

User Experience Design I (Interaction Design)

Day 2

Process Models, Elements and Usability

Process Models, Elements and Usability

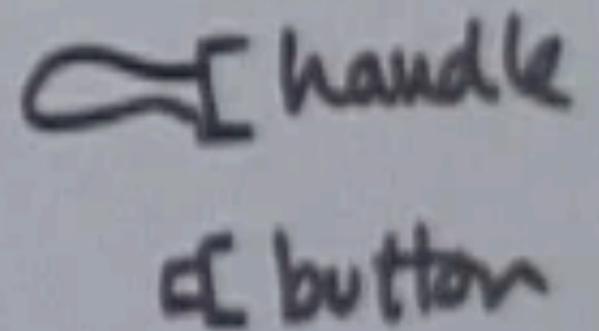
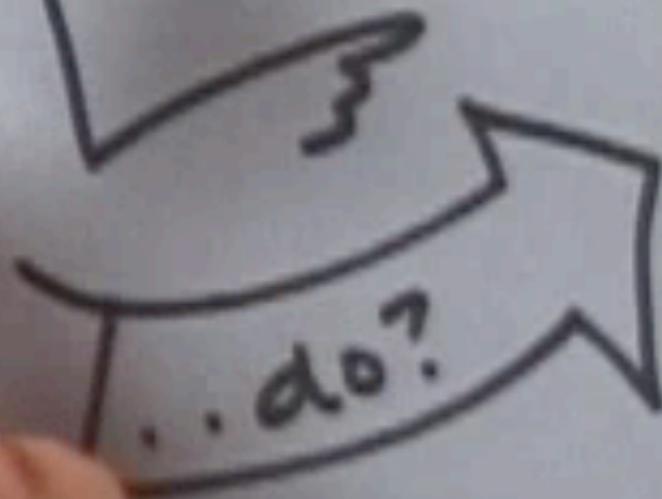
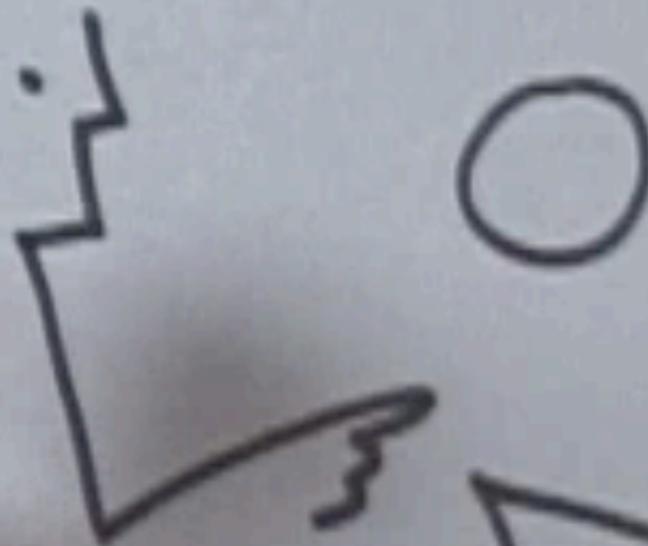
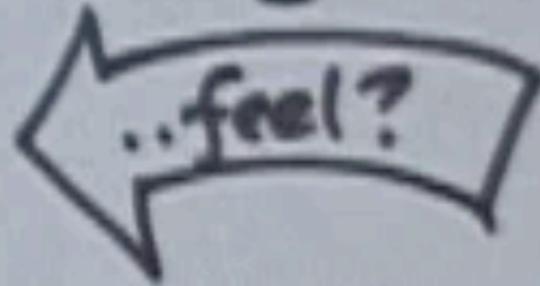
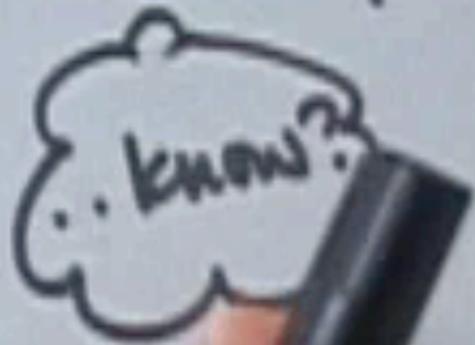
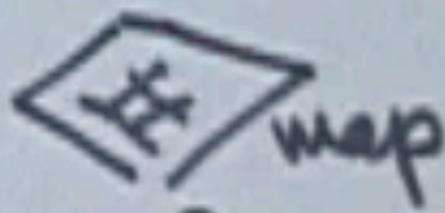
- Definition and Paradigms of UX/Interaction Design
- Process Models
- Elements of UX/Interaction Design
- Usability I



Bill Verplank

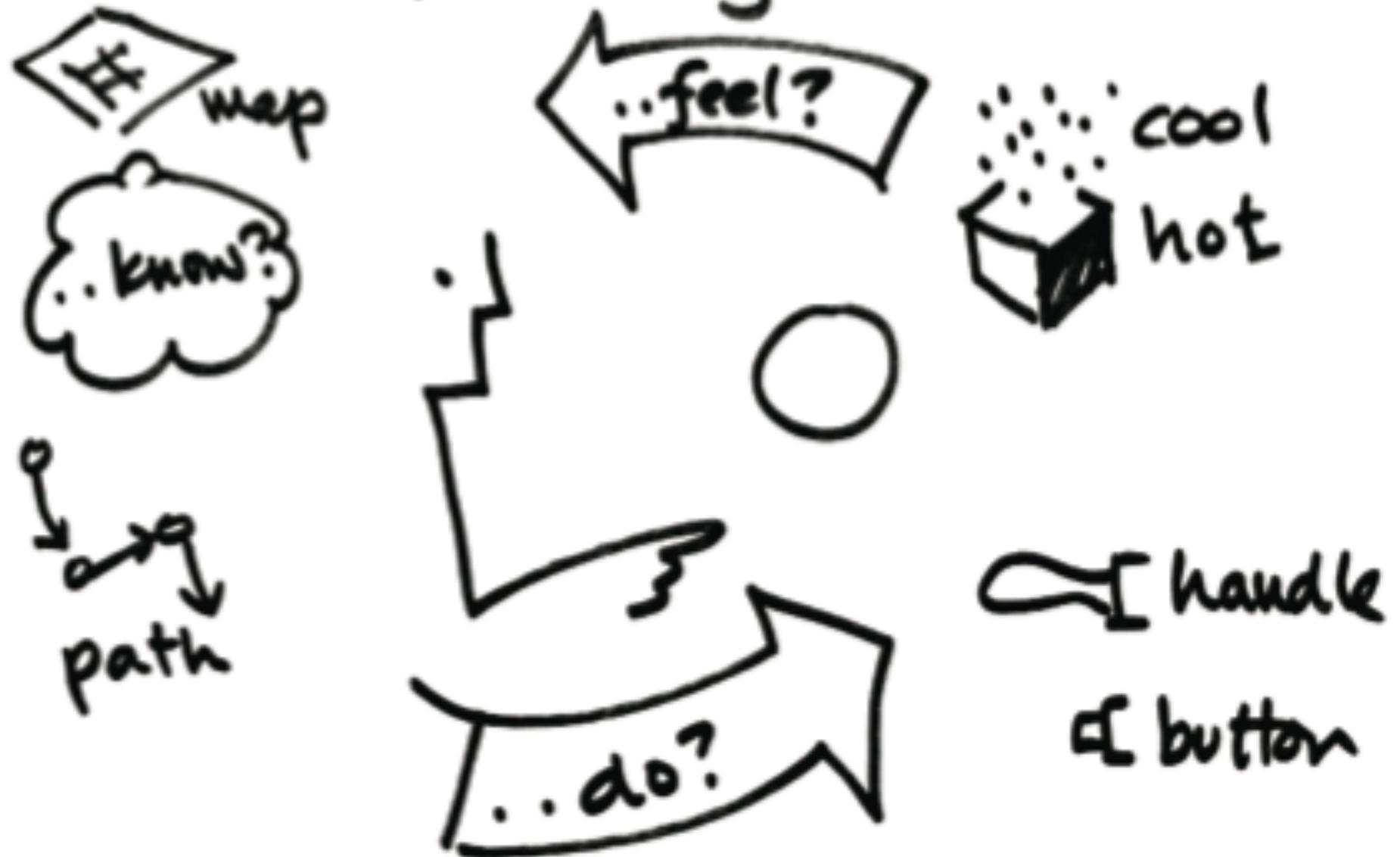
INTERACTION

How do you...



INTERACTION

How do you...



Bill Verplank

says that the interaction designer has three questions to answer; they are all "How do you . . . ?" questions.

source: [3]

1. “How do you do?”

How do you affect the world?

You can grab hold of a handle and manipulate it, keeping control as you do it.

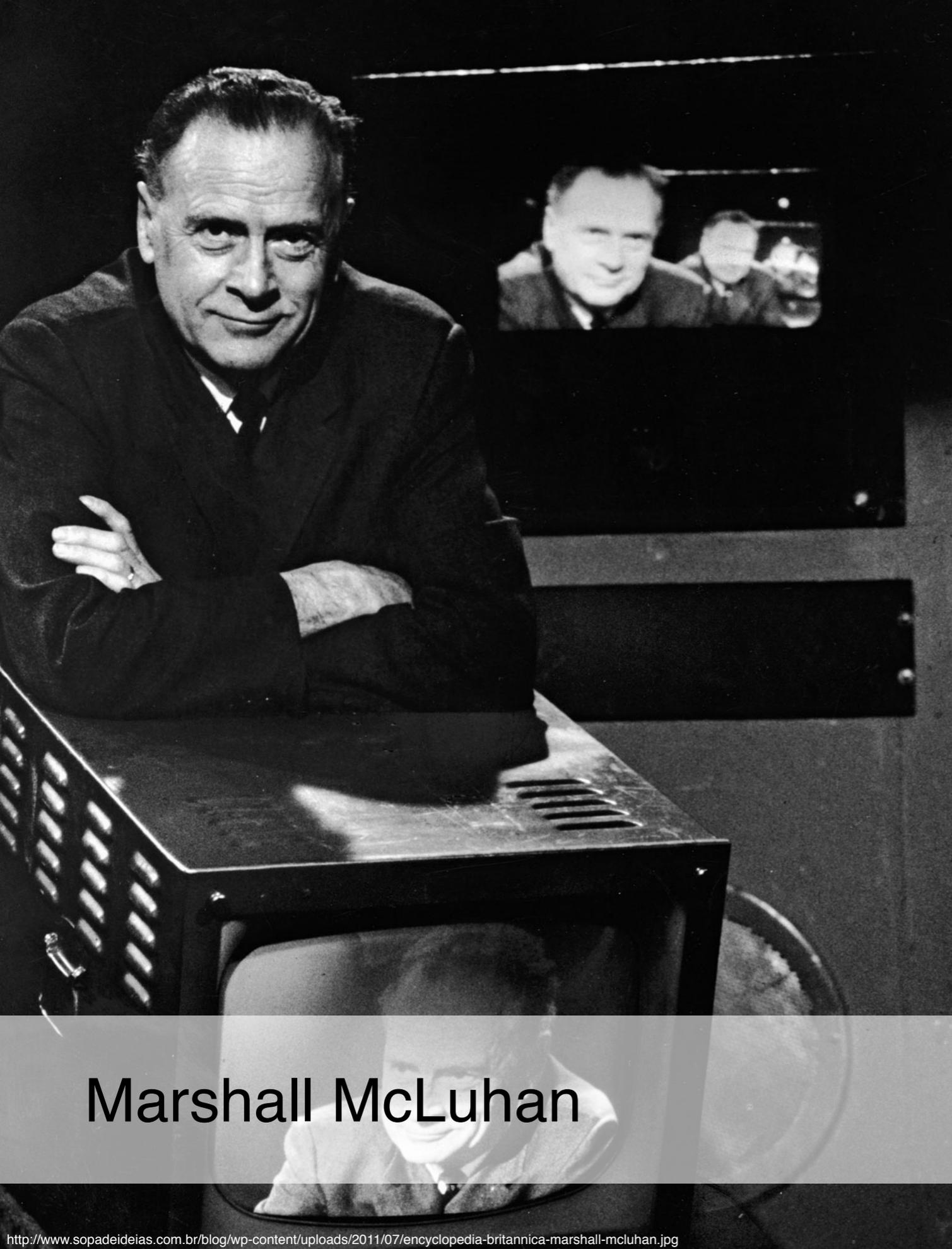
2. “How do you feel?”

How do you get feedback?

That’s where a lot of feelings come from; a lot of our emotions about the world come from the sensory qualities of those media that we present things with.

3 “How do you know?”

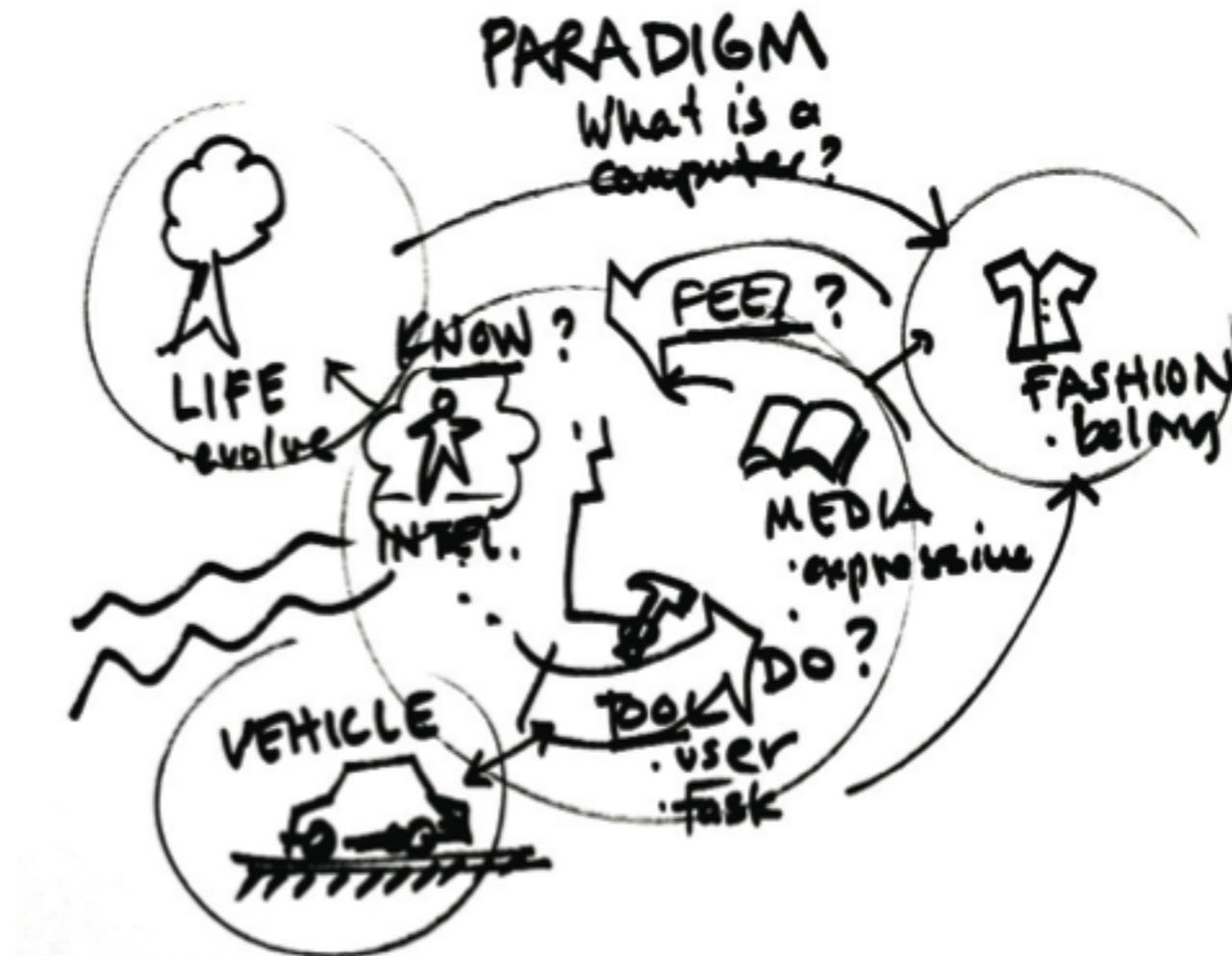
The map shows the user an overview of how everything works, and the path shows them what to do, what they need to know moment by moment



Marshall McLuhan

"Any hot medium allows of less participation than a cool one, as a lecture makes for less participation than a seminar, and a book for less than a dialogue."

Interaction Design Paradigms



A paradigm is an example that serves as a pattern for the way people think about something.

It is the set of questions that a particular community has decided are important. For interaction design there is often some confusion about what paradigm you are working with. The basic question is, What is a computer?

source: [3]

Tool

Doug Engelbart, the inventor of the computer mouse, thought of the computer as a tool.

Styles of interaction changed from dialogs, where we talk to a computer and a computer will talk back to us, to direct manipulation, where we grab the tool and use it directly. The ideas of efficiency and empowerment are related to this tool metaphor.

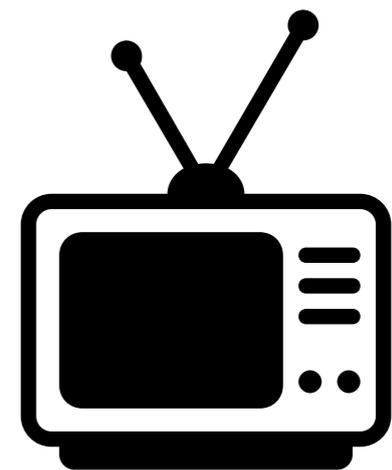


source: [3]

Media

In the nineties, designers thought of computers as media, raising a new set of questions.

How expressive is the medium? How compelling is the medium? Here we are not thinking so much about a user interacting with or manipulating the computer, but more about them looking at and browsing in the medium.

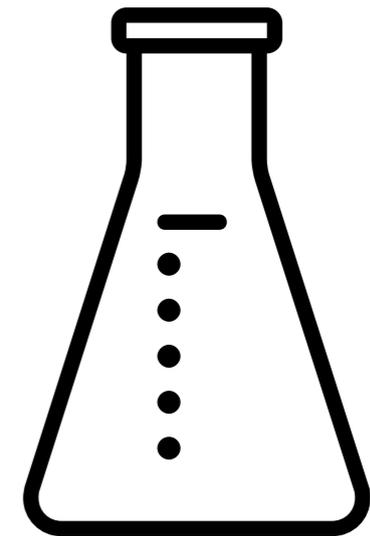


source: [3]

Life

Starting in the mid nineties, people have been talking about computer viruses or computer evolution; they are thinking of artificial life.

When the program has been written, it is capable of evolving over time—getting better and adapting. The programmer is in a way giving up responsibility, saying that the program is on its own.



source: [3]

Vehicle

Another metaphor is the computer as vehicle, and we have to agree on the rules of the road.

There has to be some kind of infrastructure that underlies all computer systems. People spend their careers determining the standards that will define the infrastructures, and hence the limitations and opportunities for design.

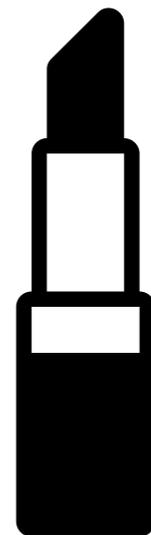


source: [3]

Fashion

The media metaphor plays out to computers as fashion.

A lot of products are fashion products. People want to be seen with the right computer on. They want to belong to the right in-crowd. Aesthetics can dominate in this world of fashion, as people move from one fashion to another, from one style of interaction to another style.



source: [3]

User Experience Design





<https://dotmobility.files.wordpress.com/2013/12/photosphere-create.jpg>



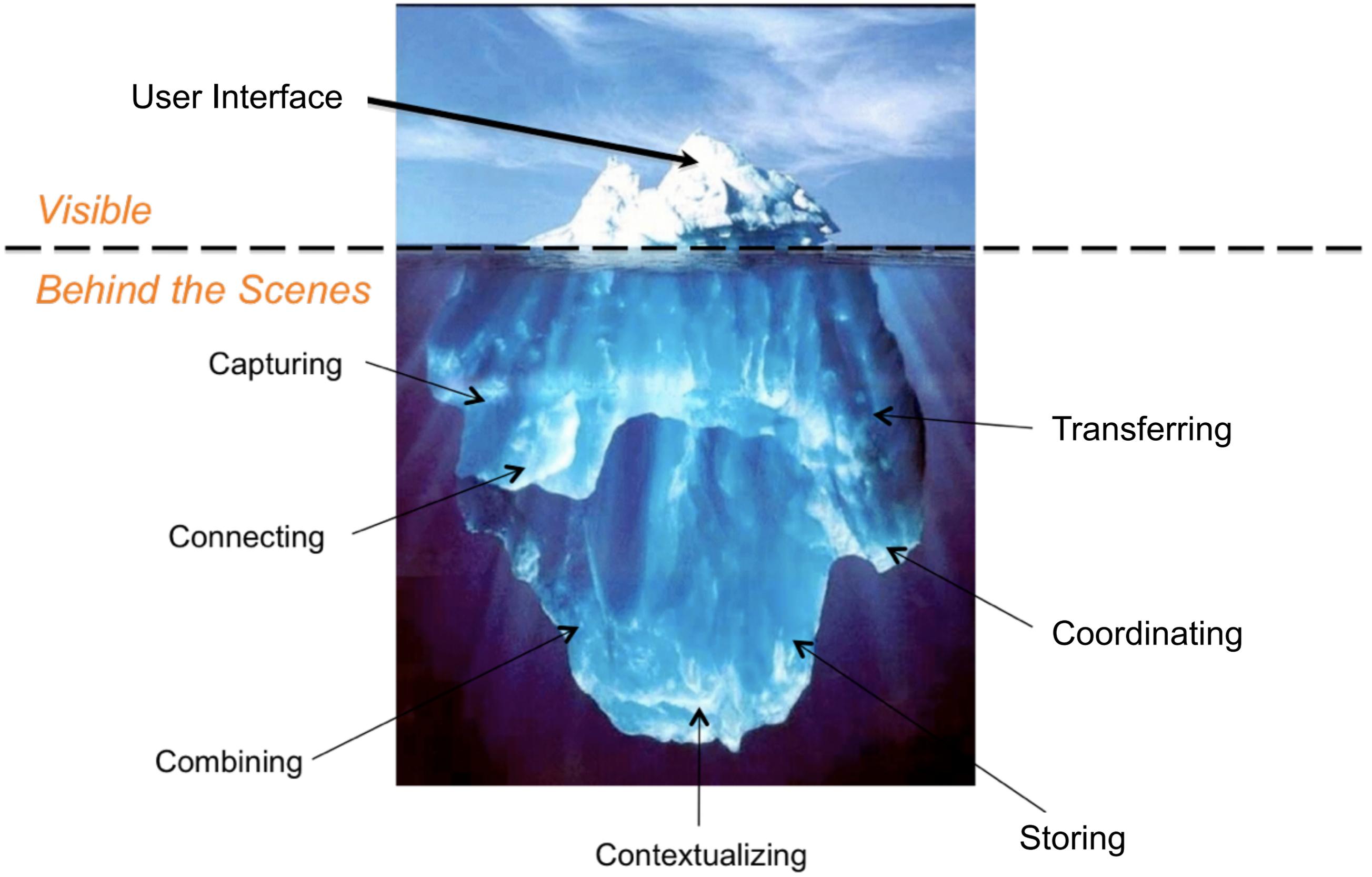
Front Stage

<http://www.markabull.com/wp-content/uploads/2011/01/stage.jpg>



Back Stage

<http://blog.entrepreneurhearts.com/etablog/wp-content/uploads/2010/08/backstage.jpg>



User Interface

Visible

Behind the Scenes

Capturing

Connecting

Combining

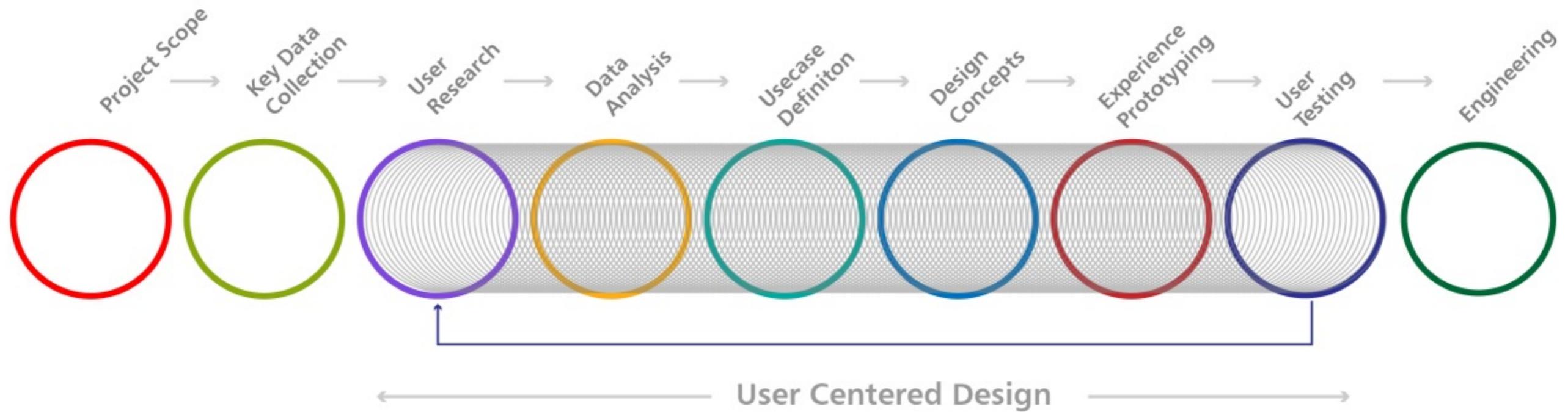
Contextualizing

Transferring

Coordinating

Storing

Standart UCD Design Process Model



source: [4]



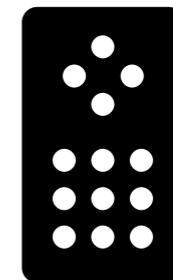
Appearance/Affordances

Appearance

Appearance is the major source (texture is the other) of what cognitive psychologist James Gibson, in 1966, called **affordances**.

Gibson explored the concept more fully in his 1979 book *The Ecological Approach to Visual Perception*, but it wasn't until Don Norman's seminal book *The Psychology of Everyday Things*, in 1988, that the term spread into design.

An **affordance** is a property, or multiple properties, of an object that provides some indication of how to interact with that object or with a feature on that object.

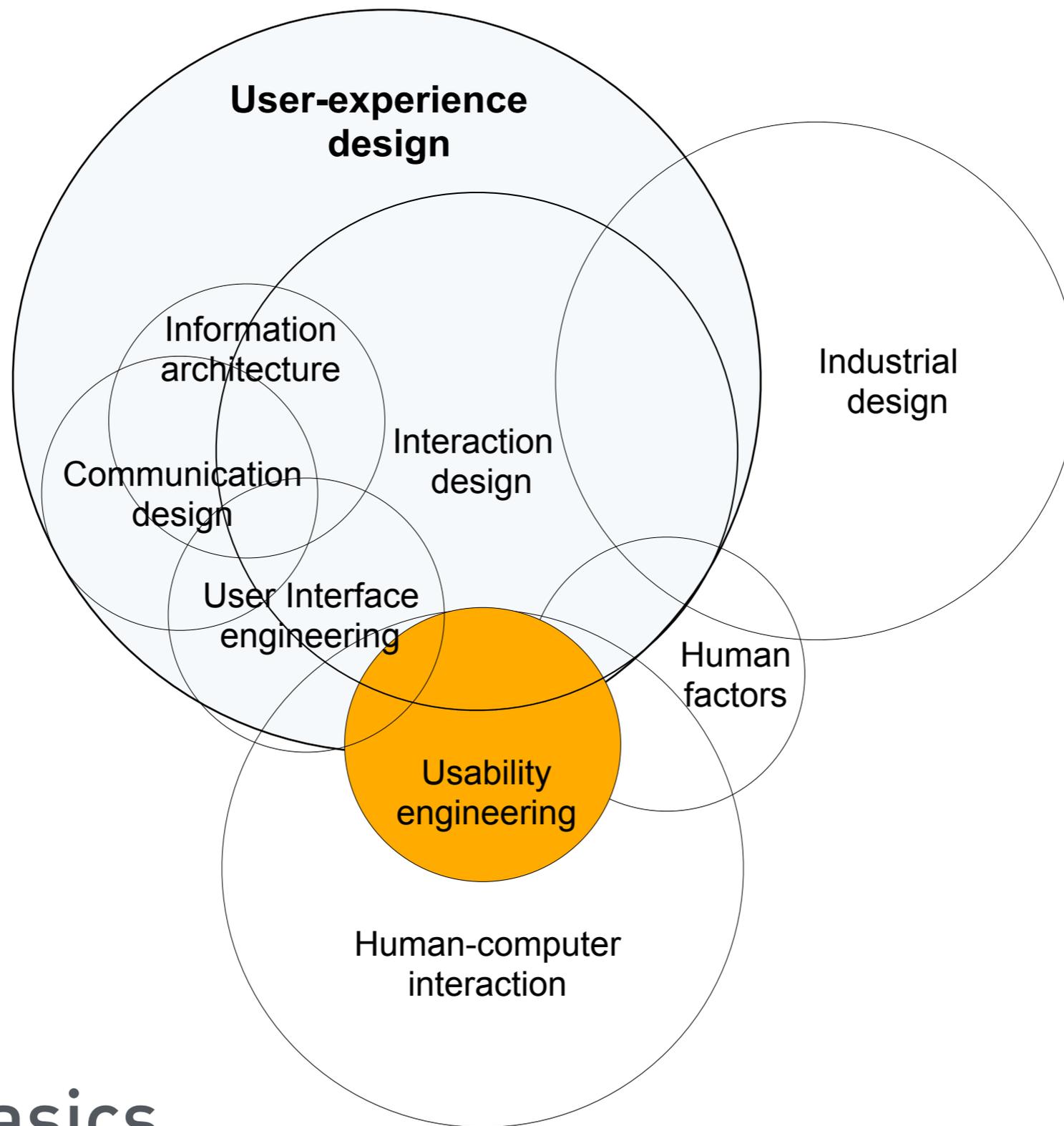


source: [2&5]

Appearance/Affordance has many variables for interaction designers to alter:

- 1. proportion**
- 2. structure**
- 3. size**
- 4. shape**
- 5. weight**
- 6. color (hue, value, saturation)**

All of these characteristics (and more) add up to appearance, and nearly every design has some sort of appearance, even if that appearance is a simple command line.



Usability Basics

Usability is a term used to denote the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal.

Benefits of usability testings

- Higher revenues through increased sales
- Increased user efficiency
- Reduced development costs
- Reduced support costs

EXIT TICKET WITH YOU

Thank You!

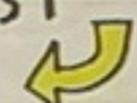


PRESS HERE TO START

COINS



PRESS GREY BOX FIRST



BILLS



CHANGE MACHINE



CREDIT CARDS



2

PAY AMOUNT ON SCREEN

Parking Machine



Microwave



Copier



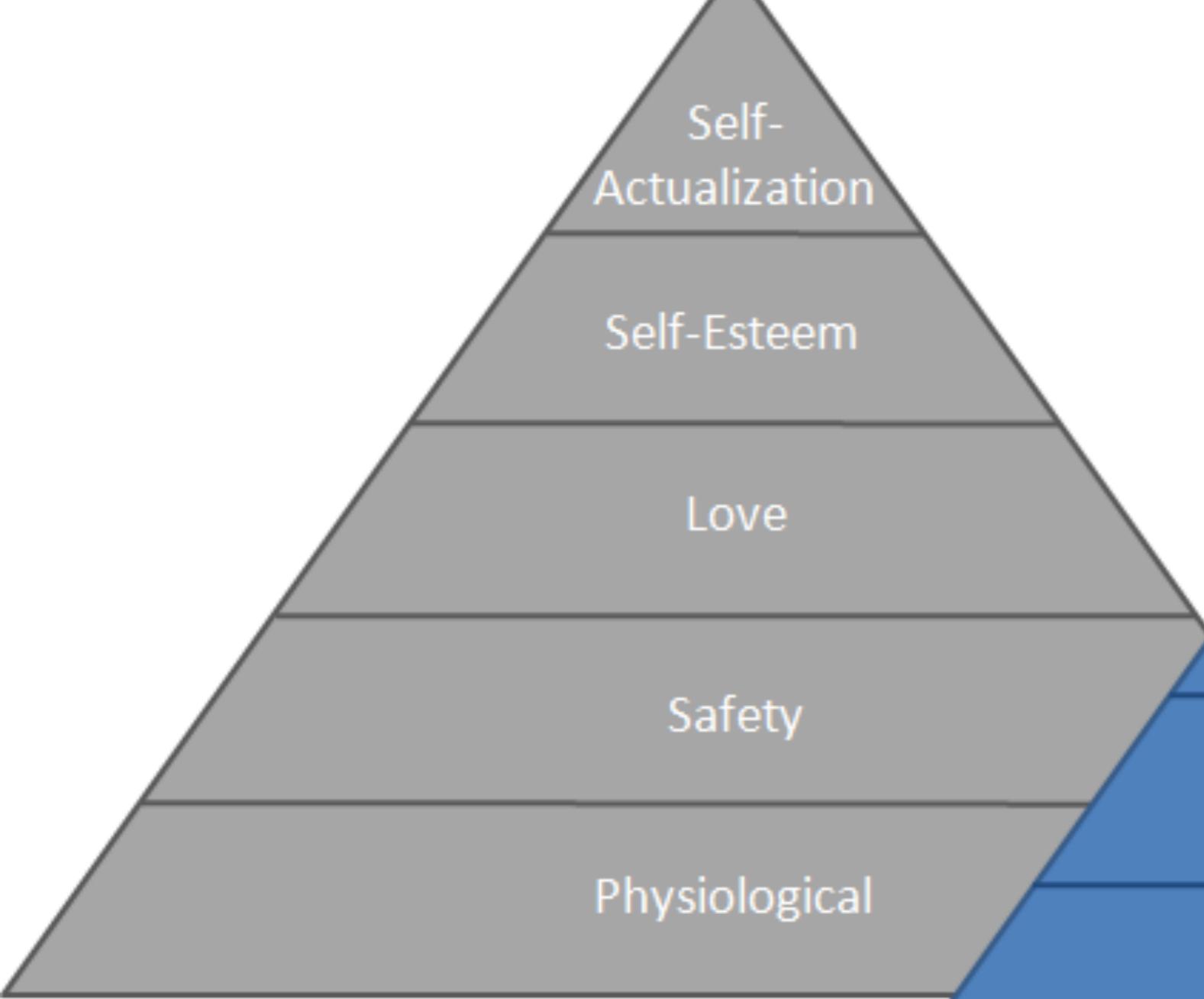
Remote Control



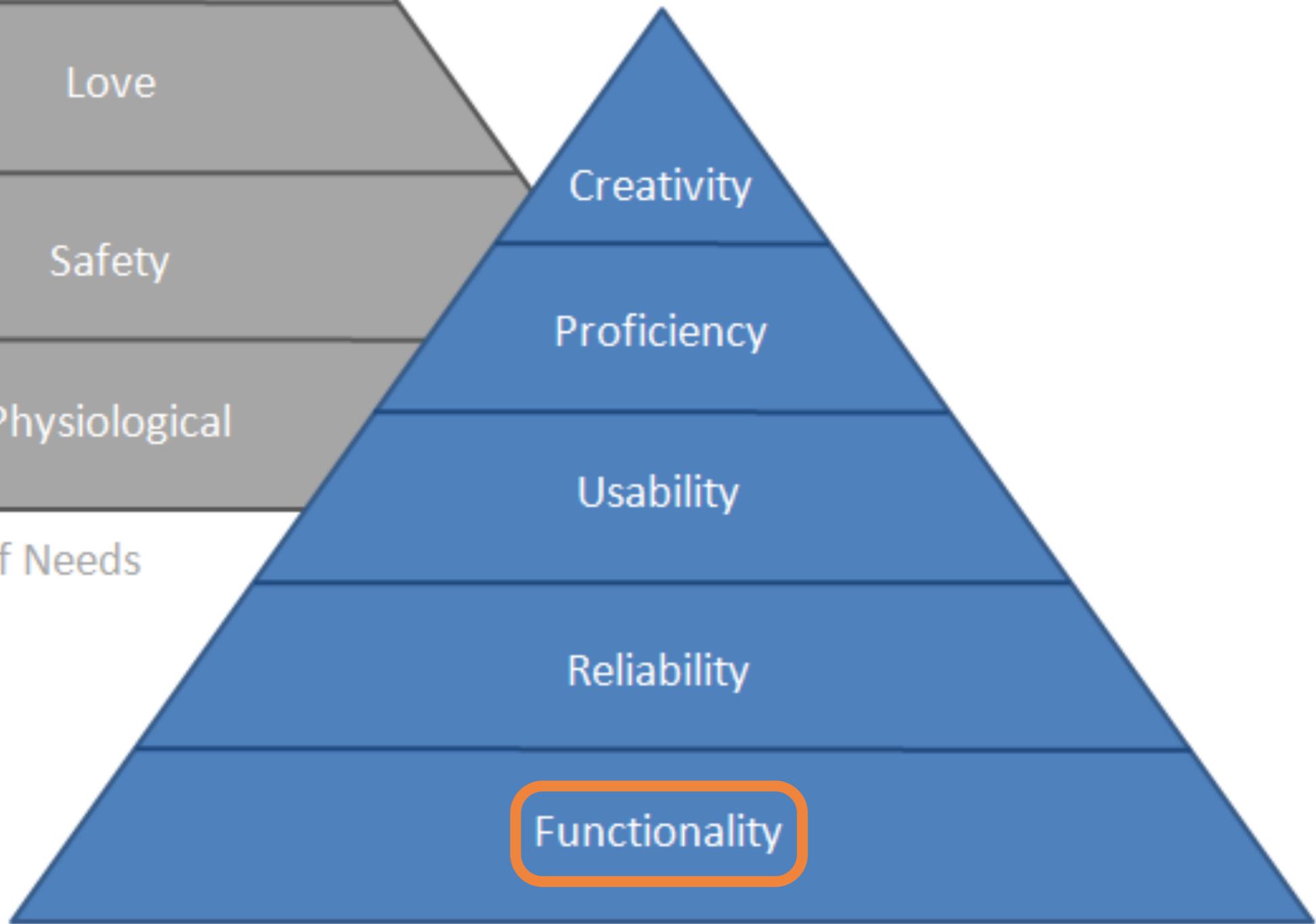
Remote Control

Hierarchy of **Design Needs**

(Lidwell: Universal Principles of Design, 2003)



Maslow's Hierarchy of Needs

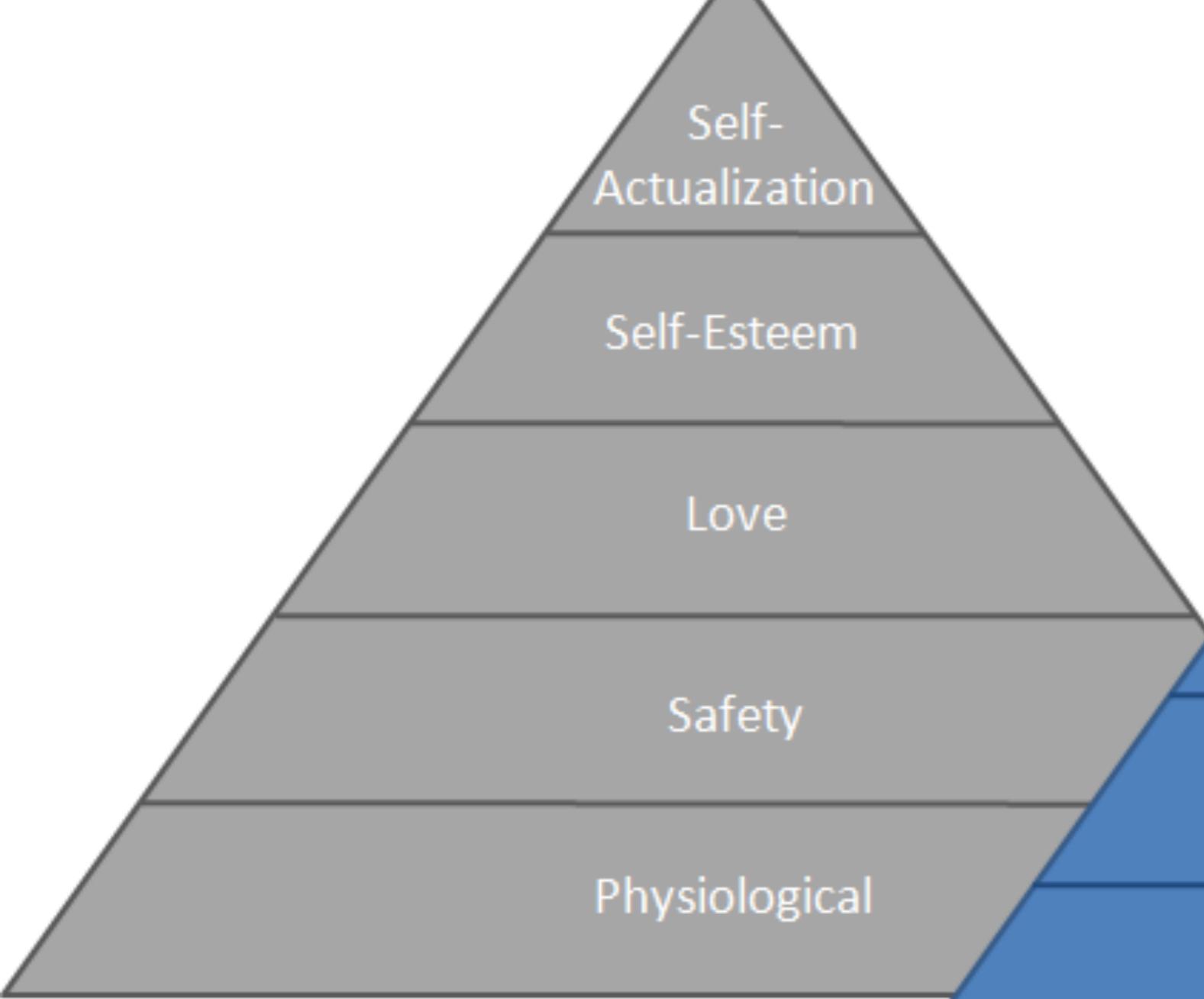


Design Hierarchy of Needs

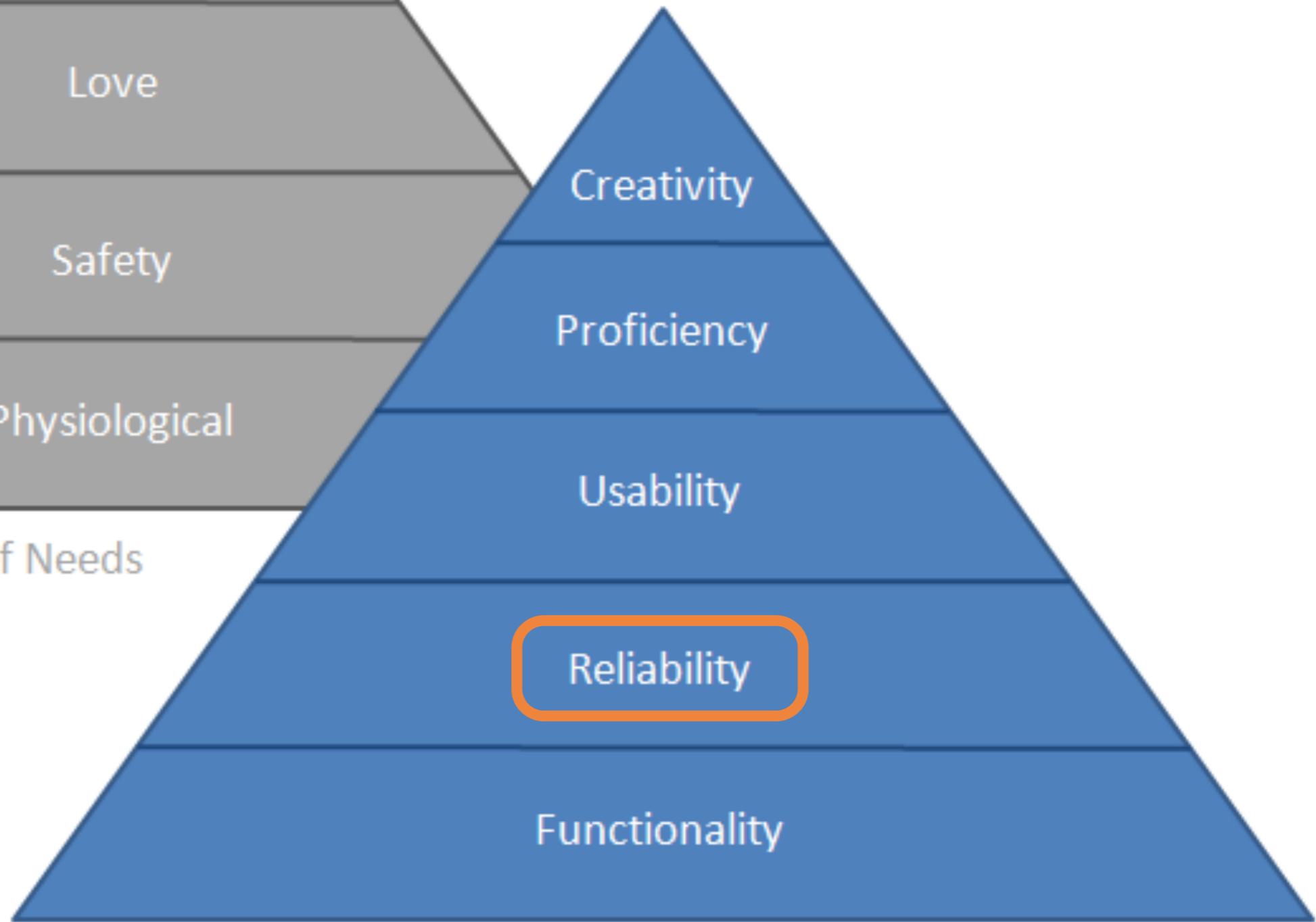
source: [7]

Functionality needs have to do with meeting the most basic design requirements.

For example a HDD recorder must, at minimum, provide the capability to record play, and review recorded programs. Designs at this level are perceived to be of little or no value.



Maslow's Hierarchy of Needs

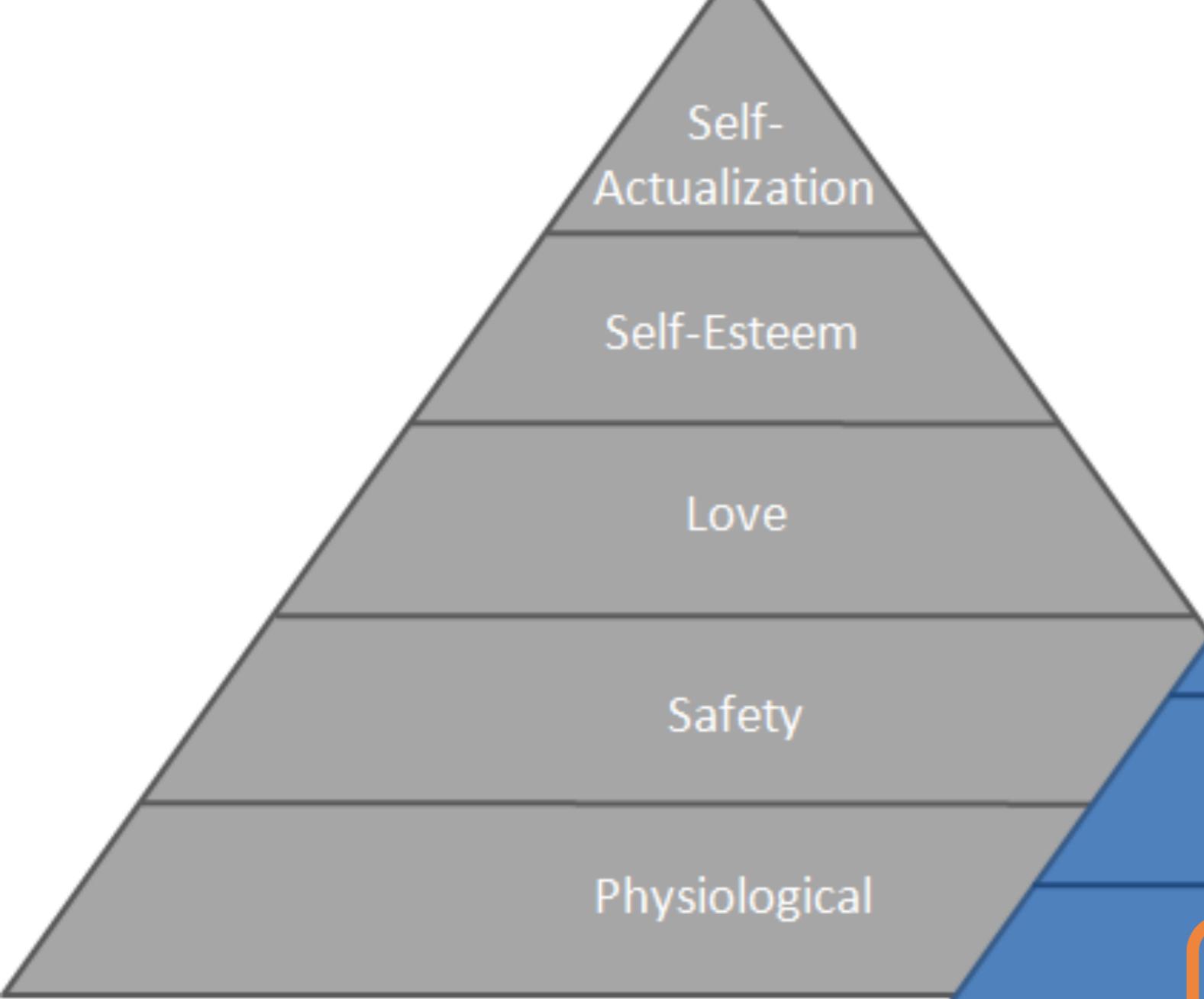


Design Hierarchy of Needs

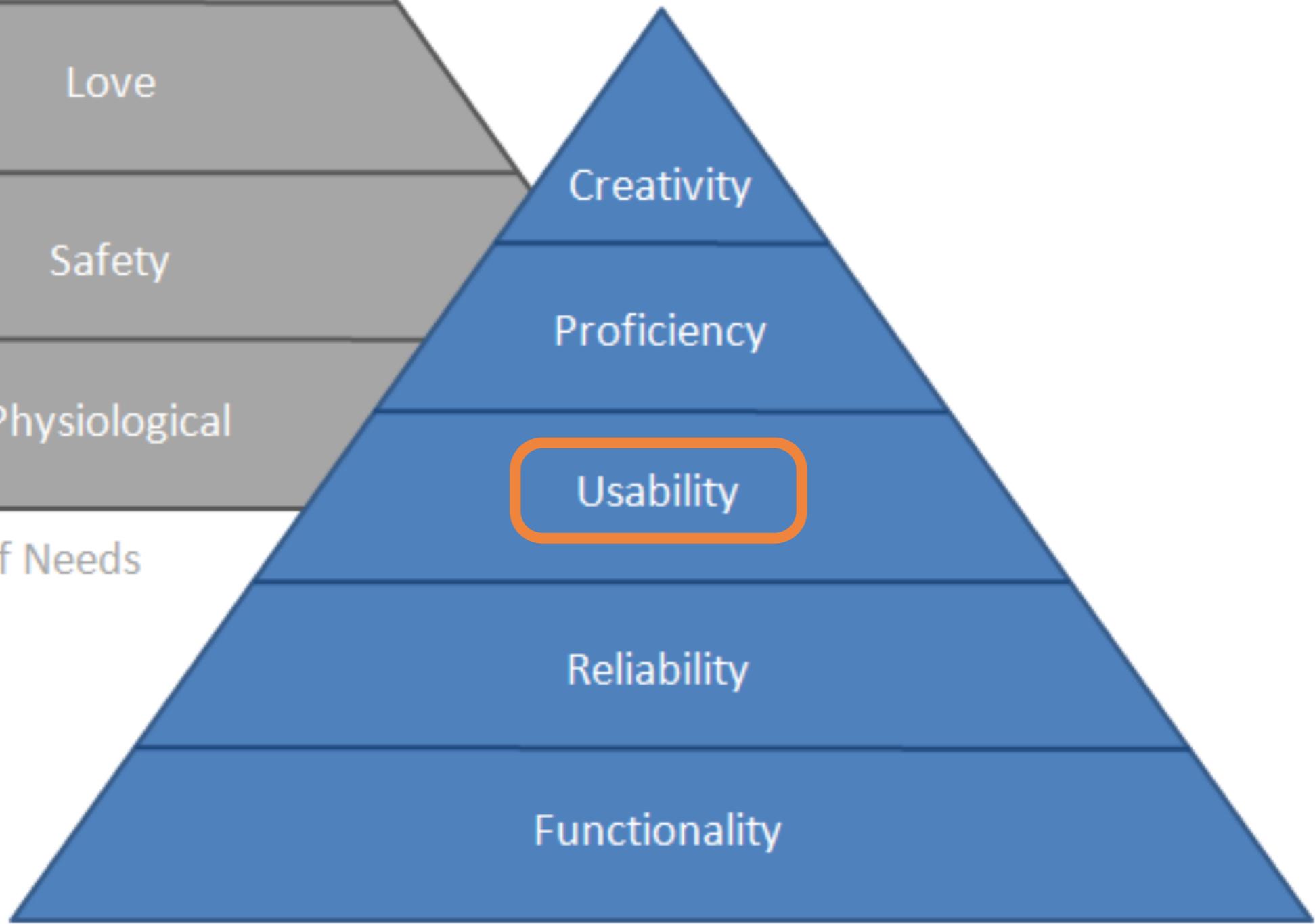
source: [7]

Reliability needs have to do with establishing stable and consistent performance.

For example a HDD recorder should perform consistently and play back recorded programs at an acceptable level of quality. If the design performs erratically, or is subject to frequent failure, reliability needs are not satisfied. Designs at this level are perceived to be of low value



Maslow's Hierarchy of Needs

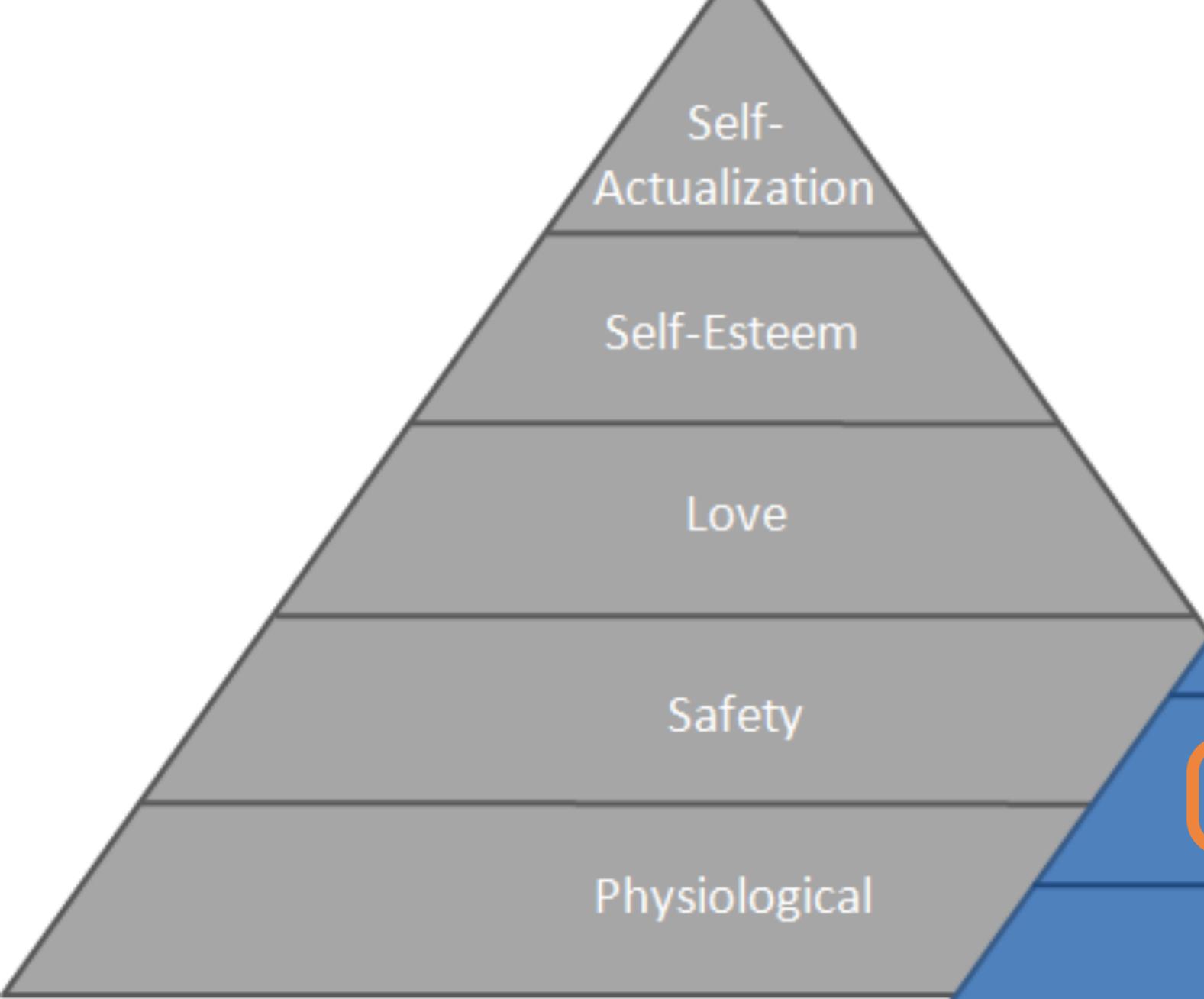


Design Hierarchy of Needs

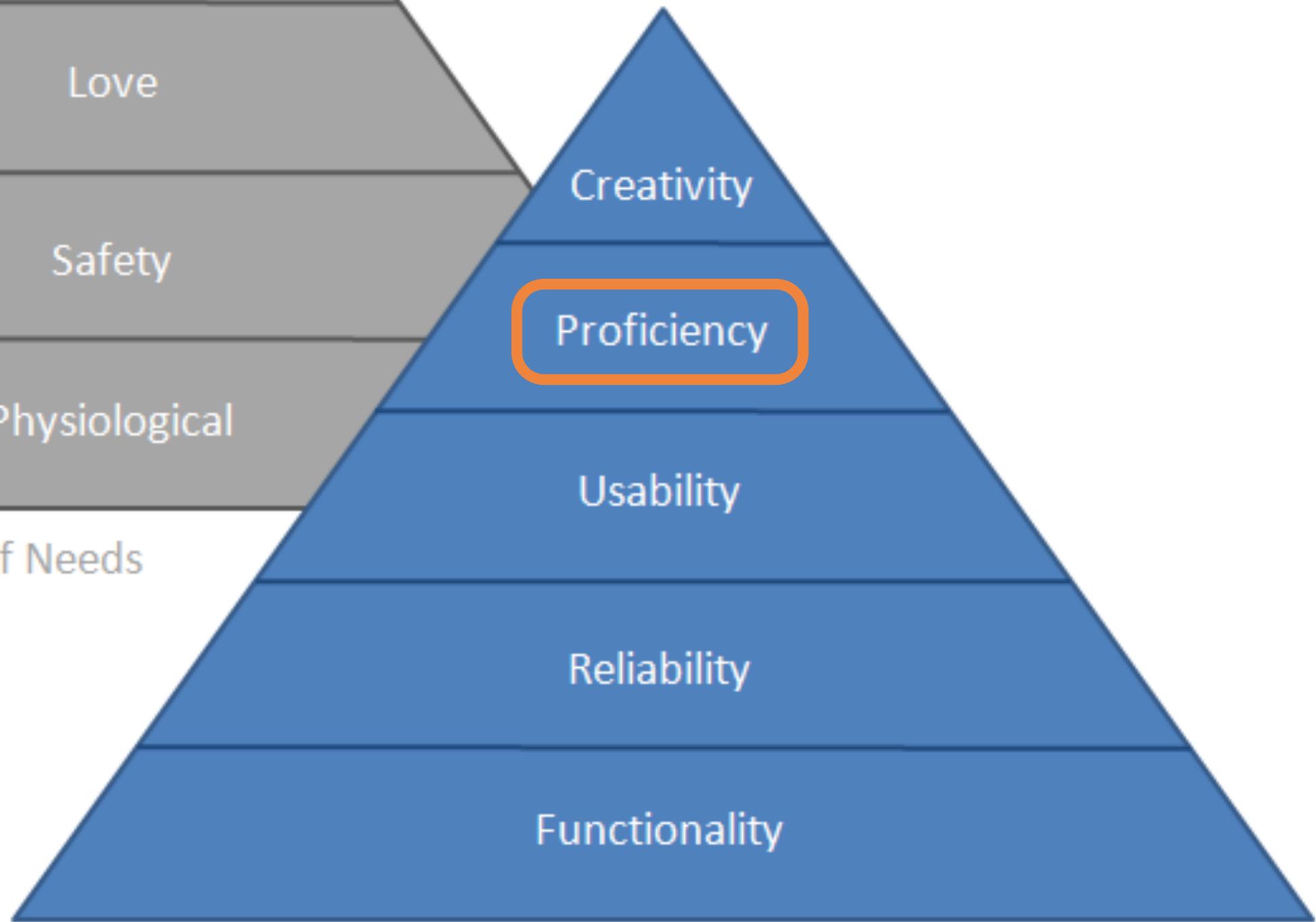
source: [7]

Usability needs have to do with how easy and forgiving a design is to use.

For example, configuring a HDD recorder to record programs at a later time should be easily accomplished, and the recorder should be tolerant of mistakes. If the difficulty is too great, or the consequences of simple errors too severe, usability needs are not satisfied. Designs at this level are perceived of moderate value.



Maslow's Hierarchy of Needs

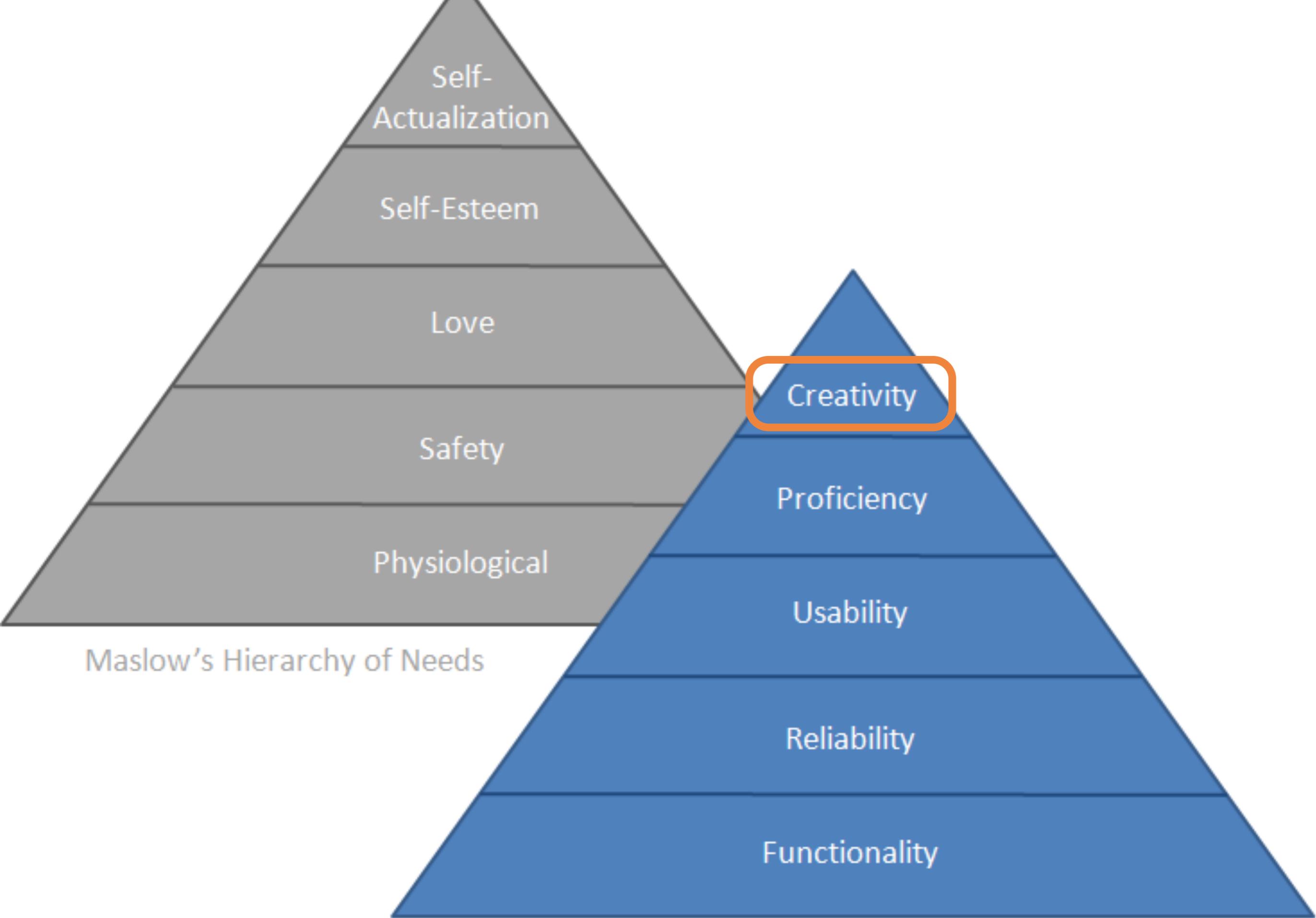


Design Hierarchy of Needs

source: [7]

Proficiency needs have to do with empowering people to do things better than they could previously.

For example, a HDD recorder that can seek out and record programs based on keywords is a significant advance in recording capability, enabling people to do things not previously possible. Designs at this level are perceived to be of high value.



Maslow's Hierarchy of Needs

Design Hierarchy of Needs

source: [7]

Creativity is the level in the hierarchy where all needs have been satisfied and people begin interacting with the design in innovative ways.

The design, having satisfied all other needs, is now used to create and explore areas that extend both the design and the person using the design. Designs at this level are perceived to be of the highest value, and often achieve cult-like loyalty among users.

source: [7]



Aesthetic-Usability Effect

Aesthetic designs are perceived as easier to use than less-aesthetic designs.

Aesthetic designs look easier to use and have a higher probability of being used, whether or not they actually are easier to use.

source: [7]



Flexibility-Usability Tradeoff

source: [7]

The **flexibility-usability tradeoff** is exemplified in the well known maxim “jack of all trades, master of none”. Flexible designs can perform more functions than specialised designs, but they perform the functions less efficiently.

source: [7]

Flexibility



Flexibility-Usability Tradeoff

source: [7]

Usability



Navigation



SANITÄRKERAMIK u. ZUBEHÖR
WC-SITZE / ARMATUREN

4

HANDWERKZEUG / DRAHT
FAHRRAD-u. AUTOZUBEHÖR / ÖLE

LÜFTUNG / SANITÄR
BAD - u. HEIZUNGSZUBEHÖR

5

DÜBEL / SCHRAUBEN / NÄGEL
REGALZUBEHÖR

FLIESENKLEBER / FUGENMÖRTEL
SILIKONE / REINIGUNG

6

LÖTEN / SCHWEISSEN
BESCHLÄGE / KETTEN / SEILE

MÖRTEL / BEDACHUNG

7

ELEKTRO / TAPETEN

DACHRINNE / PANELE
LAMINAT

8

LEUCHTMITTEL / KLEBEFOLIEN
LAMPEN

9

KLEBSTOFFE

Navigation



SANITÄRKERAMIK u. ZUBEHÖR
WC-SITZE / ARMATUREN

4

HANDWERKZEUG / DRAHT
FAHRRAD-u. AUTOZUBEHÖR / ÖLE

LÜFTUNG / SANITÄR
BAD - u. HEIZUNGSZUBEHÖR

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DÜBEL / SCHRAUBEN / NÄGEL
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ELEKTRO / TAPETEN

DACHRINNE / PANEELE
LAMINAT

8

LEUCHTMITTEL / KLEBEFOLIEN
LAMPEN

9

KLEBSTOFFE

How did I get **here**.....?



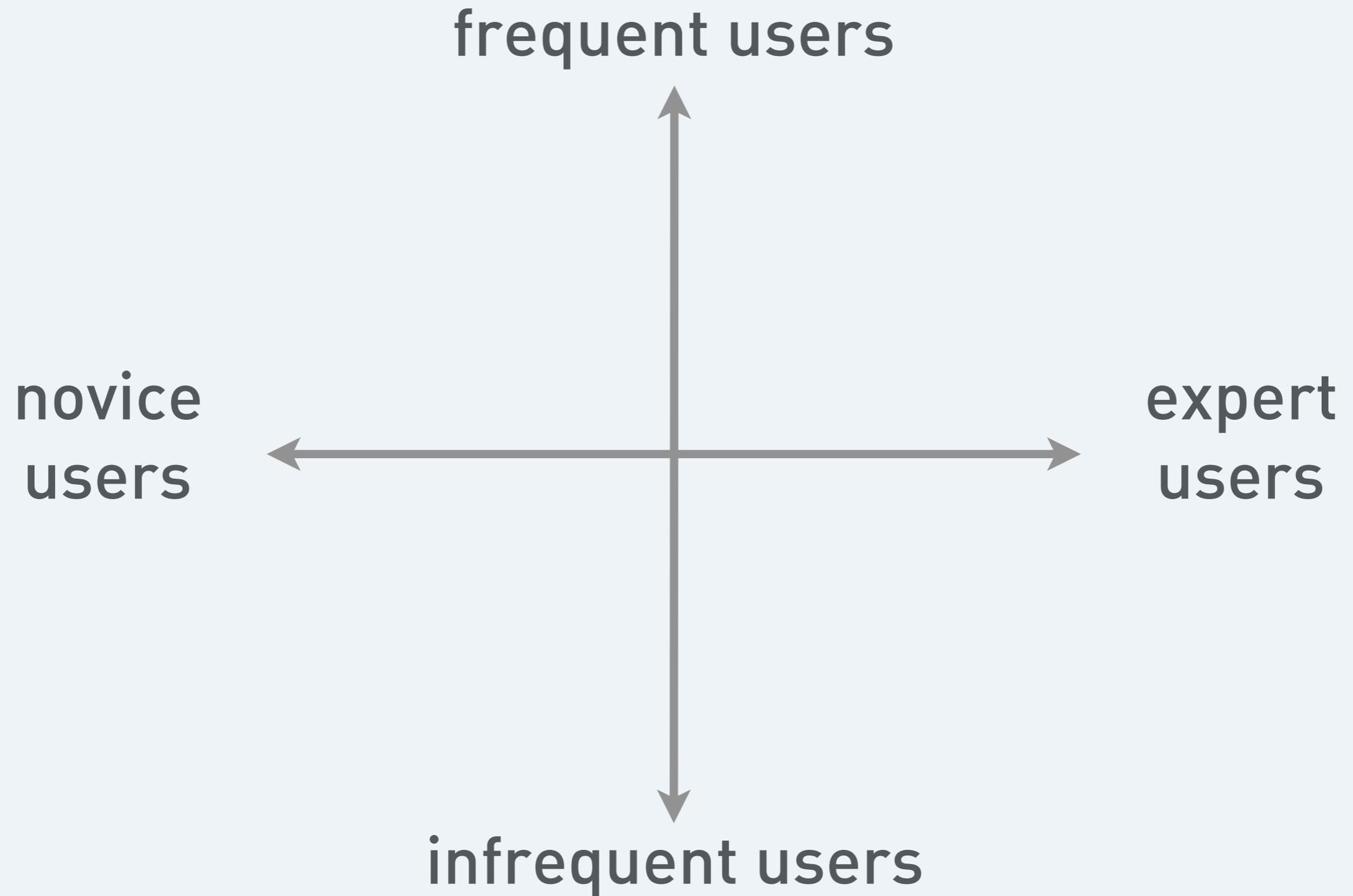
iPhone

http://cdn3.pcadvisor.co.uk/cmsdata/reviews/3572846/iPhone_6_PLUS_preview_MG_1875.jpg

Navigation gives us something “to hold on”

It tells us what we´ll find and
establishes a level of trust between the user
and the people who build the system

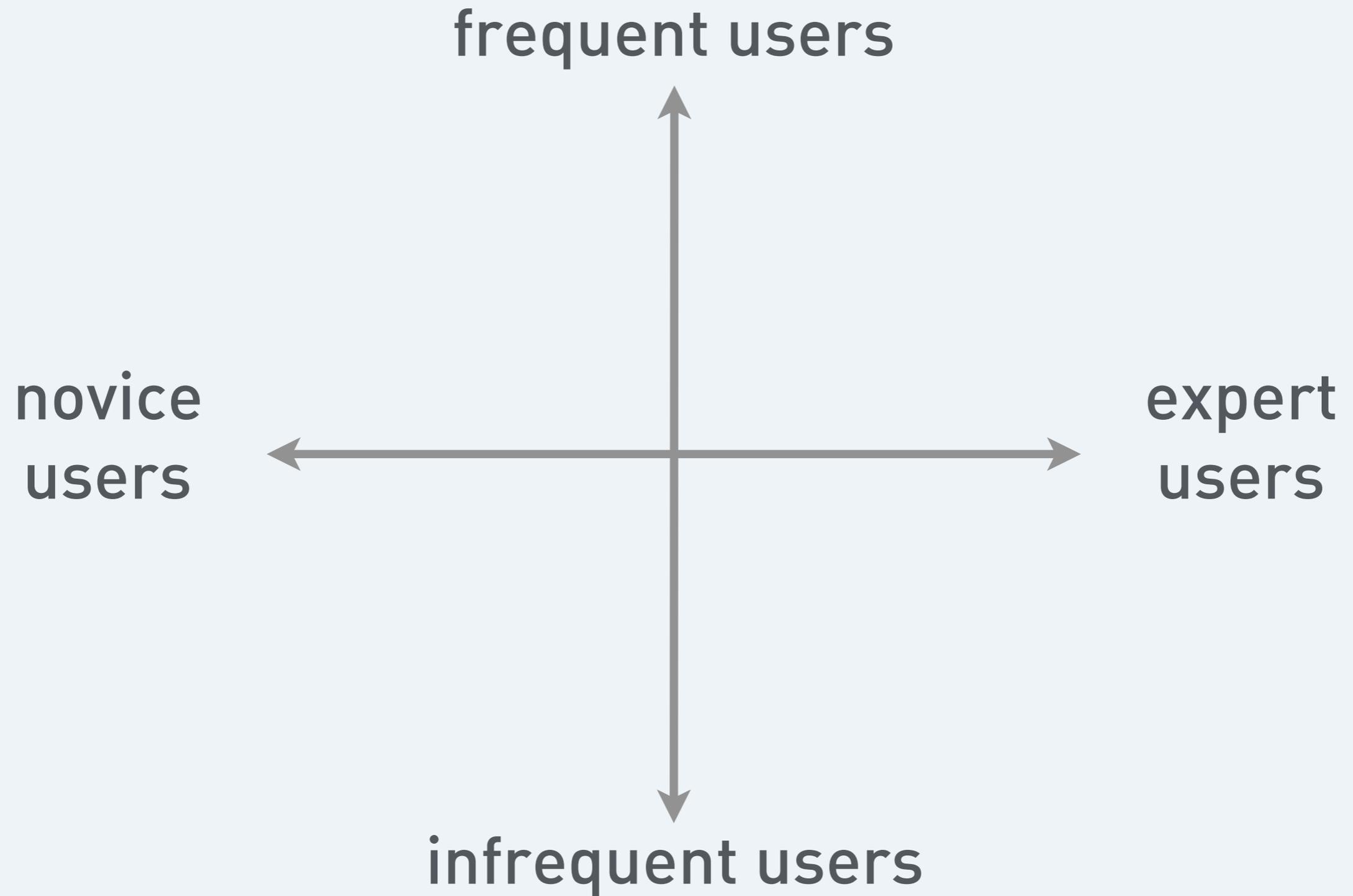
USABILITY IN EVERYDAY LIFE!





Audi A4 Series Cockpit

<http://www.audicomparisons.com/wp-content/uploads/2013/10/2014-Audi-A4-interior.jpg>





Audi R15 Racing Cockpit

http://2.bp.blogspot.com/_SM9A_sqVGgM/S9XON6I_WtI/AAAAAAAAADww/HcrQgfpuHgl/s1600/Audi+R15+Plus+Cockpit.jpg

It is relatively easy to design for the perfect cases, when everything goes right, or when all the information required is available in proper format.

Don Norman

- Heuristic evaluation
- Heuristic estimation
- Cognitive walkthrough
- Pluralistic walkthrough
- Feature inspection
- Consistency inspection
- Standards inspection
- Formal usability

- **Heuristic evaluation**
- Heuristic estimation
- Cognitive walkthrough
- Pluralistic walkthrough
- Feature inspection
- Consistency inspection
- Standards inspection
- Formal usability



Jakob Nielsen (NN Group)

https://s3.amazonaws.com/media.nngroup.com/media/people/high-res-photos/jakob_mouse_big.jpg



Usability Lab @ Sun Microsystems

https://c1.staticflickr.com/1/230/489963693_22221f92f1_b.jpg

Heuristic (hyū-'ris-tik) is a method to help solve a problem, commonly an informal method. It is particularly used to rapidly come to a solution that is reasonably close to the best possible answer, or 'optimal solution'.

Visibility of system status

Match between system and the real world

User control and freedom

Consistency and standards

Error prevention

Recognition rather than recall

Flexibility and efficiency of use

Aesthetic and minimalist design

Help users recognize, diagnose,
and recover from errors

Help and documentation

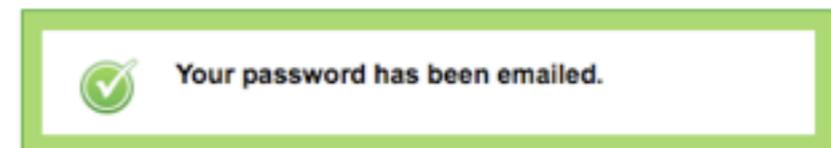
Upload the file or [Cancel](#)



Basecamp



Picnik



Theresa Neil sign in

Tick

Quelle: [3,7]

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Error prevention

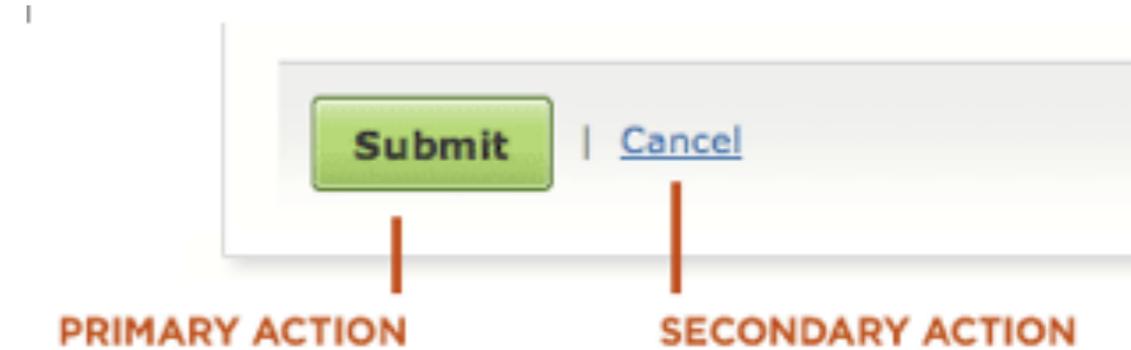
Recognition rather than recall

Flexibility and efficiency of use

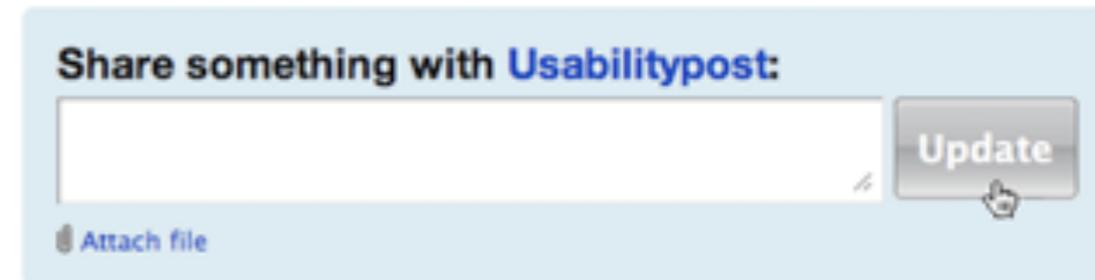
Aesthetic and minimalist design

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Help and documentation



Example: "Web Design, Filling the Blanks"



Yammer

Quelle: [3,7]

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Common Shortcuts

Add Action	Return
New Window	⌘N
Synchronize with Server	⌘S
Clean Up	⌘K
Planning Mode	⌘1
Context Mode	⌘2
Inbox	⌘1
Quick Entry	⌘Space

Quick Entry's shortcut can be customized in Preferences

Omnifocus

Show All Bookmarks	⌘B
Add Bookmark to Menu	⌘D
Add Bookmark For These Tabs...	
Add Bookmark Folder	⌘N

Bookmarks Bar ▶

Mac OSX 10.5

(Accelerators)

Quelle: [3,7]

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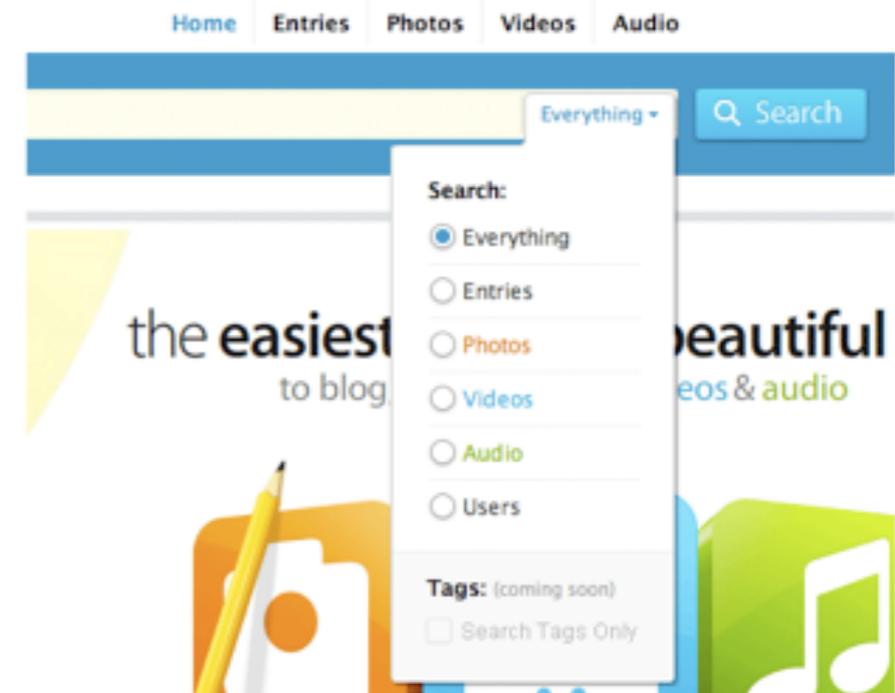
Recognition rather than recall

Flexibility and efficiency of use

Aesthetic and minimalist design

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Kontain



Visibility of system status

Match between system and the real world

User control and freedom

Consistency and standards

Error prevention

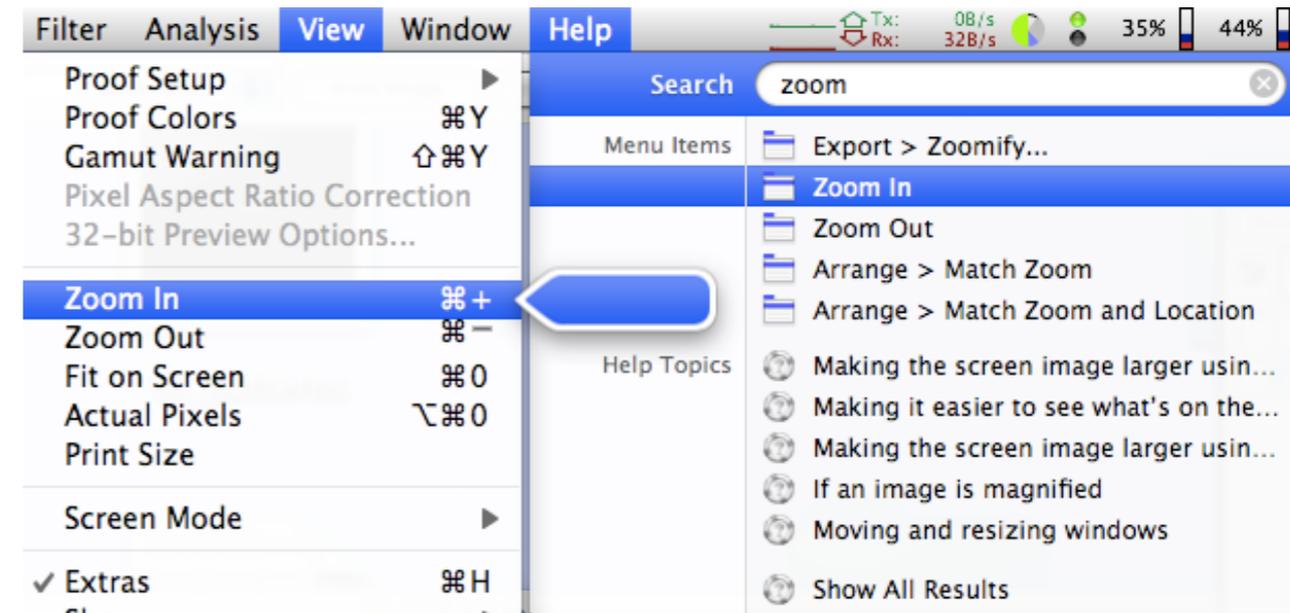
Recognition rather than recall

Flexibility and efficiency of use

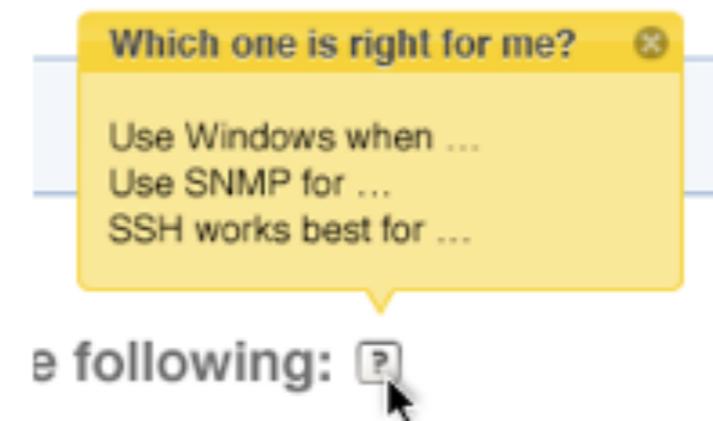
Aesthetic and minimalist design

Help users recognize, diagnose,
and recover from errors

Help and documentation



Mac OS X 10.5 (Screenshot)



Zenoss

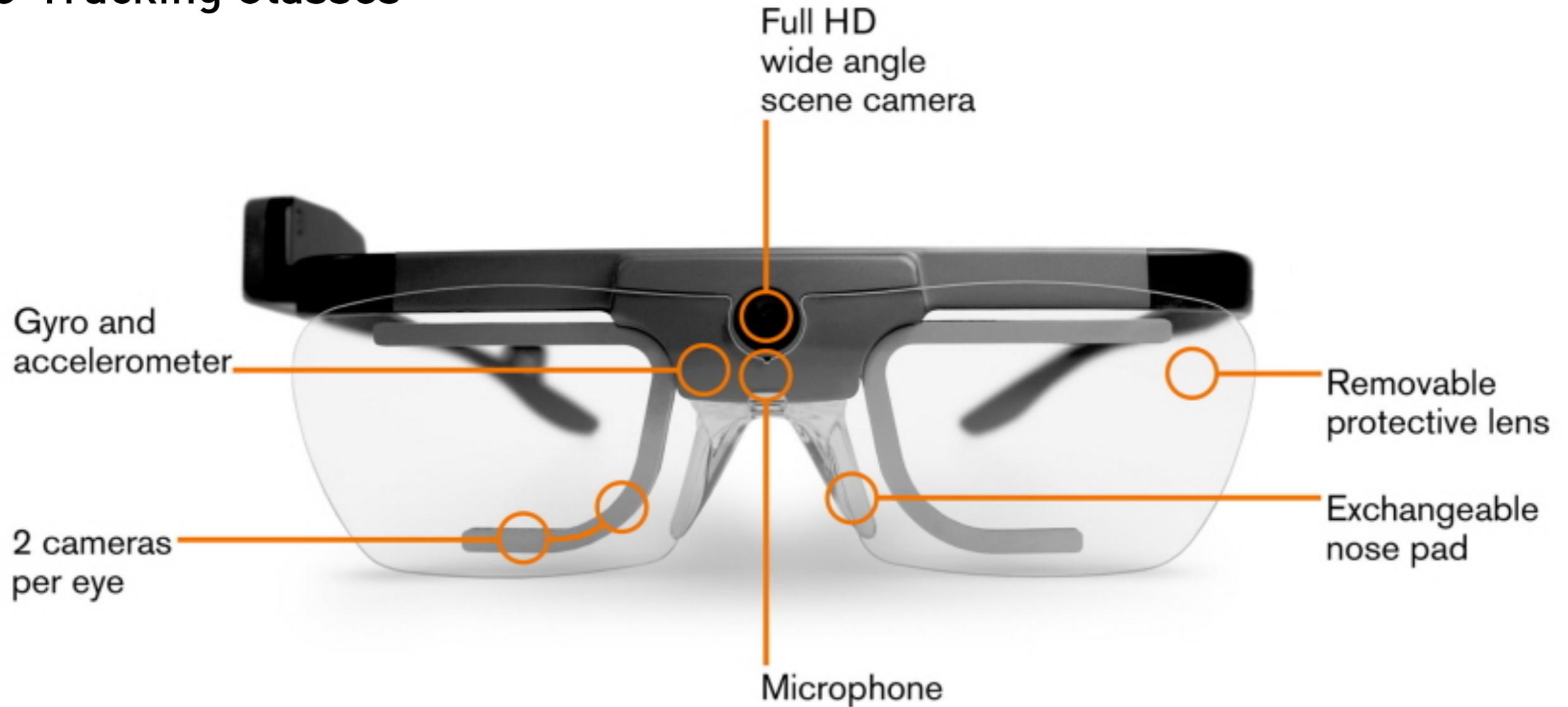
Quelle: [3,7]

USABILITY Testing Applied

Mobile Usability Lab



Eye-Tracking Glasses



Usability Testing in the Field



Usability Testing in the Field



Video Overview: Usability Testing in the Field



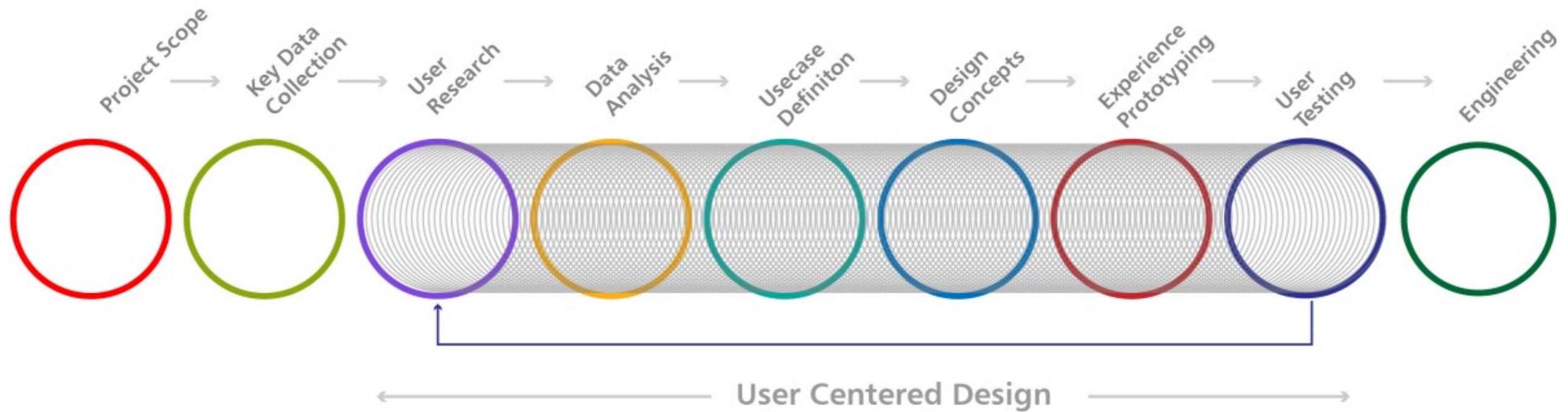
Usability Testing

Report contains:

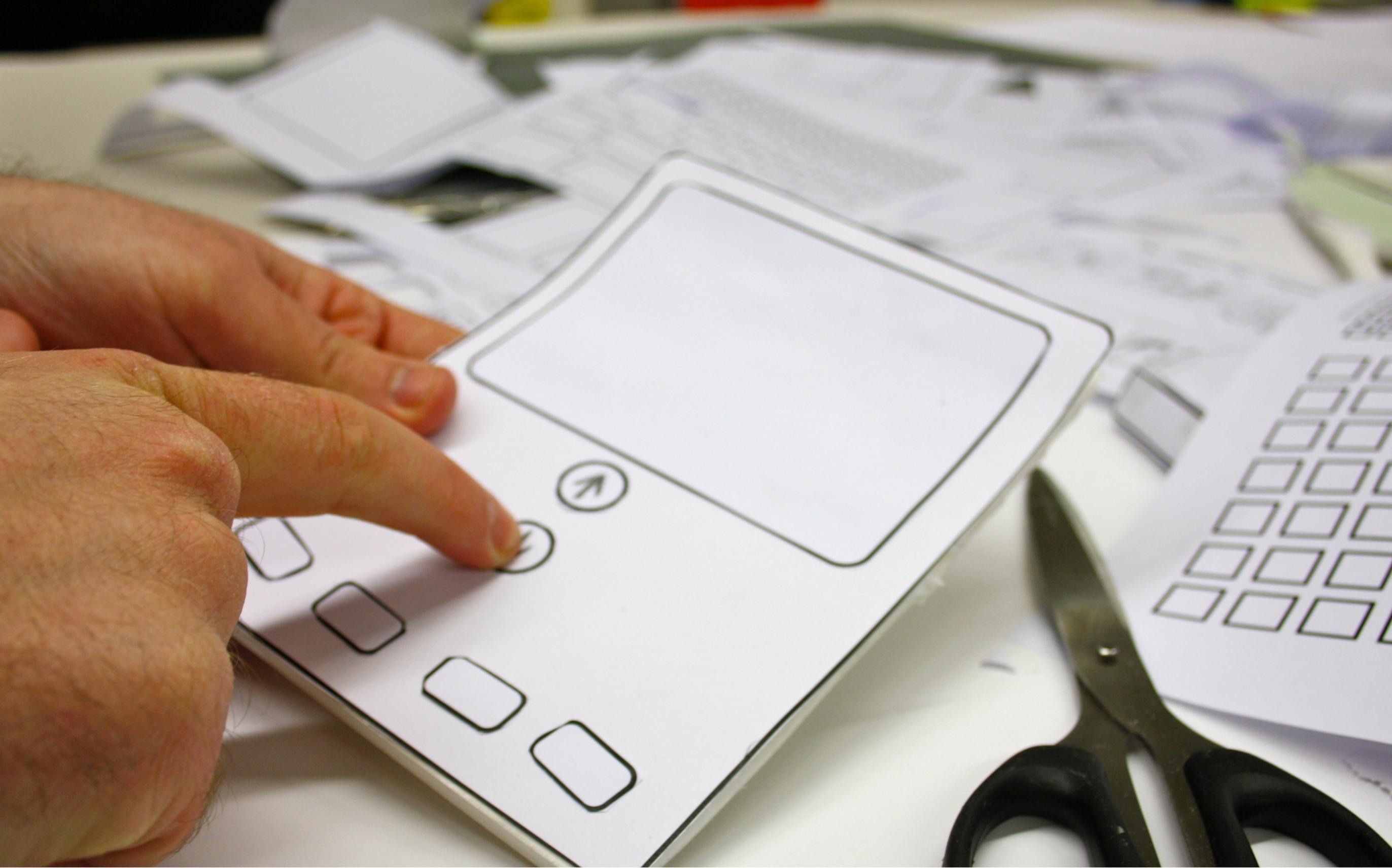
- Study Design
- User Profiles
- Questionnaire Results
- Interview Quotes
- Summarised Findings
- Design Recommendations



Standart UCD Design Process Model



source: [4]



Paperprototyping & Wireframes

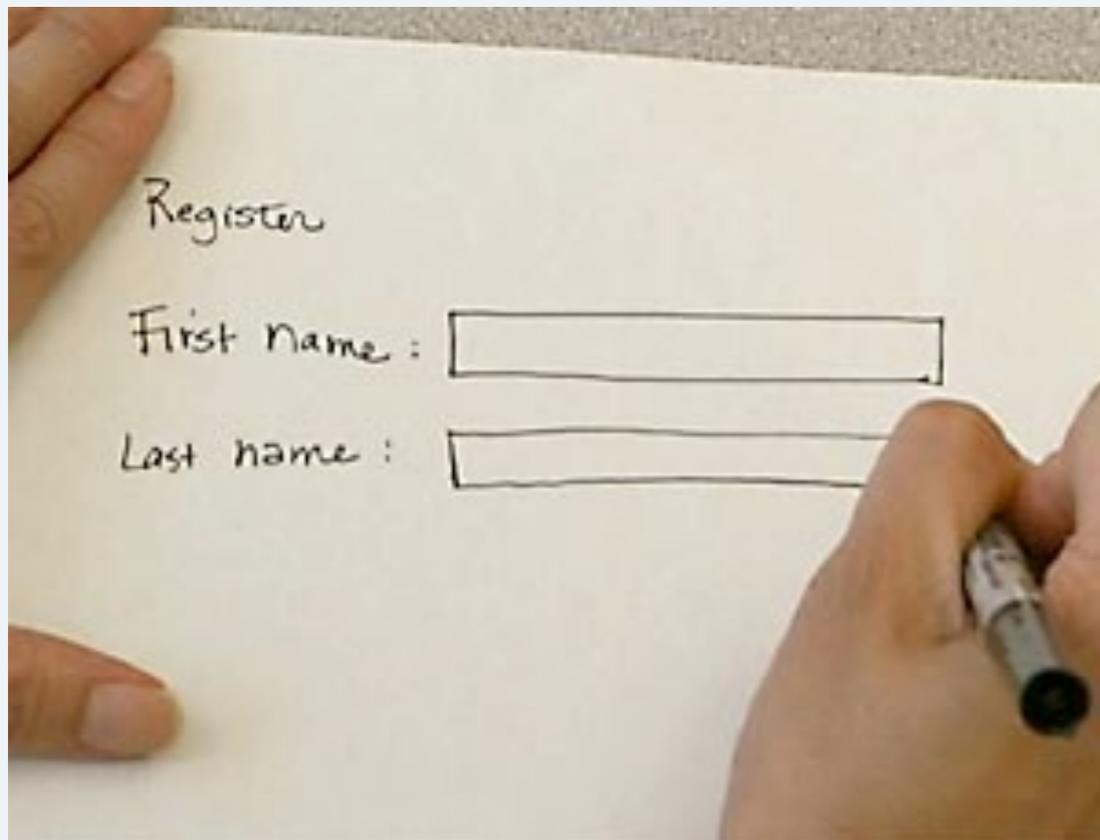
What is it?

Paper prototyping is a widely used method in the user-centered design process, a process that helps developers to create products/screen based applications that meets the user's expectations and needs.

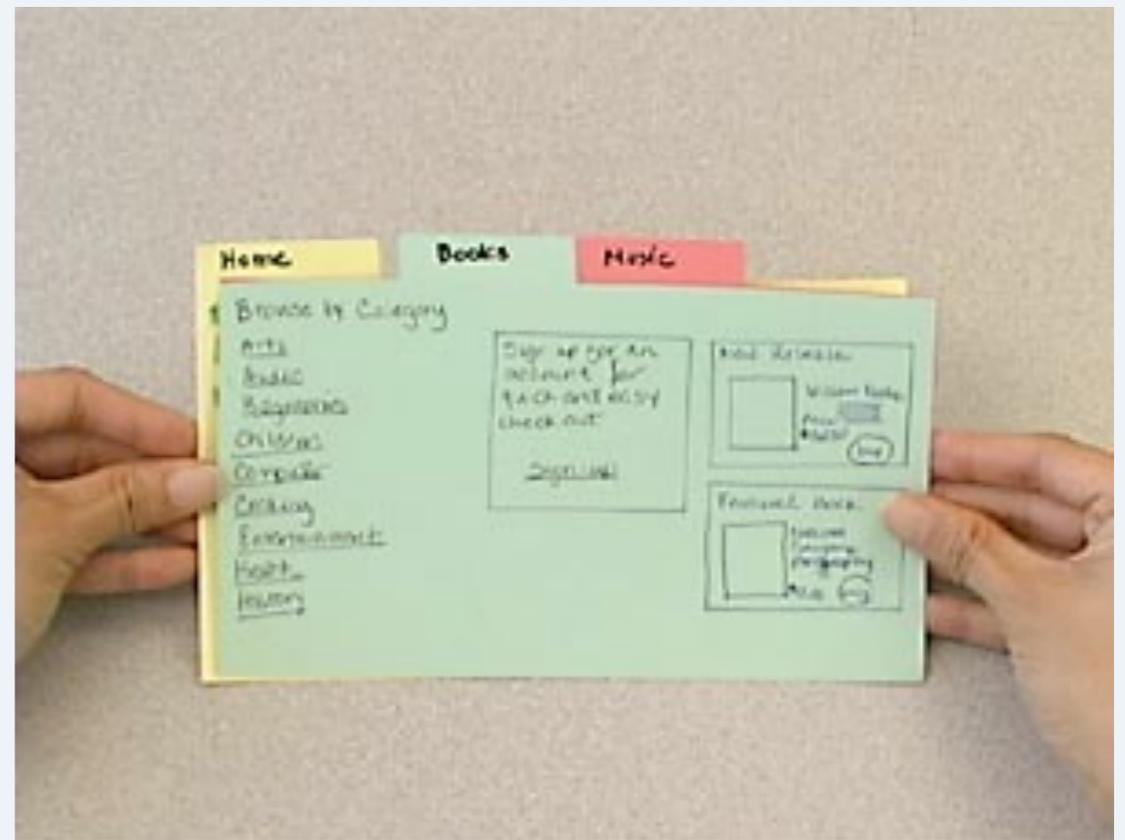
It is **throwaway prototyping** and involves creating rough, even hand sketched, drawings of an interface to use as prototypes, or models, of a design.

History

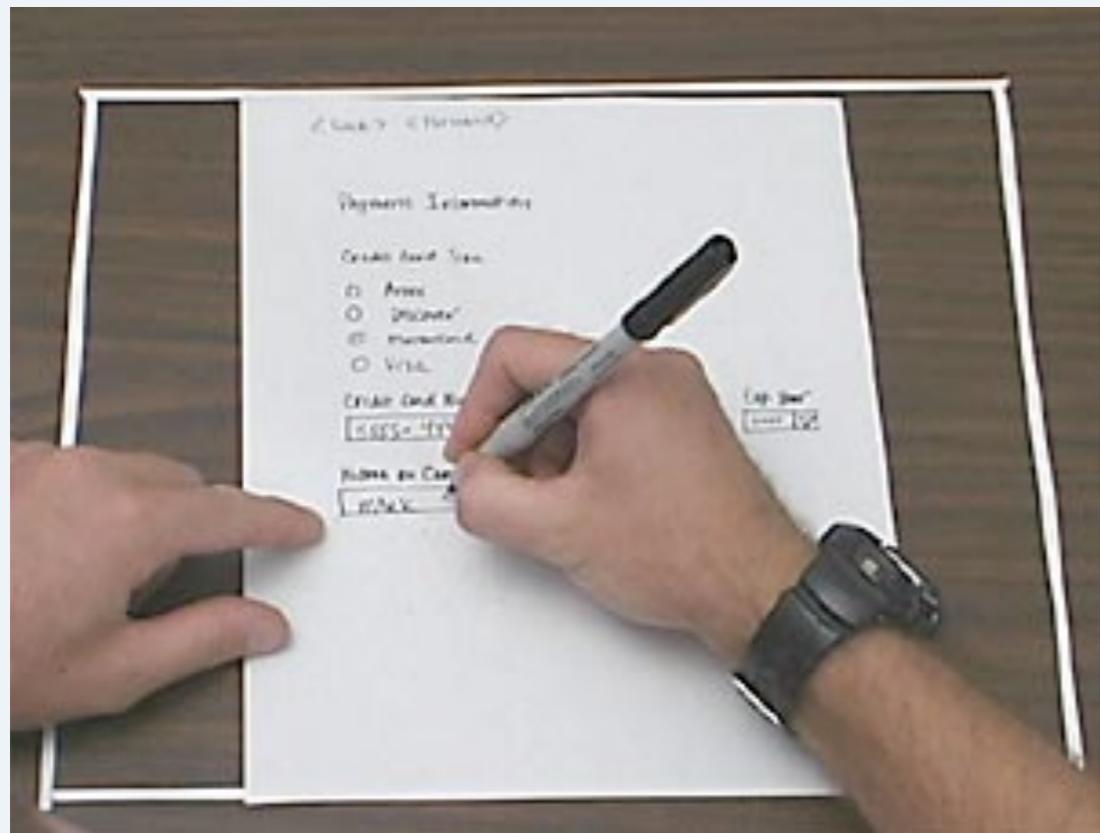
Paper prototyping started in the mid 1980s and then became popular in the mid 1990s when companies such as IBM, Honeywell, Microsoft, and others started using the technique in developing their products.



Paper prototype of a typical form-filling screen



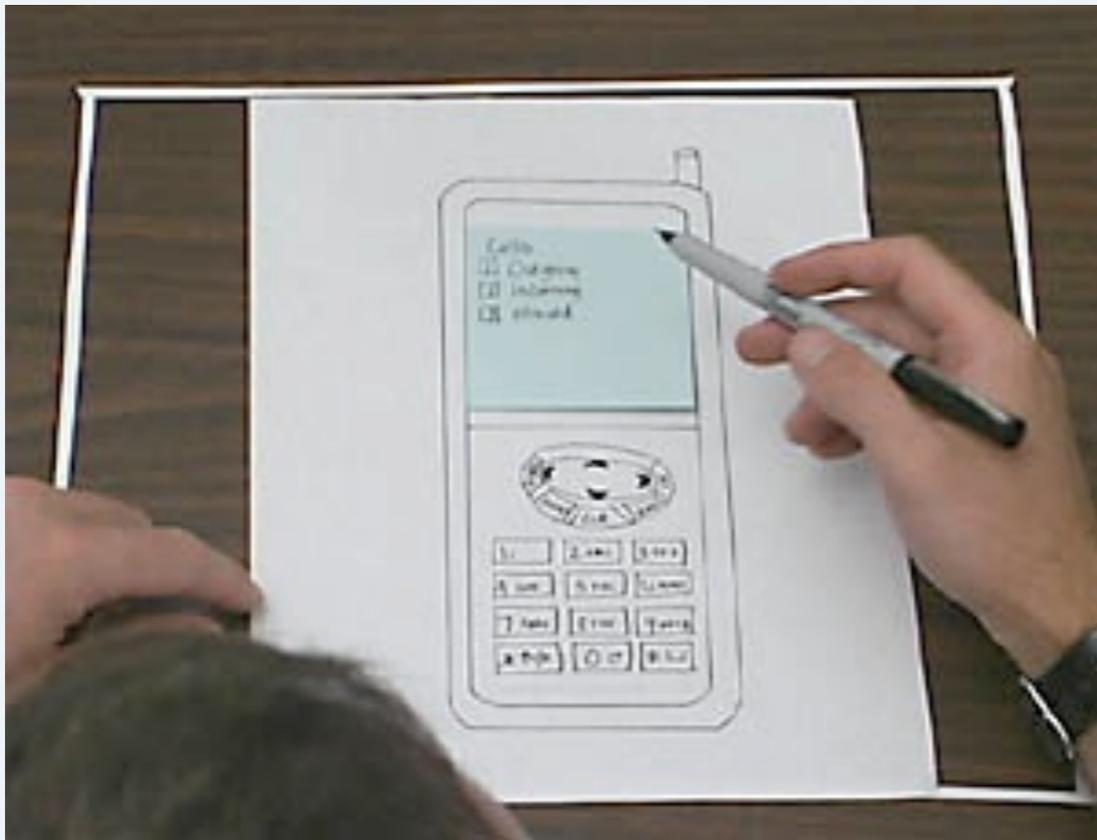
Paper prototype of a tabs-based design



User test of a low-fidelity paper prototype of a website



Typical set-up of the usability laboratory for a test session with a paper prototype



User test of a device-based interaction



User test of a high-fidelity paper prototype of a homepage.



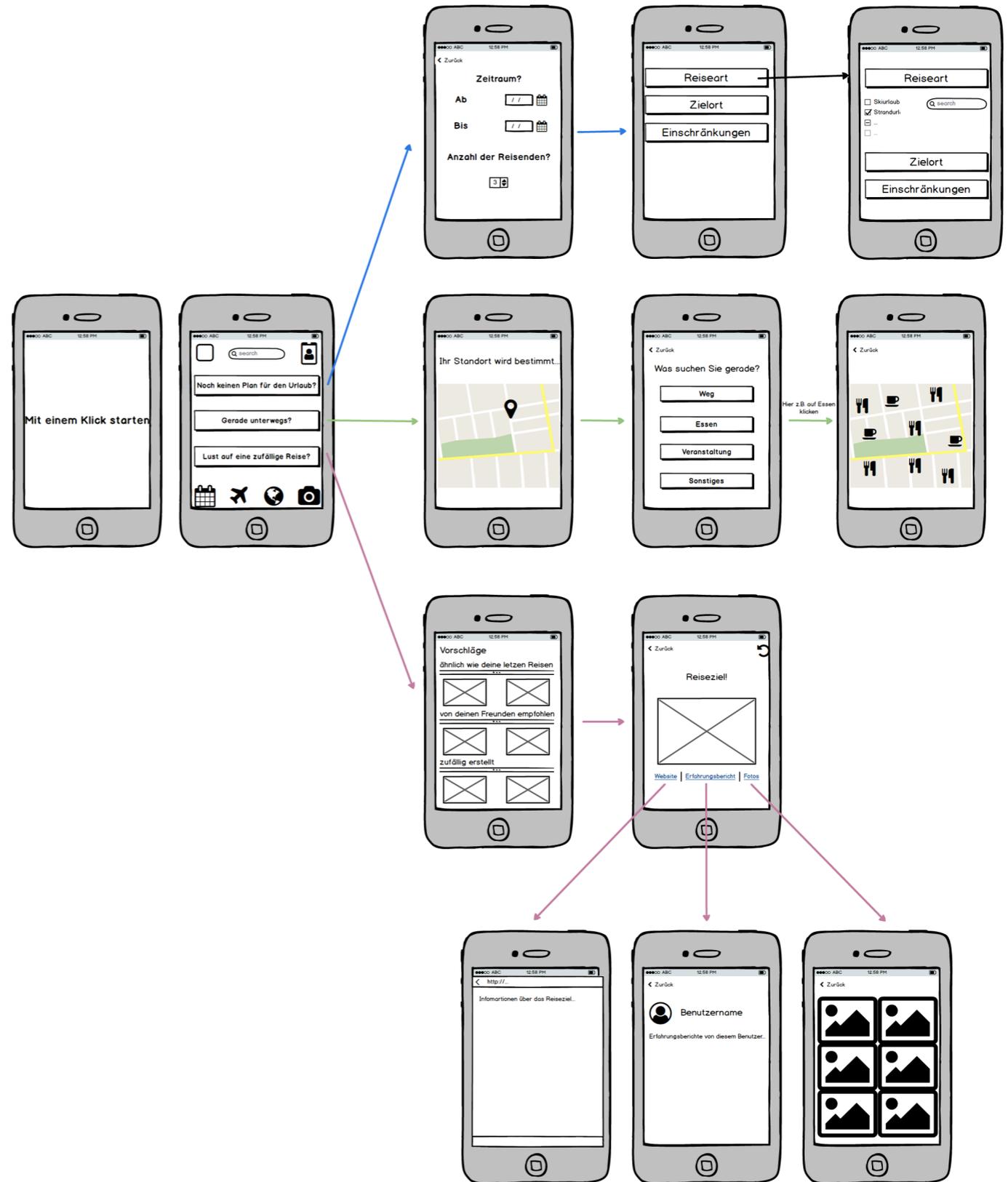
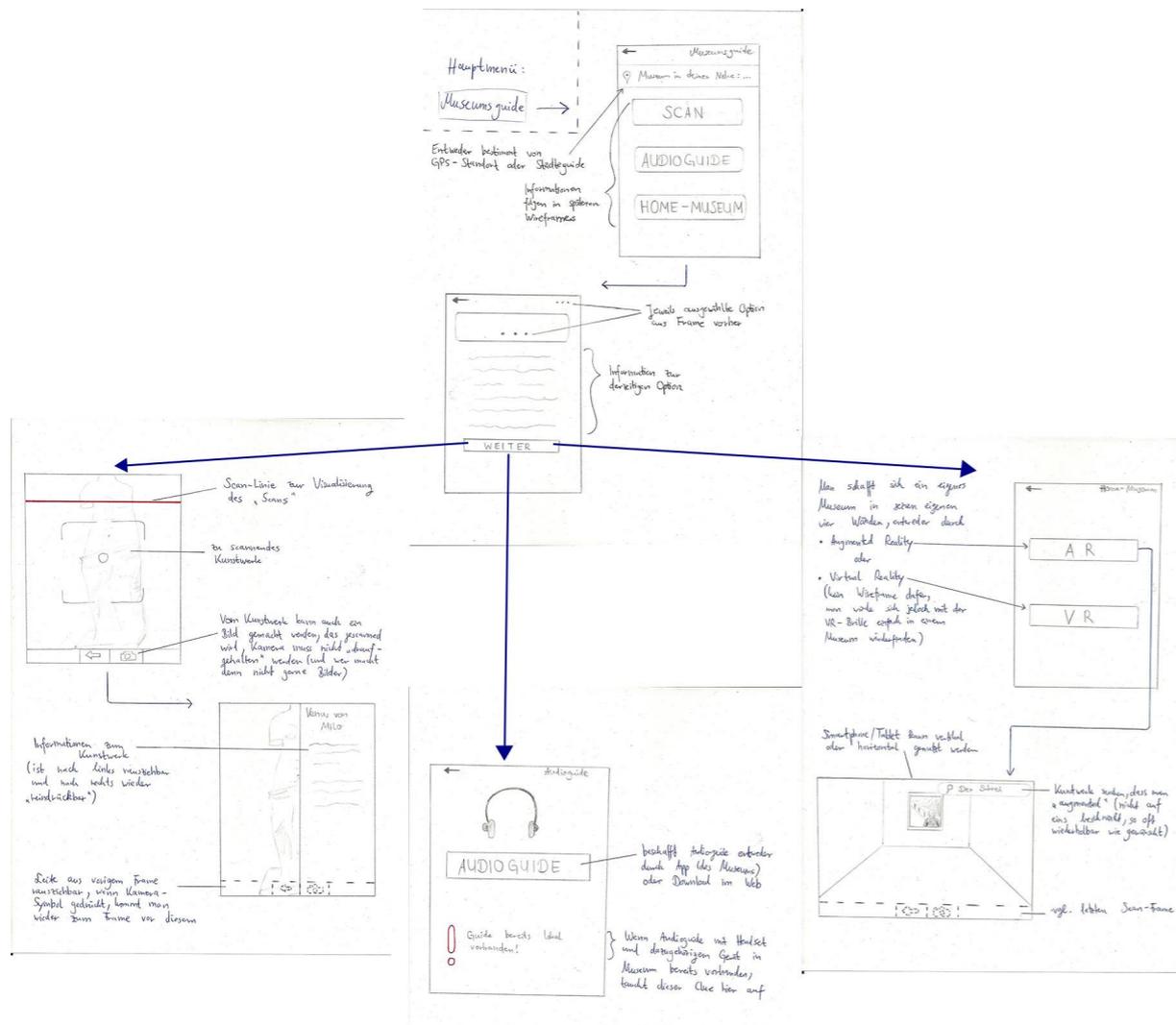
Testing hardware user interfaces: mockup of a kiosk.

Diagram showing a table with columns: ID, Name, Address, Phone, Email, and Date. The table contains several rows of data, including entries for 'John Doe', 'Jane Smith', and 'Bob Johnson'. There are also some handwritten notes and a sidebar on the left.

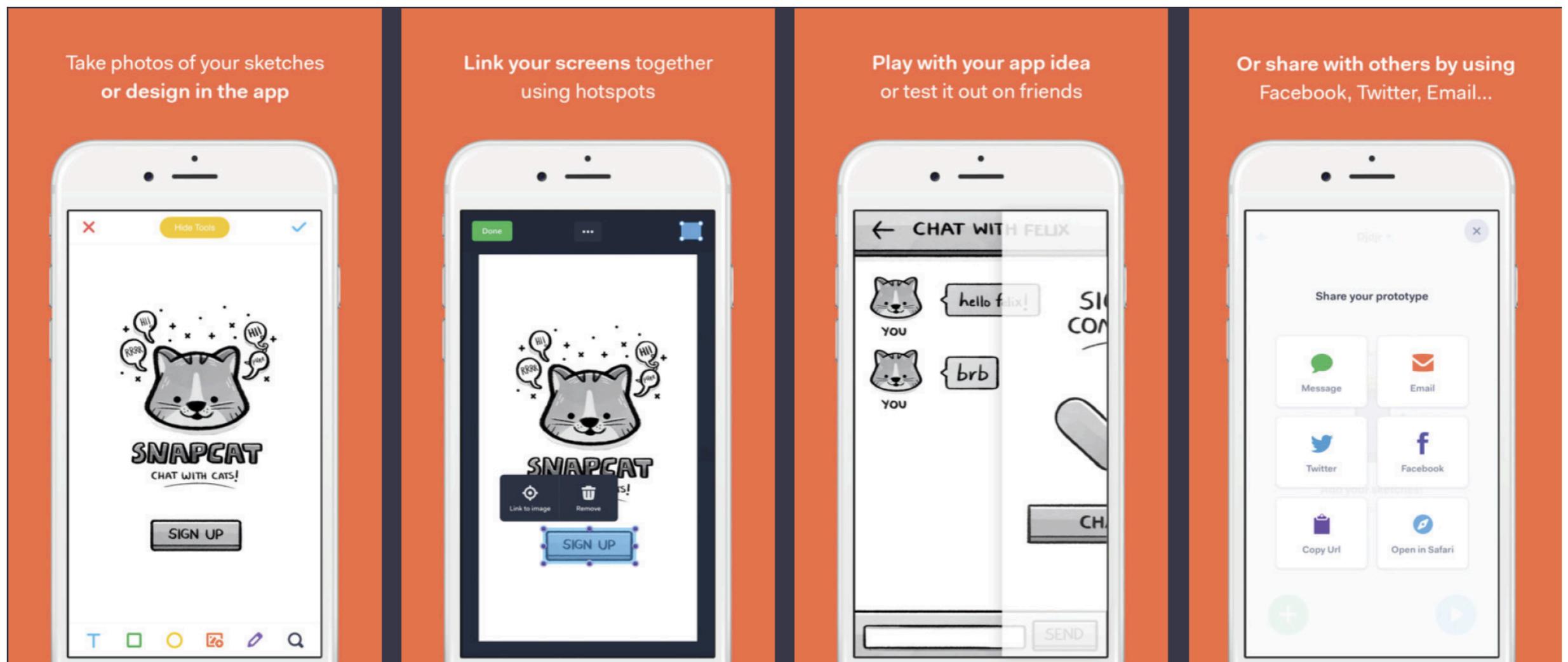
ID	Name	Address	Phone	Email	Date
01	John Doe	123 Main St	(555) 123-4567	john.doe@example.com	2023-10-27
02	Jane Smith	456 Elm St	(555) 987-6543	jane.smith@example.com	2023-10-28
03	Bob Johnson	789 Oak St	(555) 234-5678	bob.johnson@example.com	2023-10-29
04	Alice Brown	101 Pine St	(555) 345-6789	alice.brown@example.com	2023-10-30
05	Charlie Davis	202 Cedar St	(555) 456-7890	charlie.davis@example.com	2023-10-31

Source: YouTube

Wireframes



PAPER PROTOTYPING POP



Video-demo

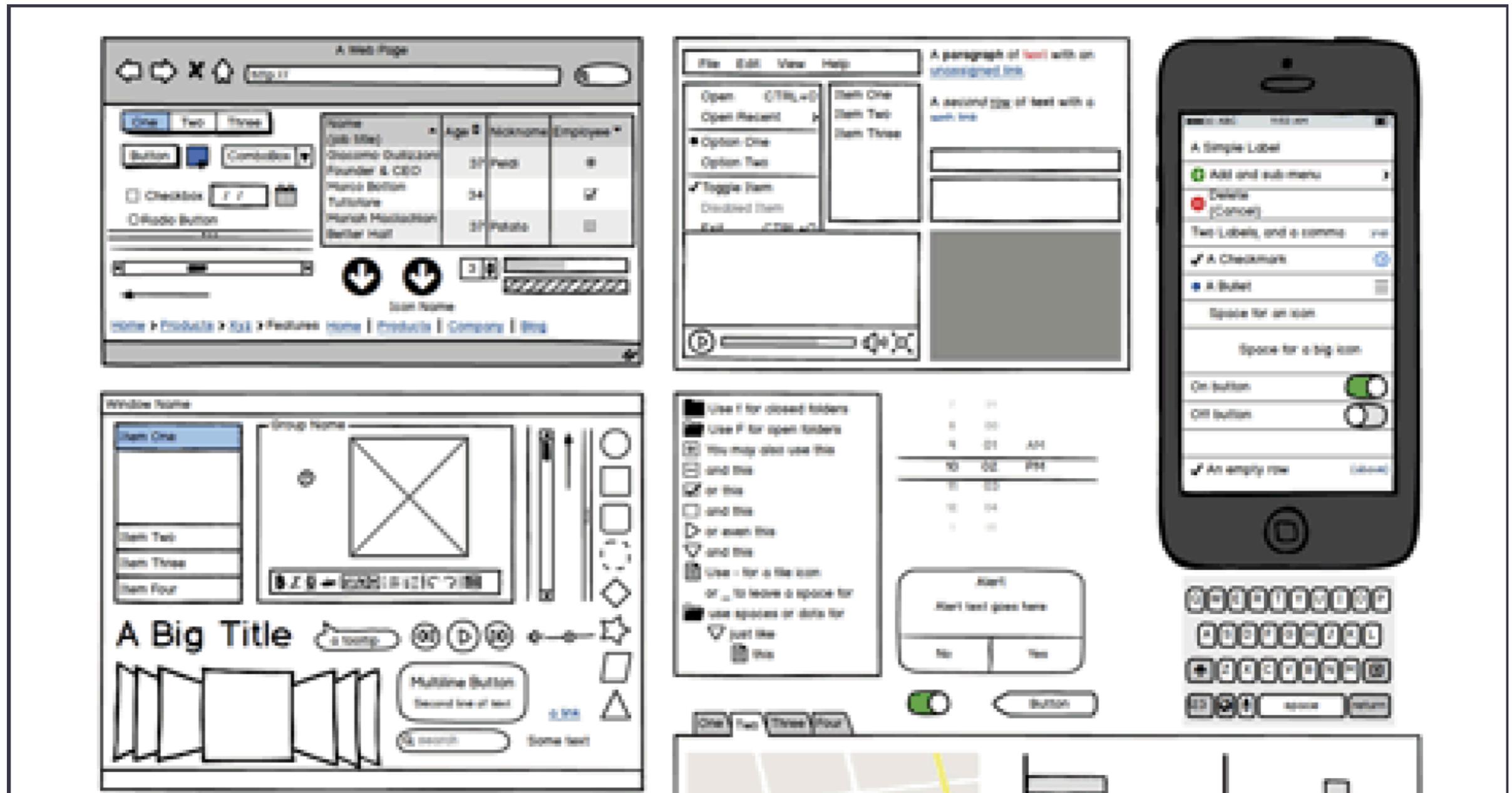
<https://www.youtube.com/watch?v=EGp20lVwUa8>

PAPER PROTOTYPING POP

- choose from a wide range of interface modules
- import your sketched wireframes
- turn sketches into clickable prototypes

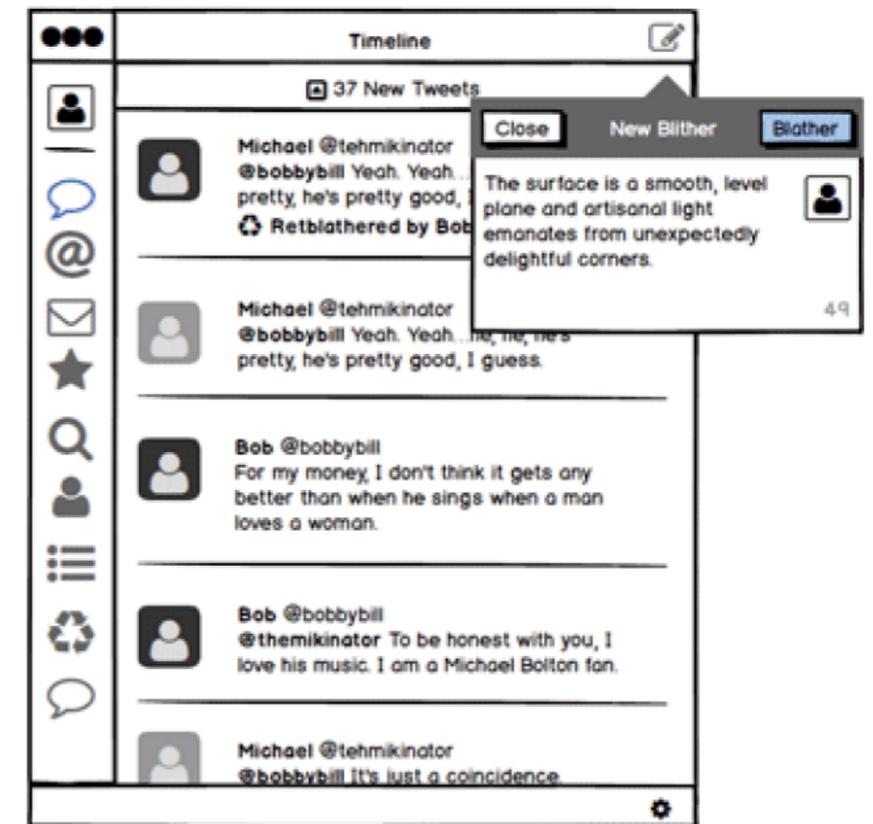
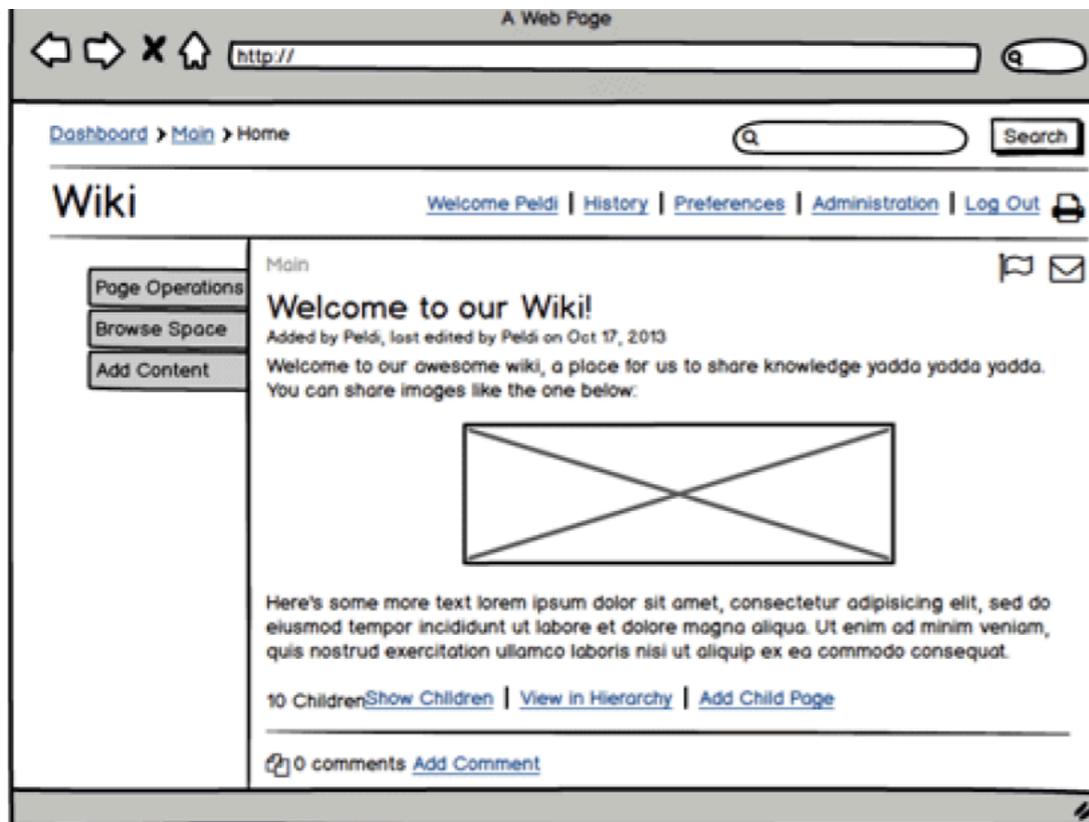


PAPER PROTOTYPING BALSAMIQ



PAPER PROTOTYPING BALSAMIQ

- choose from a wide range of interface modules
- create fast low fidelity clickable prototypes



POP VS. BALSAMIQ

POP

- + Use your own sketches
- + Fast and easy prototyping
- Limited UI elements

BALSAMIQ

- + Create new mockups directly from the “Create New” menu
- + Simply click to edit wireframes
- + Sketch-based wireframes allow designers to focus on functionality
- + 30 days free trial
- Limited functionality

Overview Prototyping Tools

Low Fidelity

- POP
- Balsamiq

Mid Fidelity

- Sketch
- Proto.io
- Pixate
- axure
- Mockplus

High Fidelity

- InVision
- Marvel
- Justinmind
- Framer
- Adobe XD

Overview UI Prototyping Tools

Prototyping Tools		Mockplus	Axure	Balsamiq	JustInmind	Sketch	Adobe XD (Preview)	Invision
Productivity	Learning Curve	Very Easy	Complex	Very Easy	Complex	Average	Average	Easy
	Integrated Efficiency	Fast	Average	Fast	Slow	Average	Average	Fast
	Interaction Design	Fast	Average	-	Average	Plug-in Required	Fast	-
	Build Widgets	Fast	Slow	Fast	Average	Slow	Slow	-
	Device Testing	Fast	Slow	-	Average	Plug-in Required	Average	Fast
Fidelity	Visual Fidelity	Average	Average	Low	High	High	High	High
	Interactive Fidelity	Average	High	-	High	High	High	Average
Professional Skill Requirement	Product Experience	Required	Required	Required	Required	-	-	Required
	Visual Design	-	-	-	Required	Required	Required	Required
	Programming Knowledge	-	Basic Knowledge	-	-	Basic Knowledge	-	-
Sharing		Average	Great	Average	Great	-	-	Great

<https://www.quora.com/What-prototype-tools-do-UX-designers-use>

Video-demo

<https://www.youtube.com/watch?v=1H7Ql9hmbuM>

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