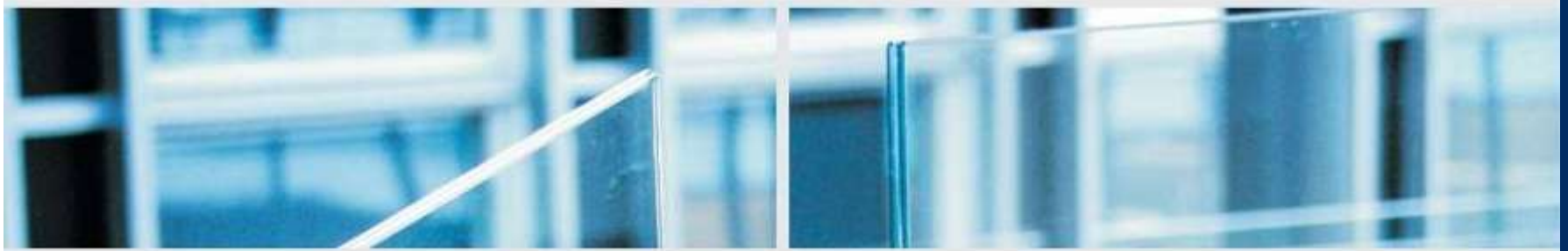


Future of the Internet

- Paths to Paradise or to Digital Demise -



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Turun yliopisto
University of Turku

The first principle of futures research

=

The future cannot be predicted

(Amara 1981)

BUT

Alternative futures can be foreseen (possible, probable, desirable)

-> The Internet has several potential futures

The internet has surprised us several times

(e.g. social media)

Great Expectations

promises

(effective, fun, reliable)

perils

(fail, deception, cracking, theft of identity, loss of privacy...)

prospects

(empowering, meaningful, entertaining, profitable,
sustainable?)

**Internet within societal and global
development**

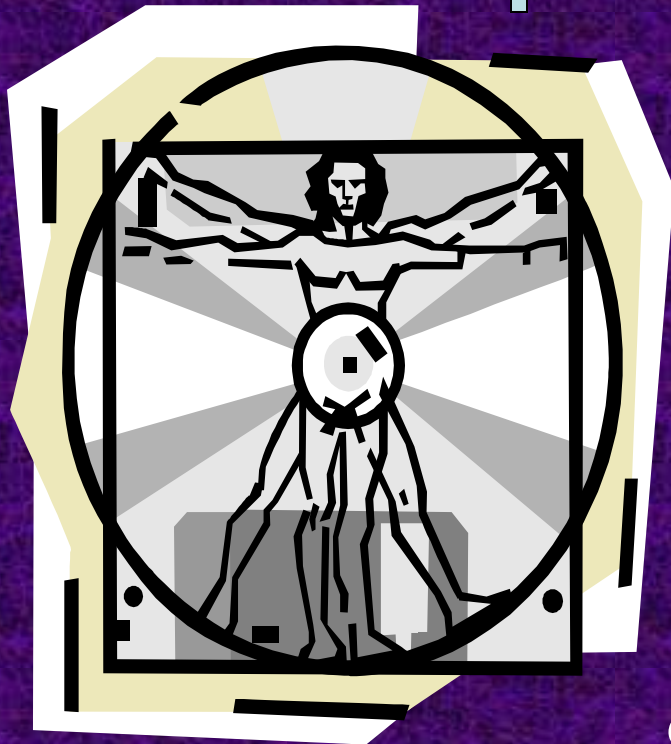
evolution:

birth – >growth –> obsolence –>

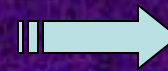
rebirth/transformation?

The Internet itself is changing and the world within which the Internet is embedded is changing

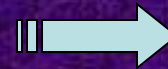
BIO-SOCIETY -- EXPERIENCE SOCIETY -- DIGISOCIETY



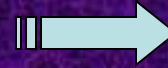
information society



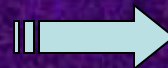
industrial society




agrarian society



nomad society



gathering and hunting society

A photograph of a pond with a white swan and several black swans. The white swan is in the center, facing left. There are three black swans: one on the left, one in the foreground, and one on the right. The water is dark and reflects the swans. The background shows a stone wall and some greenery.

In order to anticipate and understand the future paths of the Internet, one has to analyse and anticipate the global change and futures signals

- megatrends,
- weak signals,
- wild cards/black swans

Nassim Taleb
"Black Swan"
2007

"The world is most changed by extremely unlikely and unexpected events "

The Future of the Internet
in the future world of risks
and uncertainties

Uncertainties & Vulnerability



Globalisation

Interconnectiveness

Complexity

“The FLAT World”

Thomas L. Friedman

Nations

Regions

Humans

Companies

Citizens

RAPID CONSTANT CHANGE

- Megatrends/ - Discontinuities
- Weak signals/ - Emerging issues
- Wild cards/Black Swans

WORLD PROBLEMATIQUE (Club of Rome)

GLOBAL CHALLENGES (Millennium Project) <http://www.millennium-project.org/> 6

©Sirkka Heinonen

**WORLD
RESOLUTIQUE**

**WORLD
RESOLUTIQUE**

DIGITAL CULTURE IN KNOWLEDGE SOCIETY

digitalisation

people in interaction with each other prosuming digital contents

people acting in urban spaces augmented with digital contents

buildings & infrastructures

working

dWork

dLearning

housing

dCommerce

leisure

dHealth

shopping

dEntertainment

mobility (transport)

prosumers (producers + consumers)
public + private
physical + virtual
social + technical
mass media + personal media

The Future of the Internet

- services and infrastructure -

- continuous growth
- growing role of social media
Facebook becoming an essential part of the infrastructure,
the way we "like" media now and show the likings to the Facebook friends
- growing role of video & visualisation YouTube, flickr..
video can be consumed by illiterate people as well - -> 3D
- balkanisation – semi-closed platforms -> no universal open-to-all paradise
see e.g. <http://www.mondaynote.com/2010/05/02/balkanizing-the-web/> "gated communities"
- net reputation and related opportunities and threats
- fail culture (pranks may scare some users away) -> net critical media literacy needed
- new curated media services, news by the Finnish Topiikki,
read less, know more <http://www.topiikki.fi/>

The Future of the Internet

- services and infrastructure -

A hand is shown from the palm side, with five fingers spread. Above each finger is a glowing, semi-transparent square icon. The background is a soft, out-of-focus green and blue gradient.

- ubiquitous WLANs enable a new browsing culture, which tends to favour computers
- however, mobile devices will soon become the main access point to the Internet (by 2013)
- smart phones with good quality cameras play a key role in popular everyday culture
- mobile and electronic devices merge into ONE multitask media communicator
- eBag (Rolf Jensen) – pc, phone, personal data register, passport, health etc
- mobile devices with access to the Internet will contain more and more activities and data, e.g. on identity recognition, consumer behaviour, health profile and history etc -> digital key to personal identification
- digital identity - threats: mobile viruses, data security, overall monitoring of user activities
- always ON

The Future of the Internet

- services and infrastructure -

- a major innovation would be flexible and foldable electronics
 - > huge potential for print electronics
 - i.e. mobile devices accessing the net that can be folded, stretched or molded
- personal media communicator → mediator → eME
 - small, foldable to the size of a stamp
 - when needed, a display can be drawn out, keyboard (if any more needed), or other kind of user interface (touch, voice, look)
 - the size of the human hand restricts the design of interfaces of external communication devices (therefore other interfaces needed)
- touch interfaces – enhanced impact when you can feel e.g. shapes and moist
 - all senses -> ultimate interface by telepathy
- a human/machine interaction
 - chips implanted in humans
 - this may proceed since all that is possible will sooner or later be tried
 - social and psychological acceptance will take longer

NBIC - Technology Convergence

= NANO + BIO + INFO + COGNO

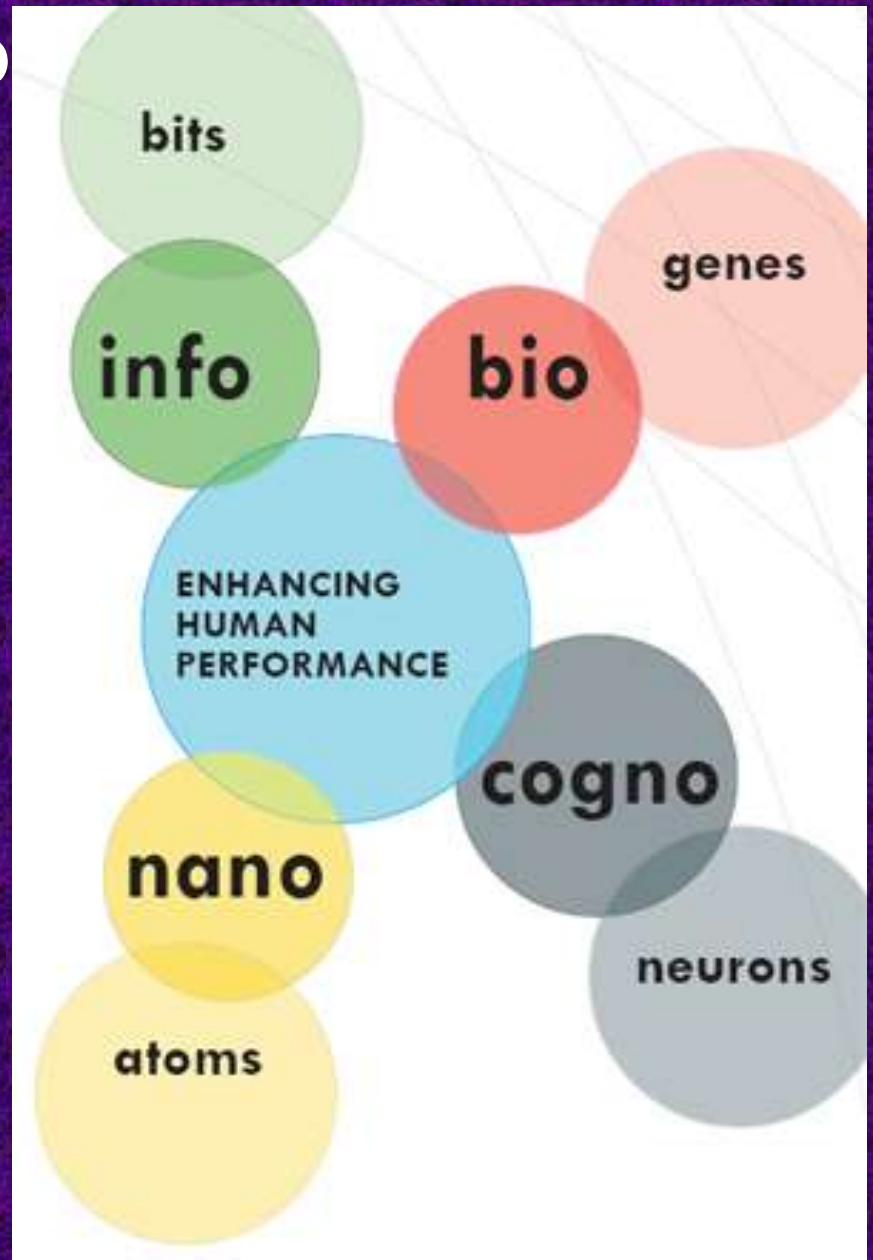
nanotechnology

biotechnology
gene technology

information technology
artificial intelligence (AI)

cognitive science
neurotechnology

robotics
Cyborgs
Consciousness technology
hubris or harmony?



- Need for creating education system for social media competence (social media literacy: voice-recognition software will lead to education shift from teaching reading, writing, and arithmetic toward encouraging creativity, imagination, and critical thinking)
- Social media infrastructure
- Proliferation of access points to the reception and delivery of our social media (ubiquitous world)
- More services and products to support open-ended playing
- Web 2.0 approach expanded from internet services to TV, mobile devices, journals, at home, work, schools, parks, vehicles etc.
- Greater demand for filtered information (through community gardening)
- Focus on creating trusted systems not only by introducing a "secure" technology but through the societal and psychological dynamics of a community
- Virtual worlds will be as real as the milk in your latte (both worlds inextricably intertwined)
- Internet of things has two sides of the coin (social identity of places is expanding, on the other hand risk of "numbering" people)
- Cyber-exhibitionism: "privateness" will become passé (people willing to disclose things about them creating a trend away not from privacy but from "privateness")
- Neuromancer virtual reality becoming reality
- Power shift from the centre to the periphery (redistribution of power)
- The empowerment of the individual
- Long tail of social media applications and innovations will be circling around the **search for meanings and experiences**, and the **search for facilitation of context-awareness** for managing identities.

Our Digital Hand

identity

recognition

empowerment

trust

belonging

creativity

Ahlqvist, Toni, Bäck, Asta, Heinonen, Sirkka & Halonen, Minna (2008).

Social media roadmaps. Exploring the futures triggered by social media.

VTT Research Notes 2454. Espoo.

<http://www.vtt.fi/inf/pdf/tiedotteet/2008/T2454.pdf>

The Future of the Internet

- services and infrastructure -

depends on the evolution of the following aspects

access motivation skills contents impacts

paradigm shift →



cloud computing
prosumerism
net immersion

new metaphor ->

(now) net of nets/network of networks,

(tomorrow) boat that floats you in the digital space

(we are all in the same boat)

Internet at the Crossroads

1. Controlled
2. Costly
3. Open

Terrain of evolution:

open – closed
free – controlled (manipulated)
inexpensive – expensive niches
private – public
inclusive – exclusive (alienation)
trustworthy – untrustworthy
safe – unsafe
secure – insecure
fun – dull
entertaining – factual
eternal - temporary
addictive - repulsive
constructive - destructive



Thank You!

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For my presentation the following experts have also been consulted:

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