Introduction to UX

CMPT 363

"When creating great experiences, it's not so much about doing what users expect. Instead, it's about creating a design that clearly meets their needs at the instant they need it."

— Jared Spool

What is user experience design?

Topics to Explore

1. HCI, UI, IA, IxD and UX
2. Design Thinking
3. Usability and UCD

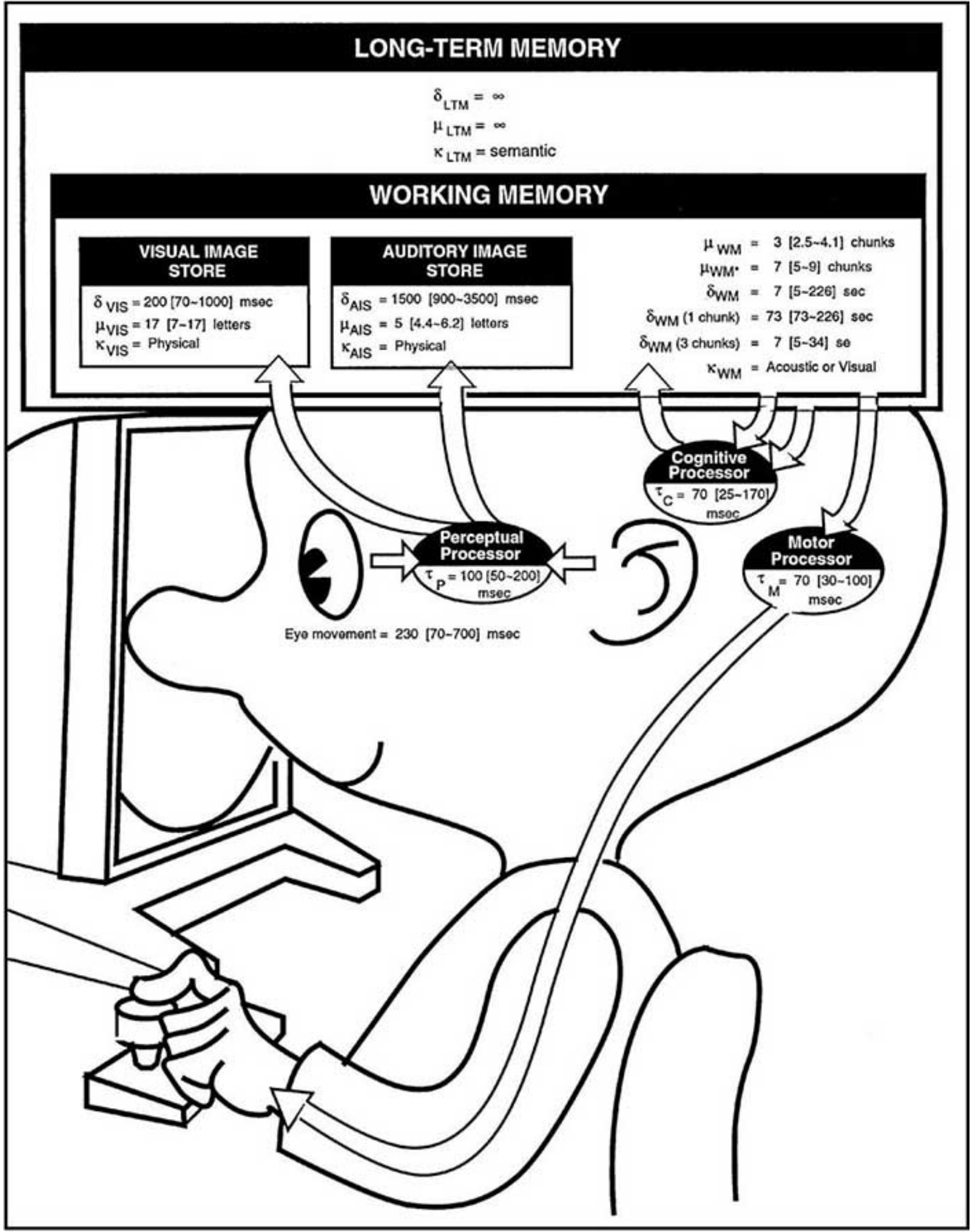
What is user experience design?

HCI, UI, IA, IxD, and UX

What is Human-Computer Interaction?

What is Human-Computer Interaction?

A field of study which strives to make interactions between people and computers more effective


LONG-TERM MEMORY
$\delta_{LTM} = \infty$
$\mu_{LTM} = \infty$
κ_{LTM} = semantic
WORKING MEMORY
VISUAL IMAGE STORE
δ_{VIS} = 200 [70~1000] msec
μ_{VIS} = 17 [7~17] letters
κ_{VIS} = Physical
AUDITORY IMAGE STORE
δ_{AIS} = 1500 [900~3500] msec
μ_{AIS} = 5 [4.4~6.2] letters
κ_{AIS} = Physical
μ_{WM} = 3 [2.5~4.1] chunks
$\mu_{WM'}$ = 7 [5~9] chunks
δ_{WM} = 7 [5~226] sec
δ_{WM} (1 chunk) = 73 [73~226] sec
δ_{WM} (3 chunks) = 7 [5~34] se
κ_{WM} = Acoustic or Visual
Cognitive Processor
τ_C = 70 [25~170] msec
Perceptual Processor
τ_P = 100 [50~200] msec
Motor Processor
τ_M = 70 [30~100] msec
Eye movement = 230 [70~700] msec

Use and Context

U1 Social Organization and Work

U3 Human-Machine Fit and Adaptation

U2 Application Areas

Human

H1 Human Information Processing

H2 Language, Communication and Interaction

H3 Ergonomics

Computer

C1 Input and Output Devices

C2 Dialogue Techniques

C3 Dialogue Genre

C4 Computer Graphics

C5 Dialogue Architecture

D4 Example Systems and Case Studies

D3 Evaluation Techniques

D2 Implementation Techniques and Tools

D1 Design Approaches

Development Process

Contemporary HCI Issues (Yvonne Rogers)

- Turn to design (user experience, enjoyment, play and pleasure)
- Turn to culture (human conditions and nature)
- Turn to the wild (augmenting people, places and settings)
- Turn to embodiment (practical engagement with social and physical environment)

Fitts Law
GOMS
Visual Perception
Mental Models
Active user
Common Ground
Small Groups
Activity Theory
Distributed Cognition
Embodied Interaction
Community
Emotion
UX

Processors with operating characteristics

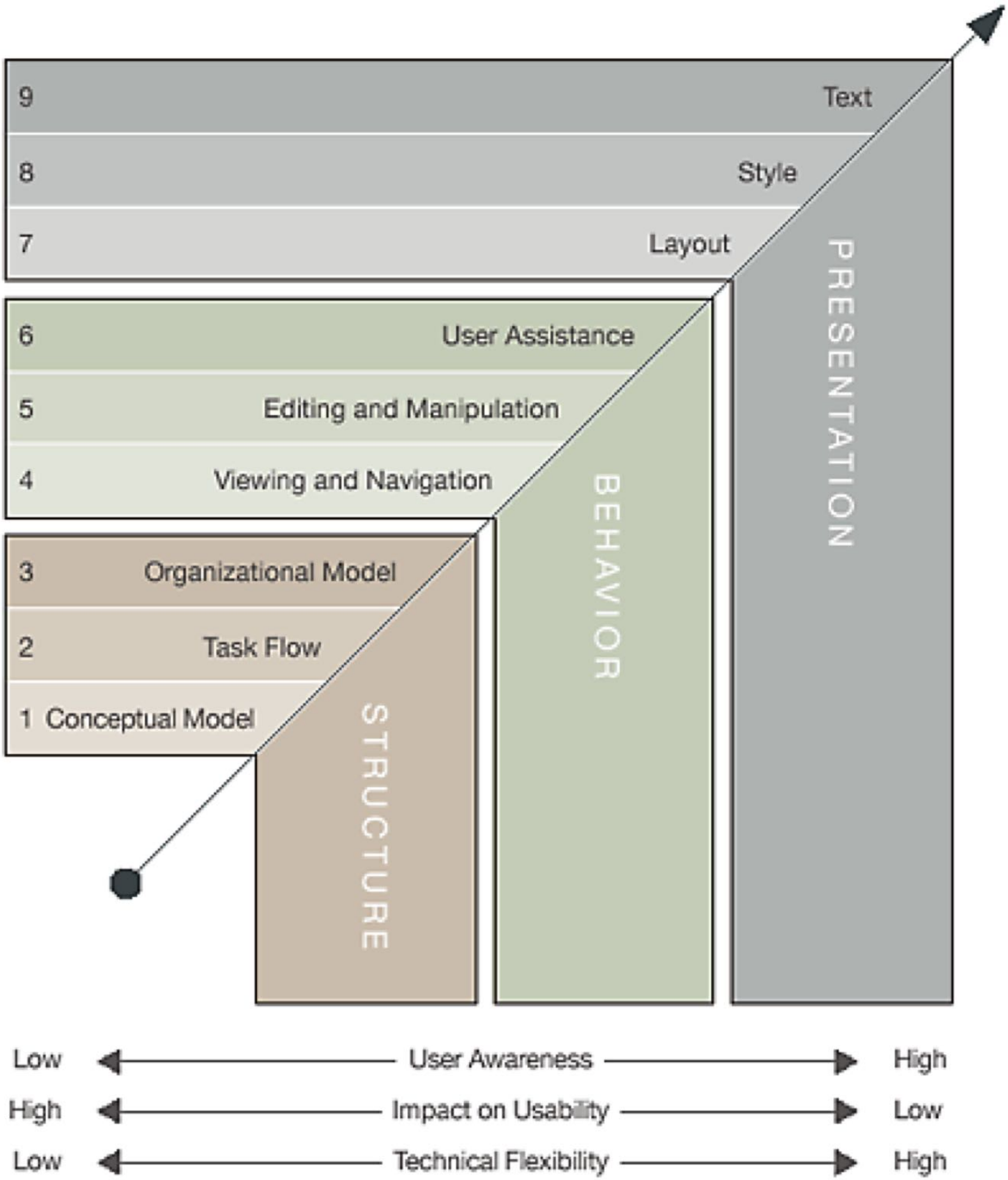
Agents with projects

Socially/materially embedded interactions

What is a User Interface?

What is a User Interface?

All elements which provide communication between the interactive system and the user


9 Text
8 Style
7 Layout
6 User Assistance
5 Editing and Manipulation
4 Viewing and Navigation
3 Organizational Model
2 Task Flow
1 Conceptual Model
PRESENTATION
BEHAVIOR
STRUCTURE
Low User Awareness High
High Impact on Usability Low
Low Technical Flexibility High

What is User Interface Design?

What is User Interface Design?

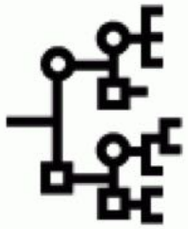
User interface design is the process of supporting the *goals* of the user, ideally in a *friendly and articulate* manner

Activity: User Interface Design Case Study

HipMunk.com

What is Information Architecture (IA)?

by sorting out things like this:



CLASSIFICATION and HIERARCHY

LABELS and TAGGING

NAVIGATION and WAYFINDING

SEARCH

INFORMATION ARCHITECTURE

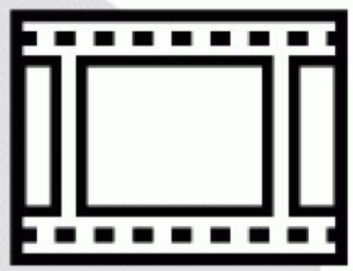
(IA for short)

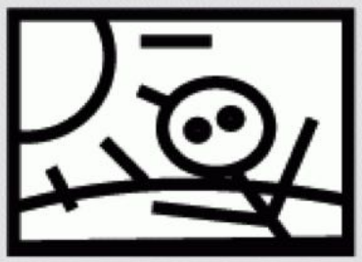
connects

PEOPLE to the **CONTENT**

they're looking for

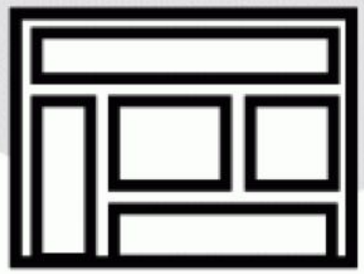
The 'content' people are looking for could be text, images, videos, whole documents....





...or even conversations...

...and other people.



IA also helps the people who create and maintain content do their job easier....

...and links content to other content to make it more usable and easy to find.

by Murray Thompson
userallusion.com
@userallusion

https://www.youtube.com/watch?v=TbEfjaE94sU

Next Up,
What is Interaction Design (IxD)?

Next Up,
What is Interaction Design (IxD)?

The *structure* and *behaviours* of an interactive product, service, or system

Interaction Design Association: 2018 Interaction Design Awards

Founded by the Interaction Design Association (IxDA) in 2010 and first presented in 2012, the annual Interaction Awards celebrate design thought leadership and innovation around the globe. Each year, award recipients comprise a showcase demonstrating how interaction design impacts and improves human lives.

https://vimeo.com/240767296

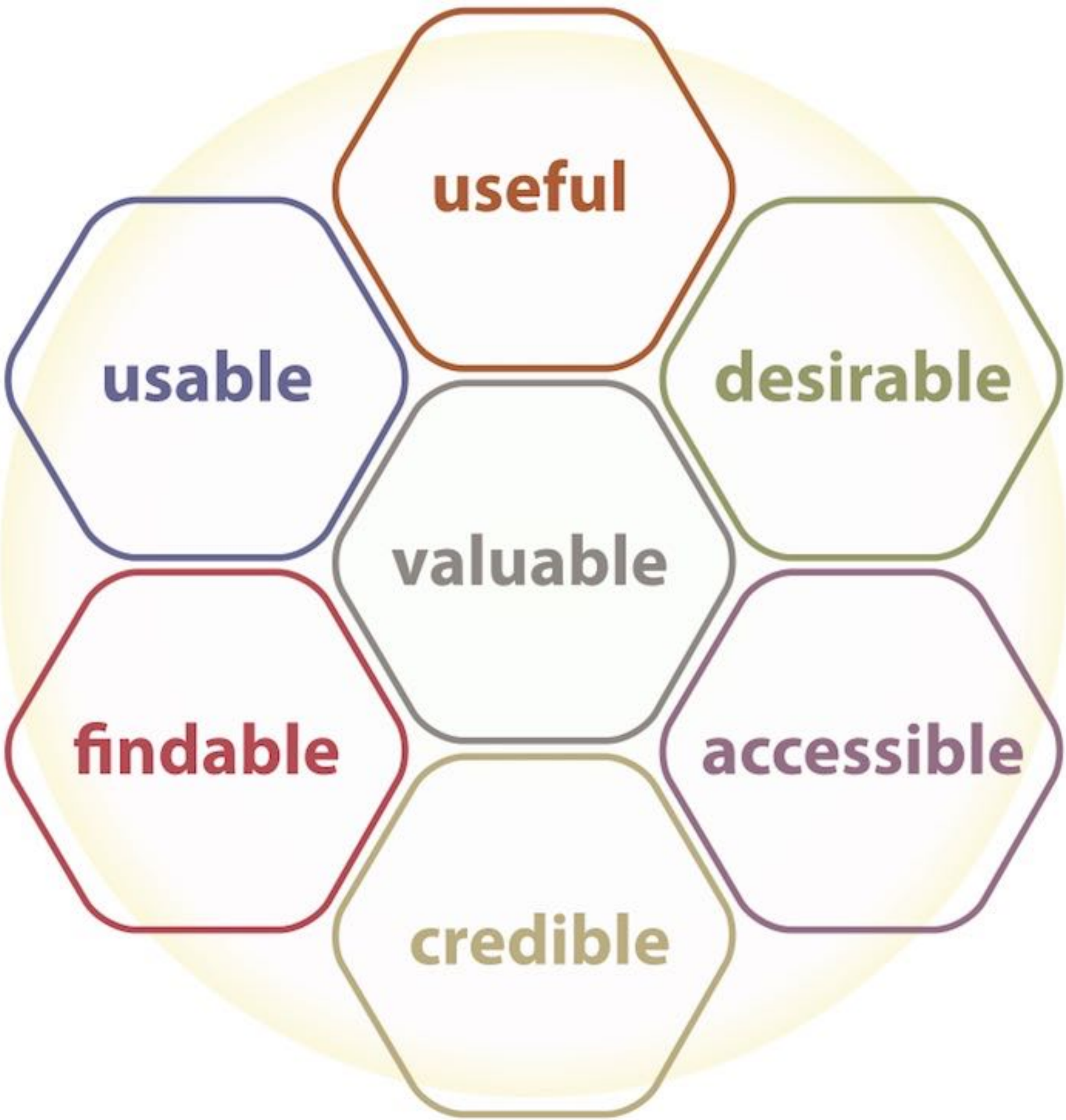
https://vimeo.com/240767296

How Can We Define User Experience?

How Can We Define User Experience?

"A person's perceptions and responses that result from the use or anticipated use of a product, interactive system, or service."

— ISO 9241-210


useful
usable
desirable
valuable
findable
accessible
credible

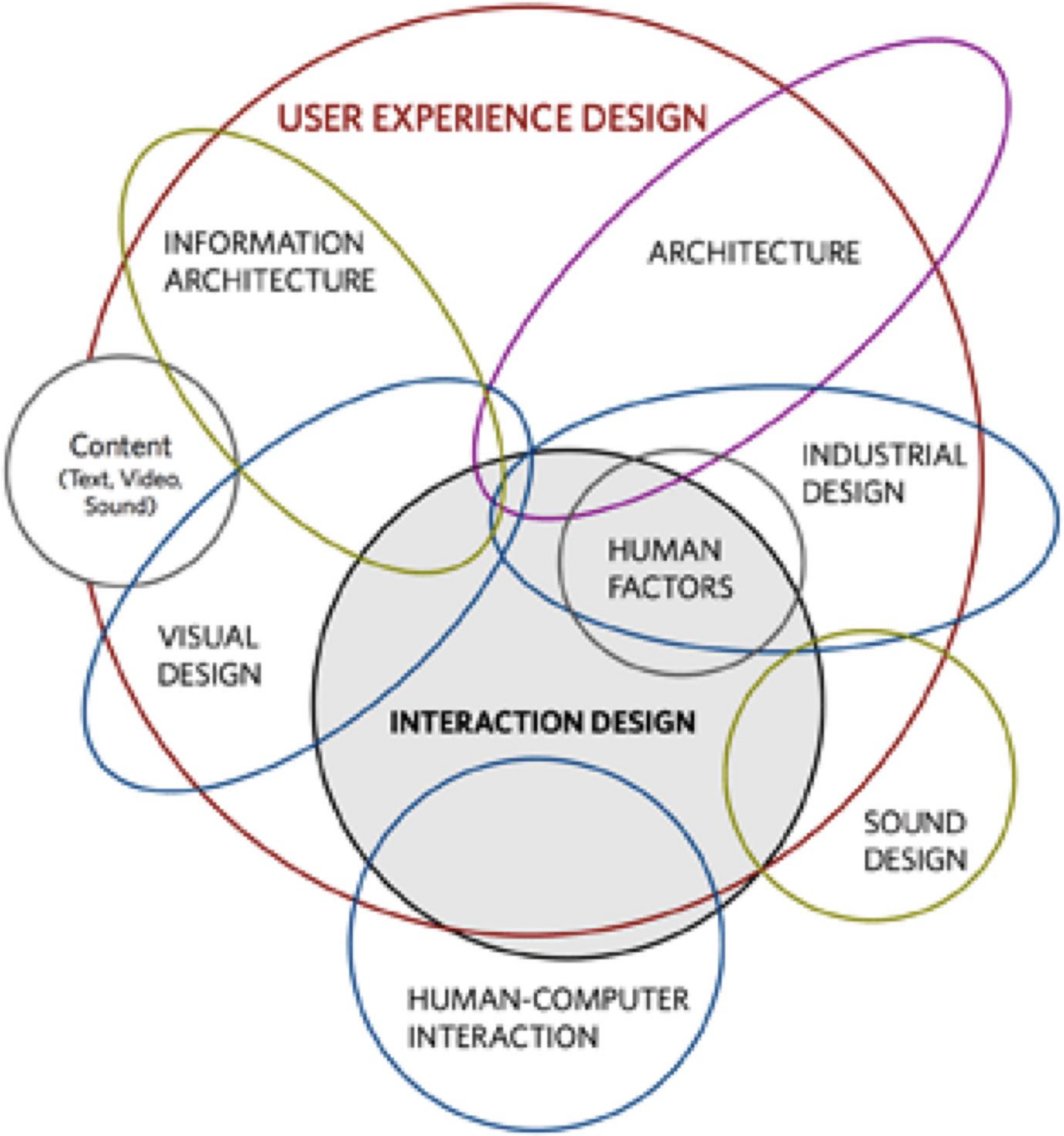
Activity: User Experience

THINK-PAIR-SHARE

What are some examples of good or bad user experiences?

https://www.youtube.com/watch?v=2lXh2n0aPyw

https://www.youtube.com/watch?v=Xo0CiJjTGJE


USER EXPERIENCE DESIGN
INFORMATION ARCHITECTURE
ARCHITECTURE
Content (Text, Video, Sound)
INDUSTRIAL DESIGN
HUMAN FACTORS
VISUAL DESIGN
INTERACTION DESIGN
SOUND DESIGN
HUMAN-COMPUTER INTERACTION

Time for Questions & Discussion

- What we've covered so far
  - What is human-computer interaction?
  - What is a user interface?
  - What is user interface design?
  - What is information architecture?
  - What is interaction design?
  - What is user experience design?
- Coming up
  - What is design thinking?

What is user experience design?

Design Thinking

What is Design Thinking?

- Not a type of thinking, but more of a mindset
- Process plays a role, similar user-centered design
- Anthropology and Sociology also play a role

Design Thinking

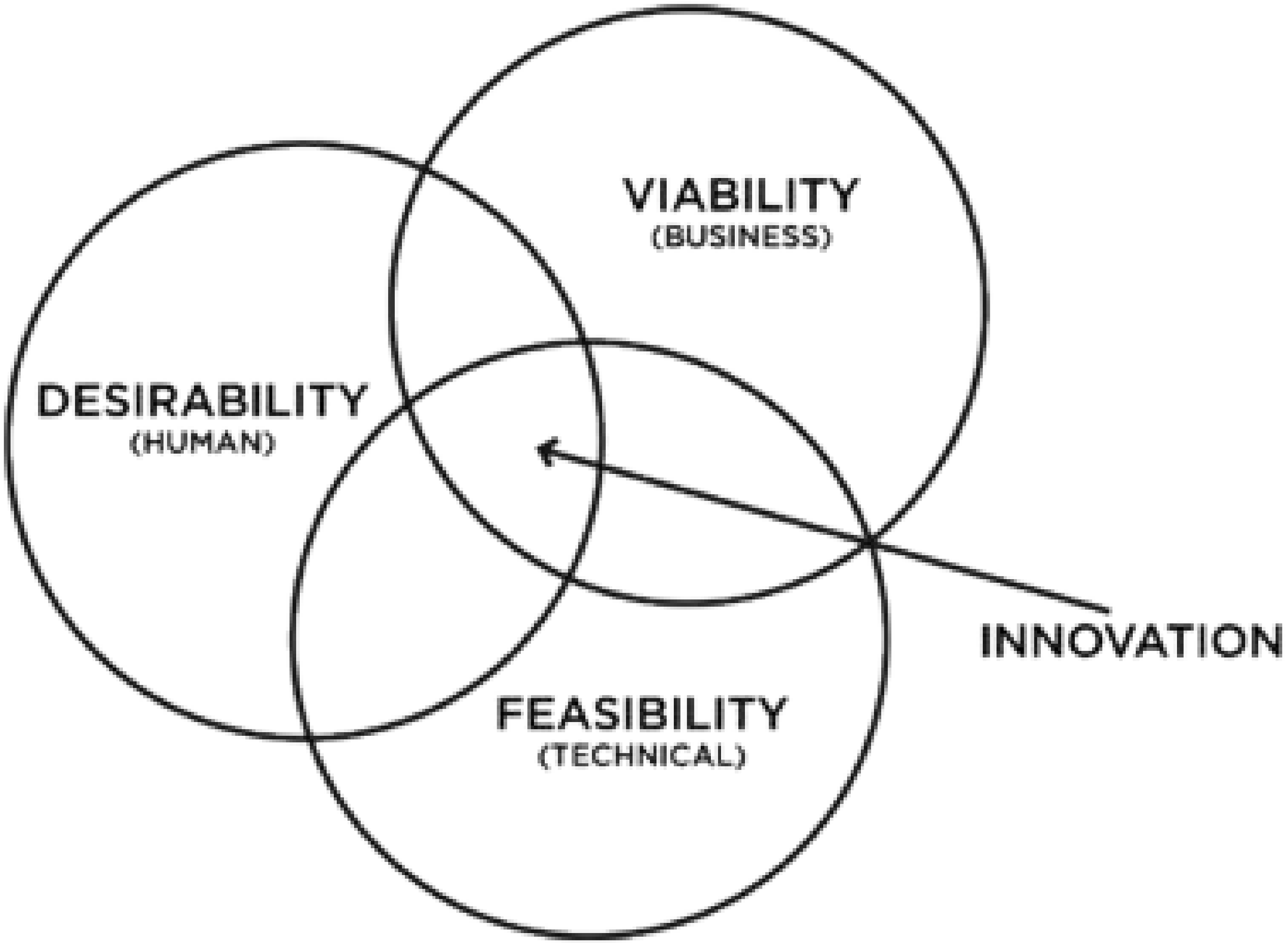
"Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success."

— Tim Brown (President and CEO of IDEO)

DESIGN THINKING

The Three Goals of Design Thinking

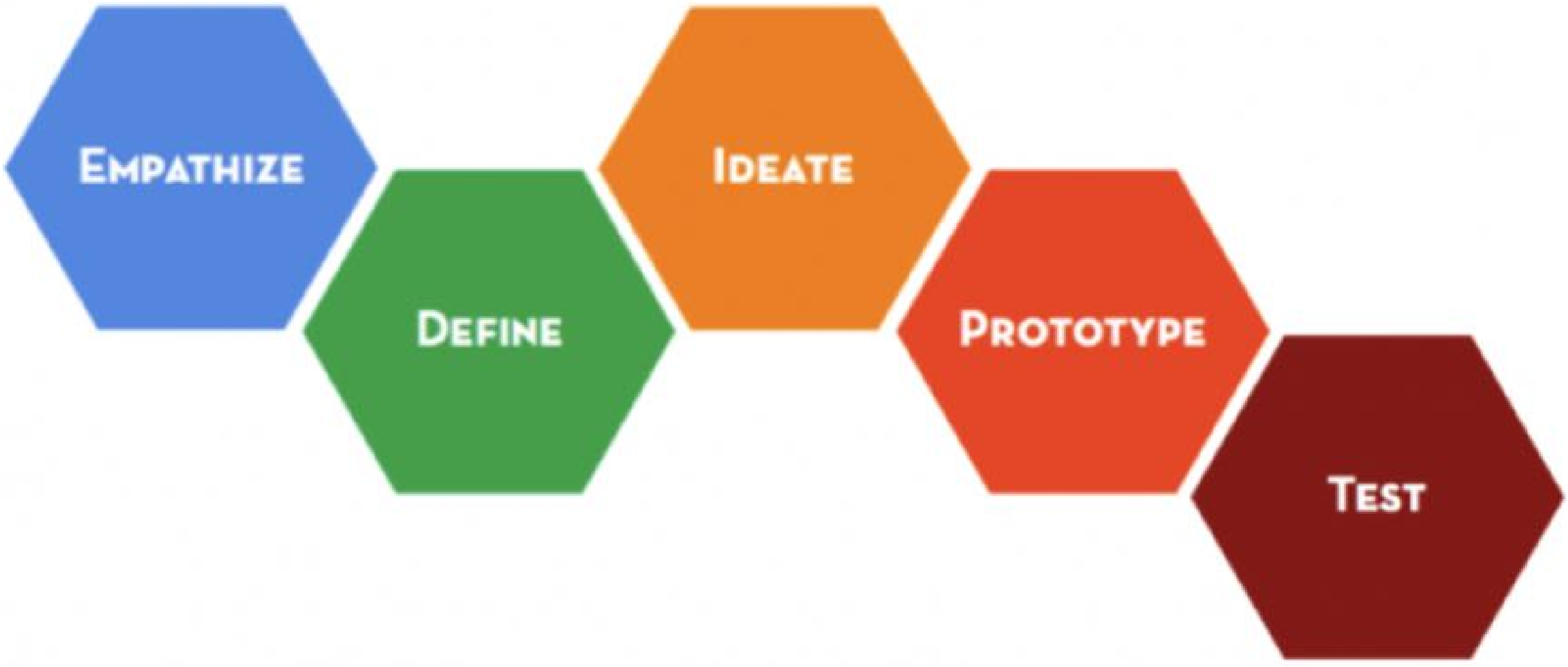
- To be desirable by people
- To be technologically feasible
- To be economically viable


VIABILITY
(BUSINESS)
DESIRABILITY
(HUMAN)
FEASIBILITY
(TECHNICAL)
INNOVATION

Elements of Design Thinking

- Empathize
- Synthesize (i.e. Frame)
- Ideate / Brainstorm
- Prototype / Evaluate

https://www.youtube.com/watch?v=nPIvBPtxEI4


Empathize
Define
Ideate
Prototype
Test

DESIGN THINKING 101

NNGROUP.COM

UNDERSTAND

MATERIALIZE

EXPLORE

EMPATHIZE

Conduct research to develop an understanding of your users.

DEFINE

Combine all your research and observe where your users' problems exist.

IDEATE

Generate a range of crazy, creative ideas.

PROTOTYPE

Build real, tactile representations for a range of your ideas.

TEST

Return to your users for feedback.

IMPLEMENT

Put the vision into effect.

problem definition

Discover
Behaviour-led design research

Define
Creative work shops and idea generation

Develop
Review ideas through culture thinking and design

Deliver
Prototyping, selection and mentoring

Activity: Design Thinking vs. UX Design

THINK-PAIR-SHARE

Compare design thinking to user experience design

A Selection of Design Thinking Methods

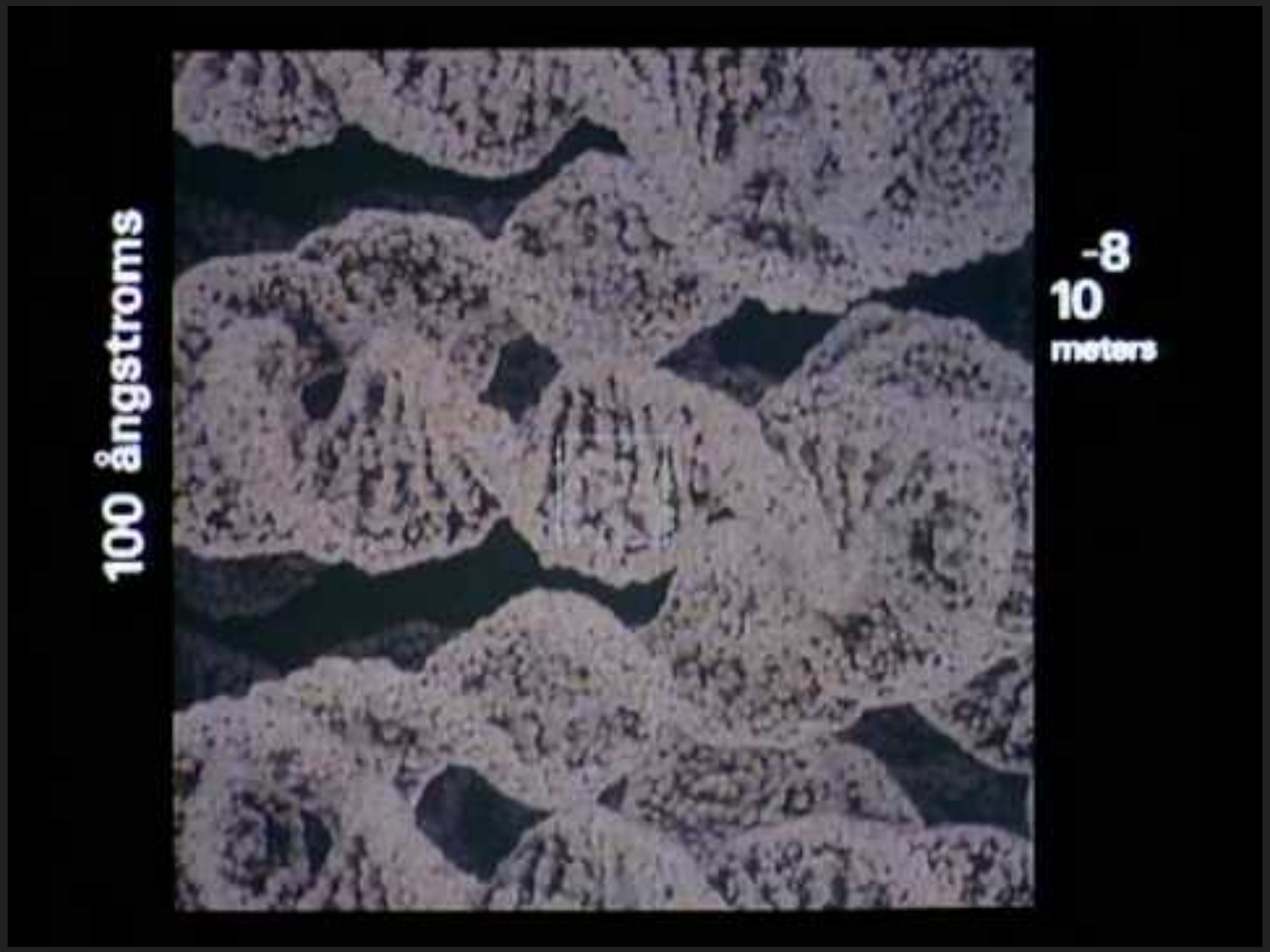
- 5 Whys
- Interviews (discussed week 3)
- Empathy map (discussed week 5)
- Journey map (discussed week 3)
- Personas (discussed week 5)
- Powers of 10 (Zoom in/out)
- Sketching (discussed in week 2, and more to come...)
- Prototyping (discussed in week 2, and more to come...)
- Testing with users (discussed week 2, and more to come...)

Five Whys

A technique to help reveal cause and effect, through asking "Why?" often in five iterations (part of the "Toyota Way")

https://www.youtube.com/watch?v=zvkYFZUsBnw

Zoom In/Out



https://www.youtube.com/watch?v=0fKBhvDjuy0

Time for Questions & Discussion

- What we've covered so far
  - What is design thinking?
  - Five whys
  - Zoom in/out
- Coming up
  - What is usability?

What is user experience design?

Usability and UCD

What is Usability?

Returning user? Login

posterous™ is the dead simple place to post everything. just email us.

~~step 1~~ **~~Create an account~~**
Skip it! No setup or signup

step 2 **Email anything to post@posterous.com**
Attach photos, video, MP3's, and files

step 3 **See the site you made**
We reply instantly with your new posterous at http://yourname.posterous.com

Who's it for?

- First timers
- Casual bloggers
- Social media pros
- Families and groups

"What might be the simplest blogging platform to date..."
–Michael Arrington, Techcrunch

Try it now by emailing post@posterous.com from

Gmail · Windows Live Hotmail · Yahoo! Mail · AOL mail

...or any other mail program. Posterous works wherever you have email.

Email post@posterous.com »

Or see what others are posting...

adventures in 中国

justine's posterous

collections from the last place

TEDChris: The unTweetable

TED
TED Fellows

TweetDeck's posterous

Explore thousands more »

Questions? Answers

tumblr.

What's new Directory About us Sign up Log in Search Tumblr

The easiest way to blog.

See 24 reasons why you'll love Tumblr →

Email address

Password

URL *(you can change this at any time)*

.tumblr.com

Sign up and start posting!

Usability Means...

Usability Means...

Usability means that a person using a system finds it easy to understand and use

Usability Means...

A usable system allows a person to focus on their tasks, and not on the system itself

Usability Means...

A usable system most often does what a person expects

GUIDANCE ON USABILITY FROM ISO 9241-11

What is Usability?

More specifically, usability can be defined as:

- A measurement
- A design approach

Usability as a Measurement (as defined by Jakob Nielsen)

- Learnability
- Efficiency
- Memorability
- Error Rate
- Satisfaction

Learnability

Learnability – how easy is it for novice users to work with the system?

Efficiency

Efficiency – how efficient is it for experienced users to work with the system?

Memorability

Memorability – how easy is it for less frequent users to remember how to use the system?

Error Rate

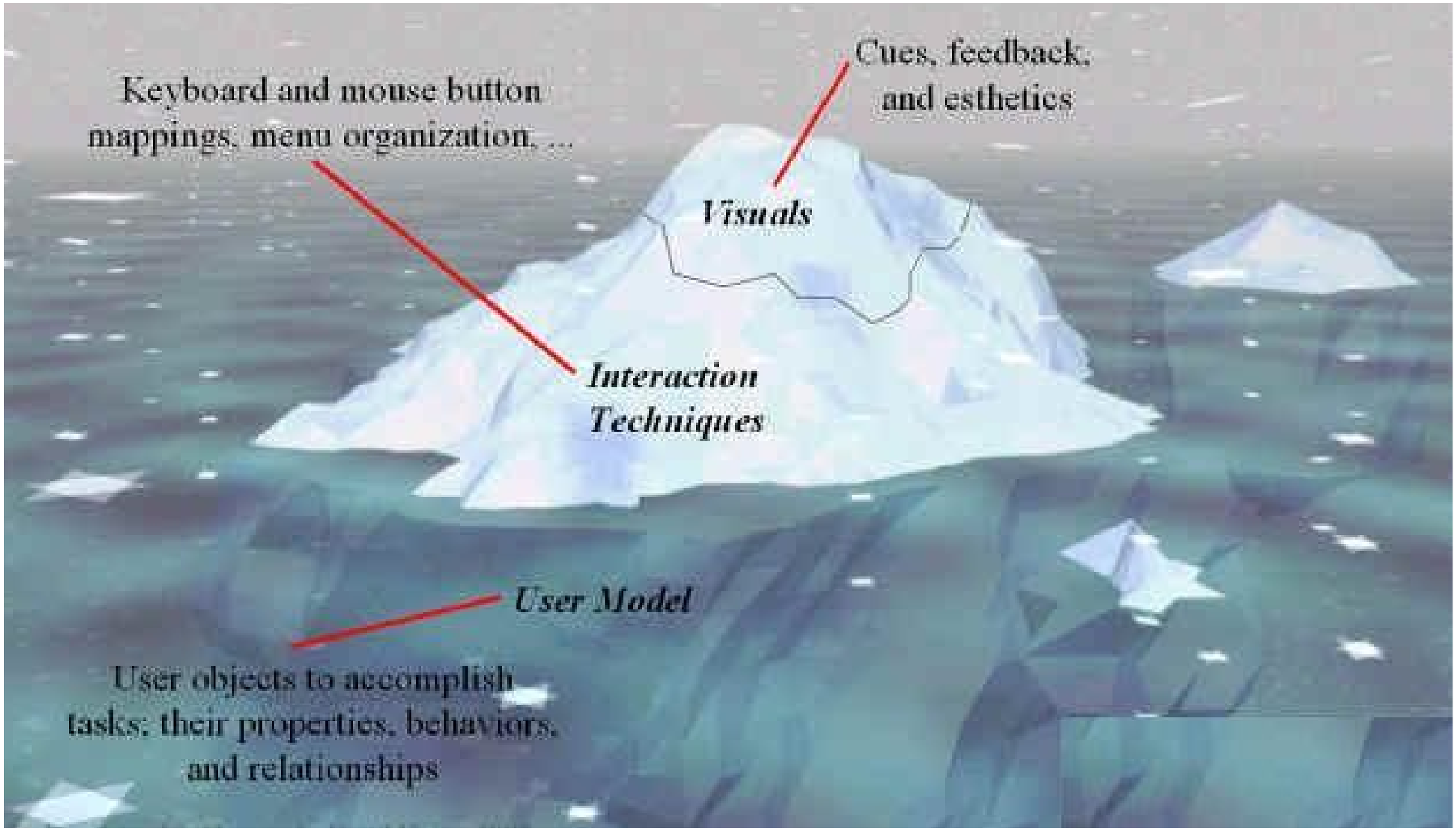
Error Rate – how many errors (on average) do users make when working with the system?

Satisfaction

Satisfaction – how pleasant do users find the system to work with?

Activity: Usability Elements

How would we consider trade-offs, such as Learnability vs Efficiency?


Keyboard and mouse button mappings, menu organization, ...
Cues, feedback, and esthetics
Visuals
Interaction Techniques
User Model
User objects to accomplish tasks: their properties, behaviors, and relationships

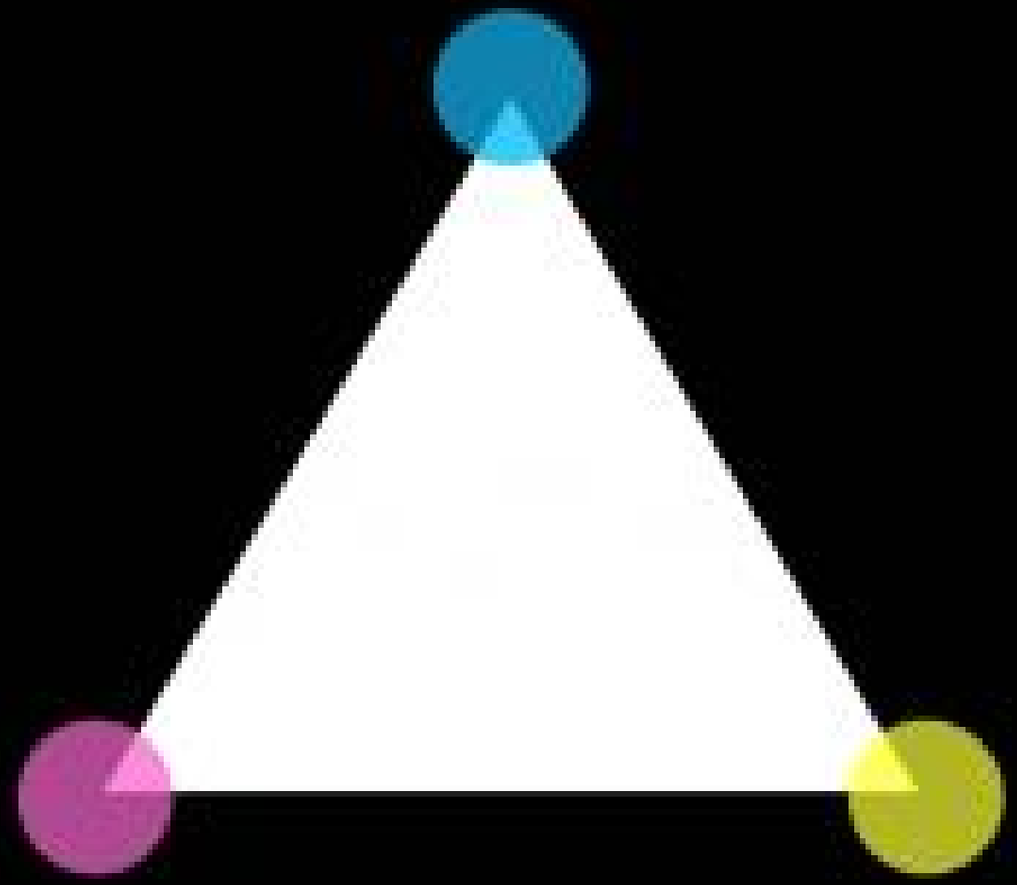
Source: IBM

Time for More Questions & Discussion

- What we've covered in this section
  - Overview of usability
  - Usability as a measurement
  - Usability iceberg
- Coming up
  - Usability as a design approach

Usability as a Design Approach

- User-centered design (UCD)
- Both a methodology and philosophy



USEFUL

USEABLE

DESIRABLE

Designing a Useful Product (by Scott McGregor)

1. Internal combustion engine
2. Four wheels with rubber tires
3. A transmission connecting the engine to the drive wheels
4. Engine and transmission mounted on a metal chassis
5. A steering wheel

Designing a Useful Product (by Scott McGregor)

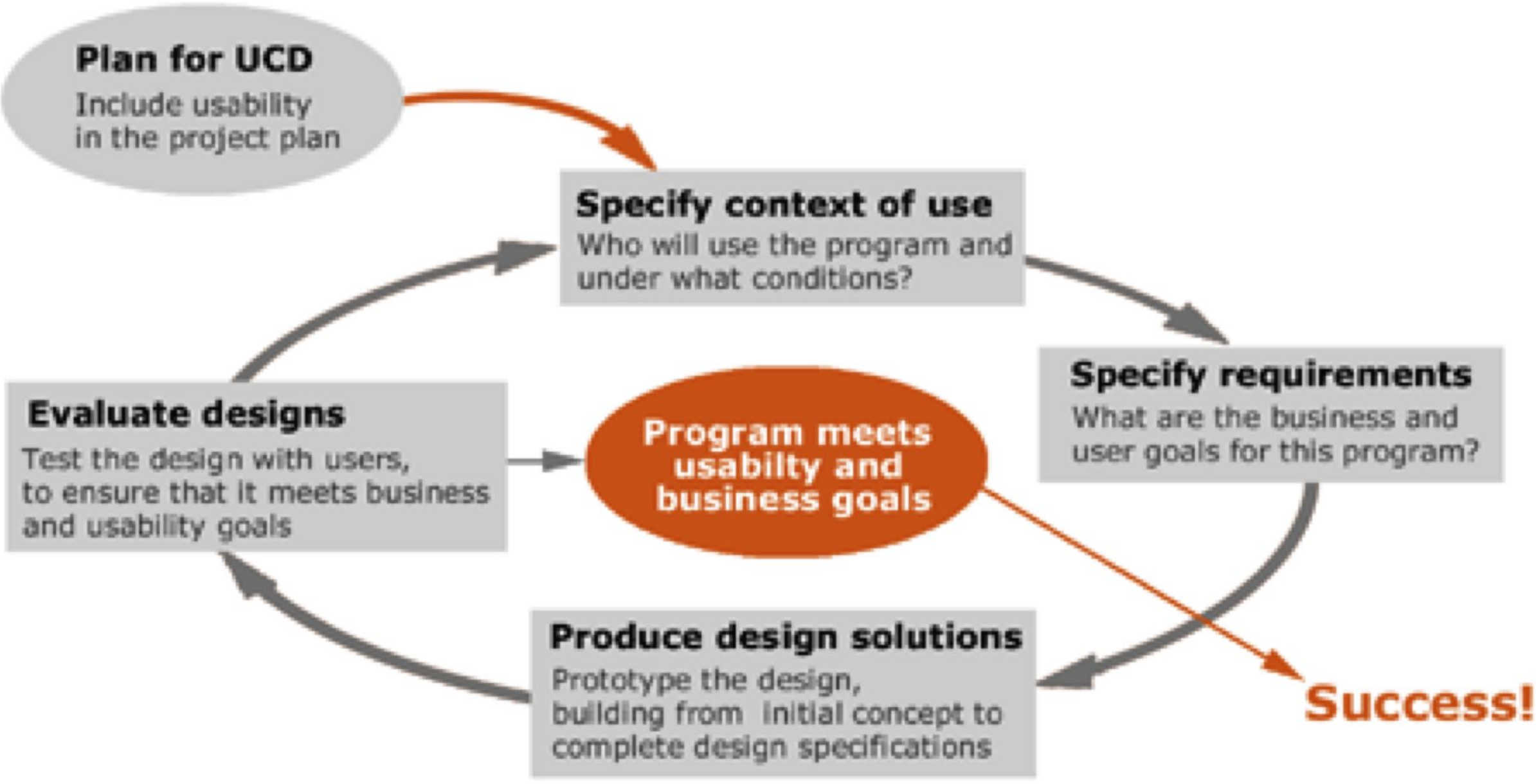
1. Internal combustion engine
2. Four wheels with rubber tires
3. A transmission connecting the engine to the drive wheels
4. Engine and transmission mounted on a metal chassis
5. A steering wheel
6. To cut grass quickly and easily
7. To be comfortable to sit on

Aspects of an Enjoyable Product

- Aesthetics
- Appeal
- Delight
- Fun
- Engagement
- Emotions

Case Study: Making an Enjoyable Product

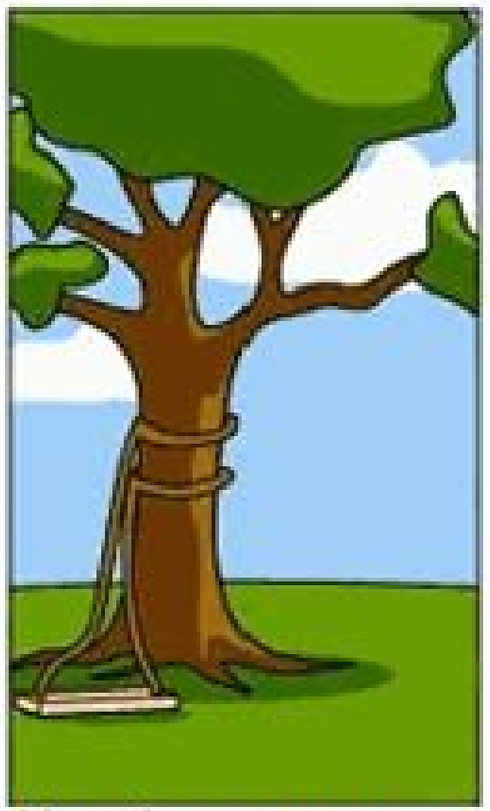
Mailchimp.com


Plan for UCD
Include usability in the project plan
Specify context of use
Who will use the program and under what conditions?
Specify requirements
What are the business and user goals for this program?
Produce design solutions
Prototype the design, building from initial concept to complete design specifications
Evaluate designs
Test the design with users, to ensure that it meets business and usability goals
Program meets usabilty and business goals
Success!

How the customer explained it

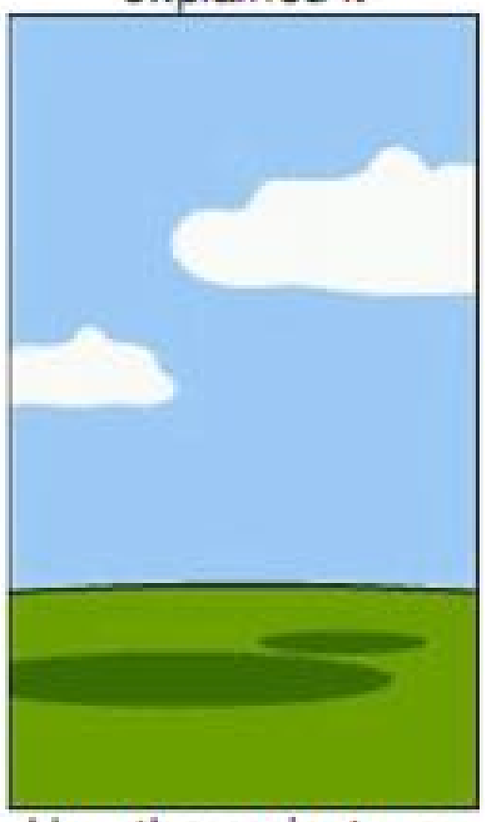
How the project leader understood it

How the engineer designed it



How the programmer wrote it

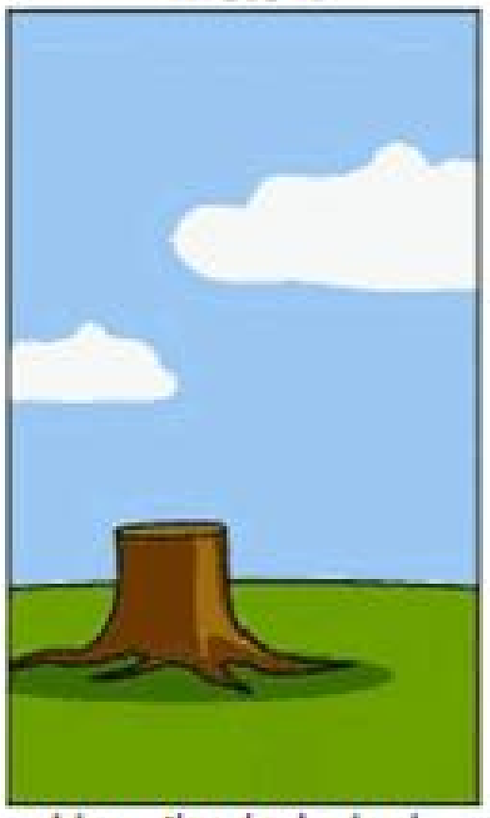
How the sales executive described it



How the project was documented

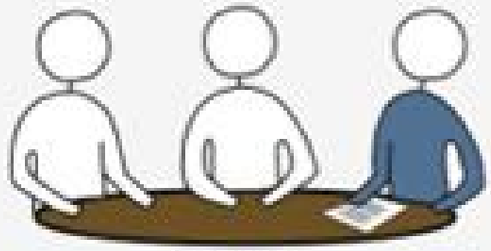
What operations installed

How the customer was billed

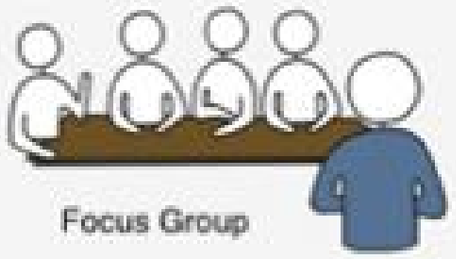


How the helpdesk supported it

What the customer really needed



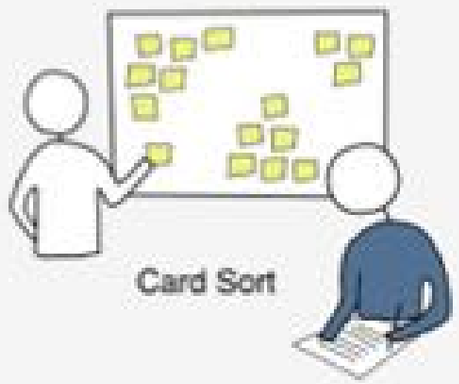
Meeting



Focus Group

Contextual Inquiry

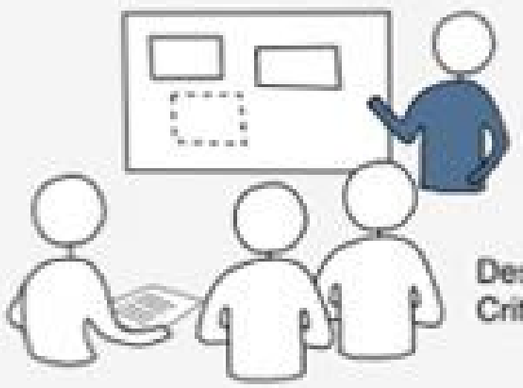
Interview



Card Sort

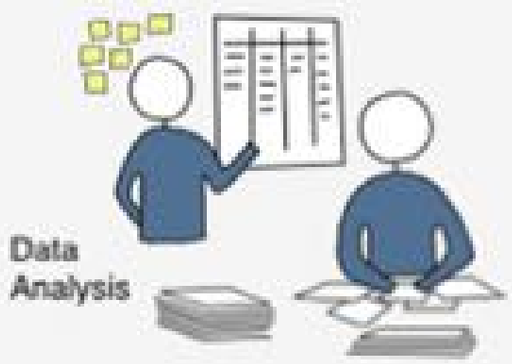
Participatory Design

Paper Prototyping



Design
Critique

Usability Test



Data
Analysis

Summary

- HCI, UI, IA, IxD and UX
- Design Thinking
- Usability and UCD

References and Suggested Books

- A Project Guide to UX Design: For user experience designers in the field or in the making by Russ Unger and Carolyn Chandler
- Change by Design by Tim Brown
- Don’t Make Me Think: A Common Sense Approach to Web Usability, 2nd Edition by Steve Krug
- d.school bootcamp bootleg by The d.school (PDF)
- From Tool to Partner: The Evolution of Human-Computer Interaction, Jonathan Grudin (Author) and John M. Carroll (Editor)
- The Design of Everyday Things by Donald A. Norman
- Universal Principles of Design by William Lidwell, Kritina Holden, and Jill Butler
- Usability Engineering by Jacob Nielsen
- Useful Usability: Simple Steps For Making Stuff Better by Eric Reiss

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https://en.wikipedia.org/wiki/Grace_Hopper
https://en.wikipedia.org/wiki/Douglas_Engelbart
https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/human-computer-interaction-brief-intro
https://foundationsofhci.wordpress.com/
https://user-prompt.com/de/style-the-guide-a-new-hig-for-kde-is-in-preparation/
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http://www.wqusability.com/articles/language-usability-tekom-proceedings.html
https://www.tamingdata.com/2010/07/08/the-project-management-tree-swing-cartoon-past-and-present/
http://www.designtos.com/post_user-centered-design-process_23464/