JOHANNES KEPLER
UNIVERSITY LINZ
Research and teaching network

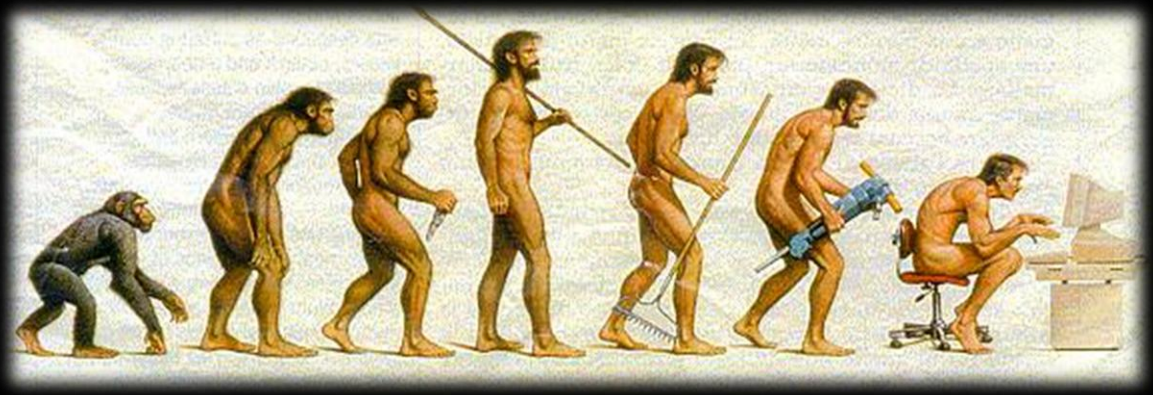
integriert studieren!

These problems we want to have!

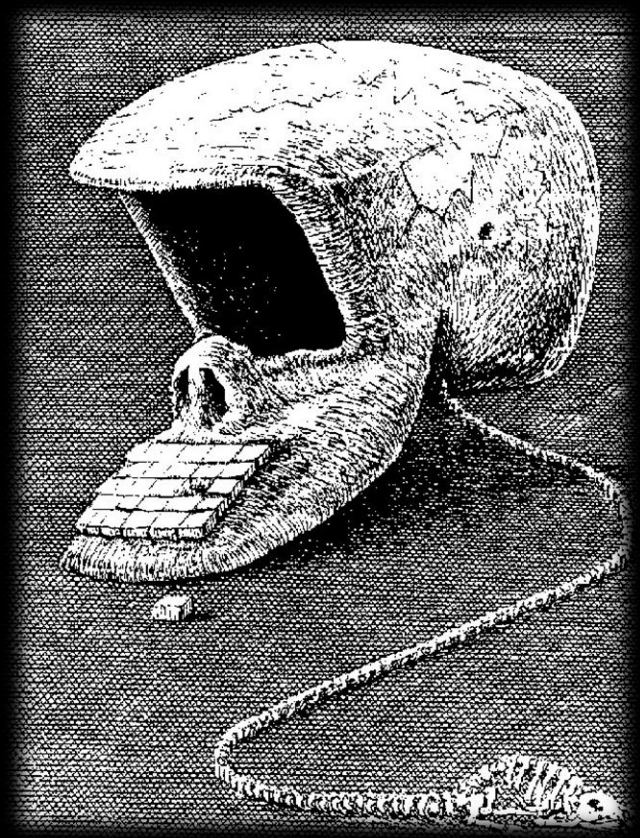
Homo Informaticus:
Equal opportunities for people with disabilities

I agree!

But we move away from the desktop!



I agree!



y-phil.deviantart.com

These problems we want to have!

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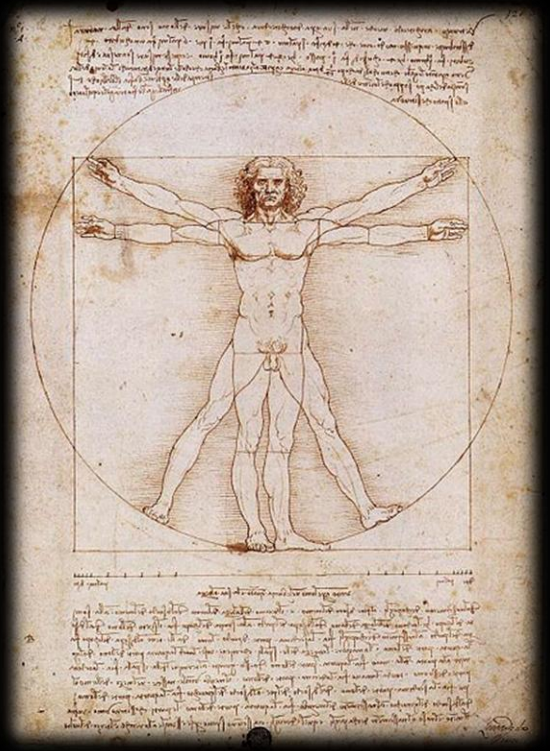
ICT/AT
eAccessibility

Transformation

- Individual/Deficit/Medical Model
  (epidemiological approach)
- Environmental Model
  (*adaptability approach*)
- Social Model
  (*social constructionist* or
  social meaning approach)

[SÖDER 89, GUSTAVSON 97]

Person / User Centred



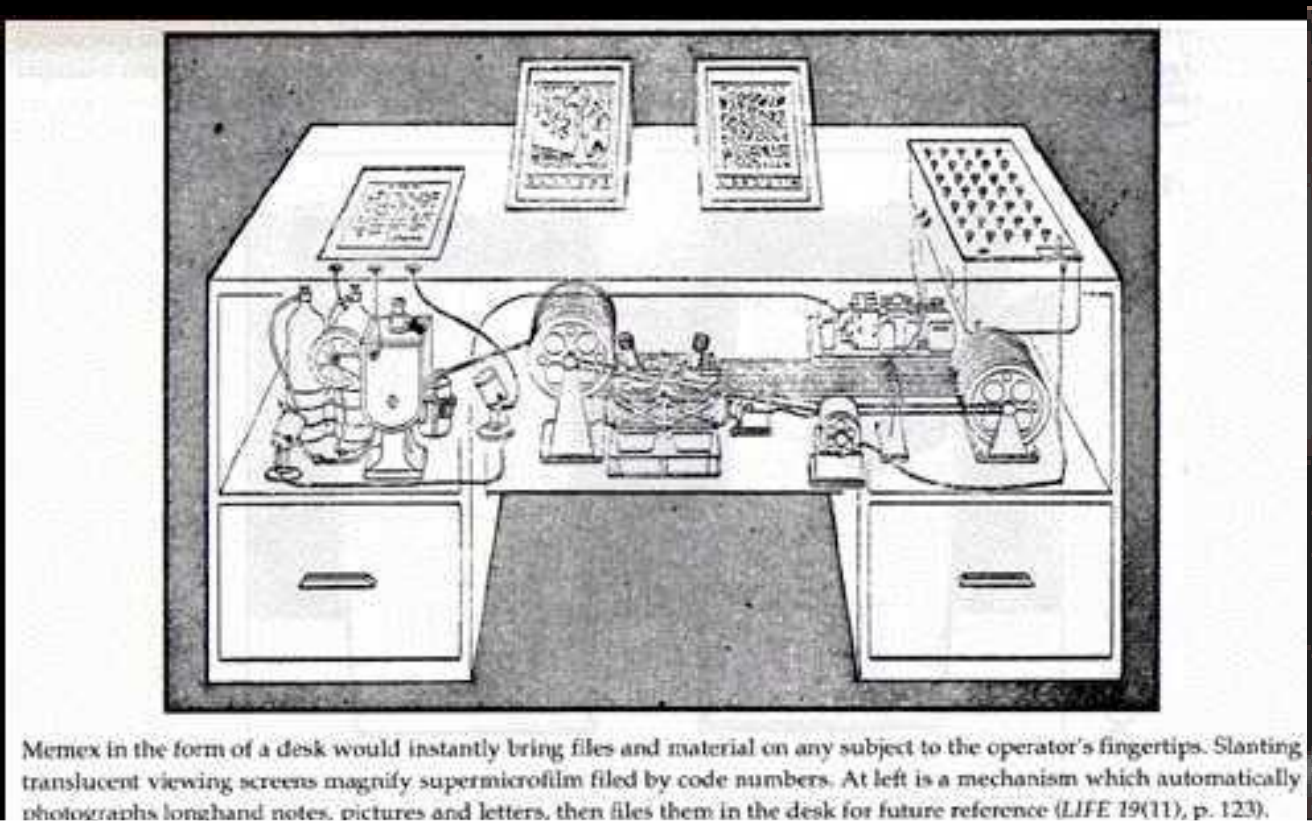
„Person fits the Technology“

„Technology fits the Person“

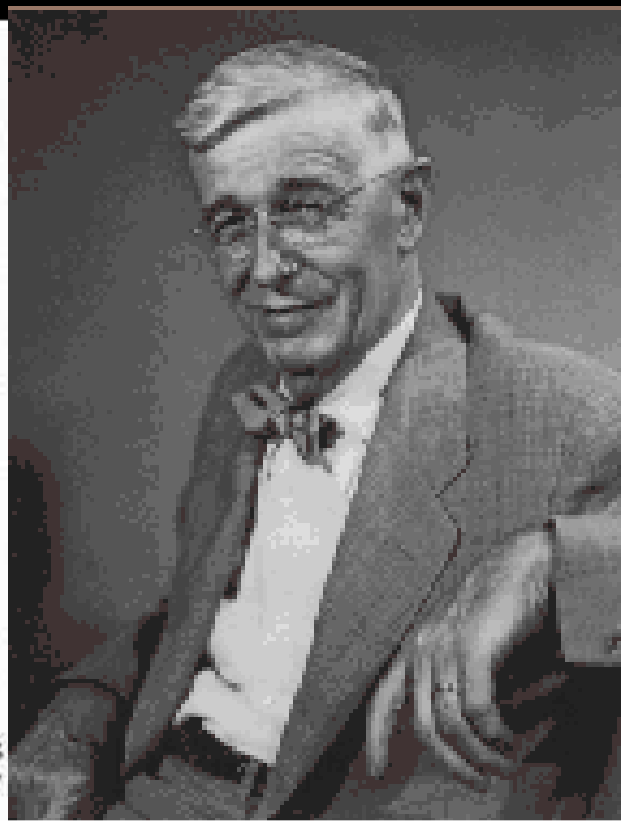
HOW?

V. Bush: Memex

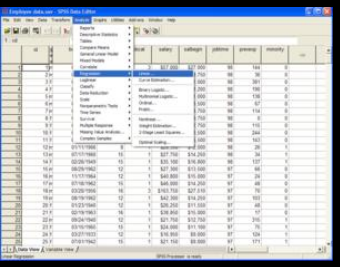
"…when one of these items is in view, the other can be instantly recalled merely by tapping a button"



Memex in the form of a desk would instantly bring files and material on any subject to the operator's fingertips. Slanting translucent viewing screens magnify supermicrofilm filed by code numbers. At left is a mechanism which automatically photographs longhand notes, pictures and letters, then files them in the desk for future reference (*LIFE* 19(11), p. 123).



HCI: Desktop: WIMP

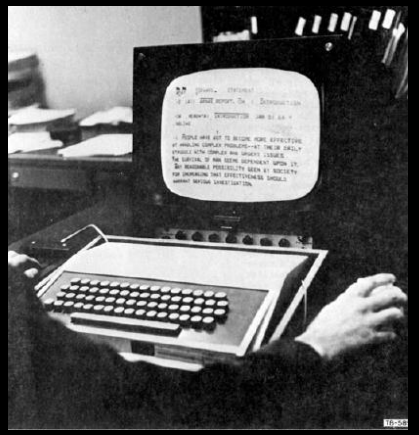


1962

WINDOWS
MENUE

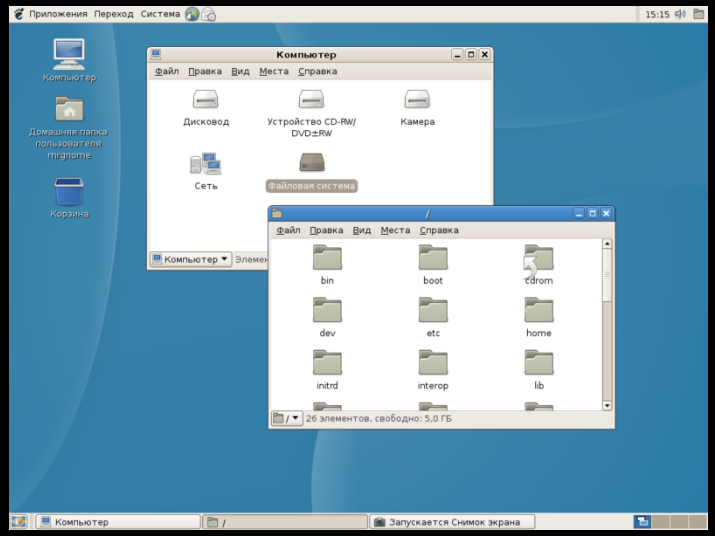
1965

ICONS
POINTER



D. Engelbart
(Stanford Research Laboratory)

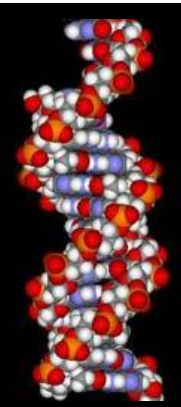
Desktop



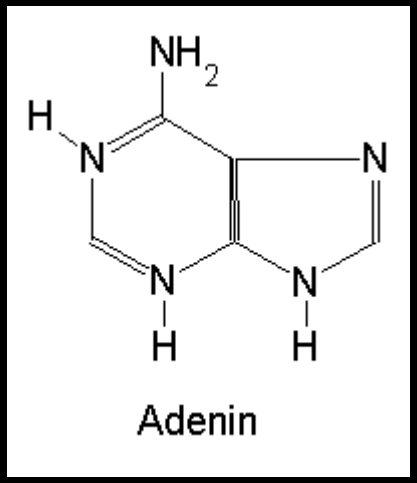
limited number or elements

limited number or actions (actuators)

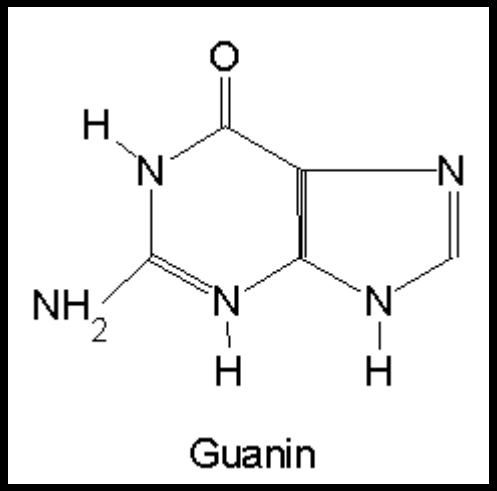
unlimited number or activities „one click *away*“



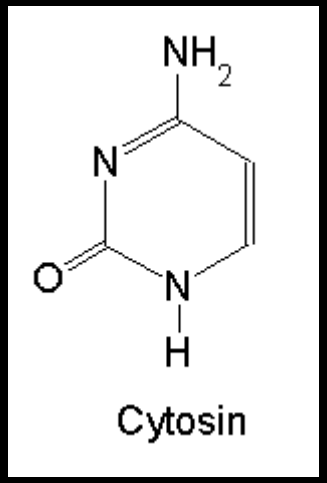
Evolution



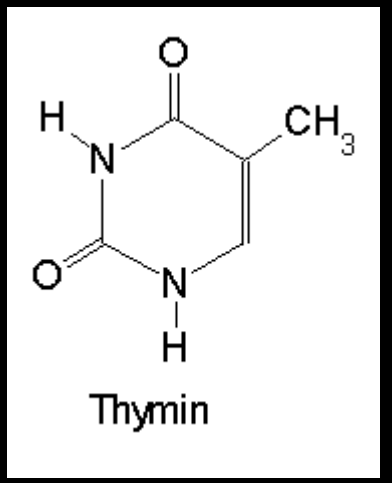
Adenin



Guanin



Cytosin



Thymin

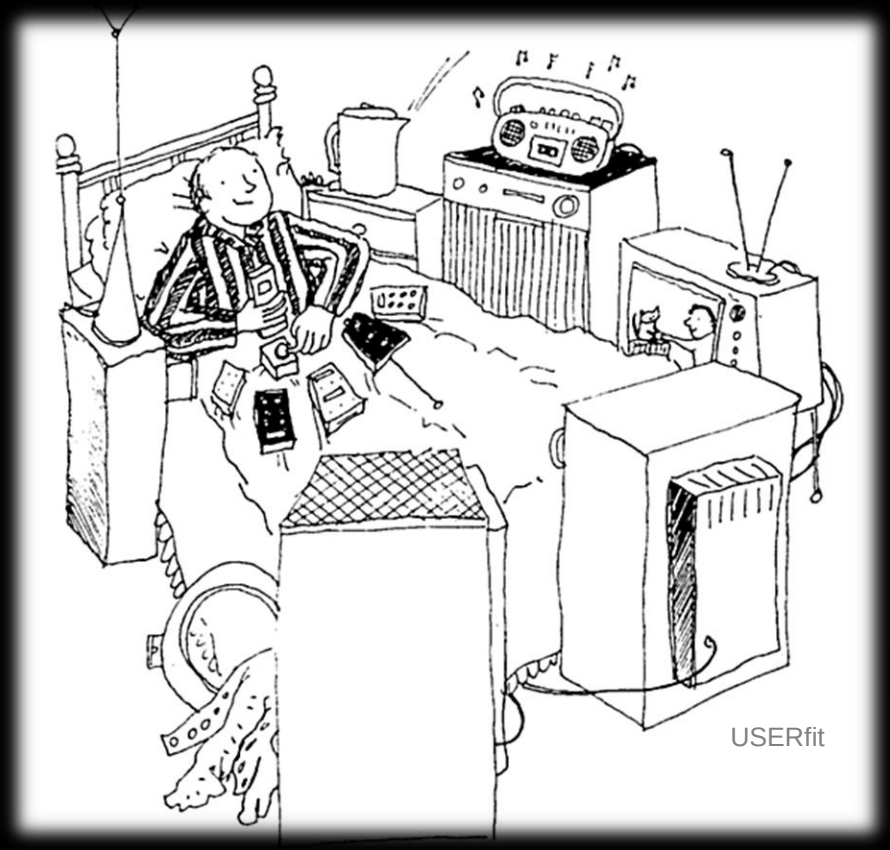
limited number or elements

limited number or actions (actuators)

unlimited number or activities „one click *away*“

HCI

- **flexible**
  - multi-media
  - multi-modal
- **adaptive/profile**
- **universal/standard**



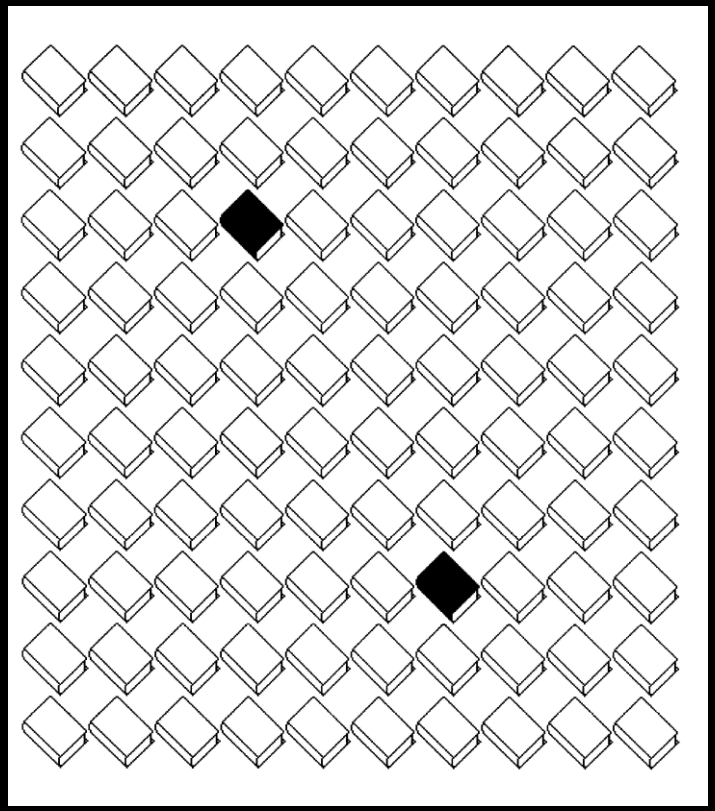
Gutenberg Revolution

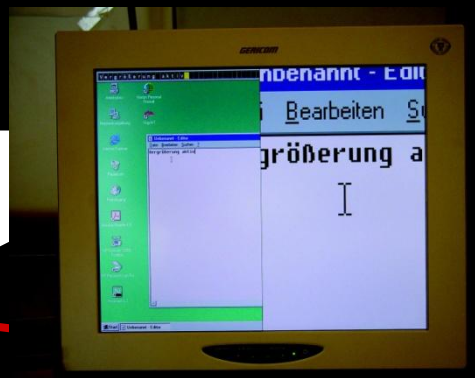
Johannes Gutenberg

(Georg Christoph Lichtenberg, 1742 – 1799)


Content
Handling
Presentation

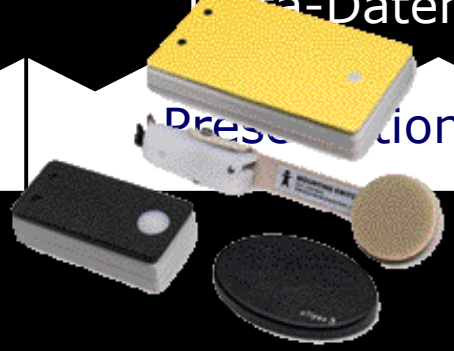
Gutenberg Disability



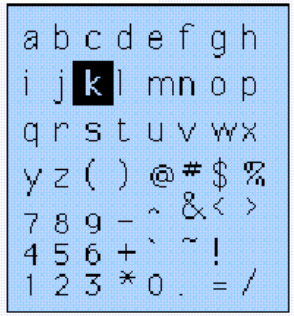


Handling

Handling



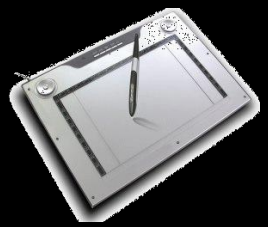
1.



2.


UPI/THE BETTMANN ARCHIVE/Corbis


APPLE
COMPUTER



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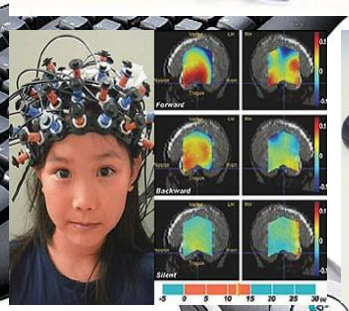
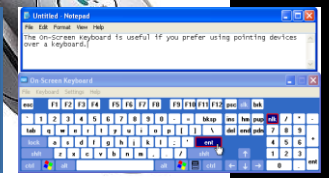




Disability

http://www.watzlawickehrenring.at/paul-watzlawick.html

„the concepts of normal / abnormal (disabled / non disabled) loose their meaning as individual patterns."

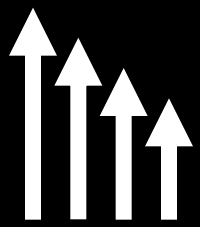
[Paul Watzlawick]

Democratic!

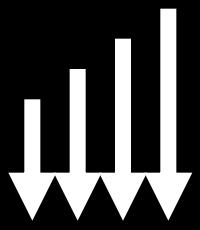
Homo Informaticus has no disability

Traditional Interfaces

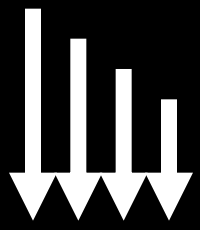
complexity
exclusion



HCI Interfaces



complexity
inclusion



Universal Design, eAccessibility, Design for All

- e-publishing
- e-government
- e-business
- e-health
- e-learning
- e-libraries
- e-care
- smart house / environment
- adaptive, wareabel, pervasive, ubiquitous, ...
- virtual, augmented ... reality
- eLiving, AAL
- eCommunication, AAC
- ...
- INTERNET OF THINGS

Assistive Technology (AT)

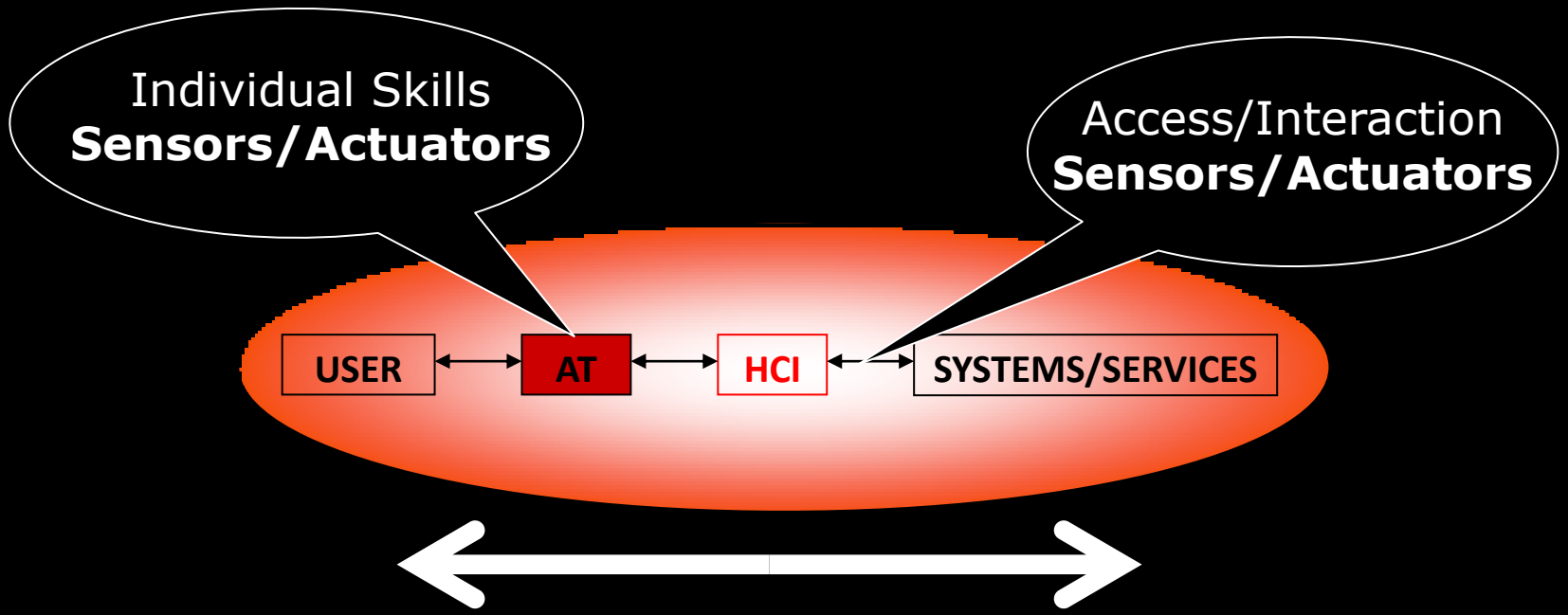
Transformation

"Science Finds,
Industry Applies,
Man Conforms."
Motto of World Exhibition 1933, Chicago

"People Propose,
Science Studies,
Technology Conforms."

Donald A. Norman (1993), Things That Make Us Smart

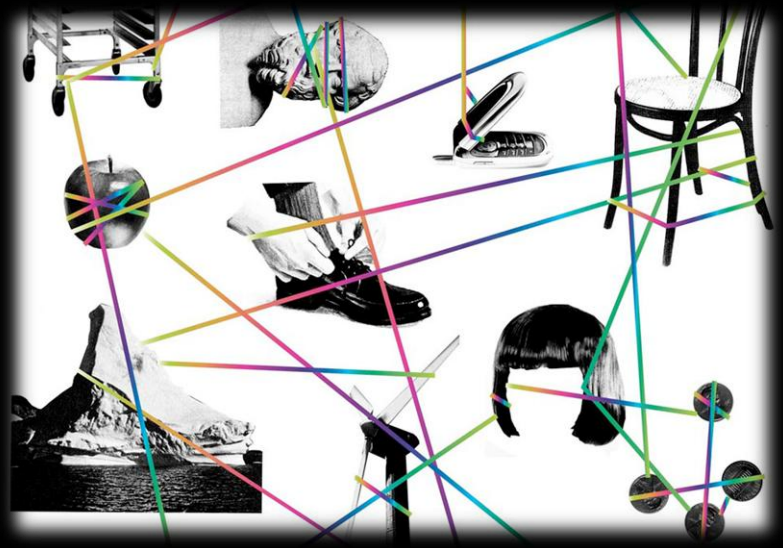
ICT/AT (Sensor) Revolution



Sensor-AT/eAccessibility

1. Interacting with the Environment

"The **Internet of Things** **links the objects of the real world with the virtual world**, thus enabling anytime, anyplace connectivity for anything and not only for anyone." (Sundmaeker, Guillemin, Friess & Woelfflé, 2010, p.9]



AAL
AMBIENT ASSISTED LIVING

1. Internet Revolution

$1.33*10^{50}$
Atoms on this planet (http://education.jlab.org/qa/mathatom_05.html)

10^{78} to 10^{82}
Atoms on the visible universe (*www.**universe**today.com*)

optical, quantum computers, DNA computing
$5.0 * 10^{50}$ operations
per second and per kilogram matter
Kurzweil, Ray (2005). The Singularity is Near

2. Sensor Technology & AT

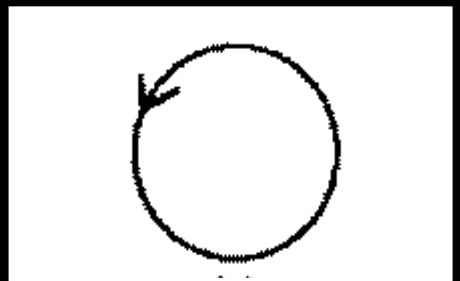
identify/assess
sense
measure
any controlled and measurable activity
interact/communicate
ac(tua)t(e)
participate

"making sense"

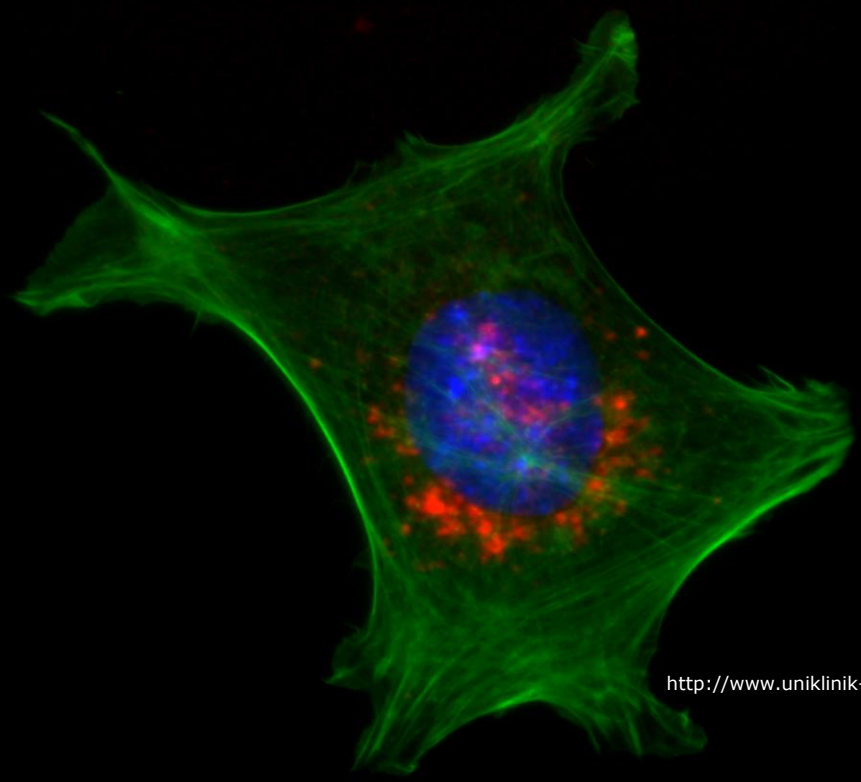
Fear 2.0

These problems we want to have!

What is Disability?

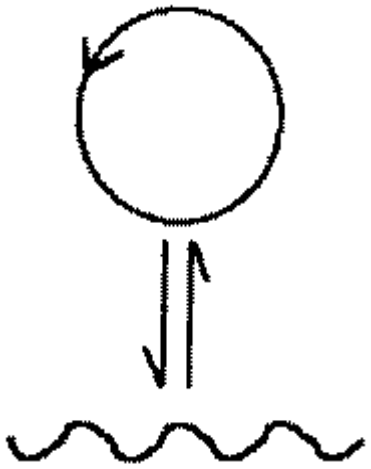


Humberto Maturana / Francisco Varela:
Tree of Knowledge

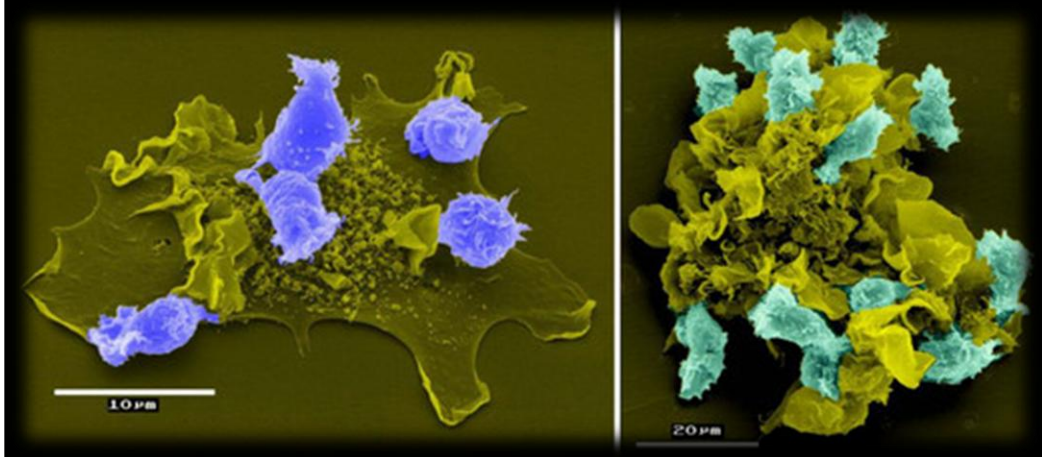


http://www.uniklinik-ulm.de/?id=9719

What is Disability?



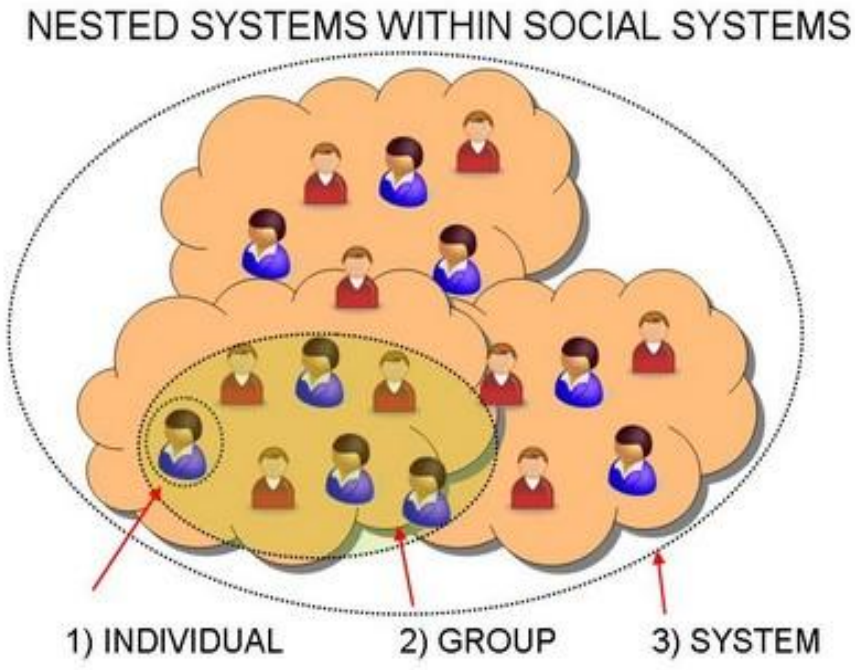
Humberto Maturana / Francisco Varela:
Tree of Knowledge



http://www.mh-hannover.de/4991.html

What is Disability?

Humberto Maturana / Francisco Varela:
Tree of Knowledge



Inclusion

1) Enabling independent individual activity (Assistive Technology)

2) Empowering Communication (Accessibility)

3) Facilitating Participation (Social Inclusion)

http://carnetphilosophique.blogspot.co.at

http://nwasharedworkspace.com

C.G. Escher

Disability

http://www.kunst-fuer-alle.de

Advancement in Inclusion

http://crackiitjee.com

"Measure what can be measured, and make measurable what cannot be measured."

Galileo Galilei (1564 - 1642)

These problems we want to have!

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