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Technology Trends in Digital Services

Metropolia Guest Lecture, 21.1.2014

Prof. Caj Södergård

VTT Technical Research Centre of Finland

Topics



- How to serve the multitude of user devices ?
- Smart interaction with content and services
- Targeting the user

Currently



Print first → Digital first

Coming years: A lot of mobile screens....



→ Mobile first

Electronic paper

Power source = a photocell layer



Low-cost replacement for paper – not a tablet computer

Smart television



Source: LG Electronics, Flickr

Immersion: 'Sense of Realness' & 'Sense of Being There' (NHK)

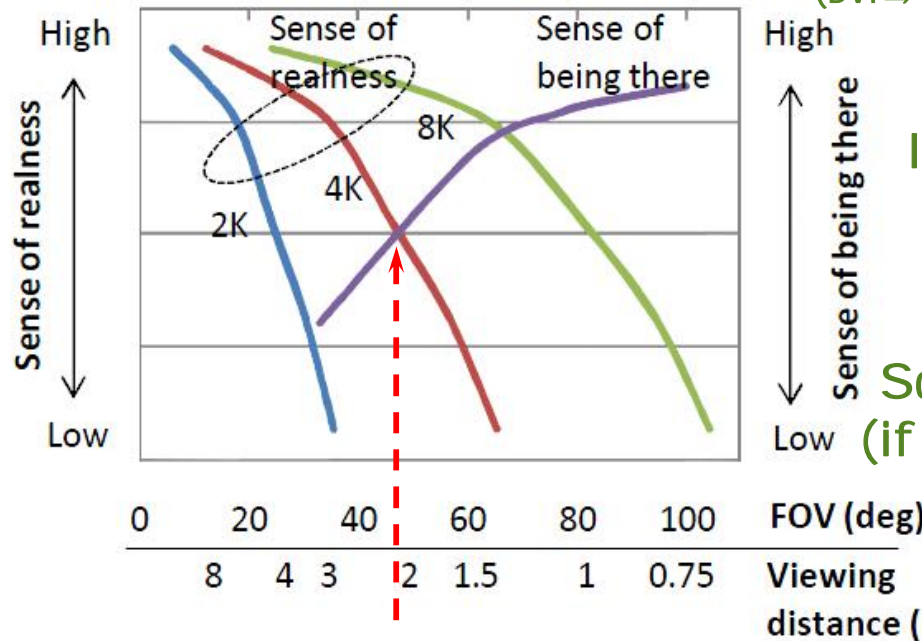
N.B. The amount of bits required to transmit video reduces 50% every five years

(DVI → MPEG → MPEG-2 → h.264 → h.265 → ...)

Today: FullHD, 6 Mbps
 In 2020: FullHD, 2 Mbps
 In 2020: 4K, 8 Mbps
 In 2030: 8K, 8 Mbps

So, 4K is coming, and so is 8K (if you have a big living room!)

2K = FullHD



optimal 4K viewing distance = screen diameter (e.g. 60" -> 1.5m)

H = screen height (= 1/2 diameter)

A TV for tomorrow?



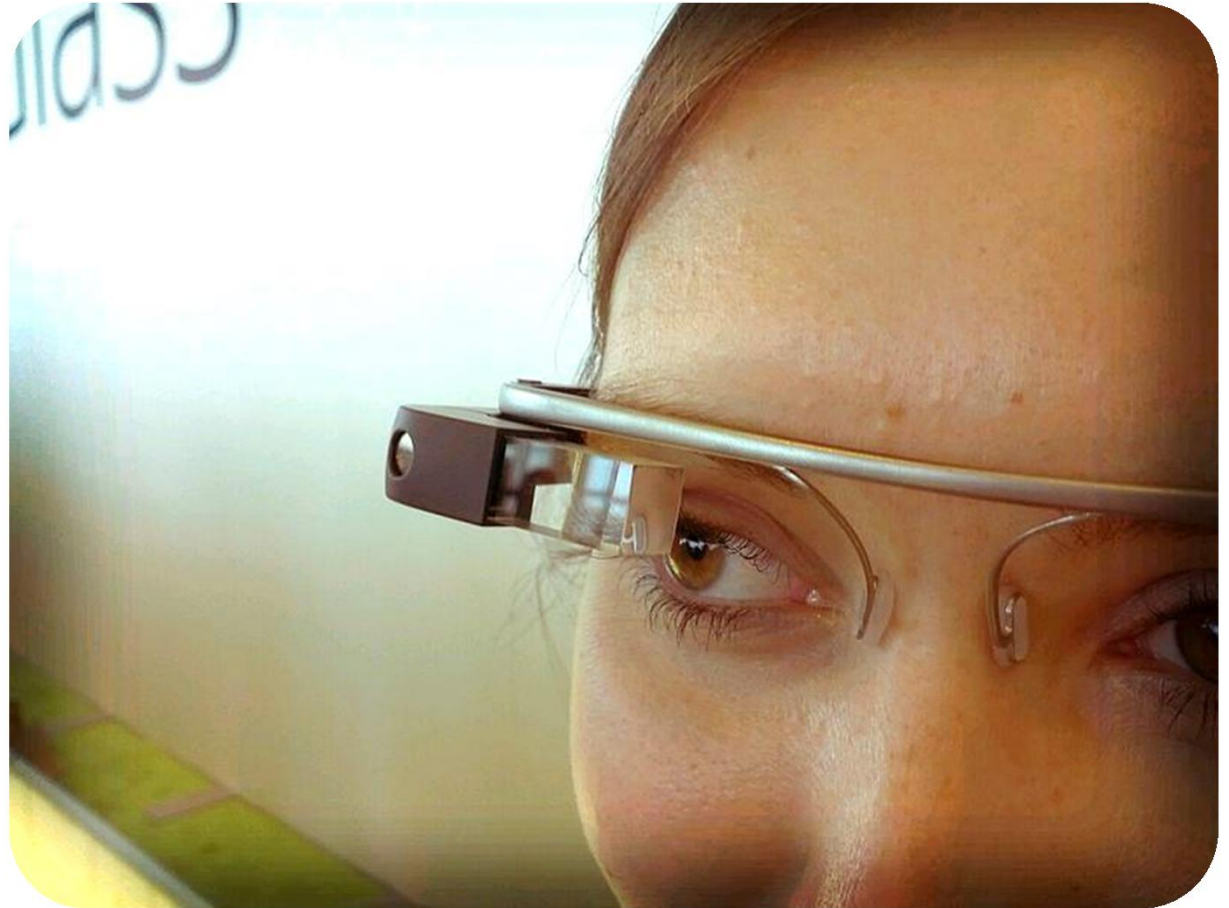
Transparent LCD Window by Samsung, Cebit 2011

CC Patrick "H-", Flickr



NDS Project Fresco, NAB 2013

Glasses



Source: Antonio Zugaldia, Flickr

Smart watches



Source: Bin im Garten, Wikipedia

Public screens – digital signage

4K!
8K!!
(you may get
close enough for
immersion)



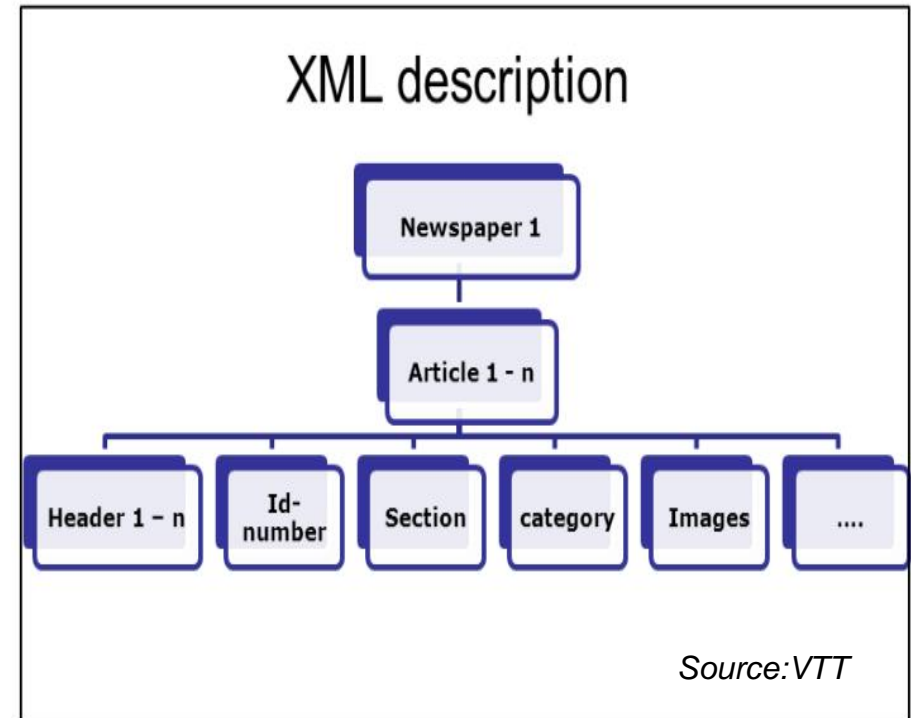
Source: Next Media

How to manage the terminal “chaos”: Multichannel publishing: Create once - publish everywhere

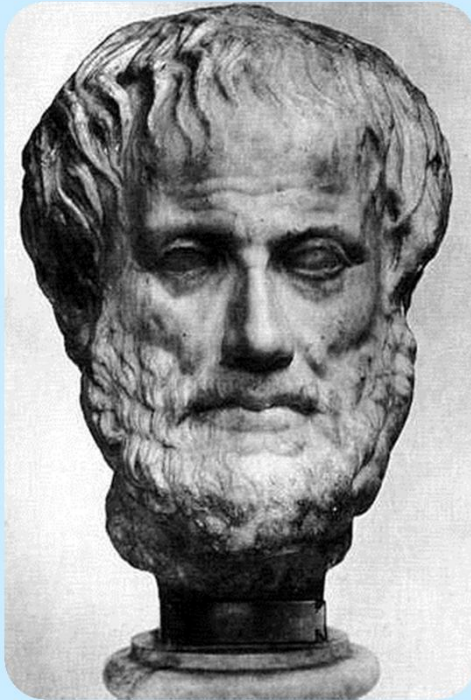


How – by future friendly content

- **Separate content and presentation**
 - Long traditions (...Aristotle)
 - SGML
 - HTML + Stylesheet CSS...
 - XML, XHTML
 - HTML5
 - ePub



Already the ancient Greeks separated content and presentation



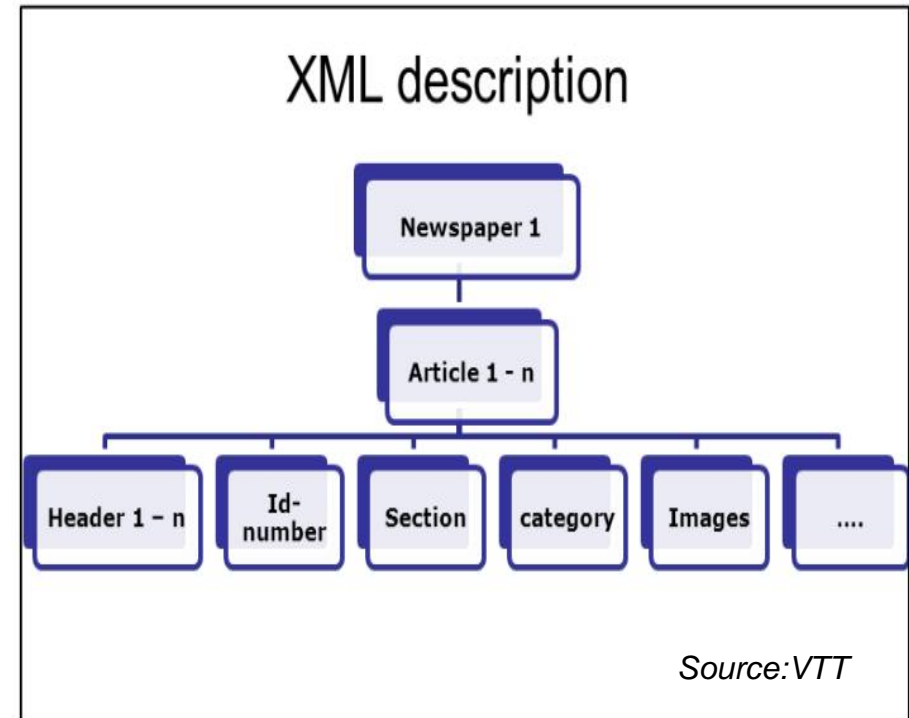
*“Rhetoricians have long created and used a distinction “between **what** is communicated through language and **how** this is communicated”:*

*Aristotle phrased this as the difference between **logos** (the logical content of a speech) and **lexis** (the style and delivery of a speech)*

Gideon Burton in “Silva Rhetoricae”

Future proof content

- **Separate content and presentation**
 - Long traditions (...Aristotle)
 - SGML
 - HTML + Stylesheet CSS...
 - XML, XHTML
 - HTML5
 - ePub
- **Saving metadata** – more to do now, but save time later on
- **Modern Content Management System (CMS)** should enable this **Responsive Web design**
- **In practise difficult** – what you say is often coded visually



Two visualisations of the same content using HTML5



KALEVA

UUTISAUKEAMA
Huijaukset ovat yhä taitavampia
Nelin huijauksien tankkerokäli on muuttunut sujuvaksi suomen kielen suoltamiseksi

OULO JA SEUTU
Historia haavii Tyrväällä
Lapset riemulivat ensimmäistä kertaa järjestetyllä Tyrvävän perinnekilpaililla

KOTIMAA
Traktorit käyttivät Puhoksen pihat
Heikki Torinien kerää ja kunnostaa vanhoja maatalouskoneita

ULKOMAAT
Suosittu turistikohte kielten keskiössä
Beduinit ja siirikonservatiiviset istansidit ovat ottaneet sinian nimensään komeritoonsa

URHEILU
Pesäpallolla
Askel kohti superunelmaa
Lippo Pesis kukitti Heikki:n ja pelasi nousuuta superarjaan Nijajoen kirkunella vastaan

K2
Kainuu inspiroi lavastajaa
Raf Forsström kokosi elämäntyönsä kokekohdat juhlanäytelmäksi Sotkamoon Heinämien kylälaule

KULTTUURI
Romaani
Turvallisuuskoneiston uhrin

MENOT
Elokuvat Näytellyt Keikat Konsertit Muut

PAAKIRJOITUS
Kahvokunnilla puuttuu inoa
Samaan aikaan kun maassa mietittään, miten huoda uusia työpajkoja, halvostalla uhkana on, ette tarjalle tulevin tähän saada teki jättä. Siihen toiminnan nousu ei saa kompattua.

LUKIJALTA
Aurinkosähköä virheellisiä tietoa

IHMISET
Marco Bjurström ei mene uutisiin löösyttämään
Näiden tuleva uudistankuri aikoo esiintyä ruudussa omana itsensä

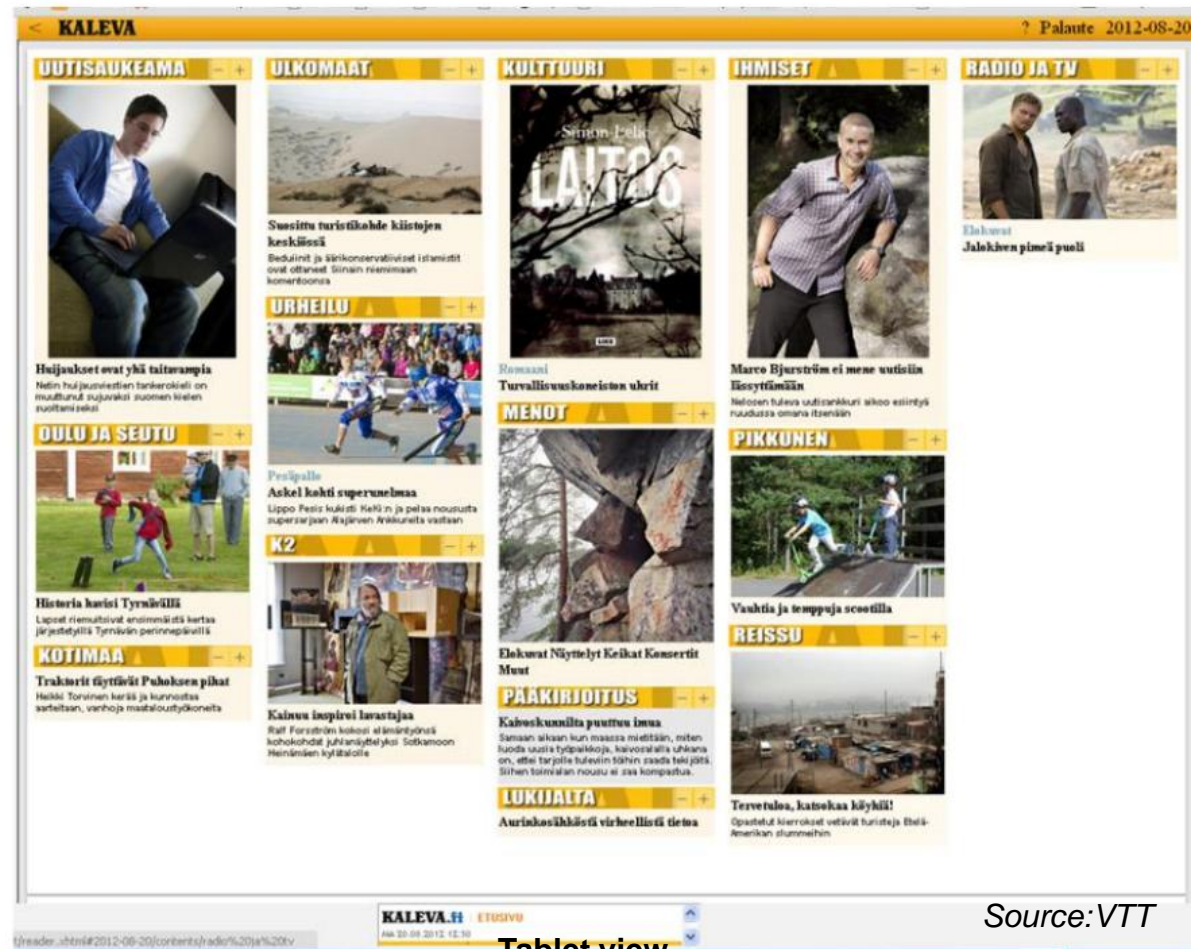
PIKKUNEN
Vahtia ja tempuja seotilla

REISSU
Tervetuloa, katsokaa kyyhkiä!
Opastetut kierrokset vetävät turistitja Etelä-Amerikan slummeihin

RADIO JA TV
Elokuvat
Jalokiven pimeä puoli

KALEVA.H ETUOSUO
14.11.2014 13:10

Phone view



KALEVA ? Palaute 2012-08-20

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KALEVA.H ETUOSUO
14.11.2014 13:10

reader_ubuntu#2012-08-20/content/radio%20ja%20tv

Tablet view

Source: VTT

Topics

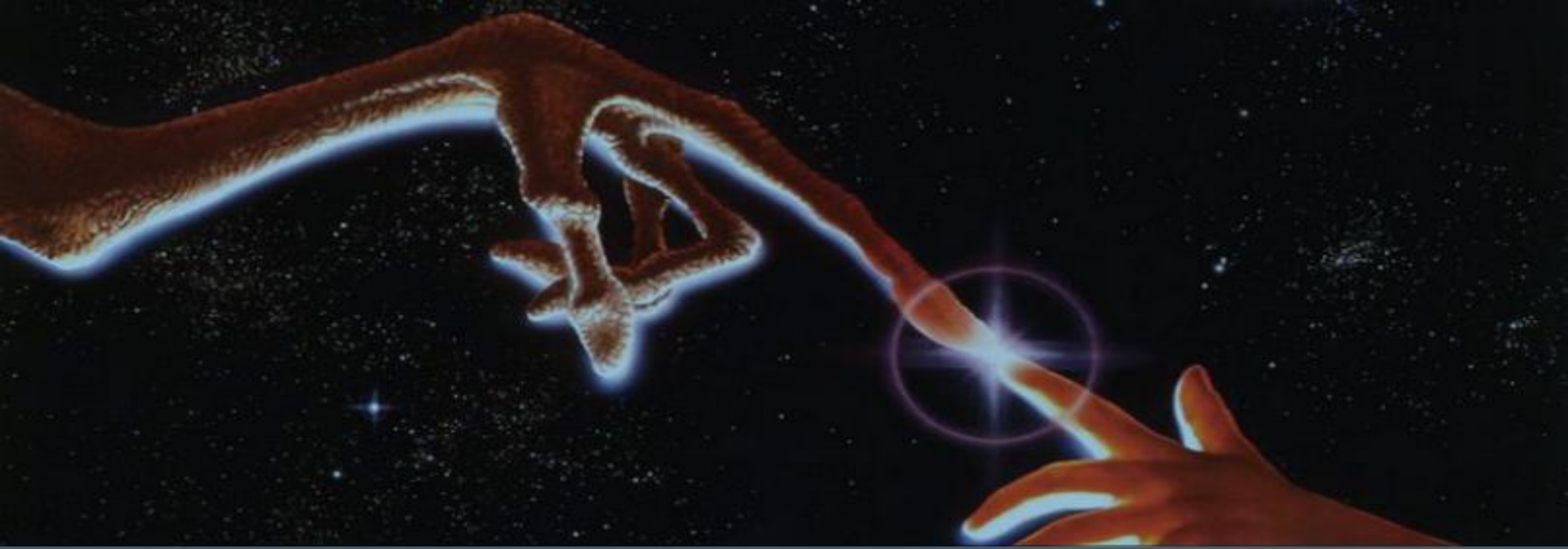


- How to serve the multitude of user devices ?
- Smart interaction with content

Smart interaction with content

- The magic of **touch**





Users love the power of touch

- Desktop web 3 page views per visit
- Mobile 6
- Mobile native applications 7

iPad 25

Smart interaction with content

- The magic of **touch**



Smart interaction with content

- The magic of **touch**
- **Speech** recognition
- **Gesture, finger, face** recognition



Google
Suomi



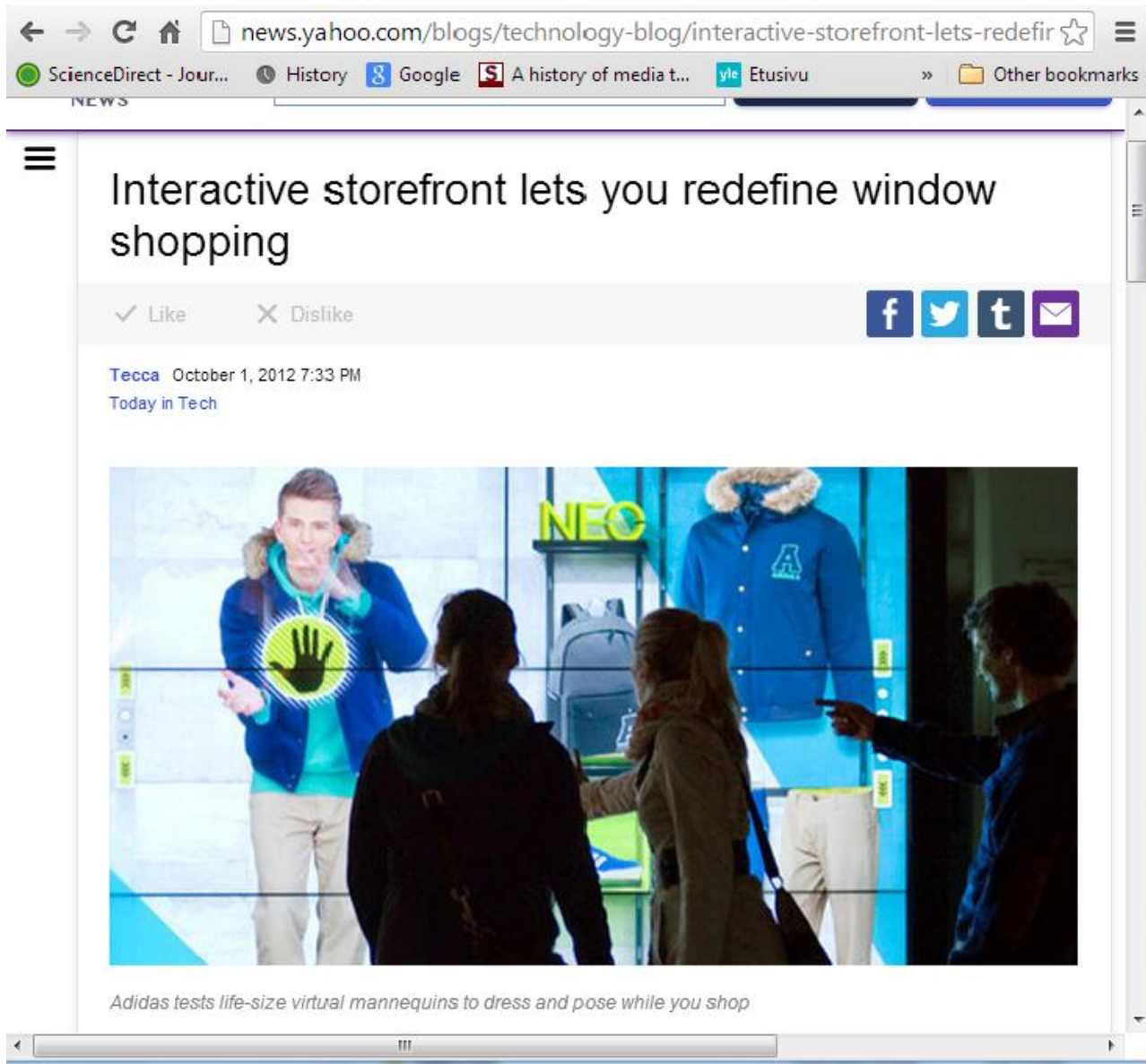
Google-haku

Kokeilen onneani



Source: VTT

Window Shopping – case Adidas



The screenshot shows a web browser window displaying a news article. The address bar shows the URL: `news.yahoo.com/blogs/technology-blog/interactive-storefront-lets-redefin`. The browser's address bar also shows several tabs: ScienceDirect - Jour..., History, Google, A history of media t..., yle Etusivu, and Other bookmarks. The article title is "Interactive storefront lets you redefine window shopping". Below the title are social media sharing icons for Facebook, Twitter, Tumblr, and Email. The author is "Tecca" and the date is "October 1, 2012 7:33 PM". The category is "Today in Tech". The main image shows a man in a blue jacket interacting with a large, life-size virtual mannequin in a store window. The mannequin is wearing a blue jacket and has a glowing yellow hand icon on its chest. The man is pointing at the mannequin. In the background, there is a display of a blue jacket with the Adidas logo and the word "NEO" in yellow. The caption below the image reads: "Adidas tests life-size virtual mannequins to dress and pose while you shop".

news.yahoo.com/blogs/technology-blog/interactive-storefront-lets-redefin


ScienceDirect - Jour... History Google A history of media t... yle Etusivu Other bookmarks

Interactive storefront lets you redefine window shopping

✓ Like ✕ Dislike

f t t e

Tecca October 1, 2012 7:33 PM
Today in Tech



Adidas tests life-size virtual mannequins to dress and pose while you shop

Source: Yahoo

Interaction – consider the context



CC Giuliano Maiolini, Flickr



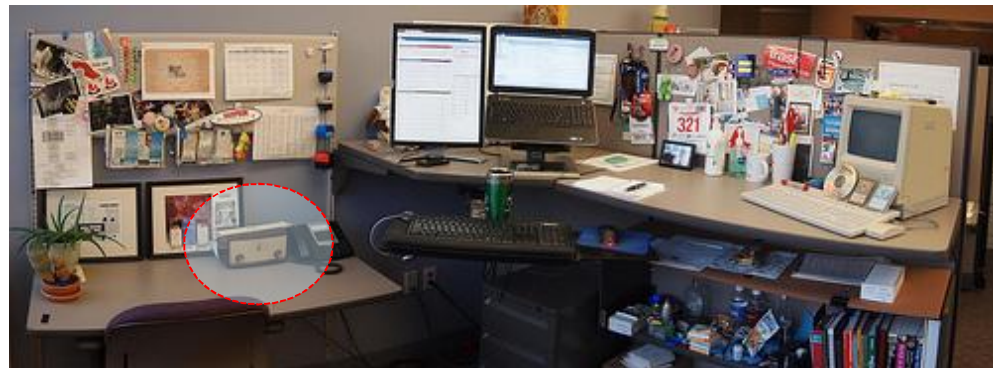
CC Monica Nuñez, Flickr



CC Mike Baird, Flickr



CC Cushing Memorial Library and Archives, Flickr



CC Logan Ingalls, Flickr

Interaction – consider the context

What you **can** do is not necessarily what you **should** do...



CC Anna "overbreathing", Flickr



CC Vernon Chan, Flickr

Interaction – consider the device



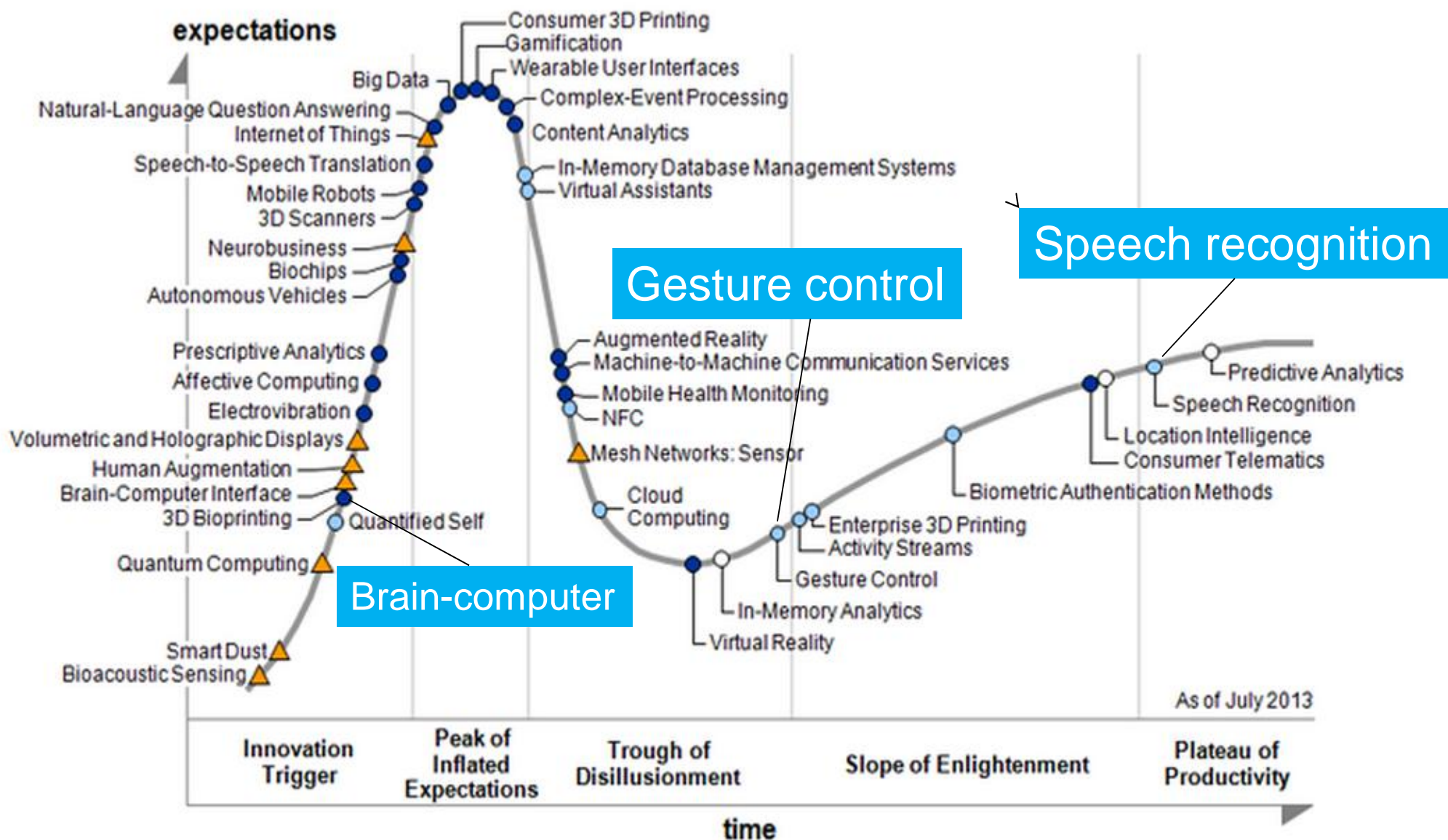
CC Mike McCune, Flickr



CC Veronica Belmont, Flickr



Figure 1. Hype Cycle for Emerging Technologies, 2013



Plateau will be reached in:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

Smart interaction with content

- The magic of **touch**
- **Speech** recognition
- **Gesture, finger, face** recognition
- Future: **thought, feeling**....



Google
Suomi



Google-haku

Kokeilen onneani



Source: VTT



Source: Next Media

Topics



- How to serve the multitude of user devices ?
- Smart interaction with content and services
- Targeting the user

Content targeted to user situation (context)

- Enhancing real world view with virtual objects (Augmented Reality)
 - Demands accurate 3D tracking



Source: VTT & InGlobe

- Presenting **objects** (shops, attractions...) in the camera view of your phone

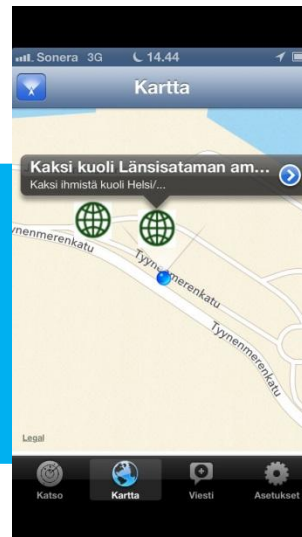


City Lens. Source: Nokia

...like news in spatial context



- Experiment in the Finnish Next Media program
- View **places** of news and event announcements
- The items are places in camera view of your mobile phone (**Augmented Reality**)



Next Media project

Research partner: VTT

Company partners: Sanoma, Undo, Forum
Virium,

Smart environments talk to you...

Through

- QR codes
- Bluetooth
- Geolocation
- Near field communication (NFC)



Targeting interests, social networks

ABOUT ME

INTERESTS

Literature
[Java](#) [Jazz](#) [böcker](#) [Where We Once Went](#)

Places
[Helsinki](#) [Larsmo](#) [Espoo](#) [Esbo](#)

Music
[Leonard Cohen](#) [Jazz](#) [Benny Goodman](#)

Persons
[Leonard Cohen](#) [Benny Goodman](#)

Movies, TV, radio
[Jazz](#) [Notting Hill](#) [Benny Goodman](#)

Uncategorized
[paritalo](#) [remontti](#) [lukeminen](#) [autoilu](#) [Kesämökki](#) [Literature](#) [kamerat](#) [Contact](#) [Colorado Avenue](#) [Espoo](#) [Bill Clinton](#) [Small-craft Sailing](#) [työ](#) [uutiset](#) [Uutiset](#) [videokamerat](#) [ystävät](#)

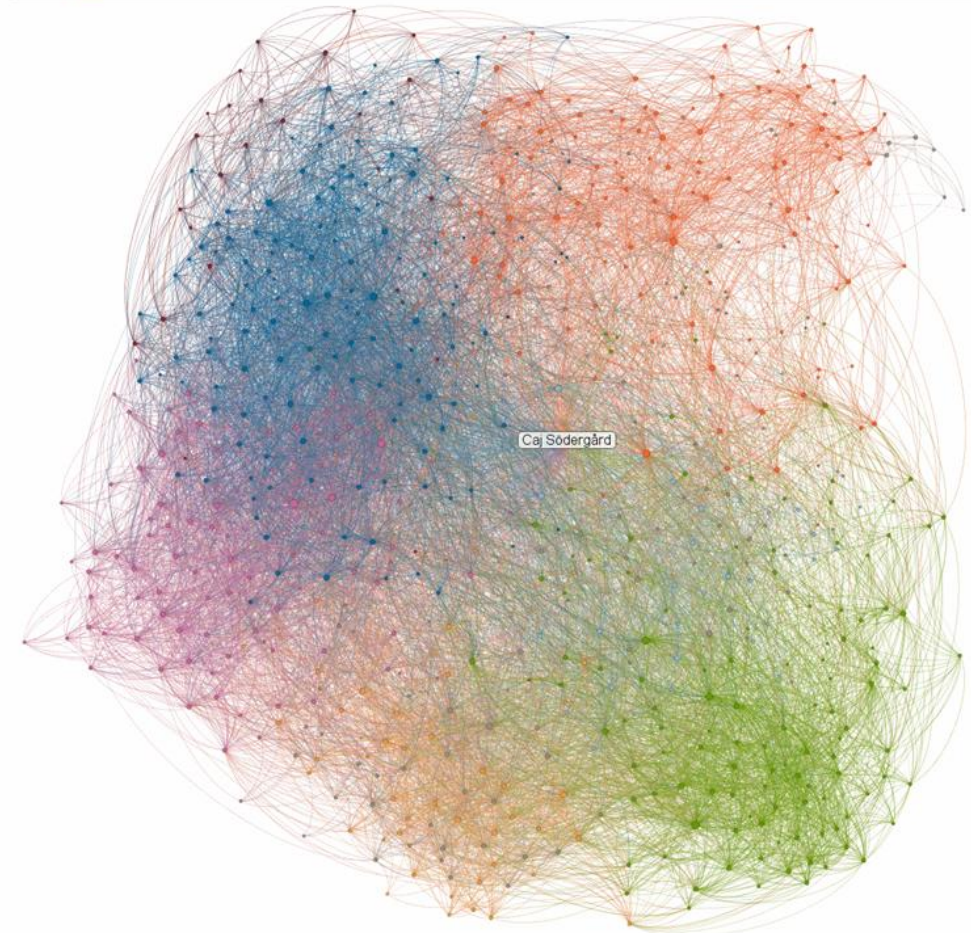
MANUALLY ADDED

FACEBOOK.COM














01
02
03
04

Source: profile.vtt.fi














LinkedIn Maps Caj Södergård's Professional Network
 as of June 18, 2013



Summary: Find a selling combination

<h3>User devices</h3>      <p>print mobile TV glass watch</p>	<h3>Interaction</h3>     <p>touch speech gesture brain</p>	<h3>Targeting</h3>     <p>location task interest social</p>

Summary: Find a selling combination

<h3>User devices</h3>      <p>print mobile TV glass watch</p>	<h3>Interaction</h3>     <p>touch speech gesture brain</p>	<h3>Targeting</h3>     <p>location task interest social</p>
<p>X X</p>	<p>X</p>	

Current multichannel publishing

Summary: Find a selling combination

User devices		Interaction				Targeting						
print	mobile	TV	glass	watch	touch	speech	gesture	brain	location	task	interest	social
X	X				X							
	X		X		X	X						X

Car maintenance with AR + Google glasses

Summary: Find a selling combination

User devices					Interaction				Targeting			
print	mobile	TV	glass	watch	touch	speech	gesture	brain	location	task	interest	social
X	X				X							
	X		X		X	X				X		
			X	X	X	X	X		X		X	X

Summary: Find a selling combination

User devices					Interaction				Targeting				
print	mobile	TV	glass	watch	touch	speech	gesture	brain	location	task	interest	social	
X	X				X								
	X		X		X	X				X			
			X	X	X	X	X		X			X	X

New Ubimedia ?



VTT creates business from technology

...like VTT's media chair

Loadspeakers

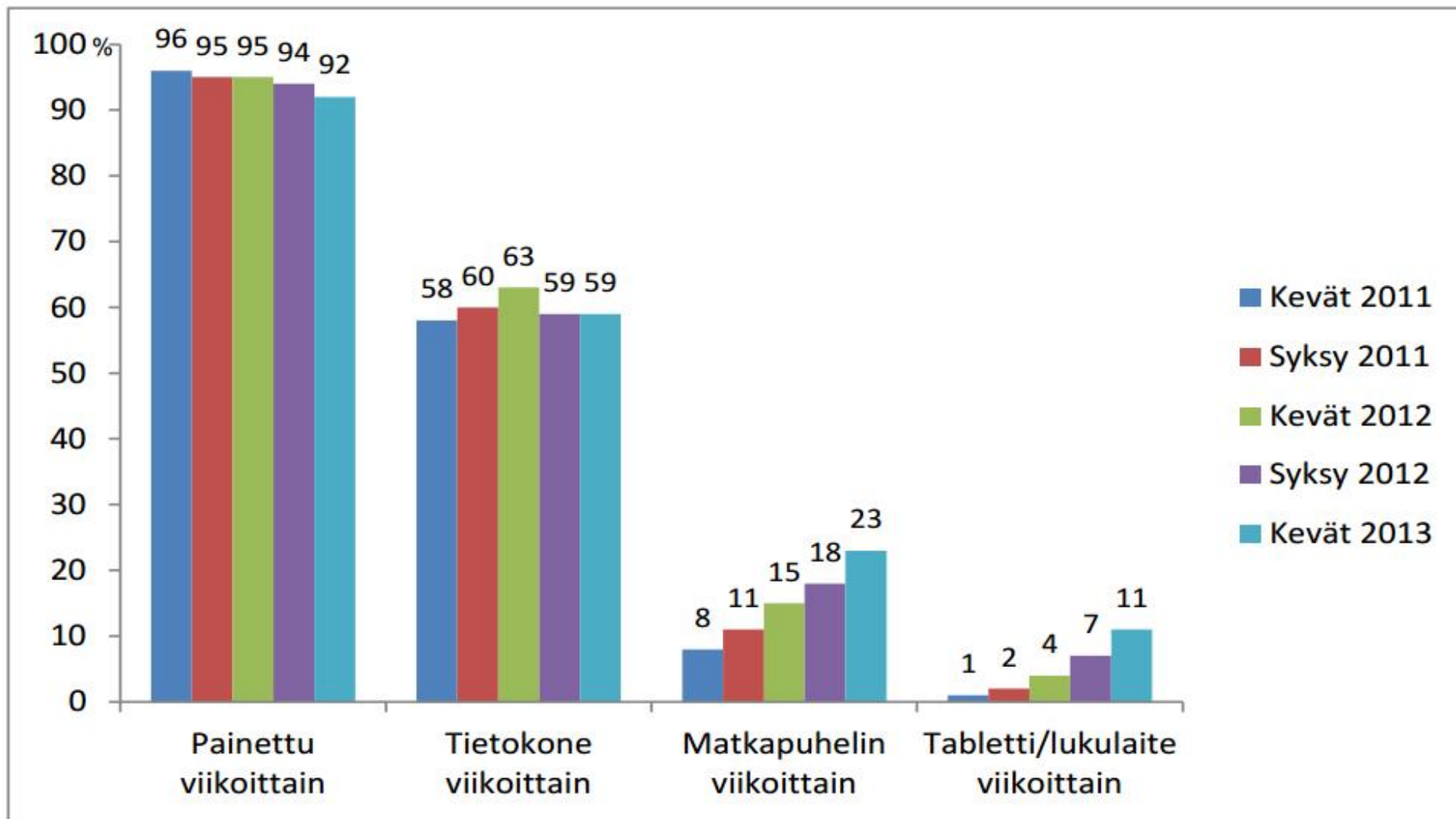
Video display

Camera

2D-Code



Sanoma- ja aikakauslehtien lukeminen eri lukuvälineillä 2011-2013:



Source: KMT