

**TRAINING COURSE IN COORDINATION AND QUALITY MANAGEMENT OF
OFFICIAL STATISTICS**

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Quality management and the CoP

Marina Signore

Director of Research, Data collection directorate

Istat



Contents

- ✓ General concepts
- ✓ Quality management
- ✓ The CoP and the QAF for non EU countries



General overview on Quality

- Why is it important?
- What are the main aspects to consider?
- How to manage quality in a broad sense?

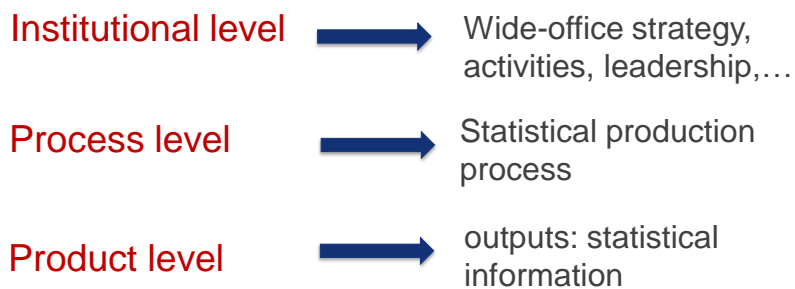
Why?

Need to agree on common definitions and on a common background of what quality means

Cooperation within the National Statistical Systems

Share information on ongoing activities at international level

What?



How?

- ✓ Have a quality framework in place to guide quality management implementation
- ✓ Knowledge of quality dimensions, errors sources, errors' impact on final data
- ✓ Implement tools to improve quality and document it
- ✓ Use of international standards

Definition of quality

The quality concept

- ✓ Multi-faceted concept
- ✓ May involve «perceptions»
- ✓ Involves user/client opinion
- ✓ Likely to change over time

The meaning of quality in statistics

From “accuracy” to a wider definition including a set of attributes useful to meet users’ needs and the requirements of the European/National Statistical System

Definition of Quality in the ESS (ISO 8402, 1986)

«Quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy a given need»



Process quality

- Refers to the quality of the operations and instruments used in the data production process
- The way by which statistical information is produced affects the output quality
- To monitor and improve the statistical production process is a way to improve data quality
- Focus on the survey operations and process quality indicators



Product quality

- Refers to the quality of statistical output (or products)
- Usually expressed as a set of components which have some attributes or requirements that are to be met (e.g. Eurostat quality vector with 6 dimensions)
- Essential for any assessment of data quality
- Useful for quality reporting to users

Output Quality dimensions

1. Relevance
2. Accuracy and reliability
3. Timeliness and punctuality
4. Coherence and comparability
5. Accessibility and clarity

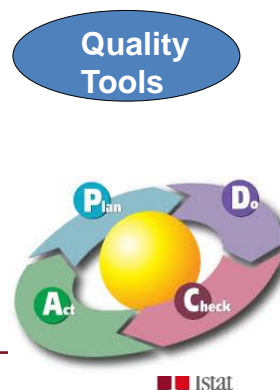
Quality management frameworks

Quality Management Frameworks

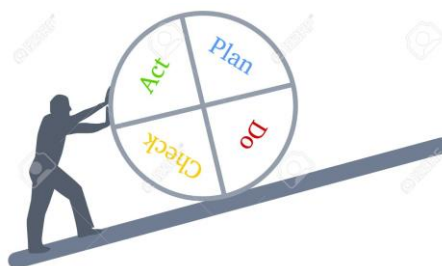
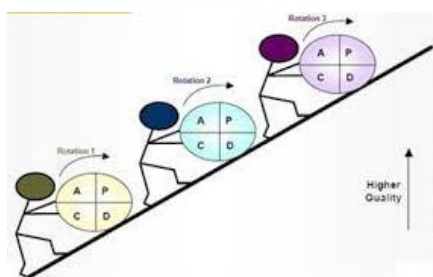
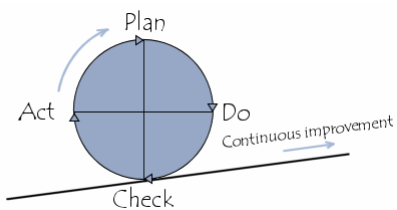
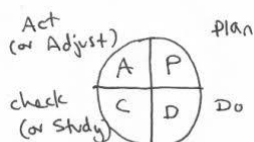
- The CoP and the QAF for the European Statistical Systems and non European countries
- The UN Fundamental Principles, the OECD quality framework and the UN NQAF (National Quality Assurance Framework)
- There are also other models (ISO 9000 Norms, EFQM Excellence Model - European Foundation for Quality Management,.....)
- Common features

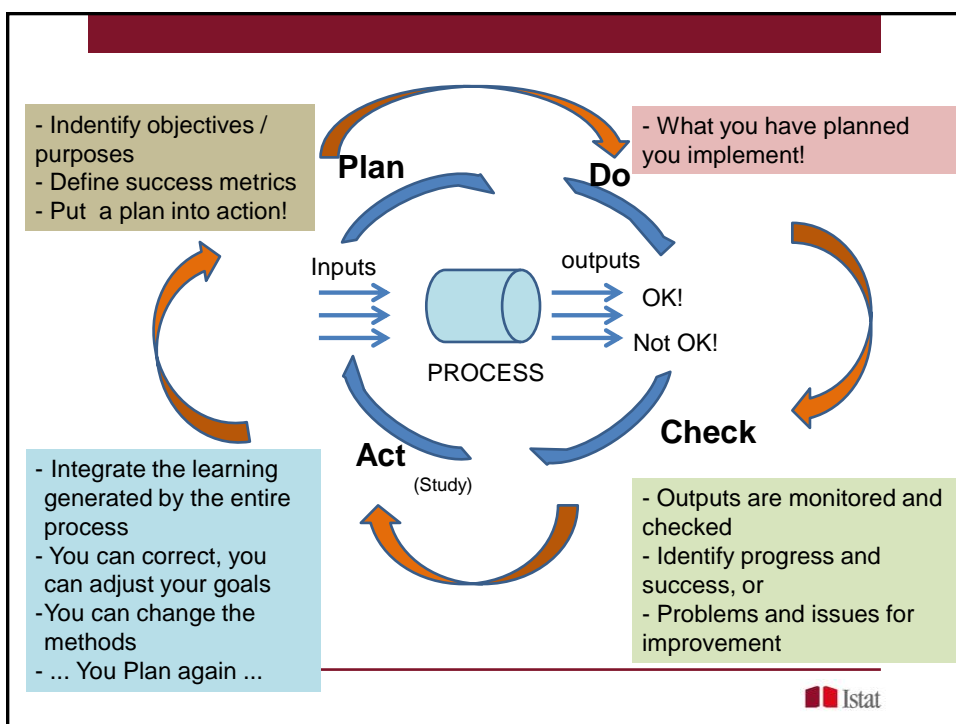
Total Quality Management (TQM)

- Management Philosophy
- Core Values
 - Customer Focus
 - Process Orientation
 - Committed Leadership
 - Participation of everyone
 - Decisions based on facts
 - Continuous improvements



The Deming cycle





The Deming cycle

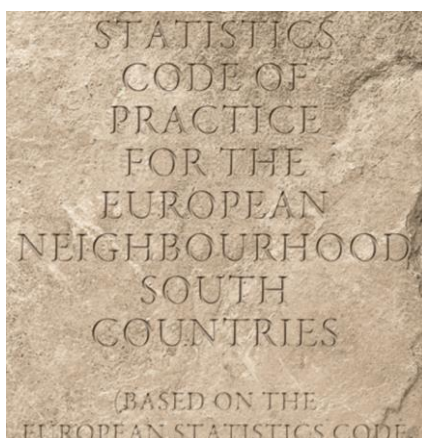
- ✓ Systematic series of steps for gaining valuable learning and knowledge to continuously improve processes and products
- ✓ A never-ending cycle for improvement!!!

The Code of Practice and the Quality Assurance Framework (QAF) for the European Neighbourhood South countries

<http://ec.europa.eu/eurostat/web/products-catalogues/-/KS-32-11-955?inheritRedirect=true&redirect=%2Feurostat%2Fpublications%2Fleaflets>



The Statistics Code of Practice for the European Neighbourhood South countries



- Based on the European Statistics CoP
- Approved by the Forum of Euro-Mediterranean Statisticians in April 2016
- 16 principles concerning the institutional environment, statistical processes and outputs
- A set of indicators of good practice for each of the 16 principles provides a reference for measuring the implementation of the Code.



The Statistics Code of Practice for the European Neighbourhood South countries

Commitment

Adopting the Statistics Code of Practice implies a commitment to implement the Principles of the Code

The Principles of the Code of Practice together with the general quality management principles represent a common quality framework for a National Statistical System or for a wider Statistical System (e.g. the European Statistical System)



The Statistics Code of Practice for the European Neighbourhood South countries

**Code of Practice
composed by 16
principles:**

**Institutional Environment
Statistical Processes
Statistical Output**

**Each principle comprises
several indicators**

A total of 86 indicators

**The implementation of and
compliance with the Code of
Practice**

At indicators level



Preamble of the CoP

The vision of the Statistical Systems of the European Neighbourhood South countries

The Statistical Systems of the European Neighbourhood South countries will be the source of reliable national statistical information based on scientific principles and methods, produced according to international quality standards, and made available to all users

The mission of the Statistical Systems of the European Neighbourhood South countries

The mission of the statistical systems of the European Neighbourhood South countries is to provide national decision makers, international organizations and a wide range of users with independent high quality information on the economy and society of the countries, on both national and regional level. This is to promote evidence-based policymaking, transparency and democratic processes.



Preamble of the CoP

To realize this mission, the members of the national statistical systems of the European Neighbourhood South countries strive for [joint cooperation and continuous interaction with users](#) according to the Principles of the Statistics Code of Practice for the European Neighbourhood South countries and general quality management principles including commitment to leadership, partnership, staff satisfaction and continuous improvement, in addition to integration and harmonization.



The Quality Assurance Framework (QAF)

Not yet published

It is based on the ESS QAF version 1.2 (first version was published in August 2011; second one in May 2015)

It provides **recommendations of activities, methods and tools** that facilitates the practical and effective implementation each indicator/principle of the CoP

at Institutional level

at product/survey level

It covers all indicators from Principle 4 to Principle 16

The suggested methods and tools evolve from a general into a more concrete and detailed description

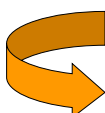


ESS Quality Assurance Framework (QAF)

It reflects a mature compilation of activities, methods and tools **already being used** in the European Statistical System

In addition, these recommended activities, methods and tools are designed in such a way that they should **not depend** on the **organizational solutions** that exist in Member States

Often supported by **specific examples** which have worked well in some countries.



Reference framework

Support NSIs to **improve and assess** compliance to the CoP

Support for **all the producers of official statistics** in NSS

Basis for defining minimum requirements at ESS level

Basis for the Peer Review exercise in 2013-2015



ESS QAF – version 1.2

<http://ec.europa.eu/eurostat/documents/64157/4392716/ESS-QAF-V1-2final.pdf/bbf5970c-1adf-46c8-afc3-58ce177a0646>



Institutional environment

- P4 Commitment to Quality
- P5 Statistical Confidentiality
- P6 Impartiality and Objectivity

Statistical processes

- P7 Sound Methodology
- P8 Appropriate Statistical Procedures
- P9 Non-excessive Burden on Respondents
- P10 Cost Effectiveness

Statistical output

- P11 Relevance
- P12 Accuracy and Reliability
- P13 Timeliness and Punctuality
- P14 Coherence and Comparability
- P15 Accessibility and Clarity



ESS QAF

For each indicator of the CoP ...

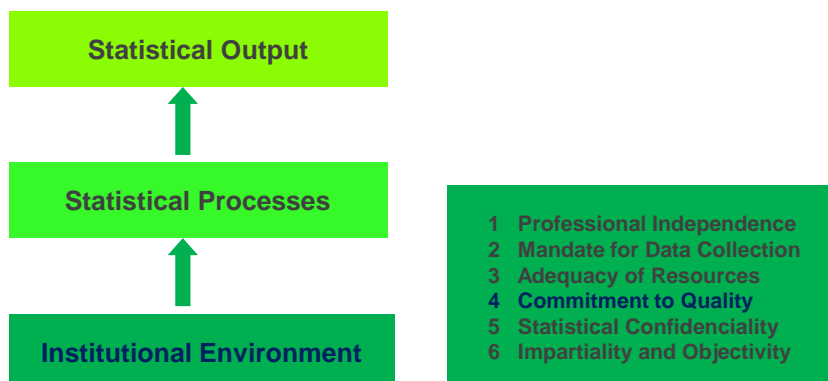
Methods at institutional level

Methods at survey/process level

- **Gradual implementation:** from more general and easier methods to implement to more specific and more demanding ones.
- All methods are to be intended as **recommended/suggested** but no obligations/mandatory or minimum common standards are set.
- Methods as **general** as possible (or alternative options offered) to enable different countries to adopt them and take into account national specificities.



Code of Practice – Institutional environment



Principle n.1 – Professional Independence

Professional independence of the National Statistical Institute and other producers of official statistics from other policy, regulatory or administrative departments and bodies, as well as from private sector operators, ensures the credibility of official statistics.

Key words

Independence from political influence or other external influence

Communication of statistics distinct from political statements and comments on misuses of statistics

Transparency of statistical programmes

Why?

To ensure the credibility of the systems

To increase trust in official statistics

To increase the use of official statistics as a fundamental tool for democracy

Principle n.2 – Mandate for data collection

The National Statistical Institute and other producers of official statistics have a clear legal mandate to collect information for official statistical purposes. Administrations, enterprises and households, and the public at large may be compelled by law to allow access to or deliver data for official statistical purposes at the request of National Statistical Institute and other producers of official statistics.

Key words

Legal mandate for conducting surveys, for using administrative data, for compelling responses

Why?

The authority for collecting data to produce statistics should not be questionable

Be entrusted to collect data is the precondition for producing information useful to the society

If necessary responses to surveys might be compulsory by law (What about sanctions or fines? Incentives?)



Principle n.3 – Adequacy of resources

The resources available to the National Statistical Institute and other producers of official statistics are sufficient to meet Official Statistics requirements.

Key words

Resources: human, financial and computing

Balance costs and needs, assess new demands → Planning; balancing trade-offs

Why?

Resources are a prerequisite to accomplish the NSI mission but can also represent a constraint.

Opportunity to support NSIs in getting adequate resources from governments (negotiation)



Principle n.4 – Commitment to Quality

The National Statistical Institute and other producers of official statistics are committed to quality. They systematically and regularly identify strengths and weaknesses to continuously improve process and product quality.

Indicators

- 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.
- 4.2: Procedures are in place to plan and monitor the quality of the statistical production process.
- 4.3: Product quality is regularly monitored, assessed with regard to possible trade-offs, and reported according to the quality criteria for official statistics.
- 4.4: There is a regular and thorough review of the key statistical outputs using also external experts where appropriate.



Principle n.4 – Commitment to Quality

Key words

Focus on the Institutional level → Quality policy; process and product quality; regular and thorough review of key statistical outputs.

Leadership; continuous improvement

Why?

Quality is the underlying concept of the entire Code of Practice.

The other two sections on the Code focus on ensuring process and product quality

P4 focuses on what policies, strategies, tools, methodologies should be designed and implemented at a corporate level to promote quality activities in a consistent manner across the organisation



Implementing Principle n.4 - QAF

the indicators follow a [stepwise approach](#) and suggest what should be in place to fulfill the principles – guidelines for implementation (further developed in the QAF)

First step – Infrastructure

- A policy
- An organizational structure (e.g. unit, network, working group,...)
- Quality guidelines (according to GSBPM)
- Documentation
- Training courses

Second step – Process Quality

- Ensure methodological and technical support and general tools
- Procedures to monitor process quality
- Quality assurance plan at process/product level
 - Calculate process indicators (e.g. interviewer response rate)
 - Act on the bases of results of the checks (e.g. improving training)



Implementing Principle n.4 (cnd)

Third step – Product Quality

- Monitor and assess quality following quality criteria (relevance, accuracy,...)
- Quality reporting for internal users: survey managers, directors, top management
- User satisfaction surveys can provide inputs (at least for relevance)
- Quality reporting for users (transparency; increase data usability)

Fourth step – Quality Assessment

- Quality reviews: internal or external auditing, self-assessment for key statistical outputs
- Assessment tools that lead to improvement
- A plan for quality reviews (how often, which products, ...), a structure (who carries on the reviews, who decides on improvement actions,...), reference documentation, action plans
- Benchmarking with other statistical authorities to identify good practices



Principle n.4

Istat's Quality Policy

- Has been built over the years (since '90s) tailoring it to emerging internal needs and requirements from external users and from the ESS
- A pillar of our quality policy is the corporate documentation system SIDI/SIQual which manages both metadata and standard quality indicators
- Since 2010, focus on assessment by implementing internal statistical auditing and self-assessment with the aim to improve statistical processes.
- Improvement actions from auditing and self-assessment are flagged in the Annual Work Programme

<http://www.istat.it/en/about-istat/quality>



Principle n.5 – Statistical Confidentiality

The privacy of data providers (households, enterprises, administrations and other respondents), the confidentiality of the information they provide and its use only for statistical purposes are absolutely guaranteed.

Key words

Legal framework; Organisational aspects; Methodologies to calculate the disclosure risk and to protect data; IT infrastructure.

Why?

To guarantee Statistical Confidentiality is vital:

- It means to respect the data providers,
- It means to use the information is collected only for statistical purposes,
- It means that by no means data providers might be damaged by participating in a statistical survey

Principle n.6 – Impartiality and objectivity

The National Statistical Institute and other producers of official statistics develop, produce and disseminate Official Statistics respecting scientific independence and in an objective, professional and transparent manner in which all users are treated equitably.

Key words

Impartiality in the choice of sources, methods, compilation, dissemination of statistics

Transparency: when errors are found; announcing revisions and changes in methodologies; announcing release dates and times; availability of documentation

Equal access to all users at the same time

Why?

Objectivity and Impartiality are vital to ensure trust.

P6 aims at proving the independence from political influence in producing and disseminating statistical information



Code of Practice – Statistical processes



Principle n.7 – Sound Methodology

Sound Methodology underpins quality statistics. This requires adequate tools, procedures and expertise.

Key words

Use of International standards/guidelines/good practices/methodologies;

Adequacy of Staff; Training as a key element of HR Policy;

Cooperation and sharing; Learning from others

Why?

To ensure high quality statistics we need to use sound methodologies and follow good practices internationally recognised

Ensure comparability/coherence at National/European/international level



Principle n.8 – Appropriate Statistical Procedures

Appropriate statistical procedures implemented from data collection to data validation underpin quality statistics.

Key words

Administrative Data use and adequacy; Dialogue and effective cooperation with Administrative Data owners.

Implementation of procedures/methodologies at process level and its systematic evaluation and revision (PDCA);

Why?

Focus is in the implementation of sound methodologies, tools, software, ... in all the main steps of the production process

The procedures should be currently monitored and regularly revised and updated



Principle n.9 – Non-excessive burden on respondents

The reporting burden is proportionate to the needs of the users and is not excessive for respondents. The National Statistical Institute and other producers of official statistics monitor the response burden and set targets for its reduction over time.

Key words

Reducing respondents burden, monitoring it and reporting on it

Use of administrative data sources;

Cooperation in the statistical system: data sharing and linking data sources to obtain information avoiding contacting respondents

Why?

Respondents are a major resource

Respondents already have as citizen an administrative burden beyond statistical one

To reduce overall costs – efficiency of the society



Principle n.10 – Cost effectiveness

Resources are used effectively..

Key words

Monitoring of the use of resources;

Optimization of IT in the production processes;

Documentation and Standardisation

Why?

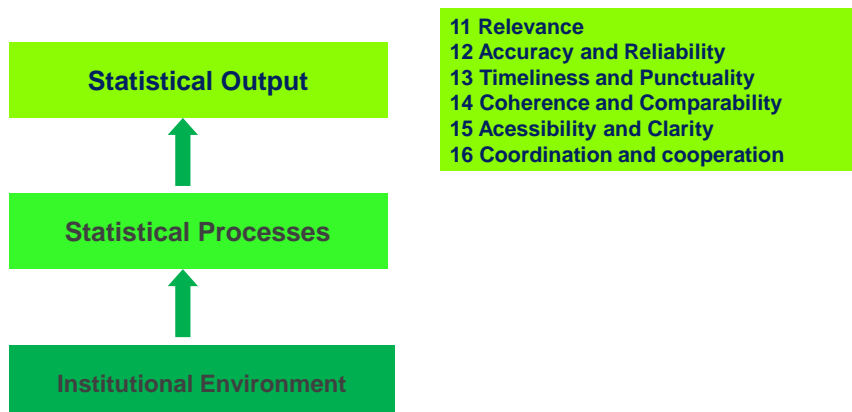
Important to demonstrate that we do not waste public money but that on the contrary we make good use of public resources

To respond to budget restrictions that many public Institutions are facing (in Europe)

Need to have planning and monitoring tools that enable to assess cost, efficiency, to allocate resources to programmes,....



Code of Practice – Statistical output



Principle n.11 – Relevance

Official Statistics meet the needs of users.

Key words

User consultation; collect needs also emerging ones

Work programmes reflecting users needs;

Users satisfaction;

Why?

Quality concept is based on satisfying users needs

Users are the starting and the ending point of the production process

If information we produce is not relevant then it is useless

Knowing who are the users; the different typologies; different needs and expertise

Principle n.12 – Accuracy and Reliability

Official Statistics accurately and reliably portray reality

Key words

Validation of input, intermediate and output data;

Sampling and non-sampling errors;

Measurement and reporting

Why?

Accuracy has been for a long time synonymous of quality

The figure that we release should be as close as possible to reality

Non-sampling errors come into play and thus we need tools and methods to prevent and reduce them



Principle n.13 – Timeliness and Punctuality

Official Statistics are released in a timely and punctual manner.

Key words

European and other international standards;

Release daily time; Pre-announcement of changes in dissemination times;

Release of preliminary results

Why?

Timeliness is vital for many types of statistics

At European level several surveys have timeliness fixed by EU regulations

Link also to impartiality and objectivity (P6)

Release of preliminary results as a possible compromise to increase timeliness



Principle n.14 – Coherence and Comparability

Official Statistics are consistent internally, over time and comparable between regions and countries; it is possible to combine and make joint use of related data from different sources.

Key words

Over-time and geographical (e.g. National Statistical System) comparability;
Use of standard definitions;

Why?

We should release data that have been validated thus are coherent

We should ensure comparability of time series as long as possible

European comparability of data is gaining importance with the increasing use of statistical data for European policies



Principle n.15 – Accessibility and Clarity

Official Statistics are presented in a clear and understandable form, released in a suitable and convenient manner, available and accessible on an impartial basis with supporting metadata and guidance.

Key words

Facilitate interpretation -> dissemination of metadata, other documentation

Customised analyses;

Controlled access to microdata

Why?

If information is not easily available and easy to understand, users will not use it

Metadata but also visualization tools come into play

Access to microdata is also in P5 on statistical confidentiality



Principle n.16 – Coordination and cooperation

Coordination and cooperation in statistics contributes to the improvement of the quality of official statistics in the national statistical systems of the ENP-South countries

Indicators

16.1: **National mechanisms** exist for coordinating the **development, production and dissemination** of official statistics and ensuring their quality.

16.2: When official statistics are based on administrative data, the **definitions and concepts** used for administrative purposes are a **good approximation** to those required for statistical purposes.

16.3: The National Statistical Institute and other producers of official statistics are involved in the **design of administrative data** in order to make administrative data more suitable for statistical purposes.

16.4: The National Statistical Institute has the capacity and structure in place **to coordinate statistical assistance** from other institutes or international organizations so as to maximize its impact

16.5: The National Statistical Institute and other producers of official statistics actively participate, according to their areas of competence and in close coordination with the National Statistical Institute, in the **main regional and international discussion forums** on statistics.

16.6: The National Statistical Institute advocates for the inclusion of **strengthening statistical capacity and cooperation** within the national strategies for cooperation and political cooperation agreements between the country and regional and international organisations.



Principle n.16 – Coordination and cooperation

Key words

Coordination at national level for development, production and dissemination of official statistics

Use of administrative sources (concepts and definitions, design)

Role of the NSI (e.g. coordinate statistical assistance)

Participation at regional and international forums

Why?

To increase the efficiency of the system as a whole

To reduce costs of producing official statistics

Importance of exchanges of experience and learning from each other



How to use the CoP and the QAF

Examples in the ESS

- Self-regulatory tool: National Statistical Institutes committed themselves to implement the principles of the CoP (2005)
- The Italian CoP has been adopted by the public administrations belonging to the Italian National Statistical System (2010)
- Assessment of NSIs and Other National Authorities of compliance to the principles of the Code.
- Assessment is done at indicator's level

How to use the CoP and the QAF

Assessment of the compliance to the principles of the CoP in the ESS

- Assessment is an important part of the implementation of the CoP
- At European level, two rounds of Peer Reviews have been conducted (2006-2008 and 2013-2015)
- Revision of the CoP in 2011 and in 2017
- Development of the Quality Assurance Framework

Why quality management?

- Do we **need** quality management?
- Do we need **structured/systematic** quality management?
- Do we need to follow **standards/ best practices**?
- What are the **advantages**?
- What **difficulties/resistances** we might face?

ADDITIONAL SLIDES FOR DOCUMENTATION

Implementing Principle n.16 - QAF

16.1 Methods at institutional level

- **Legal provisions** (coordinating body)
- Formalisation of the relationship between the National Statistical Institute and other producers of official statistics.
- Common Dissemination policy
- Methodology (Methodological framework at the NSS level)
- Common Training courses
- **National Official Statistics work programme.**
- Coordination of data transmission of official statistics to regional and international organisations to ensure the application of appropriate standards and concepts.

Implementing Principle n.16 - QAF

16.2 Methods at product/process level

- **Quality.** Statistical processing is clearly distinguished from administrative data processing and includes appropriate validation rules and specific procedures for checking quality.
- **Availability of documentation/guidelines etc.** Documentation exists describing the differences between administrative and statistical processes in terms of definitions, concepts, coverage, etc.
- **Identification of conceptual differences.** Differences in concepts are thoroughly studied and measures to deal with these differences are taken, when appropriate.
- **Harmonisation of concepts.** The National Statistical Institute/the coordinating body has a procedure in place to ensure the use of harmonised classifications, concepts, definitions, etc.

Implementing Principle n.16 - QAF

16.3 Methods at institutional level

- Procedures for monitoring of the related legislation.
- Involvement of the National Statistical Institute/coordinating body in the design of administrative sources.
- Procedures for analysis of available administrative data sources.
- Relationship with the holders of administrative data.