

# Quality assurance framework

Twinning Armenia 23.-26. August 2016

Component 1: Statistical Information Dissemination Systems

Activity 1.7: Quality Assurance

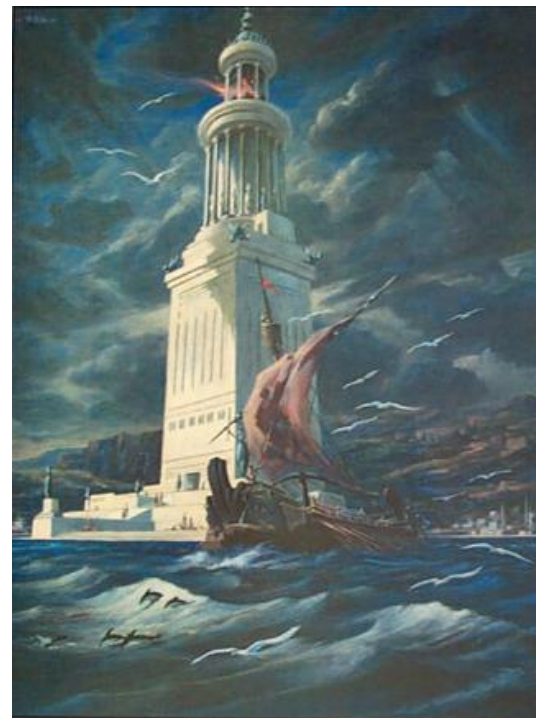
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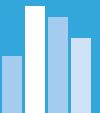
# Why are we here?

- Because all good decisions rely on facts
- Provide the basic facts on society – a common reference point
- Basis for **democracy** and **economy**
- A lighthouse in the Sea of Information



# Official statistics organisations provide basis for informed decisions by:

- Government
- Research
- Enterprises
- Citizens
- International organisations



# What is **quality** in official statistics?

- Good or bad quality?
- **Trust** is the key
- UN Fundamental Principles of Official Statistics (1993; 2014)
- European Statistics Code of Practice (2005; 2011)
- EU Quality Assurance Framework (2013)
- OECD Quality Framework (2012)

# Statistical cooperation in EU

- Denmark member of EU since 1972
  - Moving from cooperation on common surveys
  - towards cooperation of common statistical systems
- Tools for cooperation
  - Parliament- and Council regulations
  - Committees, working groups and task forces in Eurostat

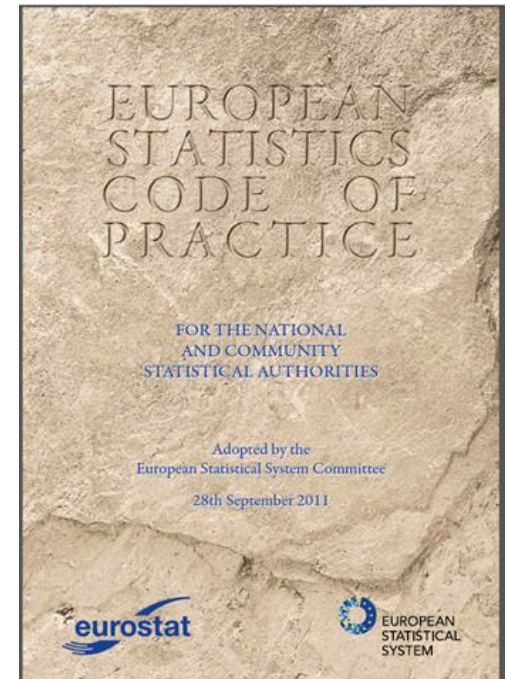


# Quality framework

- European frame:
  - European statistics Code of Practice (CoP)
  - ESS Quality Assurance Framework (QAF)
  - Peer Reviews
- Local frame
  - Quality awareness in dissemination of statistics
    - Documentation of statistics
    - Other metadata
    - User involvement
  - Quality awareness in the production of statistics
    - EU cooperation
    - Guidance from the methods department
    - Extensive use of administrative registers
    - Quality audits

# European frame – Code of Practice (CoP)

- European statistics code of practice
  - First published in 2005 and updated in 2011
- Builds on UN's Fundamental principles for Statistics
  - Published in 1994
- 15 principles
  - Institutional environment
  - Statistical processes
  - Statistical output
- A set of indicators for good practice for each principle





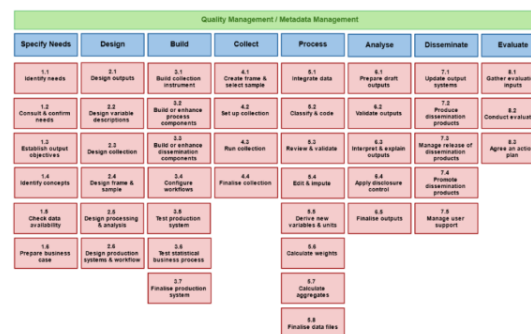
# European Statistics Code of Practice

- 15 principles
- 82 indicators monitoring the European Statistical System (ESS)

## 1. Institutional Environment



## 2. Statistical Processes



## 3. Statistical Outputs





# Institutional Environment

1. Professional independence
2. Mandate for Data Collection
  - Also admin data
3. Adequacy of Resources
4. Commitment to quality
5. Statistical Confidentiality
6. Impartiality and Objectivity



# ....about quality

- **Principle 4: Commitment to quality**

- Statistical authorities are committed to quality. They systematically and regularly identify strengths and weaknesses to continuously improve process and product quality.
- **Indicator 4.1:** Quality policy is defined and made available to the public. **An organizational structure and tools are in place to deal with quality management.**
- **Indicator 4.2:** **Procedures are in place to plan and monitor the quality of the statistical production process.**
- **Indicator 4.3:** **Product quality is regularly monitored**, assessed with regard to possible trade-offs, and reported according to the quality criteria for European Statistics.
- **Indicator 4.4:** **There is a regular and thorough review of the key statistical outputs** using also external experts where appropriate.
- <http://dst.dk/en/OmDS/strategi-og-kvalitet/kvalitetspolitik>

# Statistical Processes

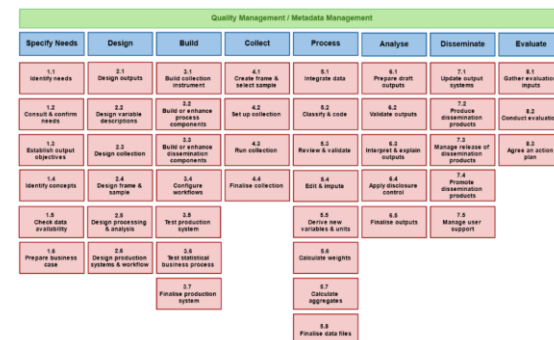
## 7. Sound Methodology

- international standards, guidelines, and good practices
- standard concepts, definitions and classifications

## 8. Appropriate Statistical Procedures

## 9. Non-excessive Burden on Respondents

## 10. Cost Effectiveness



# Statistical Output

11. Relevance

12. Accuracy and reliability

13. Timeliness and Punctuality

14. Coherence and Comparability

15. Accessibility and Clarity



# The quality concept

## Quality of processes:

Statistical concepts

Sources

Contact with respondents/data owners

Sampling

Measurement process

Data collection

Editing

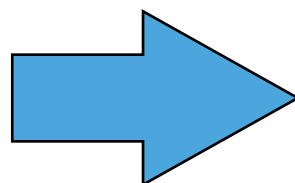
Estimation

Aggregation

Publishing and dissemination

Entering in StatBank

Documentation



## Quality of contents:

*Relevant*

*Accurate & reliable*

*Timely & punctual*

*Coherent & comparable*

*Accessible & clear*

*Transferable*

*Cost effective*

Quality = Fitness for use

# Quality Assurance Framework (QAF)

- QAF is developed to assist the implementation of CoP
- In QAF possible activities, methods and tools to help achieving the goals in the principles of CoP
- A distinction is made between initiatives at the institutional level and at the level individual statistics
- Not all 15 principles are referred to
  - 4 Commitment to quality
  - Principles for statistical processes
  - Principles for statistical output



# Peer reviews in 2005/6 and 20014/15

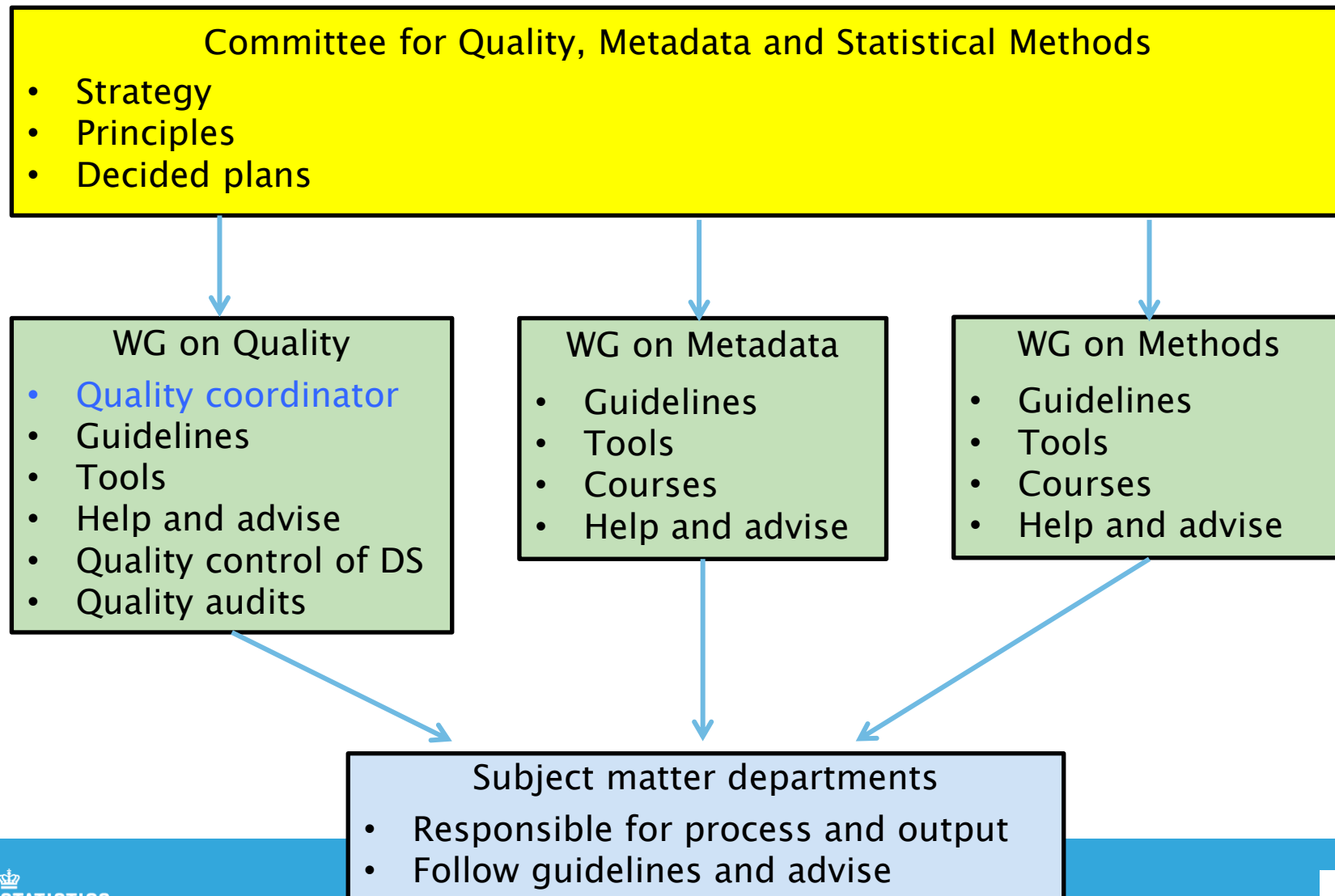
- Carried out to assess the compliance with CoP
- ...to enhance the credibility and capacity of the ESS
- The process starts with a self evaluation form (350 questions) based on CoP and QAF
- This is followed up by a 5 days visit with three experts where users and data suppliers are involved
- A review report is delivered by the expert group with comments from the NSI
- The NSI formulates some improvement actions on the grounds of the report
- Eurostat delivers a comprehensive report to the European Parliament and ECOFIN-council



# Local frame – Organisation of the quality work

- Traditionally the responsibility for quality has been decentralised
- Since 2013 there has been a steering group for Quality
- Since 1999 there has been a steering group for methods
- Since 2015 these has been replaced by a Directors group for Quality Metadata and Statistical methods
- Under this group there are three Working Groups

# Responsibilities - organisation

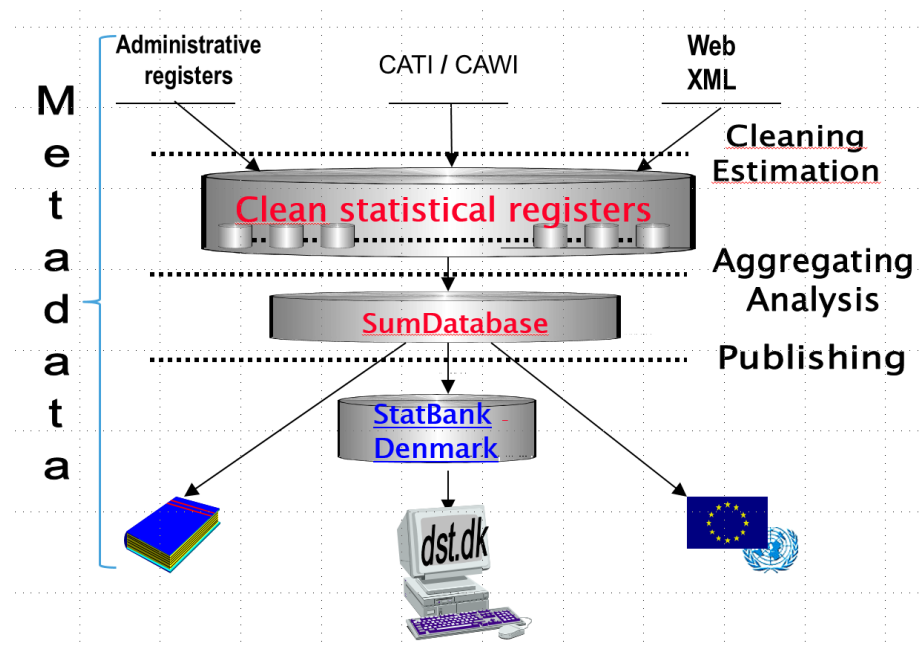


# Quality coordinator

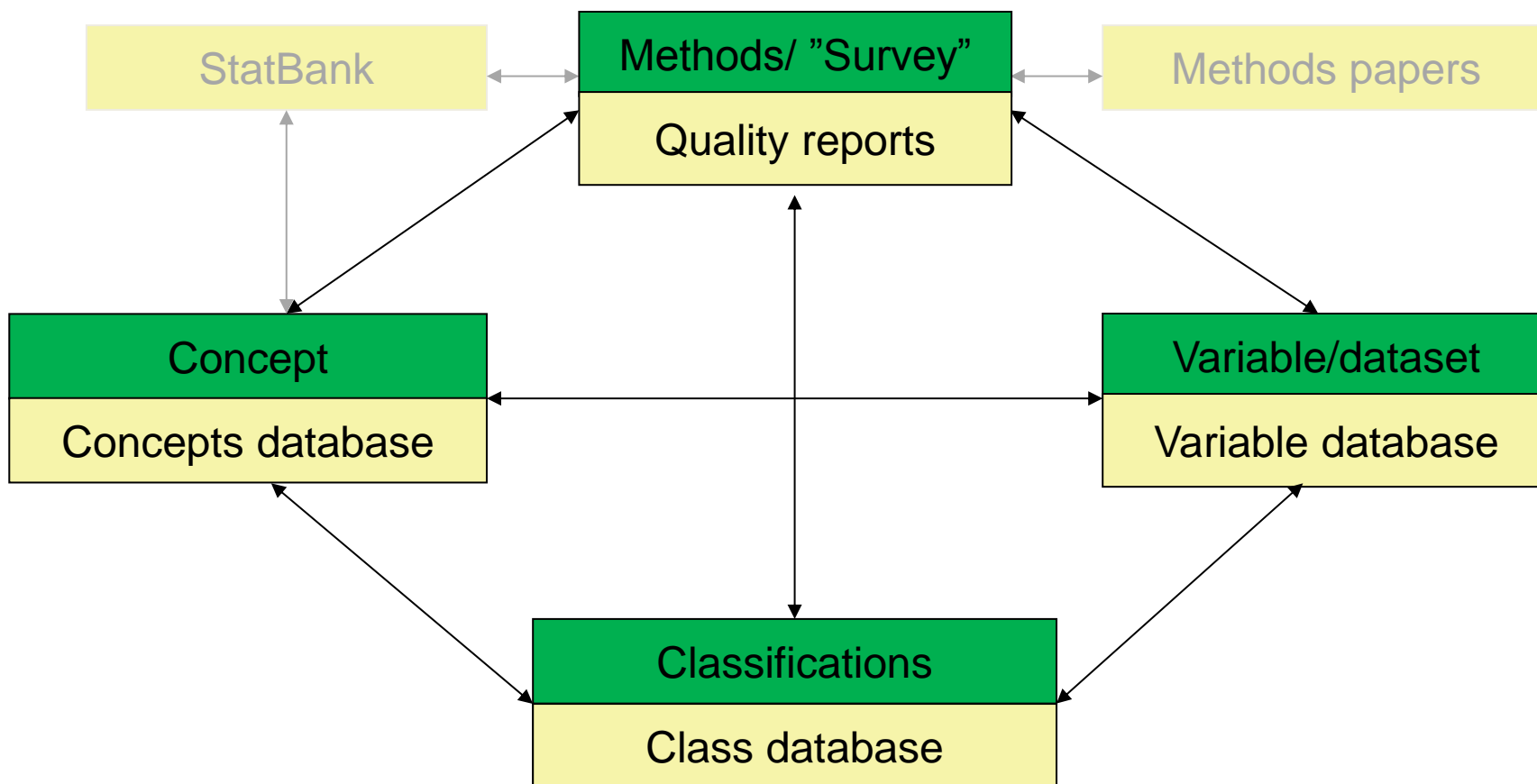
- New position in September 2014
- The goal of the work
  - Give statistics users targeted support in their use of statistics
  - Documentation of the content and quality is essential
  - Internal processes must support this
- Development and implementation of Statistics Denmark's process model
- Coordinator for review quality declarations
- Review of content of quality declarations
- Organize and coordinate the systematic review of processes in areas of statistics
- Keep abreast of international work on quality in statistics

# Statistical System

- Statistical infrastructure
  - Basic registers
  - Common classifications
  - Common statistical methods
  - IT-tools
  - Dissemination
  - Metadata
  - etc.
- Statistical input
  - Surveys
  - Administrative sources
- Statistical outputs
  - Database
  - Web site
  - Reports to international organisations

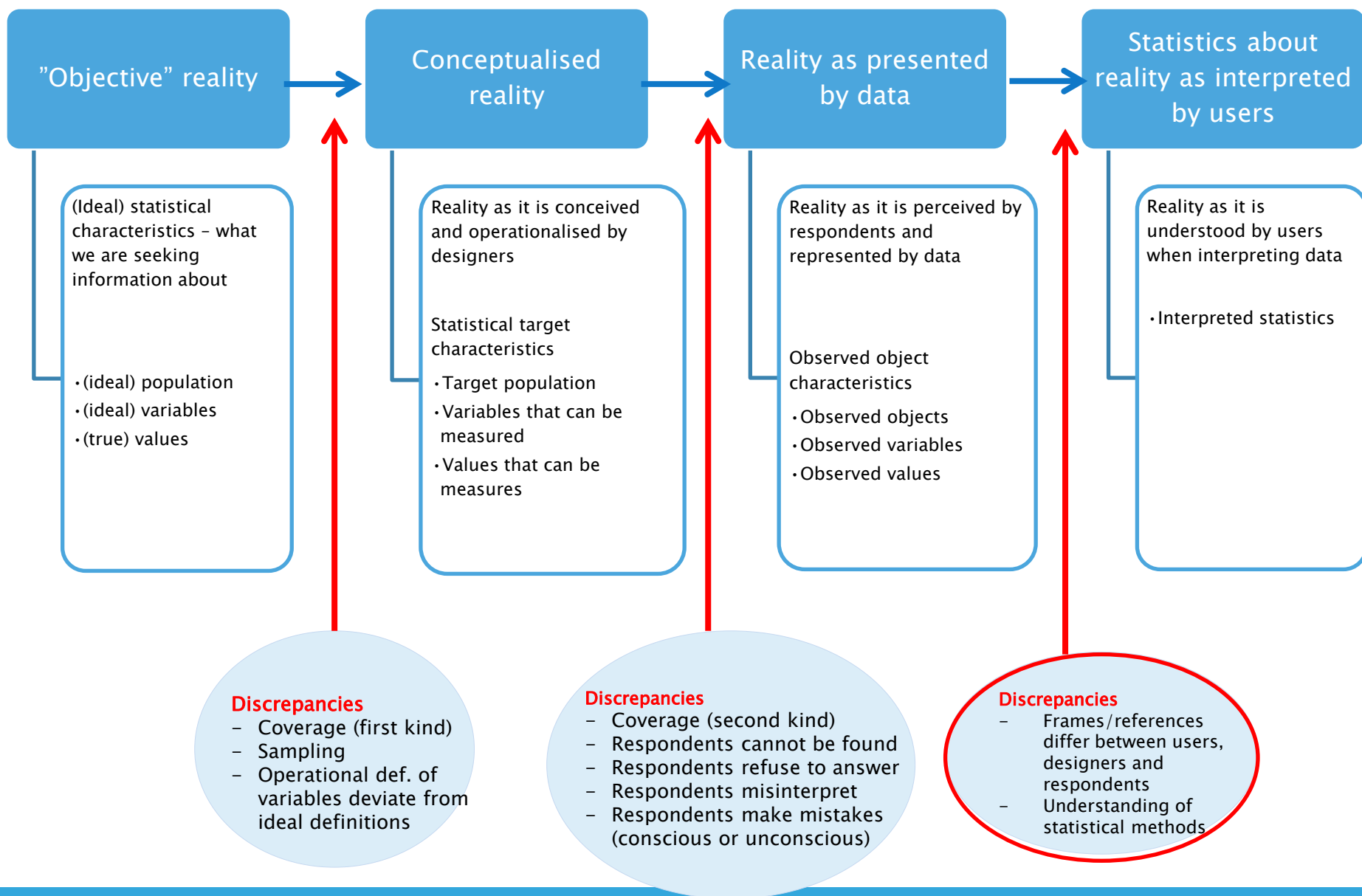


# Metadata management



# Producing statistics

- Producing statistics is about describing phenomena in the society
- Not just anything – but some important phenomena in the society – something that some users seek information about
  - Population
  - Education
  - The economy
  - Etc.
  - An illustration is given by the Swede Bo Sundgren in *Statistical systems: Some fundamentals*





# Reporting quality to users – Documentation of statistics

- Help for the user to understand the statistics – giving the user information about the frame we have worked within
- Explain the content of the statistics
  - History
  - Purpose of the statistics
  - Content – population, variables etc.
- Quality = Fitness for use
- Quality of contents:
  - Relevance, Accuracy & reliability, Timeliness and punctuality, Coherence & comparability, Accessibility and clearness

# Challenges on fulfilling user-needs in a cost-effective way

- Existing work-processes and metadata
  - Fragmented and non-standardised work-processes
  - Metadata linked to final data and no reuse
  - Presentation of metadata fragmented and incomplete
  - Concepts database incomplete
  - Classifications and code-lists in many places
- Introduction of standards
  - Generic statistical business Process Model (GSBPM)
  - SIMS, SDMX (ESQRS and ESMS) from Eurostat
  - DDI and DDI-tools to ensure integrated metadata

# Streamlining and harmonising metadata and quality reporting

- Once for all purposes reporting
  - Each concept is only reported upon once and is re-usable
- Integrated and consistent quality and metadata
  - Reporting framework where the reports are stored in the same database
- A flexible and up to date system
  - Where future extensions are possible by adding new concepts,
- “Single Integrated Metadata Structure” (SIMS)
  - A dynamic and unique inventory of ESS quality and metadata statistical concepts has been created
- In this structure, all statistical concepts of the two existing ESS report structures (ESMS and ESQRS) have been included and streamlined, by assuring that all concepts appear and are therefore reported upon only once

# Documentation of Statistics

- Re-organisation 2014 following the ESS handbook
- Three levels
  1. “Front page” to appear at the webpage of Statistics Denmark, with a short description of the 9 headlines in the Structure. From the front page one can open around 100 specified topics (SIMS)
  2. SIMS topics cover the more detailed quality report (see guidelines in Annex 2). From level 2 one can open annexes for further description
  3. Annexes
- The idea is in one product to cover all customers (national, international, EU).
- Prepared in Danish and English

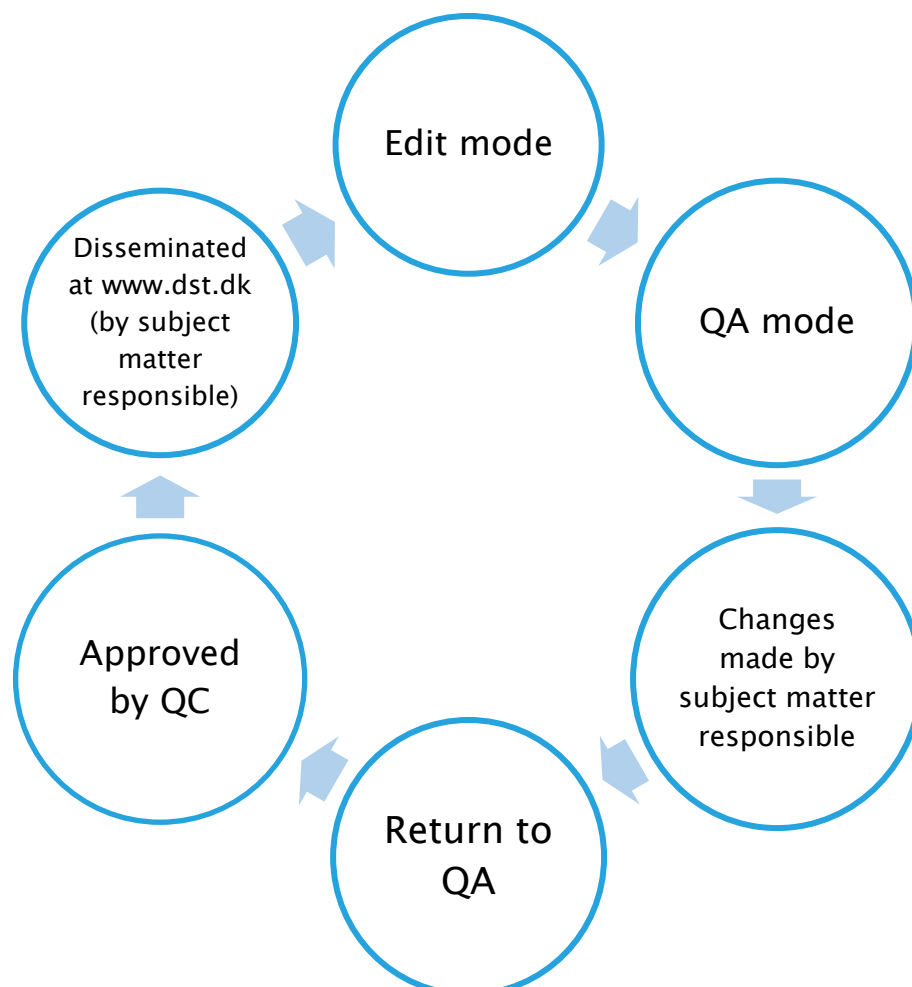
# Starting point for quality reports

- Starting point is Code of Practise and ESS Quality assurance framework
  - Indicator 4.3 – reporting of quality
  - Indicator 15.5 – metadata are documented according to standardised metadata systems
- Standards:
  - SIMS
  - ESQR
  - ESMS
  - GSBPM

# Documentation of statistics

- Cycle:
  - Every new dissemination of statistics followed by an updated quality declaration
  - Send to QA
  - QA reads and comments
  - Dissemination centre reads and comments on "front-pages"
  - Responsible updates – new QA
  - Ready for dissemination

# Cycle for Documentation of statistics





# Documentation of statistics on www.dst.dk

The screenshot shows a web browser window with the URL <http://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/retail-trade-index>. The page features the Statistics Denmark logo and a navigation menu with links to CONTACT, PRESS, INFORMATION SERVICES, and DANSK. A search bar is also present. The main content area is titled "Retail Trade Index" and includes a description of the index, a list of statistical presentation details, and a section on statistical processing. A sidebar on the left lists various documentation topics, and a right sidebar provides contact information and a link to the "Denmark in figures" booklet.

**Documentation of statistics**

- Retail Trade Index**
- Statistical presentation
- Statistical processing
- Relevance
- Accuracy and reliability
- Timeliness and punctuality
- Comparability
- Accessibility and clarity

**Classifications**

- Methodology
- Major revision of national accounts

## Retail Trade Index

The Retail Trade Index shows the development in turnover within the retail trade sector. The statistics is published monthly and is primarily used as short term indicator for private consumption as well as the general business cycle movement.

**Statistical presentation**

Retail trade indices are published for 43 industries and for three main commodity groups: food and other everyday commodities, clothing etc., and other commodities. Furthermore special industry aggregates are produced for Eurostat. Value as well as volume indices are produced. The volume indices only for the main commodity groups and the indices for Eurostat. The statistics is based on survey data from all large retail trade enterprises and a sample of the remaining retail trade enterprises. seasonal adjustment is performed on the main commodity groups and the total.

[Read more about statistical presentation](#)

**Statistical processing**

Turnover figures are collected each month from a sample of 3.500 retail trade enterprises, reporting the figures either by web or by dial-in. The submitted data is error checked by a number of measures, e.g. by comparing the turnover growth in similar enterprises.

Survey data is grossed up in part by including information from administrative sources on the VAT turnover in the previous quarter for the entire population.

**Contact info**

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**Get as PDF**

[Retail Trade Index](#)

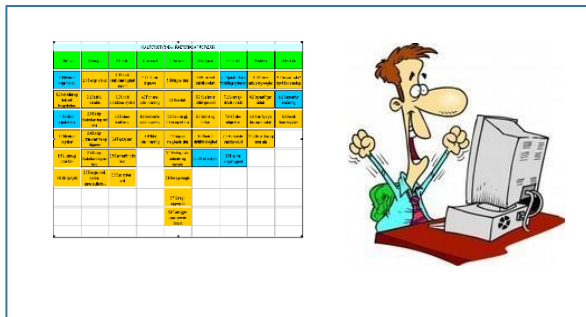
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**Denmark in figures**

Get a quick overview of the developments in the Danish society in this colourful and easily read booklet.

[Denmark in Figures](#)

**Enter SIMS fields**



**Publish at [www.dst.dk](http://www.dst.dk)**

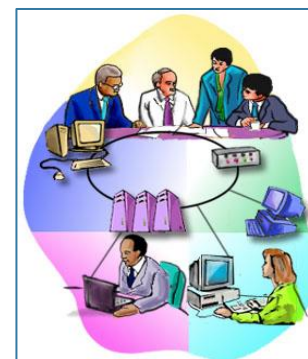


**METADATA  
IN  
COLECTICA**

**Send Quality report to EU**

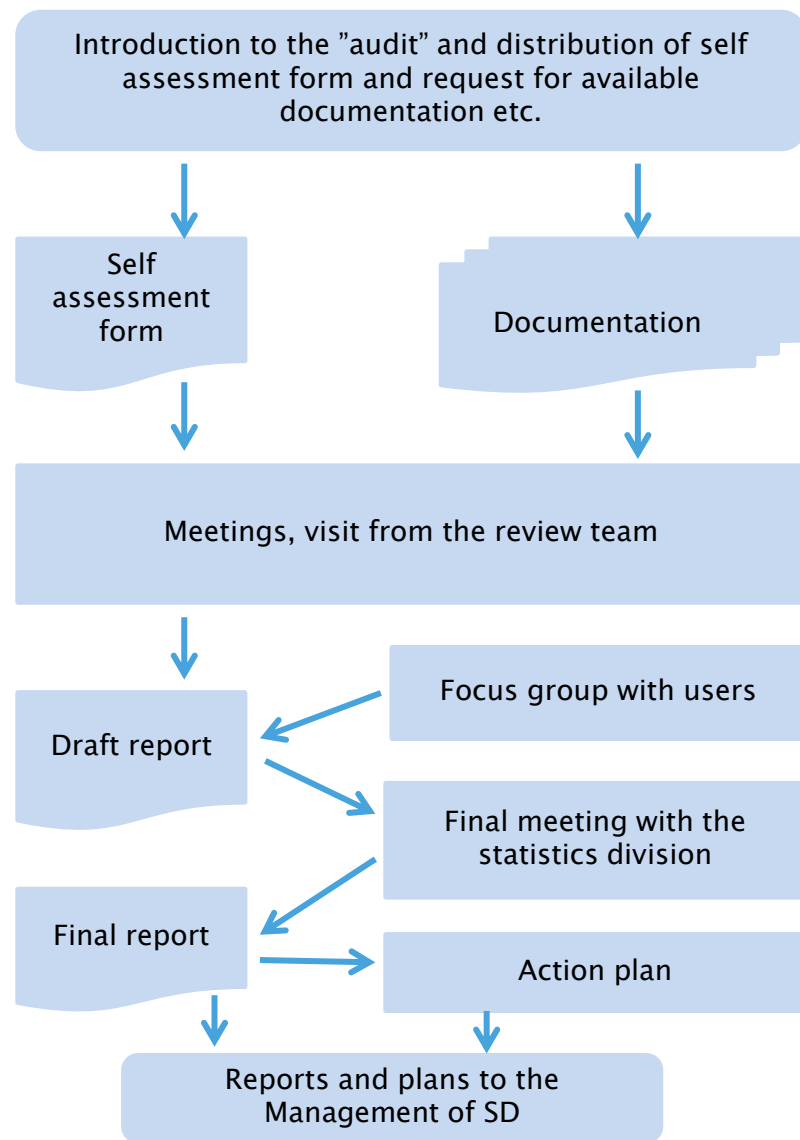


**Publish at the Intranet**



# Quality audits

- Started in SD in 2015
- Audit based on CoP
- Team of experts
- Self assessment
- Examination of documentation
- Report
- Action list
- Minimum 6 statistics in 2016



# Self evaluation in SD

- The CoP is the basis
- Each of the indicators from Principle 4 are evaluated
- QAF is used for inspiration on the level of single statistics
- Degree of compliance
  - A – Most of the demands fulfilled, including documentation
  - B – Some of the demands fulfilled, but still some missing
  - C – Only few of the demands fulfilled, much missing
  - X – not relevant

# Review meeting in audit

- GSBPM is used as a frame to interview about the production of statistics.
- The starting point is always the users – who are they
- ...and next how are their needs met
- Go through each of the 8 phases in the GSBPM - trying to establish the story of how the statistics are created

# Audit report

- The audit report sums up the strenghts and weaknesses from the self-evaluation
- A description of the production process is given
- On the basis of the self-evaluation and the review of the production process, recommendations are given on points to improve
- On the basis of this an action plan is made by the statistical division
- The report and action plan is then given to the management

# Basic registers in Statistics Denmark

- Use of common identification numbers
- Immensely rich data
- High data quality
- Combining & linking
- Longitudinal studies



# Basic registers - statistical system

