

Introduction to data interoperability

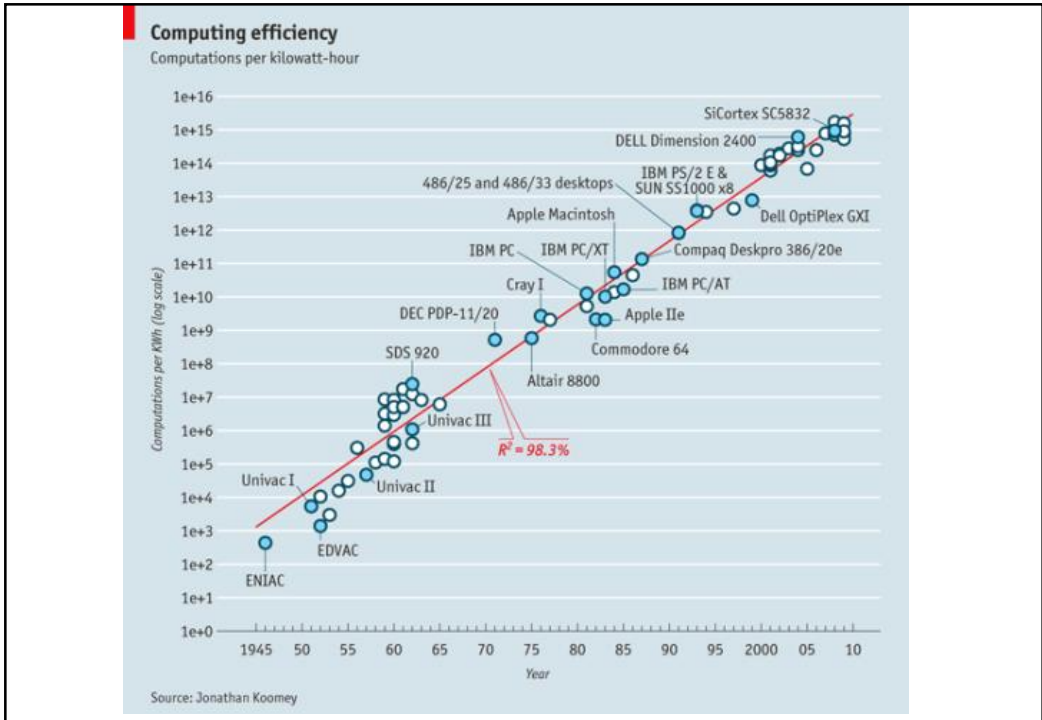
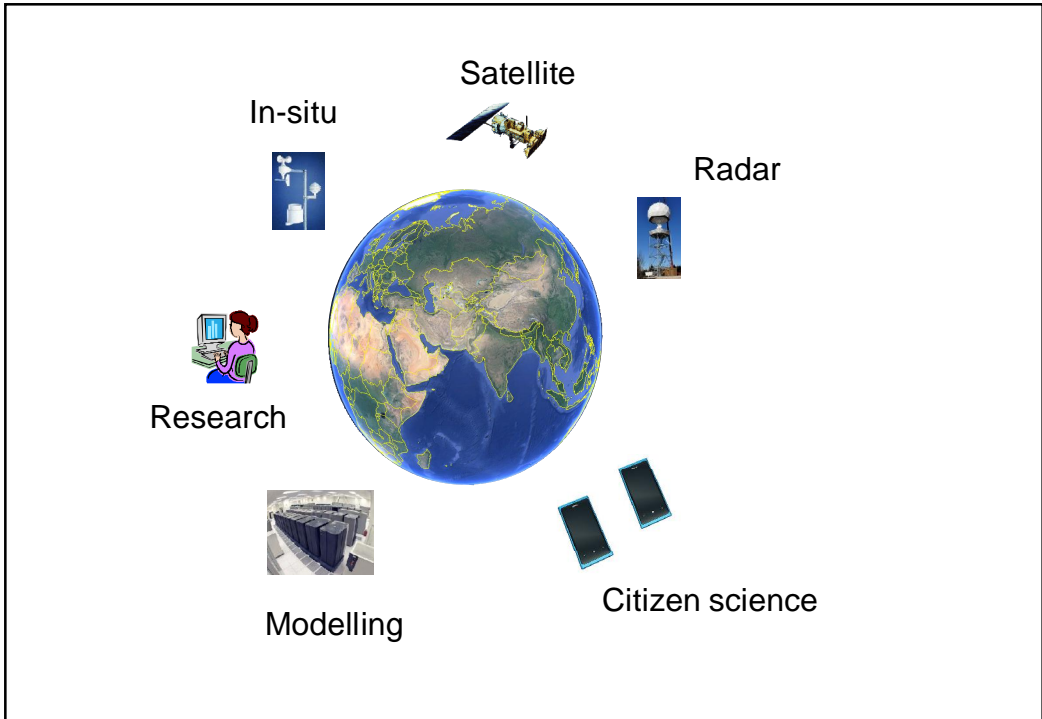
Environmental data for applications Seminar

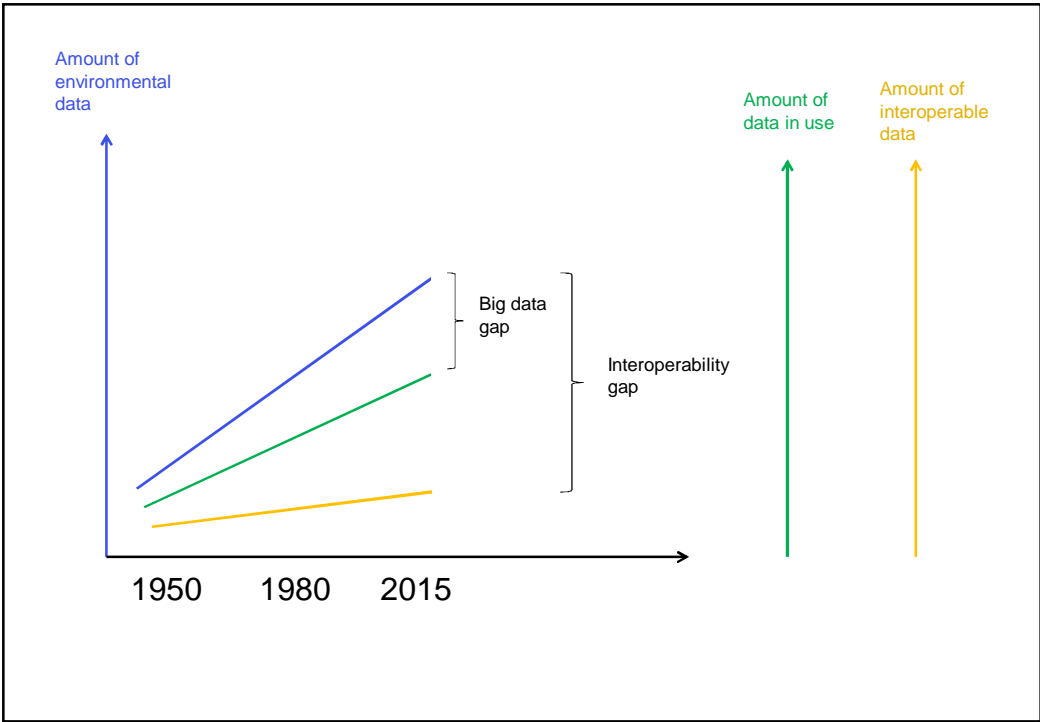
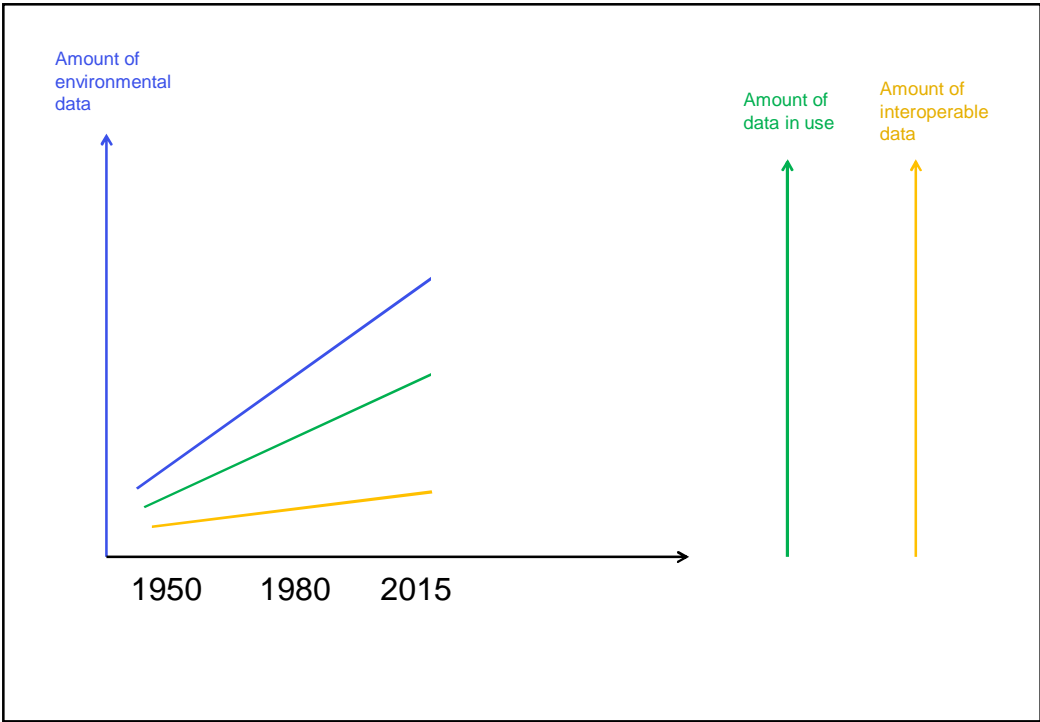
23 Sept, 2015

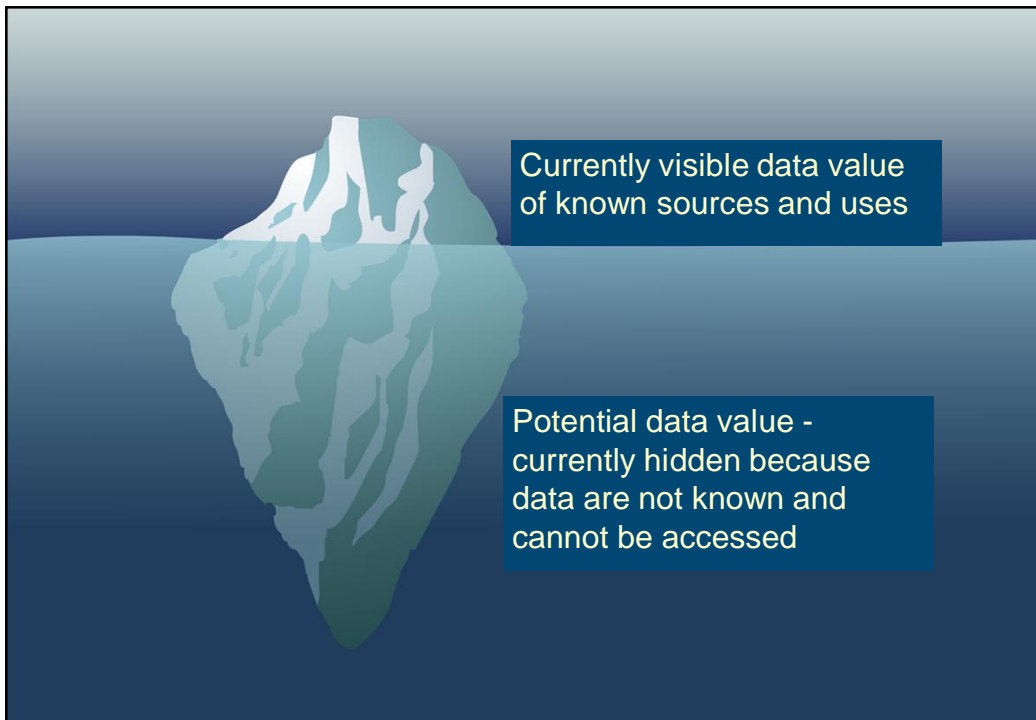
Ville Kotovirta


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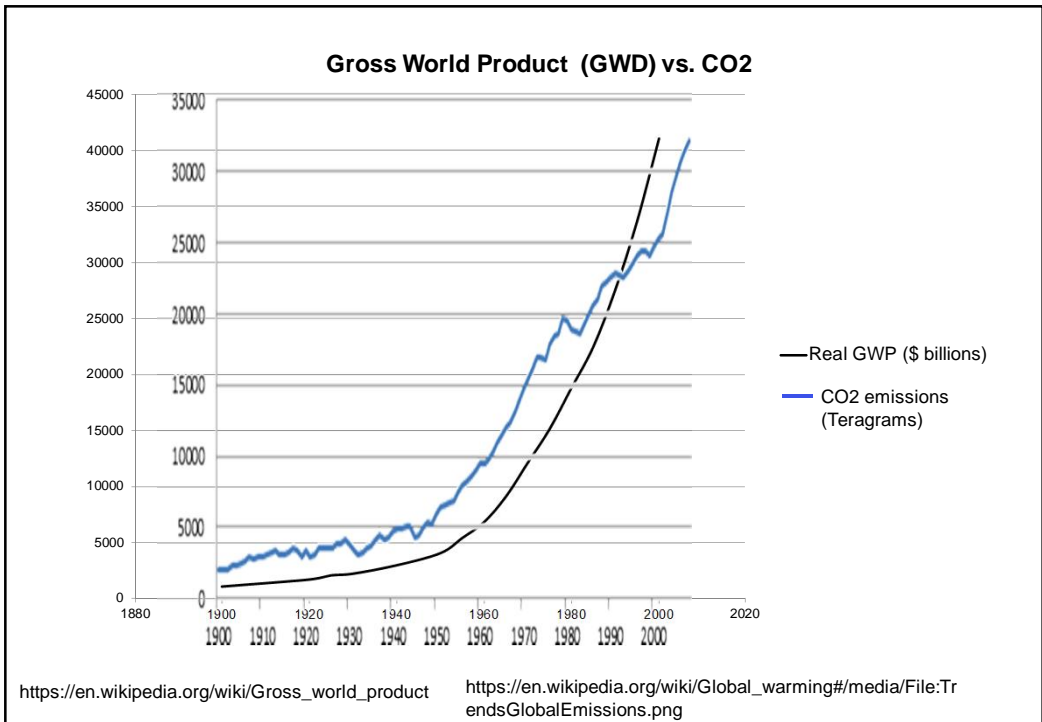




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Data fragmentation

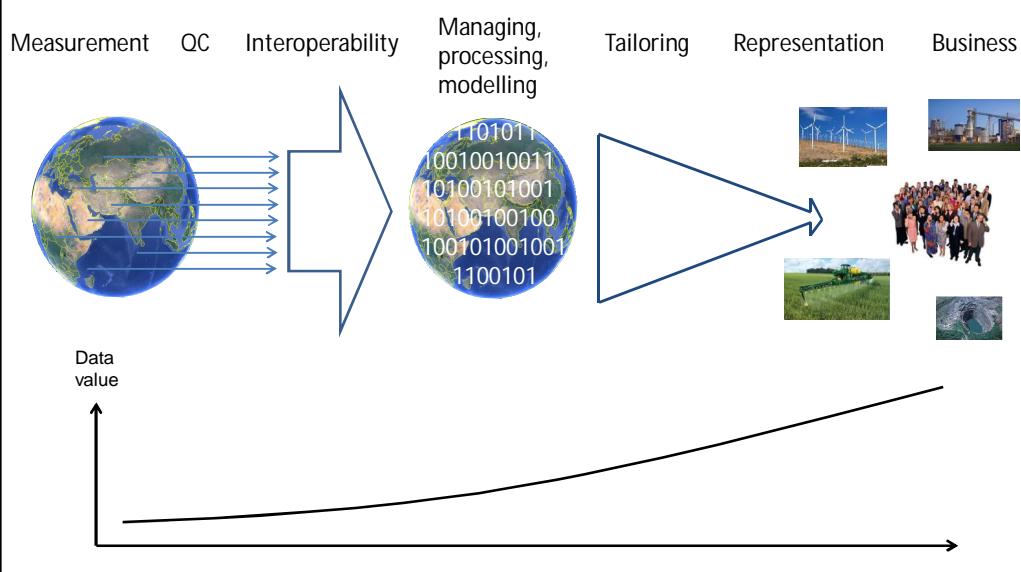
- Fragmentation in technology
 - Different sensors are based on different technology, different data formats are used
- Fragmentation in data quality
 - Various data quality requirements
- Fragmentation in space and time
 - Different sensors and models have different spatial and temporal resolutions
- Fragmentation in semantics
 - Different organisations, different countries, different disciplines use different semantics for data
- Fragmentation in data politics
 - differing views on how the data should be shared
- The need for interoperability is not taken into account when systems are designed and built
- As a result, it is **too expensive for users to use the data**



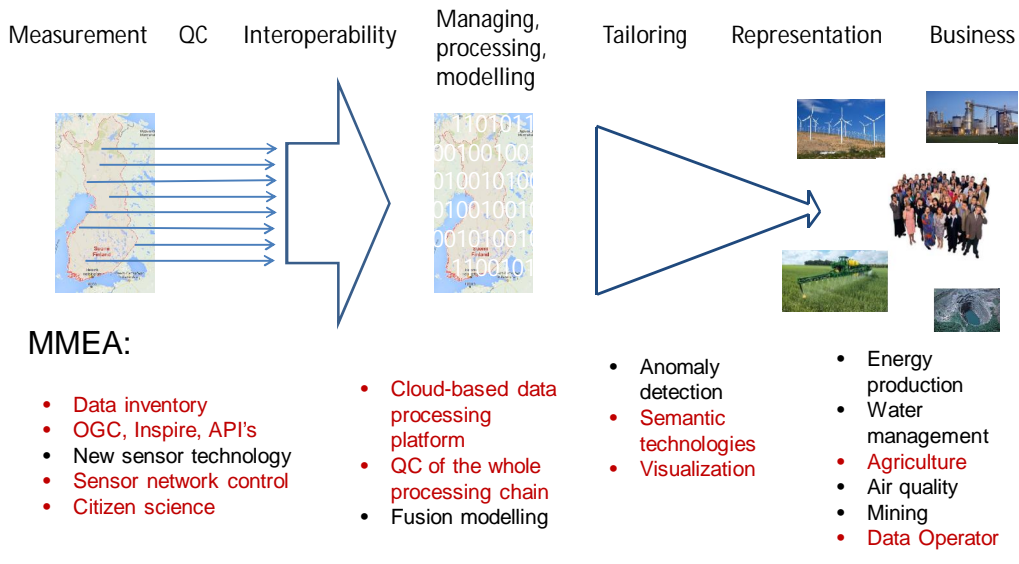
Anatomy of environmental problems

- Environmental externalities – producers or consumers have unintended external (indirect) effects on other producers or/and consumers
- Consumers cannot take environmental consequences of complex production systems into account
 - reliable and understandable information does not exist
 - information cannot be accessed and valued when choices are made
- **More powerful environmental monitoring and information processing are needed to solve environmental problems!**

Challenges of environmental monitoring



MMEA (Measurement, Monitoring and Environmental Assessment) to tackle the environmental monitoring challenges



Agenda

- 08:30 Coffee
- 09:00 Opening and welcome, Heikki Turtiainen, Vaisala
- 09:10 Introduction to environmental data interoperability, Ville Kotovirta, VTT
- 09:30 **Session 1: Data, data everywhere - open and closed data** Leader: Jari Silander, Syke
- 09:30 Available data sources, Jari Silander, Syke
- 09:50 Controlling environment monitoring networks, Olli Ojanperä & Panu Kilponen, Vaisala
- 10:30 **Break**
- 10:45 Engaging citizens - participatory sensing, Renne Tergujeff, VTT
- 11:10 Combining various data sources, Outi Mäyrä, University of Oulu
- 11:30 Commercialization of environmental big data, Anas Al Natsheh, CEMIS
- 11:50 Discussion
- 12:00 **Lunch break** (hosted)
- 13:00 **Session 2: Connecting data and users** Leader: Mikko Ala-Fossi, Vaisala
- 13:05 MMEA platform development, Harri Hytönen, Vaisala
- 13:20 Quality control and measurement uncertainty, Mauno Rönkkö, UEF
- 13:40 Variogram-derived measures for QC purposes, Markku Ohenoja, University of Oulu
- 14:00 **Coffee break**
- 14:30 Combining Two Datasets into a Single Map Animation, Salla Multimäki, Aalto
- 14:50 Visualization of coastline flooding, Janne Kovanen, MML
- 15:10 Applying data - case agriculture, Janne Saarela, Profium
- 15:45 Missing link in evolution - data operator for efficient use of data, Ville Kotovirta, VTT
- 16:00 Discussion
- 16:15 Closing