



# Standards for Trusted Statistics

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Albrecht Wirthmann@ec.europa.eu

The long read

# How statistics lost their power – and why we should fear what comes next

The ability of statistics to accurately represent the world is declining. In its wake, a new age of big data controlled by private companies is taking over – and putting democracy in peril  
by [William Davies](#)

Legal  
Framework

# Jurisdiction

- General statistical law
- Domain specific statistical law
- Data protection and privacy
- ...

# Audit/Peer Review

- Fundamental Principles of Official Statistics
- ...

## Institutional Environment

- Professional Independence
- Mandate for data collection
- Adequacy of resources
- **Commitment to Quality**
- Statistical Confidentiality
- Impartiality and Objectivity

## Statistical Processes

- **Sound Methodology**
- **Appropriate statistical procedures**
- Non-excessive burden on respondents
- Cost effectiveness

## Statistical Output

- Relevance
- Accuracy & Reliability
- Timeliness & Punctuality
- Coherence & Comparability
- Accessibility & Clarity



# What do principles mean?

- **Commitment to Quality**
  - **Input, processes, Output**
  - **Definition, monitoring, review, correction**
  - **Quality Framework**
  - **Quality elements**
- **Impartiality and Objectivity**
  - **Choices of sources, methods and dissemination**
  - **Transparency of methods and procedures**
  - **Equal Access**





# What do principles mean?

- Sound Methodology
  - Overall methodological framework follows standards, guidelines, good practices
  - Concepts, definitions, classifications consistently applied
  - Registers and frames generated, evaluated, adjusted
  - Link to scientific community
- Appropriate statistical procedures
  - Agreements with data holders setting out shared commitment in using data
  - Cooperation with data holders to assure data quality





# From Internet of Things to ...

A set of sensors, actuators, smart objects, data communications and interface technologies that

- allow information to be collected, tracked and processed across local and global network infrastructures,
- enabling the future hyper-connected society



## ... Smart statistics

... data capturing, processing and analysis will be embedded in the system itself ...

... intelligence along data life-cycle is expected to be enhanced with cognitive processes







# Standards in Smart Systems

- Ethics in algorithmic decision making
- Transparency of autonomous systems
  - **measurable and testable levels of transparency to objectively assess AS for compliance**
- Statistical Offices should be engaged in standardization activities
- Collaboration between different actors necessary





## **Statistics are the mirror through which we view society**

*David Hand @ Royal Statistical Society 2010*

