
LUT
University

User Interfaces and Usability

Antti Knutas & Dominik Siemon

Introduction to design

PRODUCE design solutions

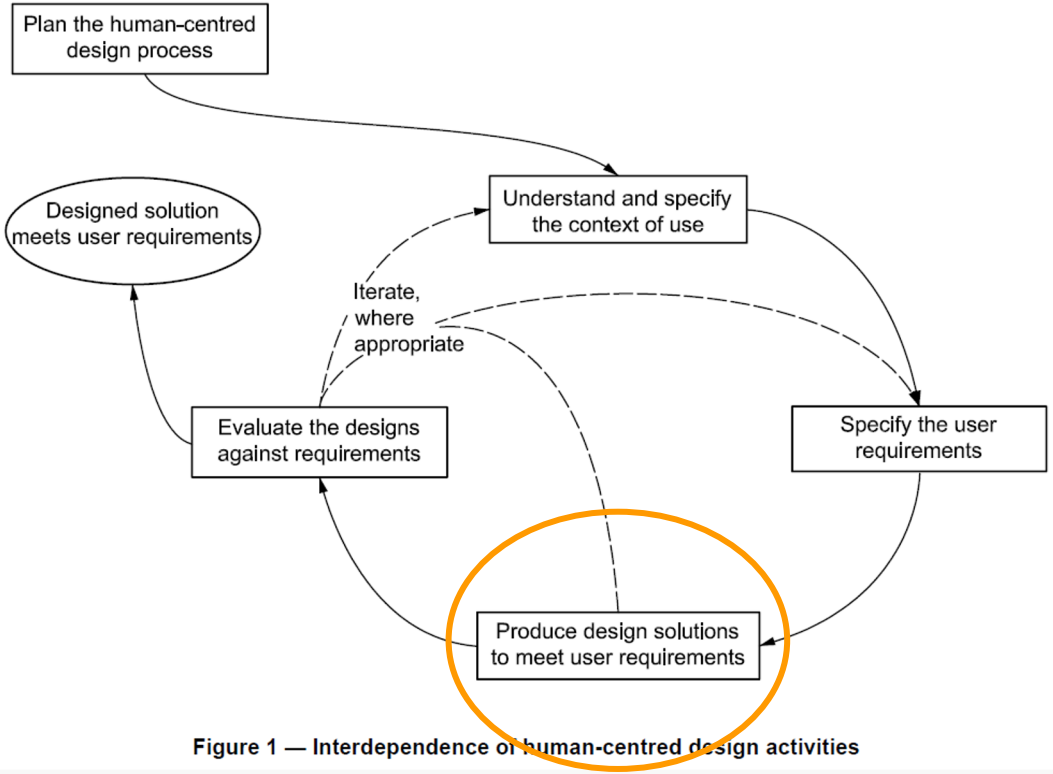


Figure 1 — Interdependence of human-centred design activities

ISO 9241-210:2010 Human-Centred Design for Interactive Systems

First part of intro to design: Conceptual design and prototyping

Introduction

Prototype: A concrete manifestation of an idea
Users can't often tell what they want!
But when they see and get to use something, they can give you feedback.

Prototype

- Often three levels in UI design
  - Sketching ➡ digital ➡ native

Reminder: Development of a conceptual model (what it does) before the concrete design (what the UI looks like)

Bring your mental model to life

See Sharp chapter 12 "Prototyping"
You'll also cover this more in next exercises!

Prototyping

Prototype: a first or preliminary version of an artifact from which other forms are developed

Visualization as a form of expressing your thoughts, and especially your mental model.

Benefits:

Show! Don't tell!

- Easy and fast to create
- Easy and fast to change and iterate (even better, with digital prototyping)
- Can document iterations and requirements
- Helps communicate ideas and designs

Prototyping strategies

- **Horizontal prototyping**
  - Broad view of the software/application
  - Represent the complete user journey
  - Less details

Manifest the whole idea of the system

- **Vertical prototyping**
  - Prototype specific feature or function
  - Represent complete functionality of specific feature/function
  - More details on this specific aspect

Manifest the whole idea of the feature

Prototyping techniques

- **Low-fidelity**: Simple, cheap, and quick to modify
  - Storyboarding
  - Sketching and paper prototyping

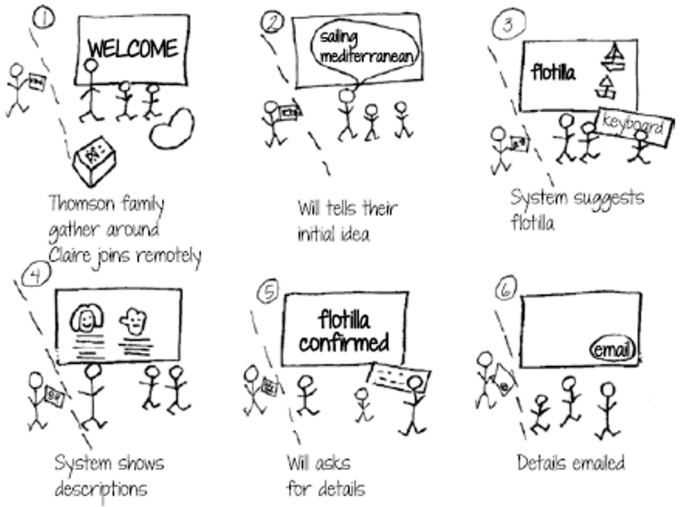
Fast and less details

- **High-fidelity prototype:** More complex, resource-intensive
  - Device prototype ➡ realistic but inoperable
  - Wireframing ➡ “navigable” mock-up of software

More details and less fast

“Click-dummy”

Examples of low-fidelity: Storyboards and sketching navigation maps



From Sharp (2019), pg. 447 & 431

Example of high-fidelity prototyping

Make use of all senses

Feel!

Figure 12.1 The PalmPilot wooden prototype

Source: https://www.computerhistory.org/revolution/mobile-computing/18/321/1648. © Mark Richards

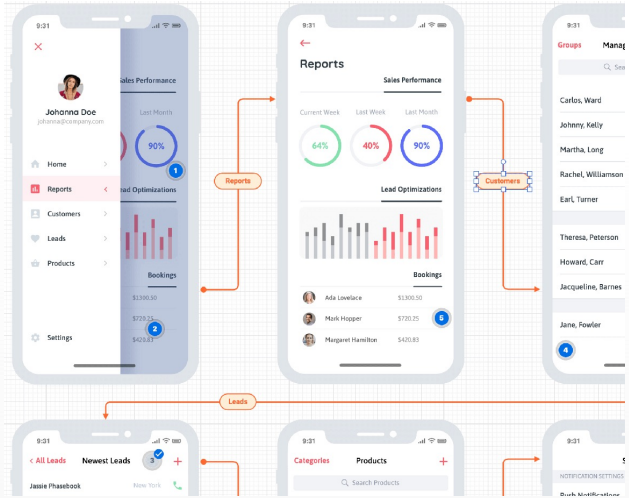
Sharp (2019), pg. 423

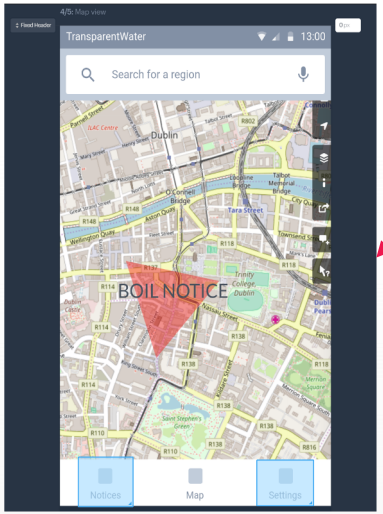
High-fidelity prototyping tools

Click dummy

Mock up

- **Wireframes** and **prototyping tools**: Create a visual, navigable prototype of your software
- Arduinos or mobile phones: Simulate a device that does not exist yet





Prototype by Antti Knutas

https://moqups.com/

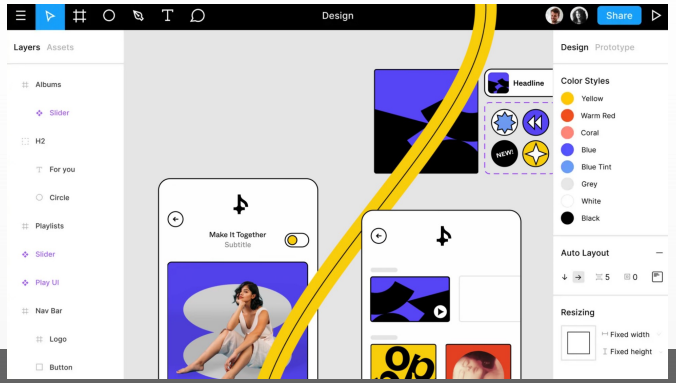
High-fidelity digital prototyping tools

Good ones suitable for course project include

- Figma (**recommended** and has a free basic account, material.io components provided; used in course examples)
- Adobe XD (free starter plan, material.io elements provided)
- Marvel.app (free starter plan, no material.io components)

And many more

Most of these tools allow online collaboration on shared projects

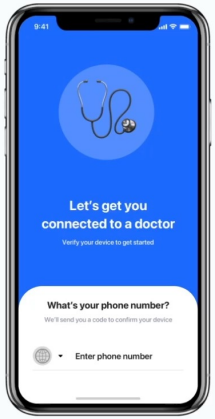


High-fidelity prototype: Example

Antti Knutas:
https://marvelapp.com/4g0de61

Other examples:
https://marvelapp.com/examples

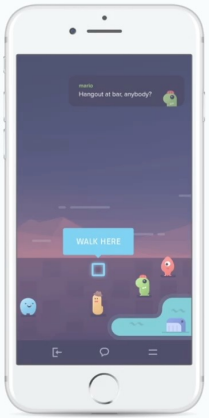
Discover the endless possibilities of building prototypes in Marvel. Click an example to see it in action.



Healthcare

A prototype with multiple flows and chat simulation for on-demand healthcare.

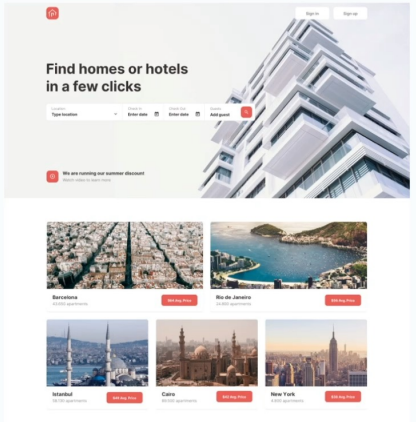
Health Chat Mobile



Chat

See how a gamified messaging app can be prototyped before handing off to developers.

Social Media Gif Timers



Hotel

A prototype for finding and booking holiday accommodation.

Travel Website

Summary on prototyping

- Have a concrete manifestation of your idea **Show! Don't tell**

Low-fidelity: Quick to produce and modify; use early
High-fidelity: Slow and requires more care in design; use late to get feedback before implementing actual design

„A picture is worth a million words"

Tipp: Use ready-made parts and tools to support prototyping

Google on sketching, digital prototyping and native prototyping

Rapid Prototyping: Sketching | Google for Startups

Rapid Prototyping: Native | Google for Startups

Rapid Prototyping: Digital | Google for Startups

Videos will be embedded in H5P

PRODUCE design solutions: More reading from course literature

- Benyon
  - Chapter 9, “Design”
  - Chapter 12, “Visual interface design”
- Sharp
  - Chapter 10, “Design, prototyping, and construction”
  - Chapter 13, “Interaction design in practise”
- HCD field guide
  - Co-creation session
  - Rapid prototyping
  - Get feedback & integrate feedback