UI Wireframes and Prototypes

By sketching what a software product might look like at different levels of fidelity, wireframes and prototypes help you clarify what is really needed and feasible to build.

Description

Wireframes or prototypes are a method to design and share information about an aspect of a project at a scoped level. There is a range of fidelity or the level of details and functionality built into the artifact. Wireframes are a medium fidelity approach to show a design at the structural level. A wireframe is commonly used to lay out content and functionality on a page which takes into account the user needs and user journeys. A prototype is high fidelity and a working example through which a new model or a new version of an existing product can be derived.

The table below is included to explain how the level of fidelity can help influence the decision-making process around your project. Often, a low-fidelity prototype can provide similar advantages to a high-fidelity prototype. Focusing on the low-to-mid range fidelity seem to be most effective approach. This allows for an iterative design process to evolve over time, but without getting in the way of conducting any user testing. Limiting the level of creative details and nuances involved in visual design at this stage prevents the client from focusing on colors, fonts, images or layout aesthetics when you’re trying to refine the functional aspects of the product.

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<tr>
<th>Fidelity Level</th>
<th>Type of Artifact</th>
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| LOW            | S
Sketches (h and drawn) |
|                | Sticky Notes |
|                | Whiteboard |

LOW

Get all your high-level ideas on paper to collaborate with the project team. The goal is to generate a bunch of ideas that ultimately sets the groundwork for the next phase (requirements spec, higher fidelity diagrams, etc). Start filling in more and more details, which helps the direction evolve.

MEDIUM

At this stage of the process, you’ve already generated a wide range of ideas and began the reduction phase. This means the removal of any ideas that didn’t work, and refining the best ones on your list. Remember, this is a process that will be repeated throughout design phase.

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<tr>
<th>Fidelity Level</th>
<th>Type of Artifact</th>
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<tbody>
<tr>
<td></td>
<td>Wireframe</td>
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<td>Storyboard</td>
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We want your contributions!

Please share your feedback or your examples of using this method!

- Leave a comment on this page (after logging in), or
- Contact the Editor listed above, or
- Join us on Slack

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Most of the necessary design assets and components have been developed and integrated by the time you’re building a prototype. It’s critical to collect as much usability data as possible, in order to evaluate what works and what needs more fine-tuning. Prototypes should include the details and aesthetics of your visual and UX designs, and have been refined and tested many times. The level of fidelity is usually very close to final product.

A Business Analyst may create or help facilitate the creation of a wireframe or prototype. Often other members of the team (UI / UX designers, developers, etc.) may create the prototype due to their expertise in the subject matter that needs to be diagrammed.

The other artifacts and diagrams that are being created by the team may influence how the UI wireframe or prototype is designed. Such artifacts include:

- Systems Diagrams
- Business Process Diagrams and Models
- Data Models
- Taxonomy (organize & retrieval of data)
- and others

### Step by Step

1. Identify Basic Requirements: The basic requirements of the project you are diagramming are determined, including input and output data needed. This may have been completed in a previous artifact: Requirements Lists and Specifications.
2. Initial Prototype or Wireframe Creation: Create a visual representation or working functionality of your project.
3. Review: The clients and the end-users verify the artifact and provide valuable feedback on additions or deletions.
4. Revise and Improve the Prototype: Using the feedback from the client and end user, both the specifications and the prototype can be changed accordingly and improved. If changes are incorporated, a repeat of steps #3 and #4 may be required.

### Benefits

- Help share a concept that may be “fuzzy” to a group for feedback
- Clarify & find shared understanding amongst stakeholders and the team about the direction of the project
- Identify key concerns or risks prior to beginning implementation of the solution
- Document agreed upon solution (including project vision and scope)
- Ensure the page content and functionality are positioned correctly based on user and business needs
- Determine which aspects of the product are worthwhile and which parts need to be revised or discarded
- Testing of the product (usability, accessibility, etc.)

### Specifically Low Fidelity & High Fidelity:

Nielsen Norman Group describes the following benefits of low fidelity vs. high fidelity prototypes:

<table>
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<tr>
<th>LOW FIDELITY</th>
<th>HIGH FIDELITY</th>
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**“Less time to prepare a static prototype, more time to work on design, before the test.** Creating a clickable prototype takes time. Without having to make the prototype work, you can spend more time on designing more pages, menus, or content.

**You can make design changes more easily during the test.** A designer can sketch a quick response, and erase or change part of design between test sessions (or during a session) without worrying about linking the new page in the interactive prototype.

**Low-fidelity prototypes put less pressure on users.** If a design seems incomplete, users usually have no idea whether it took a minute or months to create it. They may better understand that you are indeed testing the design and not them, feel less obliged to be successful, and be more likely to express negative reactions.

**Designers feel less wedded to low-fidelity prototypes.** Designers are more likely to want to change a sketchy design than one with full interaction and aesthetics. Once we invest more time and sweat in a design, it’s harder to give it up if it does not work well.

**Stakeholders recognize that the work isn’t finished yet.** When people see a rough prototype, they don’t expect it to ship tomorrow. Everybody on the team will expect changes before the design is finalized. (In contrast, when a design looks very polished, it’s easy for an executive to fall into the trap of saying, ‘this looks good, let’s make it go live now.’)

**“With high-fidelity interactivity and/or visuals, you can test workflow, specific UI components (e.g. mega menus, accordions), graphical elements such as affordance, page hierarchy, type legibility, image quality, as well as engagement.**

**High-fidelity prototypes often look like ‘live’ software to users.** This means that test participants will be more likely to behave realistically, as if they were interacting with a real system, whereas with a sketchy prototype they may have unclear expectations about what is supposed to work and what isn’t. (Though it’s amazing how strong the suspension of disbelief is for many users in test situations where not everything is real.)

**High-fidelity interactivity frees the designer to focus on observing the test instead of thinking about what should come next.** Nobody needs to worry during the test about making the prototype work.

**Interactive-prototype testing is less likely to be affected by human error.** With a static prototype, there is a lot of pressure on the “computer” and a fair chance of making a mistake. Rushing, stress, nerves, paying close attention to user clicks, and navigating through a stack of papers can all make the ‘computer’ panic or just slip during the test. [‘computer’ here means the person running the usability test]

**Patents.** By having a working prototype, it is much easier to sit down with a patent attorney and see what design aspects may be patentable. On the reverse side, it is possible to see what parts of the prototype and design violate patents of other individuals and how they can be changed.”

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Source: Kara Pernice, *UX Prototypes: Low Fidelity vs. High Fidelity* (Nielsen Norman Group 2016)

### When to Use

Wireframing and prototyping should take place early in the project lifecycle to gather consensus around a project’s scope and impact on the organization or end user.

Wireframes should be used early in a project to get user and client approval on the layout of key pages and the navigation. This will provide the project team, specifically the designers, confidence in moving forward. Wireframes will also save considerable time and money in the testing and amends phase later in the project.

You may start prototyping when you need a Minimal Viable Product to share with customers or stakeholders. Otherwise, a prototype provides a good first stab at the implementation to learn of risks, test out a new technology and confirm budgetary needs.

### References

1. What is wireframing? [https://www.experienceux.co.uk/faqs/what-is-wireframing/](https://www.experienceux.co.uk/faqs/what-is-wireframing/)
2. What is prototyping? [https://www.techopedia.com/definition/678/prototype](https://www.techopedia.com/definition/678/prototype)
4. Practice Your Prototyping Skills With These 4 Resources: [https://www.ideo.com/blog/practice-your-prototyping-skills-with-these-4-resources](https://www.ideo.com/blog/practice-your-prototyping-skills-with-these-4-resources)
Examples

IDEA: have users “build” wireframe by using 3x5 cards to move data elements around on a table and take a photo as an artifact

Low Fidelity:

Medium Fidelity:

High Fidelity:

Prototype Progression:
[In this diagram Low-Fi would be considered Medium Fidelity]