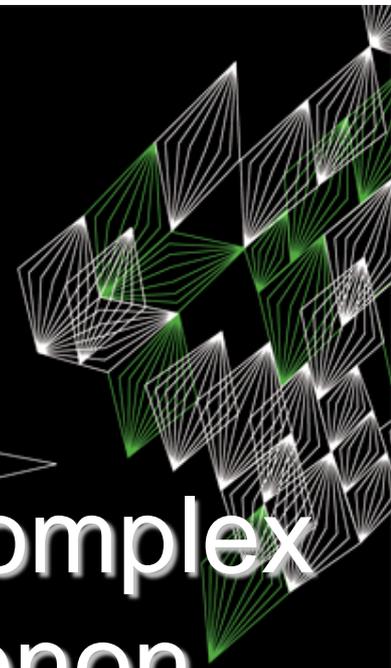
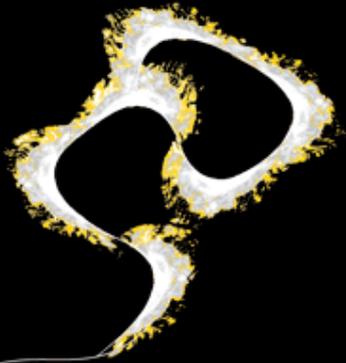


UNIVERSITY OF TWENTE.

The Digital Divide as A Complex and Dynamic Phenomenon

Prof. Jan A.G.M. van Dijk



PROGRAM

- 
- Resources and Appropriation Theory
 - A complex and dynamic model of access
 - Motivation and access
 - Physical and material access
 - Digital skills and access
 - Usage and access
 - Effects of (non)inclusion
 - Inequality in the information and network society
 - Main conclusions

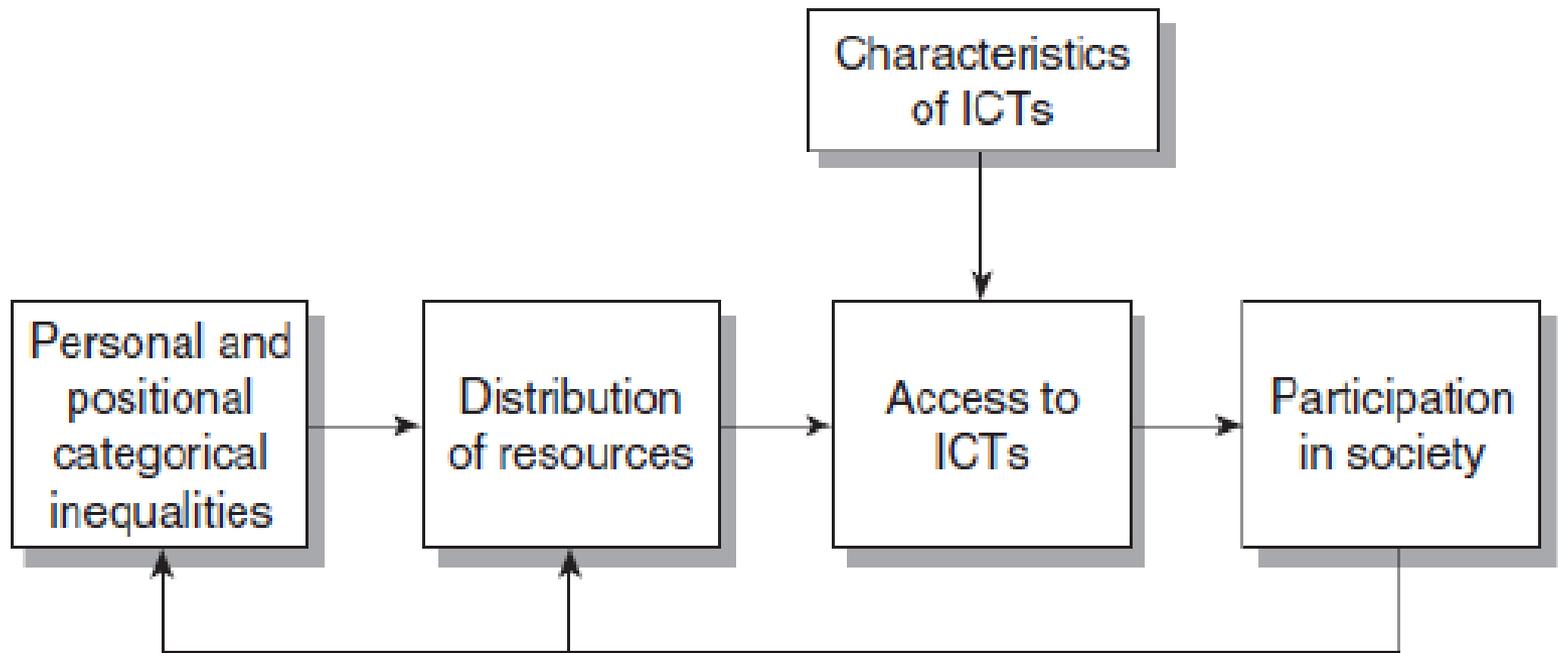
eInclusion or Digital Divide Research



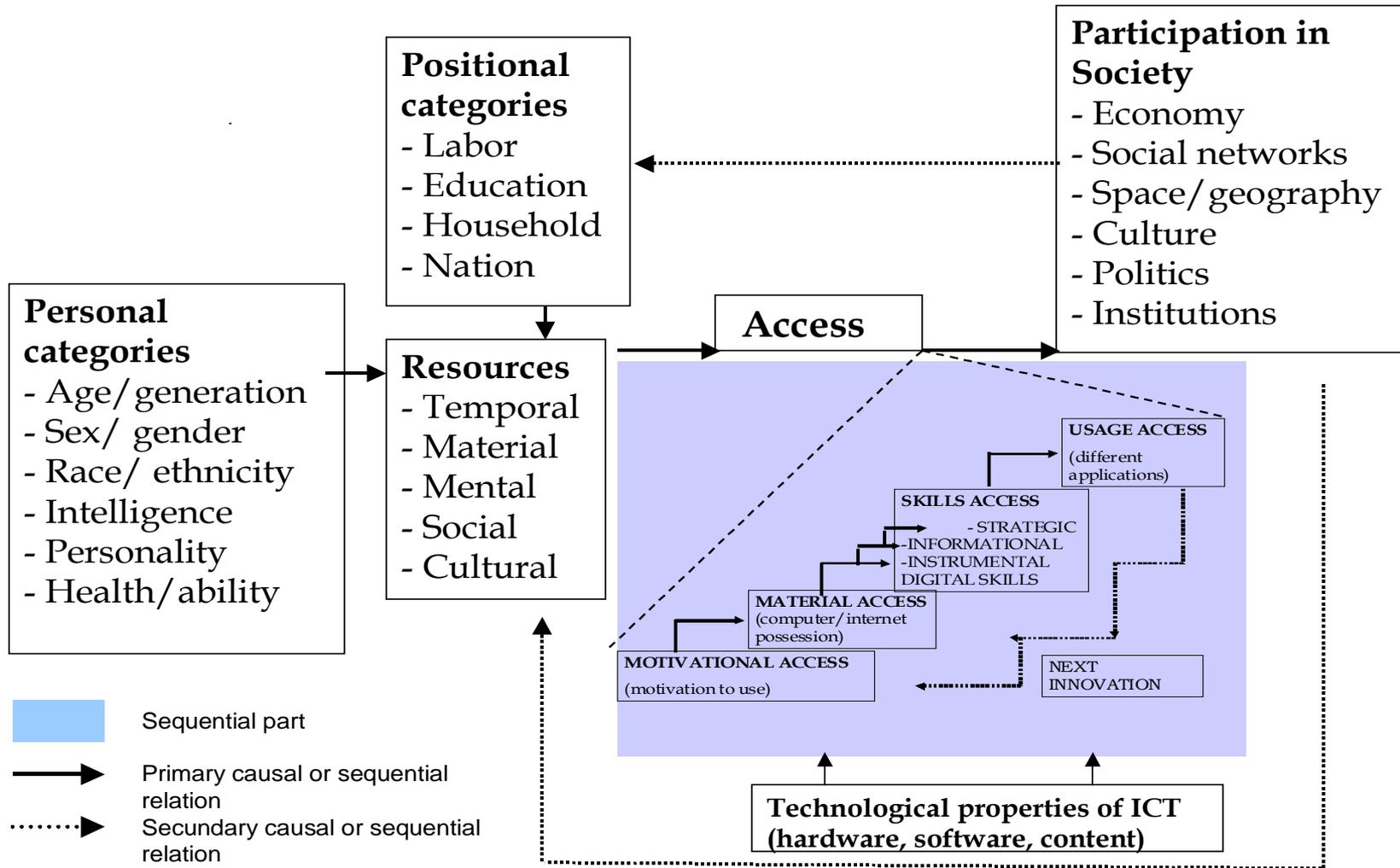
- Research, and even more public opinion has a narrow technical orientation: access is limited to physical access and skills to operational skills
- The naive idea is that the digital divide is closed when everybody has a computer and Internet connection and is able to operate them.
- In fact the deepest digital divide appears just then: the '*second level divide*' that is about skills and usage
- So the digital divide is a complex phenomenon that is dynamic as divides change.
- Unfortunately, digital divide research is too descriptive and it lacks theory.

Resources and Appropriation Theory

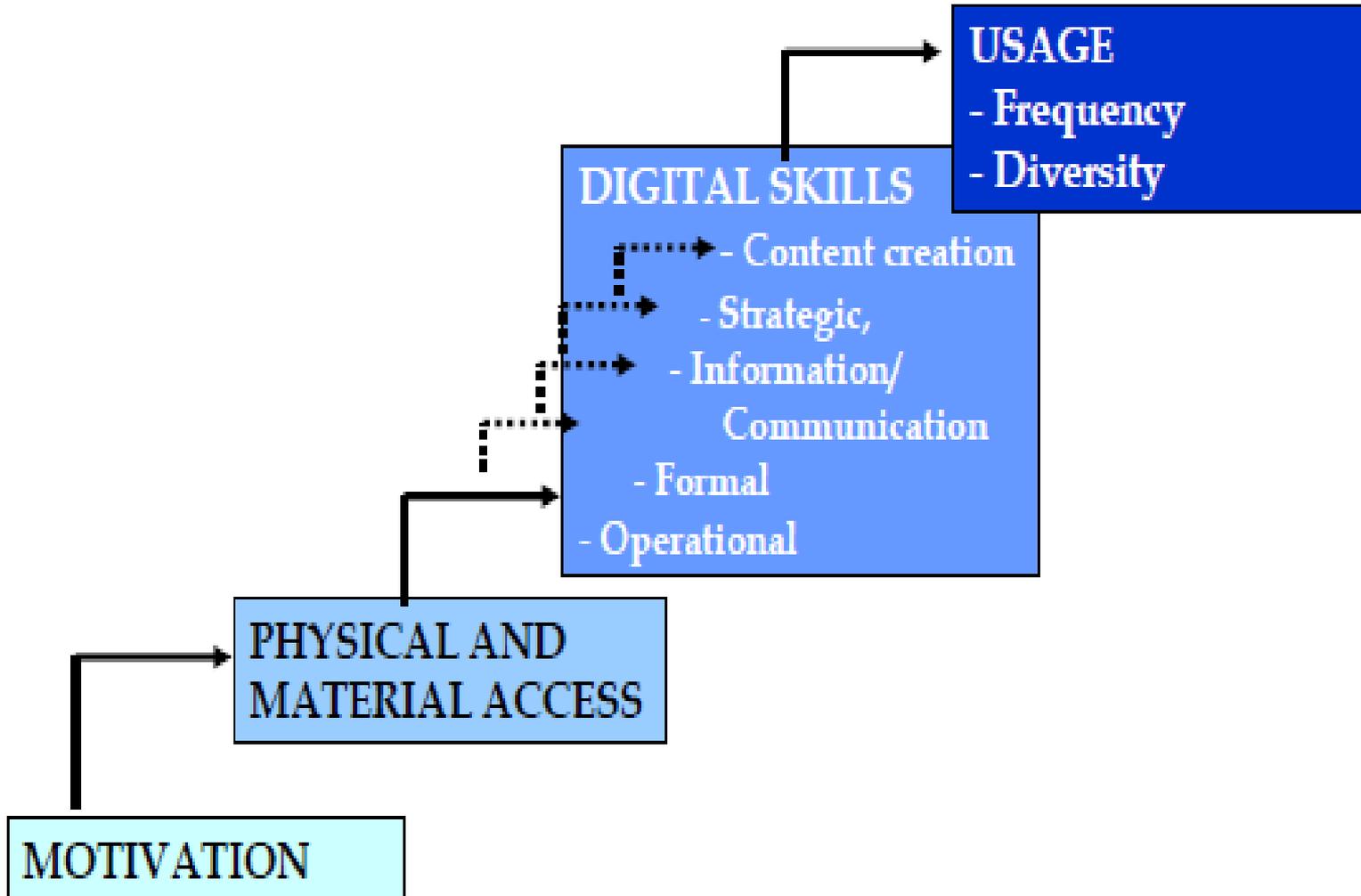
(van Dijk, *The Deepening Divide*, 2005)

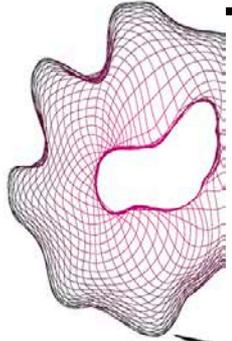


Complete causal model of Resources and Appropriation Theory



Four Successive Kinds of Access





The Digital Divide and the Multifaced Concept of 'Access'

1. Motivation to Use Computers and the Internet: 'Motivational Access'
2. Physical Access to Computers and the Internet, (private, public): Material Access
3. Digital Skills: 'skills access'
4. Usage Opportunities: 'usage access'

Access problems gradually shift from the first to the last kinds of access (the 'second level divide')

1. Motivation

- 
- Some people don't like computers (some elderly, some women, some macho male manual workers)
 - Computer anxiety and technophobia still exist (10-20% of the population in high tech countries)
 - About 10% of dropouts from the Internet (have stopped using it)
 - Huge spread of use: from working with computers and the internet all day and for all kinds of activities to very infrequent use: motivation is the main driver
 - Motivation rises with the diffusion of digital media



2. PHYSICAL ACCESS

**INCREASING GAPS DURING THE 1980S AND 1990S OF:
INCOME, EMPLOYMENT, EDUCATION, AGE, RACE**

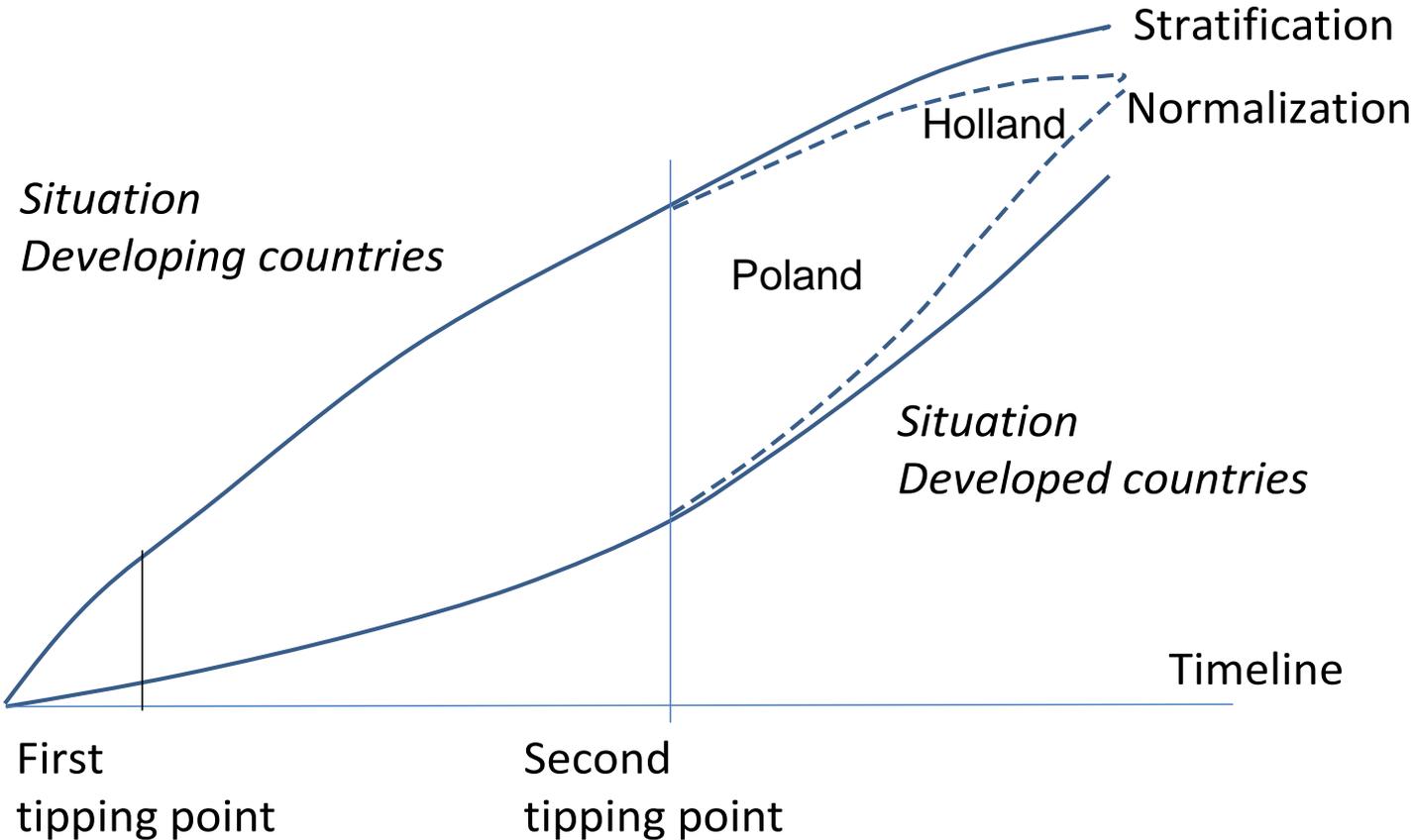
DECREASING GAPS OF

- GENDER

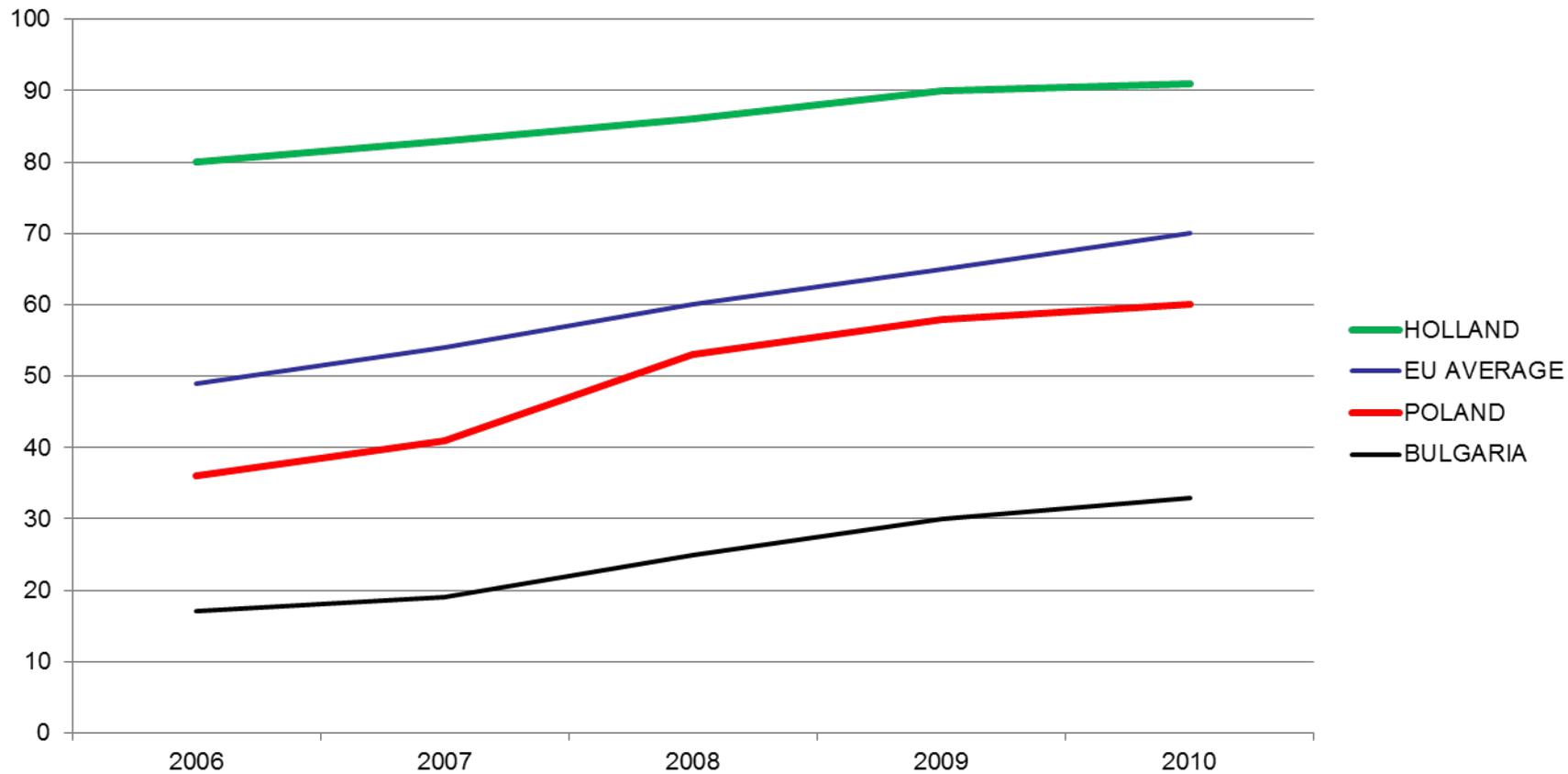
**AFTER 2000 DECREASING PHYSICAL ACCESS GAPS
FOR ALL CATEGORIES IN THE DEVELOPED COUNTRIES**

However, even in the Netherlands (94% internet penetration in households) about 15-20% in fact have no access, a.o because they do not use the household connection (mainly elderly people, low educated and illiterate people and migrants)

Evolution of the Digital Divide of Physical Access in Time



Internet Access Households EU 2006-2010



3. Digital Skills: 6 Types



Medium-related

Content-related

Operational Skills: actions required to operate a digital medium ('button knowledge')

Formal Skills: handling the formal structures of the medium; here: browsing and navigating

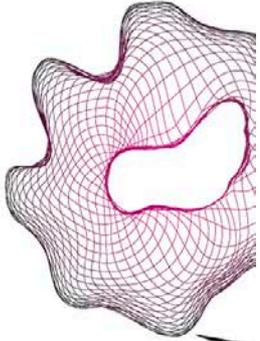
Information Skills: searching, selecting and evaluating information in digital media, e.g. search engines

Communication Skills: mailing, contacting, creating online identities, draw attention and giving opinions

Strategic Skills: use the digital medium as a means to achieve particular professional and personal goals

Content-creation Skills: make contributions to the Internet with a particular plan or design

Measuring Digital Skills at the UT-GW Media Lab



Quota samples of 300+ people from the Dutch population subjected to a test of 9 Internet tasks of using public services (1,5 hours)

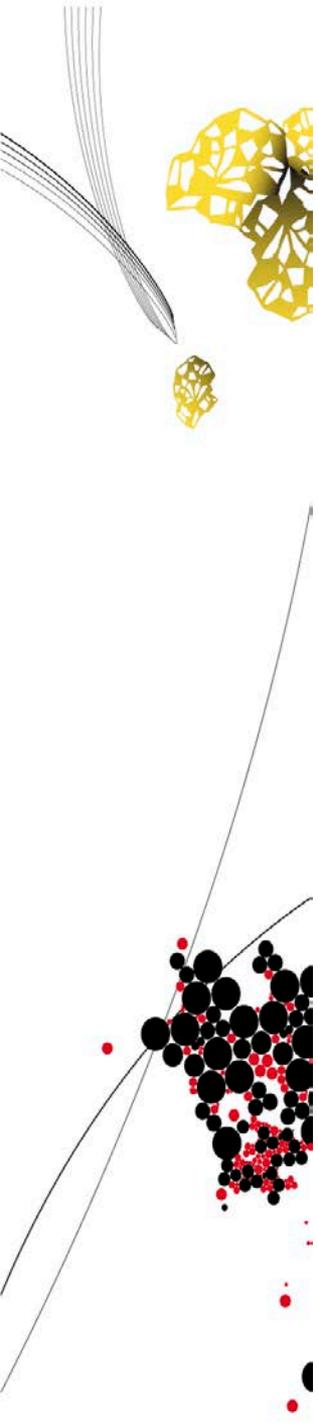
78% of operational tasks, 78% of formal tasks, 58% of information tasks and 28% of strategic tasks successfully completed;

Significant differences among people with different age and educational level, not gender

Young people between 18 and 30 are superior in operational and formal skills but not in information and strategic skills

People above 55 perform relatively bad in all skills, when operational skills are absent; **when not they perform as good or even better than young people**





Popularization of Internet Use in the Netherlands (UT Trendreport 2011)

- Currently the lower educated are using the Internet for more hours a day in their leisure time than higher educated people

Average hours a day:

Low edu: 3,7

Medium edu: 3.0

High edu: 2,5

- Difference between males and females declines:

Males (16+) 3,2

Females (16+) 3,1

Employed: 2,8

Unemployed: 3,6

Unfit to work 3,7

Pensioners 2,3

4 Usage: Top 10 Internet Applications Netherlands, 2011

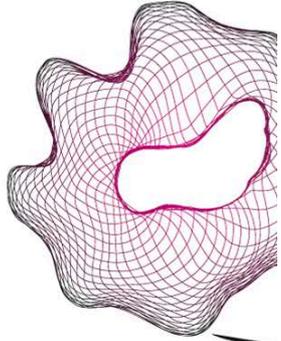
(with significant differences by seks, age and education)

	Application	% Daily or weekly Use	M / VF	AGE	EDUCATION
1	E-mail	96	-	-	HME
2	Search systems	91	-	16-35	HE
3	Internet banking	77	M	36-55	HE
4	News services	59	M	-	HE
5	Free surfing	64	M	16-55	HE
6	Online Paper Broadcasting	64	M	16-35	HE
7 ↑	Social Networking	53	V	16-35	-
8	Product search	34	M	36-55	-
9	Auctions/eBay	32		16-35	HME
10	Online gaming	29	V	16-35	LO

Use of Internet Applications 2010 EU/Poland (percentage of Internet users, *Eurostat*)

Application	EU Average	Poland
Communication (all)	63	54
Information search products, services	36	25
Internet banking	35	25
Online newspapers and magazines	34	17
Health information	34	25
eCommerce	32	21
Government information	28	18
Gaming and Downloading	28	24
Web Radio and TV	26	22
Search Jobs	15	10

4. Usage Access



Probability of a **usage gap**: the higher educated will use the advanced applications of the new media for career and study, while the lower educated will use the simple ones (electronic shopping, paying, simple messaging etc.)

This refers to the **education** usage gap

However: in the Dutch trendreport (UT), the **age and gender** usage gap were still stronger in 2011

Cause: information and strategic skills, the social positions occupied and socio-cultural preferences

Familiar to the ***knowledge gap thesis*** (differential knowledge derived from the mass media).



Use of the Internet matters: Benefits

STATEMENT	PERCENTAGE OF 'YES'
After an online application considering a vacancy I have obtained a job	19
Via the Internet I was able to buy a product cheaper than in a shop	80
Via the Internet I was able to sell or exchange something I otherwise would not have lost	63
Via the Internet I have discovered which political party I would like to vote for	37
Via the Internet I have run into an association I became a member of (such as a sports club, a cultural association, a trade union or a political organization)	22
Via the Internet I have acquired one or more friends that I have really met later.	32
Via a dating site I have made an appointment with a potential partner	14
Via the Internet I have discovered which medical illness I had	27
Via the Internet I have booked a profitable holiday trip	60
Via the Internet I have ever reached a discount on a product	42

Table 2. Percentage of Internet users in the Netherlands giving positive answers to potential advantages of Internet use in 2011. Source: van Deursen and van Dijk, 2011.

Who Benefits Most?

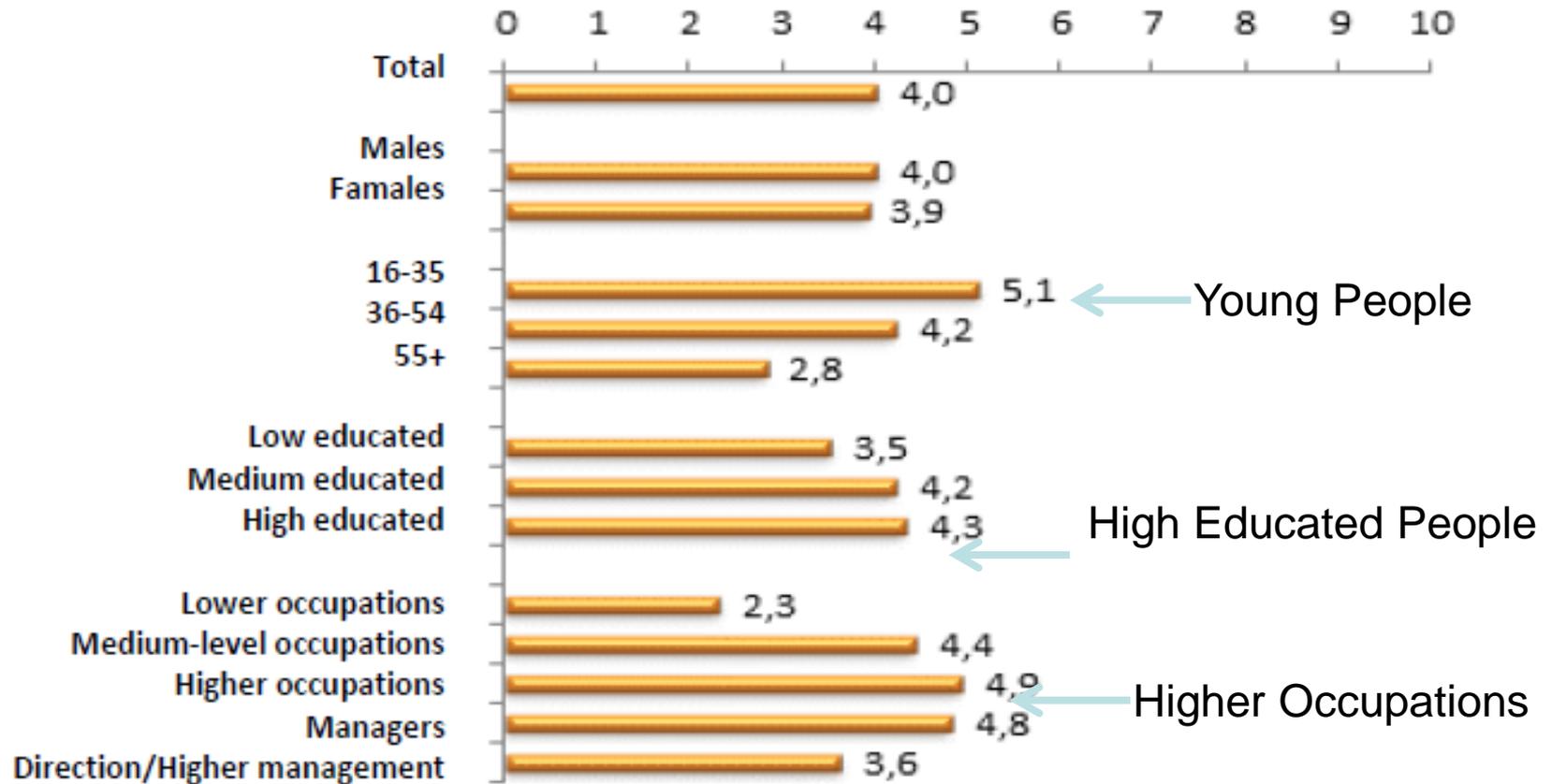
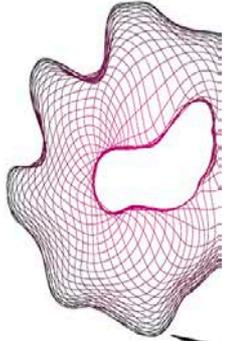


Figure 4. Average number of positive answers to 10 potential advantages of Internet use in the Netherlands in 2011. Source: van Deursen and van Dijk, 2011.

Economic Stakes



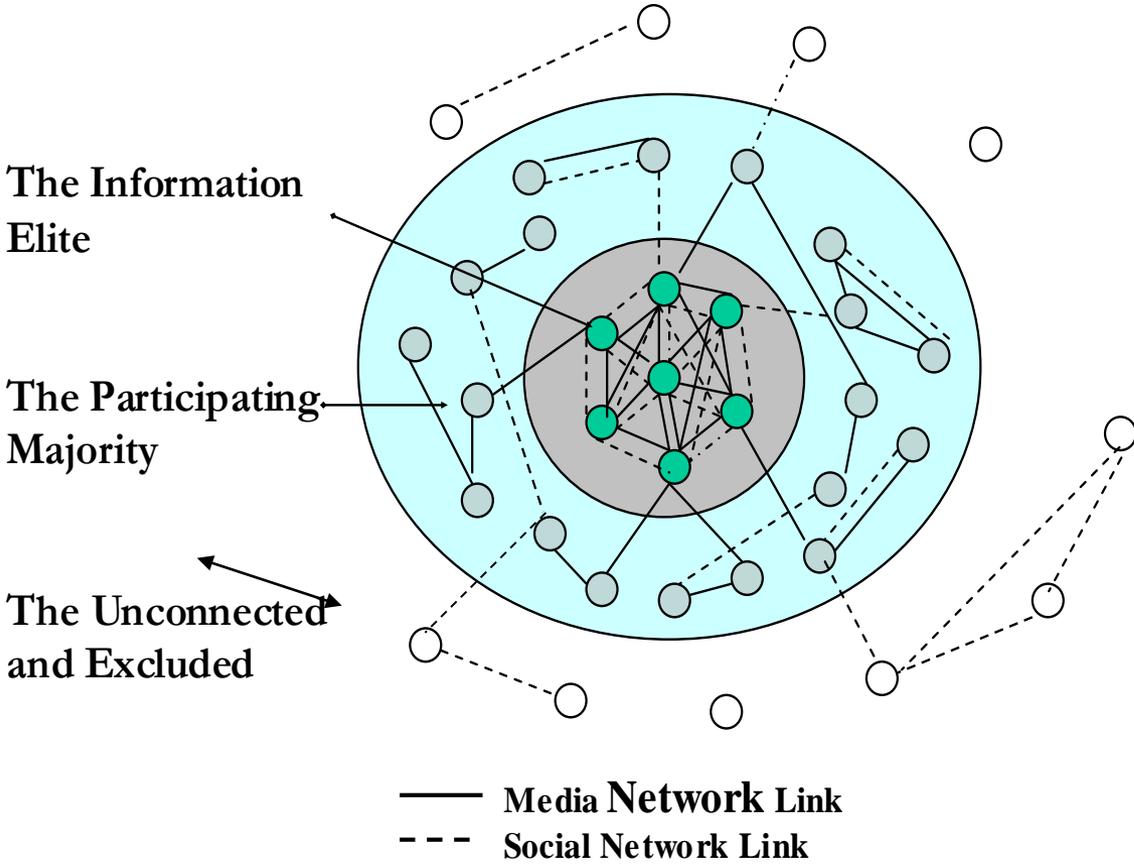
In our recent (2012) report *Control Alt Delete* we observed that the Dutch working population experienced a productivity loss of 19 billion euro's per year by loosing 7,6% off working time to:

- Not properly working computer technology (54%)
- Inadequate digital skills (46%)

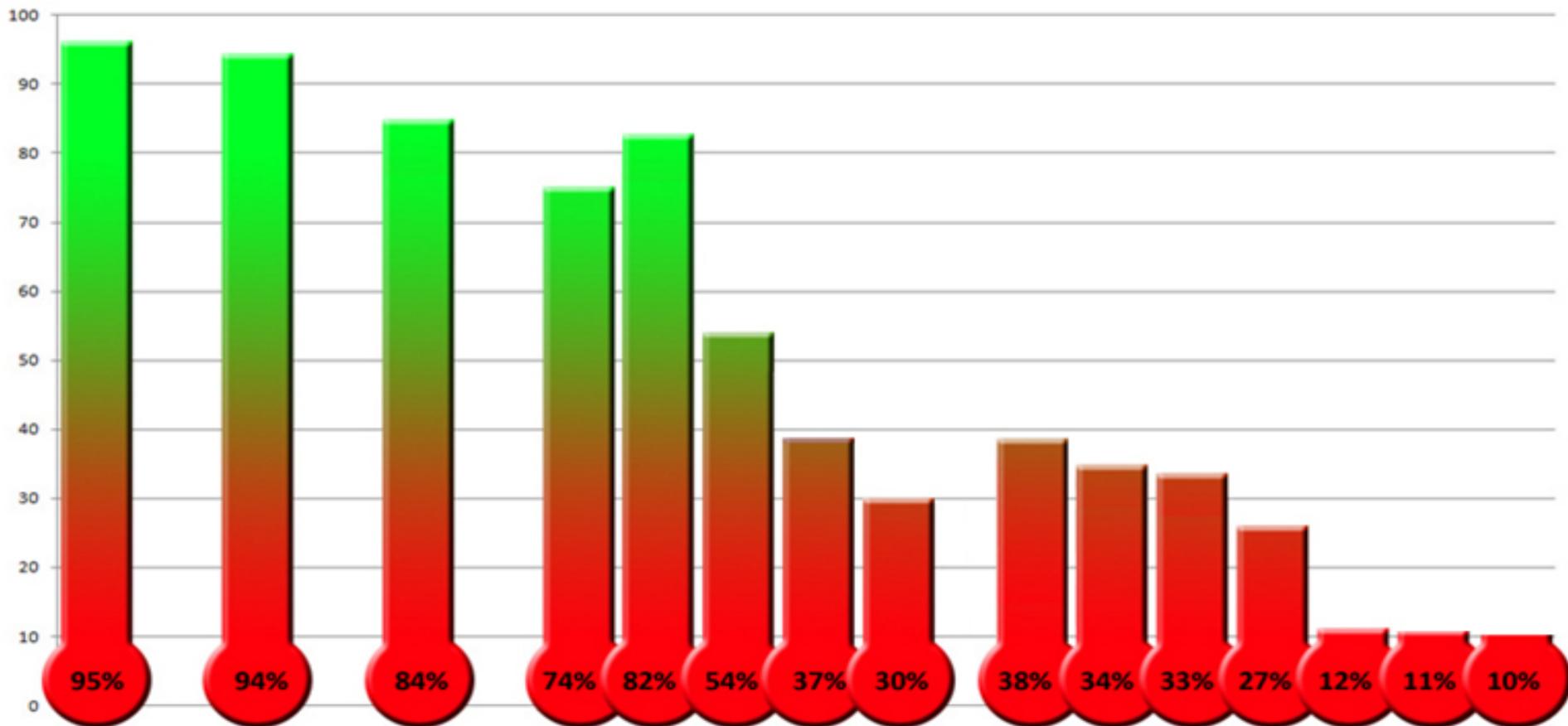
Together these costs are more than all hardware, software, IT advise and electricity costs together!

Business managers do not realize the gain of better digital skills.

The Picture to be Prevented: The Tripartite Network Society



Barometer Internet Use Netherlands 2011



Moti
vation

Physi-
sical

Actual
Use

Oper Form
SKILLS

Info Com Ent Trans
Applications
Work

Conclusions

- 
- The digital divide is a very *complex* problem with many causes and consequences
 - The digital divide is a *dynamic* problem with a continually shifting focus: from a lack of motivation and physical access to a lack of skills and divergent uses
 - The motivation and physical access problems will be solved soon, but skills and usage disparities will grow.
 - They tend to amplify, not reduce longer existing social, economic and cultural inequalities
 - Reduction of skills and usage gaps primarily requires education and training of all kinds and emancipatory cultural policies