Inclusive design for ICT – utopia or reality?

Peter Olaf Looms
DR (Danish Broadcasting Corporation)
IT University of Copenhagen
polooms@gmail.com

Before we start, an activity

Apple iPhone HTC Magic Nokia N900

Smart phones

Where would you put the three phones?

Upmarket

Professional
(more difficult to use)

Easy to use

Affordable

iPhone

android

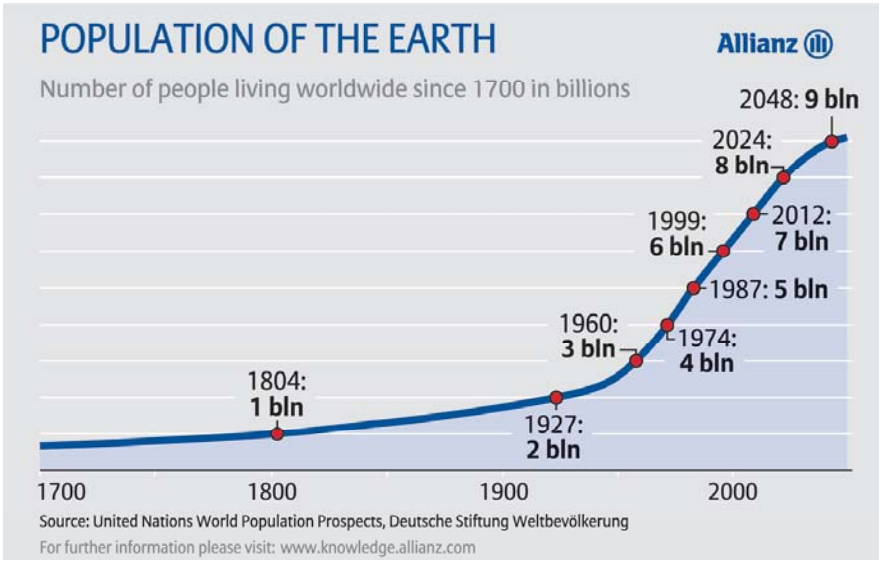
NOKIA Connecting People

What triggered this talk

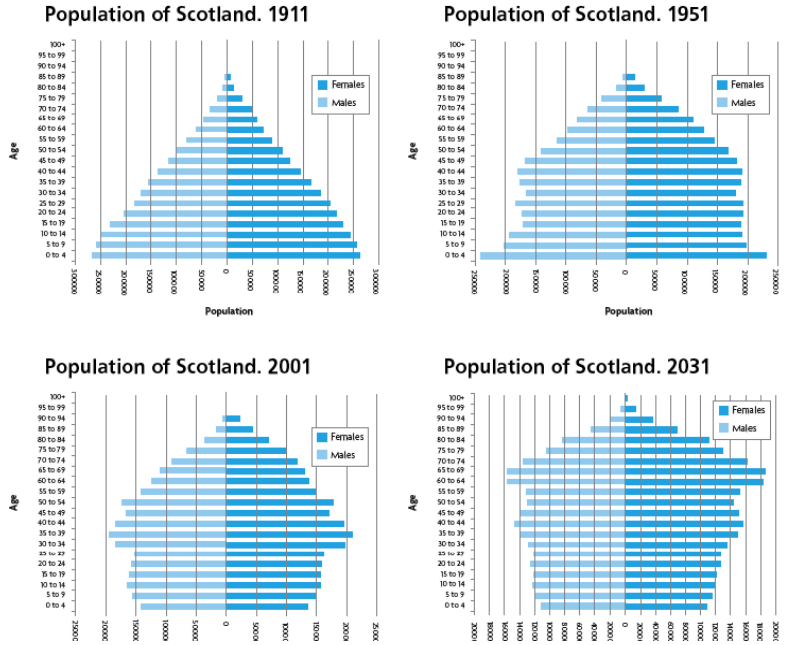
A talk in three sections:

1. The challenge of inclusive design for ICT
2. Cases from the real world
3. Conclusions about innovation processes

The world population is growing…



People are living longer…

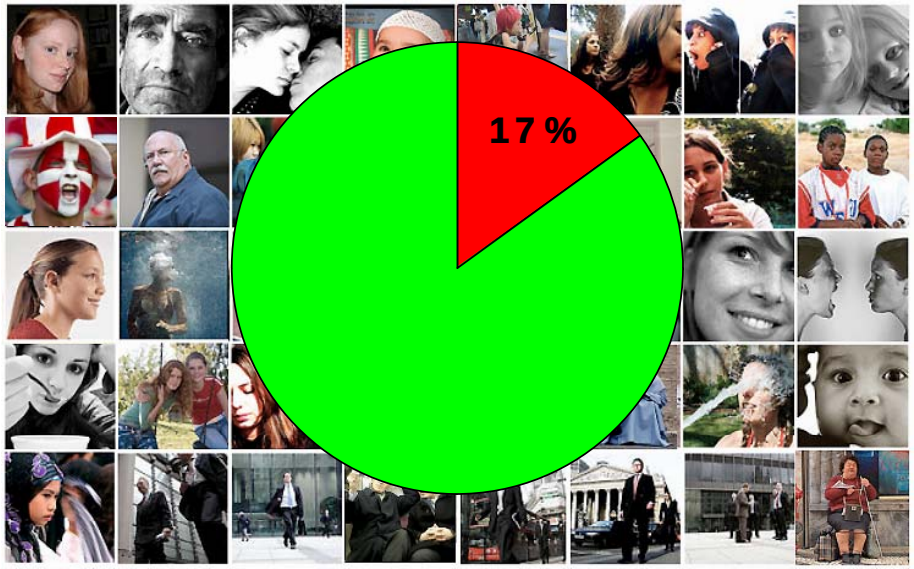


1. The nature of the challenge

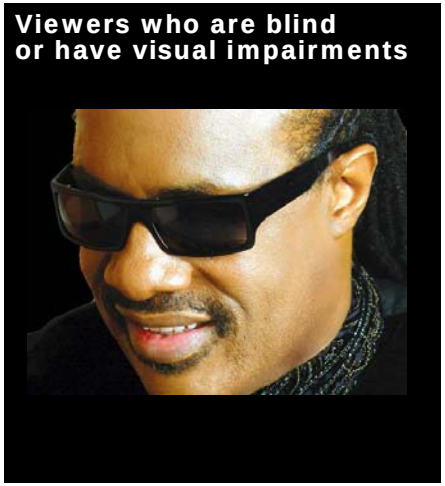
Political objective: e-inclusiveness

Political objective: avoid exclusion

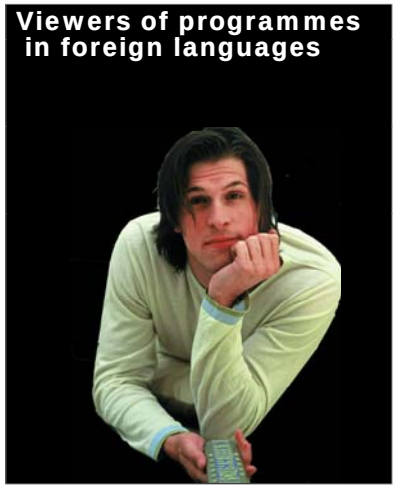
The size of the challenge



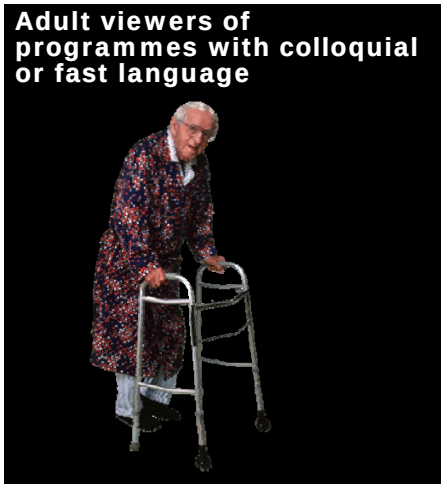
What are the needs?



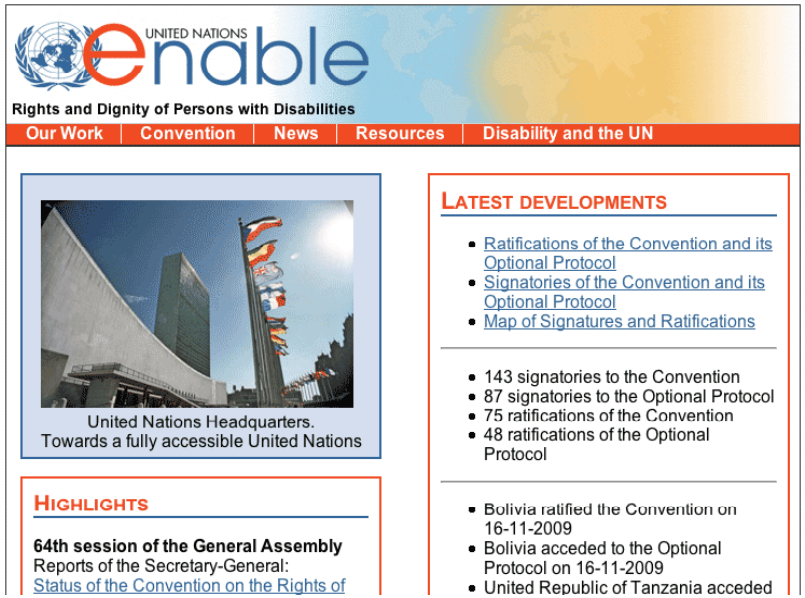
What are the needs?



What are the needs?



The legal framework is in place



Case 1

Designing Smartphones

Case 1: Designing smartphones

Globally, the mobile phone market shows Sluggish growth this year, except for smart phones.

Testing for learnability and usability

2007 study of Apple I-Phone, HTC Touch and Nokia N95

Testing for learnability and usability

Perceptive Sciences designed this test to be as objective as possible, according to senior research scientist Tom Thornton and research scientist Tim Ballew. That's particularly important, they said, because of the high level of attention iPhone has received; it would be easy for that hype to influence the results of more subjective tests.

The company brought in 10 testers who had never used any of the three devices. It then asked the testers to perform a series of tasks on each device with quantifiable results, such as the time needed to find and use the on/off switch. Other tasks included setting the phone to vibrate, making a call, saving a phone number to the contact list, sending a brief e-mail, taking a photo and finding a Web site using the device's built-in browser.

Based on the test results and on Thornton's and Ballew's observations, each phone was given a score of between one and five (five being the highest) in each of five categories. In addition, each phone was given an overall score.

It's important to remember that these are usability tests, not tests of functionality. Perceptive Sciences took a broad look at the features on each phone, but largely as they related to usability. For instance, the Nokia N95 is justly famous for its strong feature set. But did that feature set contribute to overall usability, or detract from it?

It's also important to remember that the tests focused on how easy it was to pick up the device and use it right out of the box.

"People can eventually learn to use any device," Ballew said. "But that's not true usability. We wanted to see how long it took to figure out how to use the phones. That's the difference between learnability and usability."

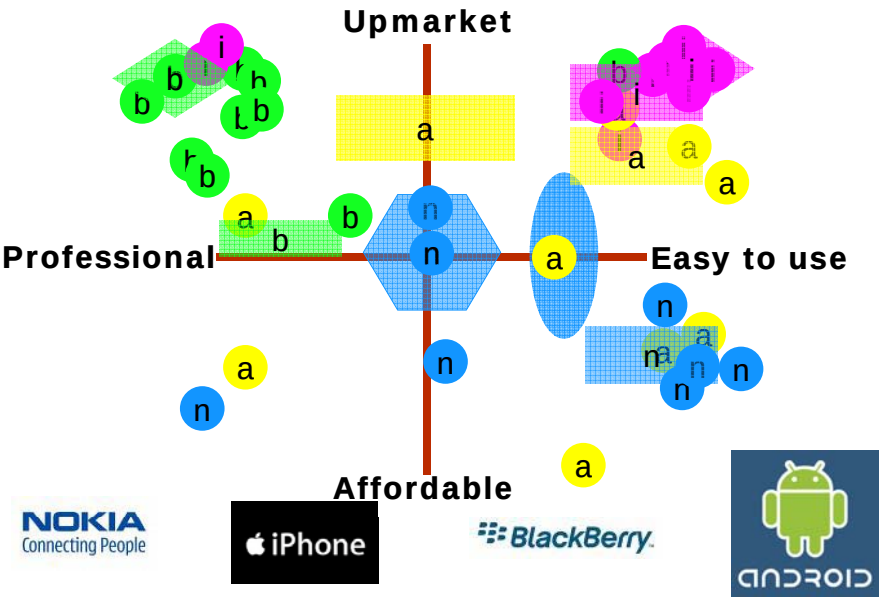
The results

Let's cut to the bottom line: In terms of usability, iPhone blew away its two competitors. Its overall score in the usability tests was 4.6 out of 5. The HTC Touch was a distant second at 3.4, and the Nokia N95 scored 3.2.

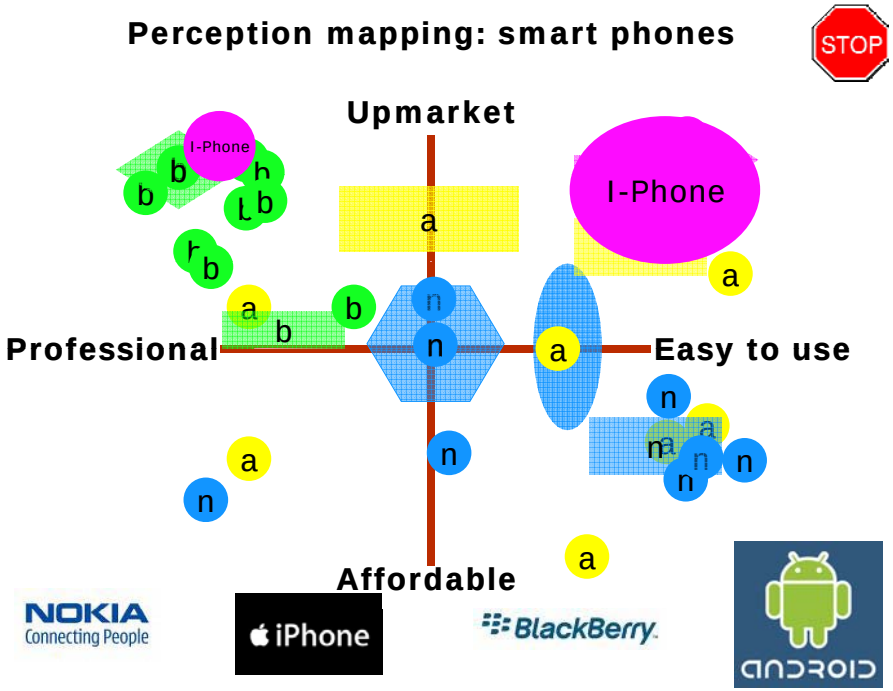
"Testers were [typically] about twice as fast doing specific tasks on the iPhone, which is pretty remarkable," Thornton said.

Here is a breakdown of how each device scored in the five sometimes-overlapping categories, along with comments from Ballew and Thornton.

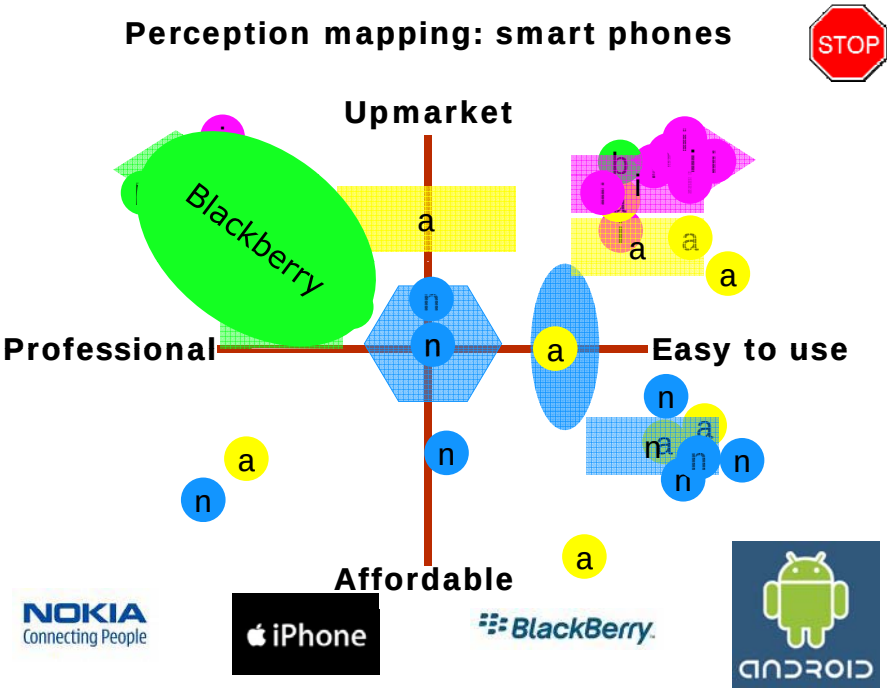
Perception mapping: smart phones



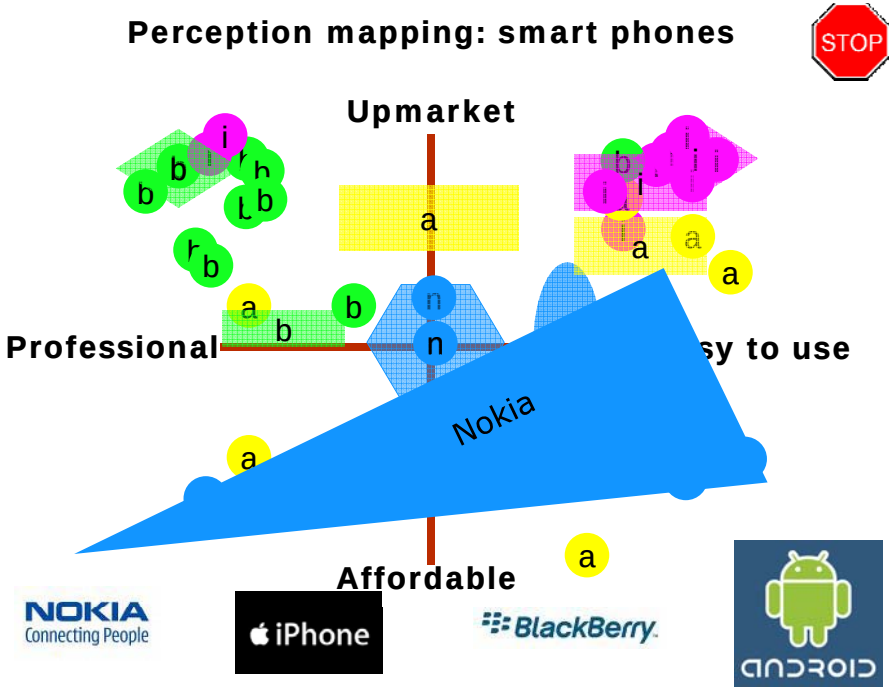
Perception mapping: smart phones



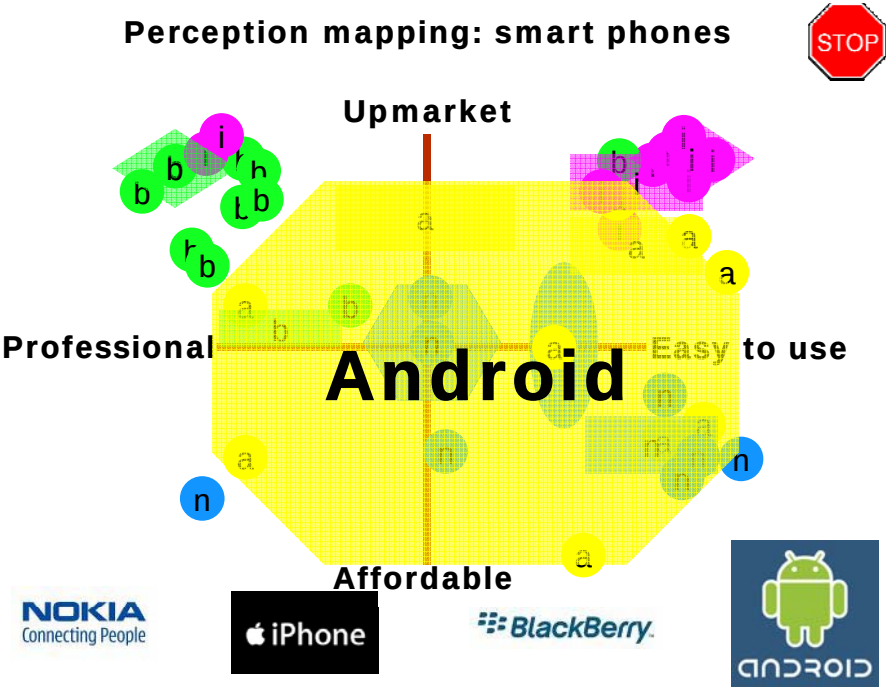
Perception mapping: smart phones



Perception mapping: smart phones



Perception mapping: smart phones

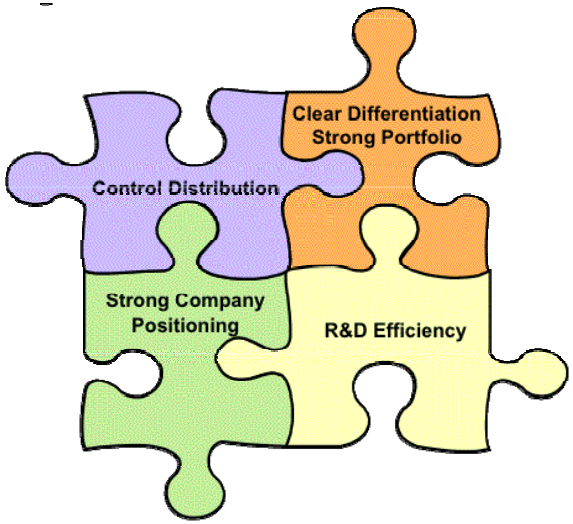


Case 2

Advanced Technologies and
Hearing Aids

Denmark produces a third of the world's hearing aids

Pre-competitive R&D among Danish players aids R&D efficiency



Case 3:

Designing digital TV to be inclusive

What can we do today?

+2% production budget (maximum)

Viewers born deaf or have hearing impairment

Signing and subtitling

What can we do today?

Viewers who are blind / have visual impairments

Audio description (AD) or spoken subtitles

What can we do today?

Viewers of programmes in foreign languages

Dubbing or subtitling in national language(s)

What can we do today?

Young viewers of foreign language programmes

Dubbing or voice-overs (lectoring)

What can we do today?

Immigrants

Subtitling in major immigrant languages

What can we do today?

Viewers of programmes with colloquial or fast language

Same language subtitles

Subtitles for the Deaf and Hard of hearing (SDH)

What can we do tomorrow?

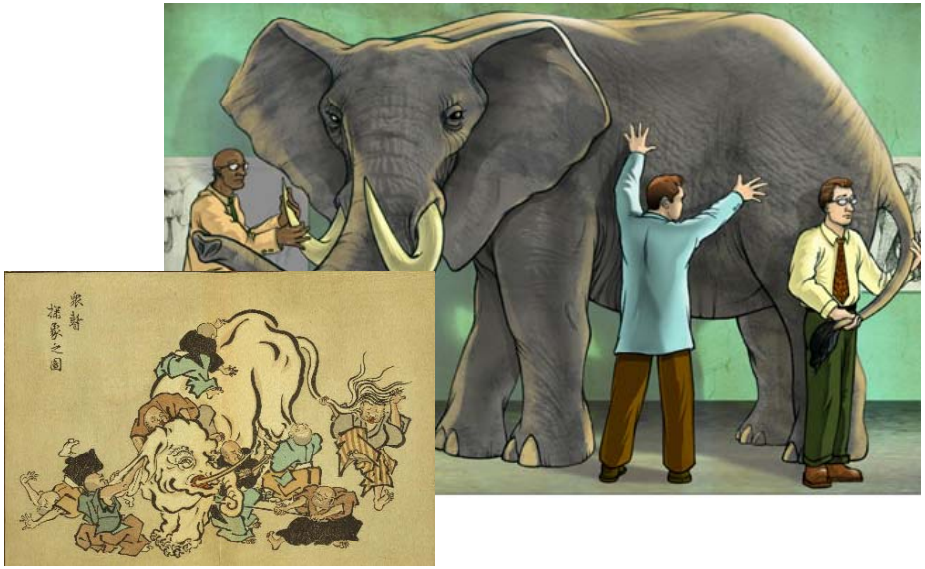
WHAT
- Clean up the sound
- Spoken EPGs
- Spoken subtitles
- All access services opt-in

HOW
- Signal processing in TV
- Speech synthesis in TVs
- Speech synthesis in TVs
- Use the TV + broadband

But doesn't it cost too much?

- For films and major TV productions, adding subtitles and Audio Description costs less than 2% of the total production budget.
- Adding speech synthesis cost about USD2 in components

How to progress? The big picture



The blind priests / men and the elephant

Rounding off

1. **What is the challenge?**
   - Designing to include social groups and people with impairments
2. **Case studies**
   - Apple I-Phone, WTC and Nokia smartphones
   - Intelligent hearing aids
   - Digital TV receivers/personal video recorders
   - Mobile TV - technology in search of a market?
3. **Conclusions**
   - Innovation is more than technological superiority
   - Some niche markets are big, if you work globally
   - Creative clusters for pre-competitive research seems to pay for itself
   - Designing for and with the product's users is a must

Thank you!

Contact particulars
Peter Olaf Looms
DR, Danish Broadcasting Corporation
DR Media
Strategy & Projects
DR-Byen
Emil Holms Kanal 20
DK-0999 Copenhagen C
DENMARK

E: poo@dr.dk , polooms@gmail.com
M: +**45** 51 56 75 46
D: +**45** 35 20 83 66