototype is “something that can be isolated and tested, and its performance measured. The data collected about how users interact with a prototype is invaluable in quantifying and providing the quality of the design.”

- Measure the impact of incremental or radical changes on a solution based on the interactions that end users or stakeholders have with it. This can be done through user interviews, satisfaction surveys, or quantitative data collection based on performance indicators that you select prior to testing. A monitoring and evaluation plan is important to have in place before any testing occurs. “By using controlled experiments, you can either prove or disprove your assumption in their real context and thus further refine --

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8 Dam, Rikke Friis, & Siang, Teo Yu, 2020, Design Thinking: Get Started with Prototyping. [https://www.interaction-design.org/literature/article/design-thinking-get-started-with-prototyping](https://www.interaction-design.org/literature/article/design-thinking-get-started-with-prototyping)


10 What is wireframing? [https://www.experienceux.co.uk/faqs/what-is-wireframing/](https://www.experienceux.co.uk/faqs/what-is-wireframing/)

11 What is wireframing? [https://www.experienceux.co.uk/faqs/what-is-wireframing/](https://www.experienceux.co.uk/faqs/what-is-wireframing/)


Kevin McElroy recommends that you “restrict the number of variables within a test to be sure your findings are accurate”.  

- Choose an idea or a question that you want to answer and define and prepare a test plan around them.  
- Identify the factors that make a solution fail to meet the outcomes your desire.  
- Test the buy-in from different stakeholders and markets.

DesignKit has produced a Prototype Report Card worksheet that helps you to identify what you want to learn from a prototype, how you will test it, and document what you have learned.

**Disclaimer on prototyping**

A prototype is a very preliminary version of your final product or service. You should always establish with your stakeholders and/or client it is not the final version to “avoid setting up false expectations”.

**Helpful tools and resources:**

- [Creative Confidence: Unleashing the Creative Potential Within Us All](https://www.keynotopia.com/guides/)
- [Storyboard](https://www.designkit.org/methods/storyboard)
- [Wireframing](http://axure.com)
- [Microsoft Visio](https://www.microsoft.com/en-us/microsoft-365/visio)
- [Omnigraffle](https://www.omnigroup.com/)
- [Apple Keynote or Microsoft PowerPoint](https://apps.apple.com/us/app/pop-prototyping-on-paper/id555647796)
- [Sitepoint](https://www.sitepoint.com/prototype-mobile-apps-easily-ratchet/)

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14 Dam, Rikke Friis. & Siang, Teo Yu, 2020, Design Thinking: Get Started with Prototyping. [https://www.interaction-design.org/literature/article/design-thinking-get-started-with-prototyping](https://www.interaction-design.org/literature/article/design-thinking-get-started-with-prototyping)

15 McElroy, K. 2018, Prove yourself wrong: prototyping for service design. [https://medium.com/design-voices/prove-yourself-wrong-prototyping-for-service-design-39bb1e06fa65](https://medium.com/design-voices/prove-yourself-wrong-prototyping-for-service-design-39bb1e06fa65)

16 McElroy, K. 2018, Prove yourself wrong: prototyping for service design. [https://medium.com/design-voices/prove-yourself-wrong-prototyping-for-service-design-39bb1e06fa65](https://medium.com/design-voices/prove-yourself-wrong-prototyping-for-service-design-39bb1e06fa65)