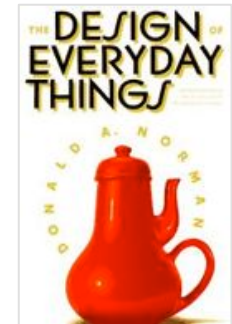# Usability Testing & Eyetracking
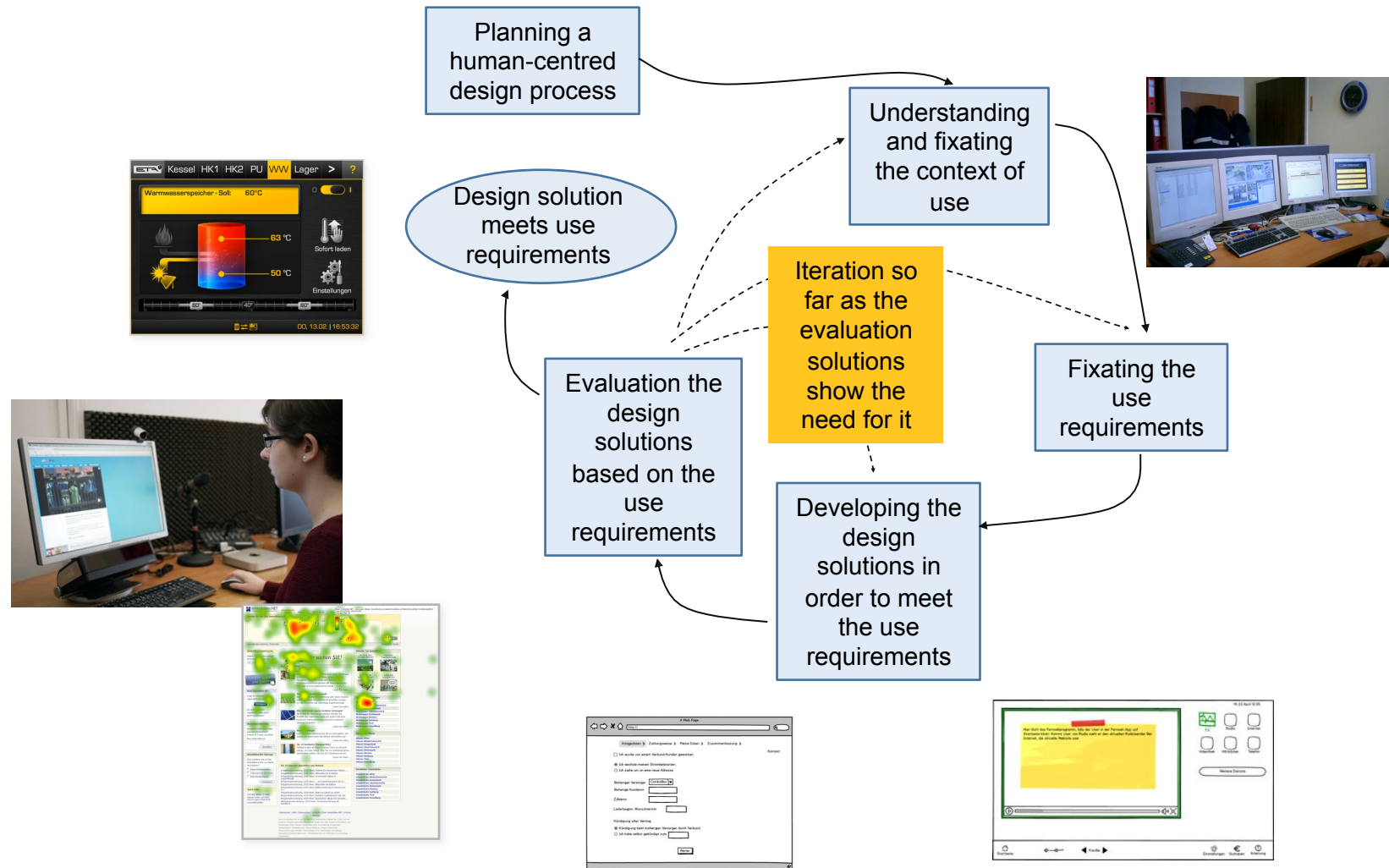## Martina Manhartsberger

About me

- Started to work in usability field in 1987
- User interface designer → University assistant at the University of Vienna → 1994: Interface Consult
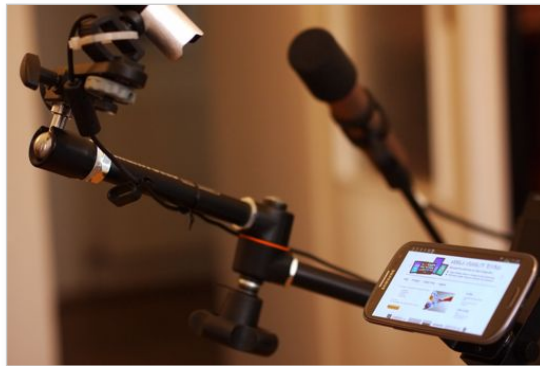
About Interface Consult

Planning a human-centred design process

Understanding and fixating the context of use

Design solution meets use requirements

Iteration so far as the evaluation solutions show the need for it

Fixating the use requirements

Evaluation the design solutions based on the use requirements

Developing the design solutions in order to meet the use requirements

What else...

- Accessibility
- UX Styleguides
- Trainings

Usability Lab

Usability Testing at Interface Consult

- As contract work for clients
- Websites, software, apps, machines, ...
- For various industries
- Tests of prototypes or finished/online products
- Most tests in the lab
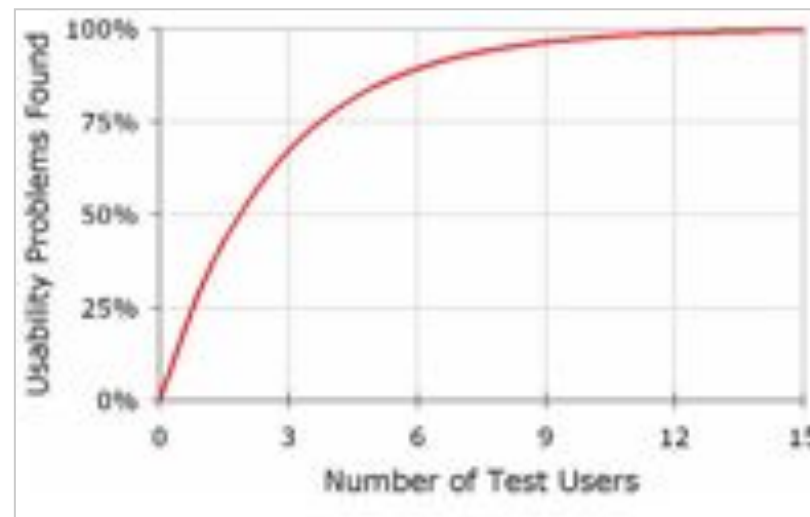- One participant, one moderator (additional note-taker if necessary)

Usability Testing Process

- Get to know the test object
- Plan the testing & develop a test skript
- Recruit test participants
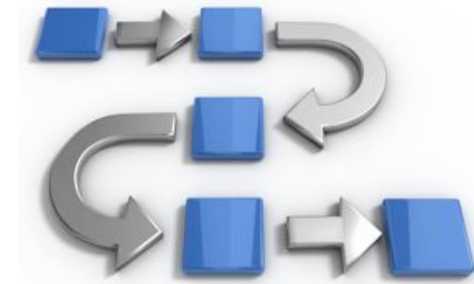
How many Participants?

- Usually around 10
- Depending on
    - User groups
    - Size & complexity of the test object
    - Devices used in the test

Nielsen

Participants

- Participants from target group who are involved in the subject
- Participant database
- Online Screener
  - E.g. for a test for an insurance company:
    - Demographic data...
    - Did you sign an insurance lately?
    - With which insurance companys do you have contracts?
    - Do you plan to make an insurance in the near future?
    - Which insurances are interesting for you?
    - How do you usually collect information about insurances?

Usability Testing Process

- Individual appointments with participants
  - Briefing
  - Pre-test questions
  - Participant carries out use case
  - Post-test questions
- Analyze the results
- Prioritize usability issues
- Produce highlight-videos
- Develop suggestions for improvements
- Present/discuss results with the customer
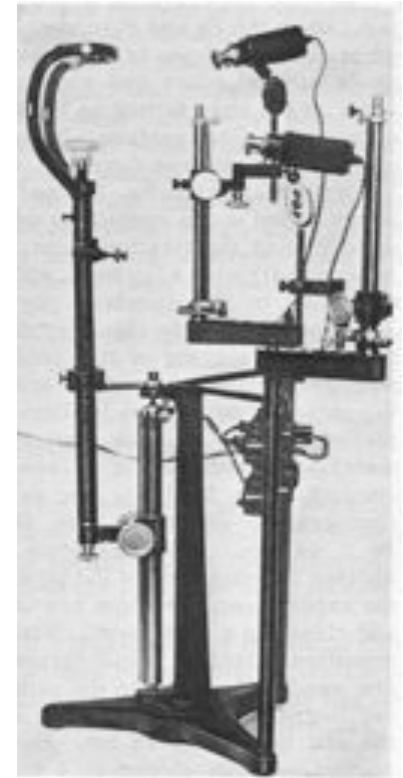
Usability Tests with Eyetracking

- Usually a combination of qualitative, thinking aloud test and eyetracking
- Eyetracking Devices:
  - Tobii X120
    - Used for desktop computers
  - Tobii Glasses
    - Used for mobile devices
    - Used for mobile users

2002 ☺

How eyetracking works

- Near-infrared light is directed towards the pupil
- The reflections are tracked by a camera.

Eyetracking: Visualization: Gazeplot
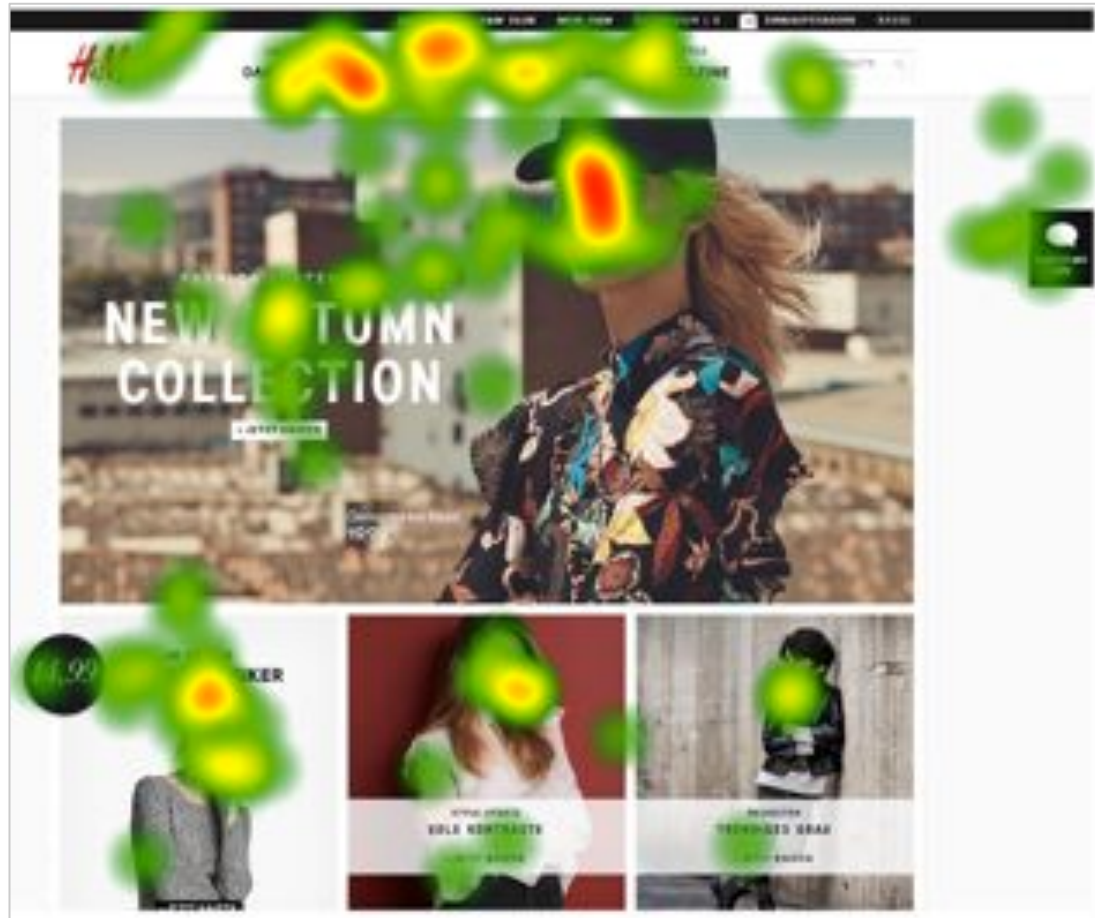
Gazeplot

- Shows fixations & saccades
- Ordered list of fixations
- Length of any fixation

Eyetracking: Visualization

Heatmap

- Shows aggregation of fixations

Where Eyetracking is Helpful

- Moderator: Can ask more relevant questions
- Observers: Have a better understanding of what is happening
- Results:
  - Shows what attracts the eye, how fast und in which order
  - Shows if elements get noticed
  - Shows where participants expect certain elements
 - Shows when participants read

Limitations

- Peripheral vision is not captured (banner blindness..)
- Fixation may equal understanding OR misunderstanding of an element
- Requires interpretation

Limitations

- Eyetracking is no replacement for qualitative studies

- It is expensive

- Thinking aloud interferes with eyetracking, when

  - Participant looks away from the screen
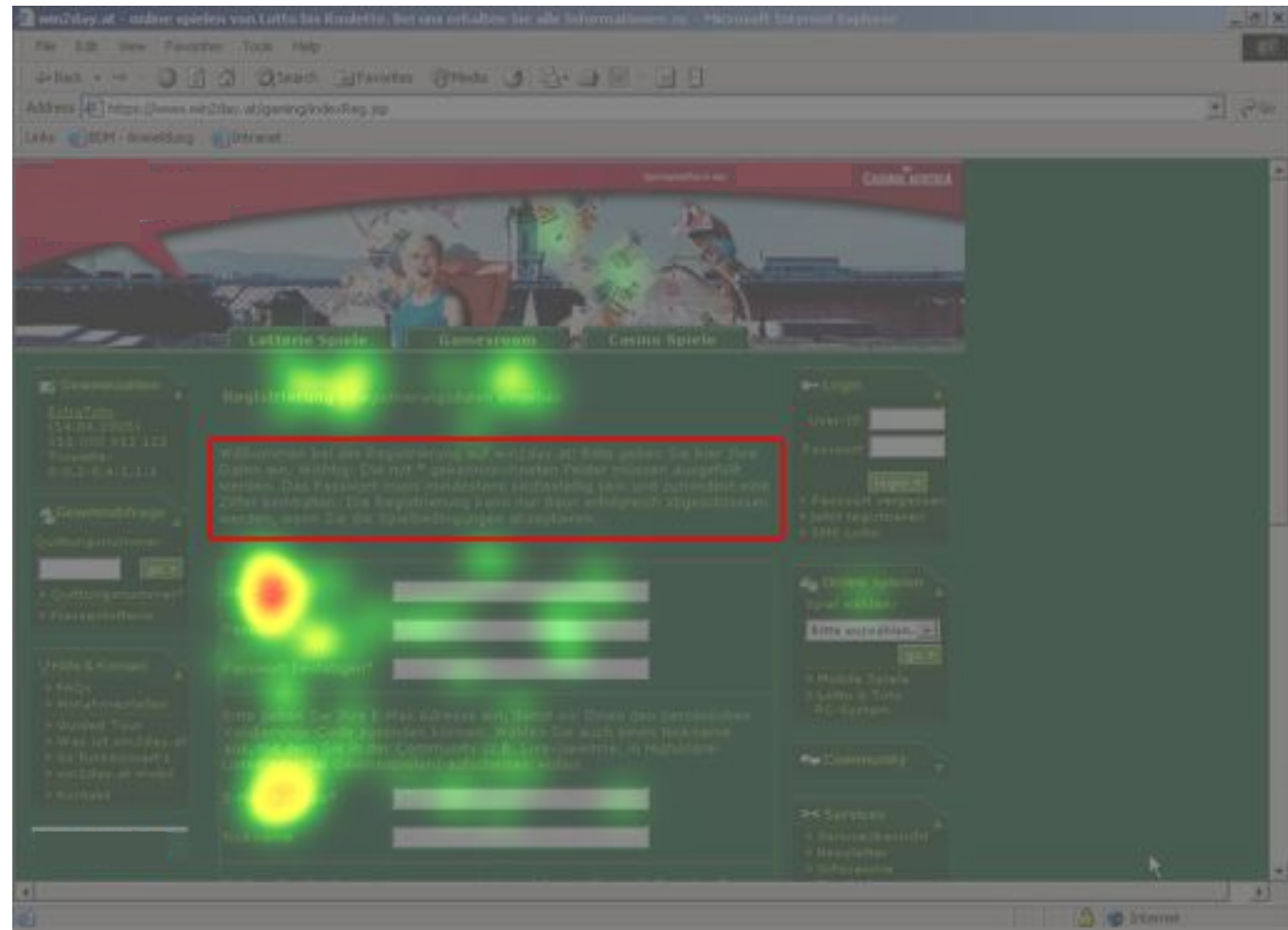 - Looks at an object he/she is talking about

Limitations

- Eyetracking is not of much help, if you are testing in early stages of design with prototypes that do not yet include graphical design
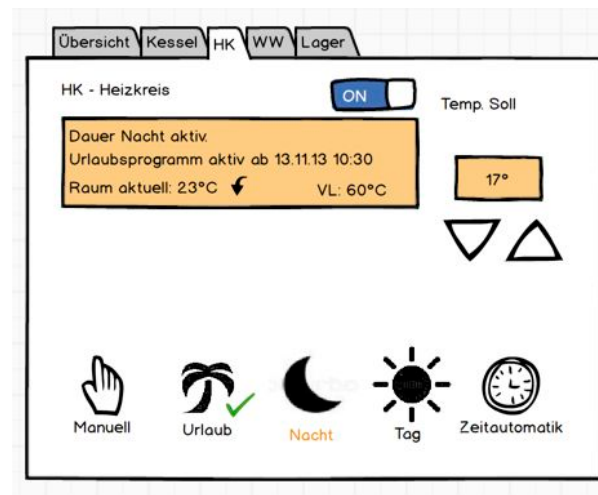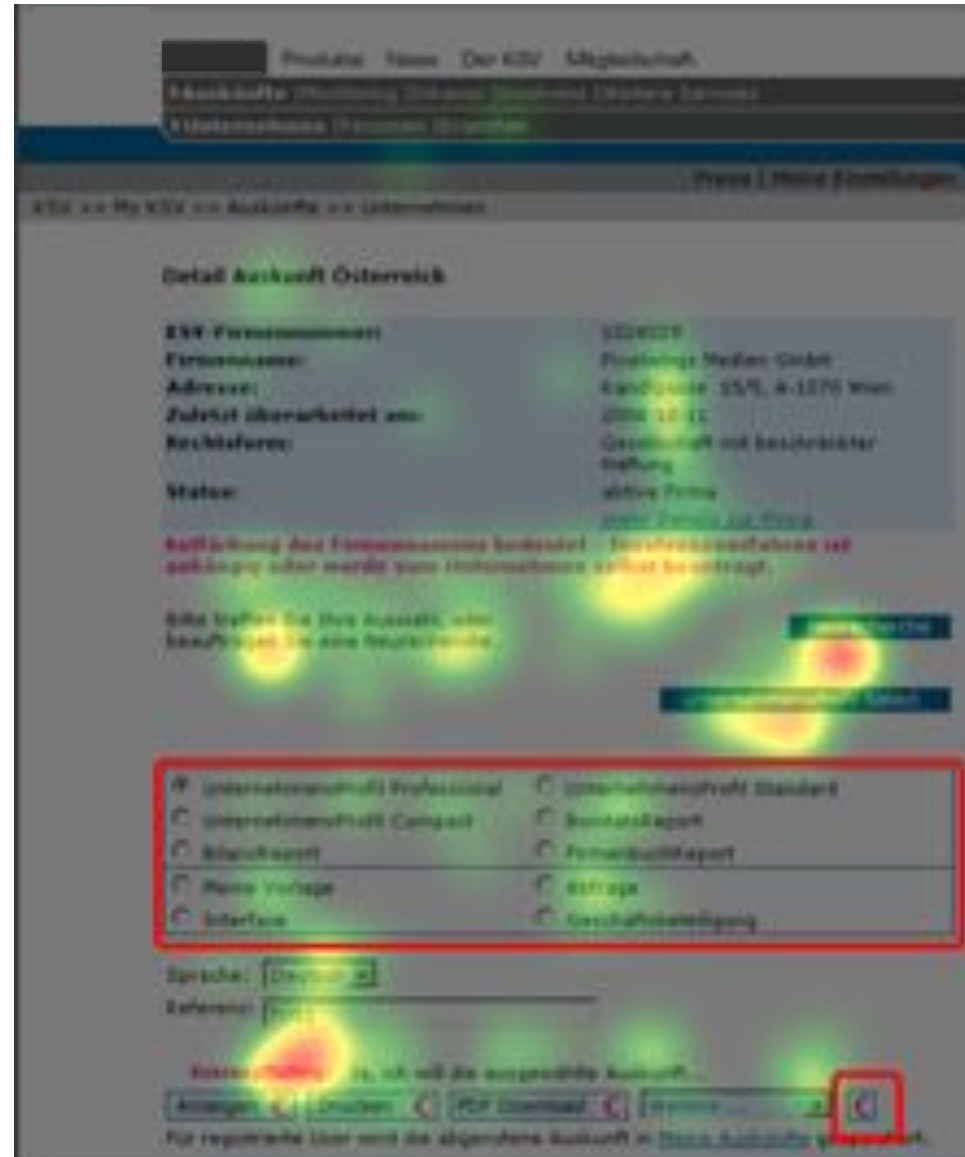
Examples: Users don´t read continous text

Text above the entry form is ingnored, thus missing information about the password format

Examples: Vampire effect

Elements that
are not
important take
away the user's
attention from
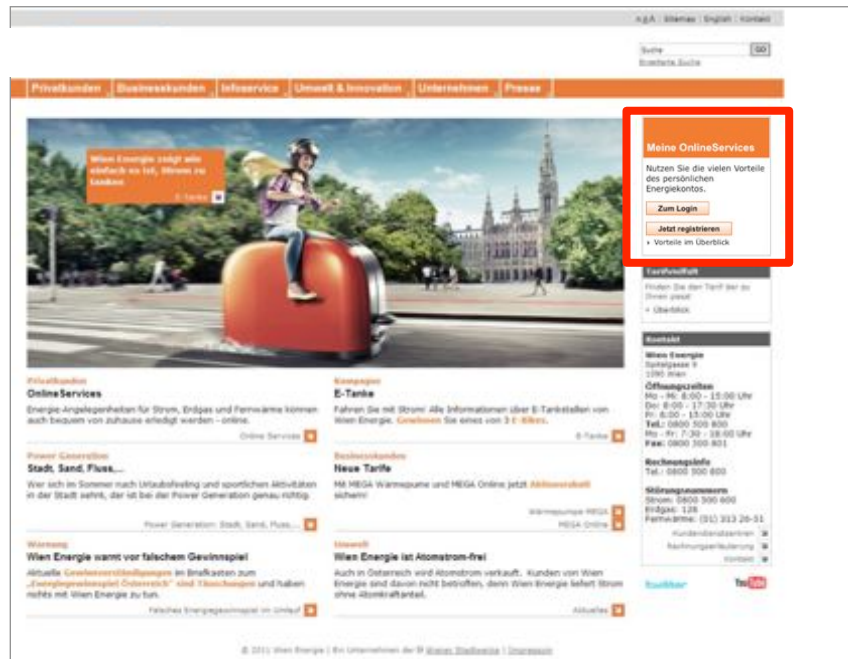the main page
elements in the
marked areas.

Examples: Flat Design

Not always clear which of the buttons is selected: Flat "Radio"-Buttons get more attention than the "call to action" ("Weiter")

liability insurance vs. fully comprehensive insurance

Examples: A/B Test of 2 Versions for Login

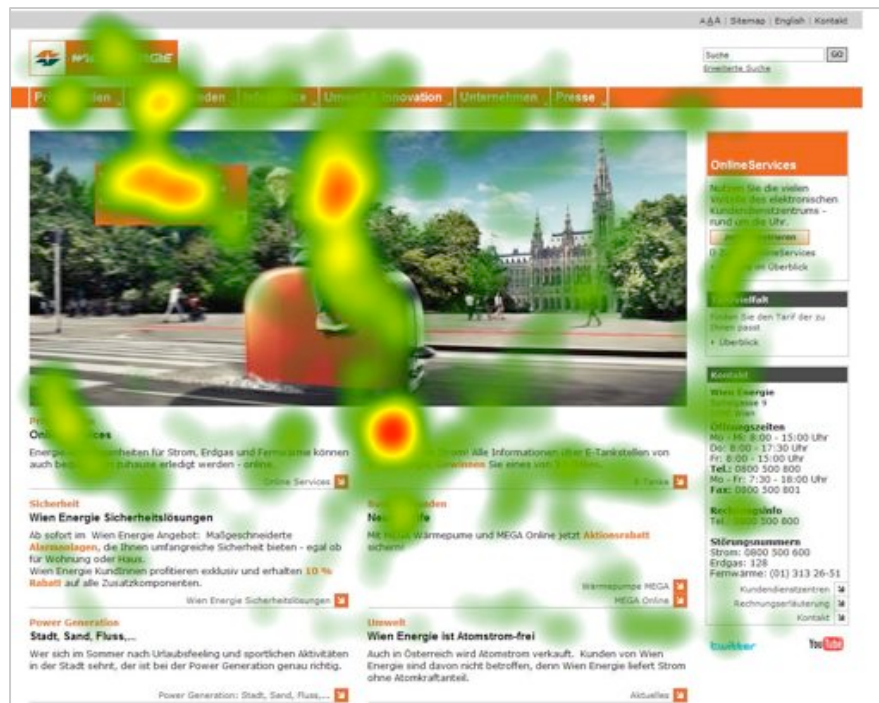**Version I**

Link (no color) is used

Version II

Button is used

Heatmap of fixation duration

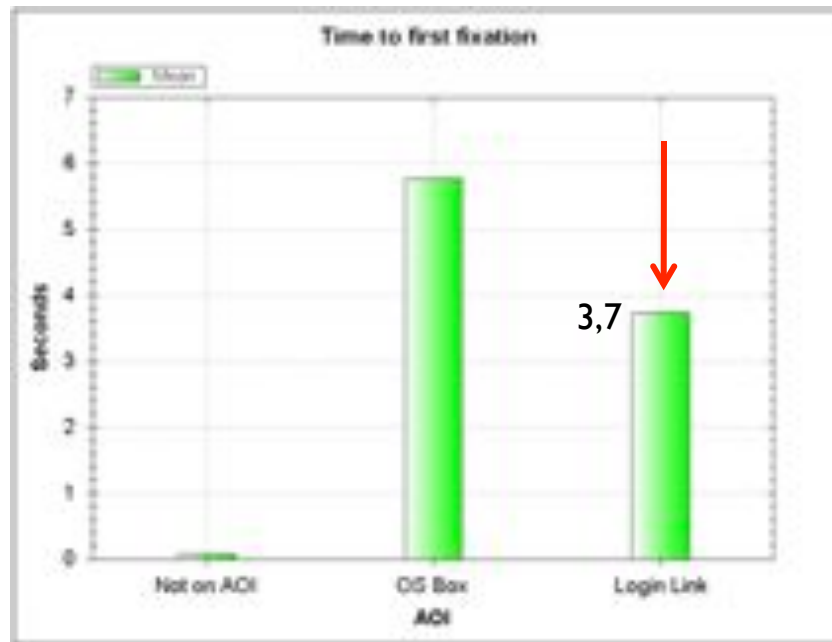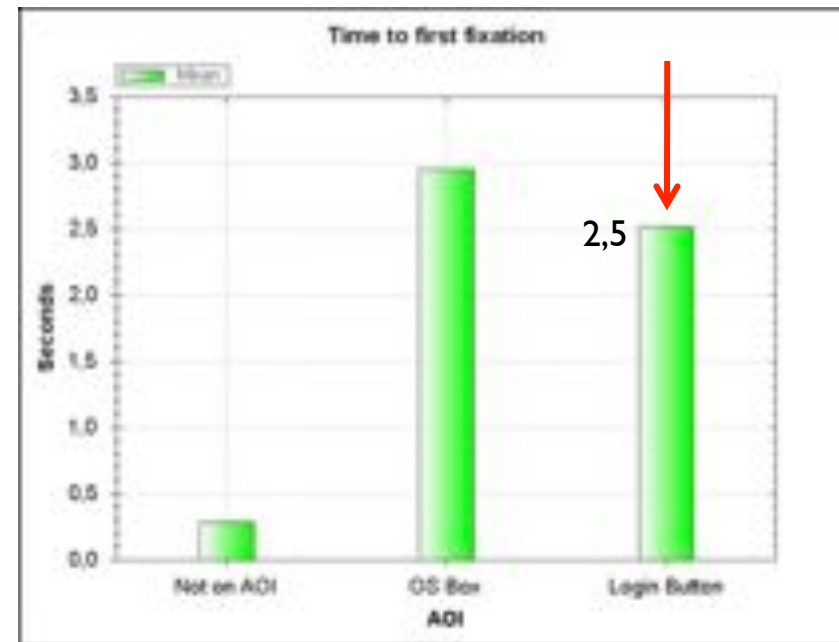**Version I**   **Version II**

Heatmaps (10 sec)

Time to first fixation

- Average time to first fixation for Login-Link/Button:
  - Version I: ca. 3,7 sec.
  - Version II: ca. 2,5 sec.

Version I

Version II

"Stiegl" Museum:

- Test of the guidance system
- Participants were "real" visitors
- Eyetracking with Eyetracking glasses

"Stiegl" Museum: Users overlooked signs or misinterpreted directions of pointers

Conclusion

Eyetracking cannot replace traditional usability
testing but it can make an exciting method –
the usability testing – even more exciting!

Contact

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