Interaction Design

Chapter 2 (May 04th, 2017, 9am-12pm):

Process Models, Elements and Usability

Recap Session Day 1:

Gillian Crampton Smith

-established the first Interaction Design MA program at the Royal College of Art (RCA)
-was the founder and academic director of the Interaction Design Institute Ivrea (IDII)

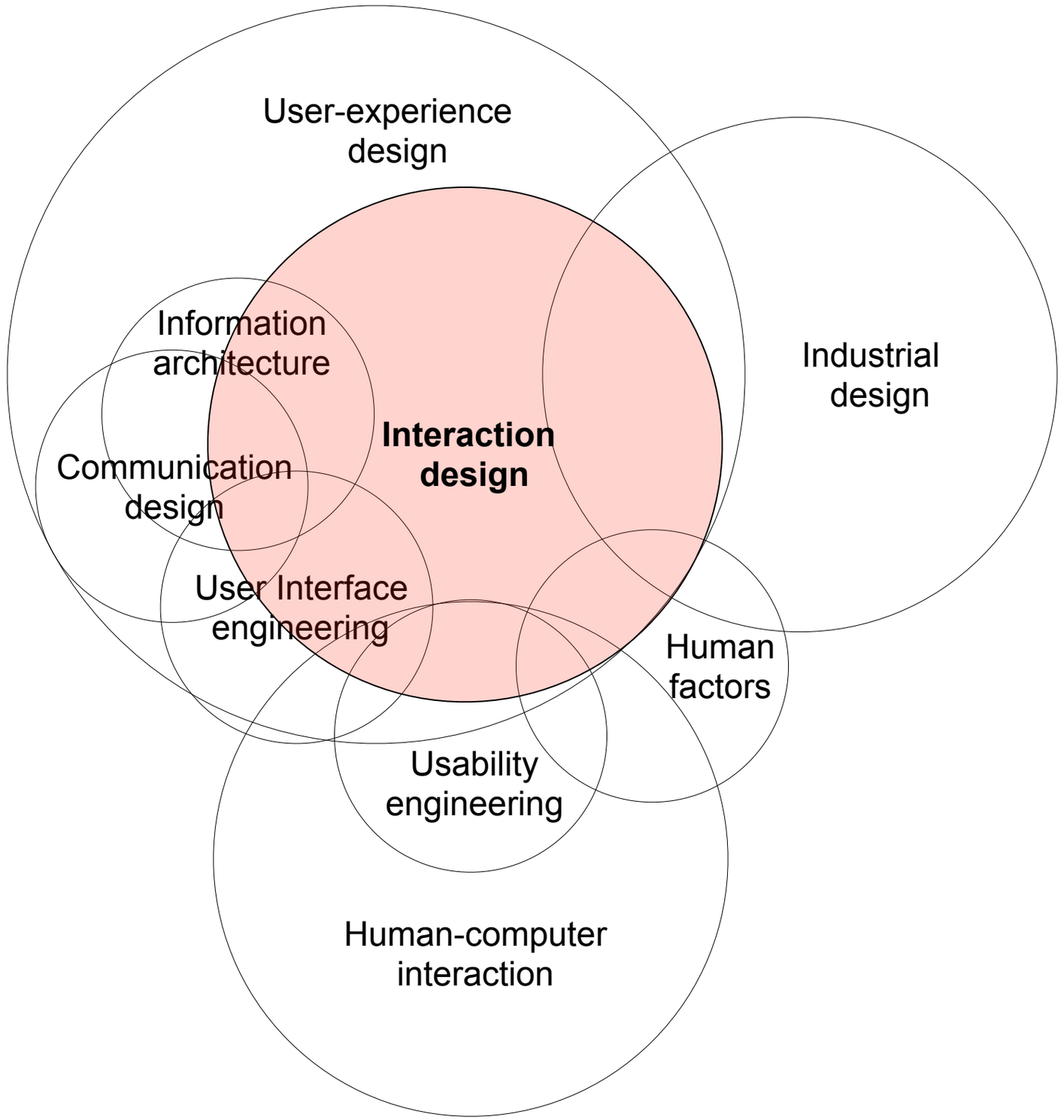
source: [3]

http://www.designinginteractions.com/img/interviews/GillianCramptonSmith.jpg

Looking back...

-shaping our lives through digital artefacts...
-good IxD refers to a “mental model”
-good IxD provides a “map” of where you are in a system, how you can move around and how you get back to the point where you started
-languages of interaction design
-elements of interaction design
-the part of the interaction designer is to design
the **quality** on how the interaction is performed, how the system behaves

source: [3]


User-experience design
Information architecture
Industrial design
Interaction design
Communication design
User Interface engineering
Human factors
Usability engineering
Human-computer interaction

source: [5]

Douglas Engelbart

http://www.corporationtocommunity.com/wp-content/uploads/2011/02/engelbart.jpg

Douglas C. Engelbart : **Augmenting human intellect: A Conceptual Framework**

Stanford Research Institute (SRI), 1962.

source: [3]

1. Artefacts—physical objects designed to provide for human comfort, the manipulation of things or materials, and the manipulation of symbols.

2. Language—the way in which the individual classifies the picture of his world into the concepts that his mind uses to model that world, and the symbols that he attaches to those concepts and uses in consciously manipulating the concepts ("thinking").

3. Methodology—the methods, procedures, and strategies with which an individual organises his goal-centred (problem-solving) activity.

4. Training—the conditioning needed by the individual to bring his skills in using augmentation means 1, 2, and 3 to the point where they are operationally effective.

source: [3]

founded 1970 by Xerox

http://upload.wikimedia.org/wikipedia/commons/e/e8/PARC-logo-color.png

Marc Weiser

http://www.cs.umd.edu/projects/photohistory/facultypictures_full/weiser.jpg

The Computer for the 21st Century

Specialized elements of hardware and software, connected by wires, radio waves and infrared, will be so ubiquitous that no one will notice their presence

by Mark Weiser

The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.

Consider writing, perhaps the first information technology. The ability to represent spoken language symbolically for long-term storage freed information from the limits of individual memory. Today this technology is ubiquitous in industrialized countries. Not only do books, magazines and newspapers convey written information, but so do street signs, billboards, shop signs and even graffiti. Candy wrappers are covered in writing. The constant background presence of these products of "literacy technology" does not require active attention, but the information to be transmitted is ready for use at a glance. It is difficult to imagine modern life otherwise.

Silicon-based information technology, in contrast, is far from having become part of the environment. More than 50 million personal computers have been sold, and the computer nonetheless remains largely in a world of its own. It is approachable only through complex jargon that has nothing to do with the tasks for which people use computers. The state of the art is perhaps analogous to the period when scribes had to know as much about making ink or baking clay as they did about writing.

The arcane aura that surrounds personal computers is not just a "user interface" problem. My colleagues and I at the Xerox Palo Alto Research Center think that the idea of a "personal" computer itself is misplaced and that the vision of laptop machines, dynabooks and "knowledge navigators" is only a transitional step toward achieving the real potential of information technology. Such machines cannot truly make computing an integral, invisible part of people's lives. We are therefore trying to conceive a new way of thinking about computers, one that takes into account the human world and allows the computers themselves to vanish into the background.

Such a disappearance is a fundamental consequence not of technology but of human psychology. Whenever people learn something sufficiently well, they cease to be aware of it. When you look at a street sign, for example, you absorb its information without consciously performing the act of reading. Computer scientist, economist and Nobelist Herbert A. Simon calls this phenomenon "compiling"; philosopher Michael Polanyi calls it the "tacit dimension"; psychologist J. J. Gibson calls it "visual invariants"; philosophers Hans Georg Gadamer and Martin Heidegger call it the "horizon" and the "ready-to-hand"; John Seely Brown of PARC calls it the "periphery." All say, in essence, that only when things disappear in this way are we freed to use them without thinking and so to focus beyond them on new goals.

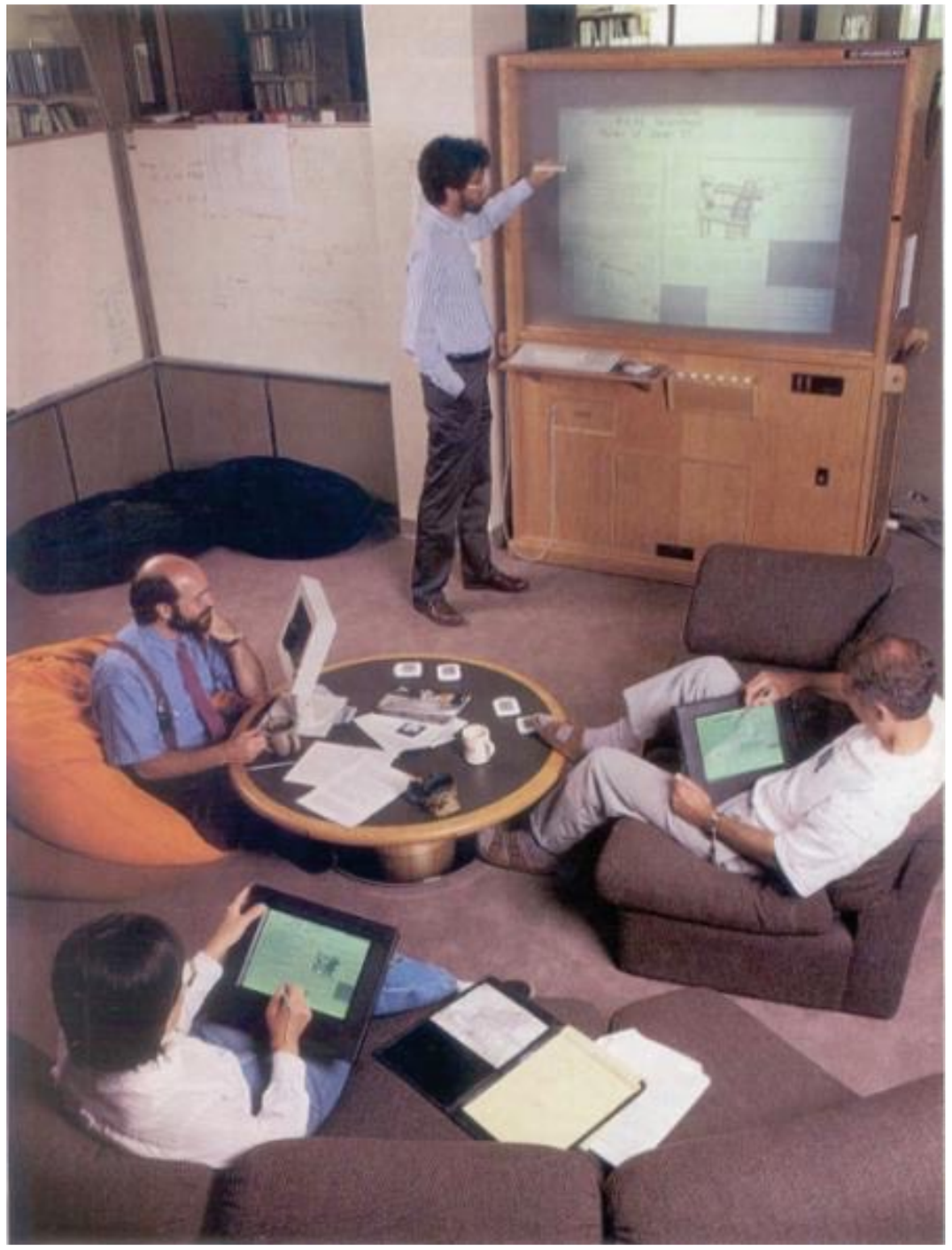
The idea of integrating computers seamlessly into the world at large runs counter to a number of present-day trends. "Ubiquitous computing" in this context does not mean just computers that can be carried to the beach, jungle or airport. Even the most powerful notebook computer, with access to a worldwide information network, still focuses attention on a single box. By analogy with writing, carrying a superlaptop is like owning just one very important book. Customizing this book, even writing millions of other books, does not begin to capture the real power of literacy.

Furthermore, although ubiquitous computers may use sound and video in addition to text and graphics, that does not make them "multimedia computers." Today's multimedia machine makes the computer screen into a demanding focus of attention rather than allowing it to fade into the background.

Perhaps most diametrically opposed to our vision is the notion of virtual reality, which attempts to make a world inside the computer. Users don special goggles that project an artificial scene onto their eyes; they wear gloves or even bodysuits that sense their motions and gestures so that they can move about and manipulate virtual objects. Although it may have its purpose in allowing people to explore realms otherwise inaccessible—the insides of cells, the surfaces of distant planets, the information web of data bases—virtual reality is only a map, not a territory. It excludes desks, offices, other people not wearing goggles and bodysuits, weather, trees, walks, chance encounters and, in general, the infinite richness of the universe. Virtual reality focuses an enormous apparatus on simulating the world rather than on invisibly enhancing the world that already exists.

Indeed, the opposition between the

MARK WEISER is head of the Computer Science Laboratory at the Xerox Palo Alto Research Center. He is working on the next revolution of computing after workstations, variously known as ubiquitous computing or embodied virtuality. Before working at PARC, he was a professor of computer science at the University of Maryland; he received his Ph.D. from the University of Michigan in 1979. Weiser also helped found an electronic publishing company and a video arts company and claims to enjoy computer programming "for the fun of it." His most recent technical work involved the implementation of new theories of automatic computer memory reclamation, known in the field as garbage collection.



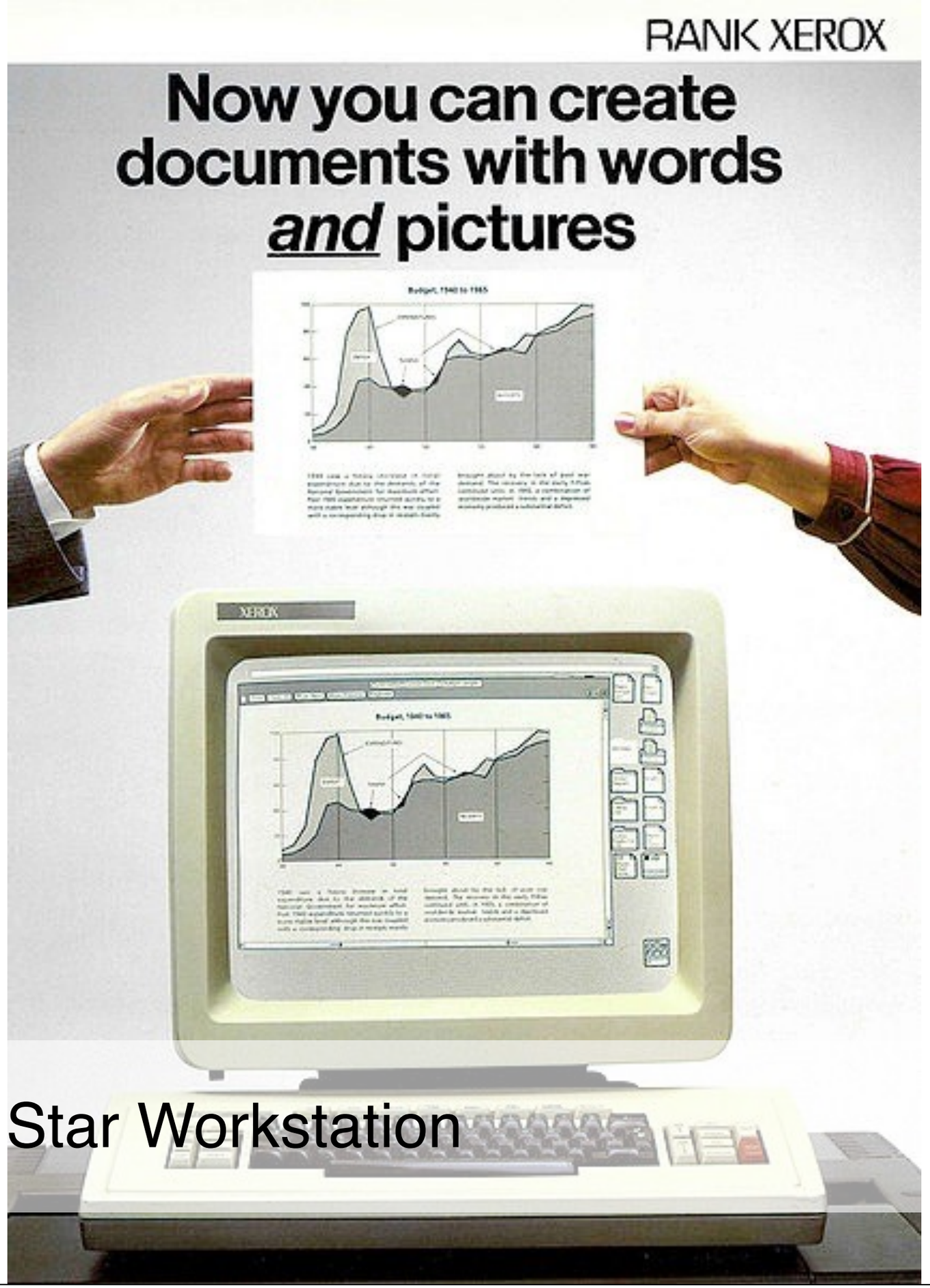
https://www.ics.uci.edu/~corps/phaseii/Weiser-Computer21stCentury-SciAm.pdf

The Computer for the 21st Century, 1991

http://www.pmstudio.co.uk/pmstudio/sites/default/files/images/ubicomp1991.jpg

Xerox Alto 1973

http://dl.maximumpc.com/galleries/25oldpcs/xerox_alto_front_full.jpg



1981 Xerox Star Workstation

Interaction Design

Chapter 2 (May 04th, 2017, 9am-12pm):

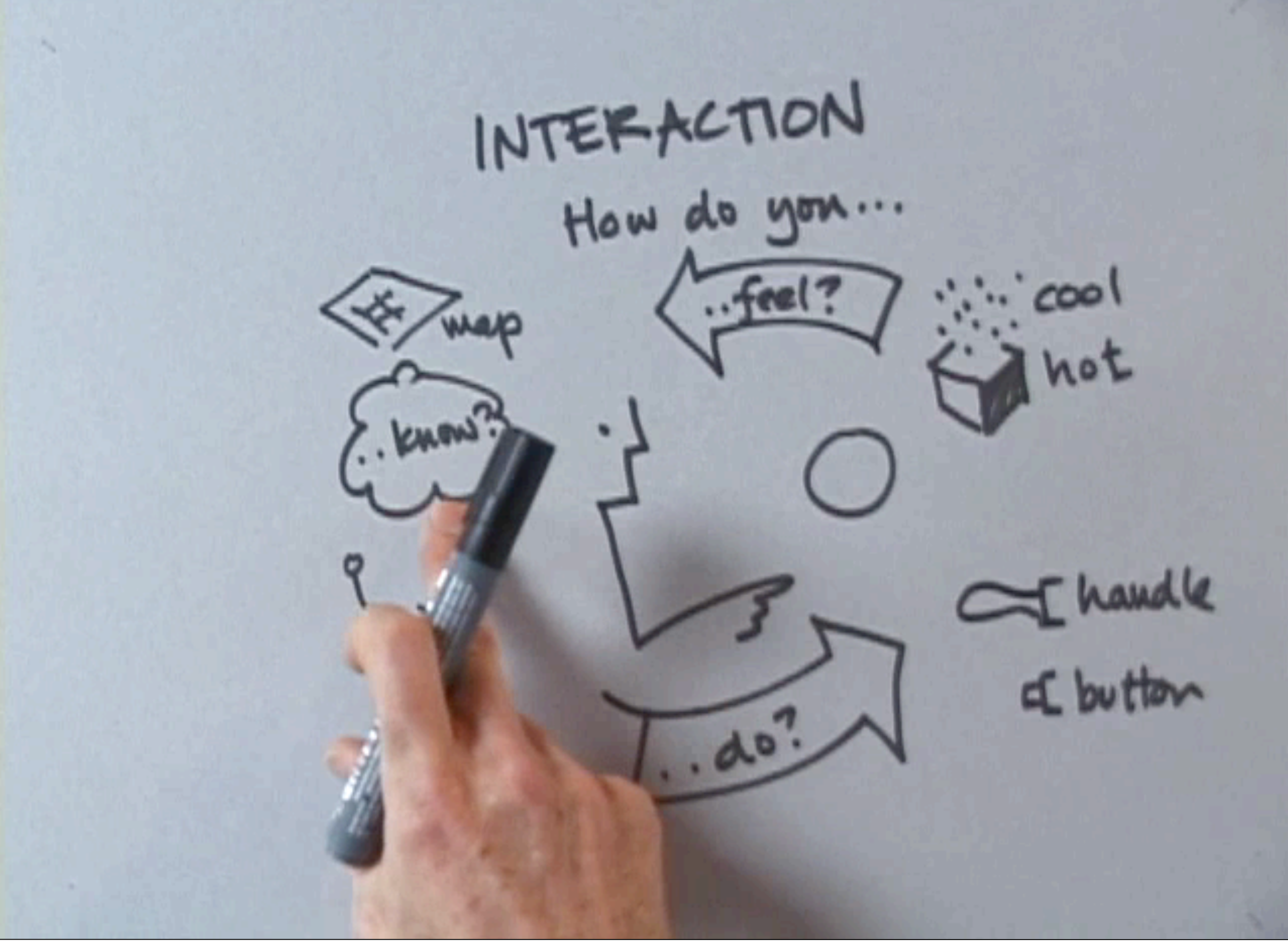
Process Models, Elements and Usability

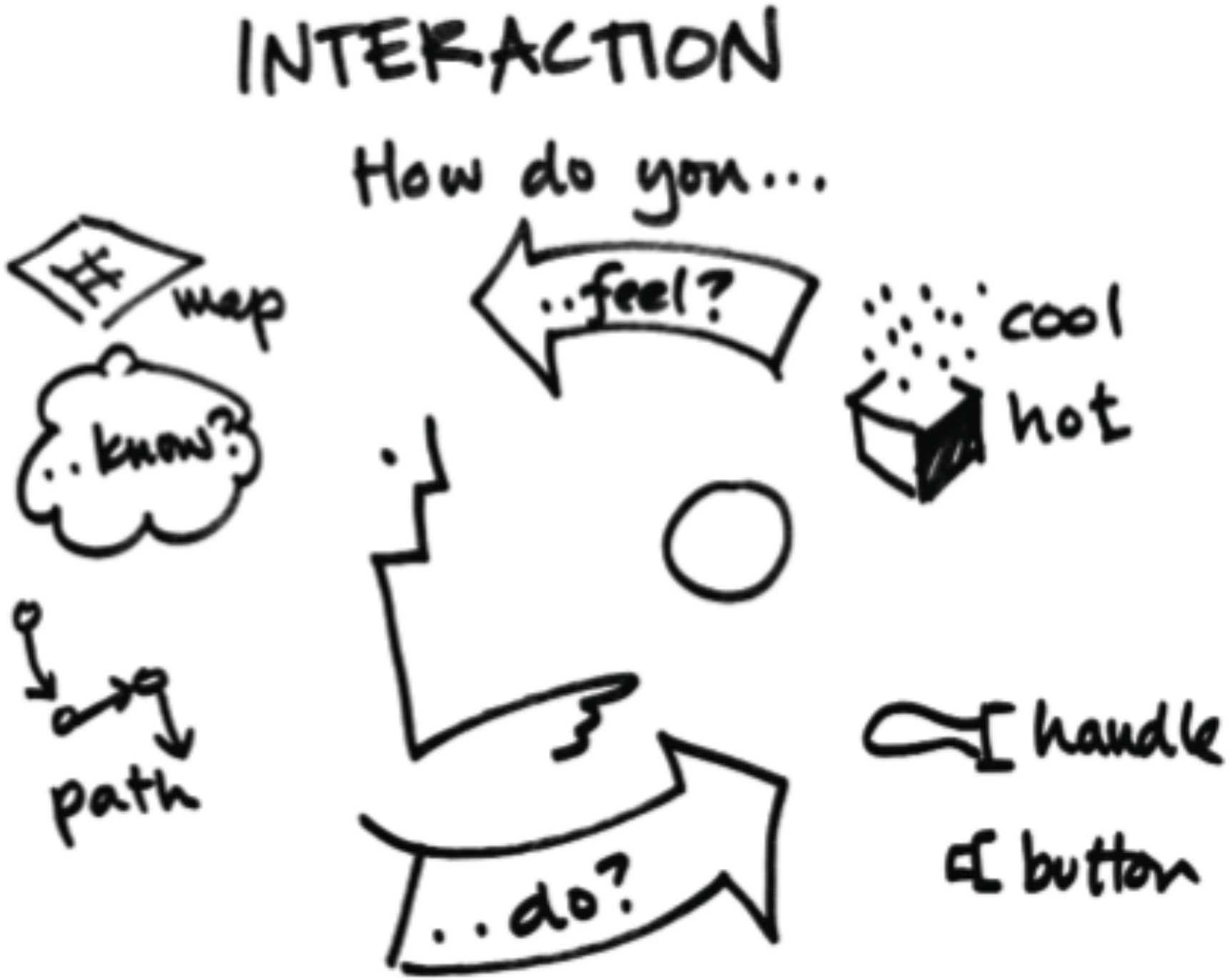
Process Models, Elements and Technology

- Definition and Paradigms of Interaction Design
- Process Models
- Elements of Interaction Design
- Adapting Technology

Bill Verplank

http://rpmedia.ask.com/ts?u=/wikipedia/commons/thumb/9/9b/Billverplank_ciid_2010.jpg/180px-Billverplank_ciid_2010.jpg


INTERACTION
How do you...
..feel?
cool
hot
map
..know?
handle
button
..do?



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.

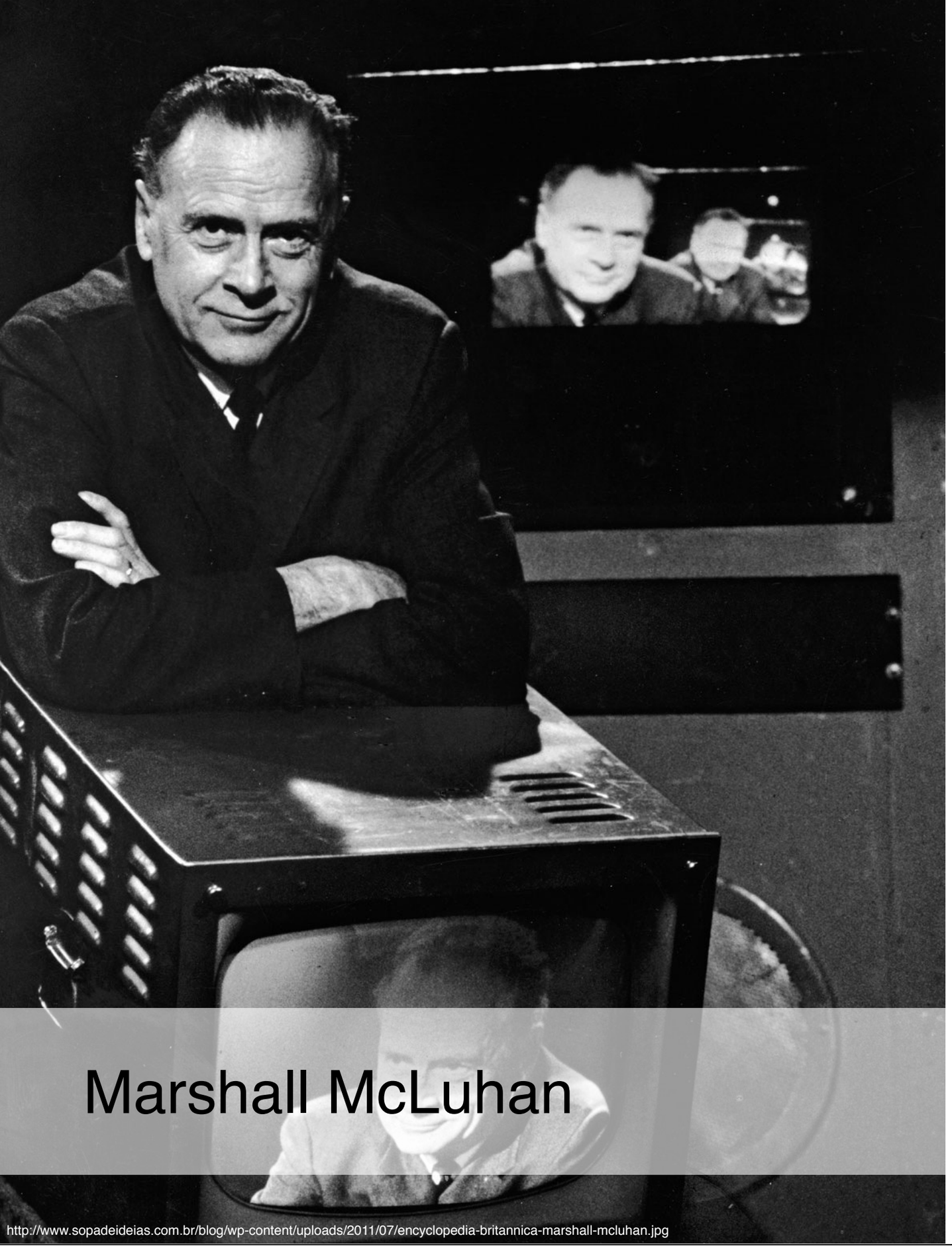
2. “How do you feel?”

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

source: [3]

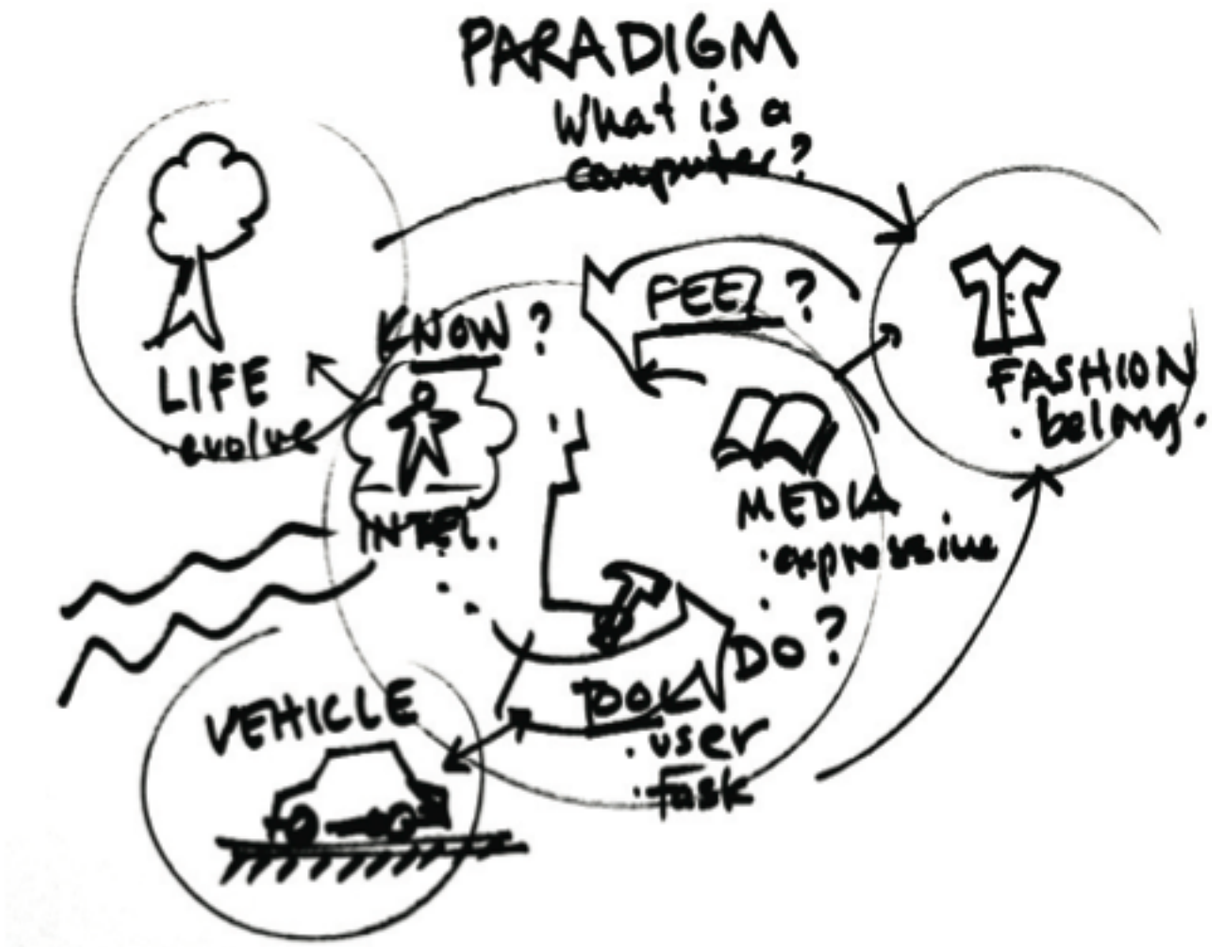


Marshall McLuhan

http://www.sopadeideias.com.br/blog/wp-content/uploads/2011/07/encyclopedia-britannica-marshall-mcluhan.jpg

"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.

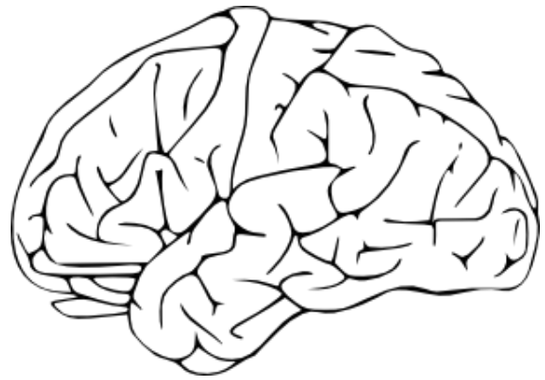
It is the set of questions that a particular community has decided are important. For interaction design there is often some confusion about what paradigm you are working with.The basic question is,What is a computer?

source: [3]

Intelligence

In the early days, designers thought of computers as people and tried to develop them to become smart, intelligent, and autonomous.

The word “smart” is one that we associate with this paradigm, expecting the machine or product to be smart and to know how to do things for the person who uses it.



http://www.clker.com/clipart-4348.html

source: [3]

Tool

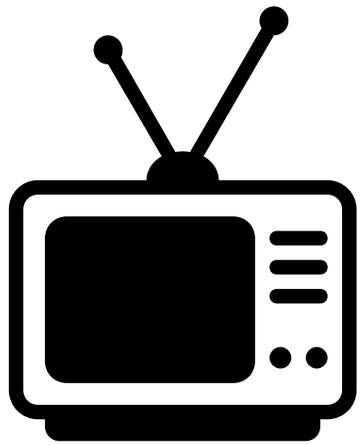
Doug Engelbart, the inventor of the computer mouse, thought of the computer as a tool.

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.



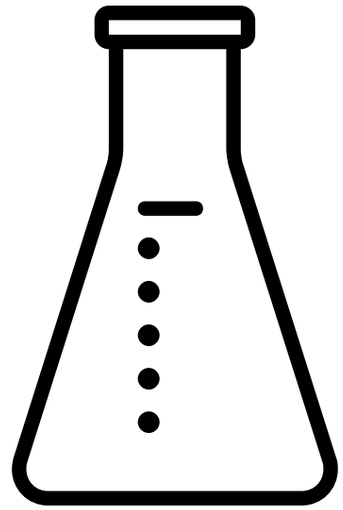
How expressive is the medium? How compelling is the medium? Here we are not thinking so much about a user interacting with or manipulating the computer, but more about them looking at and browsing in the medium.

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.

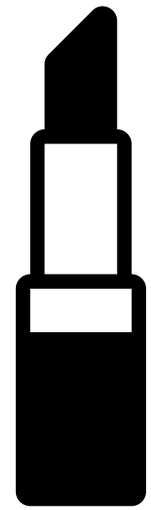
There has to be some kind of infrastructure that underlies all computer systems. People spend their careers determining the standards that will define the infrastructures, and hence the limitations and opportunities for design.

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.

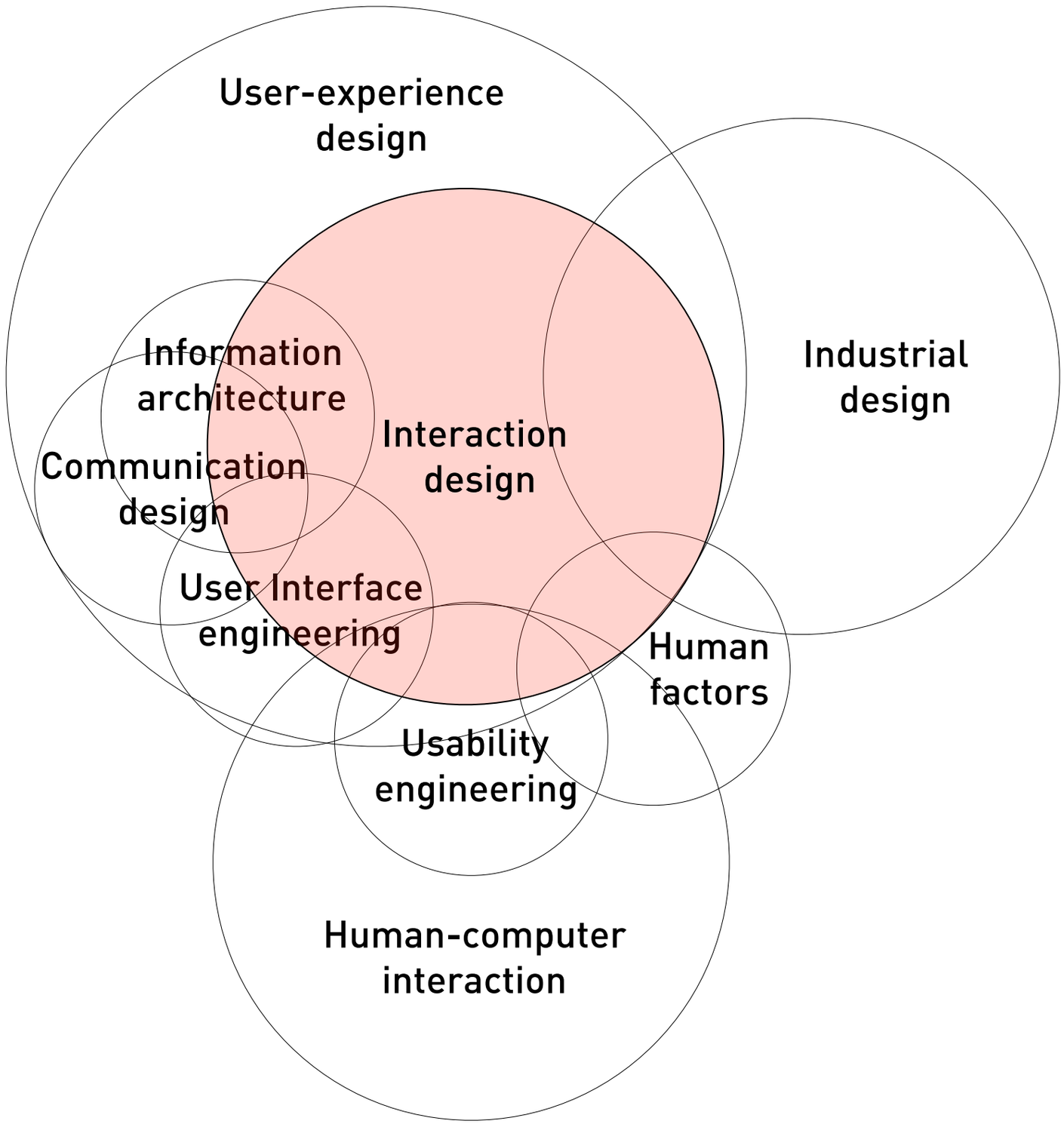


source: [3]

Process Models, Elements and Technology

- Definition and Paradigms of Interaction Design
- Process Models
- Elements of Interaction Design
- Adapting Technology

User Experience Design



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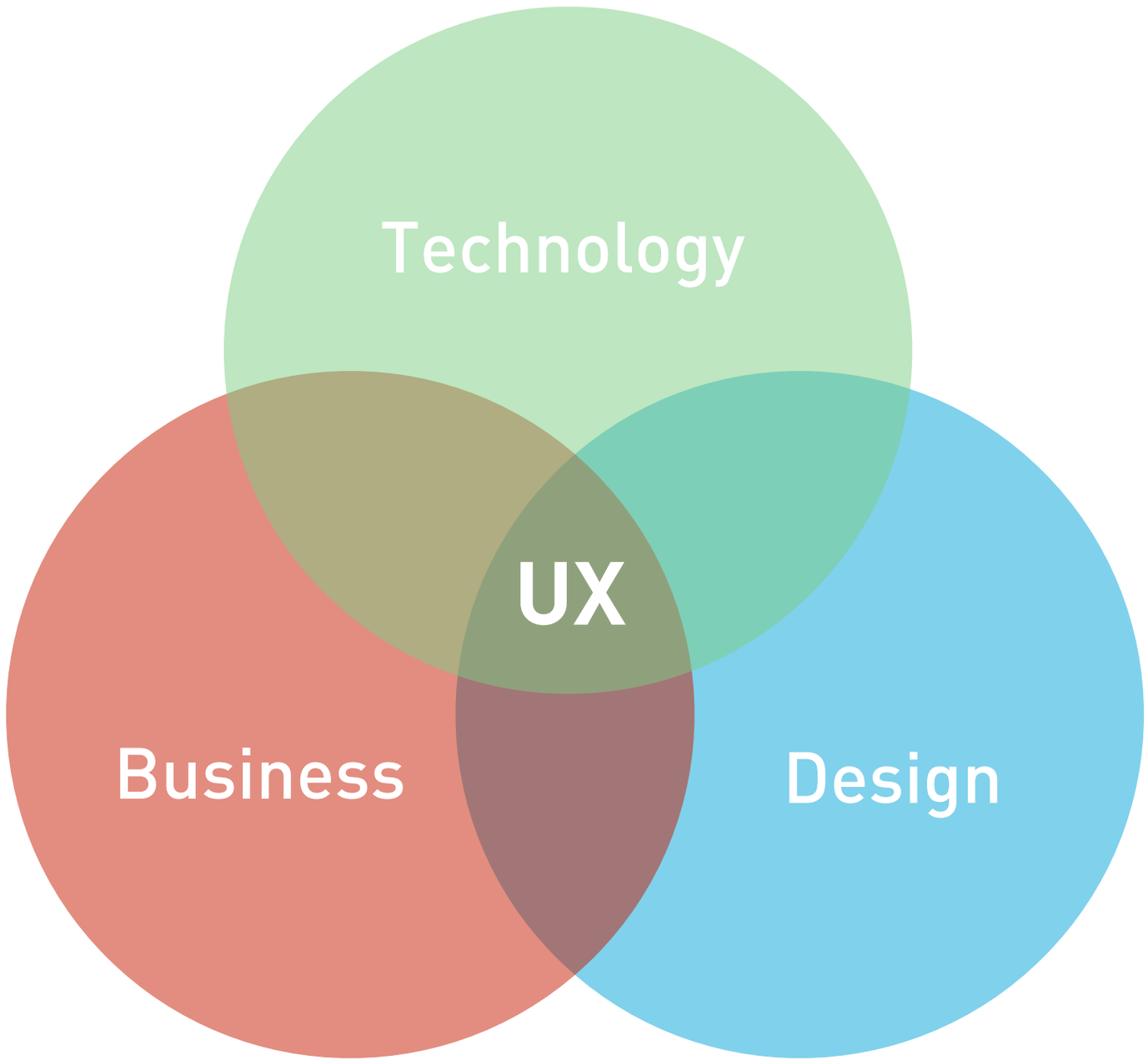
User Experience Design



©Peter Morville
http://semanticstudios.com

source: [3]

User Experience Design

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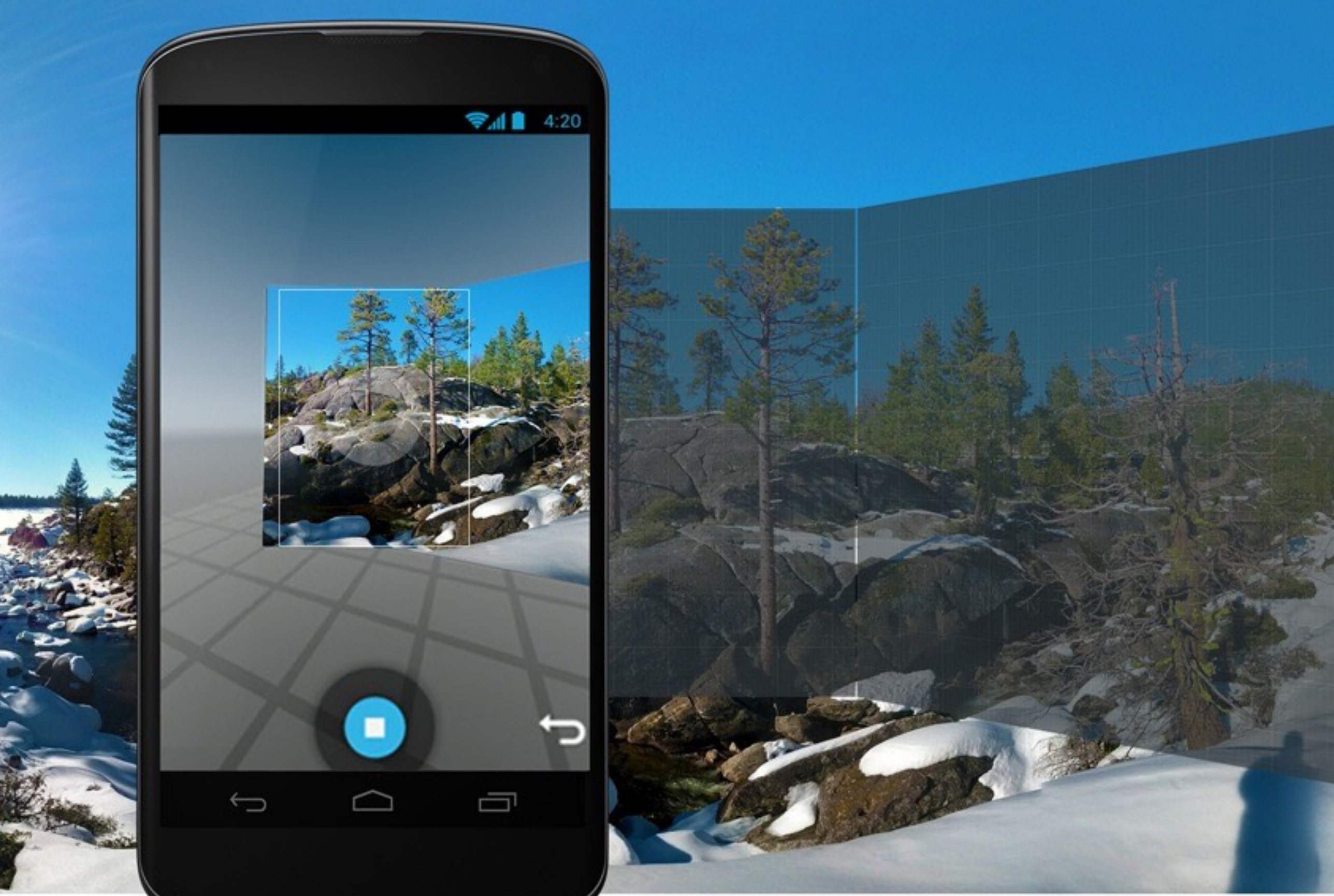
source: [3]



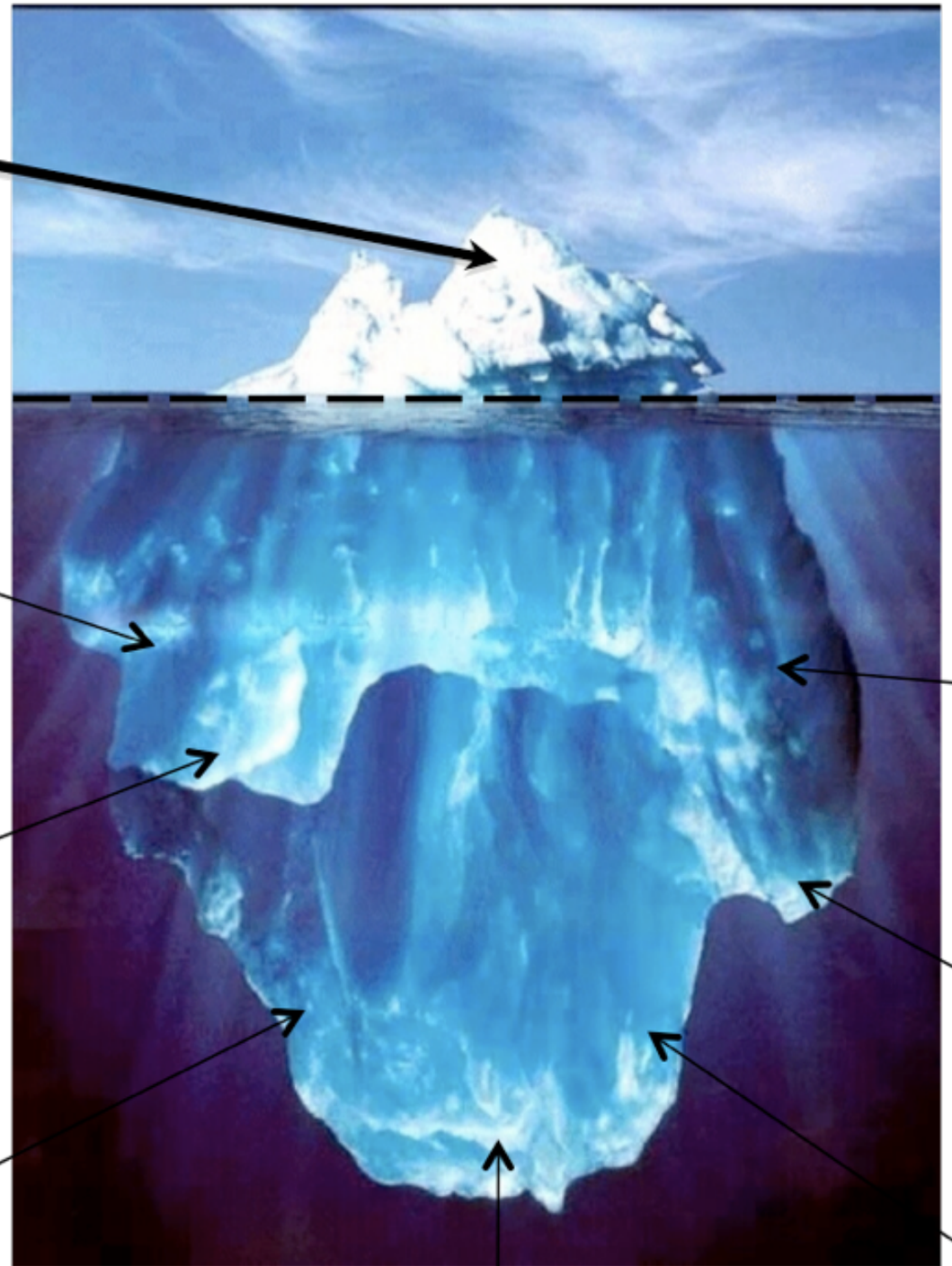
https://dotmobility.files.wordpress.com/2013/12/photosphere-create.jpg

Front Stage

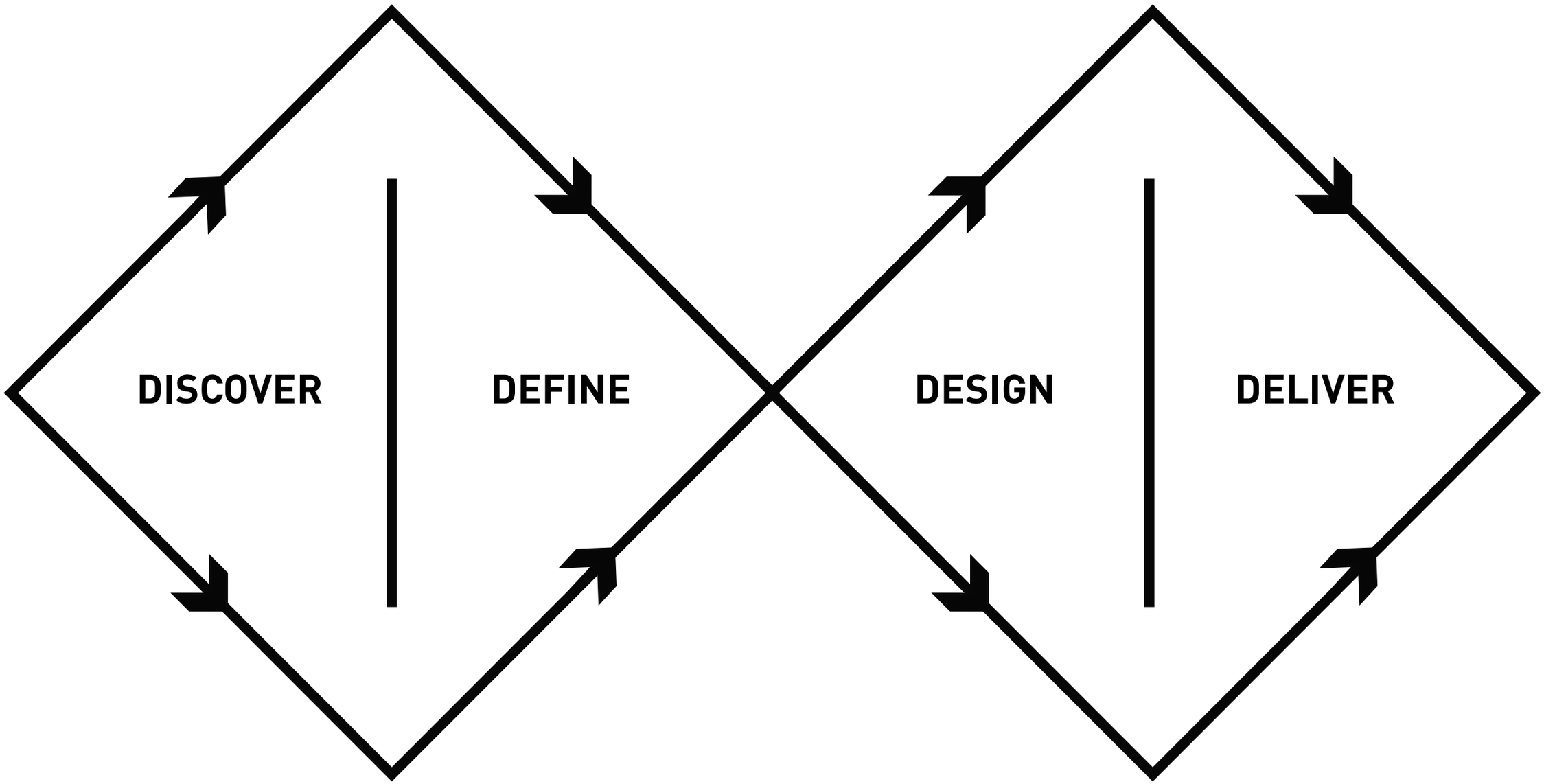
http://www.markabull.com/wp-content/uploads/2011/01/stage.jpg

Back Stage

http://blog.entrepreneurthearts.com/etablog/wp-content/uploads/2010/08/backstage.jpg


User Interface
Visible
Behind the Scenes
Capturing
Connecting
Combining
Contextualizing
Transferring
Coordinating
Storing

Double Diamond



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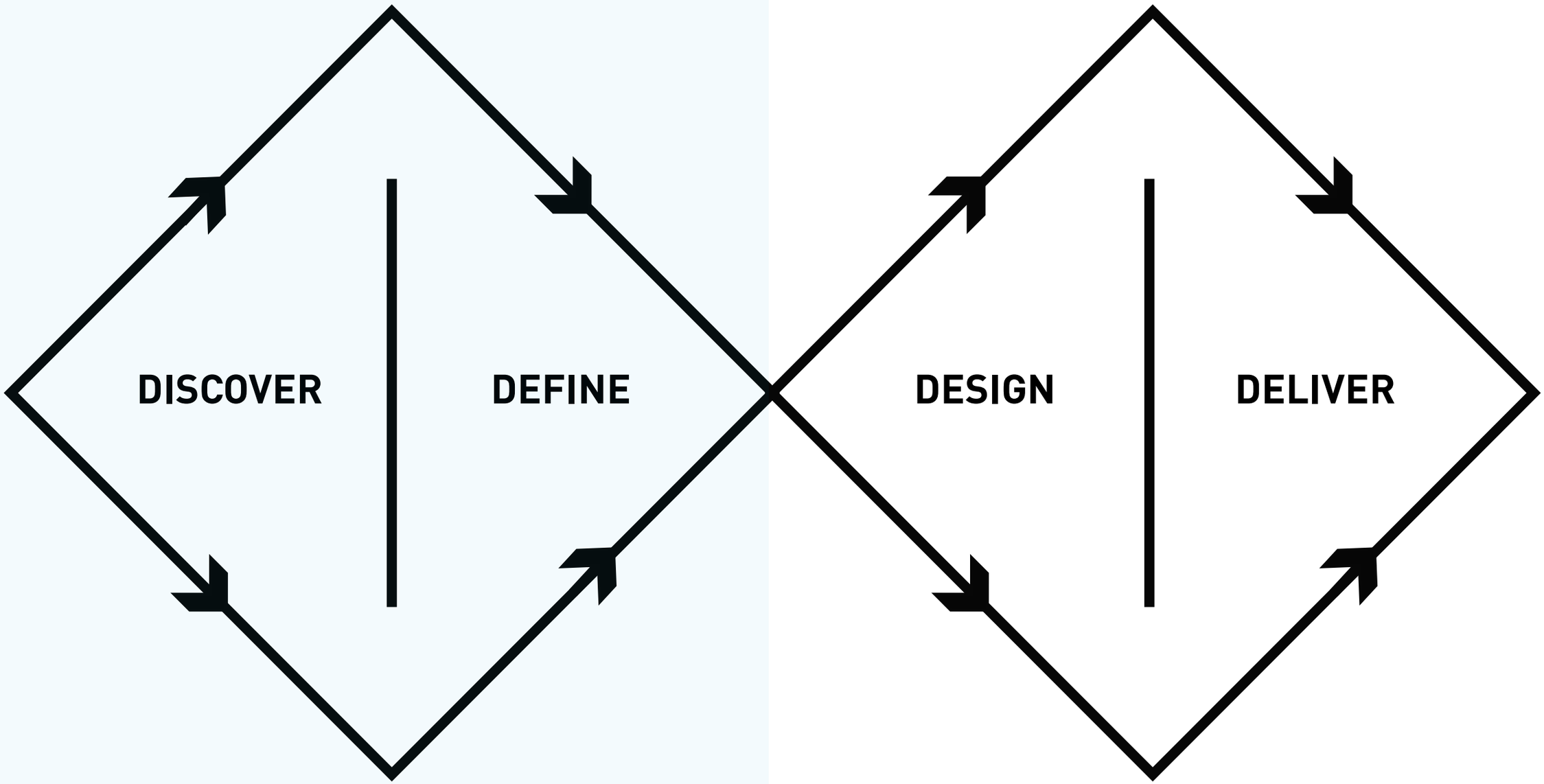
Double Diamond



Why? and How?

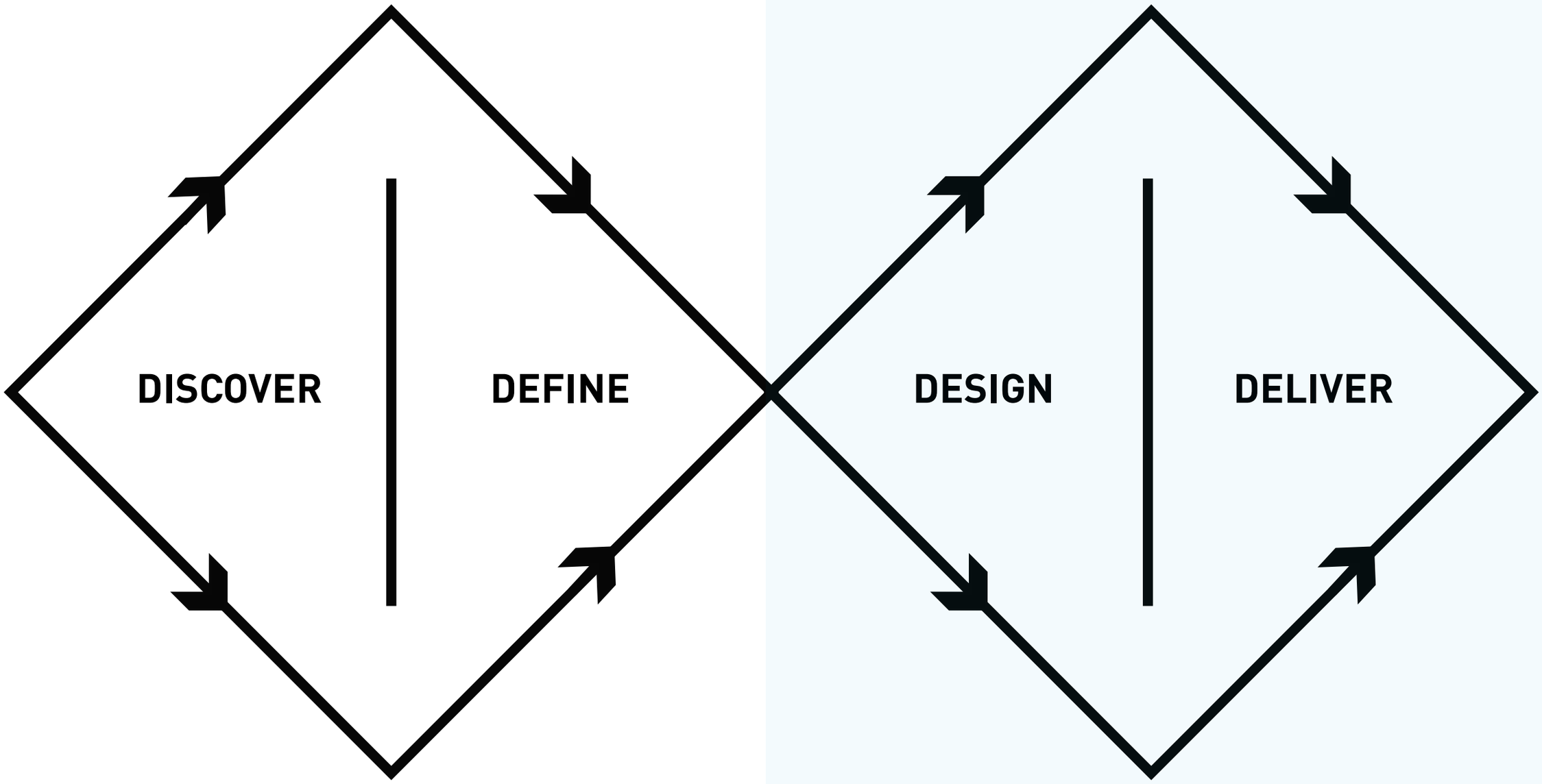
source: [2]

Getting the right Design and the Design right...

Bill Buxton - Sketching User Experiences

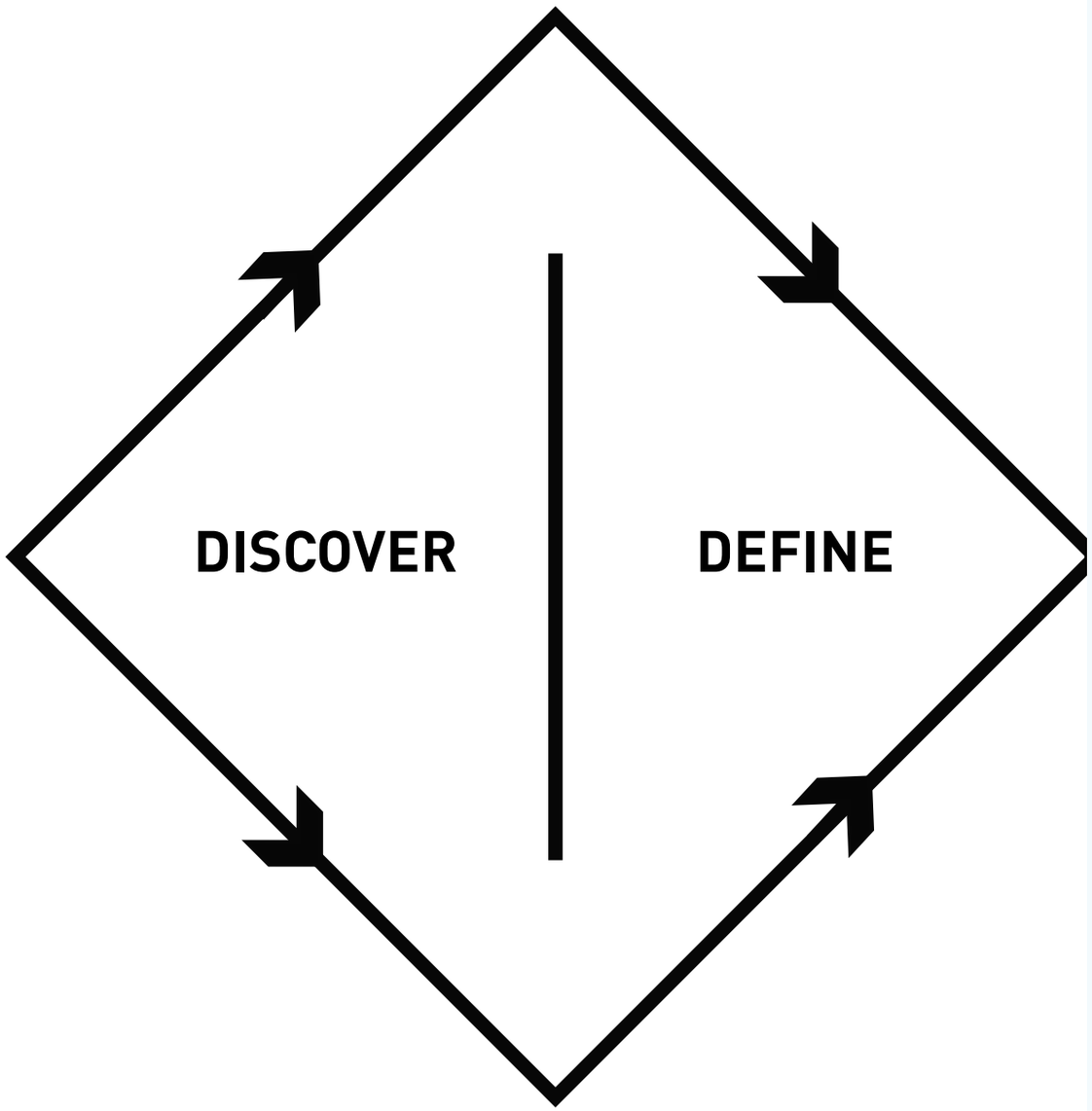
source: [1]

Double Diamond



source: [2]

Double Diamond

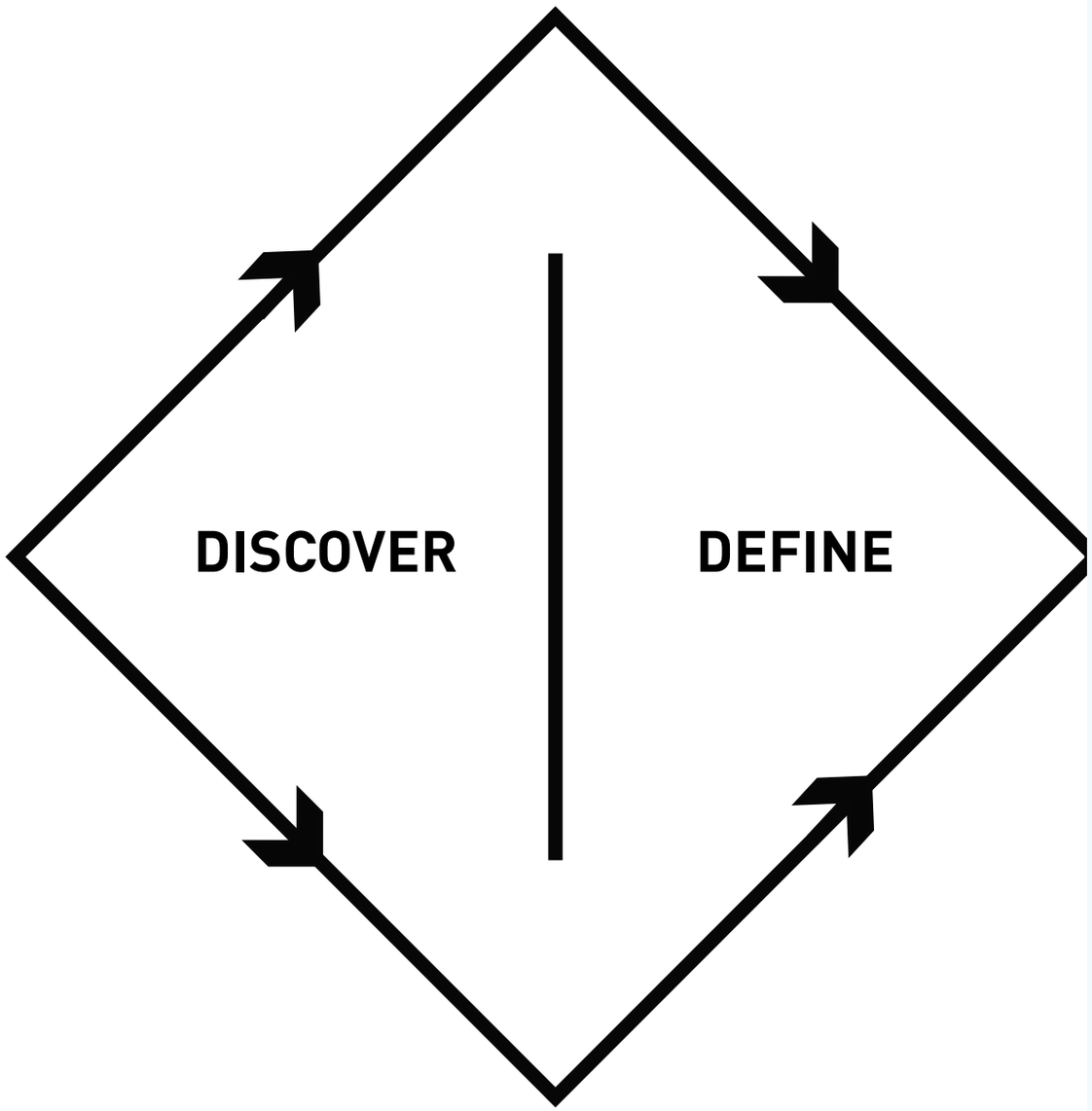


DISCOVER STAGE

- Consumer behaviour and preferences in relation to the product or service offered by the company
- New modes of communication
- New service needs that may emerge on the basis of social, economic or environmental changes

source: [2]

Double Diamond



DEFINE STAGE

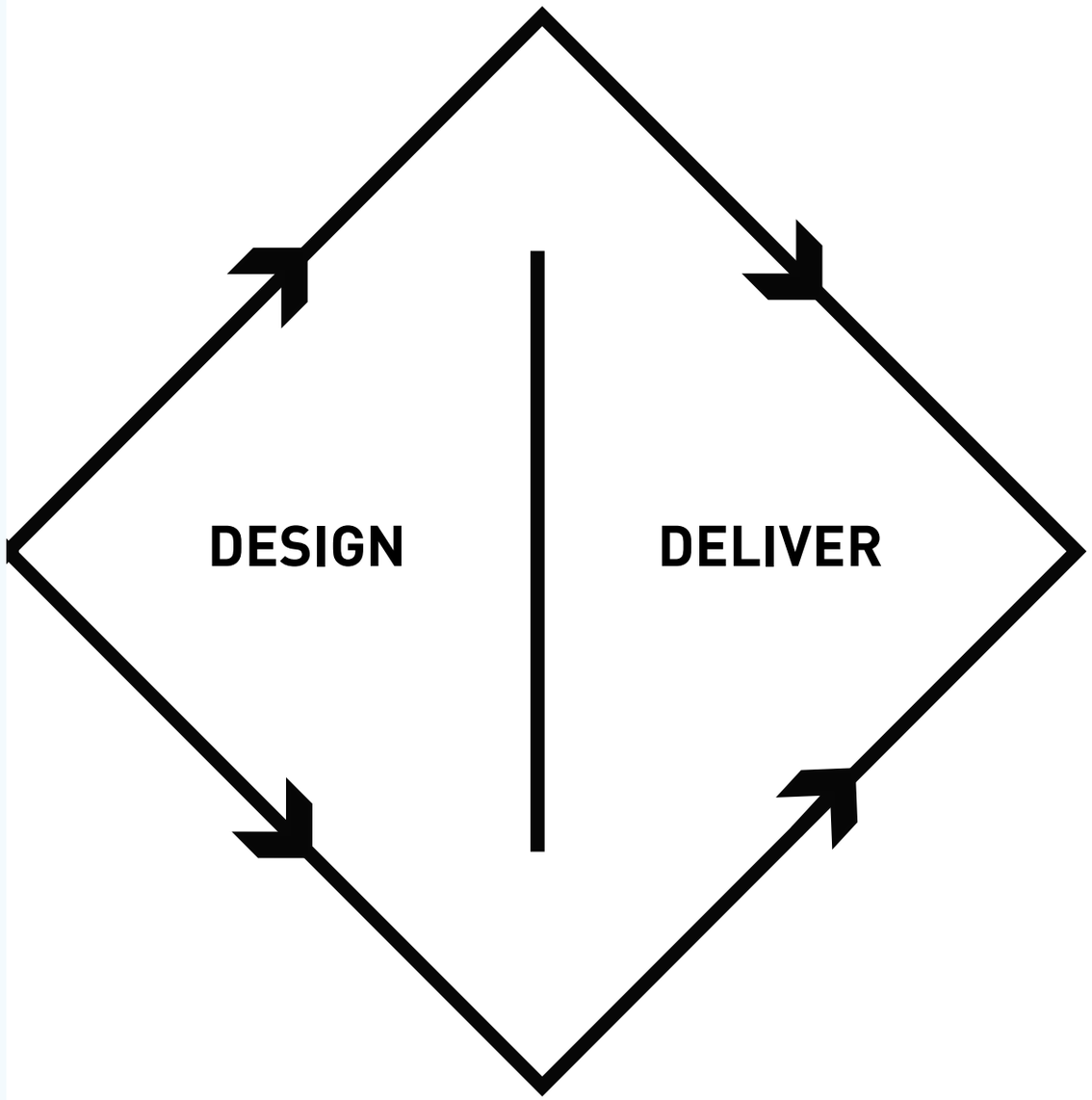
- The generation of initial ideas and project development
- Ongoing project management
- Corporate objectives agreed and project sign-off

source: [2]

Double Diamond

DESIGN STAGE

- Multi-disciplinary working and dependencies with other departments
- Visual management
- Development methods
- Testing

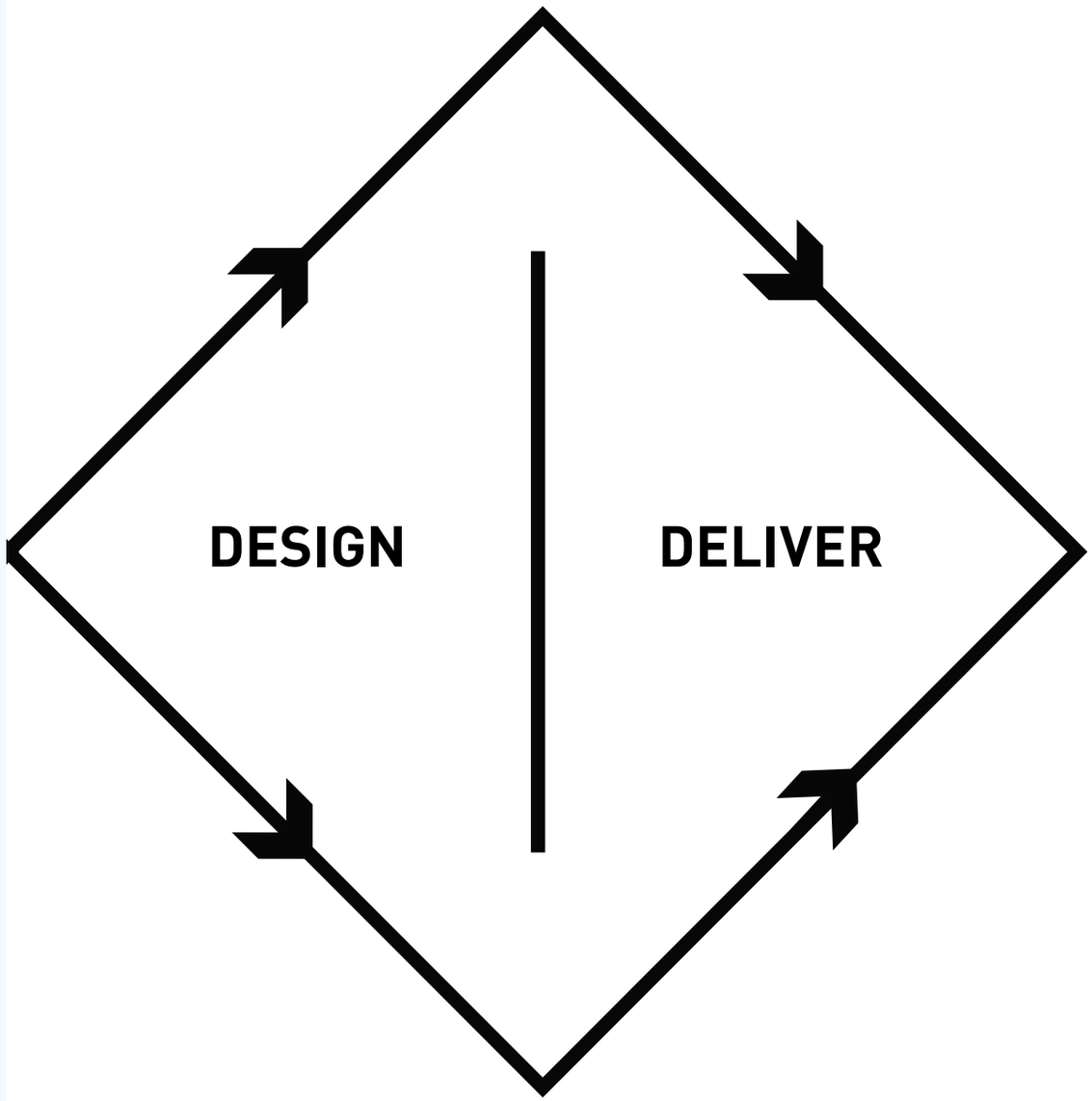


source: [2]

Double Diamond

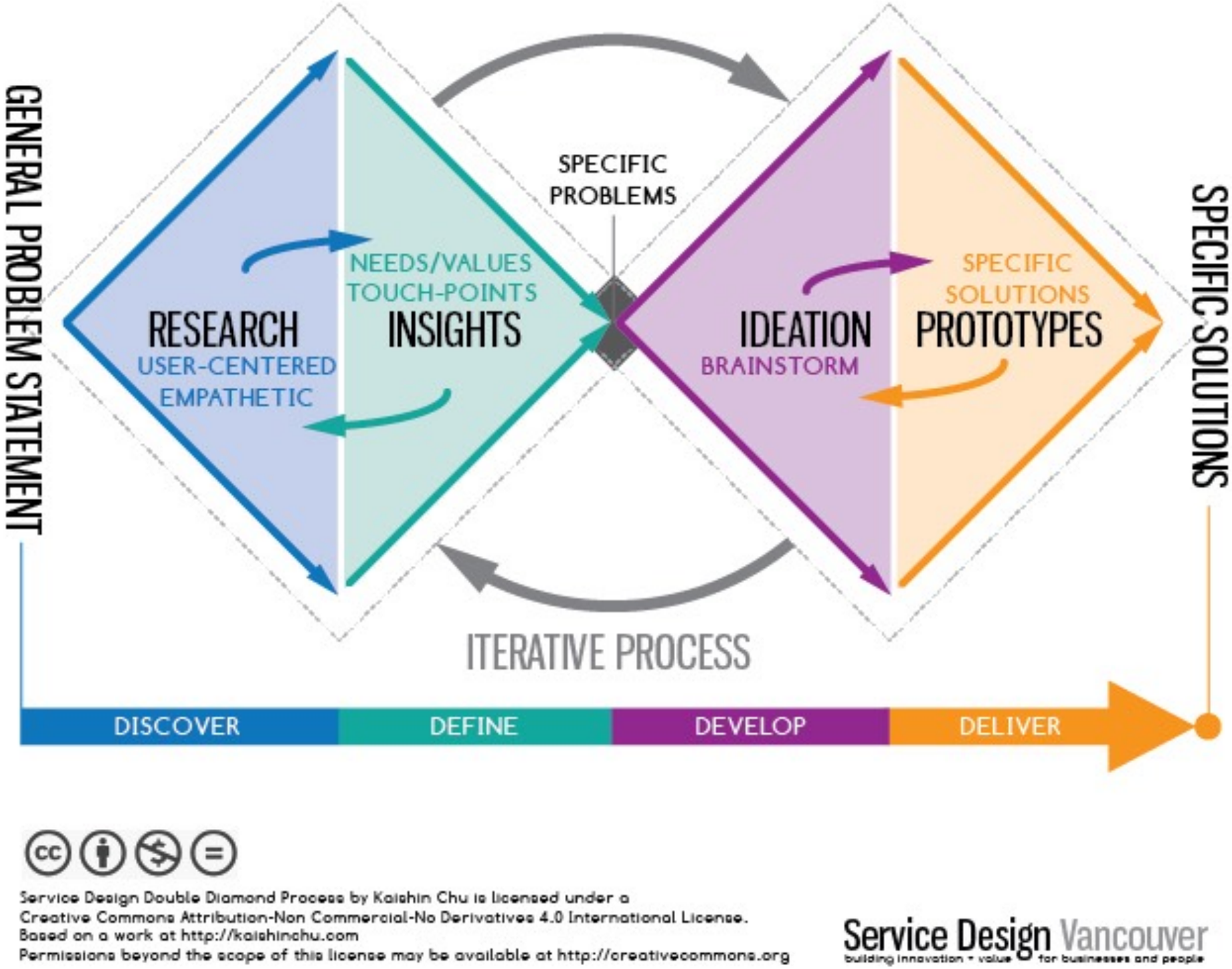
DELIVER STAGE

- Final testing, approval and launch
- Targets, evaluation and feedback loops.



source: [2]

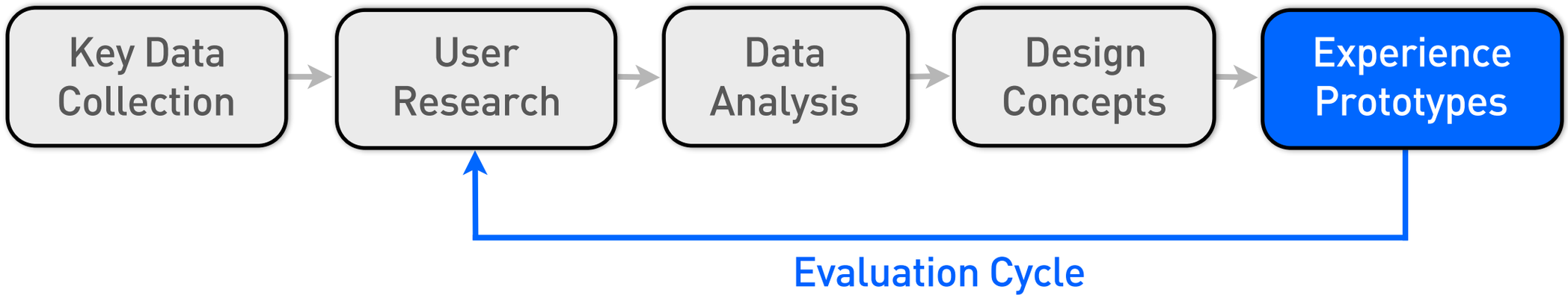
Double Diamond DESIGN PROCESS



Service Design Vancouver
building innovation + value for businesses and people

http://servicedesignvancouver.ca/wp-content/uploads/2014/11/DoubleDiamond.jpg

UCD Design Process Model



source: [4]

Process Models, Elements and Technology

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User Experience Design

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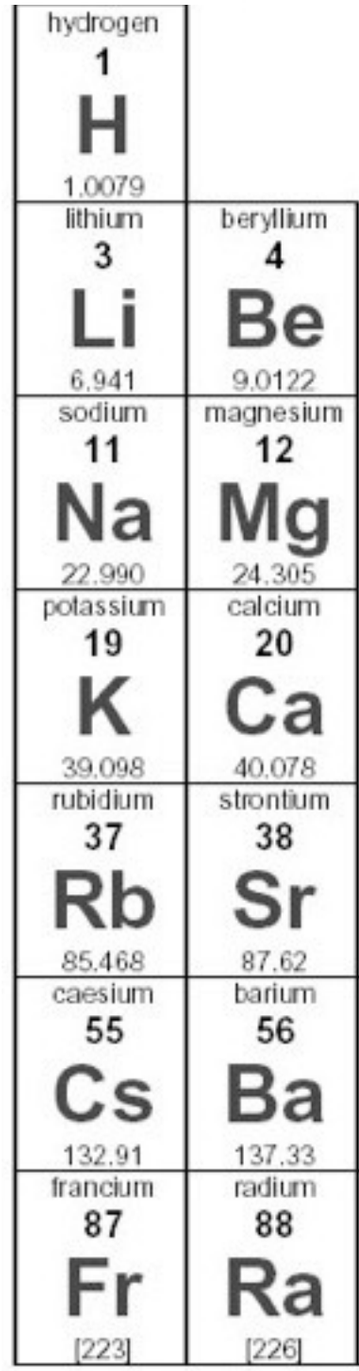
http://semanticstudios.com

source: [3]

Elements in Interaction Design

Within interaction design, products and services can be purely digital, physical and/or hybrid.

Therefore considerations on the different elements are necessary.



source: [5]

http://www.bpc.edu/mathscience/chemistry/images/periodic_table_of_elements.jpg

http://www.oldcomputers.net/pics/next-logo.png

NextStation

https://upload.wikimedia.org/wikipedia/commons/0/0a/NeXTstation.jpg

https://upload.wikimedia.org/wikipedia/en/1/1d/NeXTSTEP_desktop.png

Motion, Space,Time, Appearance, Texture and Sound: Cordell Ratzlaff: Developing OSX

source: [5]

Cordell Ratzlaff

-managed the human interface group at Apple for 5 years
-led the design team of OSX
-founded the company GetThere.com
-creative director at Frog Design SF, USA

http://www.designinginteractions.com/interviews/CordellRatzlaff

source: [3]


Home HD
74.52 GB, 1.22 GB free
MOVIE
Fam flicks 78-9.mov
01'08
IOMEGA_HDD
55.86 GB, 445.4 MB free

Looking back...

Motion

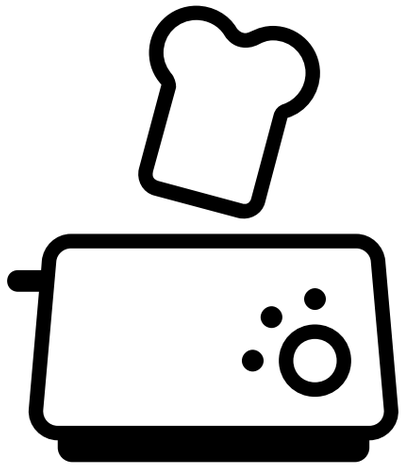
http://www.ipadforums.net/wallpapers/data/500/hand_touch.jpg

Motion

Motion is often a trigger for action.

The triggered action (or at least the feedback for that action) is often about motion as well.

Without motion, there can be no interaction.



source: [5]

Space

http://www.klein-dytham.com/uploads/projects/full/327.jpg

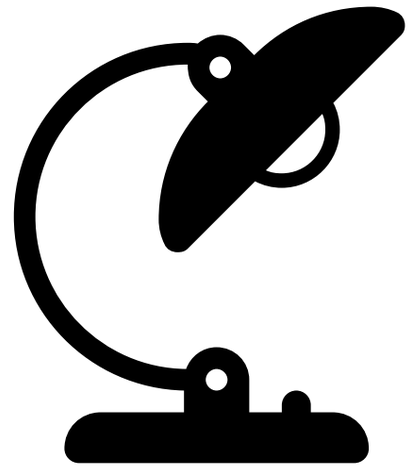
Space

Space provides a context for motion.

Where is the action taking place ?

How are the constraints of the space ?

All interactions take place in a space.



source: [5]

Time

http://www.flickr.com/photos/davespilbrow/3200031698/sizes/o/in/photostream/

GRAPHIC DESIGN

2D

PRODUCT DESIGN

3D
+Z-axis
(spatial depth)

INTERACTION DESIGN

4D
+T-axis
(temporal dimension)

SERVICE DESIGN

5D
+W-axis
(multi-local simultaneity)

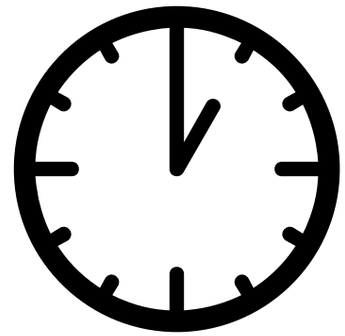
Model: Benjamin N.N. Schulz; Icons: Dima Yagnyuk, Daphne Espinosa, George Agpoon / The Noun Project

Time

Movement through space takes time to accomplish.

Interaction designers need an awareness of time. Some tasks are complicated and take a long time to complete.

Time creates rhythm.



All interactions take place over time.

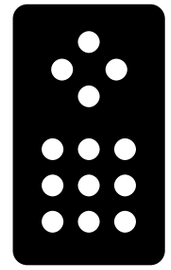
source: [5]

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.

source: [5]

Process Models, Elements and Technology

- Definition and Paradigms of Interaction Design
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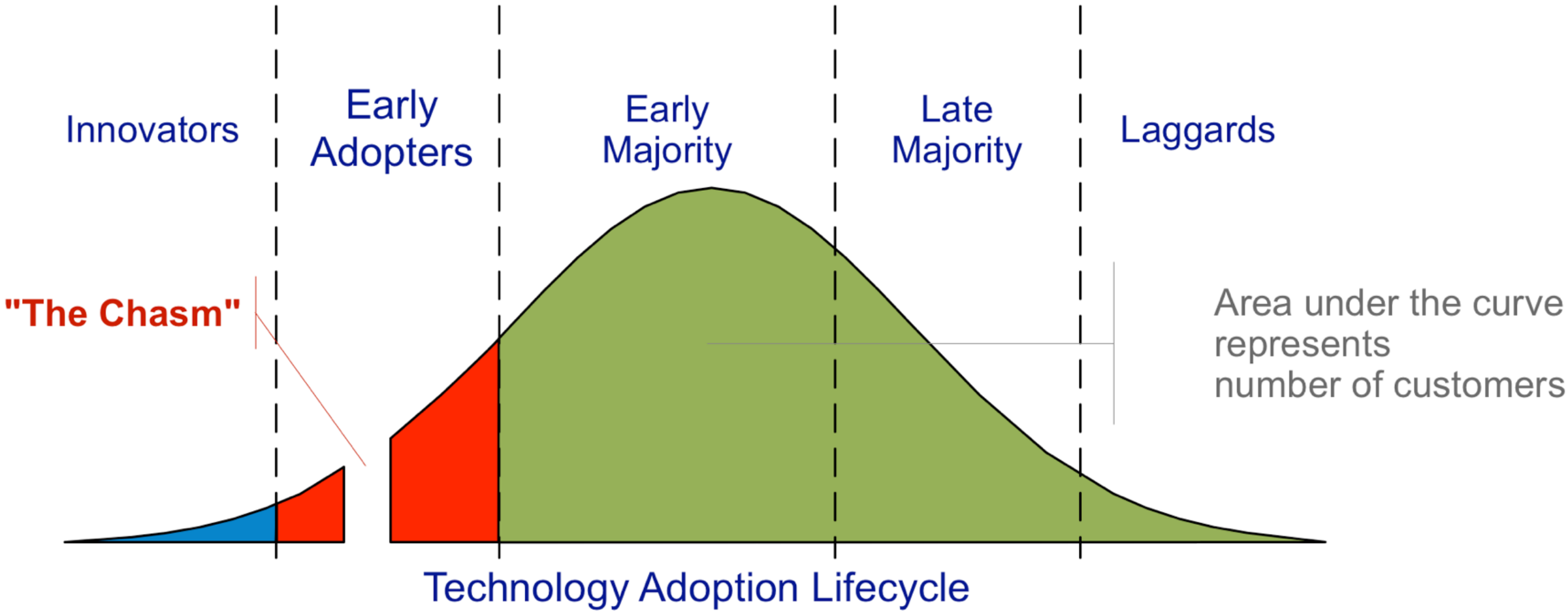
- Elements of Interaction Design
- Adapting Technology
- Usability



http://www.directimpactnow.com/blog/wp-content/uploads/2010/03/Technology-Adoption-Lifecycle.png

We interviewed some people with beautiful and very elaborate new media systems who were quite discouraged and quite unhappy with them.

The solution from the manufacturers of consumer products was to produce the most dumbfounding, enormous remote controls. Thirty buttons was not a large number for those controls. There was a period of suppression of the adoption of the best of this technology simply because it was too complicated to use.

David Liddle, 2003

source: [3]

Three Phases of Product Adaption

source: [3]

David Liddle

-worked at PARC
-was one of the lead designers creating the STAR workstation
-founded a company named *Metaphor Computers*
-set up a research laboratory, *Interval Research*, focused on interdisciplinary interaction design

http://www.designinginteractions.com/interviews/JeffHawkins

source: [3]

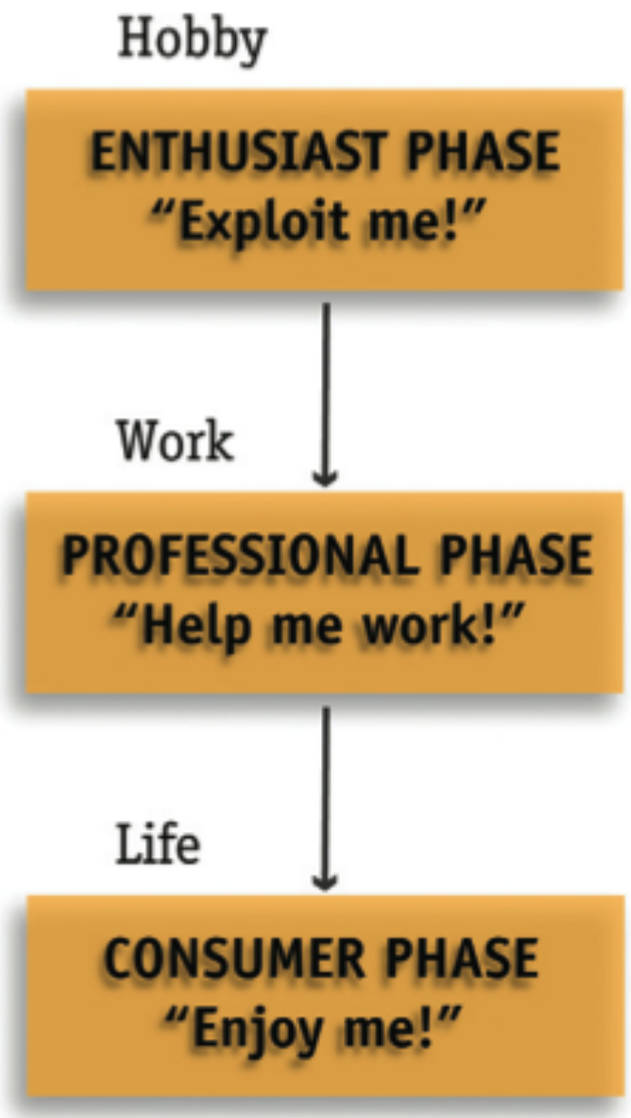

Nikon
Nippon Kogaku Japan
NIKKOR-UD Auto 1:3.5 f=20mm
No.435989

Looking back...

Looking back...

-different phases of adoption have different impacts on their usability

-controls become automated in the final (consumer) phase


Hobby
ENTHUSIAST PHASE
"Exploit me!"
Work
PROFESSIONAL PHASE
"Help me work!"
Life
CONSUMER PHASE
"Enjoy me!"

source: [3]

Enthusiast

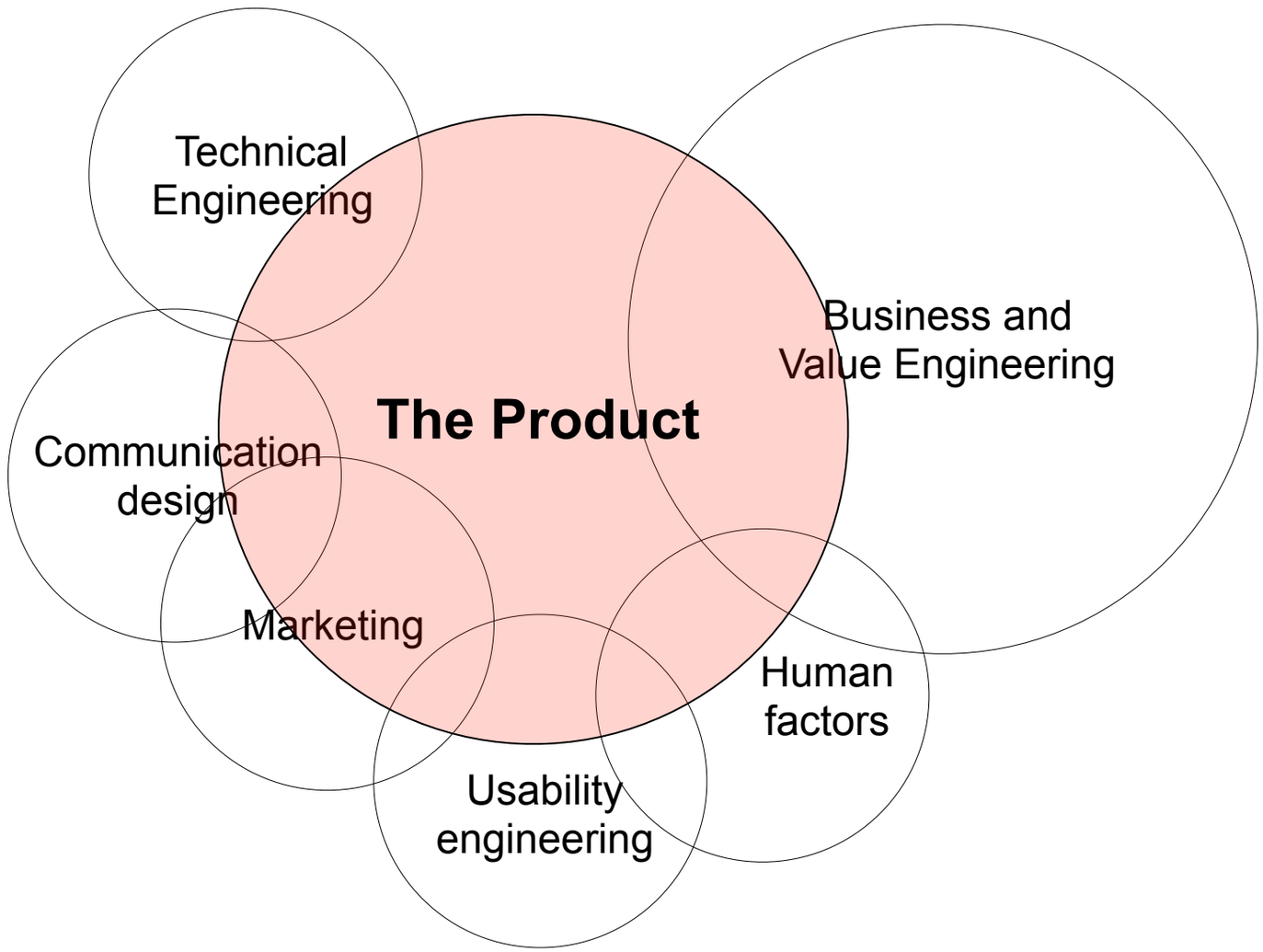
Inventors are often good at coming up with the first version of a technology and can find the “enthusiasts” to adopt the technology by creating nothing more than an innovative solution.

The inventor, even when supported by a band of technicians, cannot develop the technology once it enters the “professional” phase.

Usability at this stage is perceived of **low value**.

source: [3]

Professional



New design values apply when people adopt the technology for practical purposes. Now the design must be **reliable**, it must **perform consistently**, it must be **priced** to offer reasonable value, and above all it must be both **useful** and **usable.**

source: [3]

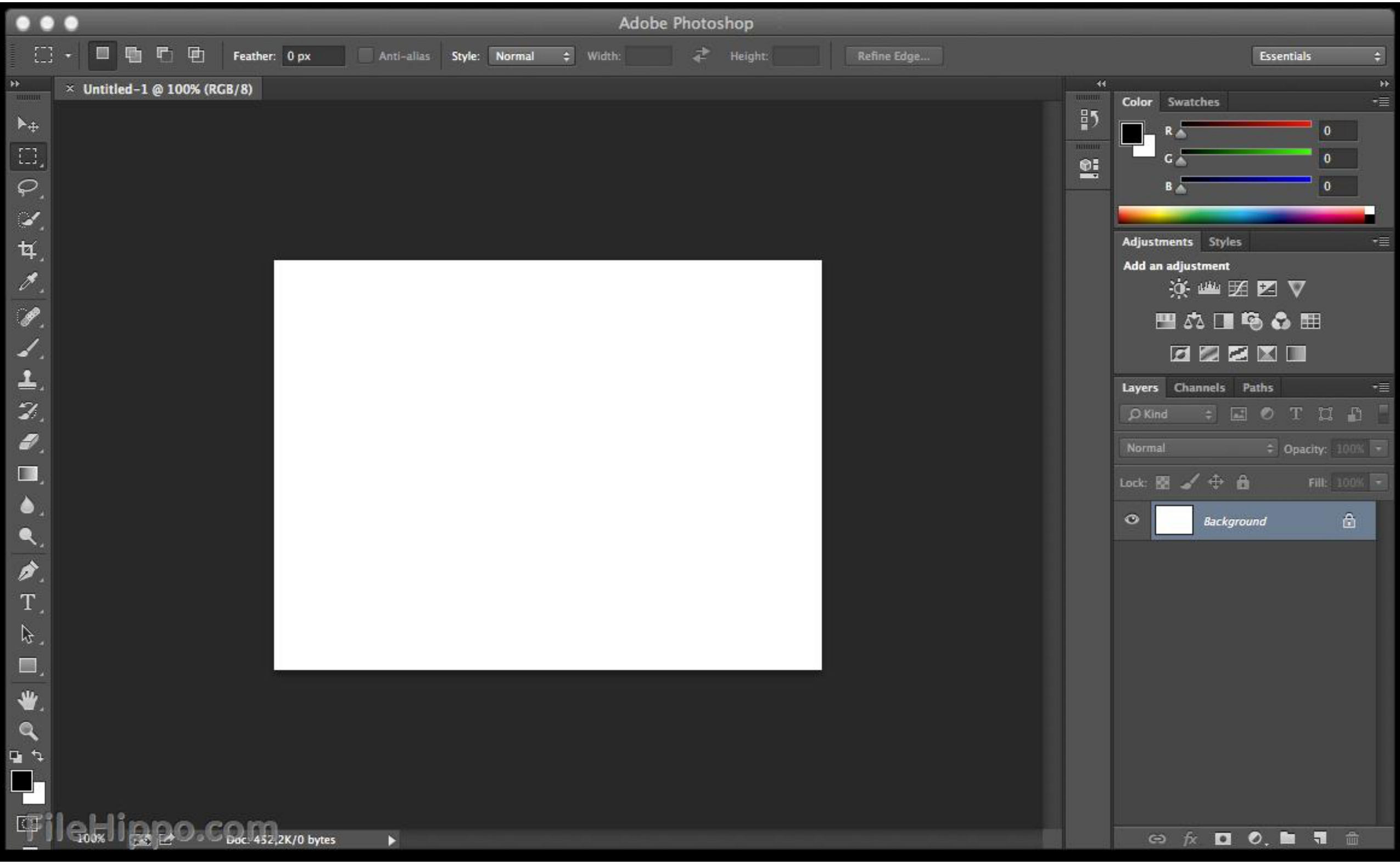
Professional

A design for the professional phase does not need necessarily to be **easy to use,** as people take pride in acquiring skill in their work; their learned skill separates them from the unskilled and allows them to feel expert.

The design does not have to be enjoyable, as people tend to take their work seriously and are willing to try hard to be productive, even if the experience is unpleasant.

Usability at this stage is perceived of **mid value**.

source: [3]



http://cache.filehippo.com/img/ex/2951__Photoshop_mac_1.png

Nikon F2AS

http://www.nikon-fotografie.de/vbulletin/picture.php?albumid=9638&pictureid=198156

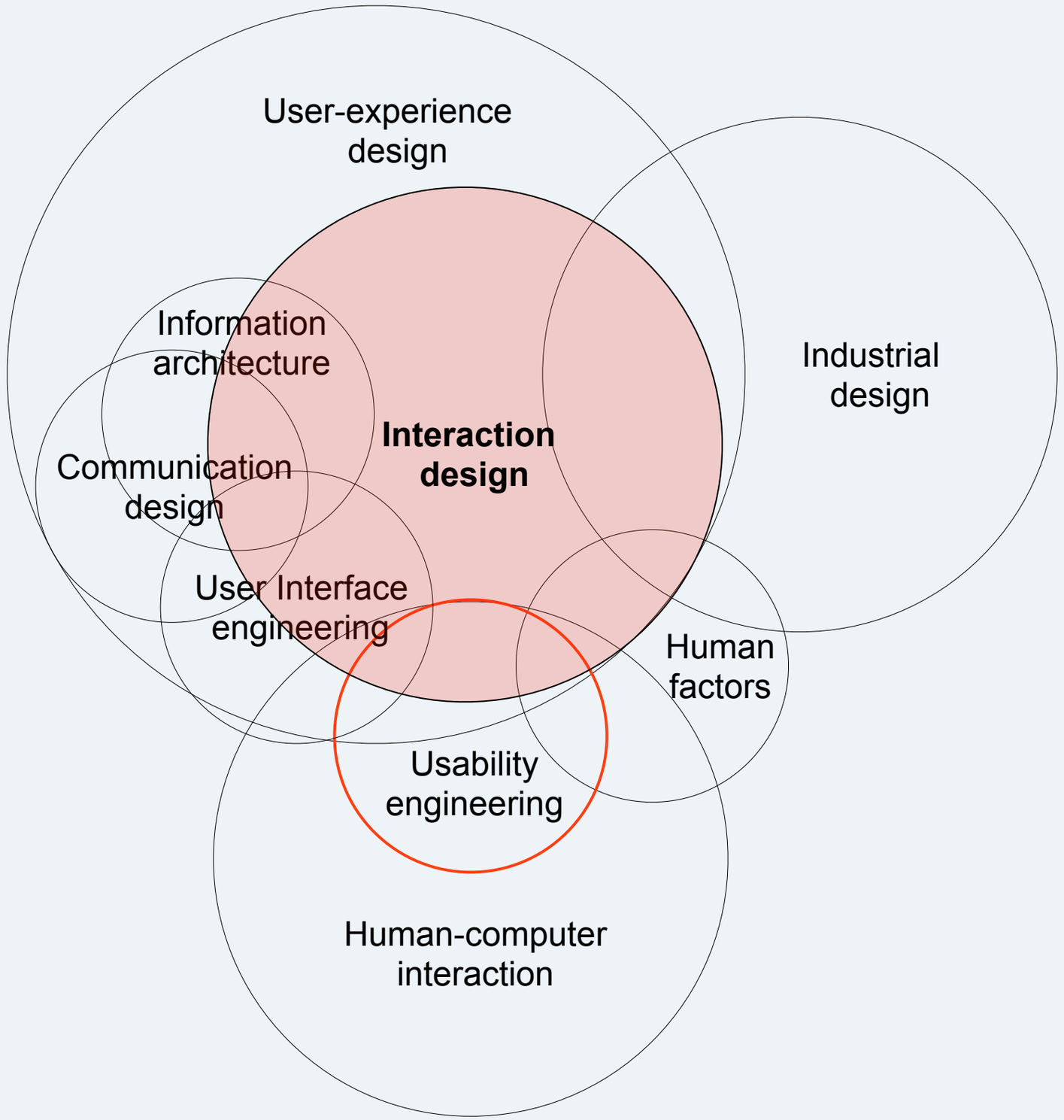
Consumer

Usability is of very **high value** at this stage an can result as a crucial advantage in competition.

Designs at this level should be : Enjoyable, robust and easy to use.

Process Models, Elements and Technology

- Definition and Paradigms of Interaction Design
- Process Models
- Elements of Interaction Design
- Adapting Technology
- Usability


User-experience
design
Information
architecture
Industrial
design
Interaction
design
Communication
design
User Interface
engineering
Human
factors
Usability
engineering
Human-computer
interaction

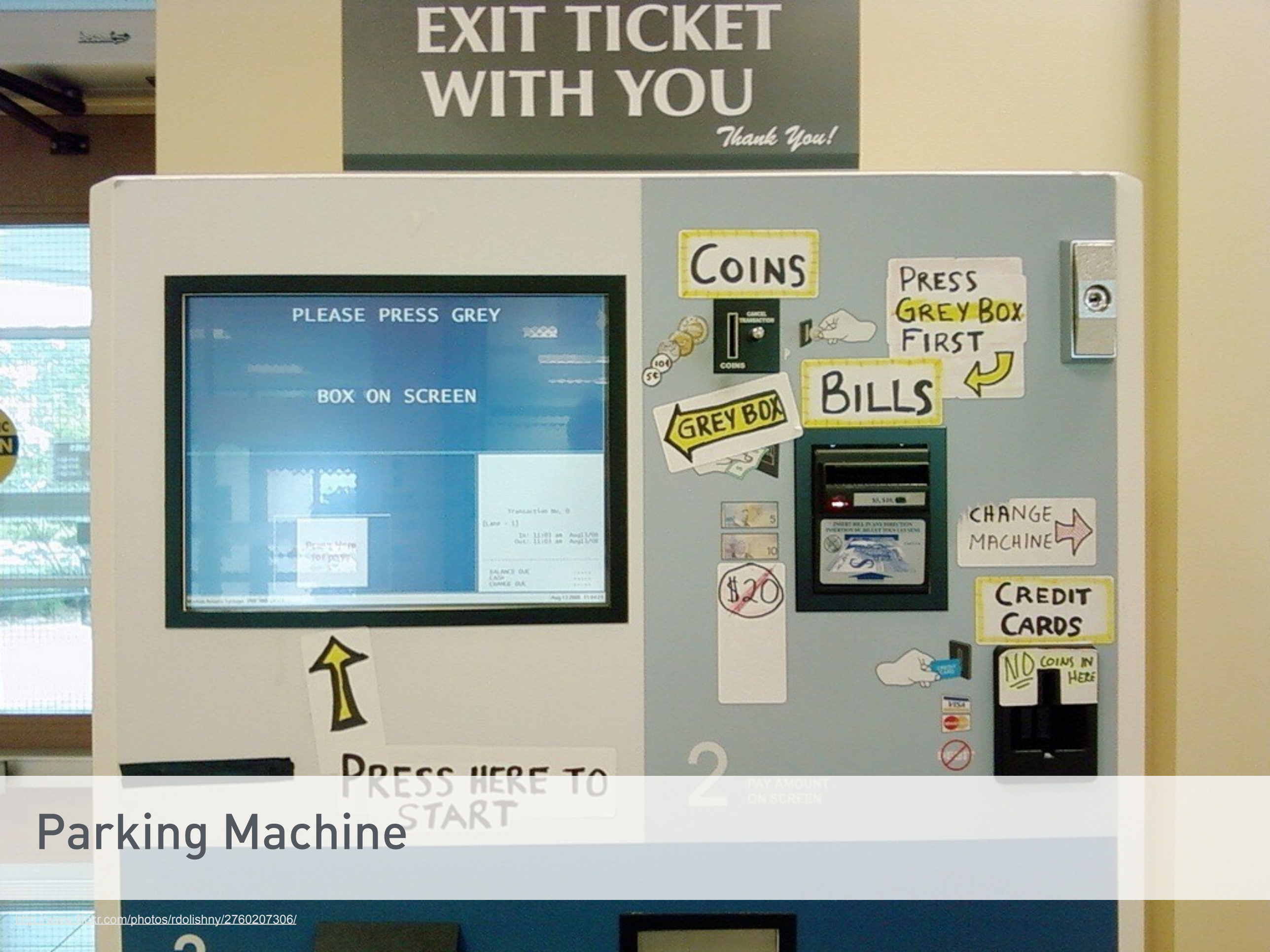
Usability

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

Parking Machine



http://www.flickr.com/photos/rdolishny/2760207306/

Microwave

http://www.flickr.com/photos/geek-boy/25226132/sizes/l/in/photostream/

Copier

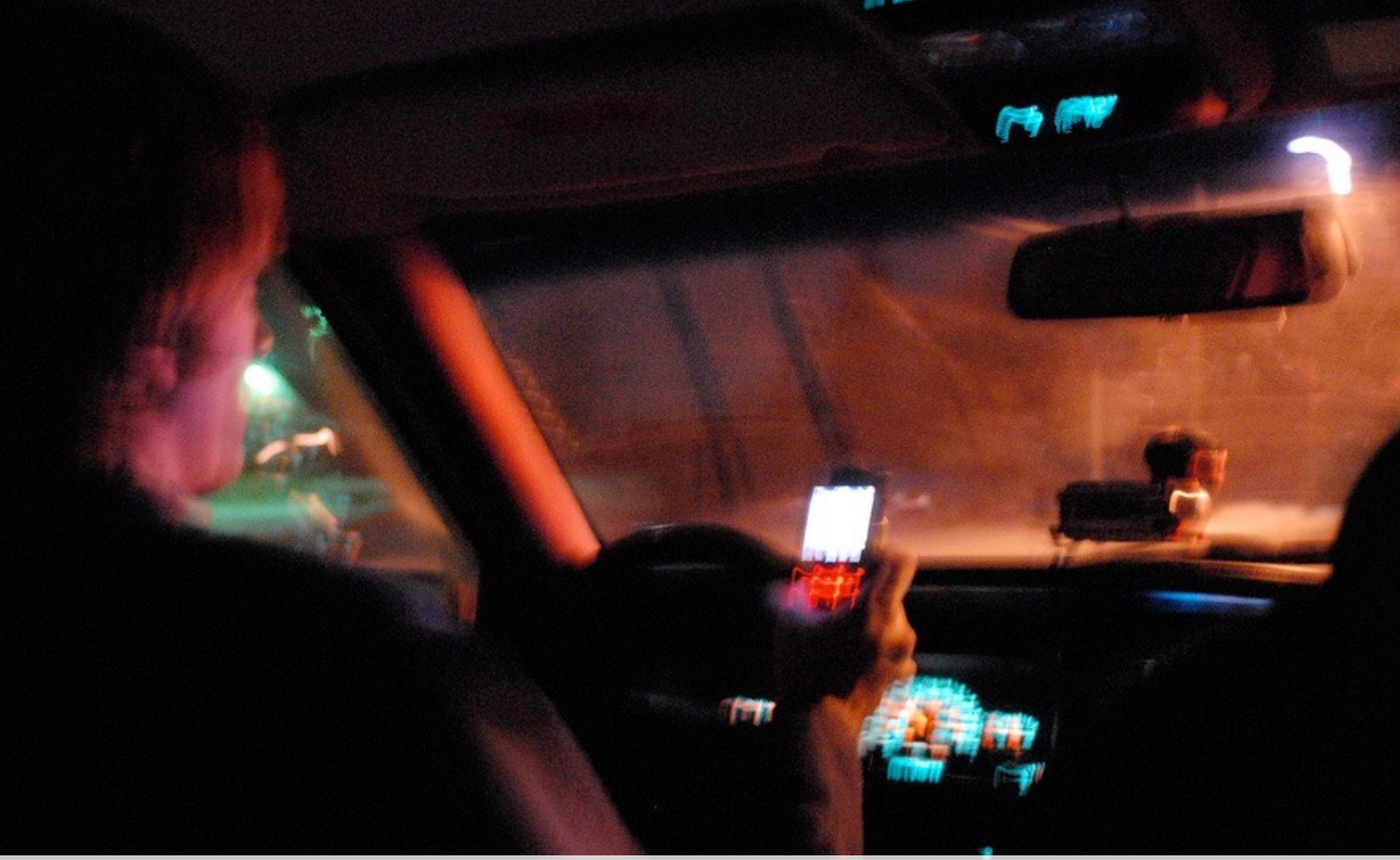
http://29.media.tumblr.com/tumblr_lf9IxeOJF81qd9if9o1_500.jpg

Remote Control

http://www.plasma.com/remotes/largeimages/h-659.jpg

Remote Control

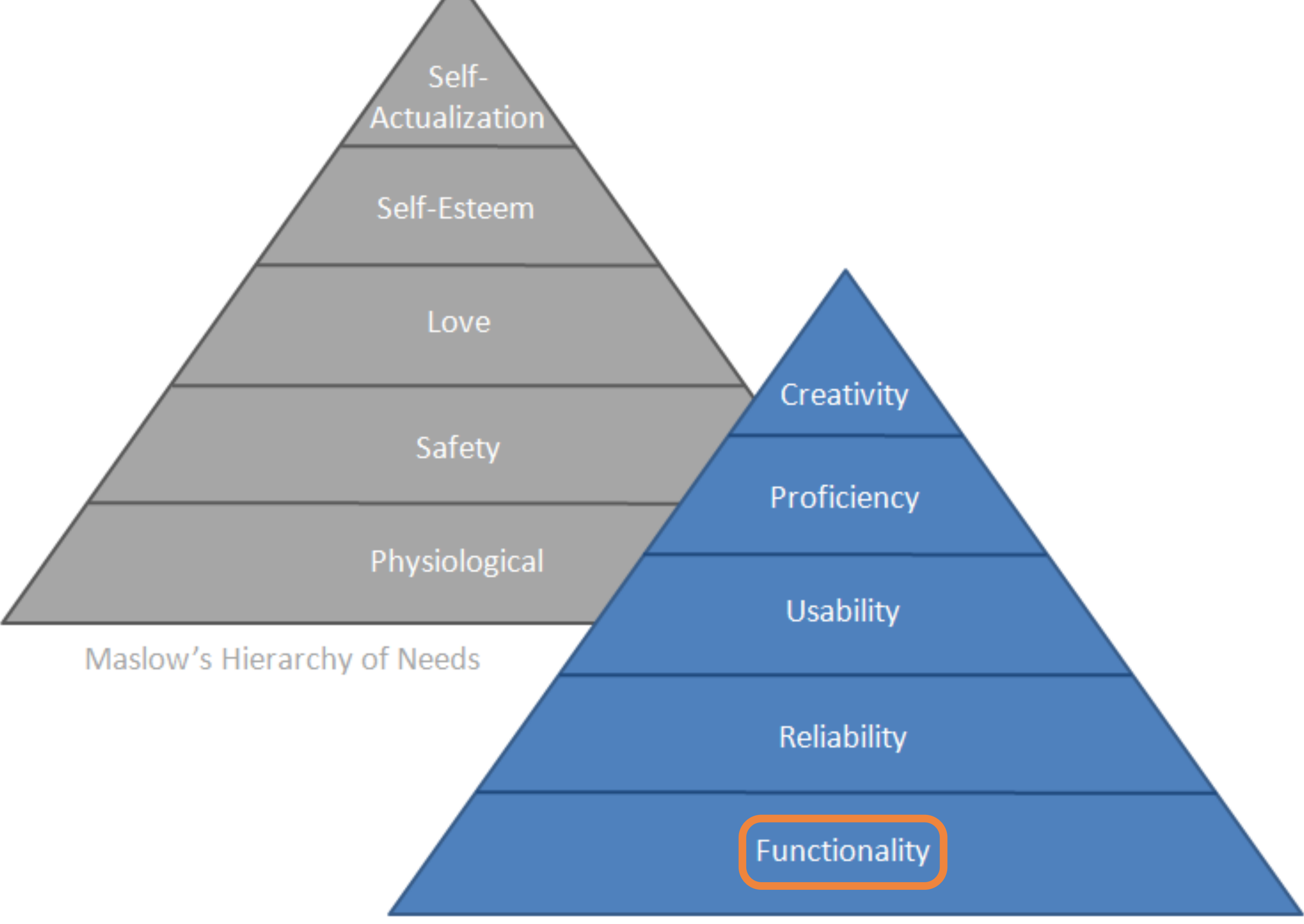
source: [3]



User Environment

Hierarchy of **Design Needs**
(Lidwell: Universal Principles of Design, 2003)

source: [7]

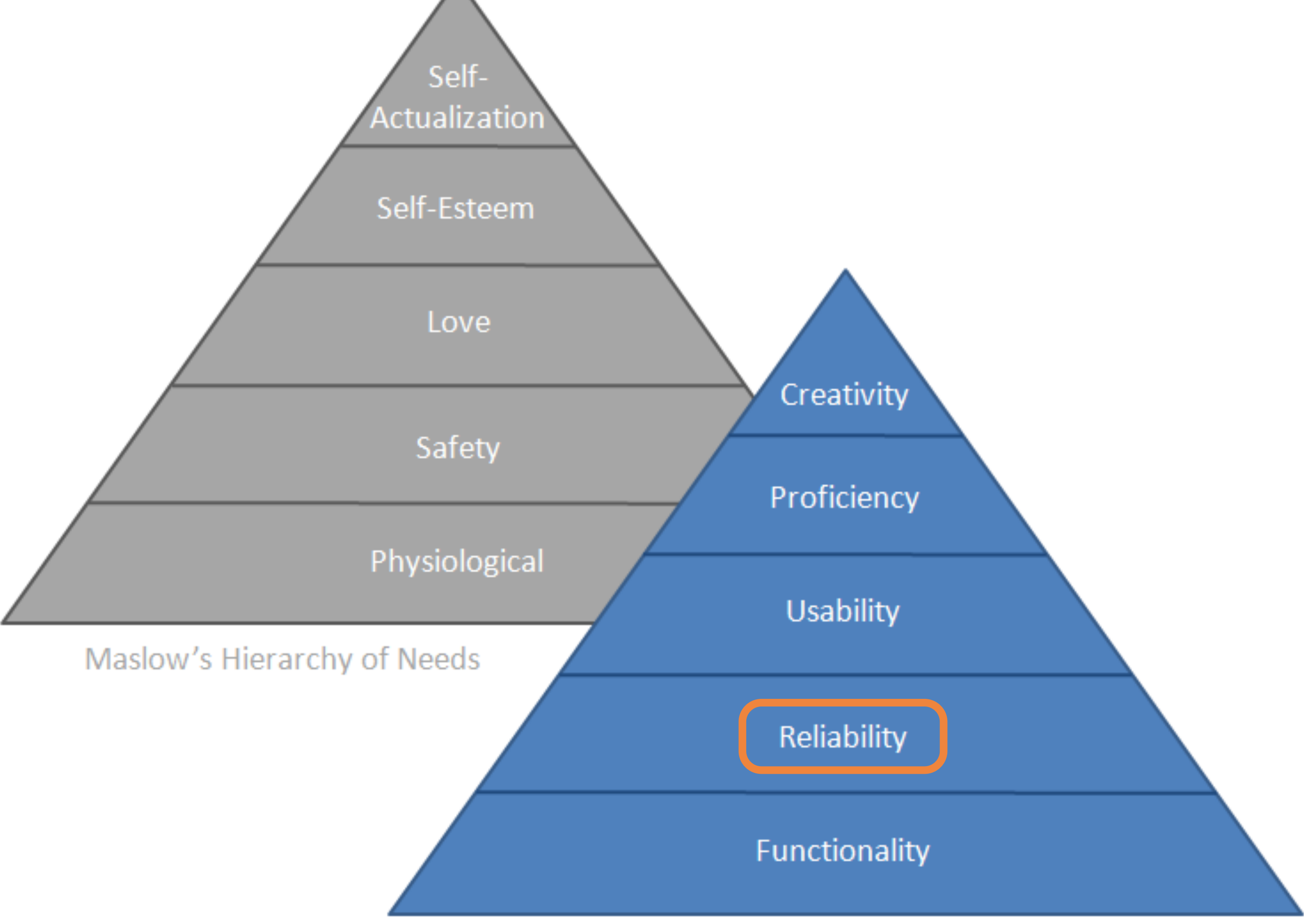

Self-Actualization
Self-Esteem
Love
Safety
Physiological
Maslow's Hierarchy of Needs
Creativity
Proficiency
Usability
Reliability
Functionality
Design Hierarchy of Needs

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.

source: [7]

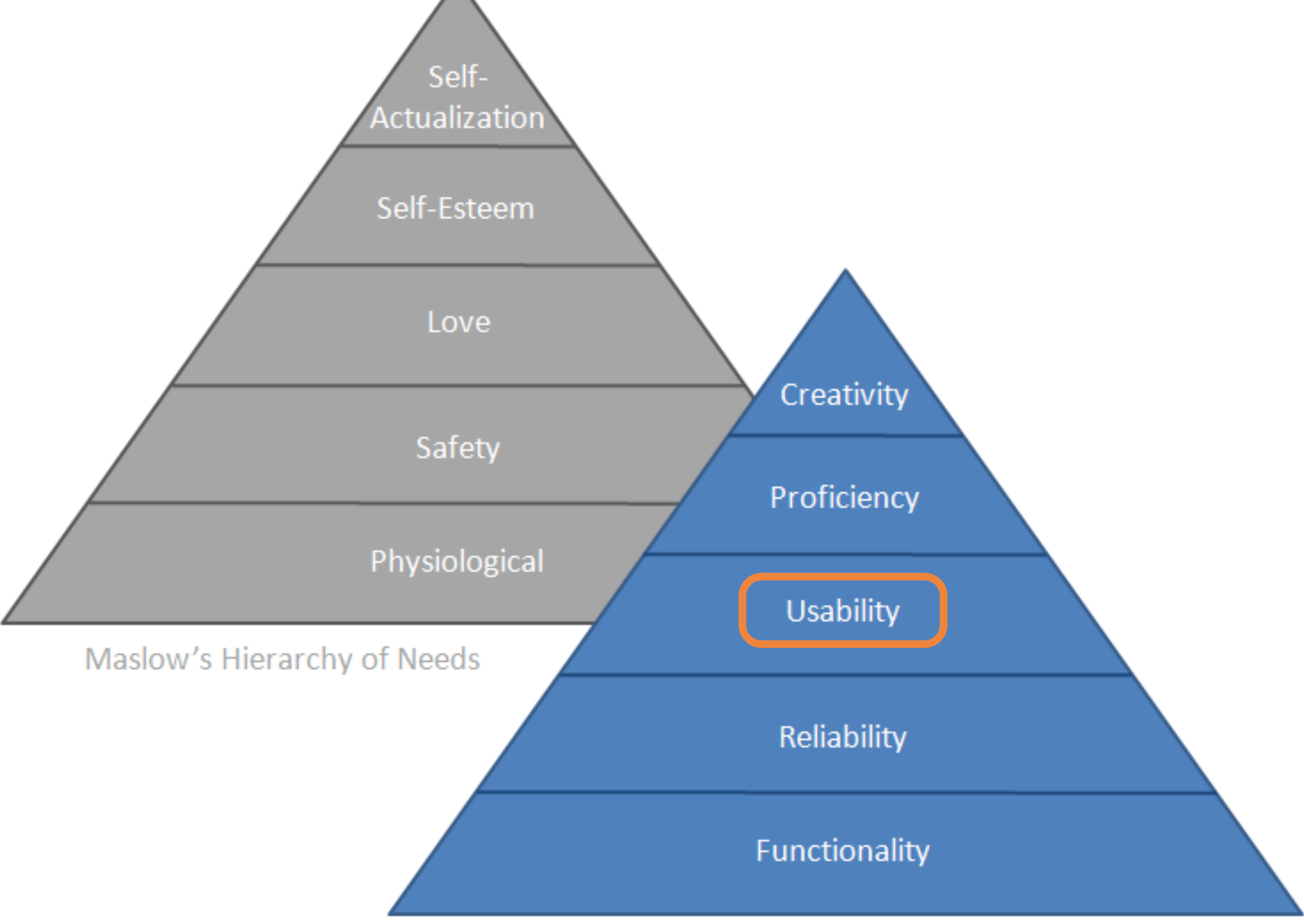

Self-Actualization
Self-Esteem
Love
Safety
Physiological
Maslow's Hierarchy of Needs
Creativity
Proficiency
Usability
Reliability
Functionality
Design Hierarchy of Needs

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

source: [7]

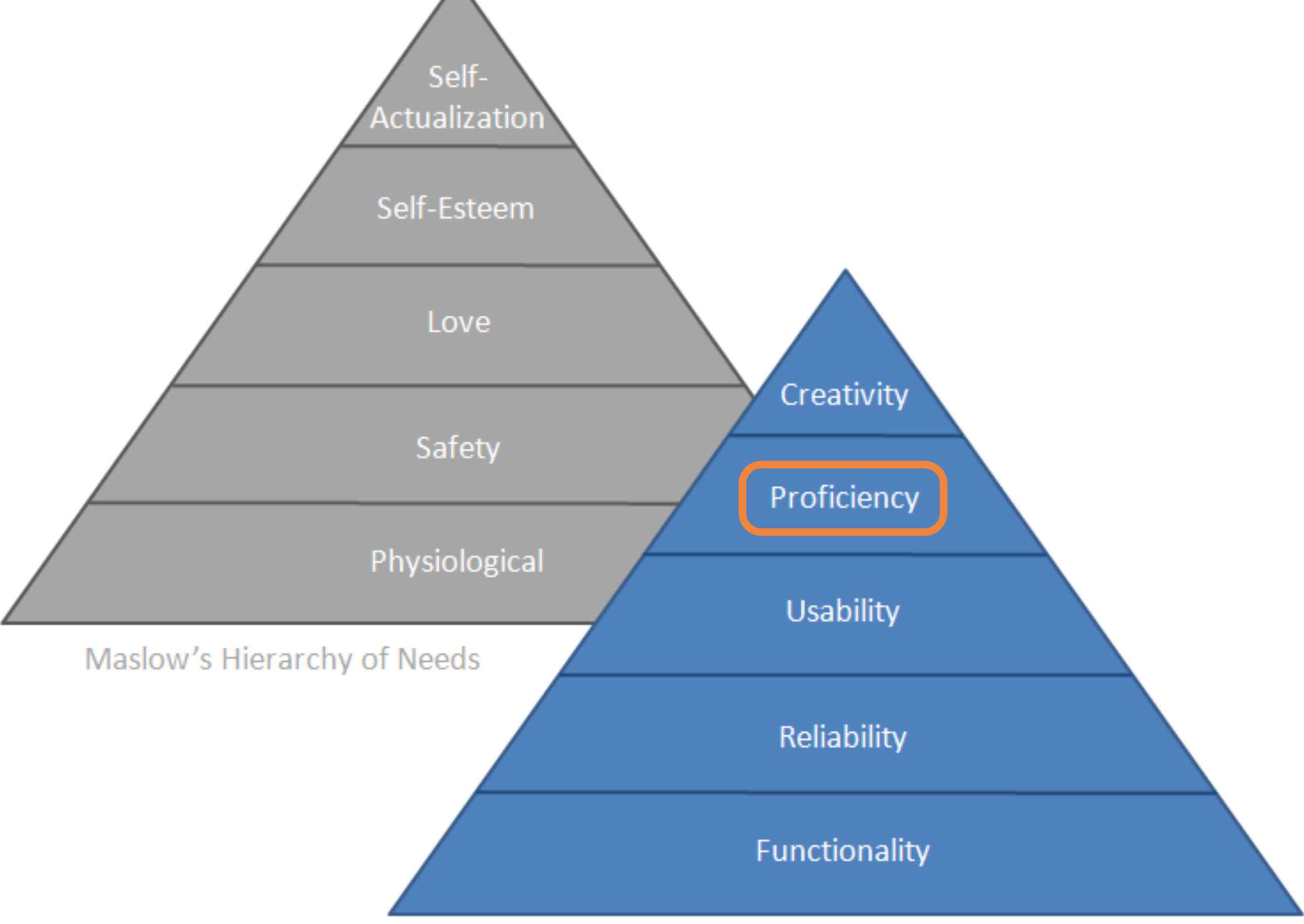

Self-Actualization
Self-Esteem
Love
Safety
Physiological
Maslow's Hierarchy of Needs
Creativity
Proficiency
Usability
Reliability
Functionality
Design Hierarchy of Needs

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.

source: [7]

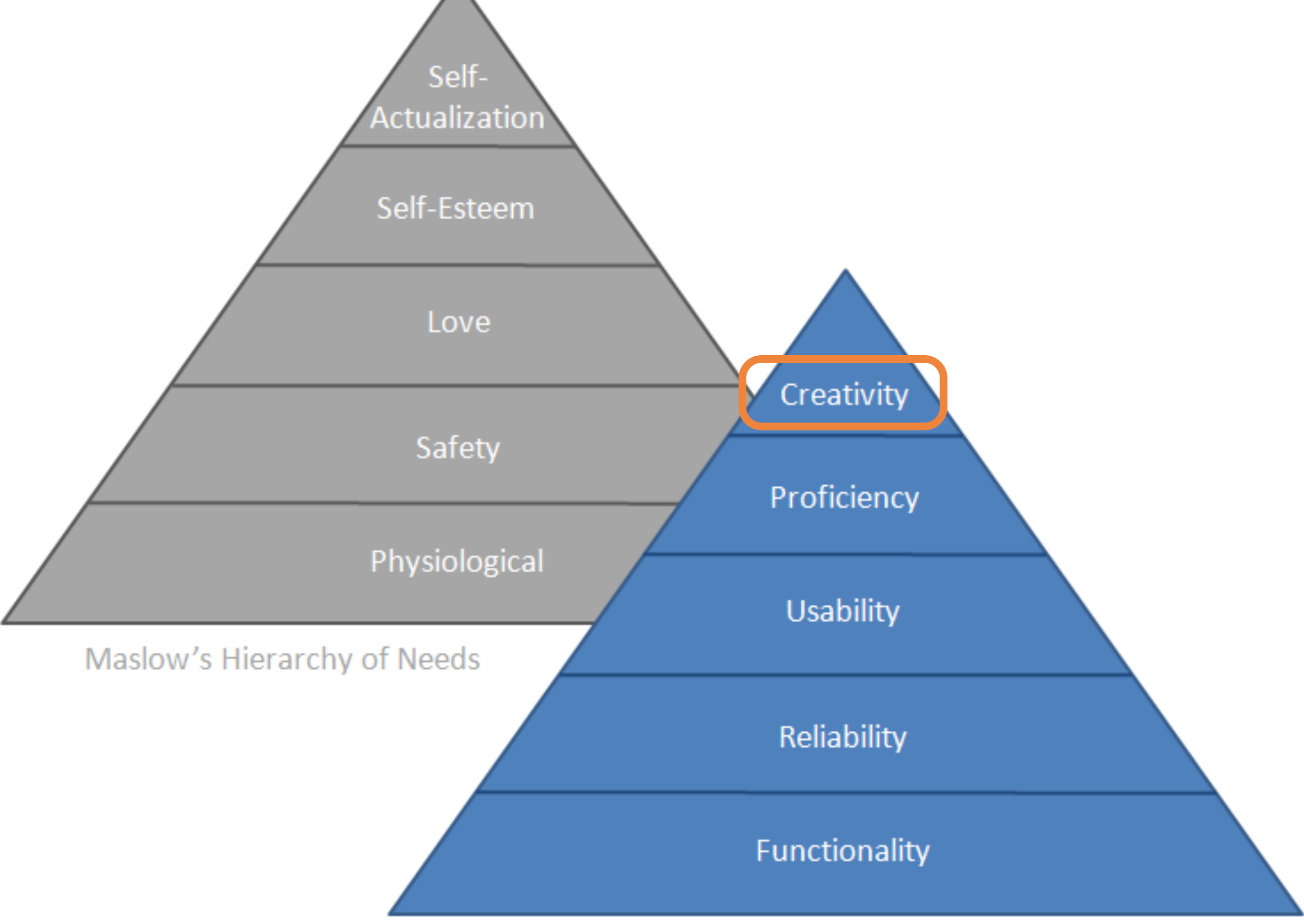

Self-Actualization
Self-Esteem
Love
Safety
Physiological
Maslow's Hierarchy of Needs
Creativity
Proficiency
Usability
Reliability
Functionality
Design Hierarchy of Needs

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.

source: [7]


Self-Actualization
Self-Esteem
Love
Safety
Physiological
Maslow's Hierarchy of Needs
Creativity
Proficiency
Usability
Reliability
Functionality
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.

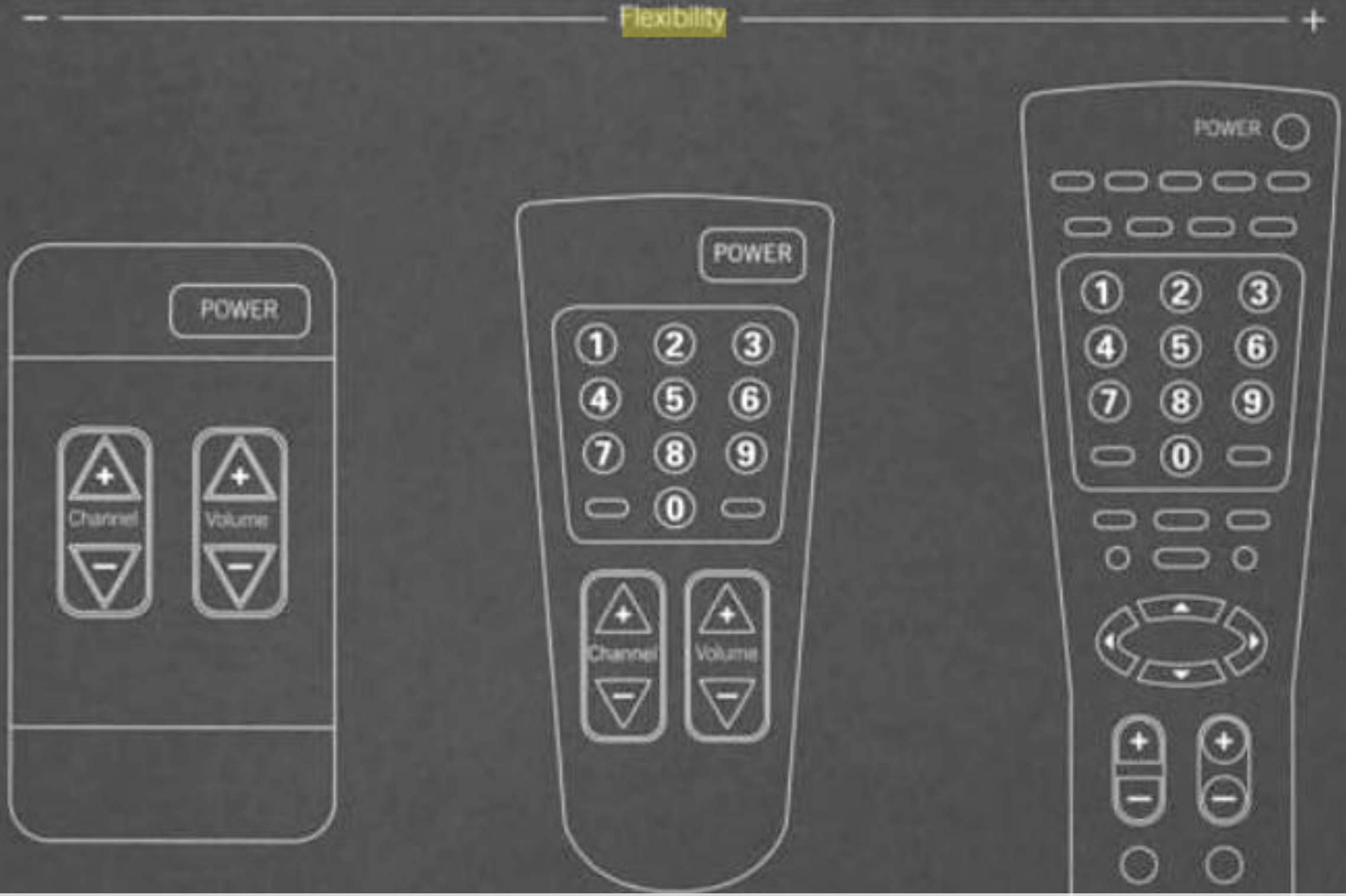
source: [7]

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-Usability Tradeoff

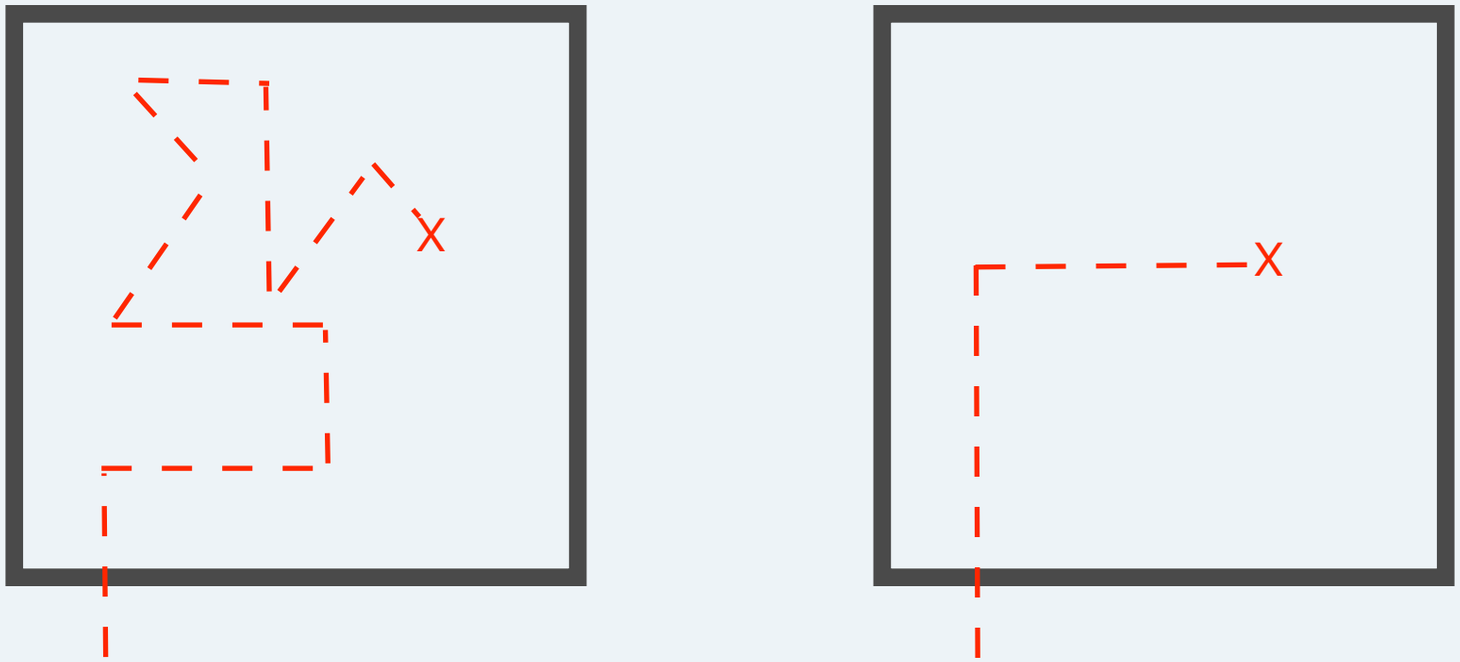
source: [7]

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 / PANEELE
LAMINAT
8
LEUCHTMITTEL / KLEBEFOLIEN
LAMPEN

Navigation

How did I get here.....?



How did I get here.....?

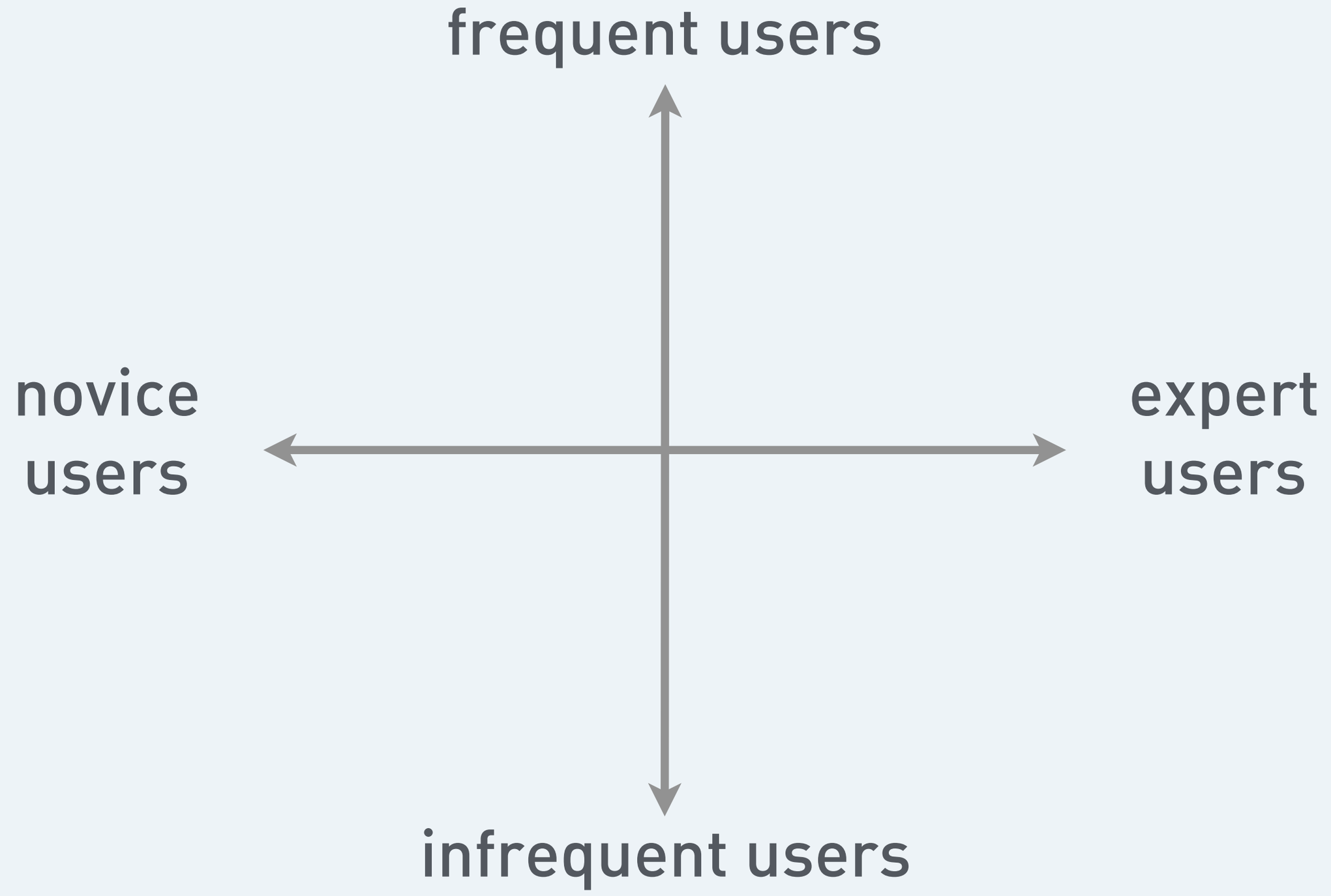
iPhone

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

Navigation gives us something “to hold on”

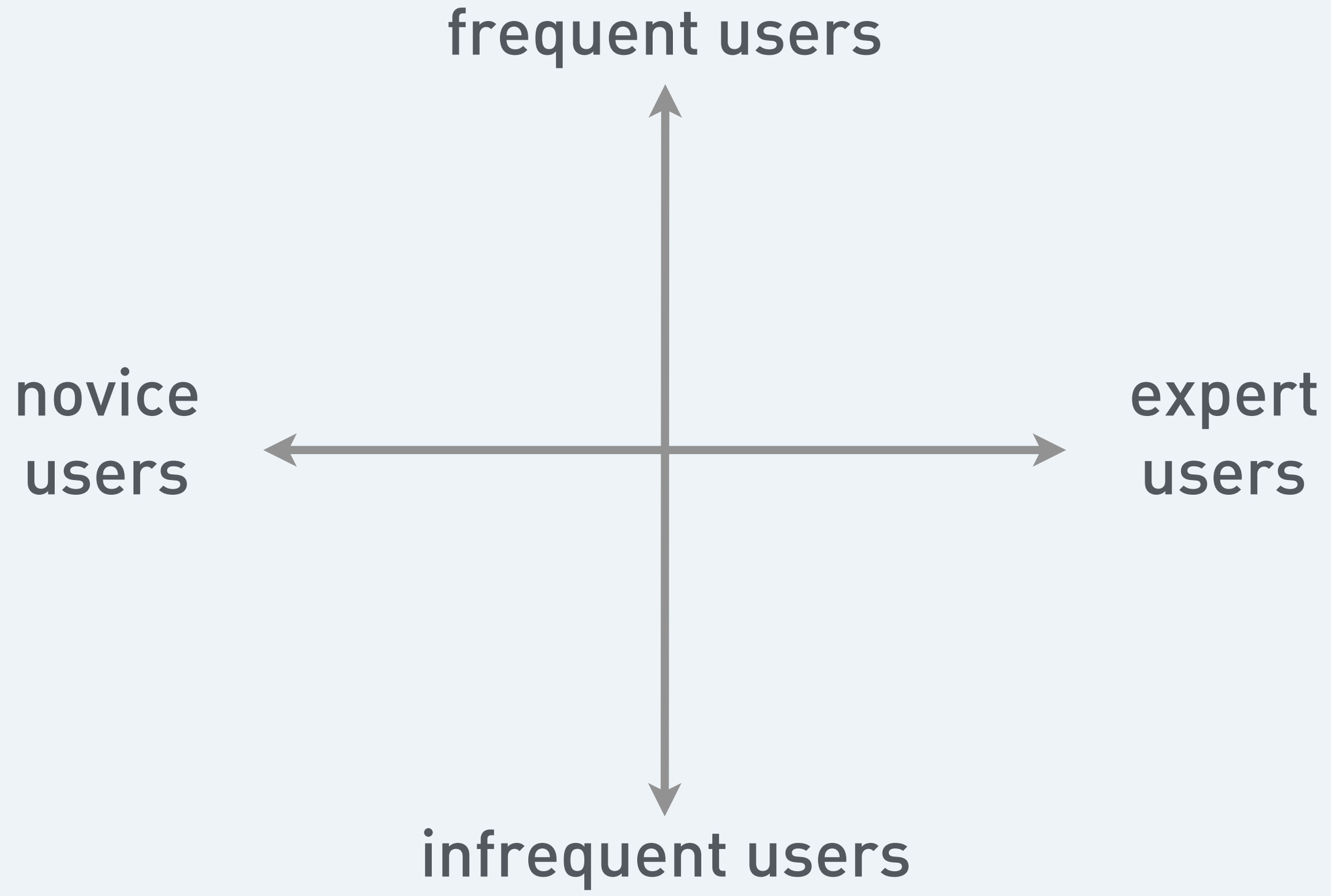
It tells us what we´ll find and
establishes a level of trust between the user
and the people who build the system

USABILITY IN EVERYDAY LIFE!


frequent users
novice users
expert users
infrequent users

Audi A4 Series Cockpit

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


frequent users
novice users
expert users
infrequent users

Audi R15 Racing Cockpit

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

Usability Inspection Methods....

Specifically constructed testing room

...instrumented with data collection devices

Separate observation room

...usually connected to the testing room by one-way mirror and audio system / data recording and analysis

Test users perform prepared scenarios

...and use the ”Think aloud” technique

Problem

...very artificial setting

→ bias in test results

- 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

Usability Lab @ Sun Microsystems

Heuristic (hyu̇-'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

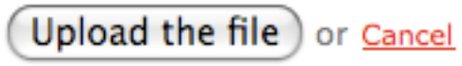
Recognition rather than recall

Flexibility and efficiency of use

Aesthetic and minimalist design

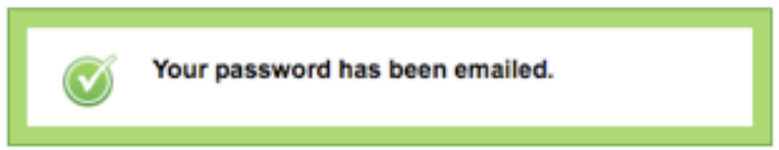
Help users recognize, diagnose, and recover from errors

Help and documentation



Basecamp

Picnik



Tick

Quelle: [3,7]

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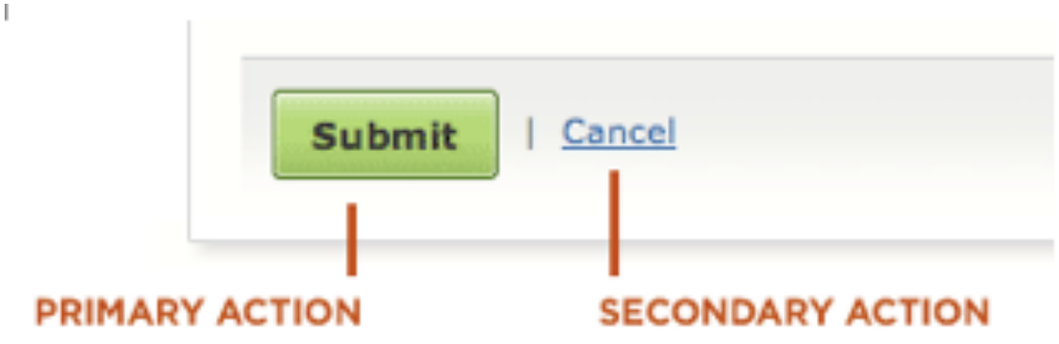

Example: “Web Design, Filling the Blanks”

Yammer

Quelle: [3,7]

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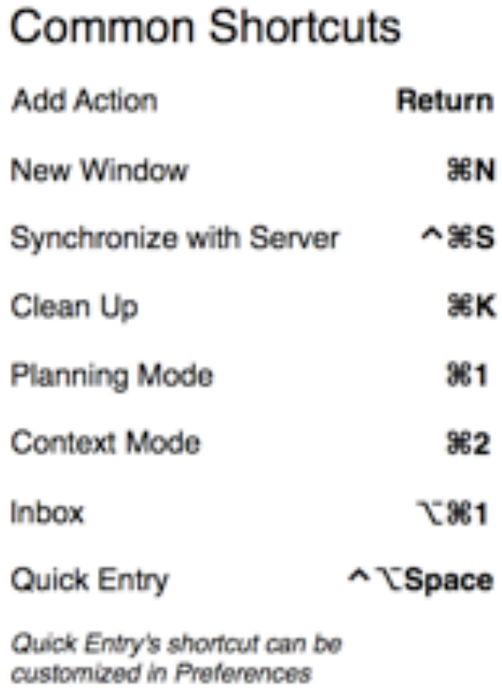
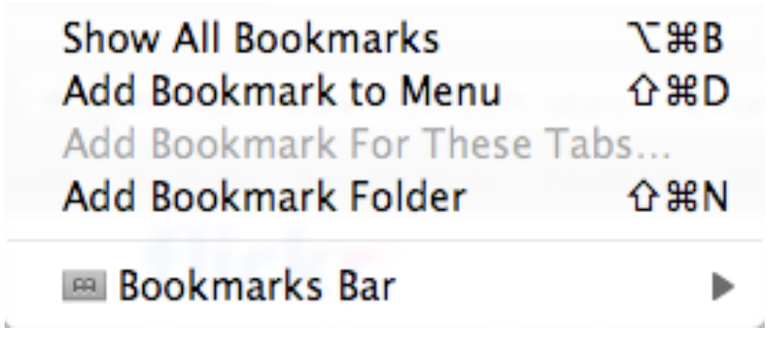


Omnifocus



Mac OSX 10.5

(Accelerators)

Quelle: [3,7]

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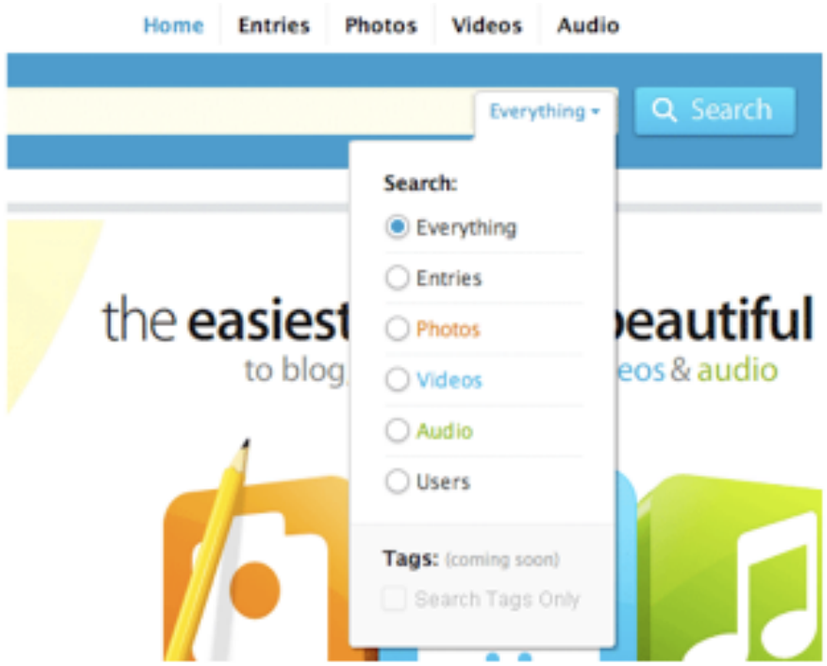


Kontain

Visibility of system status

Match between system and the real world

User control and freedom

Consistency and standards

Error prevention

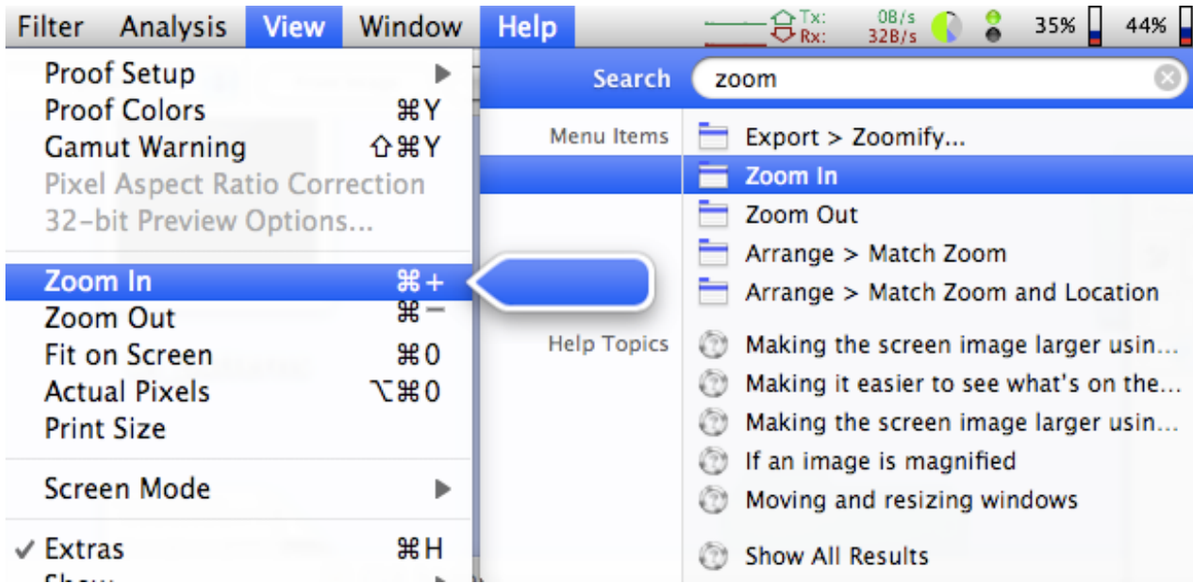
Recognition rather than recall

Flexibility and efficiency of use

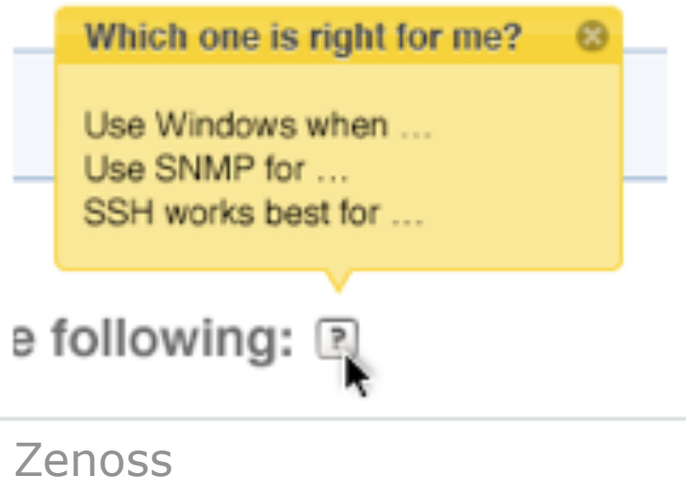
Aesthetic and minimalist design

Help users recognize, diagnose, and recover from errors

Help and documentation



Mac OSX 10.5 (Screenshot)



Zenoss

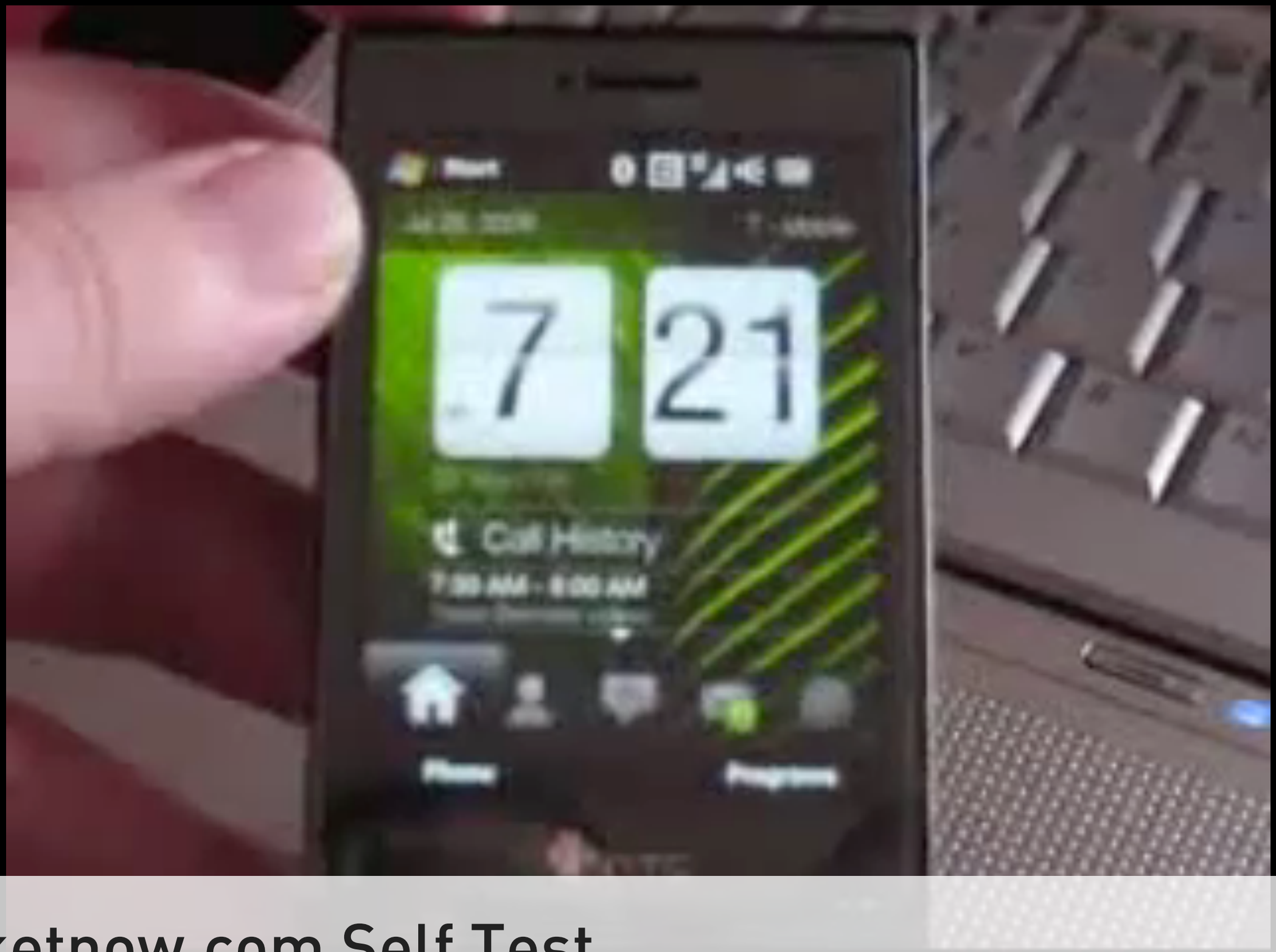
Quelle: [3,7]

Example:
Speed Testing

Speed Usability Testing

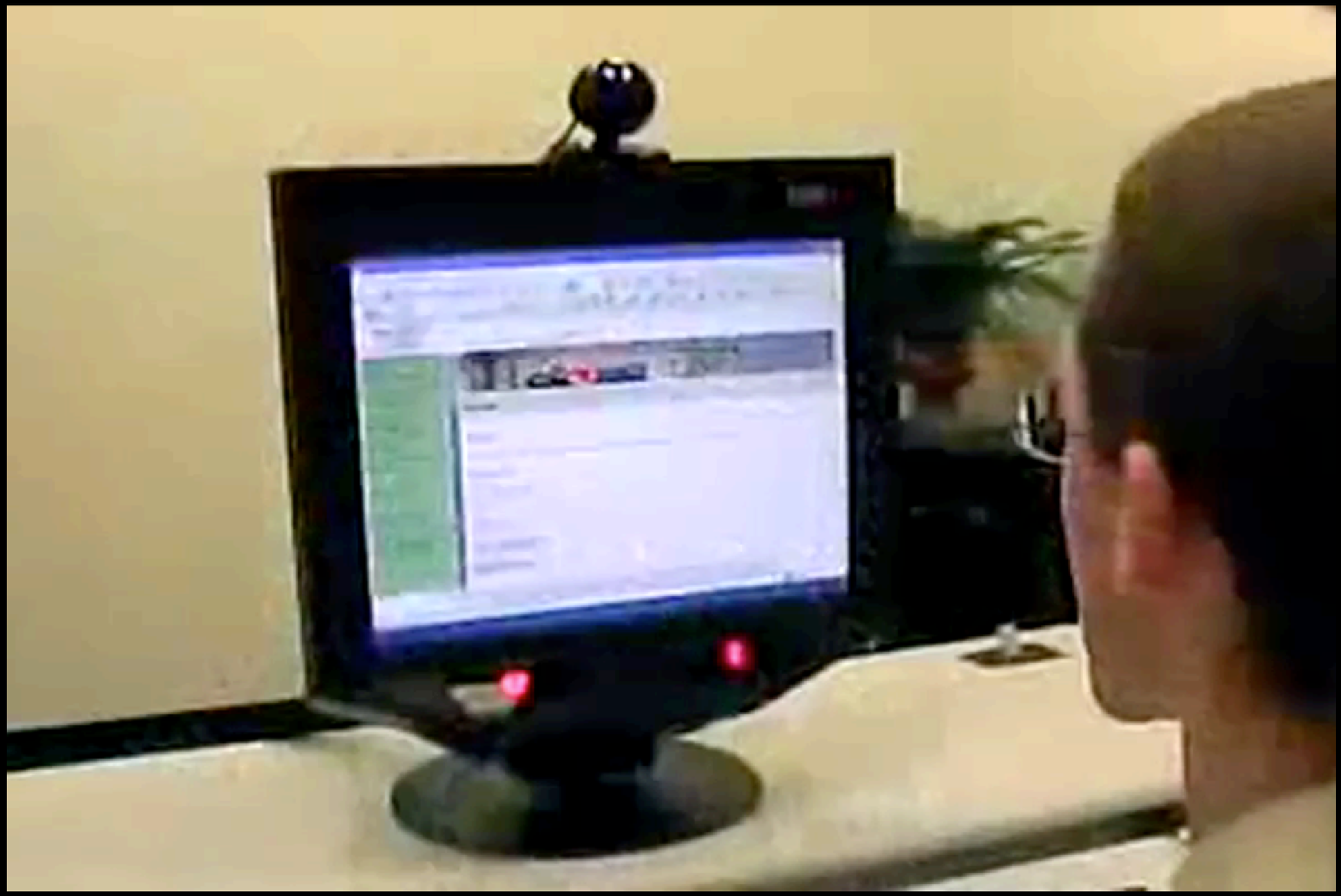
Speed Usability Testing

Evaluation Usability Testing



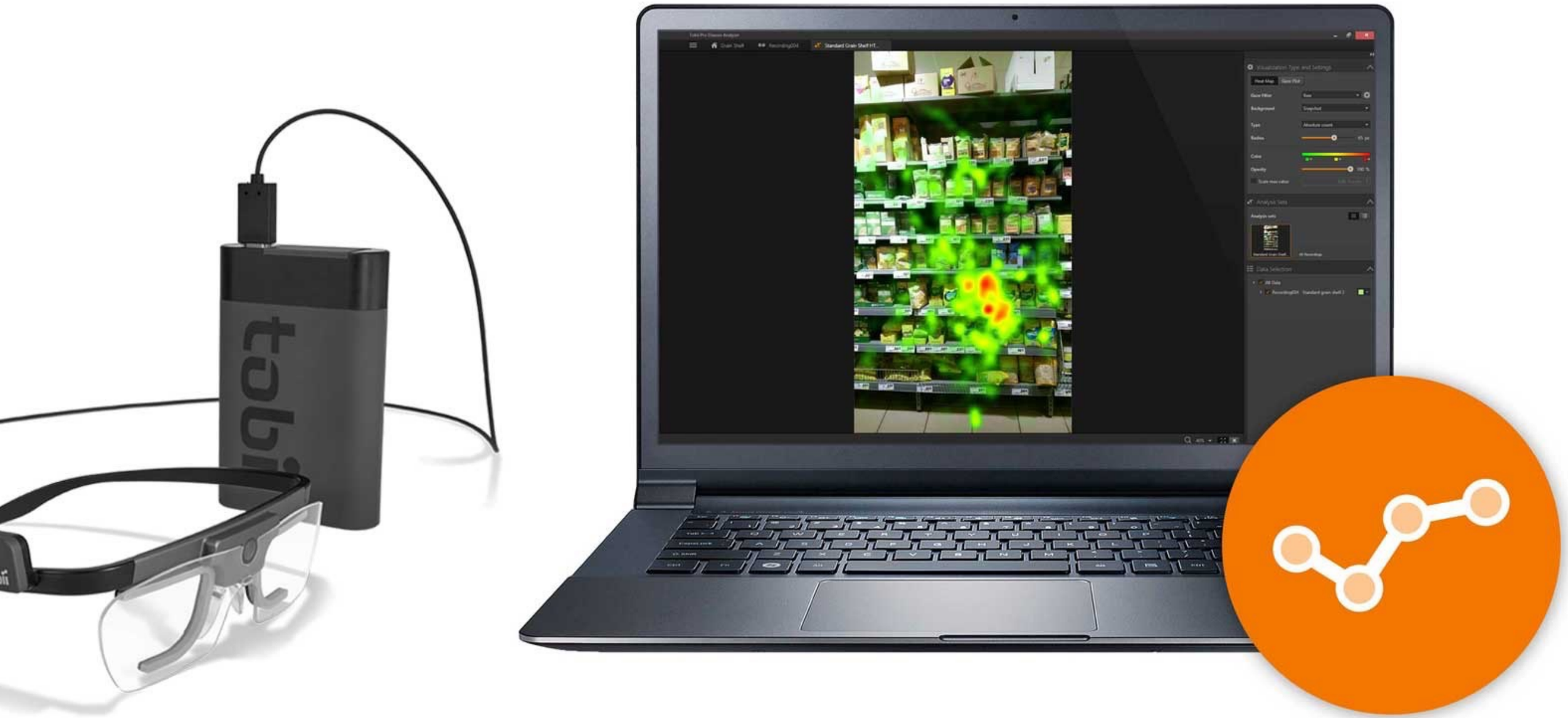
pocketnow.com Self Test

Example: Eye tracking



Eye-tracker

video credits © kent state university



References (Books):

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[2] Norman, D. The Psychology of Everyday Things, *Basic Books 2013.*
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[8] Design Council London: A Study of the Design Process 2008