Human
Factors

Jussi Mantere

Communication

It's about people

Staying in touch

Living.

© 2006 Nokia   Design Strategy

There are no stupid users.

Et vaan osaa!

There are great products for those who know what they want

... and products that we all use, but that are bad design.

What is usability?

What is usability?

Mittaa sitä, missä määrin tietyt käyttäjät tietyssä tilanteessa voivat käyttää tuotetta tiettyyn tarkoitukseen, kriteereinä:
- käytön tehokkuus
- käytön vaikuttavuus
- käyttäjän subjektiivinen tyytyväisyys
(ISO 9241-11)

What is usability?

Tuotteen:

- Opittavuus
- Muistettavuus
- Virheettömyys
- Miellyttävyys

(Nielsen, 1994)

What is usability?

Visibility of system status

Match between system and the real world

User control and freedom

Consistency and standards

Error prevention

Recognition rather than recall

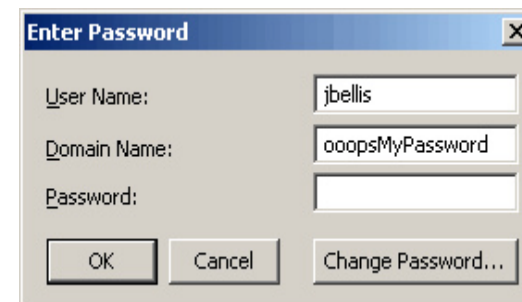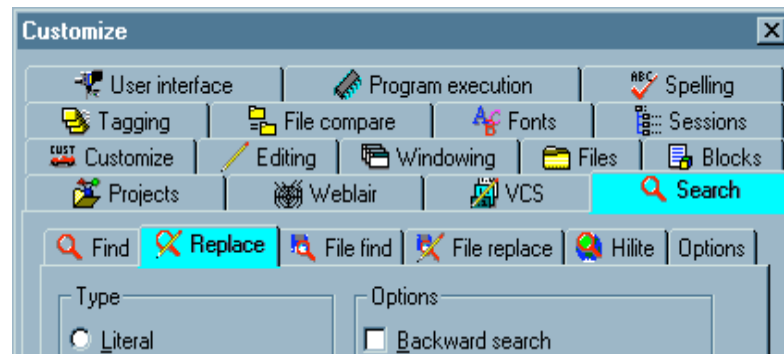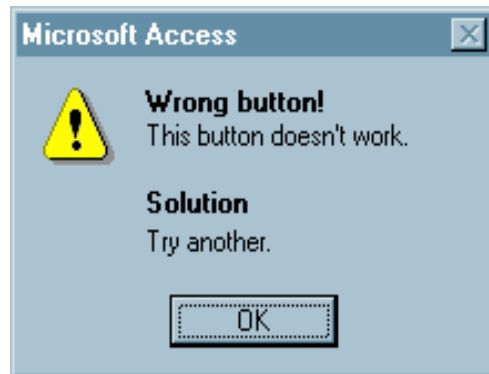**Flexibility and efficiency of use**

Aesthetic and minimalist design

Help users recognize, diagnose, and recover from errors

Help and documentation

(Nielsen 1994: Ten usability heuristics)

Usability

Microsoft Access

Wrong button!
This button doesn't work.

Solution
Try another.

OK

cc:Mail for Windows - Fatal Error

Mail Engine: No Error.

OK

Customize

User interface | Program execution | Spelling
Tagging | File compare | Fonts | Sessions
Customize | Editing | Windowing | Files | Blocks
Projects | Weblair | VCS | Search

Find | Replace | File find | File replace | Hilite | Options

Type
○ Literal

Options
☐ Backward search

Enter Password

User Name: jbellis

Domain Name: ooopsMyPassword

Password:

OK | Cancel | Change Password...

Usability

Default Signature

Brian Hayes^M^JIsys Information Architects Inc.^M^Jhttp://isys.ho

Model:
- [ ] Sport Coupe
- [x] Sedan
- [ ] Sport Utility
- [ ] Pickup Truck

8) Age:
_____

9) [x] Female
   [x] Male

Select your State

- ○ Alabama   ○ Kansas
- ○ Alaska   ○ Kentucky
- ○ Arizona   ○ Maine
- ○ Arkansas   ○ Maryland
- ○ California   ○ Massachuset
- ○ Colorado   ○ Michigan
- ○ Connecticut ○ Minnesota
- ○ Delaware   ○ Mississippi
- ○ Florida   ○ Missouri
- ○ Georgia

Form Title -- (appears above URL in most browsers and is used by WWW search	Background Color:
Q&D Software Development Order Desk	FFFBF0

Form Heading -- (appears at top of Web page in bold type)		Text Color:
Q&D Software Development Order Desk	[X] Center	000080

E-Mail respones to (will not appear on	Alternate (for mailto forms only)	Background Graphic
dversch@q-d.com		

Text to appear in Submit button	Text to appear in Reset button	○ Mailto
Send Order	Clear Form	◉ CGI

Scrolling Status Bar Message (max length = 200 characters)
WebMania 1.5b with Image Map Wizard is here!!

<< Prev Tab   Next Tab >>

Usability

Evaluating usability: expert evaluation

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- Cognitive walkthrough: "what would the user do?"

- Heuristic walkthrough: "are these common rules met?"

- The more evaluators, the better the result

Evaluating usability: user testing

- Find real people to do real things

- Where do they have difficulties? Correct it!

- Are the irrelevant things easier than the most important things? Fix it!

Evaluating usability

	Expert evaluations	Usability test
When?	With early drafts. With working models. With final design.	With working models. With final design.
How?	Usability specialist reviews the system and identifies usability problems based on his/her experiences, knowledge of human behaviour and existing checklists, for example Nielsen's "Usability heuristics." Change proposals created for identified problem areas.	User performs typical tasks and "thinks aloud" while doing it. Test analyzed by experts to find areas where problems occur. Change proposals created for identified problem areas.
Who?	2 or more usability specialists.	One-two test administrators to run the test. 5-10 users (per group).
Why?	To find typical problems with minimum resources.	For more in-depth analysis of total system usability, to get real user insight.

Evaluating usability: exercise

```
PORT075      ALTEL INFO RELEASE 4.2    USER = JOHNSMIT      17-OCT-96    11:37:15


          *************************************************
          C O M P U T E R   T E L E P H O N E   I N D E X
          *************************************************

THE SUBSCRIBER IS:


>
>JONES
>JIM N.
>
>17 PINE STREET
>
>CALGARY
>AB TOL 809




PF1=HELP    PF2=DIRECTORY_INFORMATION                      PF5=OTHER_SERVICES
PF4=STREET_DIRECTORIES
```

(Nielsen &

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The user enters this system by selecting "Computer Telephone Index" from the main ALTEL menu (not shown). The system then issues the following prompt:

ENTER DESIRED TELEPHONE NO. AND RETURN

If the user enters anything other than exactly ten digits in response to this prompt, the system answers:

ILLEGAL NUMBER. TRY AGAIN.

If the user enters a telephone number which is not in use, the system answers:

UNKNOWN TELEPHONE NUMBER

If the area code of the telephone number is 403 (the area code for Alberta), the system will normally display the screen shown in the figure within **five seconds**. For other area codes, the system must retrieve the necessary information from an external database; this may take up to **thirty seconds**.

(Nielsen &

So, usability rocks!

Or?

It's about style and emotion

unmistakable performance

all-embracing safety features and comfort

enduring quality and value

BMW
The Ultimate Driving Machine®

"What most competitors can't provide is the joy of driving, BMW style."

So forget about usability!

Forget about usability?

"I can personally confirm that **BMW also has substandard usability**; my wife had the misfortune of getting a 745i two years ago. Luckily, it's only a three-year lease, so we're now counting the days (347 left) until we can rid ourselves of the Beemer without losing money. **We'll probably never buy BMW again**, despite the fact that my wife was previously one of the company's most loyal customers. Having to use the BMW 745i daily has soured her on the brand forever."

Jakob Nielsen

"it manages to complicate simple functions beyond belief."

USA Today

"iDrive is not simple, no matter how clean it looks to the naked eye. ... Our advice ... Is to ... retain basic manual controls for functions that are used every day."
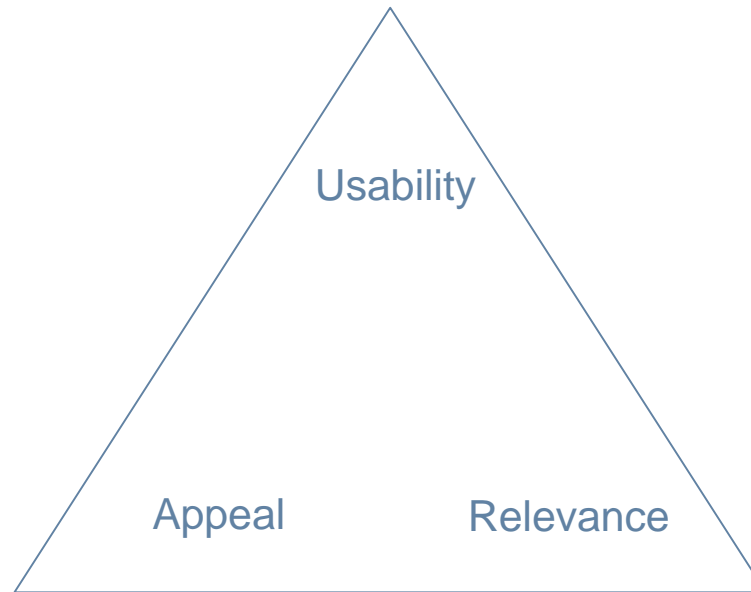
Auto Review

"iDrive takes a fair amount of practice just to get a rudimentary grip on its … I could not figure out how to pull up a map… while sitting in the passenger seat. … Even when you've mastered iDrive, you'll have to wade through various menus and sub-menus to finally get to the function that needs adjustment. That function may be one that simply requires you to flick a switch on a conventional dashboard. Whether that's progress is debatable"

Automotive.com

It's not about usability
ALONE...

User experience has three corners
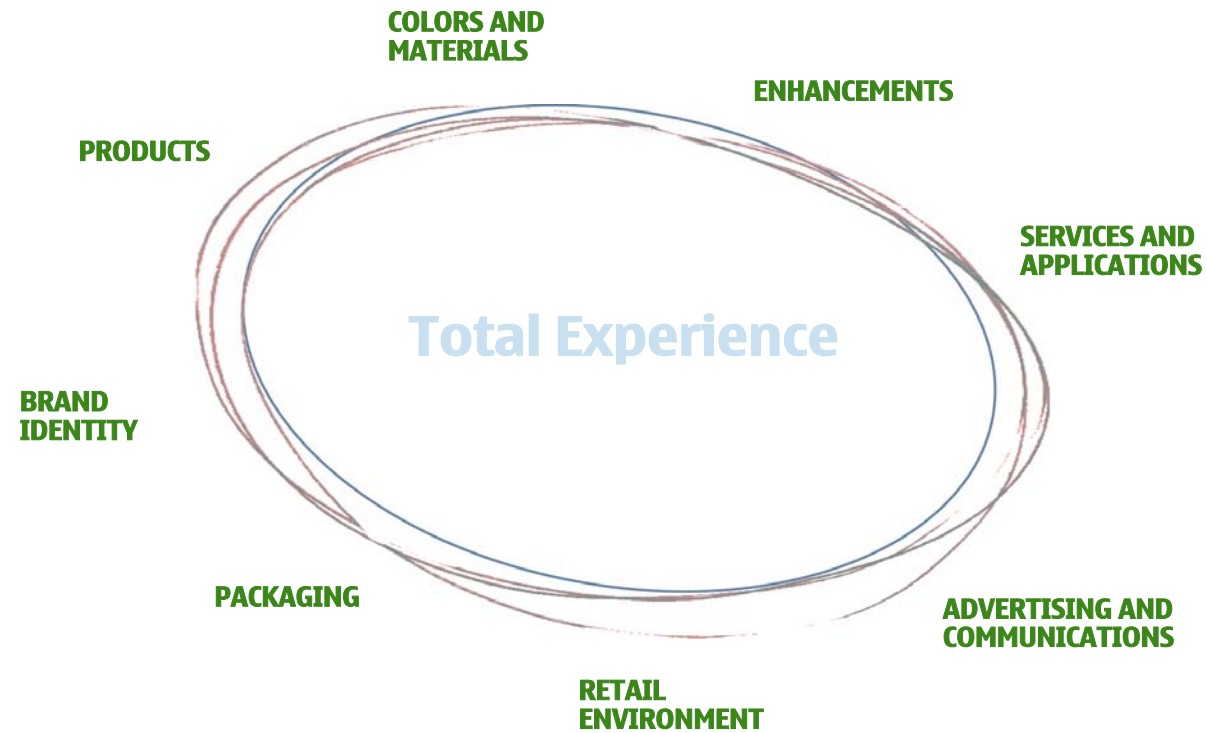

Usability

Appeal   Relevance

Successful products are designed in balance between usability, emotional appeal and relevance for the user's personality and needs and the use context.

It's the total experience that counts
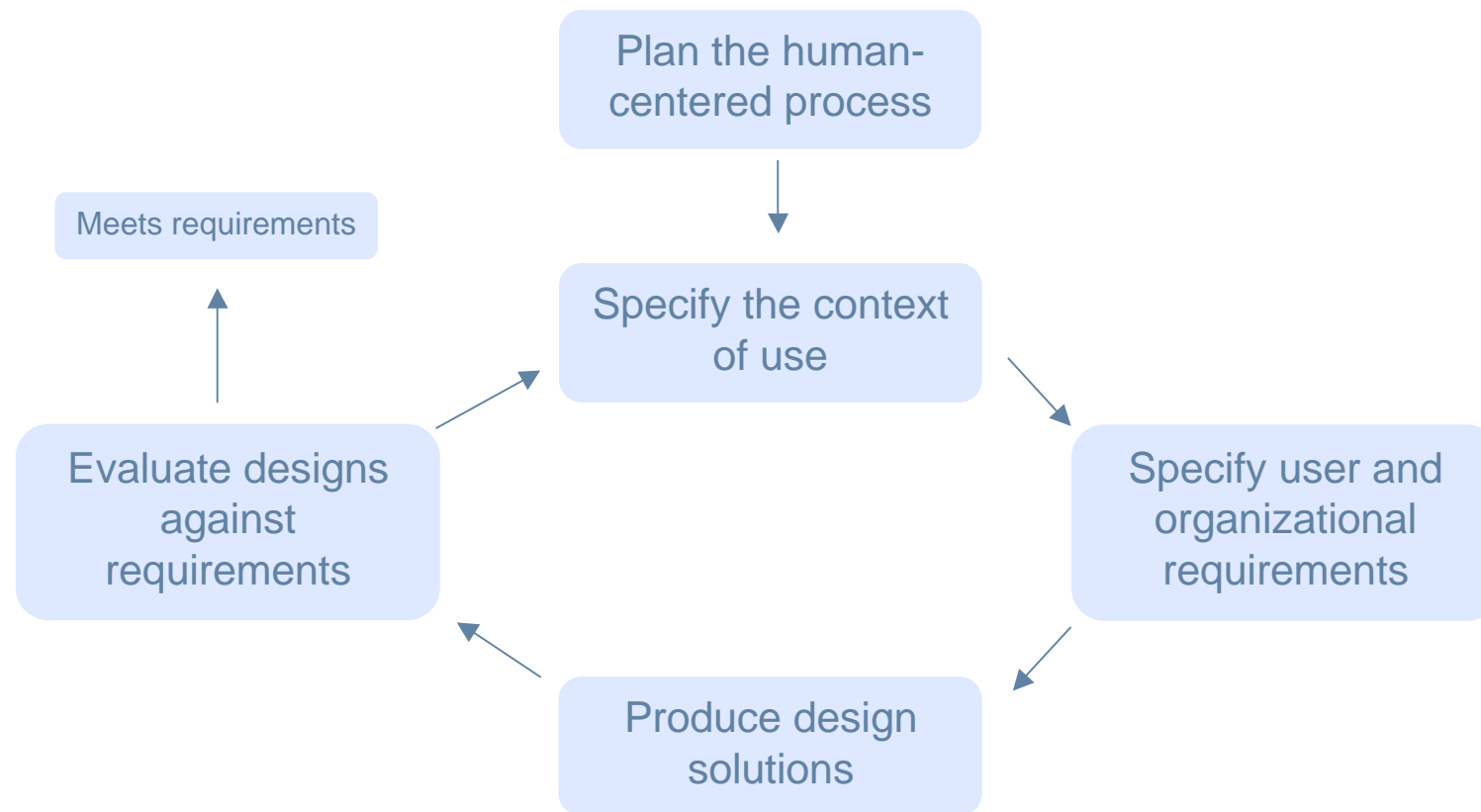
Experience is a sum of many elements

COLORS AND MATERIALS

ENHANCEMENTS

PRODUCTS

SERVICES AND APPLICATIONS

Total Experience

BRAND IDENTITY

PACKAGING

ADVERTISING AND COMMUNICATIONS

RETAIL ENVIRONMENT

How?

Early focus on users and tasks

Empirical measurement

Iterative design

(Gould & Lewis, 1985)

How?

Plan the human-centered process

Specify the context of use

Meets requirements

Specify user and organizational requirements

Evaluate designs against requirements

Produce design solutions

ISO 13407: Human-centered design process

Know the people and their needs

Learn, know and understand:

- When, where and for what will the product be used? What is the user like? Why would she choose to use it? What does the user feel and want to feel during the use?

Methods:

- Interviews, observations, surveys, market research, competitor benchmarks

Design for the people

Industrial design

Market research

Innovate solutions for the identified user needs

Experience design is a multidisciplinary effort!

Interaction design

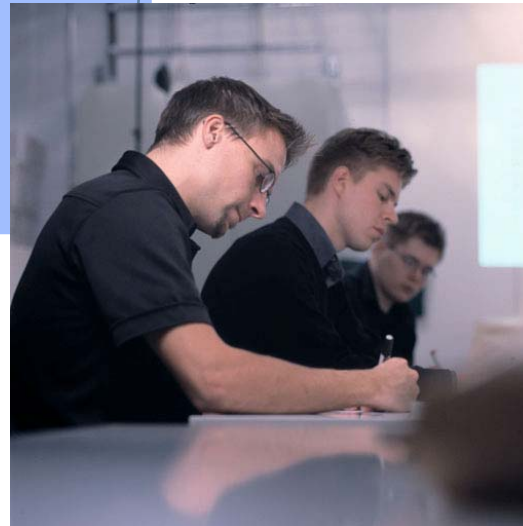

Graphics design

UI design

Technology (what is feasible in the given timeframe)

Service design

Human factors

Evaluate

Market research

Evaluate prototypes

- Is it usable?
- Is it appealing?
- Is it relevant?

… and **iterate**.

Usability testing

Expert evaluation

...One size does not fit all

For your interest...
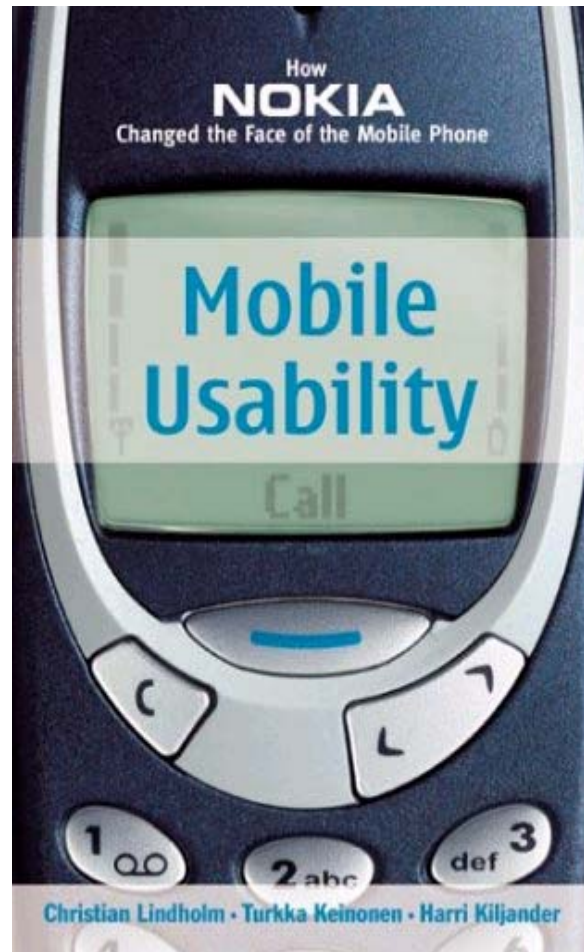
Thank you.
Questions?

jussi.mantere@nokia.com