Welcome!
Designworkshop II
What are we doing here?
User-experience design

Industrial design

Communication design

User Interface engineering

Interaction design

Human factors

Usability engineering

Human-computer interaction

source: [11]
User Experience Design

Technology

UX

Business

Design
User Experience Design

usable

useful

desirable

valuable

accessible

findable

credible

©Peter Morville
http://semanticstudios.com
Getting the right Design and the Design right...

Bill Buxton - Sketching User Experiences
Back Stage
Visible

Behind the Scenes

User Interface

Capturing

Connecting

Combining

Transferring

Coordinating

Storing

Contextualizing
Double Diamond

DISCOVER  DEFINE  DESIGN  DELIVER

source: [8]
Double Diamond

Why? and How?

source: [8]
Double Diamond

DISCOVER

DEFINE

DESIGN

DELIVER

What?

source: [8]
We focus on

DISCOVER

DEFINE

DBE
Overview

Research  Innovate  Prototype

© A study of the design process - Design Council London
Overview

Get to know your problem/subject
Gather insights about the user and their life
Collect artefacts & impressions
Record tasks

Research
In design research we are driven by a need for a deeper understanding

Susan Dray - Dray & Associates, Inc., USA
<table>
<thead>
<tr>
<th>subjects</th>
<th>truth</th>
<th>inspiration</th>
</tr>
</thead>
<tbody>
<tr>
<td>traditional market research</td>
<td></td>
<td>(?)</td>
</tr>
<tr>
<td>empathic research</td>
<td></td>
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</tr>
</tbody>
</table>
novice users

infrequent users

frequent users

expert users

source: [2,4]
BMW i8 Cockpit
BMW i8 Cockpit
BMW DTM Racing Cockpit

http://2.bp.blogspot.com/_SM9A_sqVgGsq/S8XON6I_WI/AAAAAAAADww/HcRQgphHgl/s1600/Audi+%20R15%20Plus%20Cockpit.jpg
Different, usage contexts, user types and usage frequency will require dedicated solutions.
Overview

Make sense of your data
Identify important facets
Keep all players in mind
Collect and prioritise ideas
Develop & validate solutions

Research Innovate

DISCOVER DEFINE
Concept generation

Initial number of concepts

Initial number reduced

New ones added

Further reduction

Further addition

Further reduction

Further addition

Further reduction

Concept selected

Iterative:
- General: overall concepts

Granularity:
- General: overall concepts
- Coarse: significant alternatives
- Medium: intermediate development
- Fine: detailed refinement

source: [1]
Portfolio Wall
Competitive Analysis / Current Interface

Four different adjustments
just to make AC right the way you like it.

Too many buttons
Buttons could be simplified and grouped further.

AC adjustments
do not show up on navigation screen.

Turning Knob
for the screen on top is far back; Poor ergonomic.

Buttons with simple icons are centralized at a convenient location.

What is working?
- Screen does not need to be at the same place as control.
- Tactile feel of button/Button grouping
- Use of color, materials, textures, and lights can improve information hierarchy.

What is NOT working?
- Appropriate position for frequently used buttons is important.
- Too many buttons are intimidating.
- Buttons are scattered and not intuitive position.
- Touchscreen requires too much attention.
- Buttons rely on small icons/text which is hard to read.

http://www.jeonyounchoi.com/27891/291635/home/ux-ui-design-clover-car-interface-design
Competitive Analysis / Car Trends

Trends Insight
- More wireless connectivity to information and to others.
- More seamless integration between digital and physical world.
- Devices are more content driven and user-centric.
- Better customization capabilities and mobile computing is more prevalent.

Interior Comforts

Communication between Driver and Passengers
Taking the comfort to the next higher plane, models like the 2007 Ford Expedition have ensured better communication between passengers from first to third row by using insulated materials in the carpet and other features.

Sound Insulation from Exterior
The DUV provides more insulation behind the dashboard and door panels, thick glass and a steady roof panel, thus preventing itself from blocking the sounds.
Literaturrecherche

Google / Google Scholar
http://scholar.google.de

ACM Digital Library
http://portal.acm.org/dl.cfm -> BibTex, Referenzen, Verweise

Citeseer
http://citeseer.ist.psu.edu/cs

IEEE Xplore
http://ieeexplore.ieee.org/Xplore/guesthome.jsp
Literaturrecherche

Zugriff auf diverse Literaturdatenbanken (ACM, IEEE) über LRZ-VPN und –Proxy:
http://www.lrz-muenchen.de/services/netzdienste/proxy/browser-config/
Zugriff auf das ACM Portal und IEEE über LRZ-Proxy:
https://docweb.lrz-muenchen.de/cgi-bin/doc/nph-webdoc.cgi/000110A/http/portal.acm.org/portal.cfm
Zugriff auf Zeitschriften:
http://docweb.lrz-muenchen.de/
Webrecherche

Techblogs:
engadget.com
ted.com

Zugriff auf Zeitschriften:
http://docweb.lrz-muenchen.de/
Overview

Tell a story
Make it tangible

Prototype
<table>
<thead>
<tr>
<th>For the Designer:</th>
<th>Exploration</th>
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<tbody>
<tr>
<td></td>
<td>Visualisation</td>
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<td></td>
<td>Feasibly</td>
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<td>Inspiration</td>
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<td>Collaboration</td>
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<thead>
<tr>
<th>For the End User:</th>
<th>Effectiveness / Usefulness</th>
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<tr>
<td></td>
<td>A change of viewpoint</td>
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<td></td>
<td>Usability</td>
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<td></td>
<td>Desirability</td>
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<tr>
<th>For the Producer:</th>
<th>Conviction</th>
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<td>Specification</td>
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<td>Benchmarking</td>
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It’s really hard to design products by focus groups. A lot of times, people don’t know what they want until you show it to them.

Steve Jobs
Fidelity v. Resolution

low resolution
low fidelity

high resolution
low fidelity

high resolution
high fidelity

source: [5]
Low Resolution

Less Details
Focus on core interactions
Quick and Dirty
Early Validation

High Resolution
More Details
Focus on the whole
Deliberate and Refined
Concrete Ideas

source: [5]
1st Iteration
low-res/low-fi
4th Iteration
high-res/high-fi
80/20 rule
A principle for setting priorities: users will use 20% of the features of your product 80% of the time. Focus the majority of your design and development effort (80%) on the most important 20% of the product.

source: [7]
OVERVIEW
The Course
Approach

Tackling a real world interaction design challenge by:

- Applying an iterative design process in all phases from research to final prototype

- Working in teams
The Goal

A final presentation that includes milestone deliverables for each phase and a self-explanatory and functioning prototype* at the end of the semester.

*transportable, maximum size of a standard desk
Workshop Theme:

BEYOND THE SCREEN
In-car interaction concepts
across soft- and hardware
With the rise of digitalization, screens are widely replacing knobs, buttons and other haptic interaction methods.
In-/output is reduced to the size of the screen while the complexity of interaction possibilities/ information has risen.
Emotional interaction experiences (e.g. haptic) are being uniformed as the diversity of form and materials are reduced to the one universal touch screen experience.
Workshop Theme:

-> What kind of new interactions concepts in the car can merge hard- and software?

-> How can they support ease of usability, the conveying of information and an emotional experience specifically for in-car interactions?
Your grades (per team!)

- Attendance of & participation in meetings
- 4 deliverables: in time, complete
- Strength of conceptual work (deliverables 1,2)
  - Quality of research
    - Is your concept solving the problem you framed?
    - Is your concept merging hard- and software?
    - Is it supporting ease of usability, conveying information, an emotional experience?
    - How innovative is your concept?
- Strength of prototyping (deliverables 3,4)
  - Does it make the idea experienceable?
  - Does it work? Is it self-explanatory?
  - How well was user feedback carried out and incorporated?
- Presentation
  - How crisp could you bring your work across?
  - Presentation skills, material
Milestones & Deliverables

NOW: Kick off

October

November

Dezember

January
Milestones & Deliverables: Research

31/10 Research Presentation

October  
November  
Dezember  
January
Milestones & Deliverables: Concept

21/11 Concept Presentation
Milestones & Deliverables: Low-Fi Prototyping

12/12 Low-Fi Prototype & User Testing
Milestones & Deliverables: High-Fi Prototype

- October
- November
- Dezember
- January

16/01 Final Prototypes
Milestones & Deliverables: Final Presentation

30/01 Final Presentation
Until 24.10.16

Review Research: Problem Framing & Use Case

- Desk Research on interaction concepts & existing applications (mobility context and beyond)
- Analysis of current and previous in-car interactions (e.g. self-testing,...)
  -> e.g. visit “Deutsches Museum or BMW Museum”
  -> do self experience with a car sharing service (e.g. DriveNow)

- 5 Slides with images + one video self exploration
References: