

Citizen Science: theory, practice and policy

(with case studies from UK & Germany)

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UCL, Extreme Citizen Science group

Plan

- 9:00-9:45 introduction to citizen science: history, trends that facilitate it, types of citizen science activities, examples of projects
- 9:45-10:00 Q&A about introduction, and the role of citizen science in projects
- 10:00-10:15 Designing and choosing Citizen Science activity
- 10:15-10:30 Introduction to citizen science activity – Environmental sensing: WideNoise, NoiseWatch, AirCasting or nature observation: iNaturalist, Anymals+Plants
- 10:15-11:00 data collection in the botanical garden or in the open areas of the university, working in groups of 2 or 3
- 11:00-11:15 discussion in group of 5 on the lessons from data collection
- 11:15-11:45 feedback from all groups and a discussion about implications for designing citizen science activities: data quality, difference between observers, overview of resources that are available for designing and evaluating citizen science activities
- 11:45-12:15 Policy aspects of citizen science across the world

Learning Outcomes

- Knowledge of the field of citizen science and current trends that influence it
- Understand the principles and practical aspects of designing a citizen science project
- Experience of citizen science activity
- Learn about additional resources that can be used to design and run citizen science projects
- Understand the policy trends that are influencing the field

Introduction to Citizen Science

- Citizen Science in a historical perspective – underlying trends
- Current activities in the area of citizen science online and offline
- Typology of engagement in citizen science

Citizen Science (OED 2014)

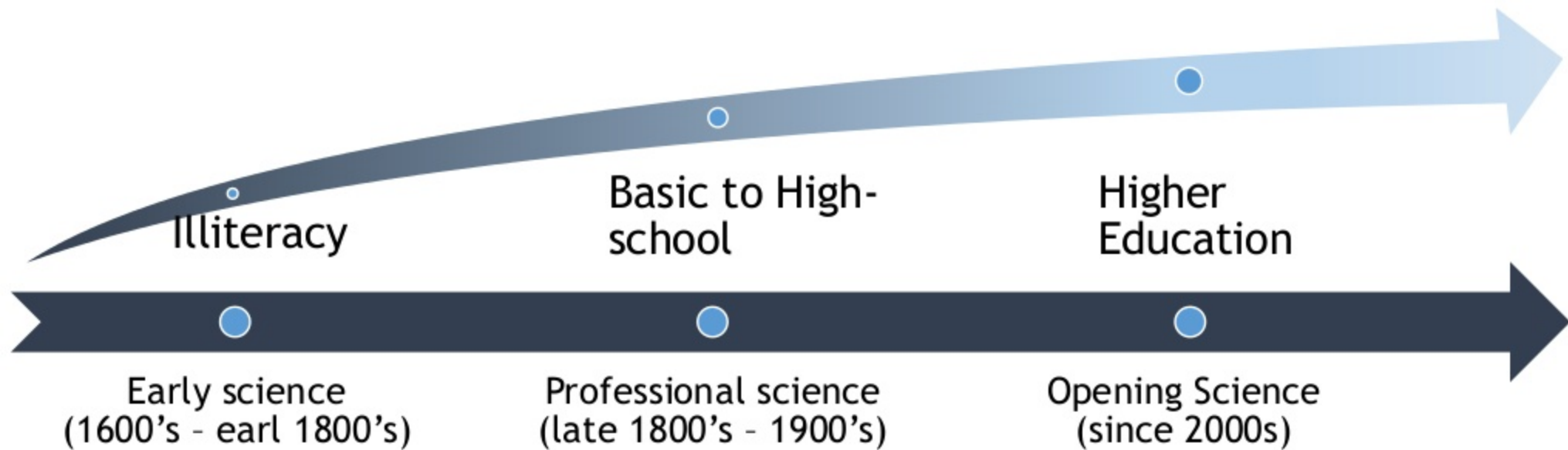
citizen science n. scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions.

citizen scientist n. (a) a scientist whose work is characterized by a sense of responsibility to serve the best interests of the wider community (now rare); (b) a member of the general public who engages in scientific work, often in collaboration with or under the direction of professional scientists and scientific institutions; an amateur scientist.

Citizen Science & Science



Citizen Science & Science



Citizen Science & Science

Citizen Science
as Gentlemen/
Gentlewomen
science

Illiteracy

Basic to High-
school

Early science
(1600's - early 1800's)

Professional science
(late 1800's - 1900's)

Mary Anning (1799-1847)



Citizen Science & Science

Citizen Science
as Gentlemen/
Gentlewomen
science

Citizen Science
diminishing

Illiteracy

Basic to High-
school

Early science
(1600's - early 1800's)

Professional science
(late 1800's - 1900's)

Volunteer rainfall observer Rick Grocke checks
the rain gauge at Tanami Downs cattle station in
the Northern Territory of Australia



William Whewell, tides and volunteers

- William Whewell, Trinity College, Cambridge
- 1833: coined the term “scientist”
- 1835: tides observation
- Thousands of “subordinate labourers” assisting the scientist in his tasks



The era of professional science

- Involvement continued: archaeology, astronomy, ornithology, conservation, meteorology ...
- No recognition, viewing volunteers as 'untrustworthy' contributors, that are better replaced by automated instruments



Shoemaker-Levy 9 on 17 May 1994

Citizen Science & Science

Citizen Science
as Gentlemen/
Gentlewomen
science

Citizen Science
diminishing

Citizen Science
as open &
inclusive science

Illiteracy

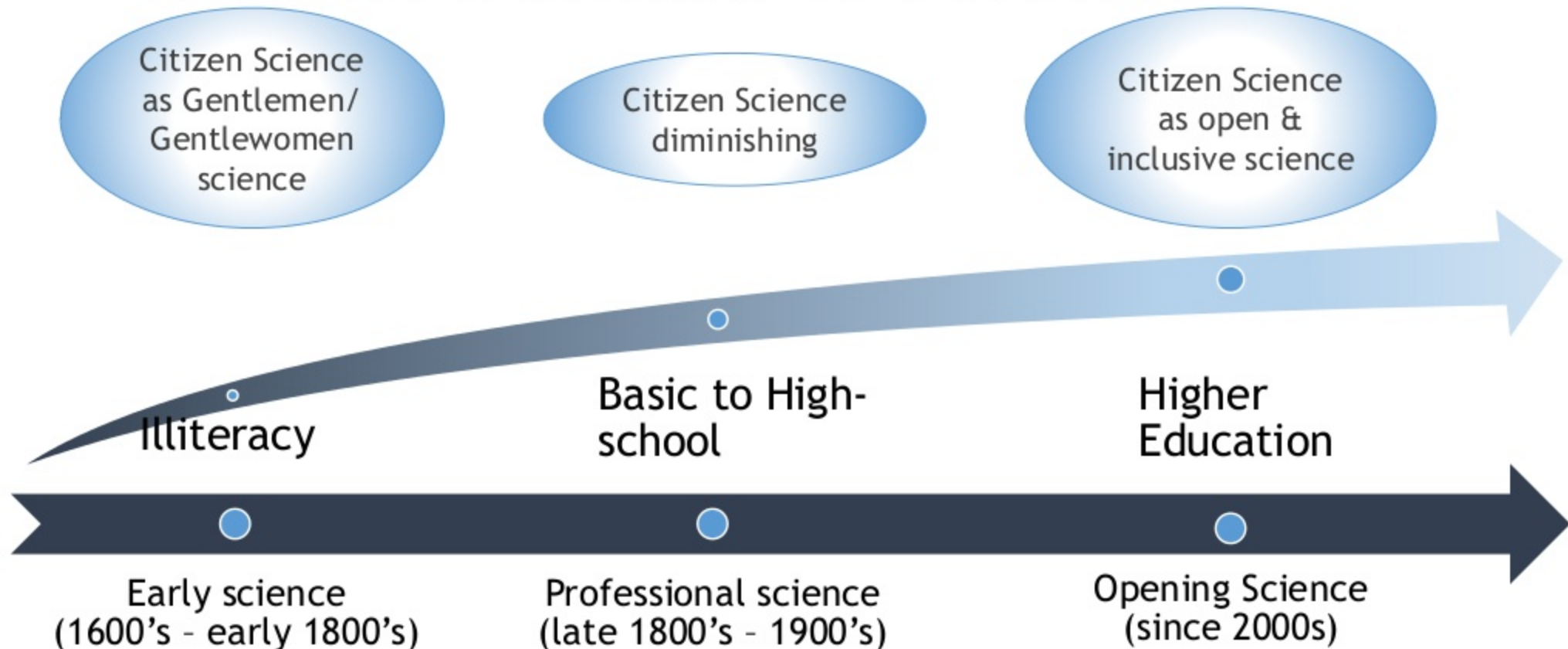
Basic to High-
school

Higher
Education

Early science
(1600's - early 1800's)

Professional science
(late 1800's - 1900's)

Opening Science
(since 2000s)

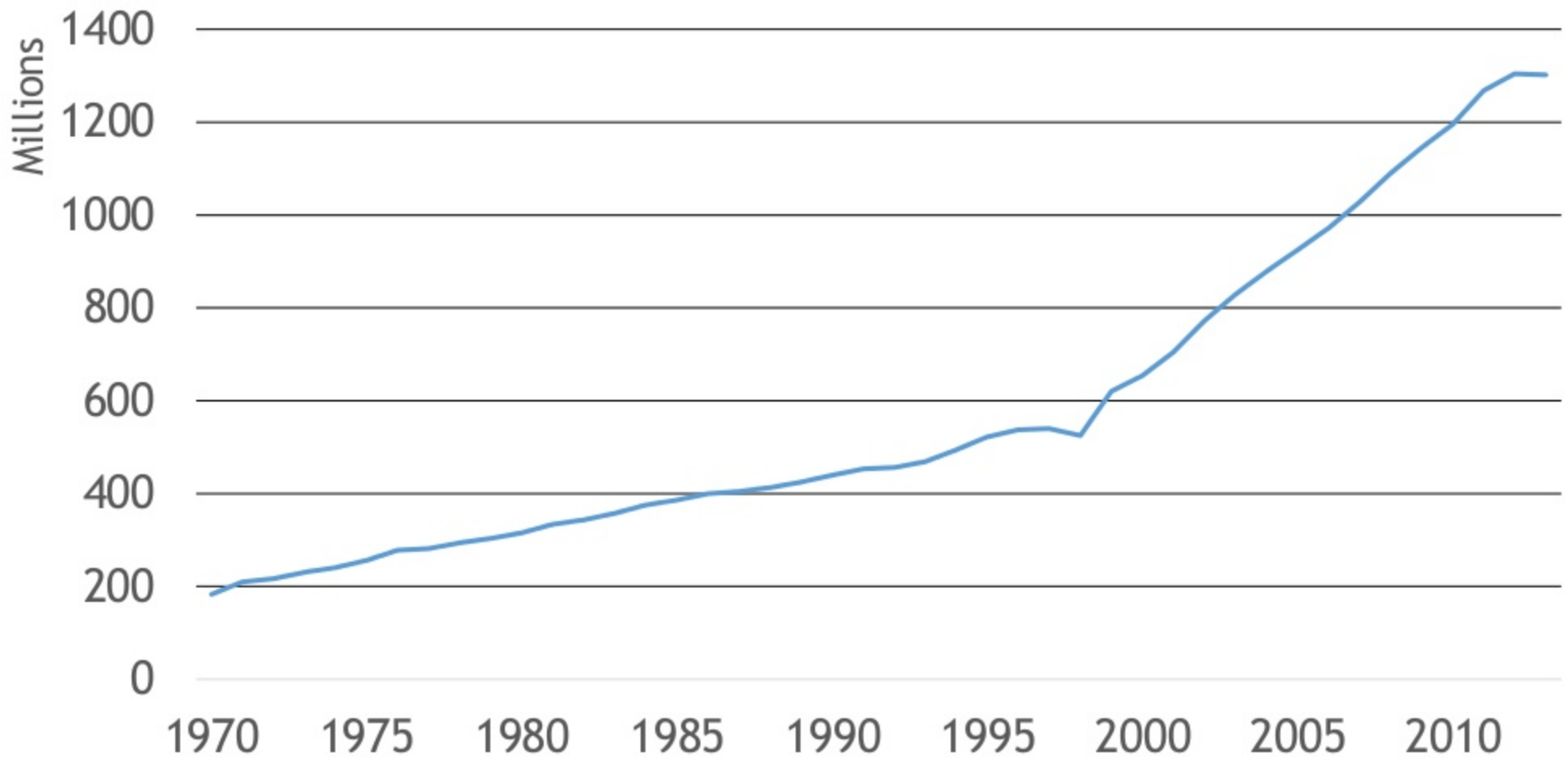


Citizen Science: why Now?

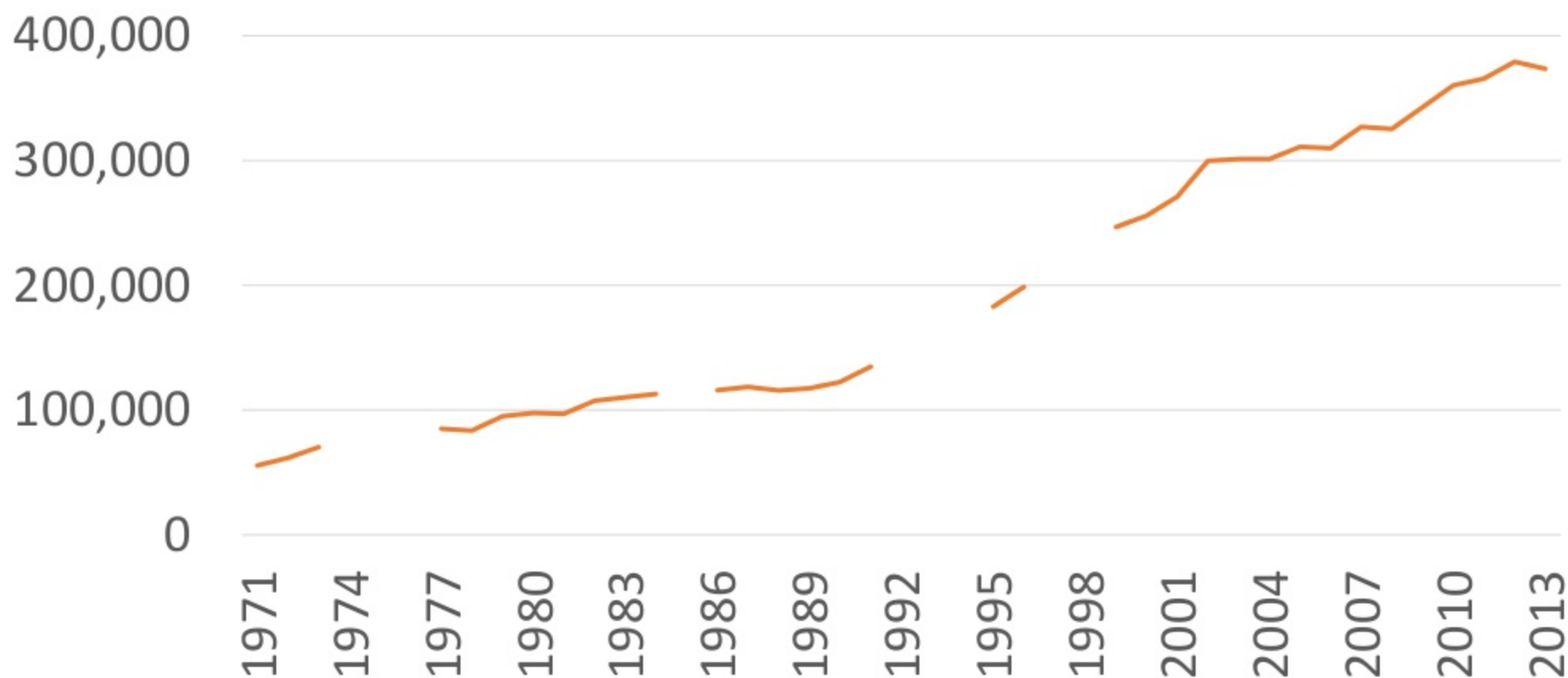
- Societal trends:
 - Education and qualifications
 - Leisure
 - Sharing economies / peer production systems
- Technological trends:
 - Internet access (broadband)
 - Mobile devices
 - Collaborative Web
 - DIY electronics

Increased level of education

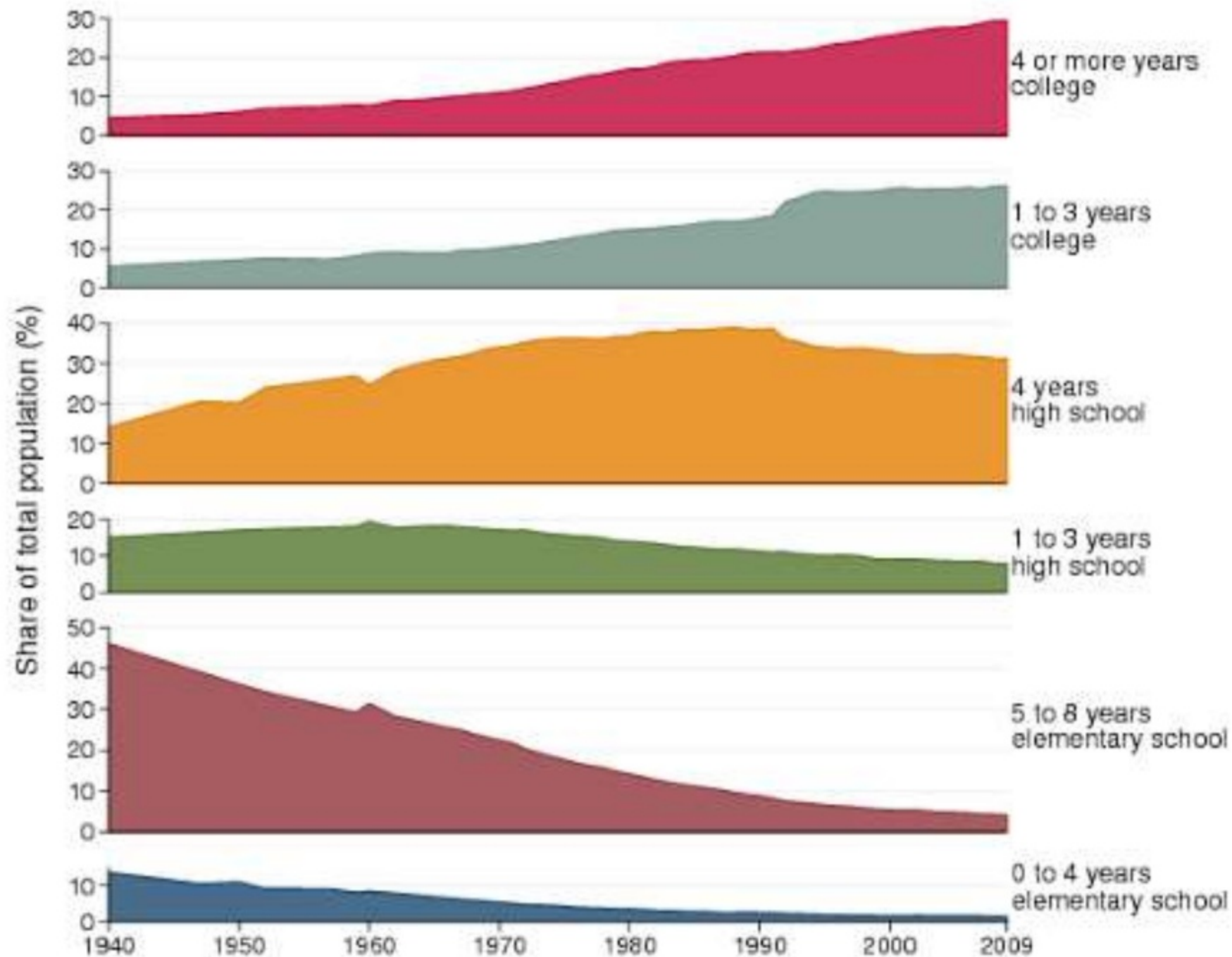
Enrolment in tertiary education, all programmes, both sexes (number)



Israel - Students enrolled at public and private tertiary education institutions.



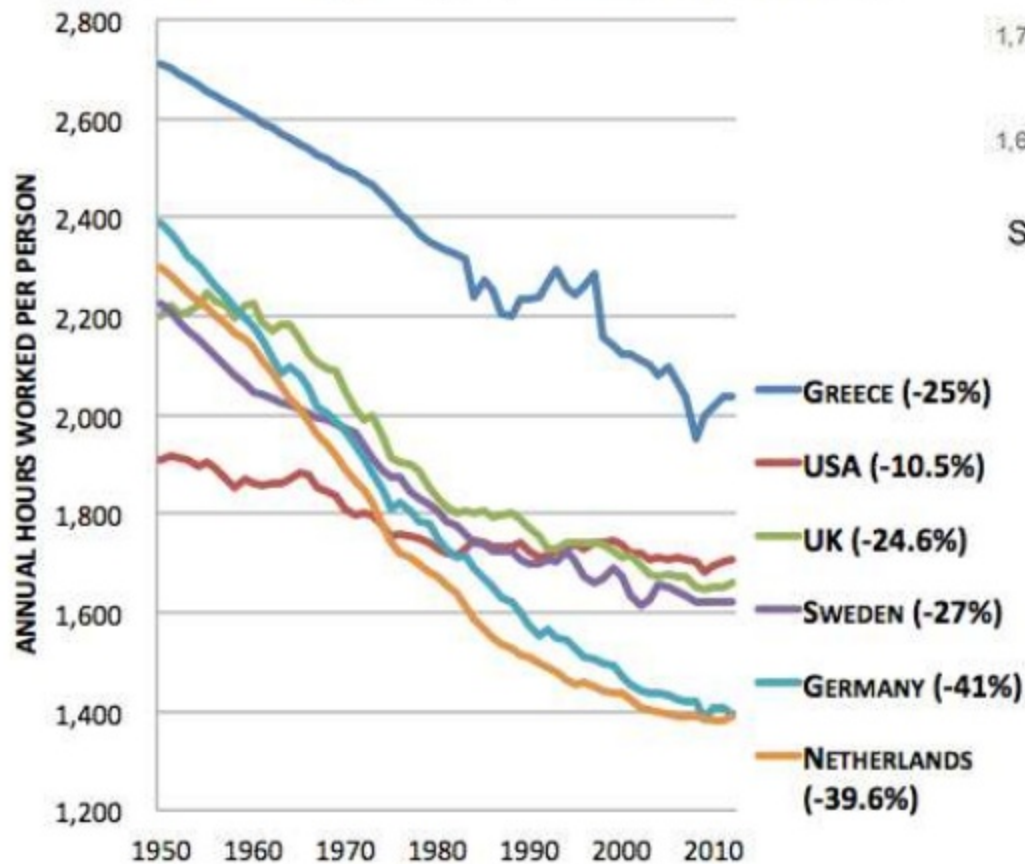
Years of school completed by population 25+ years 1940-2009



Leisure

WHO WORKS THE MOST?

Hours worked by country (60-year decline in paratheticals)

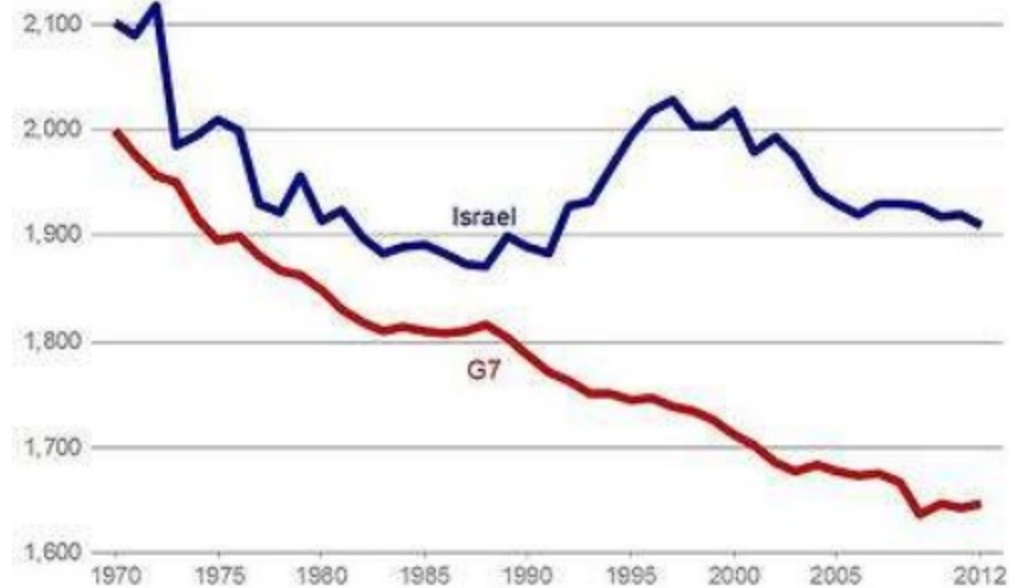


Source: the Atlantic

Figure 1

Average annual hours actually worked per person

1970-2012

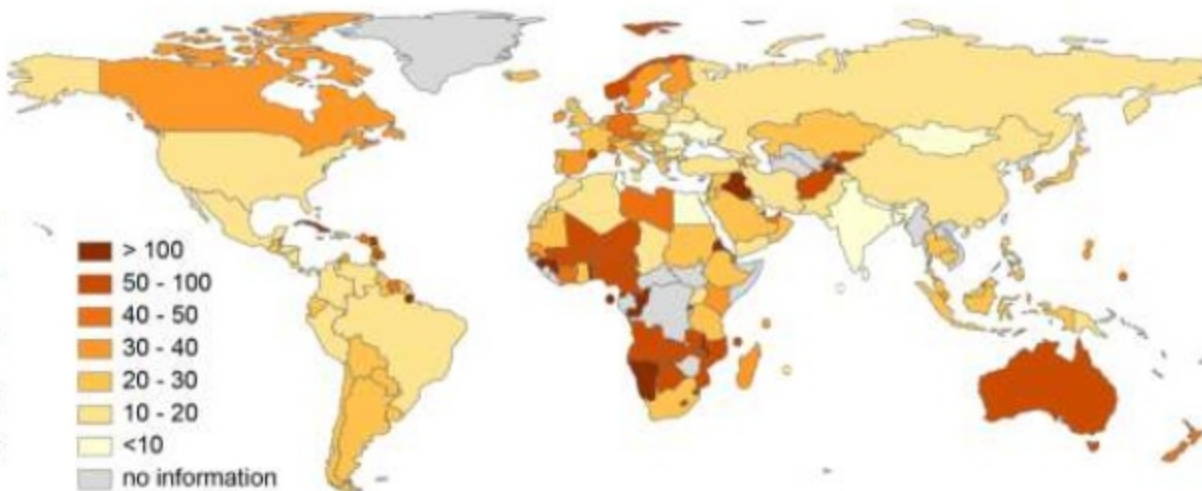
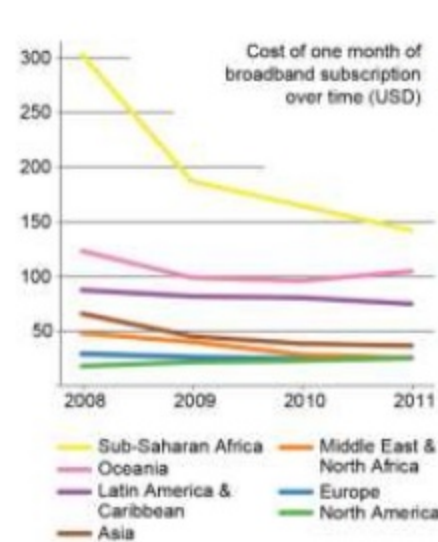
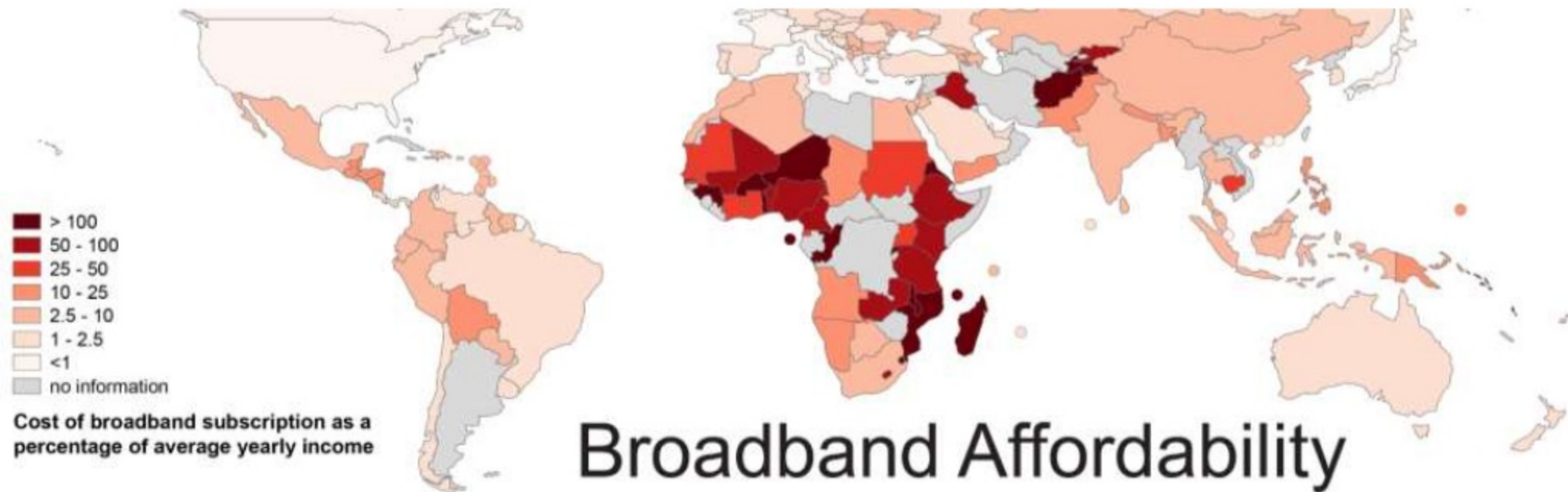


Source: Dan Ben-David, Taub Center and Tel Aviv University

Sharing economies

- In many areas, especially in production and sharing of information



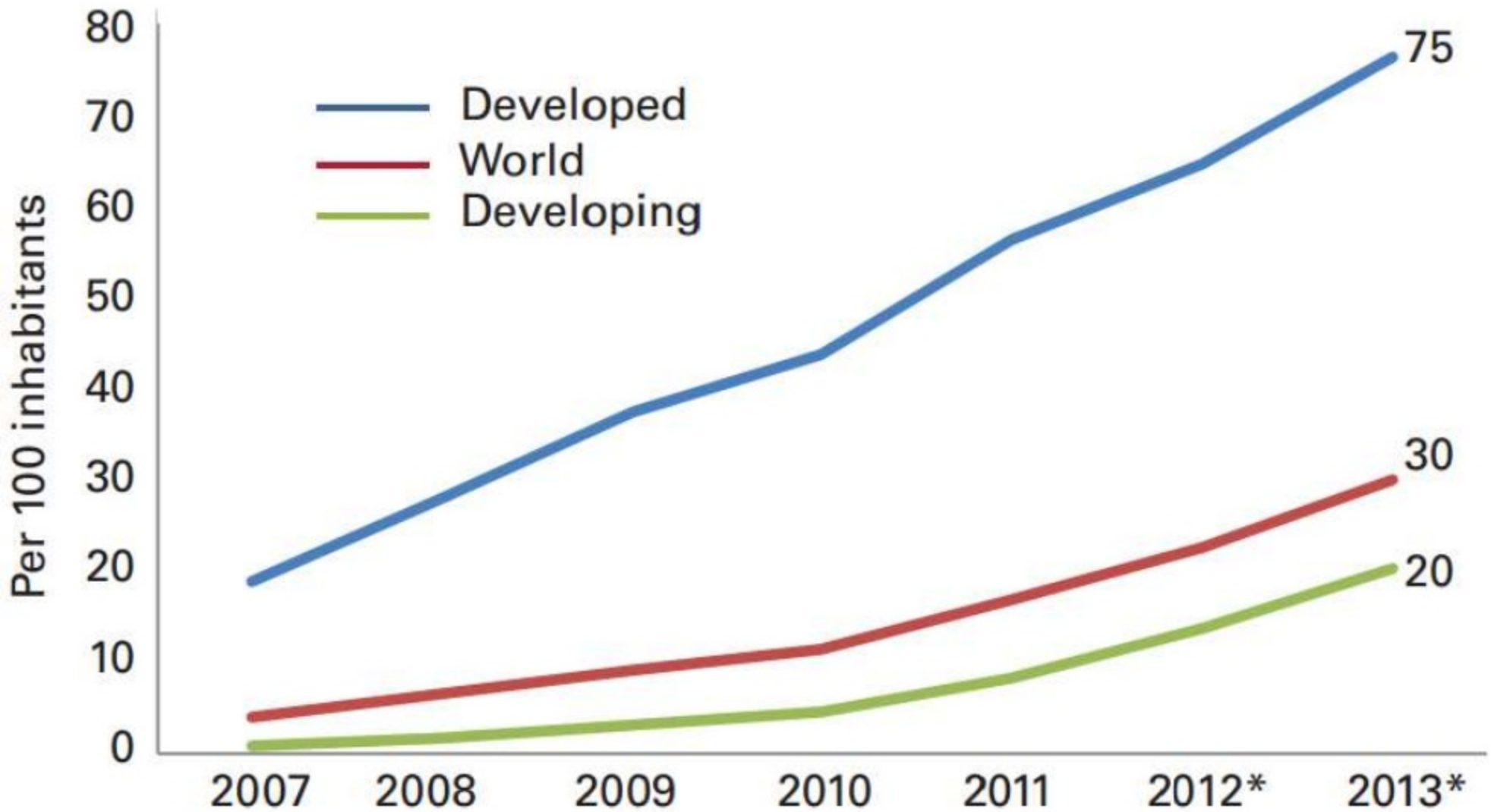


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Internet Geographies at
the Oxford Internet Institute
2014
geography.oii.ox.ac.uk

data sources:
ITU • itu.int
World Bank • data.worldbank.org

Active mobile-broadband subscriptions, 2007-2013*



Source: ITU World Telecommunication /ICT Indicators database

Note: * Estimate