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Tourism Accessibility 4.0 - A Transition of e-Accessibility in Tourism Towards a More Inclusive Future
KEEP CALM AND TRAVEL ON

Hi, I'm Ugi

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My main research ares are:

- strategic role of information technology in tourist experiences.
- spatial information system in environmental studies and business.

FOCUS: Calm technology and digital well-being based on mindfulness
within tourism and hospitality industry.

E-accesibility: a tourism perspective

Tourists represent one of the most diverse types of consumers, including a large group of people with disabilities.

Many of them frequently face physical, sensory, cognitive, or cultural barriers in service provision and delivery.

These barriers may occur in any of the typical tourist experience phases - inspiration seeking, trip planning, booking, experiencing, and sharing, and they are not limited to any specific type of travel or to a tourism setting.

E-accesibility: a tourism perspective

On the other hand, tourism as a technology-dependent industry relies heavily on information technology, and that trend has been even more pronounced with the recent use of Tourism 4.0 technologies and approaches, such as the Internet of Things (IoT), Big Data Analytics, Artificial Intelligence (AI), Blockchain, Location-based Services or Virtual and Augmented Reality Systems. This could potentially further hamper the co-creation of tourist experiences for people with disabilities (and others), despite Tourism 4.0 aiming to provide more sophisticated electronic accessibility (e-Accessibility).

At the same time, Tourism 4.0 technologies have the innate qualities to mitigate many accessibility issues and turn them into possibilities by relying on tourists bringing their own devices and by promoting advanced approaches in system design and use.

E-accesibility: a tourism perspective

In other words, emerging intelligent environments brought by Tourism 4.0 are considered to offer significant opportunities to positively impact human life, and in particular to provide useful means to support people in their daily life activities and travel, thus improving well-being for everybody, especially for for people with limitations of activities.

In this context, accessibility and usability, although essential, are not sufficient to ensure that applications and services are appropriately designed to satisfy human needs in providing well-being.

Technology:
The Good the Bad and the Ugly

Tourism industry practitioners should understand both positive and controversial nature of the information and communication technology (ICT).

Today, I will focus on the negative effects of technology and I will offer an approach to deal with the problems with calm design.

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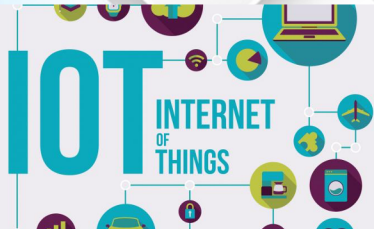
Technology:
The Good the Bad and the Ugly

Fist e-tourism and, later, smart tourism have increased technological uptake for delivering experiences.

Virtual and augmented reality is currently re-shaping the tourism industry.

Internet of Things (IoT) dictate that the tourism industry should evolve further and become capable of transforming large datasets (the Big Data) into value propositions.

Technology:
The Good the Bad and the Ugly

The coming era of Web 4.0 can bring about more intelligent agents and symbiotic interactions between humans and machines

There are already examples of robots and artificial intelligence being used in hotels to deal with customers.

Technology:
The Good the Bad and the Ugly

However, with increased ICT uptake, the friction between consumer and tourist experience can manifest more frequently.

While some consumers value the pressure or satisfaction from exploring new technologies, they are also concerned about prolonged use. Indeed, increased ICT uptake can hamper the successful delivery of tourist experiences.

For example, a voice-recognition system in a busy airport can frustrate. A mobile travel guide application can confuse given that it is packed with generic, and often irrelevant information.

The invisible problem

Within the digital-led lives consumers that are crowded with multiple devices and services are more faced with the issues such as:

- information overload,   - dehumanization of experiences,
- choice overload,   - technostress,
- value co-destruction

Furthermore,   gaming addiction is even officially recognized as mental health disorder by the World Health Organization.

The invisible problem

- **The issue of ICT overuse during vacation** is also recognized in tourism studies where there are more and more evidence that ICTs can consume too much of attention, thus jeopardizing enjoyment of leisure vacation experience for some consumers.

- In particular, **smartphones are the one "to blame" the most!** They are becoming a key medium for information delivery and exchange.

- In essence, digital distractions can influence the *quality and scope of the tourist's consumption of sights and sounds*; *social interactions*; *the experiences of 'others'* and ultimately the *tourist's wellbeing*, or more specifically, **digital well-being**.
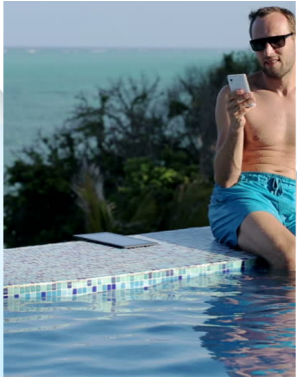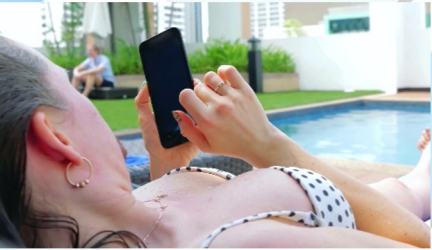
Technology and tourism experience

These shortcomings have so far been mostly set aside by ICT developers in their rush for short-term profits or due to the novelty effect of technology use in tourism.

Recognizing the problem


The Android operative system is now equipped with capabilities to help people achieve the balance with technology usage, called digital well-being!

The rise of the awareness of the problem of addictive technology :

- "National Day of Unplugging"

- "Time Well Spent" movement that promoted the idea that technology distorts peoples common reality, constantly shredding their attention, or causing them to feel isolated.

time well spent

A Movement to Align Technology with our Humanity

A new goal

Realigning technology with humanity's best interests.
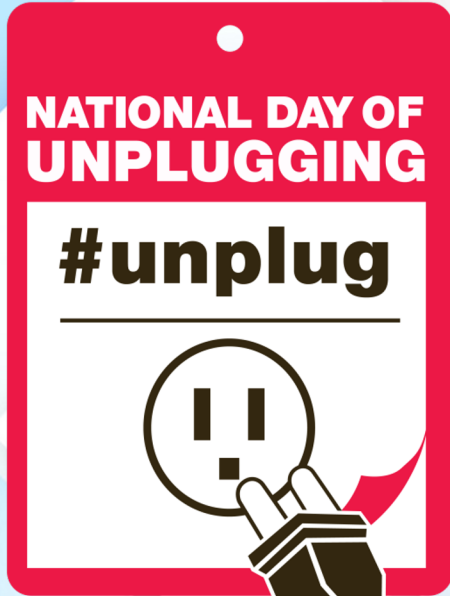
- **Digital well-being describes a wide framework** that:

   - looks after personal health, safety, relationships and work-life balance in digital settings;
  - enables acting safely and responsibly in digital environments;
  - manages digital stress, workload and distraction;
  - balances digital with real-world interactions.....

A new goal

- Similar to the traditional understanding of subjective well-being, digital well-being **cannot be created just relying on individual capabilities as other factors**, such as the **external environment, also play a role**. For example**, the society** have the power to affect the level of digital consumption.

- **This includes various providers of ICT solutions and services who are entitled to support the co-creation of digital well-being together with consumers.**
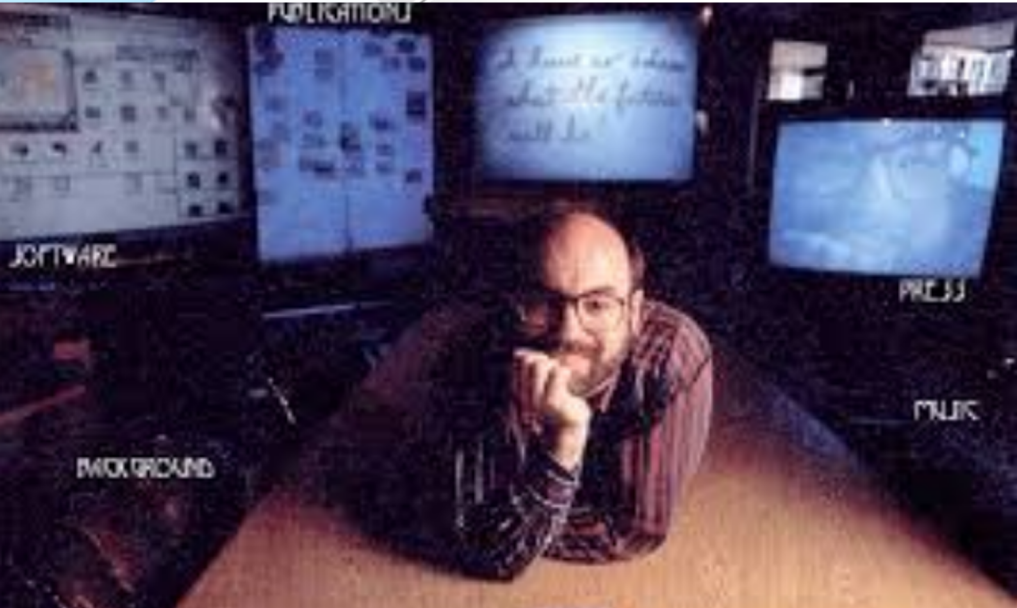
A calm solution

Paradoxically, a solution to the technology overload may rest within the technology itself .

The idea relies on the concept of calm **technology** in which technology recedes into the background of our lives implying that it has no purpose on its own, but should serve in delivering a desiered experience instead.
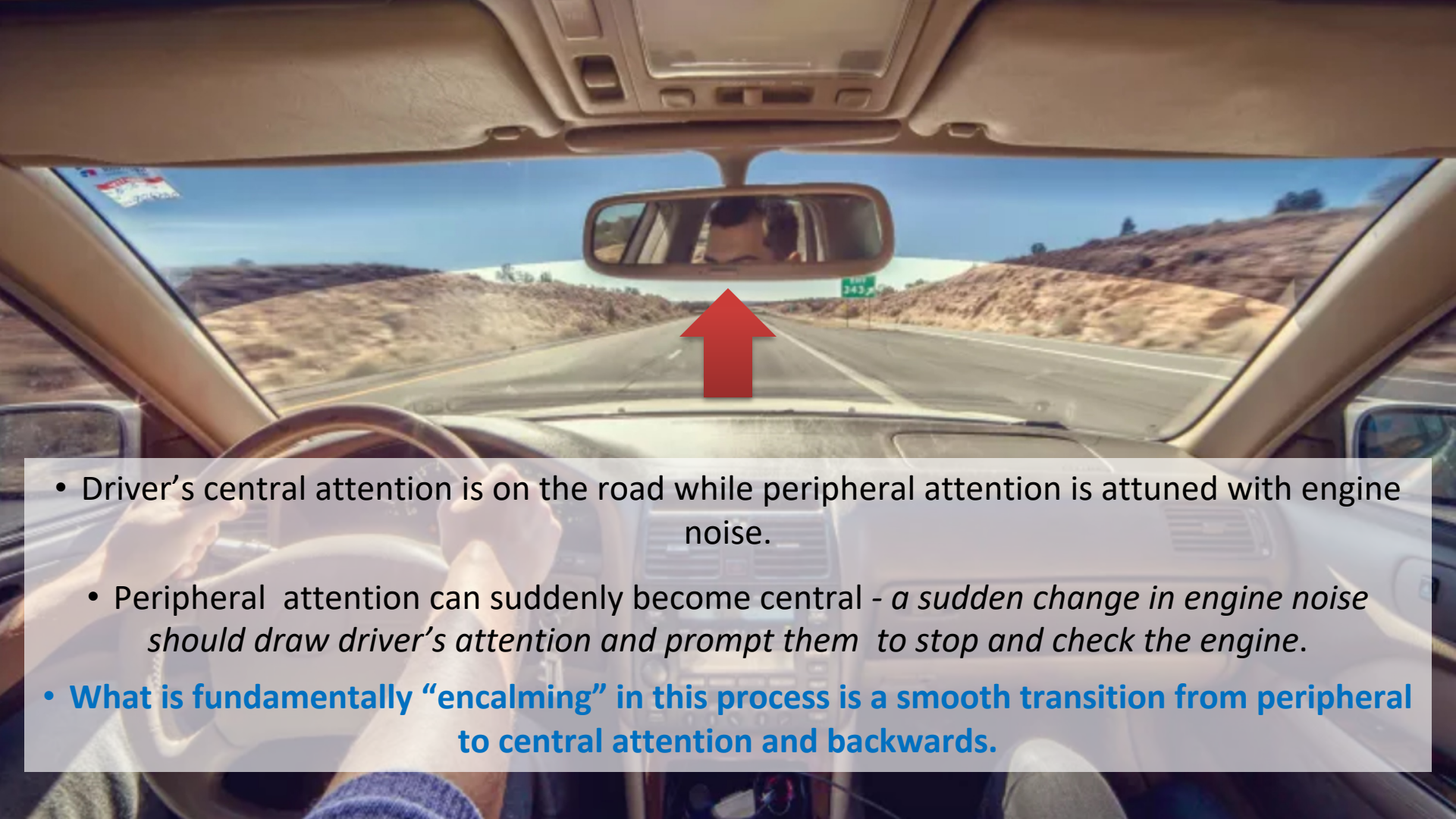
Mark Weiser (1952-1999)

John Seely Brown

They divided technologies into pleasant & calm and disturbing.
The differentiation was made on the grounds of how technologies engage with user's central and peripheral attention.

- Driver's central attention is on the road while peripheral attention is attuned with engine noise.

- Peripheral attention can suddenly become central - *a sudden change in engine noise should draw driver's attention and prompt them to stop and check the engine.*

- **What is fundamentally "encalming" in this process is a smooth transition from peripheral to central attention and backwards.**

- Calm technology can bring more detail into the edge of an interface, as most of the information does not require full attention,

- *For example, the engine light informing about the engine problem will turn on only when relevant.*
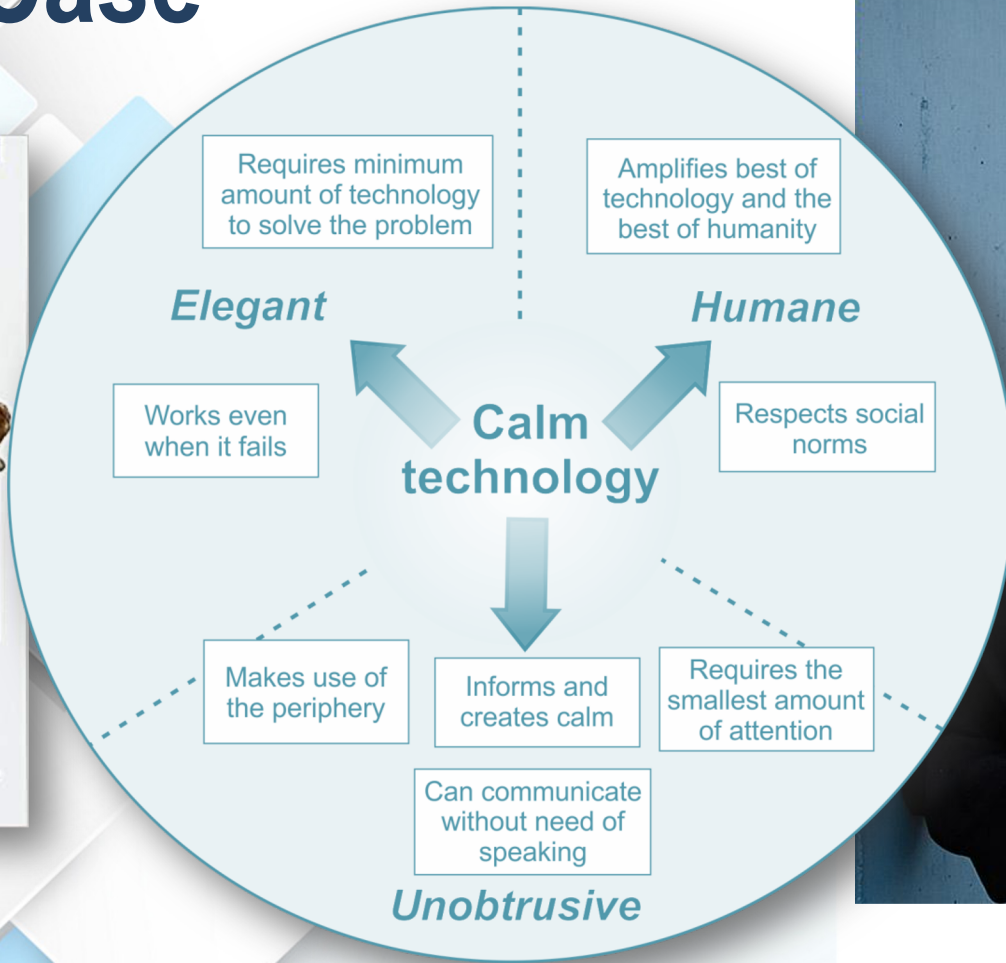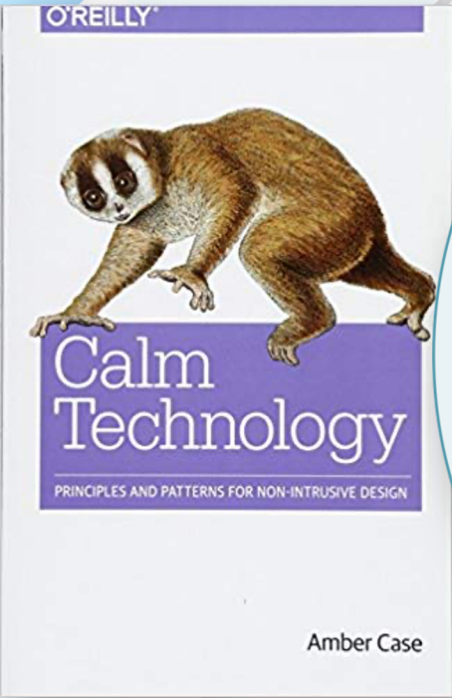
calm ≠ calming

'Calm' technology is an attention and focus-based approach to designing tools that can be more easily used in a calm manner.

'Calming' technologies are the systems designed to actively calm people and thus increase the user capacities.
Heart rate tracking applications (fitness trackers) represent the good example of the'calming' technology.

Amber Case

O'REILLY

Calm Technology

PRINCIPLES AND PATTERNS FOR NON-INTRUSIVE DESIGN

Amber Case

Elegant

Requires minimum amount of technology to solve the problem

Amplifies best of technology and the best of humanity

Humane

Works even when it fails

Calm technology

Respects social norms

Makes use of the periphery

Informs and creates calm

Requires the smallest amount of attention

Can communicate without need of speaking

Unobtrusive

# 1. Technology should require the smallest possible amount of attention

Attention overload is the strongest argument for making technology "calm"

The more things you have to pay attention to, the less mental space you have available for actually getting things done.

2. Technology should inform and create calm

The calm comes from knowing that you will be alerted at the appropriate time and if something needs to be addressed.
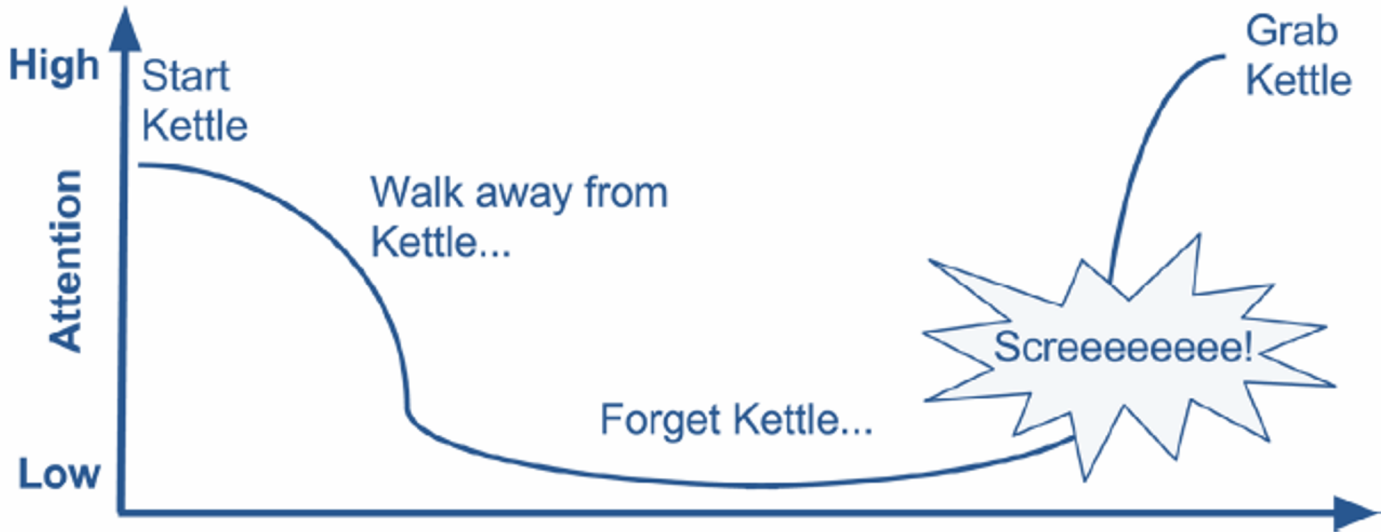
3. Technology should make use of the periphery

ATTENTION MODEL

• Primary attention is visual and direct— the attention you might pay to a desktop computer.

• Secondary attention is more distant—auditory signals or vibrations that do not need to be directly focused on in order to be felt.

• Tertiary attention consists of peripheral attention such as distant sound, light, or environmental vibrations.

3. Technology should make use of the periphery

Using a headphones

PRIMARY	SECONDARY	TERTIARY
Unused	Audio	*Unused*

Smartphone touchscreen use

PRIMARY	SECONDARY	TERTIARY
Visual screen and touch navigation	Diminished	Diminished or blocked

Driving a car

PRIMARY	SECONDARY	TERTIARY
Front window and general awareness of vehicle in space	Rearview mirrors, side windows, brake and acceleration pedal	Radio buttons, conversations with other people in the vehicle

4. Technology should amplify the best of technology and the best of humanity
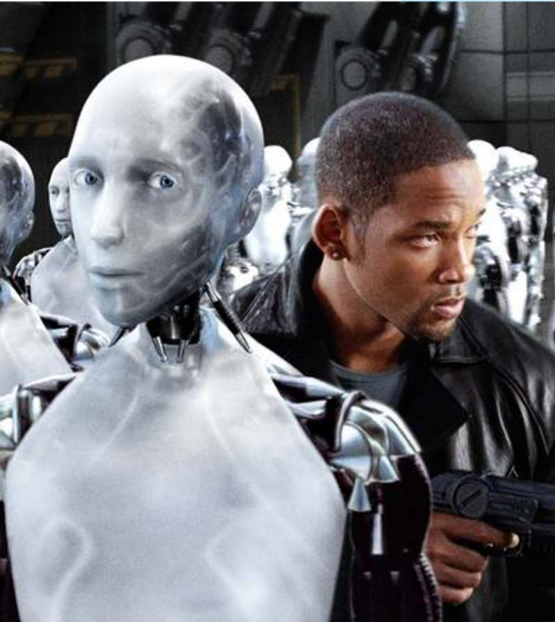
Design for people first "Make Humans Great Again"

The best interfaces don't connect us to technology; they connect us to other people.

Google is the best not because it provides all the answers, but because it connects us to others as they have the answers.
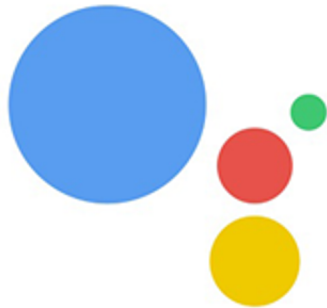
5. Technology can communicate, but doesn't need to speak

Talking to voice assistants still may feel intrusive, unwelcome, and awkward.

"I'm sorry, I don't understand" *It's my fault. It's like I haven't done my homework*

Siri   Google Assistant   Hey Cortana   amazon alexa

6. Technology should work even when it fails
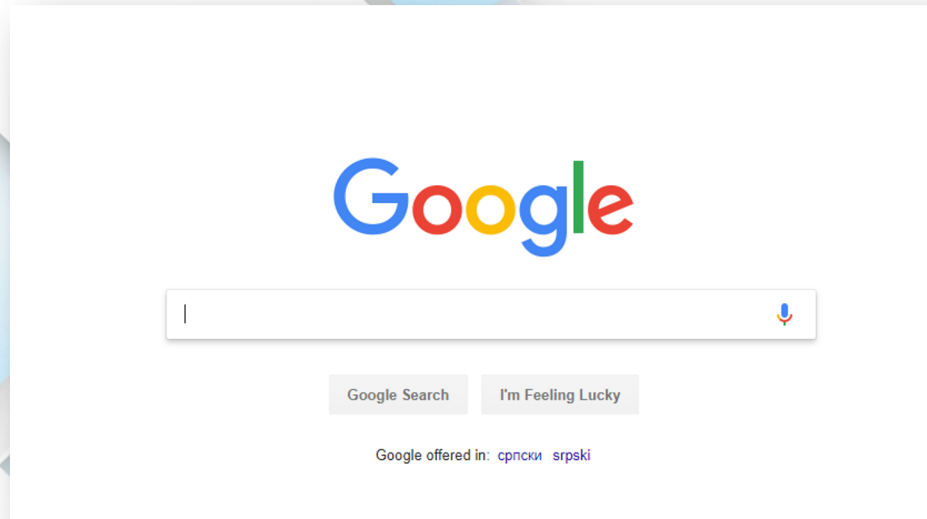
What to do when things go wrong?
Provide human backup

7. The right amount of technology is the minimum needed to solve the problem

REMEMBER: You shouldn't have to be a system administrator to live in your own home or to work in your office (unless you are IT guy :)

A product that uses the right amount of technology becomes invisible.

8. Technology should respect social norms

Some good technologies failed due to privacy and social concerns.

For example, Google Glasses were awkward to wear and people were afraid that they would be recored without their knowledge. *Google continued to offer Glasses for business purposes only.*

The Future.

A typical view

- Usually requires full attention

- Consumes our free time and **beautuy sleeps**

- Too large for the pocket, but sill has small screen for productive word.

- Never enough juice

- Roaming charges.

A calm view

- Easy to use, accustomed to

- Always present, always on

- Helps in navigation

- Awareness based on sensors

- Automatic communication with other machines

- iGeneration can not emagine a life without it

Calm ICT in action - Roadside America App

This app knows where you are and where attractions are along the road.

How? Application works in the background

What and where? Relevant notifications and contextual push mobile notifications

Smart posters

NFC (near-field communication) smart posters are embedded with chips which allow for transfer of data.

Whenever you place device near the smart poster, the tag will transfer data or launch a task on your device.

How? 'Hidden' ICT

What and where? Pull notifications at users' convenience.

RFID festival bracelets

(radio frequency identification)

For example, braclets at Tomorrowland Festival (Belgium) act as tickets and credit cards

At the same time, bracelets allow people to connect on social media and embedded LED lights can be remotely triggered by the festival, producing light shows.

How? Easy to use, have no interface, connect digital and physical worlds.

Biometric Security Systems

TOKYO 2020

TOKYO 2020
PARALYMPIC GAMES

For Tokyo Olympics a new system will allow tourists to conduct credit card transactions using only
their fingerprint.

How? Paperless transaction
What and where? Frictionless shopping

Social media geo-tagging

From the user viewpoint it is an easy-to-use and enjoyable way of identifying locations
while complex ICT support is completely submerged in the background and require no interaction.

Prototype of airport's virtual aquarium tunnel

Dubai International Airport will instal this security device, shaped like a tunnel, with 80 hidden cameras that can scan faces as passengers walk through.
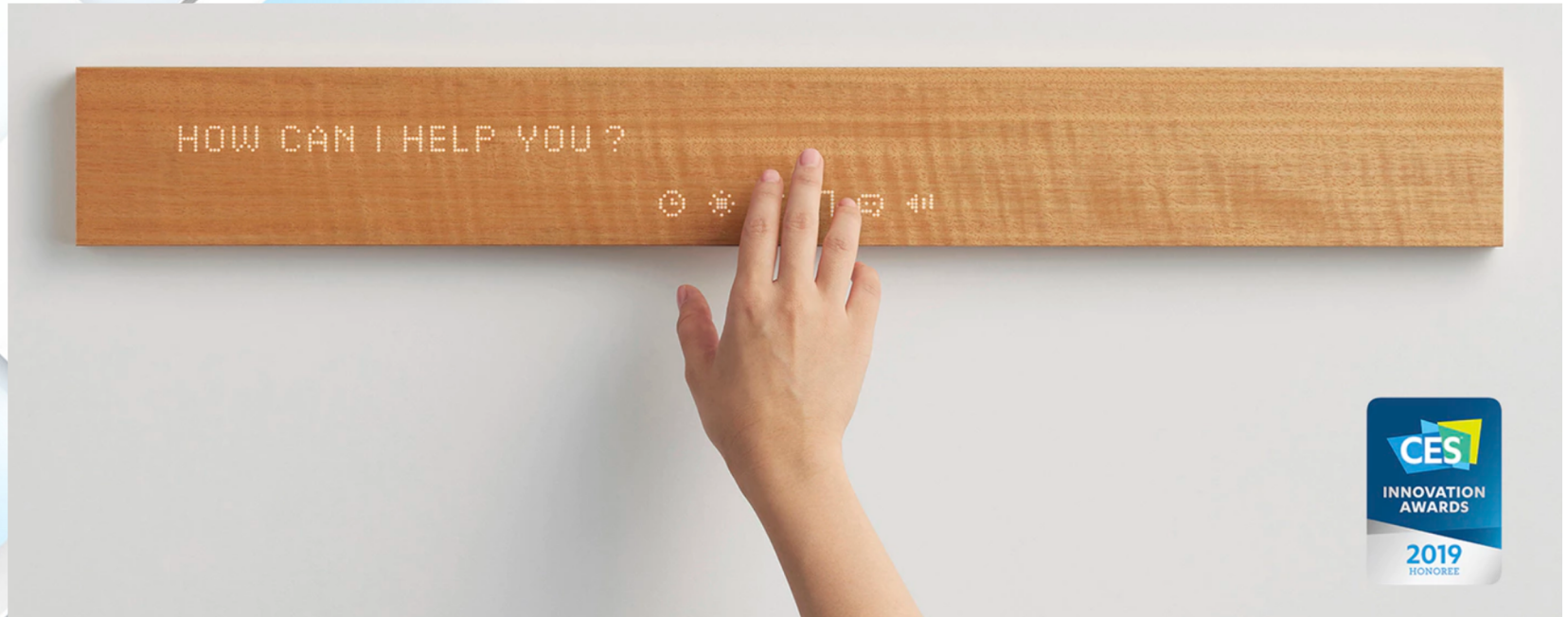
How? Hidden tehcnology

Elegant on-site evaluation

Minimal aesthetics combined with vibrant colors result in increased response rates when collecting reviews on-site.

How? Easy to use, has intuitive physical interface, connect digital and physical worlds!

mui – Calm design smart home device

We wanted to demonstrate a new viewpoint on very-often neglected relations between humans (tourists) and technologies.

Travel in digitally-led people's lives cannot be totally 'calm'.

Indeed, the initiative to engage with ICT is needed, but the level of this engagement it may vary among tourists.

Therefore, finding the right place of the ICT integration in tourism is an ever-lasting question and a fertile ground for furhter reseach.

More…

Calm ICT design in hotels: A critical review of applications and implications

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Reviving calm technology in the e-tourism context

电子旅游环境下平静技术的振兴

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ABSTRACT
Tourism industry practitioners should understand the controversial nature of the information and communication technology (ICT) proliferation to ensure that ICT solutions do not consume too

the effect of ICT on guest experience in hotels. This is because the ICT hotel guest experience, but also as its inhibitors. In response to this en introduced. Calm ICT design describes the ICT solutions that are calling user's attention at all times. Although this concept is highly as never been systematically considered within. This paper con-