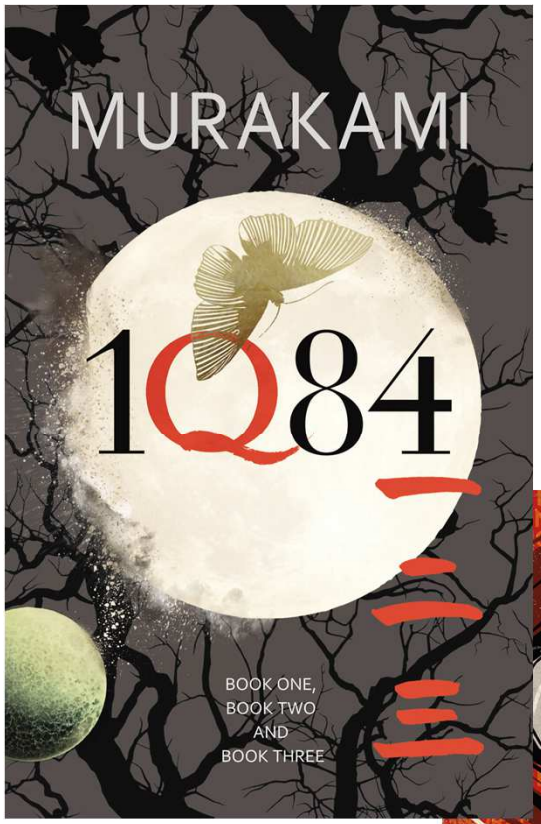
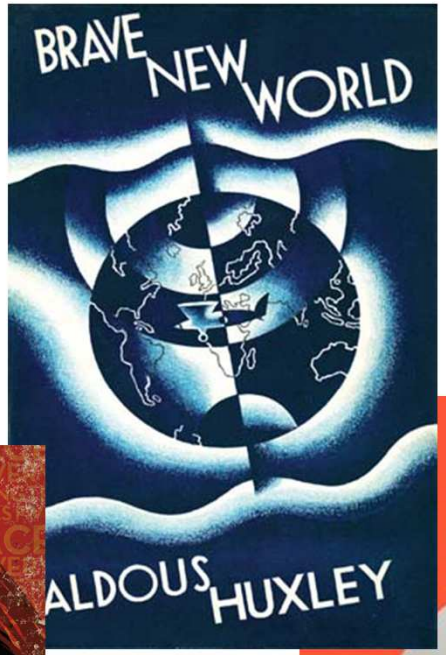
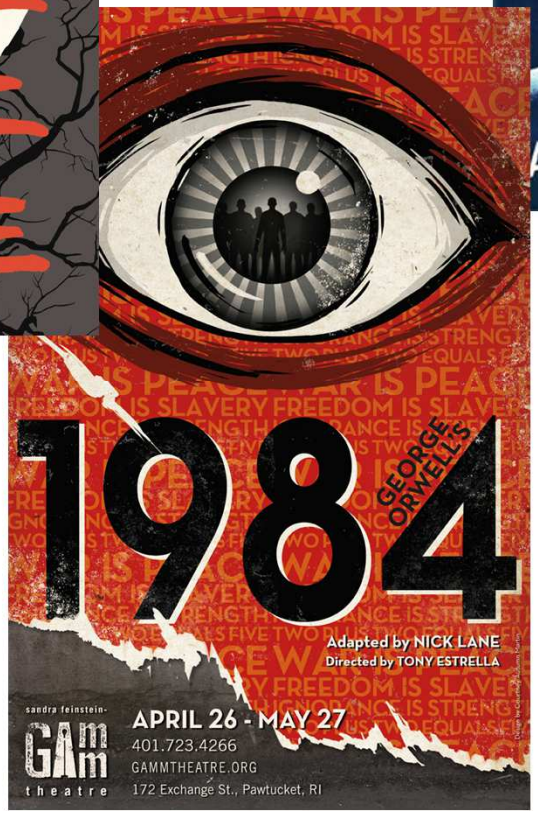
Decision making in the information driven society

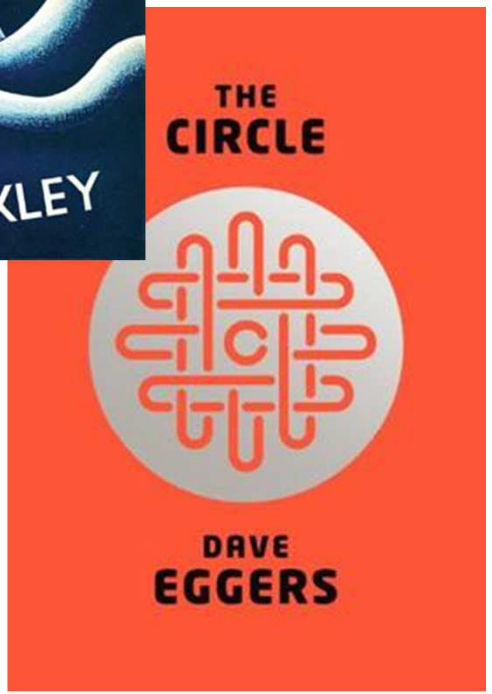
Walter J. Radermacher

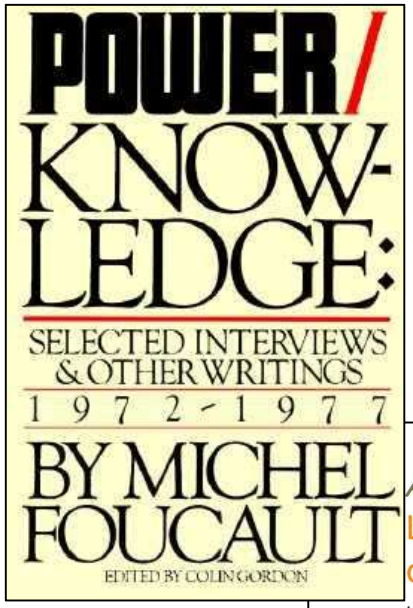
Eurostat


MURAKAMI
1Q84
BOOK ONE,
BOOK TWO
AND
BOOK THREE

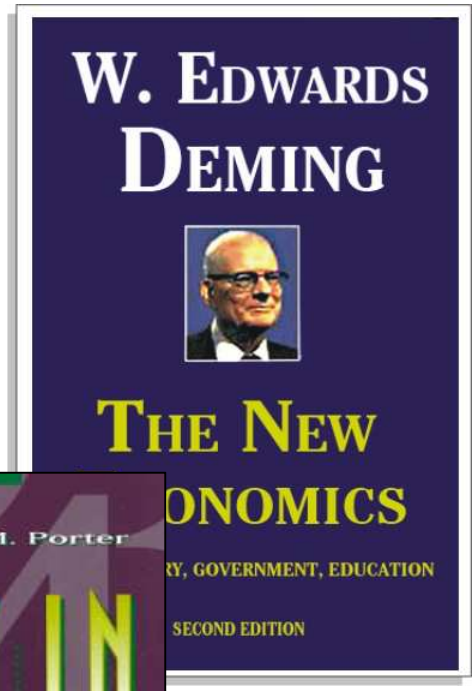

BRAVE NEW WORLD
ALDOUS HUXLEY

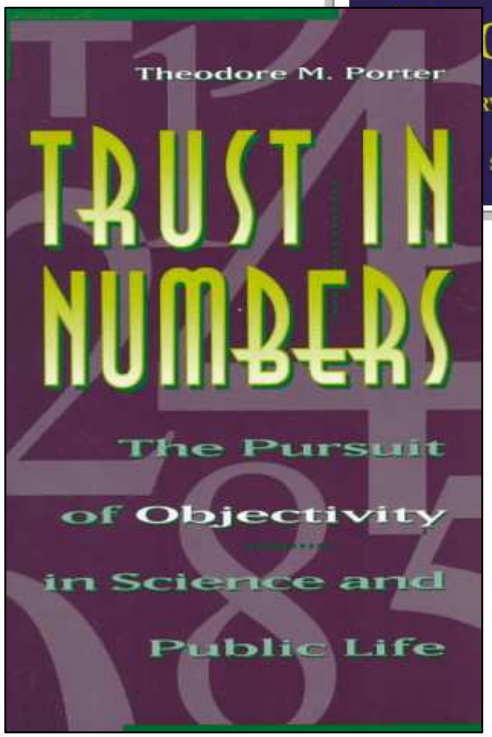

1984
GEORGE ORWELL'S
Adapted by NICK LANE
Directed by TONY ESTRELLA
sandra feinstein-
GAm
theatre
APRIL 26 - MAY 27
401.723.4266
GAMMTHEATRE.ORG
172 Exchange St., Pawtucket, RI

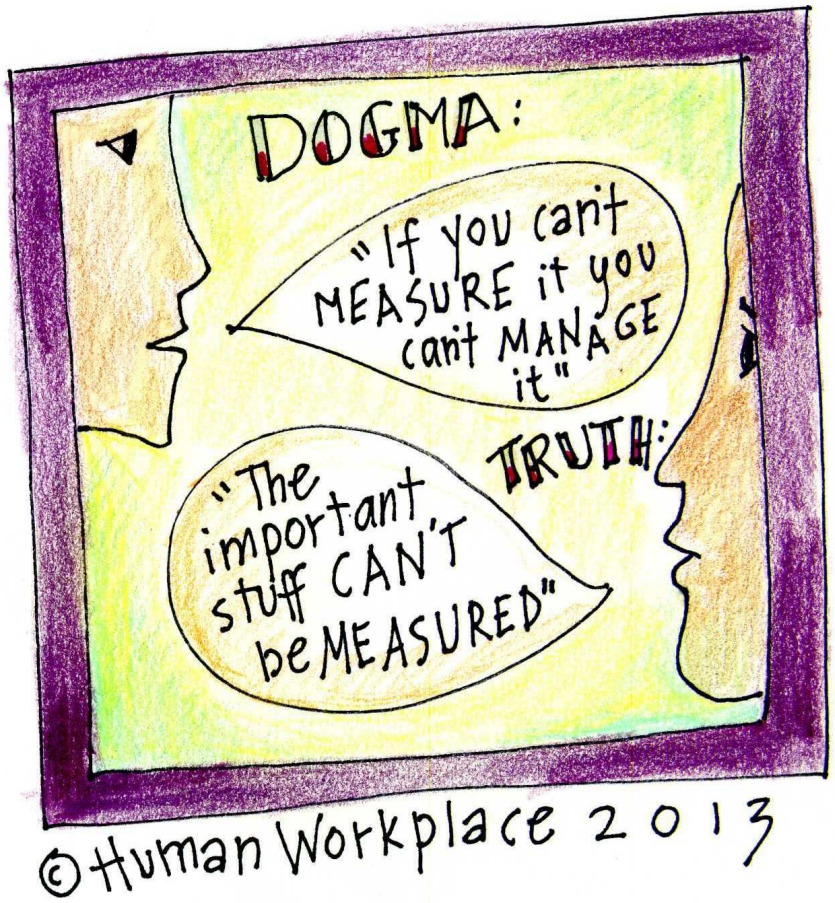

THE
CIRCLE
DAVE
EGGERS



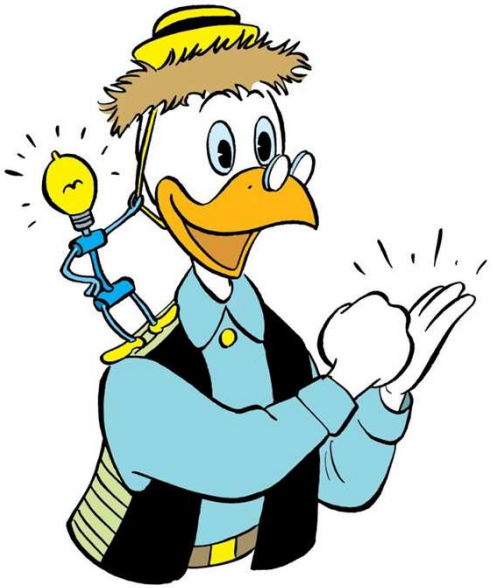
Everything that can be counted does not necessarily count; everything that counts cannot necessarily be counted.
Albert Einstein





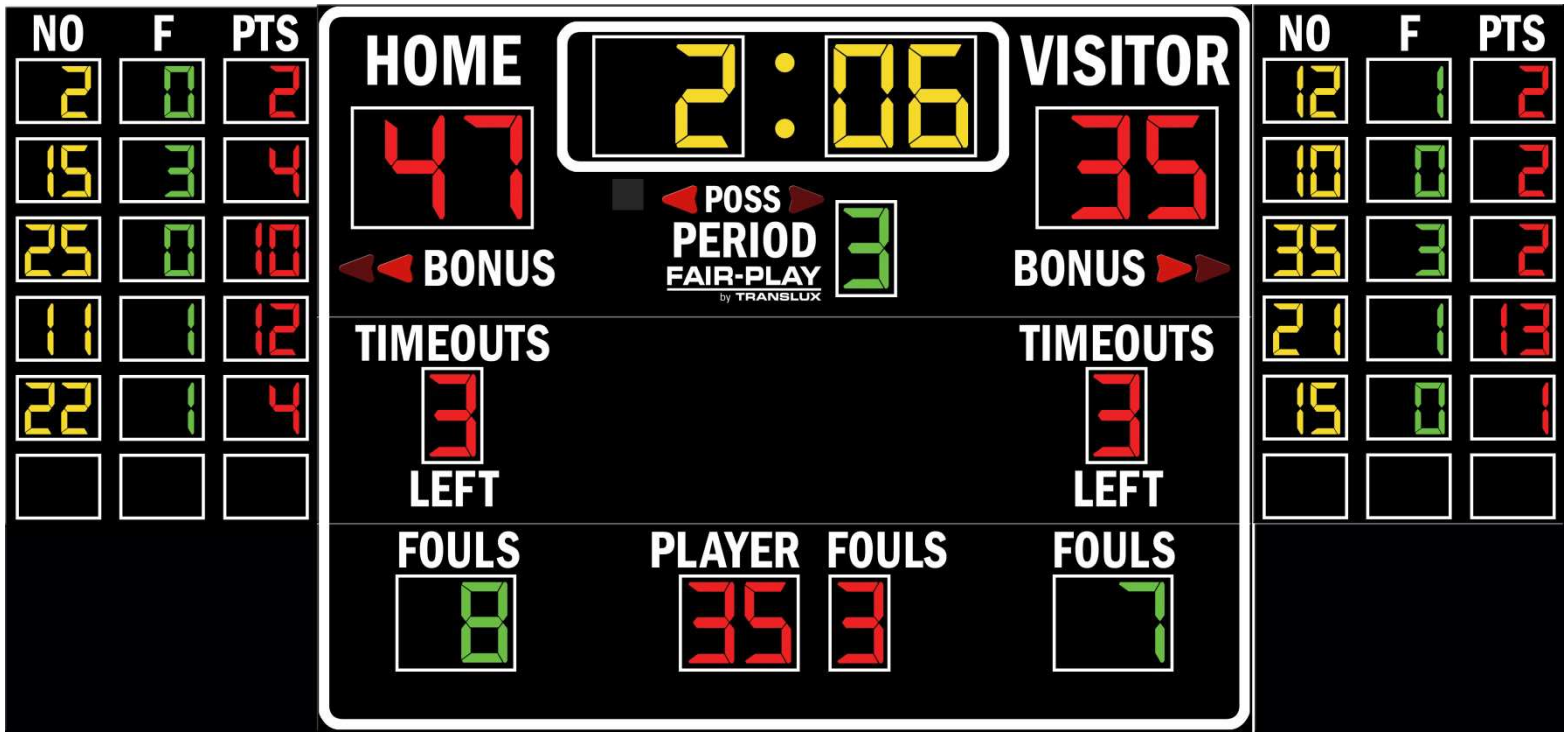


http://www.forbes.com/sites/lizryan/2014/02/10/if-you-cant-measure-it-you-cant-manage-it-is-bs/



We can measure the world!

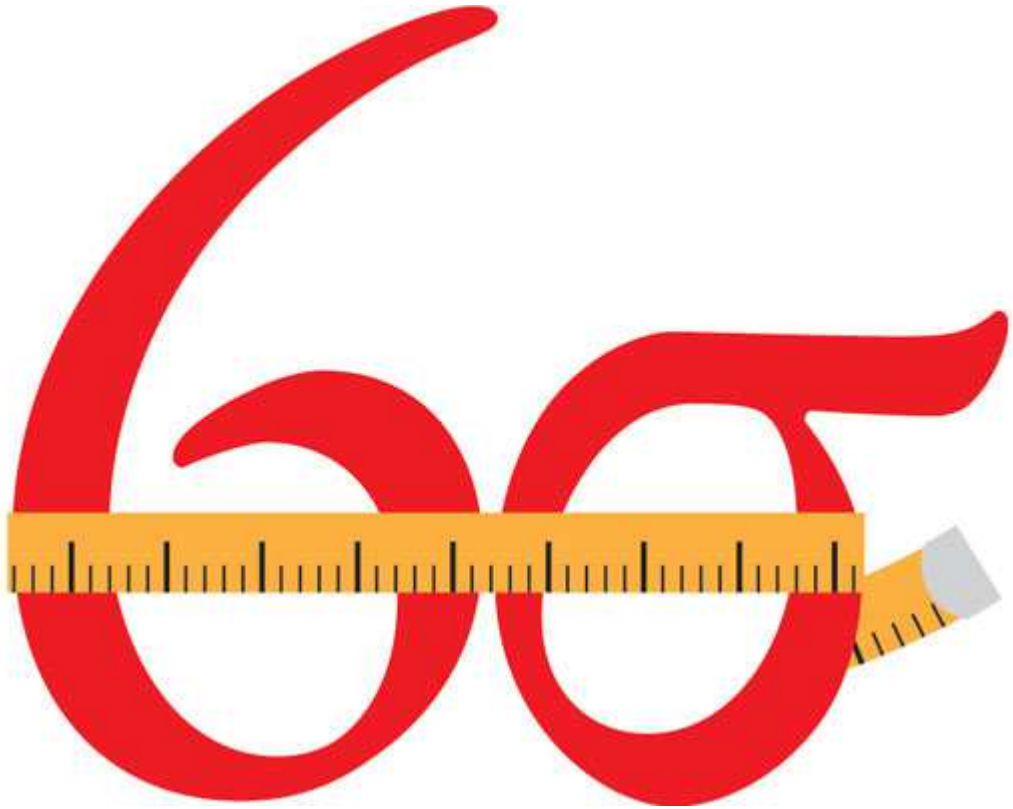
http://bilder.augsburger-allgemeine.de/img/incoming/origs20070081/2392532018-w1280-h960/daniel.jpg



http://www.fair-play.com/wp-content/photos-drawings/BB-1646-4.jpg

http://www.intellergy.net/files/1913/4073/0399/rainwiseDash.jpg

http://www.income-outcome.com/blog/?Tag=Key%20Performance%20Indicators



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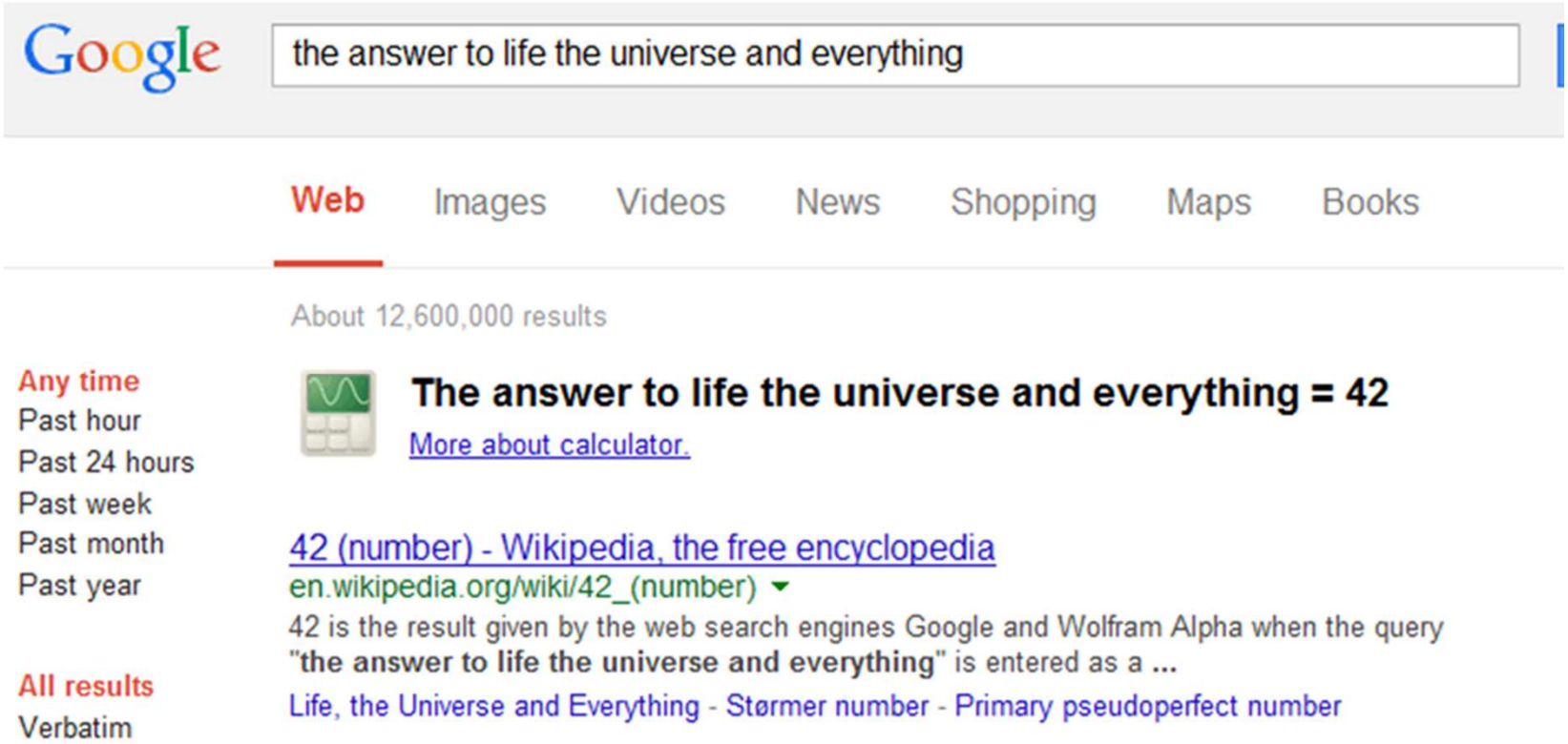
http://s1133.photobucket.com/user/crowdsourcing_org/media/Gov20.png.html#!

D. Adams: Hitchhikers' guide ...

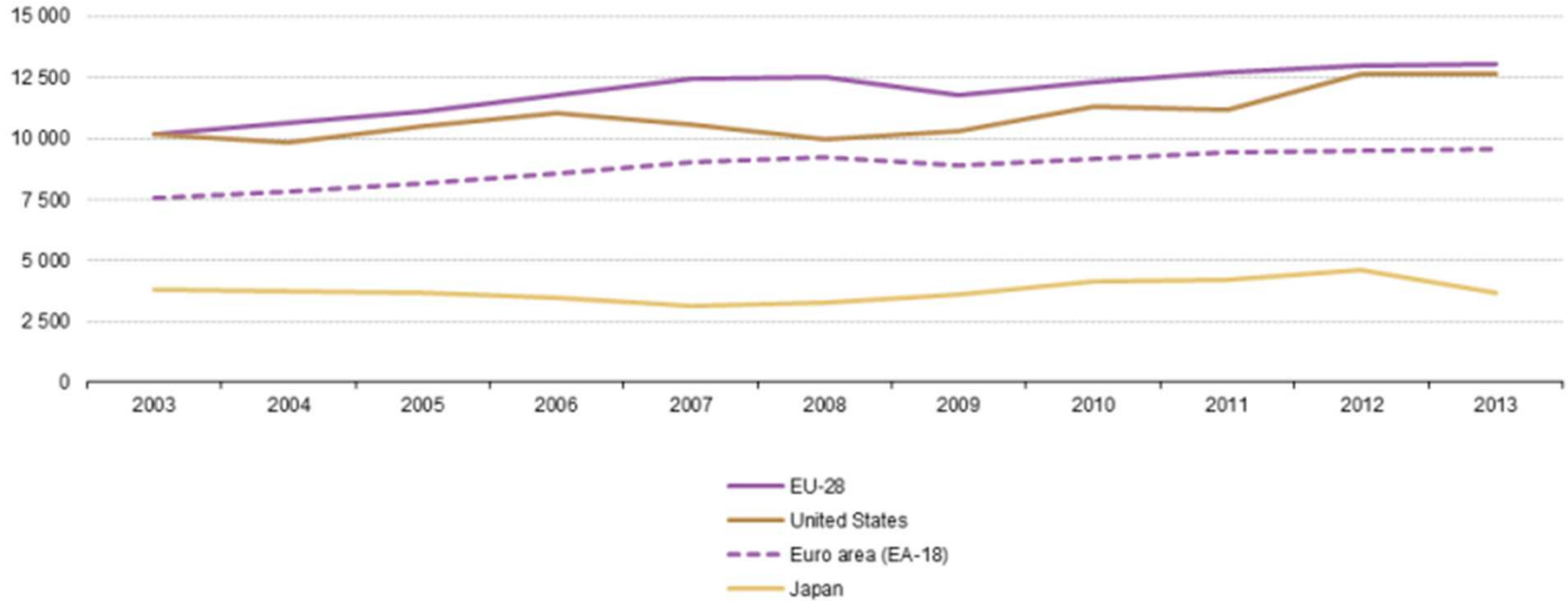


Paul Laffoley

http://d2tq98mqfjyz2l.cloudfront.net/image_cache/342422263.jpg

http://memespp.com/homer-gdp-meme-generator-gdp-what-is-gdp-ea675c-jpg-1327467092-jpg/assets.diylol.com*hfs*d39*9e2*f7e*resized*homer-gdp-meme-generator-gdp-what-is-gdp-ea675c.jpg1327467092.jpg/diylol.com*memegenerator*homergdp2*memes*gdpwhatisgdp3/

GDP at current market prices, 2003-13 (€100M)



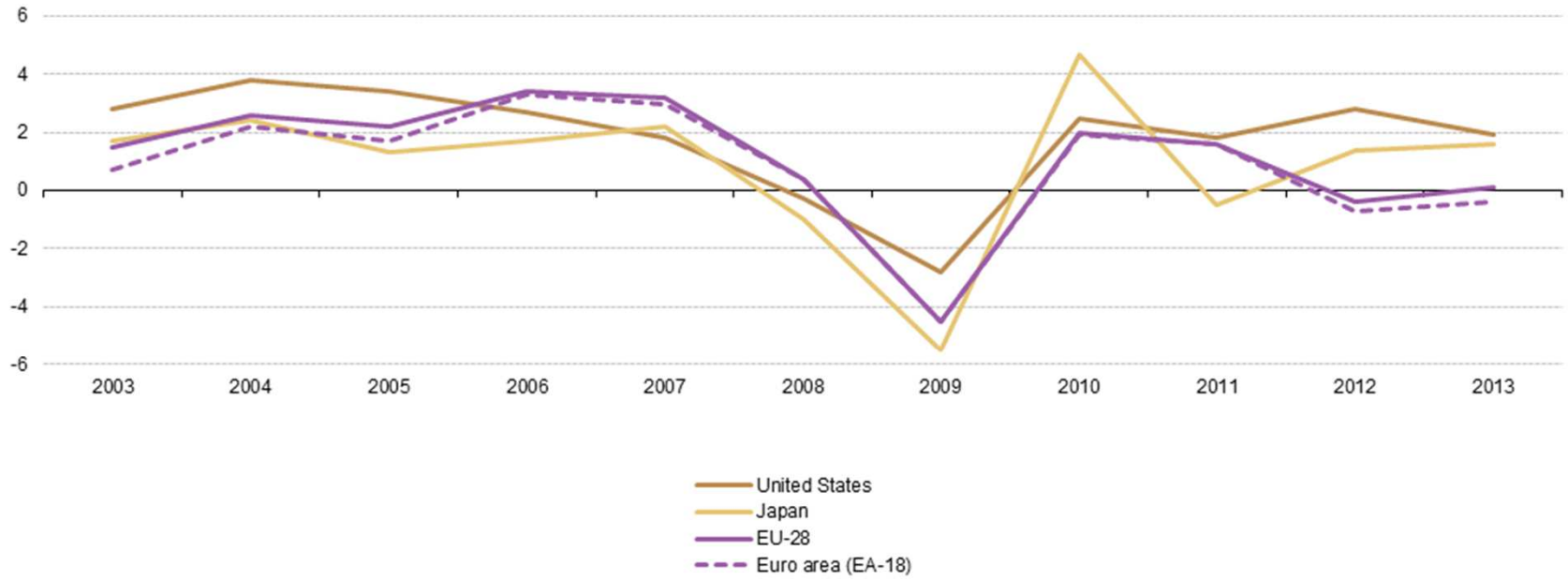
Source: Eurostat (online data codes: nama_gdp_c and tec00001)

European Commission

GDP per capita at current market prices, 2002 and 2012 (EU-27 = 100; based on PPS per inhabitant)

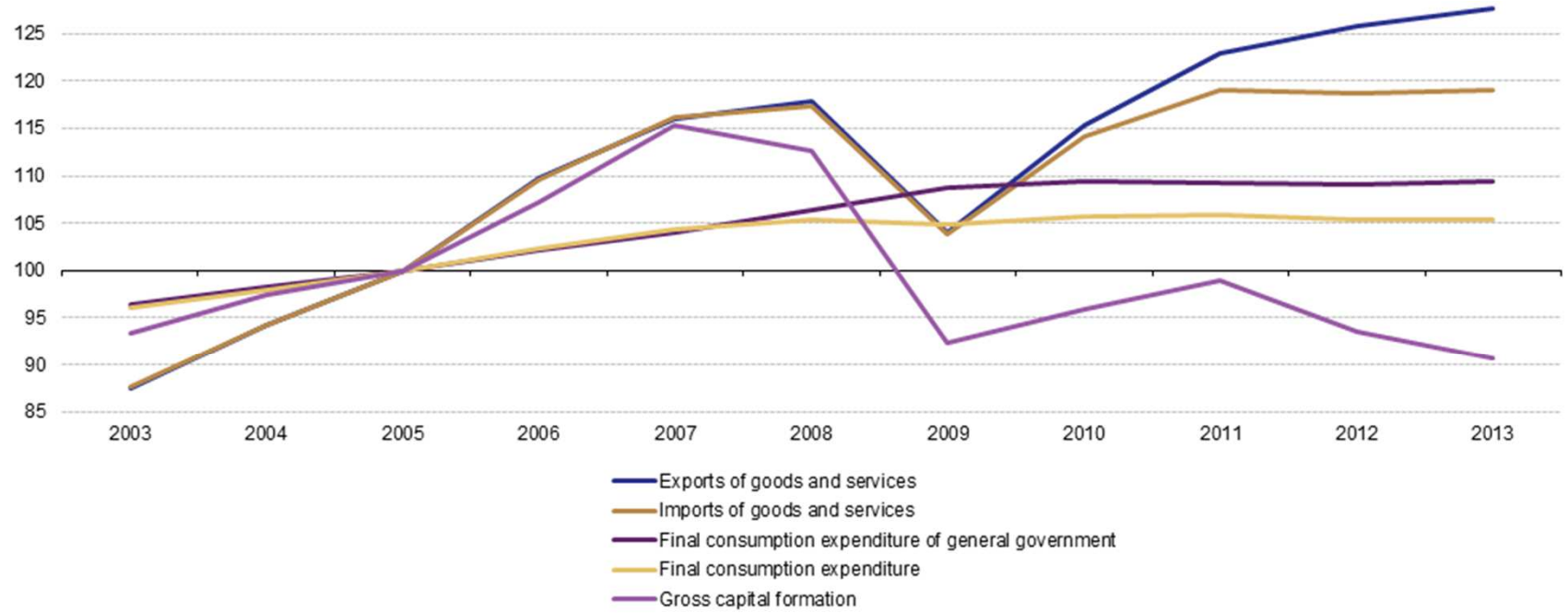
([1]) Break in series. GDP per capita in PPS is expressed in this figure relative to the EU-27 average, which by definition has the exact value 100. In this figure the EU-28 value relative to the EU-27 average, rounded to the nearest whole number, is also 100, because the impact of Croatia is relatively small. For the same reason the countries' and aggregates' values relative to the EU-28 average would be close to those presented in this figure relative to the EU-27 average.
([2]) 2011 instead of 2012.
([3]) 2002: not available.
Source: Eurostat (online data codes: nama_gdp_c and tec00001)

Real GDP growth, 2003–13 (% change compared with the previous year)



Source: Eurostat (online data code: nama_gdp_k)

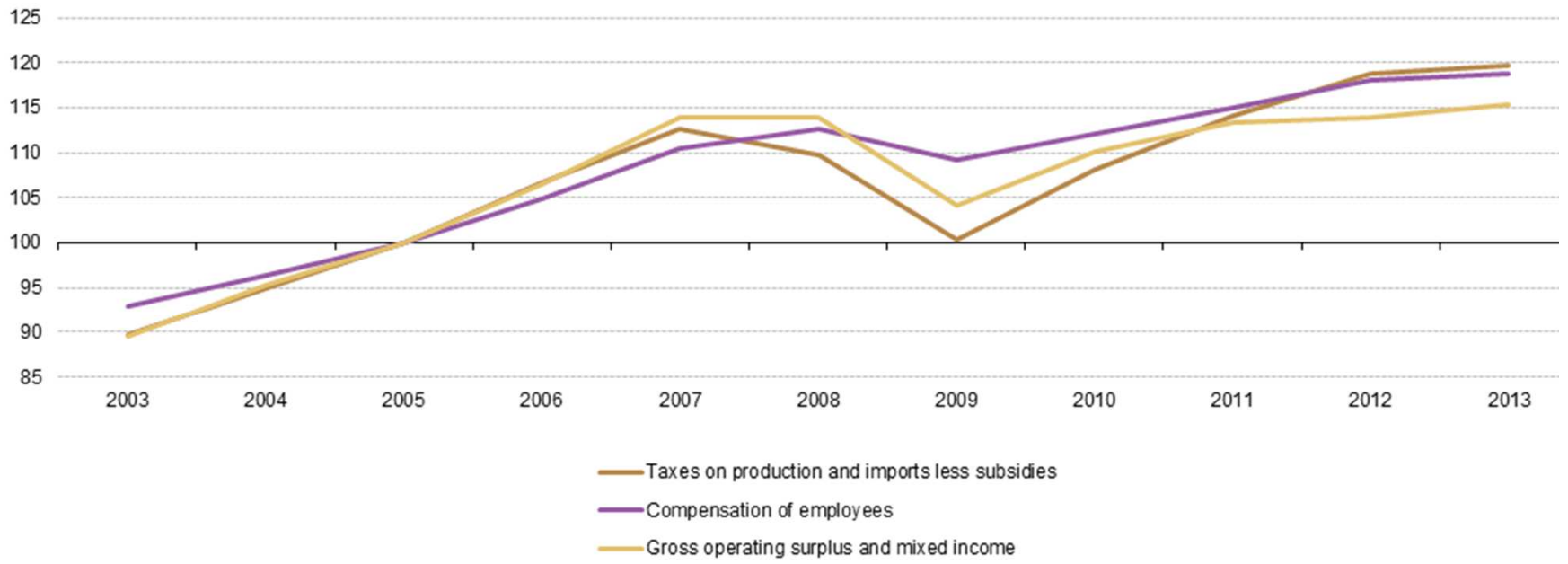
Consumption expenditure and gross capital formation at constant prices, EU-28, 2003–13 (2005 = 100)



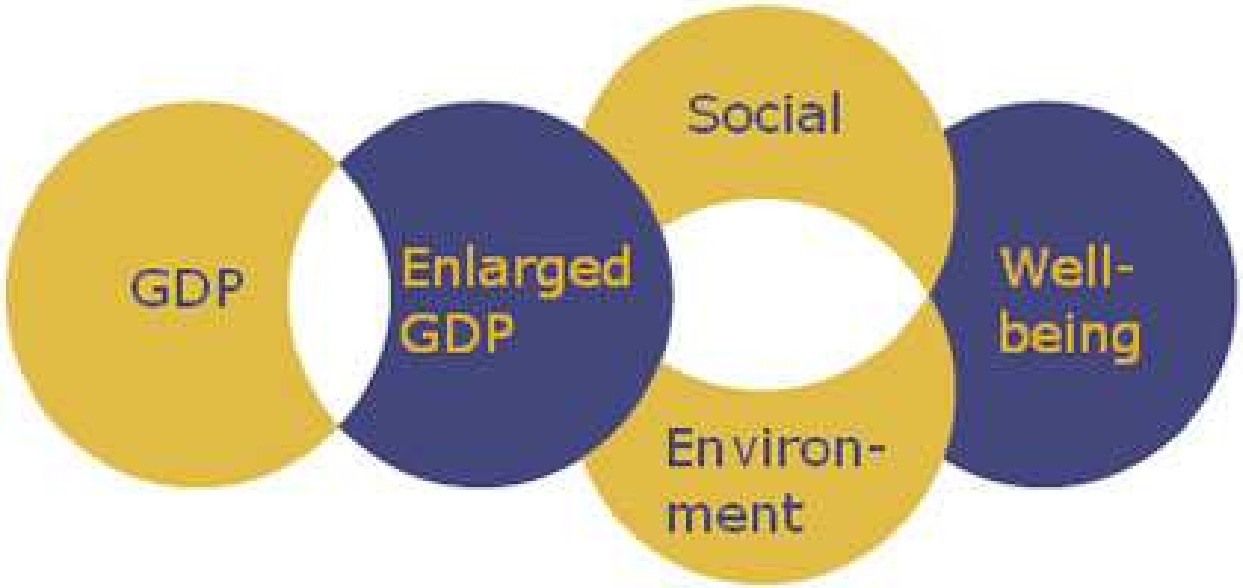
Source: Eurostat (online data code: nama_gdp_k)

European Commission

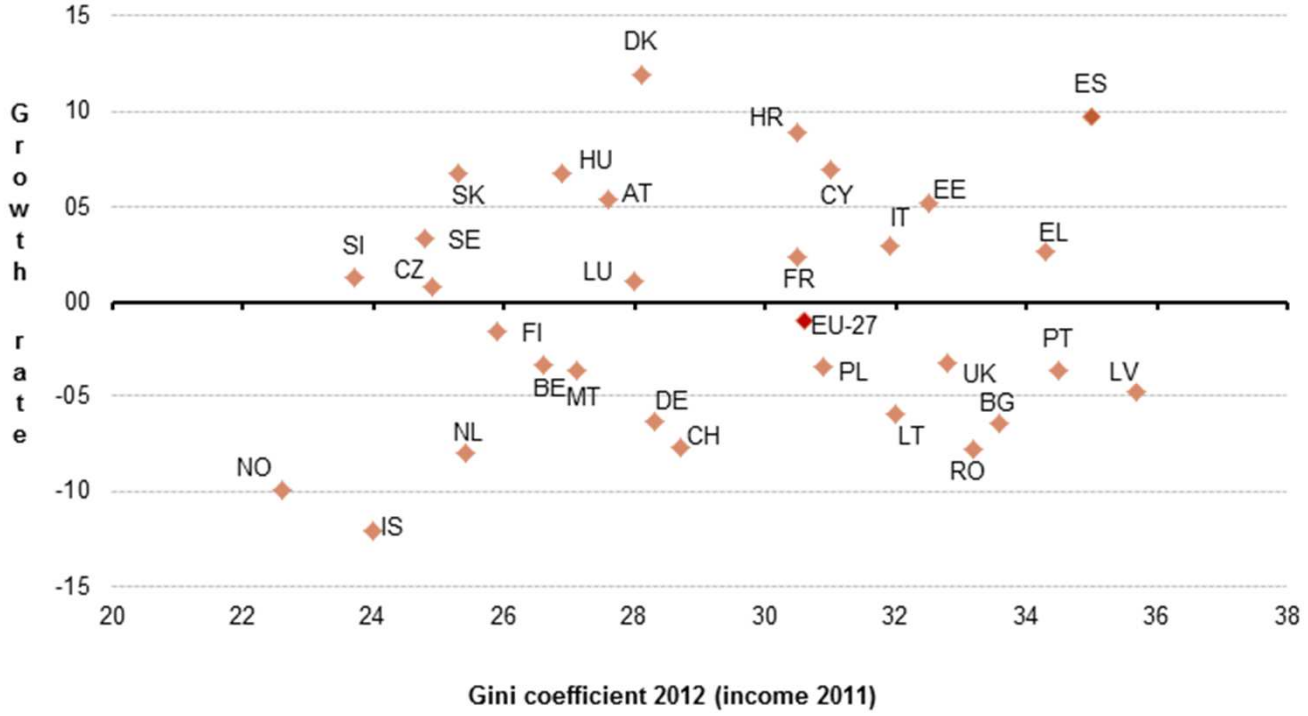
Distribution of income, EU-28, 2003–13 (2005 = 100)

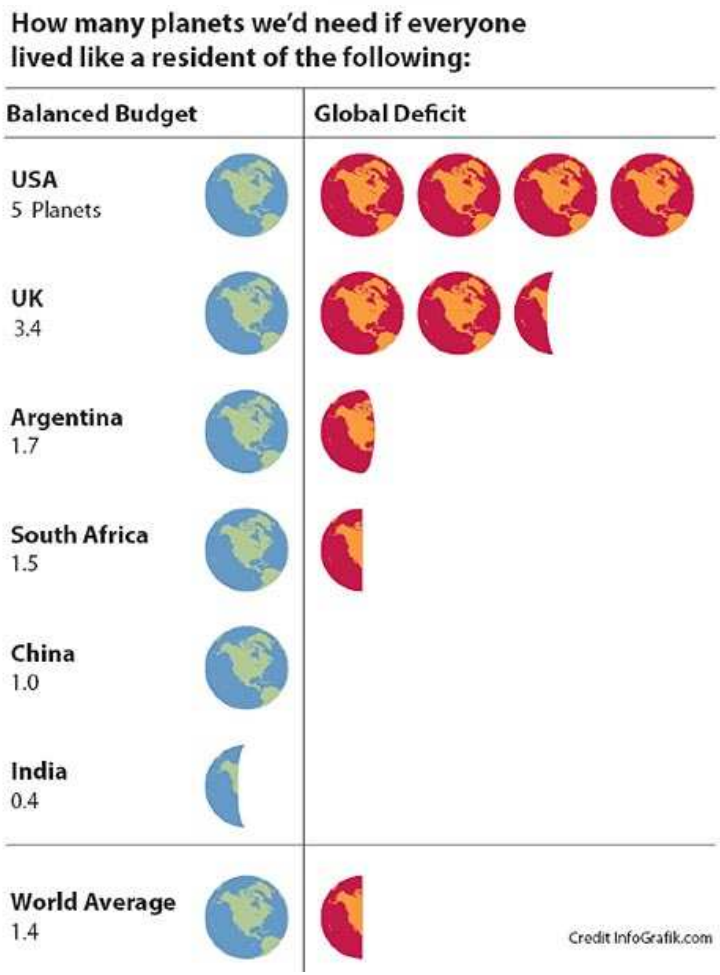


rce: Eurostat (online data codes: nama_gdp_c or tec00016, tec00015 and tec00013)


GDP
Enlarged GDP
Social
Environ-ment
Well-being

Evolution of income inequalities (Gini coefficient after social benefits and pensions 2012, Gini growth rate 2008-2012)





http://media.treehugger.com/assets/images/2011/10/20100816-how-many-planets.jpg

European Commission

Sustainable Development headline indicators

SDI theme	Headline indicator	Evaluation of change in the EU-27
Socioeconomic development	Real GDP per capita	
Sustainable consumption and production	Resource productivity	
Social inclusion	People at risk of poverty or social exclusion (*)	
Demographic changes	Employment rate of older workers (*)	
Public health	Life expectancy at birth (**)	
Climate change and energy	Greenhouse gas emissions	
	Share of renewable energy in gross final energy consumption (**)	
	Primary energy consumption	
Sustainable transport	Energy consumption of transport relative to GDP	
Natural resources	Common bird index	
	Fish catches from stocks outside safe biological limits	
Global partnership	Official development assistance (**)	
Good governance	[No headline indicator]	:

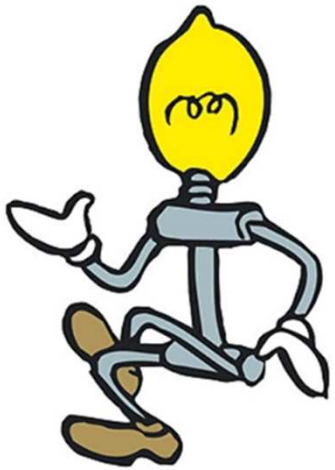
Europe 2020 indicators

European Union (28 countries) — Download displayed data

	UNIT	REFERENCE PERIOD						TARGET	TABLE	
		2005	2010	2011	2012	2013	2014			
75% of the population aged 20-64 should be employed										
Employment rate - age group 20-64 Additional data (Show)	% of population aged 20-64	67.9	68.5	68.5	68.4	68.4	(:)	75		
3% of the EU's GDP should be invested in R&D										
Gross domestic expenditure on R&D	% of GDP	1.76	1.93	1.97	2.01	2.02(e)	(:)	3		
Greenhouse gas emissions should be reduced by 20% compared to 1990 The share of renewable energy sources in final energy consumption should be increased to 20% Energy efficiency should improve by 20%										
Greenhouse gas emissions	Index 1990 = 100	93.23	85.73	83.21	82.14	(:)	(:)	80		
Greenhouse gas emissions in non-ETS sectors Additional data (Show)	million tonnes of CO2 equivalent	2947.99	2806.05	(:)	(:)	(:)	(:)	(:)		

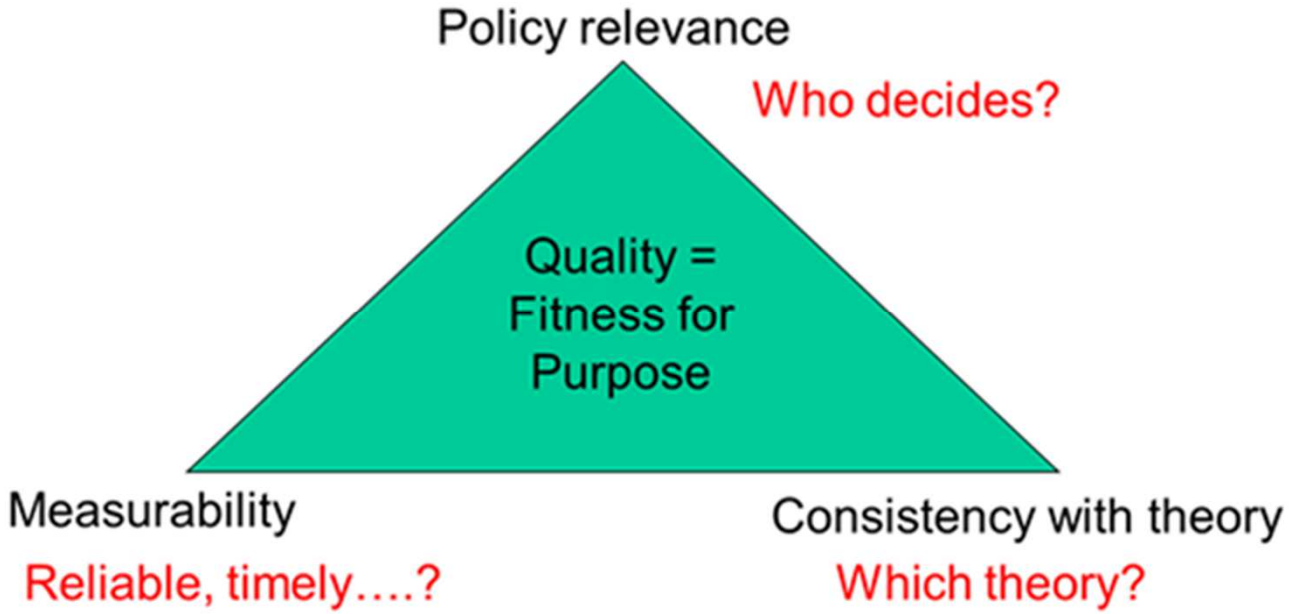
We can measure the world!

- **Technology**
- **Science**
- **Power**
- **Culture**
- **Communication**

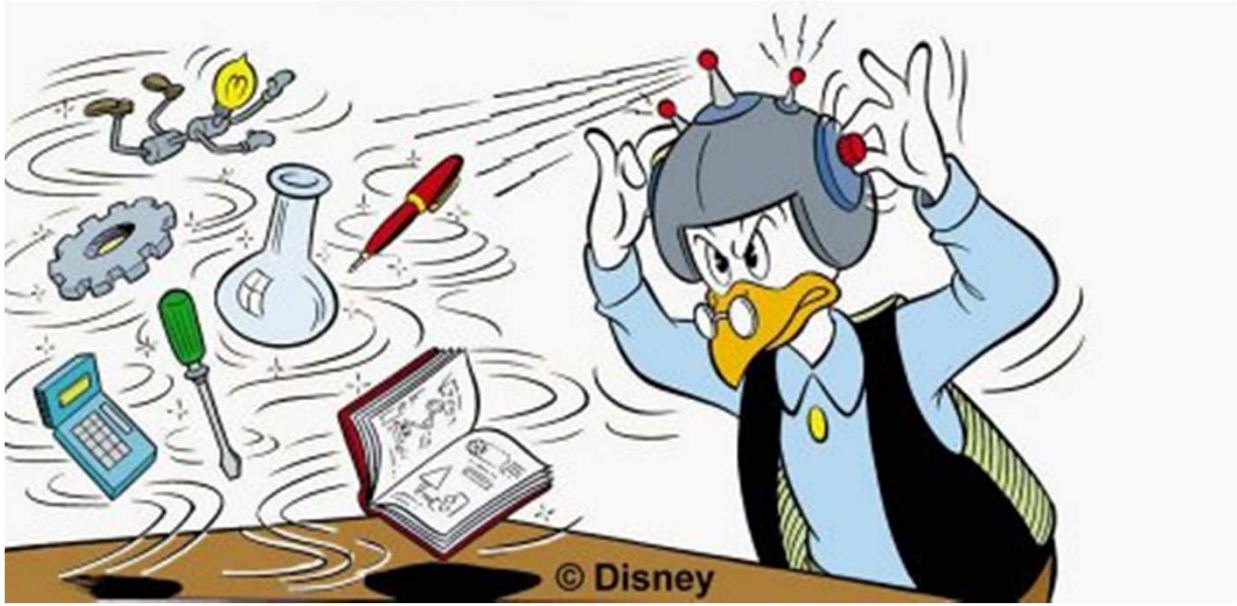


Trust

Trust in measurement = f(Quality)

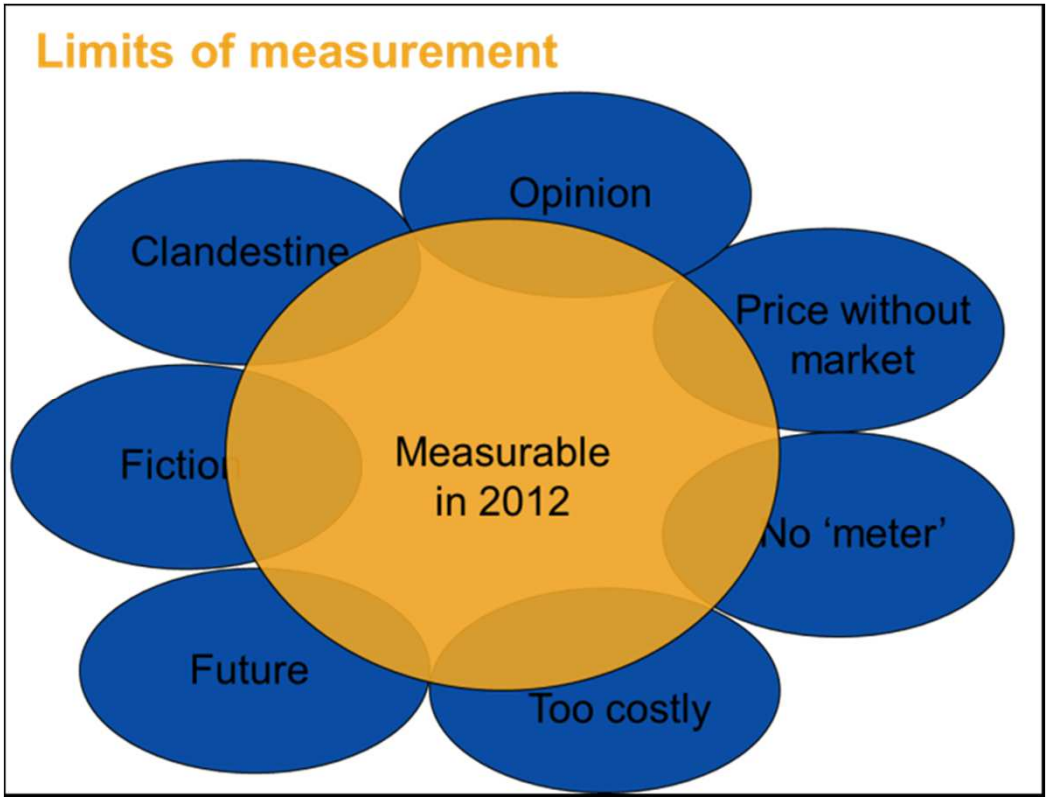


Can we measure the world?



http://www.actionbored.de/wp-content/uploads/2009/03/daniel-duesentrieb.jpg

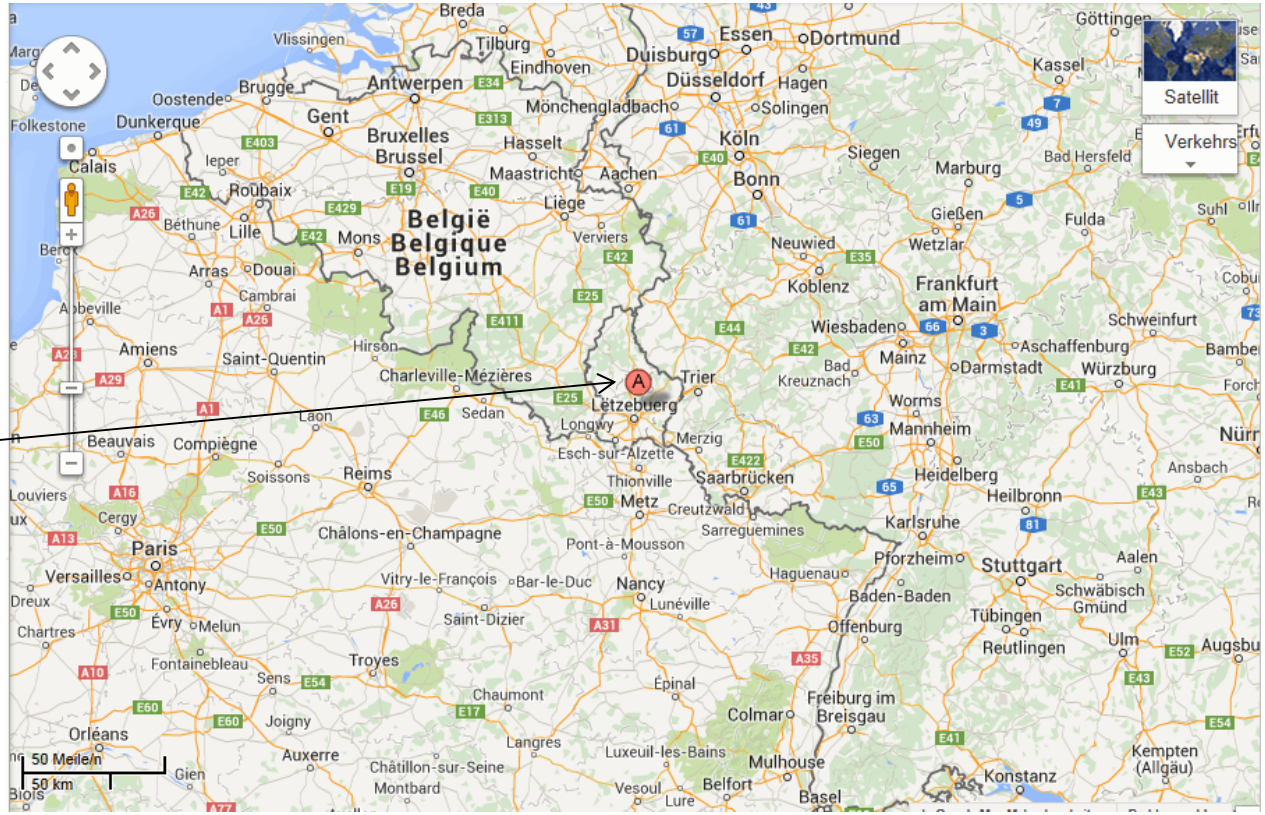
Limits of statistical measurement



Complexity, Reducibility

Luxembourg
Chamber of
Commerce
Conferences
Centre
7, rue Alcide de
Gasperi,
Luxembourg-
Kirchberg

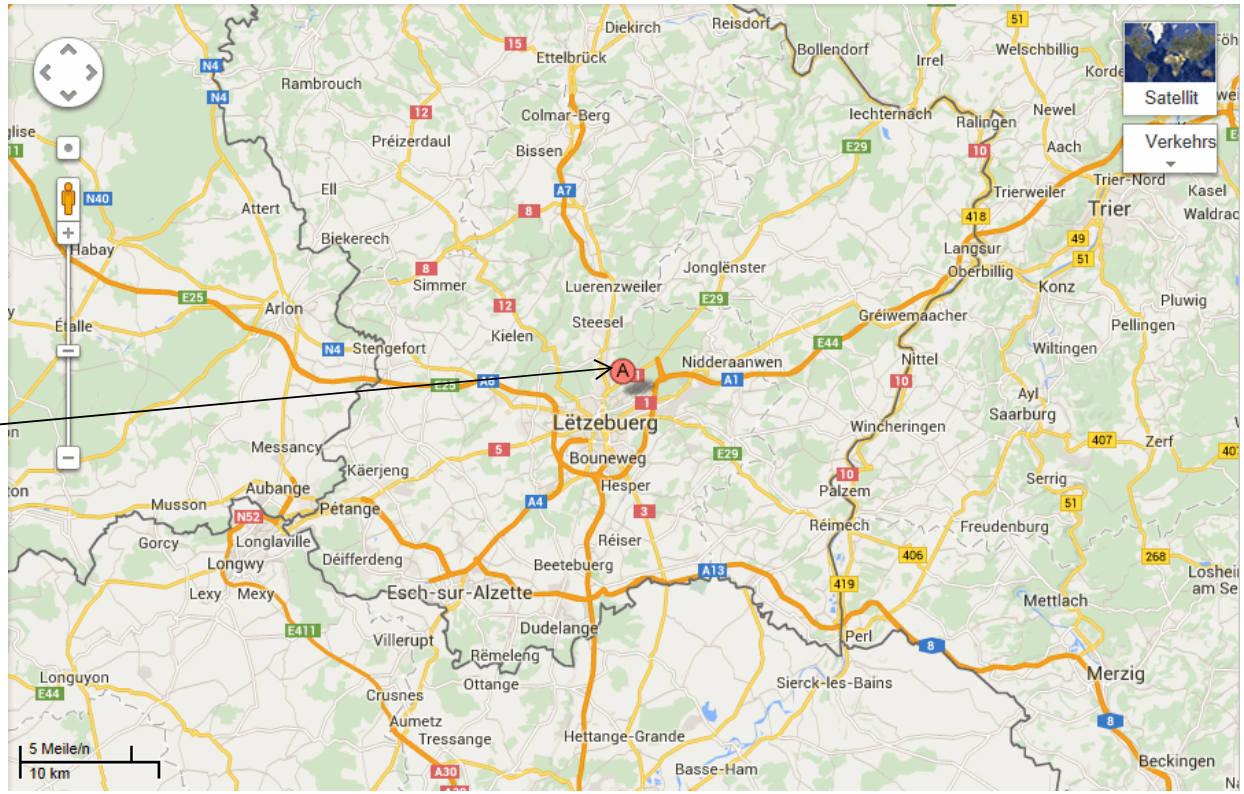
1:2 500 000
1 Sheet



Complexity, Reducibility

Luxembourg
Chamber of
Commerce
Conferences
Centre
7, rue Alcide de
Gasperi,
Luxembourg-
Kirchberg

1:250 000
100 Sheets



Complexity, Reducibility

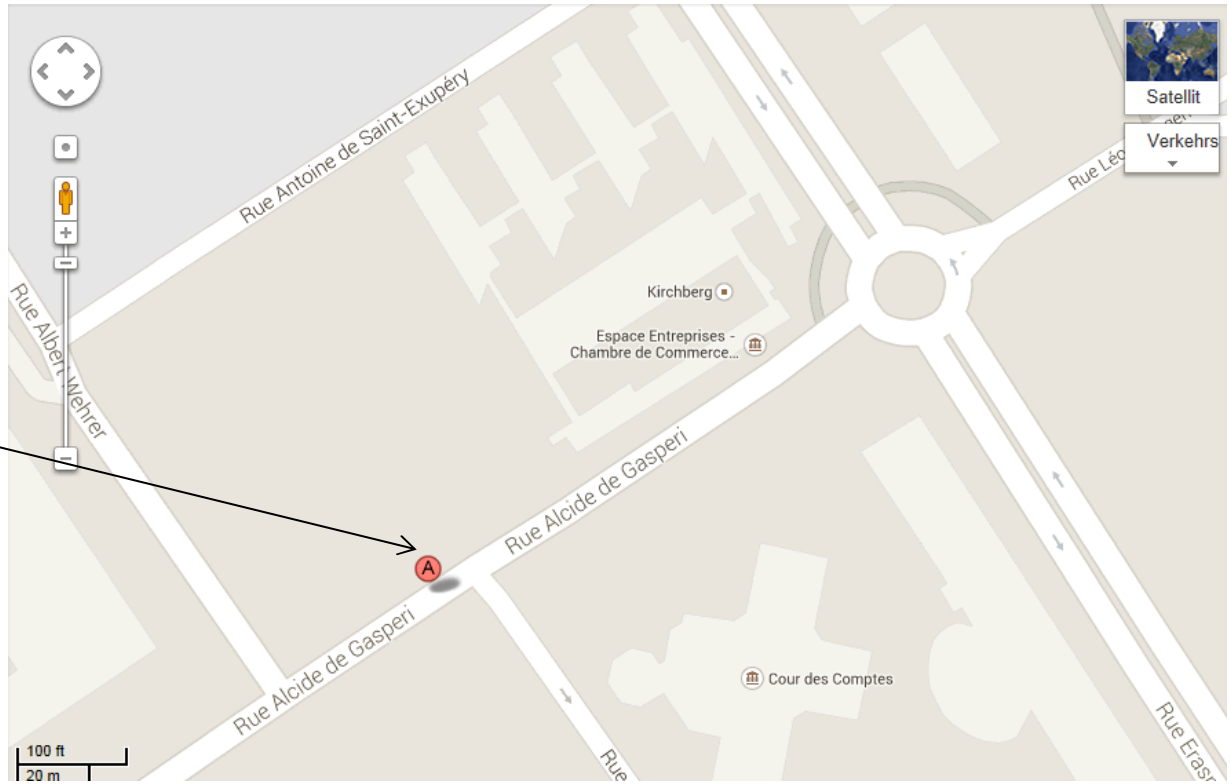
Luxembourg Chamber of Commerce Conferences Centre
7, rue Alcide de Gasperi,
Luxembourg-Kirchberg

1: 50 000
2 500 sheets

Complexity, Reducibility

Luxembourg Chamber of Commerce Conferences Centre
7, rue Alcide de Gasperi, Luxembourg-Kirchberg

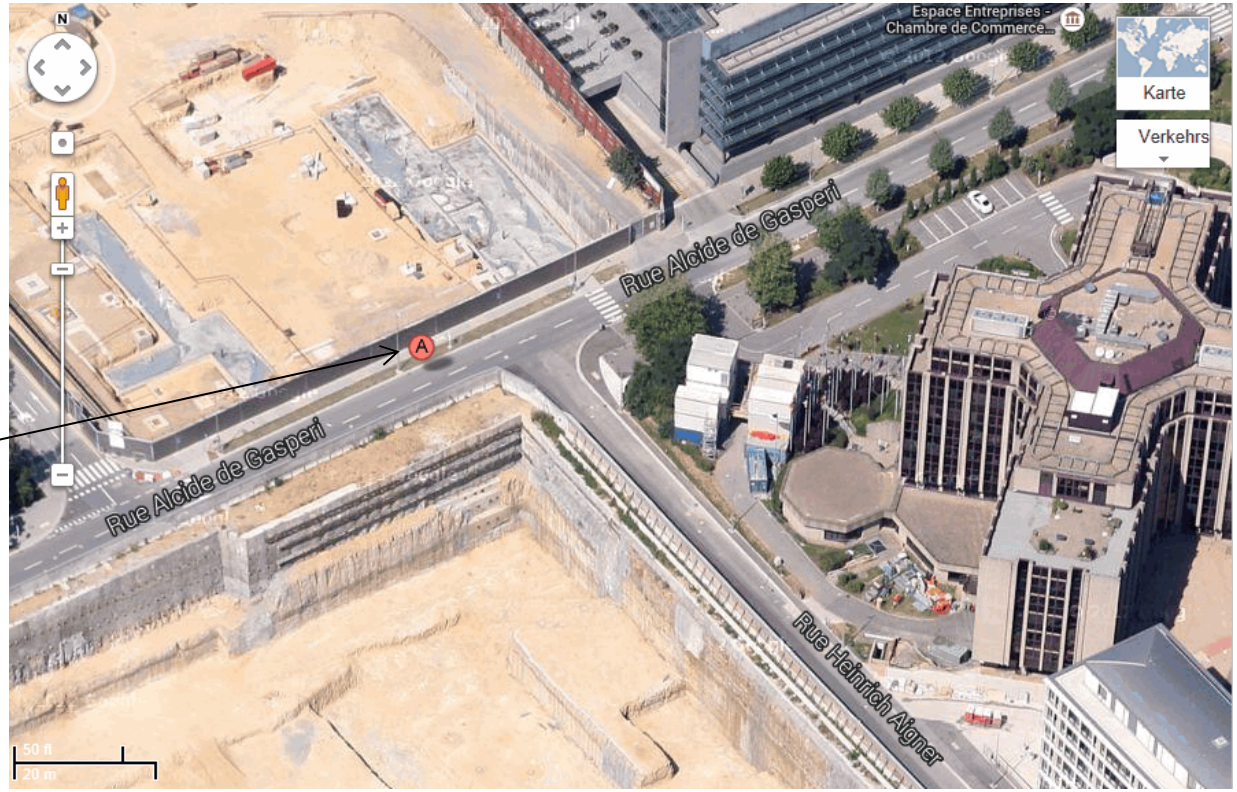
1:5 000
250 000 sheets



Complexity, Reducibility

Luxembourg Chamber of Commerce Conferences Centre
7, rue Alcide de Gasperi, Luxembourg-Kirchberg

1: 2 500
1 000 000 sheets



Can we measure the world?

- **Evidence = a manufactured 'product'**
  - **Statistics based on conventions**
  - **Official statistics based on democratic decision making leading to conventions concerning program, domains, variables and quality**
  - **The choice of the right product fit for the purpose of a user; subjectivity**
  - **Data, information, knowledge**
  - **Standards, principles**
  - **Trade-offs between quality dimensions**

Do we understand the measurement of the world?

- **Numeracy, statistical literacy**
- **High and too high expectations**
- **(No) Appetite for quality food**

What can go wrong?

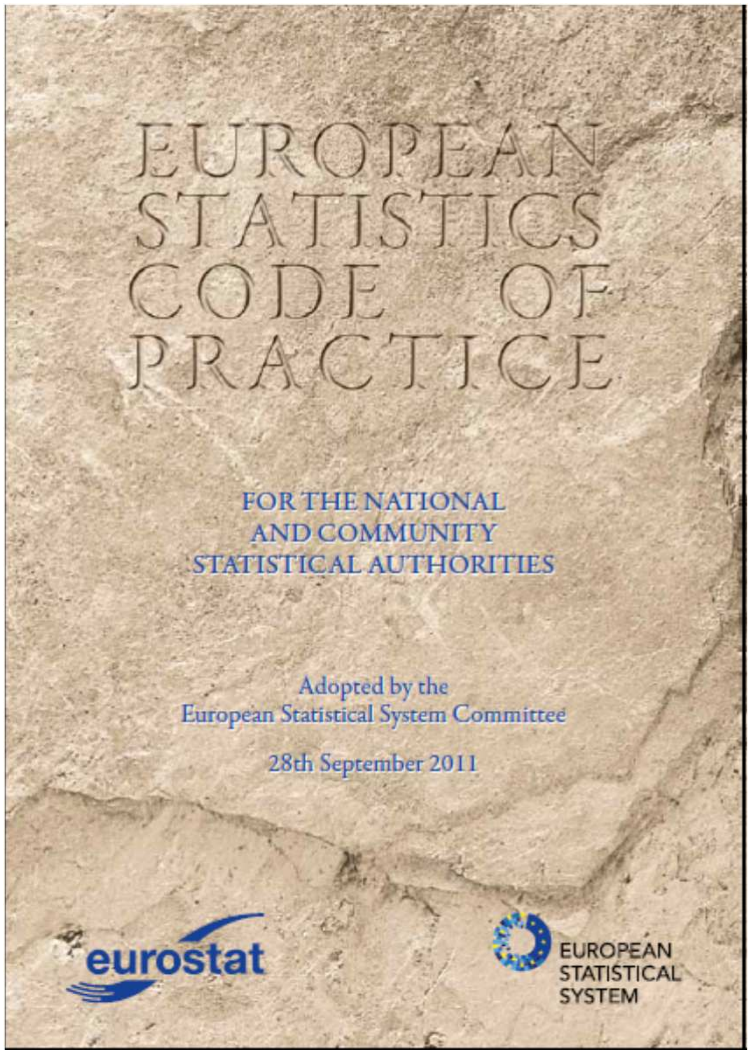
- **Decision making side**
  - **Searching under the lamp-post**
  - **Emphasis on short-term**
  - **Management by use only of visible figures**
  - **Evaluation of performance, merit rating, …**
  - **Measurement bureaucracy**
  - **Quality forgotten (Trust!!)**

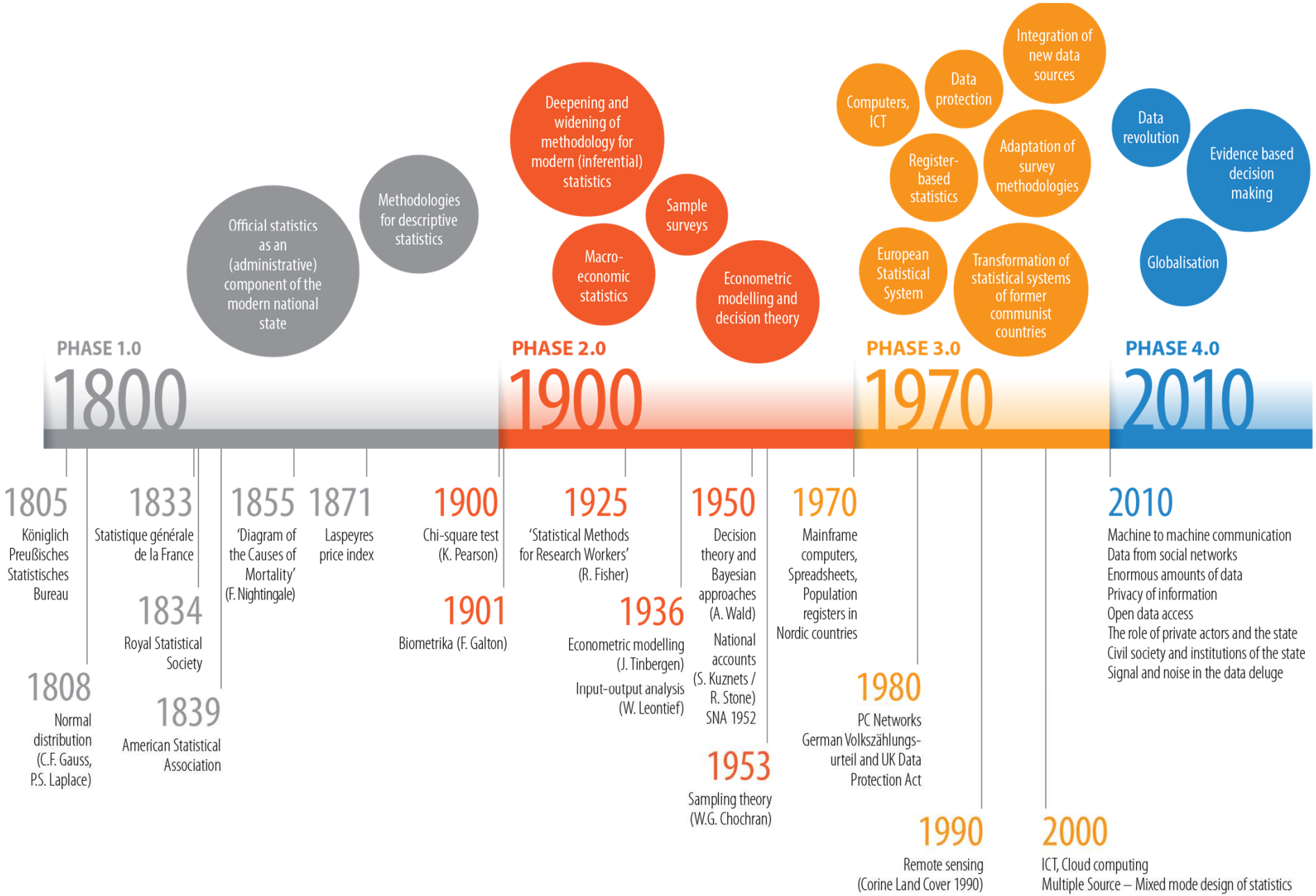
What can go wrong?

- **Decision making side**
  - **Filter in public perception and political debate (e.g. GDP)**
  - **Externalities (wrong price information)**
  - **Tragedy of the commons**
  - **Misuse**
  - **Cultural impacts**
  - **Democratic risks ("TINA")**

What can go wrong?

- **Evidence side**
  - **Measuring the unmeasured (Quality!!)**
  - **Evidence instead of decision making**
    - **Special case Europe**
  - **Decision based evidence making**
    - **Goodhart's law *"When a measure becomes a target, it ceases to be a good measure"***
    - **Murphy's law: *"Anything that can go wrong, will go wrong"***


EUROPEAN STATISTICS CODE OF PRACTICE
FOR THE NATIONAL AND COMMUNITY STATISTICAL AUTHORITIES
Adopted by the European Statistical System Committee
28th September 2011
eurostat
EUROPEAN STATISTICAL SYSTEM


Official statistics as an (administrative) component of the modern national state
Methodologies for descriptive statistics
Deepening and widening of methodology for modern (inferential) statistics
Sample surveys
Macro-economic statistics
Econometric modelling and decision theory
Integration of new data sources
Computers, ICT
Data protection
Register-based statistics
Adaptation of survey methodologies
European Statistical System
Transformation of statistical systems of former communist countries
Data revolution
Evidence based decision making
Globalisation
PHASE 1.0
1800
PHASE 2.0
1900
PHASE 3.0
1970
PHASE 4.0
2010
1805
Königlich Preußisches Statistisches Bureau
1808
Normal distribution (C.F. Gauss, P.S. Laplace)
1833
Statistique générale de la France
1834
Royal Statistical Society
1839
American Statistical Association
1855
'Diagram of the Causes of Mortality' (F. Nightingale)
1871
Laspeyres price index
1900
Chi-square test (K. Pearson)
1901
Biometrika (F. Galton)
1925
'Statistical Methods for Research Workers' (R. Fisher)
1936
Econometric modelling (J. Tinbergen)
Input-output analysis (W. Leontief)
1950
Decision theory and Bayesian approaches (A. Wald)
National accounts (S. Kuznets / R. Stone) SNA 1952
1953
Sampling theory (W.G. Chochran)
1970
Mainframe computers, Spreadsheets, Population registers in Nordic countries
1980
PC Networks
German Volkszählungs-urteil and UK Data Protection Act
1990
Remote sensing (Corine Land Cover 1990)
2000
ICT, Cloud computing
Multiple Source – Mixed mode design of statistics
2010
Machine to machine communication
Data from social networks
Enormous amounts of data
Privacy of information
Open data access
The role of private actors and the state
Civil society and institutions of the state
Signal and noise in the data deluge

What now?

- **Literacy and knowledge**
- **Mainstreaming of empirically based education**
- **Linking the triangle user, science, statistics**
- **Angry students, data driven journalism**
- **Quality assurance of official statistics**
- **Quality branding and labelling**
- **Special attention to quality in the "data revolution"**

Thank you for your attention