

Inclusive design for ICT – utopia or reality?

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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



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What triggered this talk



To Chinese designer Peng Hao, who had worked at GM for five years before joining Peugeot recently, the work he is required to do on interior designs of cars and the liaison with engineers are good learning experiences.

Peugeot will expand the centre's staff to 550 by 2012 and maintains that by then fewer than 8 per cent will come from overseas.

"Only local Chinese can get a sense of what consumers really want here," said Apode, who believes cars designed by Chinese will be sold in Europe and the US in the future.

"That's the reason we built the centre in China."

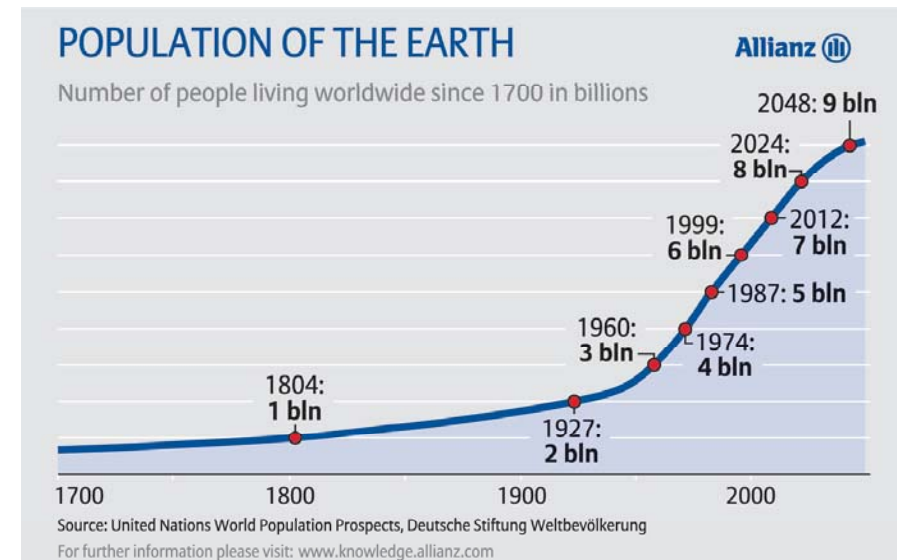
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A talk in three sections:

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

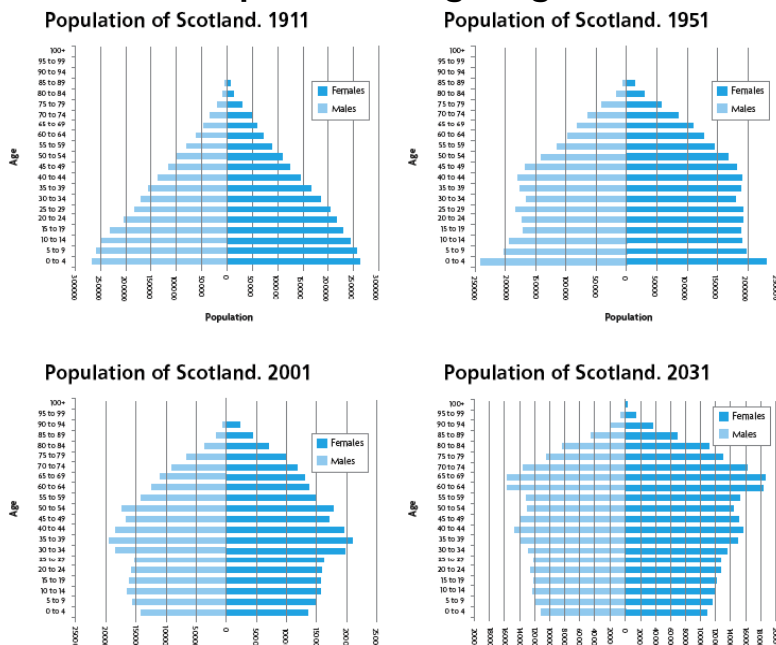
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The world population is growing...



6

People are living longer...



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1. The nature of the challenge



Political objective: e-inclusiveness

All kinds of ICT

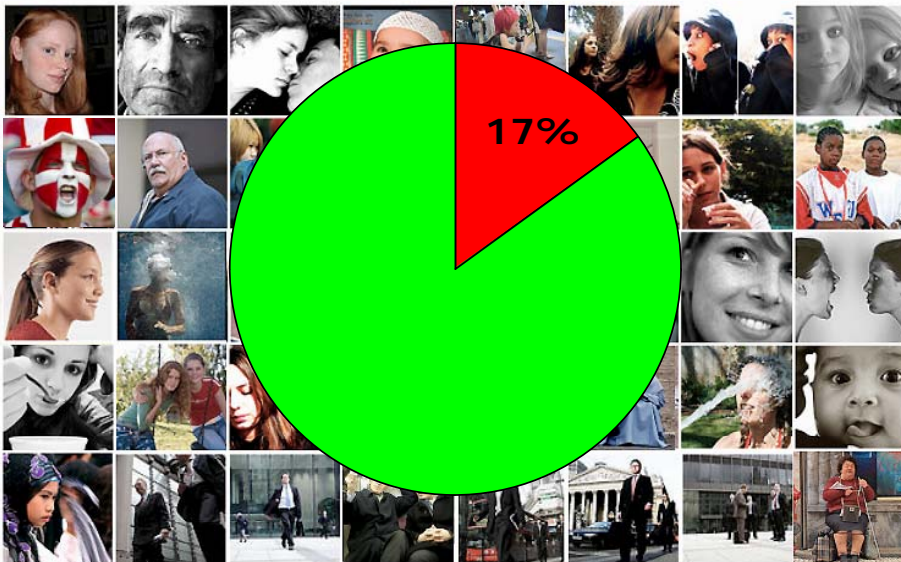


Political objective: avoid exclusion



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The size of the challenge



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What are the needs?

Viewers born deaf or have hearing impairment



Viewers who are blind or have visual impairments



Needs

Approach

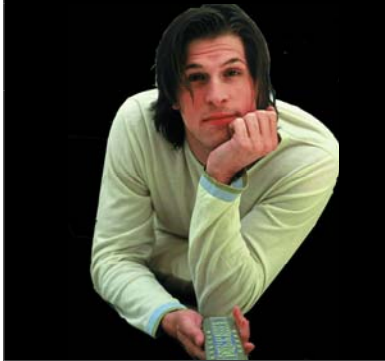
Benefits

Alternatives

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What are the needs?

Viewers of programmes in foreign languages



Young viewers of foreign language programmes



Needs

Approach

Benefits

Alternatives

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What are the needs?

Immigrants and refugees



Adult viewers of programmes with colloquial or fast language



Needs

Approach

Benefits

Alternatives

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The legal framework is in place



UNITED NATIONS

enable

Rights and Dignity of Persons with Disabilities

Our Work | Convention | News | Resources | Disability and the UN



United Nations Headquarters.
Towards a fully accessible United Nations

LATEST DEVELOPMENTS

- [Ratifications of the Convention and its Optional Protocol](#)
- [Signatories of the Convention and its Optional Protocol](#)
- [Map of Signatures and Ratifications](#)

- 143 signatories to the Convention
- 87 signatories to the Optional Protocol
- 75 ratifications of the Convention
- 48 ratifications of the Optional Protocol

HIGHLIGHTS

64th session of the General Assembly
Reports of the Secretary-General:
[Status of the Convention on the Rights of](#)

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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

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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

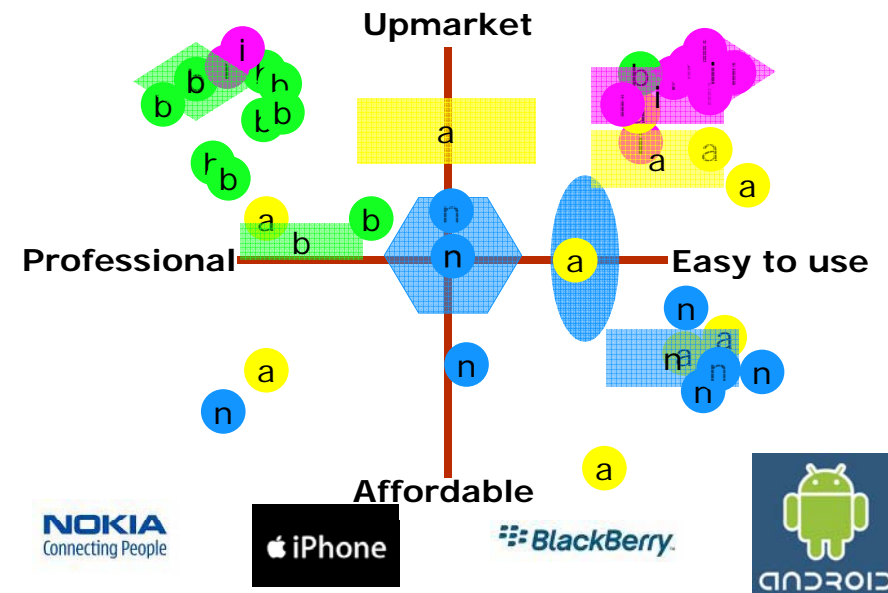
Let's cut to the bottom line: In terms of usability, iPhone blew away its two competitors. Its overall score in the usability tests was 4.6 out of 5. The HTC Touch was a distant second at 3.4, and the Nokia N95 scored 3.2.

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

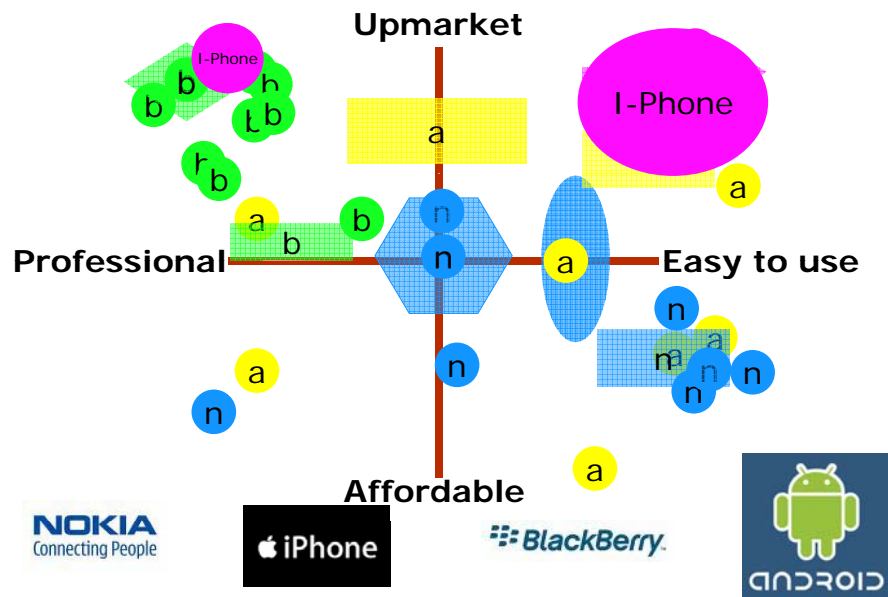
Here is a breakdown of how each device scored in the five sometimes-overlapping categories, along with comments from Ballew and Thornton.

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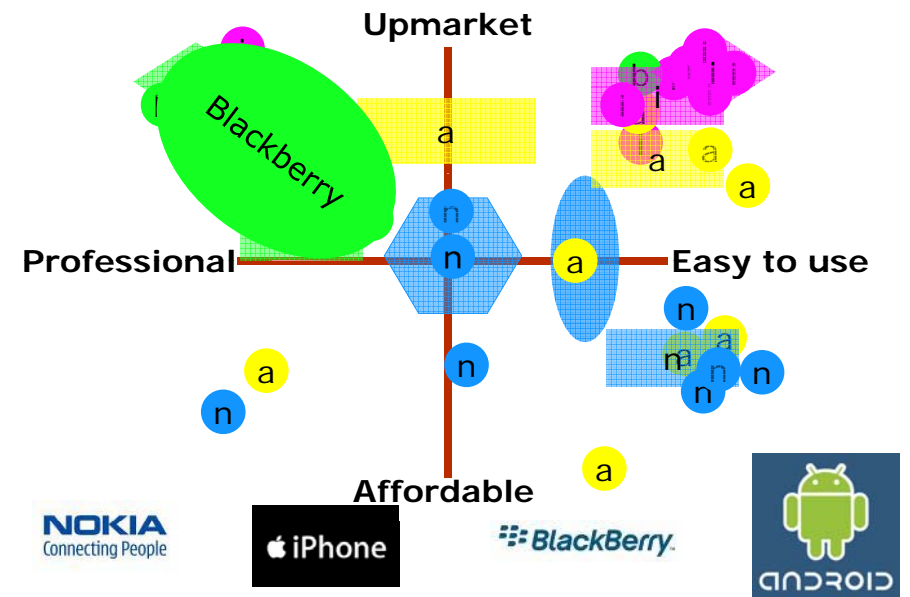
Perception mapping: smart phones



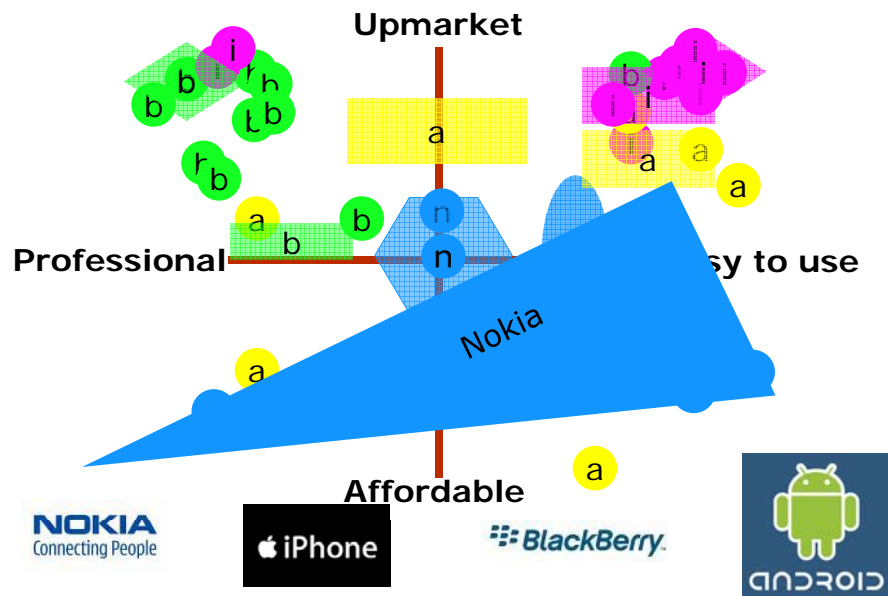
Perception mapping: smart phones



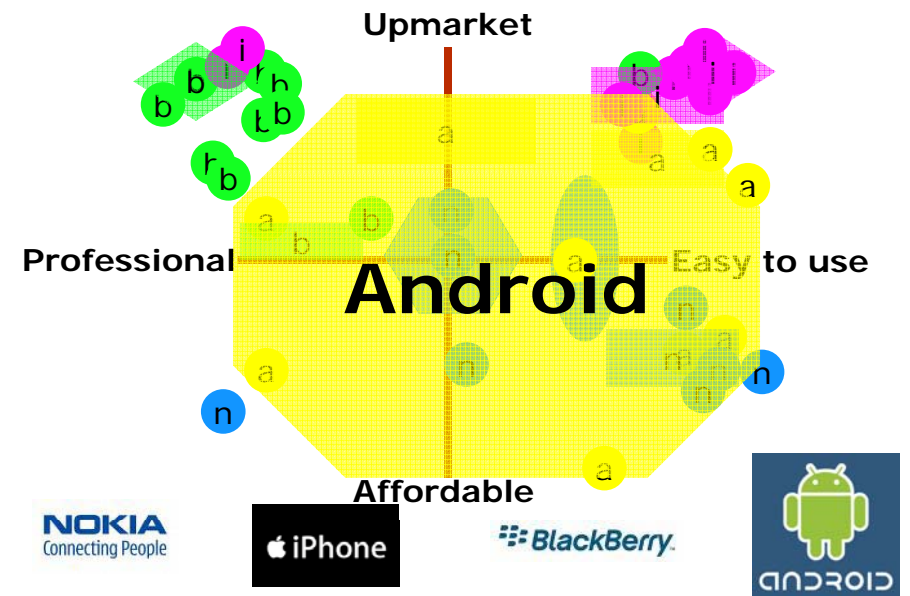
Perception mapping: smart phones



Perception mapping: smart phones



Perception mapping: smart phones



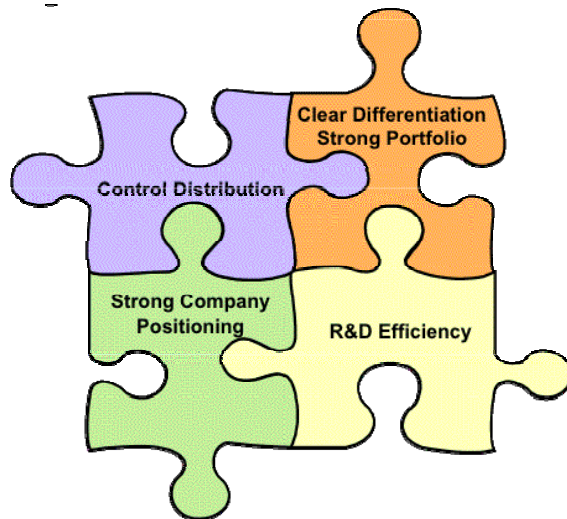
Case 2

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



Needs

Approach

Benefits

Alternatives

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What can we do today?

Viewers who are blind / have visual impairments



Audio description (AD) or spoken subtitles



Needs

Approach

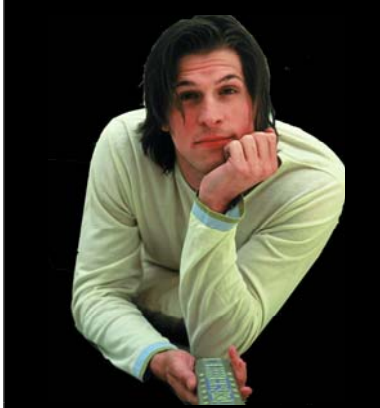
Benefits

Alternatives

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What can we do today?

Viewers of programmes in foreign languages



Dubbing or subtitling in national language(s)



Needs

Approach

Benefits

Alternatives

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What can we do today?

Young viewers of foreign language programmes



Dubbing or voice-overs (lectoring)



Needs

Approach

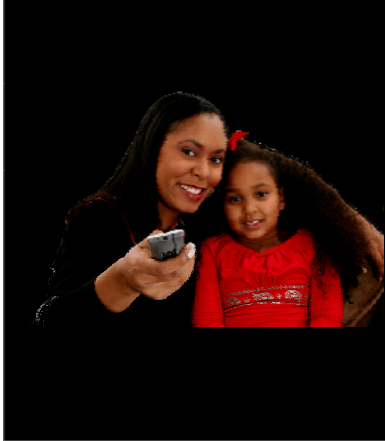
Benefits

Alternatives

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What can we do today?

Immigrants



Subtitling in major immigrant languages



Needs

Approach

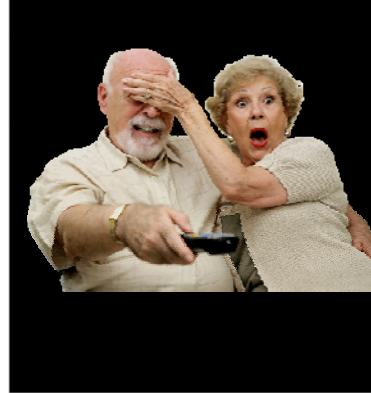
Benefits

Alternatives

33

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)

Needs

Approach

Benefits

Alternatives

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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



Needs

Approach

Benefits

Alternatives

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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

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How to progress? The big picture



The blind priests/men and the elephant

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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

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Thank you!



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