Image from Samira Makhmalbaf's film "Blackboards" from Alexandre Borovik's Mathematics Under the Microscope blog

A forward and backward look
Seb Schmoller
http://alt.ac.uk/
seb.schmoller@alt.ac.uk
@sebschmoller

1

Picture from Wikimedia Commons: http://tinyurl.com/6hr6hge   Picture by FrameSniper: http://tinyurl.com/6afst96

?

Main headings

1. Falling cost / more for less - **F**

2. Ubiquity and scale – **U**

3. Openness – **O**

4. Mediation – **M**

5. Looking briefly backwards

But first

?

An introductory straw poll	n
Own a phone with Internet access	
Regular writer of Tweets	
Made use of Wikipedia	
Edited a Wikipedia page	
Written a blog post	
Commented on someone else's blog	
Uploaded a video to YouTube	
Active user of Facebook	
Uploaded something to an open access repisitory	
Read email in bed	
Studied as an online learner	

Places

Berlin, Cape Town, Maseru (in Lesotho), London - 1946

Conchillas (in Uruguay), Buenos Aires, London - 1946
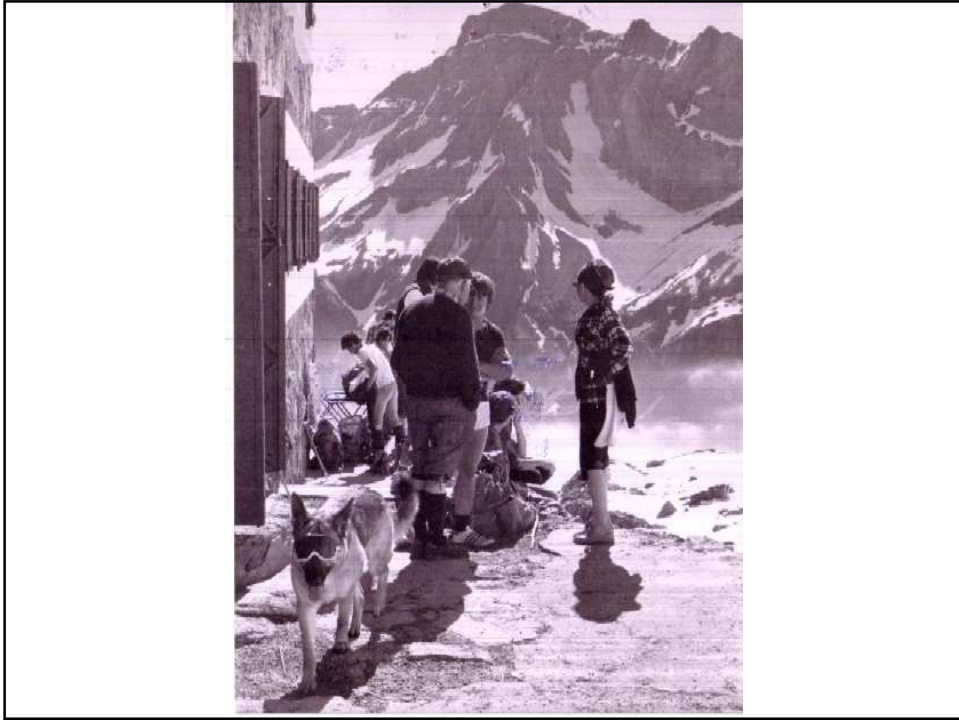
Hillingdon, Heathrow, Cambridge, Sheffield - 1976

Numbers

60

36

24, 26

ASSOCIATION FOR LEARNING TECHNOLOGY

ALT

Work

- **1979 - 2002**   Sheffield College in various roles for the last six as "Learning Technology Development Manager". Before that running courses for the TUC on how to be a union representative

- **2002 -**   independent consulting about online learning and the Internet

- **2003 - today**   Chief Executive of ALT

- **2008 -**   Governor of The Sheffield College

Picture by geologist adrian@adrianlorente.com who worked on the tunnel reconstruction

What is it like being a course participant?

(19588) 92-02-26 15:58 Carol B - GMB
Kommentar til: (1975) af Seb Schmoller - Sheff. TUSC UK
Modtager: UK Distance Cafe

As a late starter, I came into the system with a great deal of
mail to read. I am only now at the stage of making my own
entries. Perhaps my impression of computer conferencing is
therefore not going to be so valid, but the main thing that
struck me as I read through all the entries is the computer
conferencing makes everyone equal. It doesn't matter who you
are, male, female, teacher, student. Any message within the
system is given equal weight, and within the conference each
user gets to see the input of all the others. It's like a
classroom with no bullies, no teacher's pets, no "Fat Kid", no
shy awkward types. It is a system of communicating where there
are no favourites, no unfair advantages.

(19588)

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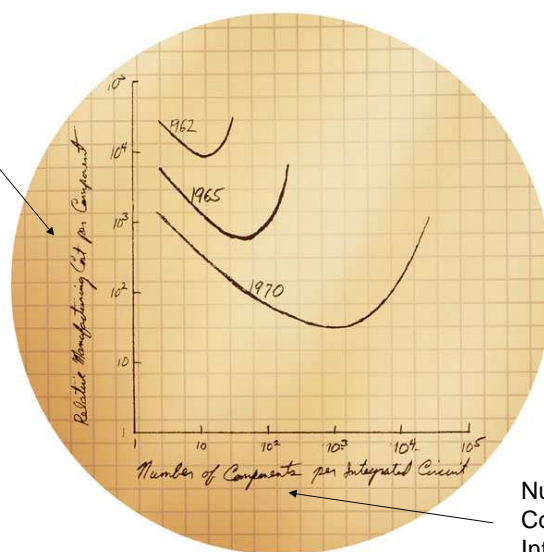# Falling costs and more for less

F1

Gordon E. Moore, Co-founder, Intel Corporation.

F2 – Moore's Law

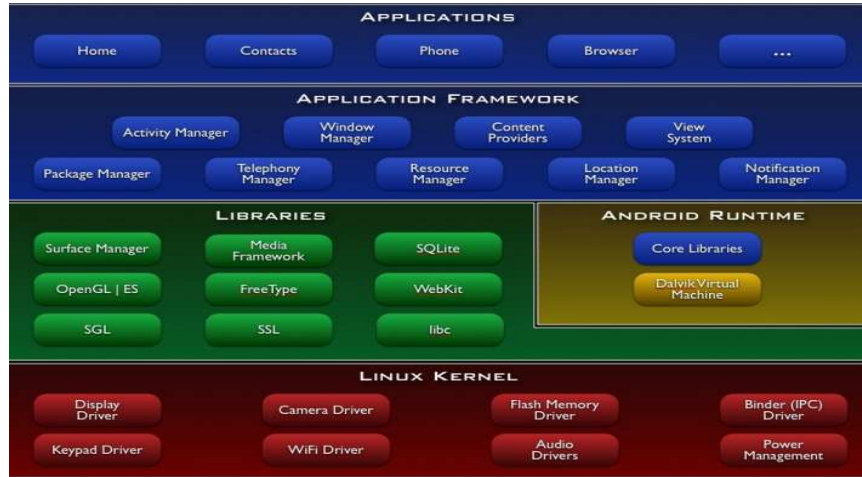Relative Manufacturing Cost per Component

Number of Components per Integrated Circuit

In 1965, Gordon Moore sketched out his prediction of the pace of silicon technology. Decades later, Moore's Law remains true, driven largely by Intel's unparalleled silicon expertise.. Copyright © 2005 Intel Corporation. Copyright © 2005 Intel Corporation.
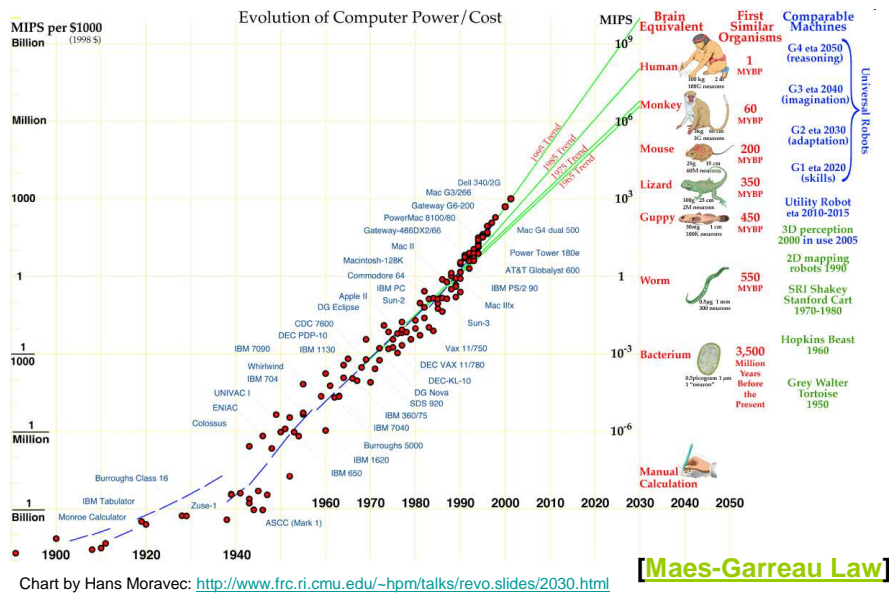
F3

Image from http://www.handcellphone.com/mobile/files/phone-images/google-g1-phone-review-4.jpg

F4

Source: Google/Android web site

F5 – Some speculation
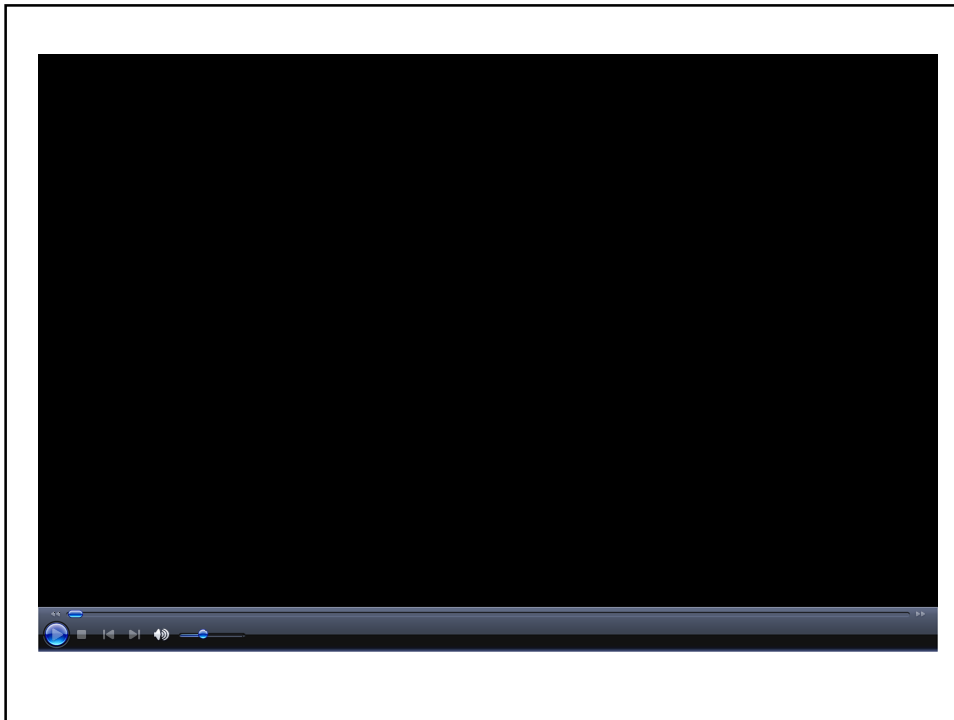
Chart by Hans Moravec: http://www.frc.ri.cmu.edu/~hpm/talks/revo.slides/2030.html

[Maes-Garreau Law]

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Ubiquity and scale

The Khan Academy, a library of over 3100 maths and other educational videos has delivered nearly 150 million sessions.

Nine hundred million people now interact with each other on Facebook, maintaining relationships with friends, family and work colleagues across the world.

Wikipedia is the sixth most popular website in the world containing 19m articles in 270 languages. With 3.9m English-language articles, it is 50 times bigger than the Encyclopedia Brittanica.

Forty eight hours of video are uploaded to YouTube every minute. As the preferred source for how-to videos on just about any subject, it is the second most popular search engine in the world.

There were 1.2 billion mobile web users in the world at the end of 2011, increased from 870 million in 2010. 54% of all Europeans now own a mobile device capable of accessing the Internet.

The free, online Introduction to Artificial Intelligence course run by Stanford University professors had 160,000 enrolments. Learners took part from every country in the world except North Korea. 49000 started the course. 20000 did the final exam.
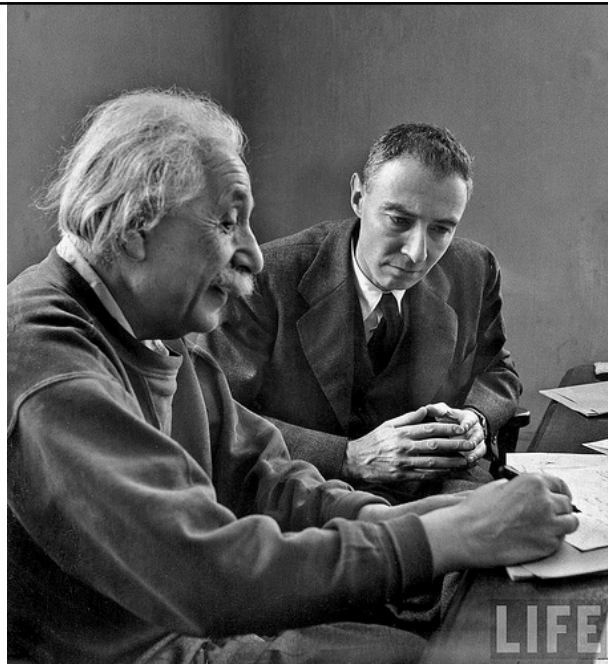
Albert Einstein and J. Robert Oppenheimer working together at Princeton's Institute for Advance Study in 1947. © Alfred Eisenstaedt. Source: http://www.photographersgallery.com/photo.asp?id=3545

Sitting in a bar with a really smart friend

Optional digression - 15 minutes being learners on two small chunks of the "original" AI course

1. Course web site - https://www.ai-class.com/home/

2. Small chunk #1: Unit 16, Computer Vision I,Sections 1 to 4, starting at https://www.ai-class.com/course/video/videolecture/179 - work through the first **four** sections (~7 minutes)

3. Small chunk #2: Unit 5, Machine Learning, Sections 1 to 3, starting at https://www.ai-class.com/course/video/videolecture/47 - work through the first **three** sections (~8 minutes)
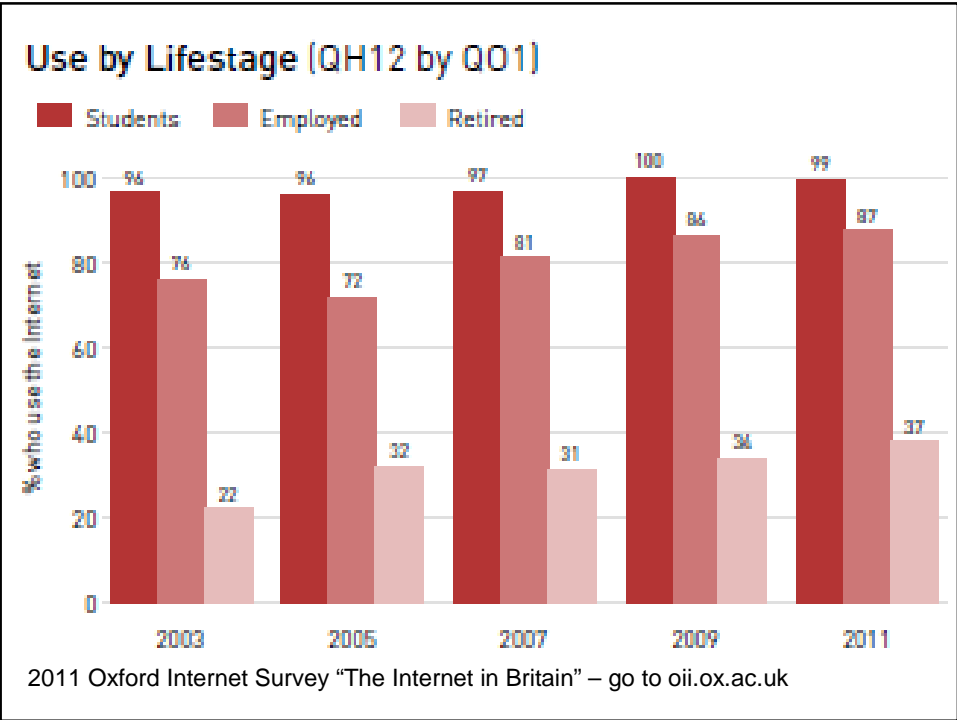
[13.30 to 23.52 online learning and the way it will transform education](#)

U2 Broadband connections per 100 inhabitants

Rank		DSL	Cable	LAN	Other	**Total**
1	Denmark	20.9	9.9	3.3	0.8	**35.1**
2	Netherlands	20.7	13.4	0.4	0.2	**34.8**
3	Iceland	31.1	0.0	0.4	0.7	**32.2**
4	Norway	23.3	5.5	2.0	0.4	**31.2**
5	Switzerland	21.2	9.4	0.1	0.3	**31.0**
6	Finland	25.6	4.0	0.0	1.1	**30.7**
7	Korea	9.5	10.5	10.4	0.0	**30.5**
8	Sweden	18.9	5.9	5.5	0.1	**30.3**
9	Luxembourg	24.1	2.4	0.1	0.1	**26.7**
10	Canada	12.4	13.8	0.0	0.4	**26.6**
11	United Kingdom	20.1	5.6	0.0	0.1	**25.8**

Use by Lifestage (QH12 by QO1)

Legend: ■ Students ■ Employed ■ Retired

Chart — % who use the Internet:

Year	Students	Employed	Retired
2003	96	76	22
2005	96	72	32
2007	97	81	31
2009	100	86	34
2011	99	87	37

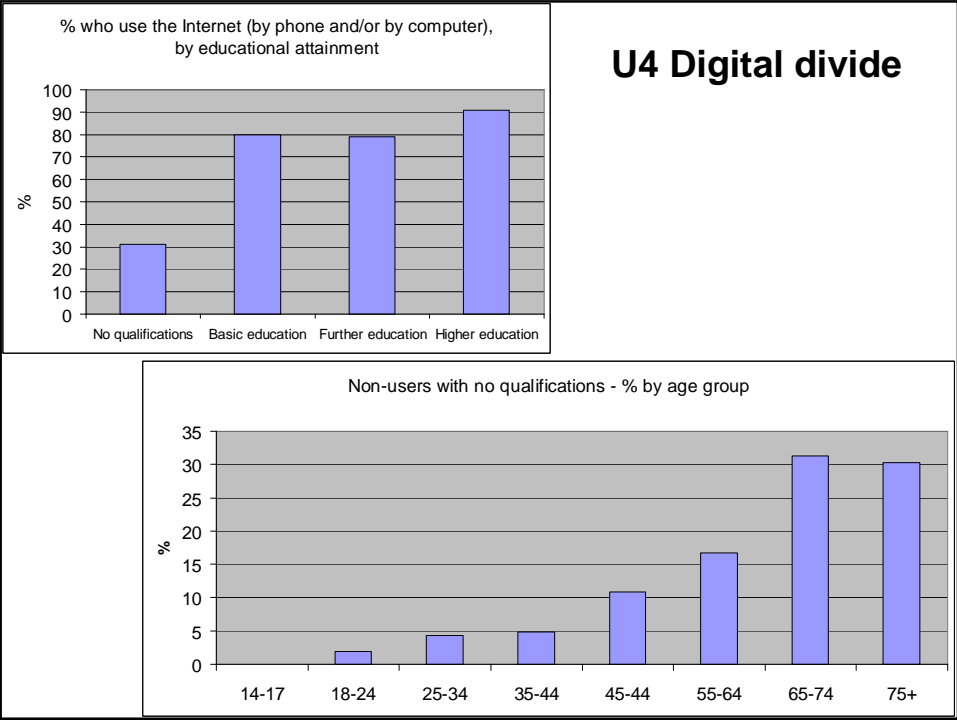2011 Oxford Internet Survey "The Internet in Britain" – go to oii.ox.ac.uk

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U3 Mobile and gaming devices

Mobiles
- 1990 – 11 million ~ 0.3% of the world's adult population
- 2007 – 2.5 billion ~ well over 50% of the world's adult population

(37% compound annual growth rate)

**Gaming devices in the UK**
- 5 million Nintendo DS
- 2 million Wiis

U4 Digital divide

% who use the Internet (by phone and/or by computer), by educational attainment

%	No qualifications	Basic education	Further education	Higher education
	~31	~80	~79	~91

Non-users with no qualifications - % by age group

%	14-17	18-24	25-34	35-44	45-44	55-64	65-74	75+
		~2	~4.5	~5	~11	~16.5	~31	~30

U5 Eric Schmidt – CEO of Google (in 2007)

"It's pretty clear that there's an architectural shift going on. These occur every 10 or 20 years. The previous architecture was a proprietary network with PCs attached to it. With this new architecture, you're always online, every device can see every application, and the applications are stored in the cloud."

(Eric Schmidt, 9 April Interview in Wired)

U6 our learning context

LIFELONG AND LIFEWIDE LEARNING
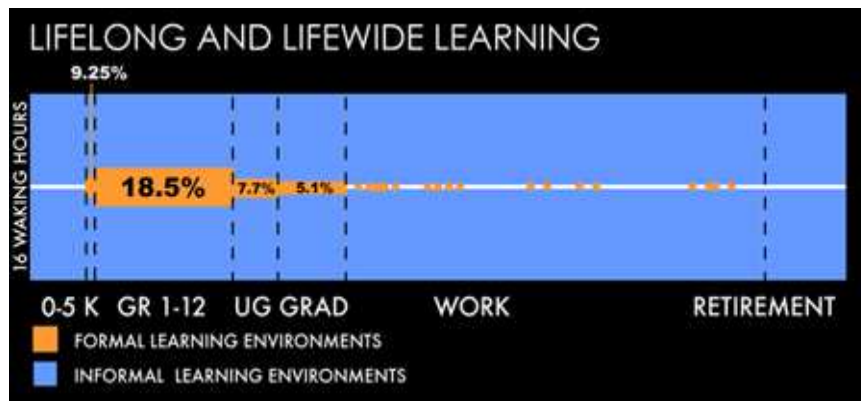
Source: NSF LIFE Centre

U7 Dylan Wiliam, Emeritus Professor of Educational Assessmentat the Institute of Education

"The key concept here [….] is that teachers do not create learning. That's true—teachers do not create learning, and yet most teachers behave as if they do. Learners create learning. Teachers create the conditions under which learning can take place."

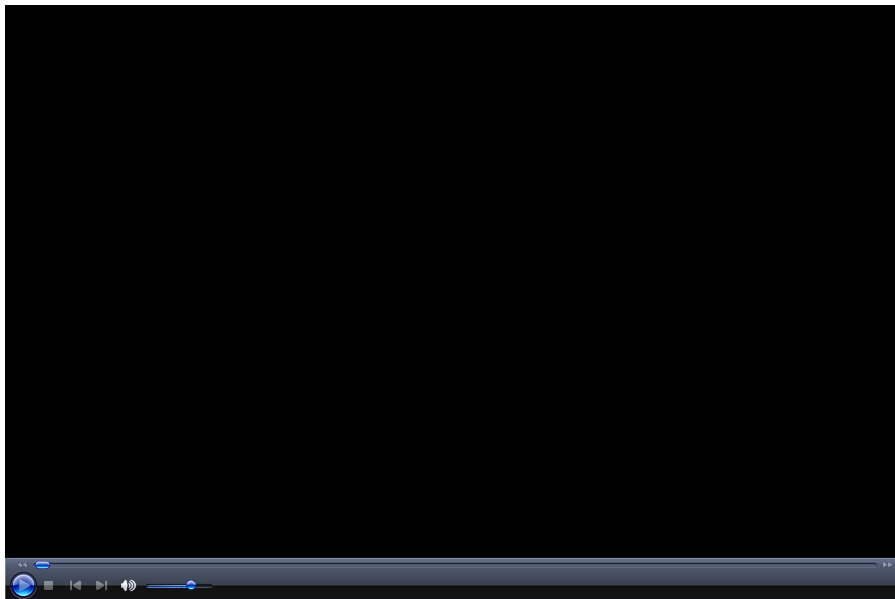(Dylan Wiliam, 5/9/2007, Keynote speech at the 2007 ALT Conference)

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Openness

O1 star performers are freely available

Erik Jacobs for The New York Times

Source: two MIT OCW videos available on YouTube at http://uk.youtube.com/watch?v=97oTDANuZco

O2 Open Source software

1. Open Source software sits behind much of the ubiquitous Internet

2. The success/feasibility of Open Source software is partly a consequence of the Internet

3. Open Source software has been produced using a new and unprecedented business model.

O3 Open content

Who wrote the following and when?

"The kind of organization we wish to aim at is one where all relevant information should be available to each research worker and in amplitude in proportion to its degree of relevance. Further, that not only should the information be available, but that it should be to a large extent put at the disposal of the research worker without his having to take any special steps to get hold of it."
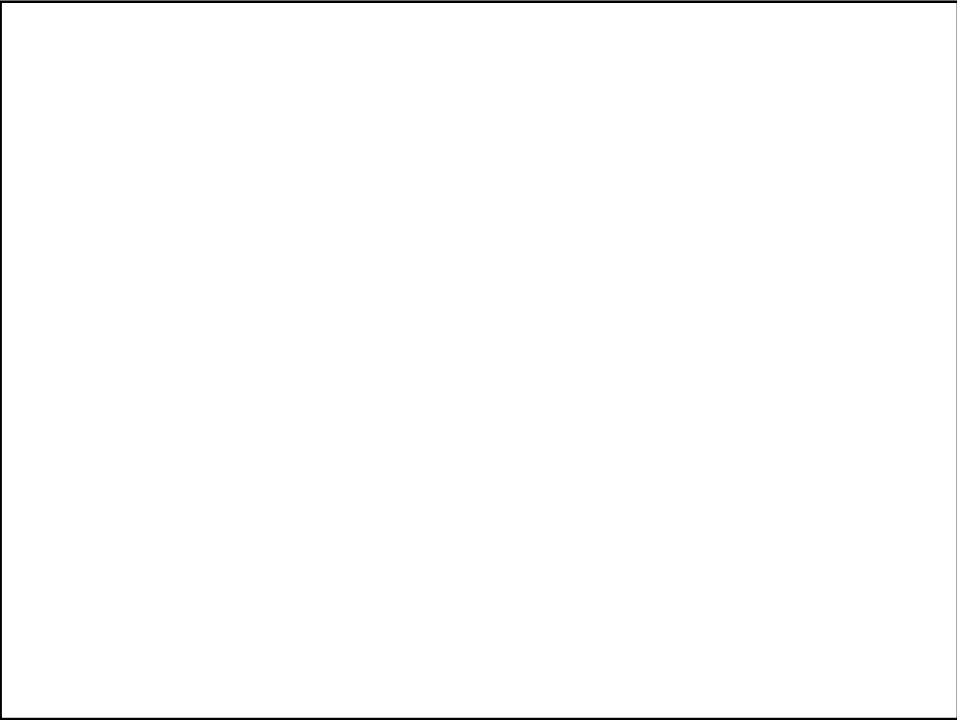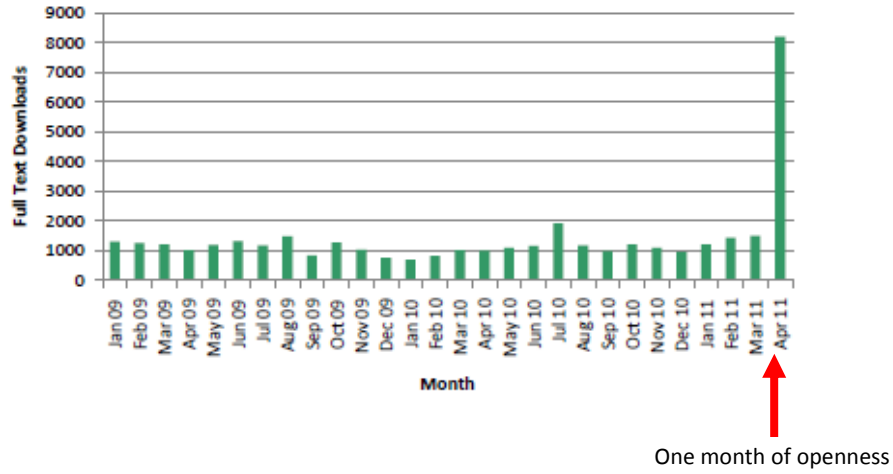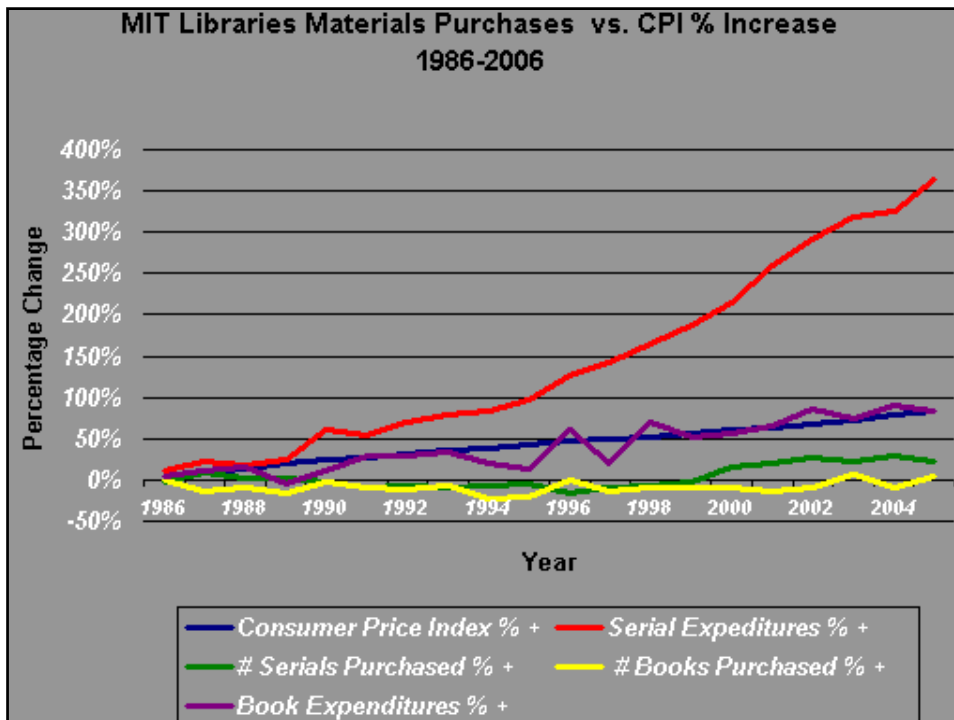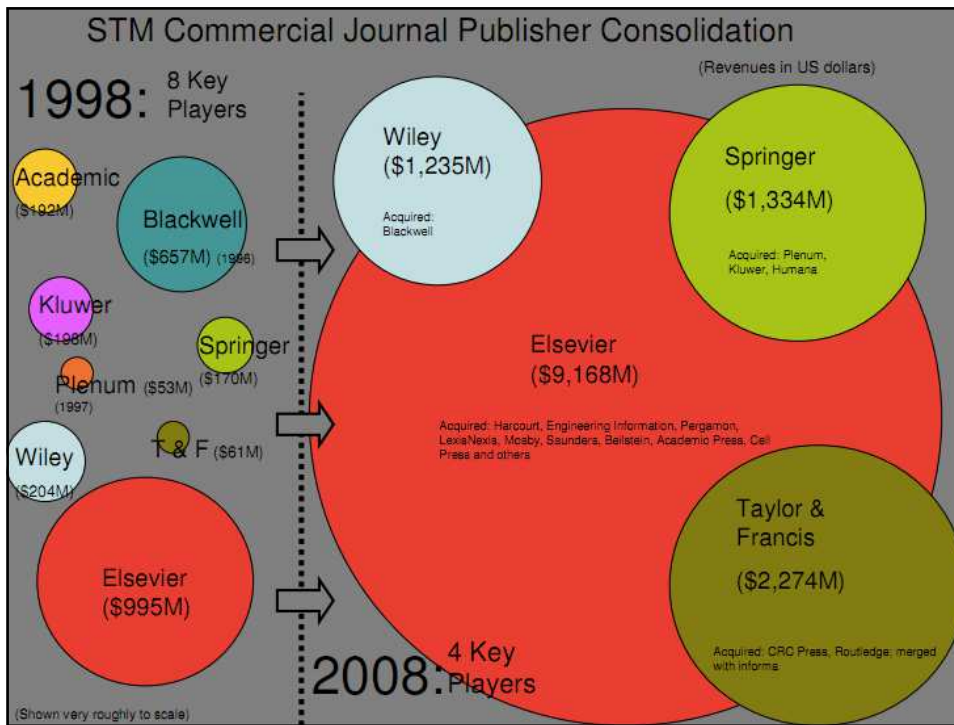
JD Bernal, 1939

Via Sheila Webber's "Information science in 2003: a critique"

The effect of Openness

Total Full Text Downloads on Informaworld by month Jan 2009 – April 2011

One month of openness

STM Commercial Journal Publisher Consolidation

MIT Libraries Materials Purchases vs. CPI % Increase 1986-2006

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Mediation

M1 Who sat/sits between you and knowledge?	
1900-1990	**2000-2010**

M2

M3

In his 2010 work (*You Are Not a Gadget*) Lanier criticises "the hive mind" and describes the open source and open content expropriation of intellectual production as a form of Digital Maoism. He finds that it has retarded progress in computer science and innovation in music. He attacks some of the sacred cows of today including Wikipedia and Linux in this manifesto, Wikipedia for its function of "mob rule" by anonymous authors and editors, along with the weakness of its non-scientific content and its bullying of contributors who have genuine expertise in their field. He also argues that there are limitations of certain aspects of the "open source" and "open content" and that they lack the ability to create anything truly new and innovative. He further argues that these approaches have destroyed opportunities for the middle class to finance content creation, and have concentrated wealth in what he calls "the gods in the clouds": people who, rather than innovating, **insert themselves as content concentrators** at strategic times and locations in the "cloud".

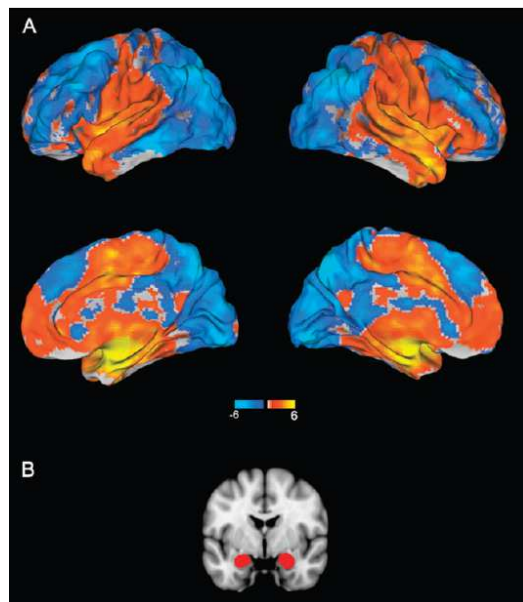http://en.wikipedia.org/wiki/Jaron_Lanier (last accessed 19/11/2010)

M4

"If money is flowing to advertising instead of musicians, journalists, and artists, then a society is more concerned with manipulation than truth or beauty."

Jaron Lanier, You Are Not A Gadget – A Manifesto

PS – How can we be ambidextrous in the matter of technology and education?

Looking very briefly backwards

The appeal of the brain in the popular press

2 hours of vertebrate life

1 minute of tool-making humans

2 hours of tool-making humans

30 seconds of farming

15 seconds of recorded history

2 hours of recorded history (0.2% of the time since humans evolved)

12 minutes of printing

40 seconds with personal computers

25 seconds of Web

3 seconds with iPhones

Printing   The Web

?