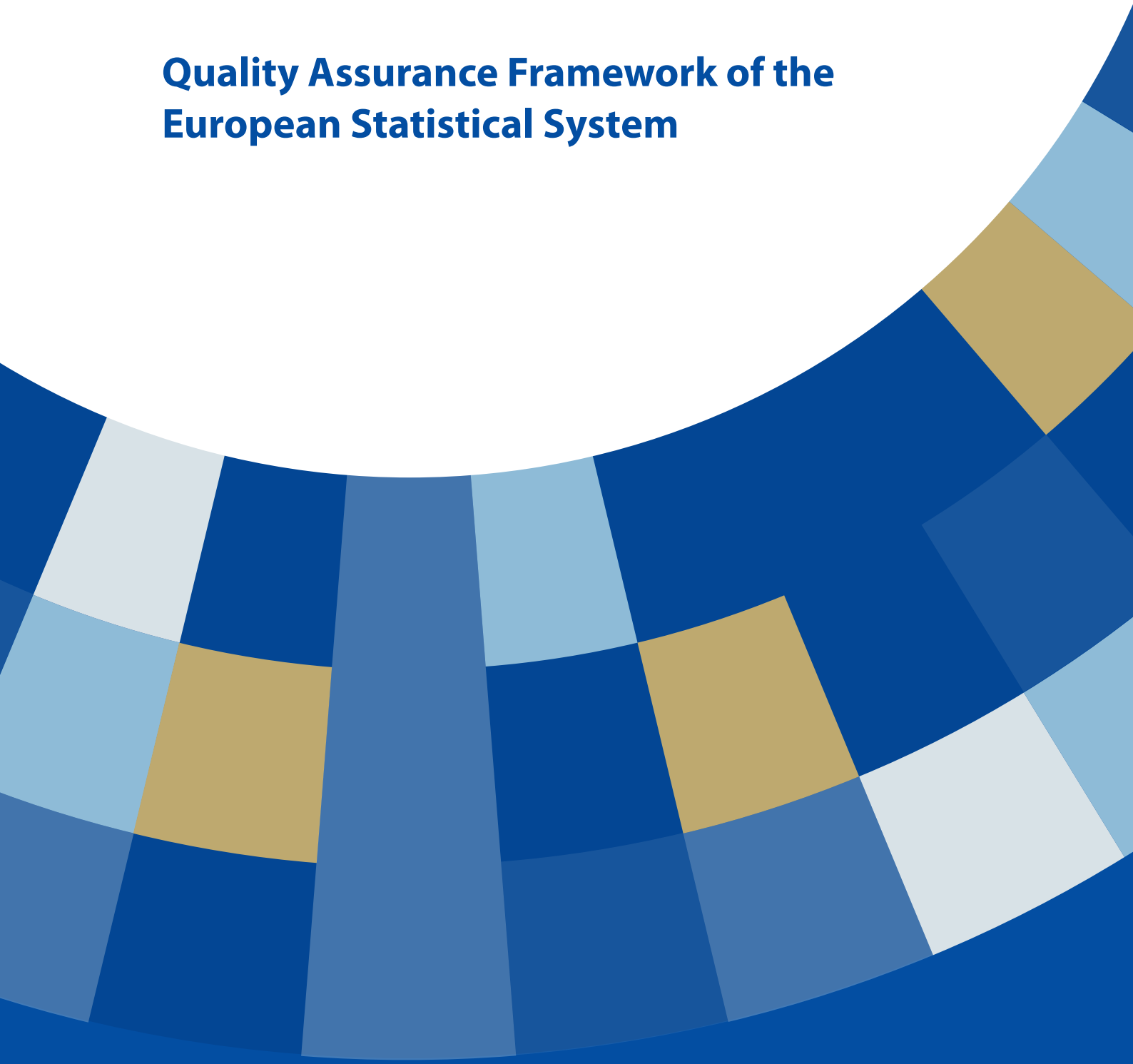
Quality Assurance Framework of the European Statistical System



EUROPEAN STATISTICAL SYSTEM

Version 1.1

Quality Assurance Framework of the European Statistical System

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Introduction

In order to assist the implementation of the European Statistics Code of Practice (CoP), as revised by the Sponsorship on Quality, a supporting document – Quality Assurance Framework of the European Statistical System (ESS QAF) – has been prepared. The ESS QAF identifies possible activities, methods and tools that can provide guidance and evidence for the implementation of the indicators, i.e. it facilitates taking the steps necessary to operationalize the indicators that are required to adhere to each principle of the CoP. While the CoP sets the principles and indicators as standards by which the compliance by National and Community statistical authorities will be judged through peer reviews and other forms of assessment, the ESS QAF describes, for each indicator, activities, methods and tools that facilitate the implementation of the CoP. In accordance with the work programme of the Sponsorship the ESS QAF was developed to support the implementation of principles 4 and 7 to 15 of the European Statistics Code of Practice adopted by the European Statistical System Committee on 28th September 2011.

Approach followed

The ESS QAF, in a systematic way from principle to indicator, contains recommendations of activities, methods and tools defined in an action-oriented approach that facilitate the practical and effective implementation of the indicator. It reflects a mature compilation of activities, methods and tools already being used by the members of the European Statistical System (ESS). It is, however, a working document undergoing continuous improvement and expansion as new activities are being developed by the ESS statistical authorities.

The recommended activities, methods and tools are to be considered part of an evolving and expanding set of instruments as the implementation of the Code of Practice progresses and further knowledge is developed. They should help to understand what is needed for fulfilling the requirements of the Code, i.e. which “activities” are recommended to be in place in order to ensure the implementation of a given indicator.

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 and are often supported by specific examples which have worked well in some countries. All the activities, methods and tools identified relate to existing practices already being implemented in some National Statistical Institutes where they have proved to be useful.

In general the ESS QAF may be used by the different actors participating in the production and dissemination of European Statistics, for example statistical authorities or other national producers,

although some adaptation might be needed. The ESS QAF has been constructed under the assumption that it will go beyond the Code of Practice indicators, seeking to add explanations and details. As a result, selecting activities, methods and tools to be directly associated with a given level of compliance is not straightforward even if the ESS QAF will support this.

Organization of the ESS QAF

The recommended activities, methods and tools used to support each indicator are identified at the institutional and product/survey levels, where applicable, reflecting the level of adoption and use. They evolve from a general into a more concrete and detailed description. As some indicators in the Code of Practice are themselves recommendations, the supporting activities, methods and tools can be more detailed and of a more specific nature in order to facilitate the implementation of the indicator.

The nature of the recommended activities, methods and tools may lead to their multiple use in support of different indicators. In fact one given activity/method/tool may provide support to all the indicators associated with one principle. In order to assist the implementation of each recommended activity, method and tool, relevant reference documentation is identified in the annex, leaving room for each statistical authority to add its specific documentation.

Nature and intention of the ESS QAF

The ESS QAF is a self-standing document, closely linked to the Code of Practice although not an integral part of it. It is a guiding tool to assist the implementation of the Code by statistical authorities at national (including other national data producers) and European levels, becoming therefore an important instrument of the ESS. The open and flexible nature of the ESS QAF allows the specific selection of recommended activities, methods and tools that better fit the context of a specific statistical authority.

The ESS QAF remains flexible and open to further development of activities, methods and tools in order to assist the diversity and specific characteristics of the ESS membership, as well as to deal with the different national arrangements regarding other statistical producers. Collaborative procedures will be set up to facilitate the permanent updating of the ESS QAF. The ESS QAF can also assist the monitoring of the implementation of the Code of Practice in future peer reviews and other forms of assessment.

The working group on Quality in Statistics has set up a task force to further strengthen and refine the first version of the ESS QAF. This document is the outcome of the discussions hold by the task force and the working group. Because of the open and flexible nature of the ESS QAF, the working group decided to carry out an annual revision, updating its content if necessary.

Principles covered by the ESS QAF

The ESS Quality Assurance Framework covers all principles of the Code of Practice which are related to statistical processes (principles 7 to 10) and to statistical output (principles 11 to 15). Principle 4 – Commitment to Quality, which is part of the institutional environment principles, is also included as it sets important fundamentals for the abovementioned principles.

The remaining five principles of the Code of Practice have not been further developed in the ESS QAF because they are closely linked to the implementation of Commission Communication 211/2011: *'Towards robust quality management for European Statistics'*. In addition to the revision of the Code of Practice, already mentioned above, the Commission Communication proposes:

- A targeted amendment of Regulation 223/2009 on European Statistics
- The elaboration with each Member State of Commitments on Confidence in Statistics and
- A new Commission decision on the role of Eurostat

In summary the ESS QAF covers the following 10 principles of the Code of Practice:

Institutional environment:

P4 – Commitment to Quality

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

1 June 2012

Quality Assurance Framework of the European Statistical System

Institutional environment

Institutional and organisational factors have a significant influence on the effectiveness and creditability of a statistical authority developing, producing and disseminating European Statistics. The relevant issues are professional independence, mandate for data collection, adequacy of resources, quality commitment, statistical confidentiality, impartiality and objectivity.

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.

Methods at institutional level

1. **A quality commitment statement.** A Quality Commitment Statement is made publicly available, laying out principles and commitments related to quality in statistics which are consistent with the goals set out in the Mission and Vision statements.

2. **An organizational structure for managing quality.** There is a clear organizational structure for managing quality within the statistical authority[1]. Examples of such a structure are:

   - Quality Committee;
   - Quality Manager;
   - Centralized Quality unit;
   - Other structures (e.g. a selected group of staff trained as "quality pilots" to act as project/processes coach/advisers).

3. **Definition of Quality guidelines.** Guidelines are defined on how to implement quality management within the statistical production process, comprising:

   - A description of the statistical production process and the identification of documentation for each stage, following the Business Process Model for Statistics or any other equivalent process representation;
   - A description of the methods to monitor the quality of each stage of the statistical production process.

[1] Statistical authority means Eurostat, national statistical institutes (NSIs) and other national authorities responsible for the development, production and dissemination of European statistics, where appropriate (cf. Regulation (EC) No 223/2009, Articles 4 and 5).

4. **Availability of Quality guidelines.** Quality guidelines, as defined above, are made available to all users at least in a summary version.

5. **An infrastructure for documentation.** An appropriate infrastructure is in place in order to ensure updated documentation on quality.

6. **Training courses.** Specific training courses support the quality policy and are available to relevant staff on a regular basis.

Indicator 4.2: Procedures are in place to plan and monitor the quality of the statistical production process.

Methods at institutional level

1. **Methodological and technical support and general tools.** Methodological and technical support and general tools are provided by specialized / dedicated units, namely Quality, Methodology and IT, for implementing process quality monitoring/quality assurance plan.

Methods at product/survey level

2. **Procedures to monitor process quality.** Procedures are in place to monitor the quality of different stages of the statistical production, e.g. according to a quality assurance plan or a similar scheme, like the establishment of regular expert group meetings.

3. **A quality assurance plan.** The quality assurance plan, or any other similar scheme, describes the working standards, the formal obligations (such as laws and internal rules) and the set of quality control actions to prevent and monitor errors, to evaluate quality indicators and to control different points at each stage of the statistical process.

   The quality assurance plan or any other similar scheme:

   - takes user's needs into account and checks the relevance of the statistical process;
   - ensures effective technical and organizational design;
   - assures the quality of data collection, including the use of administrative data;
   - assures the quality of data treatment (coding, editing, imputation and estimation);
   - ensures the systematic examination of possible trade-offs within quality;
   - makes information accessible and comprehensible to users, and collects reactions/feedback from users;
   - ensures suitable metadata is provided to users to aid their understanding of quality.

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.

Methods at institutional level

1. **Procedures to monitor product quality.** Procedures based on quality reporting are in place to internally monitor product quality. Results are analyzed regularly and senior management is informed in order to decide improving actions.

2. **User satisfaction surveys.** User Satisfaction Surveys or other indirect methods are implemented on a regular basis and their results are made public and incorporated where useful in Quality Reports, since they monitor "Relevance", amongst other dimensions.

Methods at product/survey level

3. **User oriented quality reports.** User oriented quality reports are made available to the public.

4. **Producer oriented quality reports.** Producer oriented quality reports are published regularly (periodicity to be determined: e.g. by the specific Regulation and the survey life cycle), bearing in mind the standards for reference metadata and quality indicators, in particular the Single Integrated Metadata Structure (SIMS).

5. **Product quality monitoring.** Users and producers quality reporting are used for regular quality monitoring over time.

Indicator 4.4: There is a regular and thorough review of the key statistical outputs using also external experts where appropriate.

Methods at institutional level

1. **A plan for implementing Quality Reviews.** An appropriate Plan for implementing Quality Reviews (such as Auditing and Self-Assessment) is defined/implemented regularly for key statistical outputs and systematically in the case of processes reengineering.

2. **A structure for Quality Reviews.** An appropriate structure for carrying out Quality Reviews is in place for internal audits and self-assessments.

3. **Training of internal auditors.** Internal auditors are trained in auditing techniques and behavior.

4. **Reference documentation.** Quality reviews have as reference documentation:

   - Quality guidelines/quality assurance plan, or a similar scheme;
   - Producer oriented quality reports and/or user oriented quality reports;
   - Self-assessment questionnaires filled by producers;
   - Reports from audit interviews;
   - Questionnaires completed by respondents and/or users;
   - Any other satisfaction survey.

5. **Action plans.** The findings of the quality reviews result in action plans.

6. **Feedback from users.** Feedback from different users is used as input to action plans (making use of User Satisfaction Surveys or Focus groups).

7. **Deployment of outside experts.** Outside experts are deployed to review key statistical domains (e.g. Data Review of Standards and Codes (ROSC) by the IMF).

8. **Benchmarking.** Benchmarking on key statistical processes with other statistical authorities is carried out to identify good practices.

Statistical processes

European and other international standards, guidelines and good practices are fully observed in the processes used by the statistical authorities to organise, collect, process and disseminate European Statistics. The credibility of the statistics is enhanced by a reputation for good management and efficiency. The relevant aspects are sound methodology, appropriate statistical procedures, nonexcessive burden on respondents and cost effectiveness.

Principle 7: Sound Methodology.

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

Indicator 7.1: The overall methodological framework used for European Statistics follows European and other international standards, guidelines, and good practices.

Methods at institutional level

1. **A standard methodological document.** The methodological framework and the procedures for implementing statistical processes are integrated into a standard methodological document and periodically reviewed.

2. **Explanation of divergence from international recommendations.** Divergence from existing European and international methodological recommendations are explained and justified.

Indicator 7.2: Procedures are in place to ensure that standard concepts, definitions and classifications are consistently applied throughout the statistical authority.

Methods at institutional level

1. **Concepts, definitions, and classifications.** Concepts, definitions, and classifications are defined by the Statistical Authority, are applied in accordance with European and/or national legislation and are documented.

2. **A methodological infrastructure.** A methodological infrastructure (e.g. units, nets, committees) is in place which defines statistical methods, monitors their implementation and validates the results. In particular, it defines and makes available standard tools for every stage of the business process model (e.g. sampling, collecting and processing data, etc.).

Methods at product/survey level

3. **Views of relevant experts and users.** Surveys or statistical processes benefit from the views of relevant experts and users where appropriate.

4. **Methodological documentation.** Methodological documentation is elaborated for each statistical process containing all pertinent information on metadata, namely concepts, methods, classifications, and is made public at least in a summary form.

5. **Attendance of seminars and workshops.** Staff attend seminars and workshops at a national or international level on the application of standards, classifications, etc.

Indicator 7.3: The business register and the frame for population surveys are regularly evaluated and adjusted if necessary in order to ensure high quality.

Methods at product/survey level

1. **A procedure to update the business register.** For the business register, there is an updating procedure on all relevant changes in the population of businesses (i.e. change of activity, births, deaths, mergers, and acquisitions and other structural changes as well as changes of main variables). This update is performed continuously.

2. **Quality assessment of the business register.** The business register is subject to a regular follow-up survey on quality and/or quality indicators are calculated and evaluated.

3. **A procedure to update the household register.** For household surveys the appropriate population frame is updated regularly and sufficiently often to ensure the quality of samples.

4. **Use feedback from surveys.** Information gathered during the conduct of surveys is used to assess and improve the quality of the frame, especially its coverage.

Indicator 7.4: Detailed concordance exists between national classifications systems and the corresponding European systems.

Methods at product/survey level

1. **Consistency of national classifications.** National classifications are consistent with the corresponding European classification systems.

2. **Correspondence tables.** Correspondence tables are documented and kept up-to-date. Explanatory notes or comments are made available to the public.

Indicator 7.5: Graduates in the relevant academic disciplines are recruited.

Methods at institutional level

1. **Recruitment of staff.** Staff of the statistical authority are recruited openly and with appropriate qualifications from relevant disciplines.

2. **Qualifications requirements for posts.** Appropriate qualifications requirements are specified for all posts.

Indicator 7.6: Statistical authorities implement a policy of continuous vocational training for their staff.

Methods at institutional level

1. **A policy for the training of staff.** An adequate structure and regular processes ensure continuous vocational training of staff which is an integral part of the human resource policy.

2. **Continuous vocational training.** Continuous vocational training is encouraged and valued in the career path.

3. **Updating of staff skills.** Staff skills are updated concerning new tools and fields of study.

4. **Attendance of staff at courses.** Attendance of staff at relevant training courses and/or to national, European or other international conferences is encouraged.

Indicator 7.7: Co-operation with the scientific community is organized to improve methodology, the effectiveness of the methods implemented and to promote better tools when feasible.

Methods at institutional level

1. **Contact with the scientific community.** There is regular contact, e.g. through conferences, workshops, task forces, with the scientific community to discuss methodological, IT and innovation developments.

2. **Collaboration with colleagues at international level.** Staff collaborates on methodological issues with colleagues at international level.

3. **Participation and presentations at conferences.** Regular participation and presentations at relevant national and international conferences is encouraged for exchange of knowledge and experiences.

4. **Organization of conferences.** National and international conferences are organized and the participation of ESS statistical authorities is encouraged.

Methods at product/survey level

5. **External evaluation.** Evaluations/assessments/audits of the methods used are requested from external experts where appropriate.

Principle 8: Appropriate Statistical Procedures.

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

Indicator 8.1: When European Statistics are based on administrative data, the definitions and concepts used for administrative purposes are a good approximation to those required for statistical purposes.

Methods at institutional level

1. **Responsibility for statistical processing of administrative data.** The statistical authority is responsible for the statistical processing of administrative data used for European Statistics.

2. **Distinction between statistical and administrative data processing.** Statistical processing is clearly distinguished from administrative data processing and includes appropriate validation rules and specific procedures for checking quality.

Methods at product/survey level

3. **Documentation about administrative and statistical processes.** Documentation exists describing the differences between administrative and statistical processes in terms of definitions, concepts, coverage, etc.

4. **Studies about differences in concepts and measures to deal with it.** Differences in concepts are thoroughly studied and measures to deal with these differences are taken, when appropriate.

Indicator 8.2: In the case of statistical surveys, questionnaires are systematically tested prior to the data collection.

Methods at institutional level

1. **A procedure to assess and validate questionnaires.** A procedure is in place to assess and validate questionnaires and involves relevant experts (i.e. in the statistical domain and in questionnaire design).

Methods at product/survey level

2. **Testing of questionnaires.** Prior to data collection, survey questionnaires are tested by appropriate methods (questionnaire pretest, pilot in real situation, in depth - interviews, focus groups, interviewer support, etc).The response time (the interview length) is estimated at this stage, if necessary.

3. **Use of the test results.** The test results are taken into account in the process of implementing the final questionnaire, and documented in a report.

Indicator 8.3: Survey designs, sample selections, and estimation methods are well based and regularly reviewed and revised as required.

Methods at institutional level

1. **An organizational structure for guidelines, methodologies and examination of the methods used.** An appropriate organizational structure provides guidelines, recommends appropriate methodologies and periodically examines the methods used for survey sampling, sample selections and estimation methods.

2. **Reporting on methods to the public.** The statistical authority reports publicly on sample selection and estimation methods when they occur.

Methods at product/survey level

3. **Compliance of survey designs and sample selections with standards.** Survey designs and sample selections are developed according to standard methods.

4. **Renewal of sample designs.** Sample designs are periodically renewed for recurrent surveys.

5. **Comparable methods for calculating accuracy.** Methods for calculating the accuracy of statistical data allow for the accuracy of European Statistics to be compared.

6. **Measurement and reporting of sampling precision.** Estimations of sampling precision are properly measured and adequately reported to users.

7. **Methodological rules applied in estimation.** Estimation methods, including the correction of non-response, data calibration and seasonal adjustment follow transparent methodological rules.

Indicator 8.4: Data collection, data entry, and coding are routinely monitored and revised as required.

Methods at institutional level

1. **An organizational structure for guidelines, methodologies and examination of the methods used.** An appropriate organizational structure provides guidelines, recommends appropriate methodologies and periodically examines the methods used for data collection, data entry and coding.

Methods at product/survey level

2. **Optimization of data collection.** Data collection is optimized in order to reduce costs and response burden, to improve accuracy and to reduce non-sampling errors

3. **Provision of documents to respondents.** Respondents are provided with all necessary documents (i.e. letters, questionnaires, leaflets, especially in the case of self-administrated questionnaires and feedback if possible). These documents are reviewed regularly.

4. **A procedure to monitor data collection techniques.** Data collection techniques are periodically monitored.

5. **Training courses for interviewers.** Training courses are provided for interviewers. For each survey, an interviewer manual/handbook exists and the accompanying interviewer procedures are implemented.

6. **A procedure to follow-up non-response.** Follow-up procedures are in place and implemented in the case of non-response.

7. **Data coding methods.** The data coding methods are documented and stored.

8. **Revision of automatic coding methods.** Automatic coding methods are periodically reviewed and revised if necessary.

9. **Quality indicators related to data collection and coding.** Quality indicators related to data collection and coding are produced and analyzed according to a quality assurance plan or any other similar scheme.

10. **Support to respondents.** Respondents are given support with filling in the questionnaires (help on-line, free toll number, support from statisticians). Procedures are in place to answer to respondents' requests and complaints.

Indicator 8.5: Appropriate editing and imputation methods are used and regularly reviewed, revised or updated as required.

Methods at institutional level

1. **An organizational structure for guidelines, methodologies and examination of the methods used.** An appropriate organizational structure provides guidelines, recommends appropriate methodologies and periodically examines editing and imputation methods.

2. **Promotion and sharing of procedures for editing and imputation.** Procedures for editing and imputation techniques are promoted and shared in order to encourage their harmonization.

Methods at product/survey level

3. **Analysis of the editing and imputation.** Analysis of the effect of editing and imputation is undertaken as part of assessing quality of the data collection.

4. **Compliance of editing and imputation techniques with standards.** Editing and imputation techniques follow standard methodological rules and are documented.

Indicator 8.6: Revisions follow standard, well-established and transparent procedures.

Methods at institutional level

1. **Guidelines and principles related to revisions.** Guidelines and principles relating to the revision of published statistics exist, are routinely applied and made known to users.

2. **Promotion of methodological improvements.** Methodological improvements are promoted through regular and permanent actions (i.e. seminars on methodology, expert meetings, self assessments, audits etc).

Methods at product/survey level

3. **Explanations and publication of revisions.** Revisions are accompanied by all necessary explanations and made available to users.

4. **Quality indicators on revisions.** Quality indicators on the revisions made are regularly calculated in accordance with current standards and made known to users.

Indicator 8.7: Statistical authorities are involved in the design of administrative data in order to make administrative data more suitable for statistical purposes.

Methods at institutional level

1. **A procedure to monitor regulations/legal acts regarding administrative data.** A procedure is in place to monitor developments concerning regulations/legal acts which involve the use of administrative data.

2. **Consultation and involvement of the statistical authority.** The statistical authority is consulted when administrative forms or files are created, reviewed or revised and is involved in changes to the design or processing in order to assess the continuity of the series.

3. **A procedure to investigate the potential of administrative sources.** A procedure is in place to investigate the potential for statistical purposes of available administrative data sources.

Methods at product/survey level

4. **Discussions and meetings with the owners of administrative data.** Regular discussions or meetings take place between the statistical authority and the owners of administrative data in order to be kept informed about amendments to the administrative data (contents, production process, etc.).

Indicator 8.8: Agreements are made with owners of administrative data which set out their shared commitment to the use of these data for statistical purposes.

Methods at institutional level

1. **Arrangements with owners of administrative data.** Arrangements between statistical authorities and owners of administrative data are in place to facilitate the use of administrative data for statistical purposes.

Methods at product/survey level

2. **Documentation about administrative data.** Documentation about the contents of the administrative data and the production process of the data (such as a methodological document, concepts and definitions and populations) is available to the statistical authority.

3. **Joint agreements with the owner of administrative data.** Joint agreements concerning the security of the data, the provision of files of individual data and the delivery deadlines are jointly developed by the statistical authority and the owner of administrative data.

Indicator 8.9: Statistical authorities co-operate with owners of administrative data in assuring data quality.

Methods at institutional level

1. **Informing the administrative data owner.** The administrative data owner is kept informed about the way administrative data are used for statistical purposes, and related quality issues.

2. **Assessment of administrative data quality.** The statistical authority makes sure that arrangements are in place and, where possible, provide tools to assess the quality of the administrative data, while respecting confidentiality.

Principle 9: Non-excessive Burden on Respondents.

The reporting burden is proportionate to the needs of the users and is not excessive for respondents. The statistical authorities monitor the response burden and sets targets for its reduction over time.

Indicator 9.1: The range and detail of European Statistics demands is limited to what is absolutely necessary.

Methods at institutional level

1. **Priorities for European Statistics.** Priorities for European Statistics are set at an ESS level taking burden on respondents into account.

2. **Verification of the response burden and level of details.** Analysis of EU regulations on European statistics is undertaken in order to verify the response burden and level of details of variables foreseen by the regulations.

3. **Assessment of the statistical work programme.** The content of the statistical work programme is assessed to eliminate duplication or redundancy across the statistical authority.

Methods at product/survey level

4. **Analysis of the needs of statistical information.** European and national needs of statistical information and level of detail by domain are analyzed in the Specify Needs phase of the statistical business process.

5. **Measurement of response burden.** Response burden is measured periodically.

6. **Justification of each collected variable.** Each collected variable is duly justified.

7. **Consideration of alternative data sources.** To minimize data collection there is explicit consideration of alternative data sources, including the availability and suitability of existing survey and administrative data.

Indicator 9.2: The reporting burden is spread as widely as possible over survey populations.

Methods at institutional level

1. **Reviews of reporting burden.** ESS reviews of reporting burden are undertaken on a regular basis.

2. **Action plans for simplification/modernization.** Action plans for simplification/modernization to decrease burden on respondents are developed, implemented and monitored.

3. **Performance indicators on reporting burden.** Performance indicators on reporting burden are produced and analyzed periodically by senior management.

4. **Use of statistical sampling methods.** Statistical sampling methods are used to ensure the reporting burden does not fall on particular categories of respondents unnecessarily.

Methods at product/survey level

5. **Reduction of reporting burden.** Reporting burden is reduced by appropriate sampling design, using for example coordinated sampling.

6. **Calculation of the reporting burden.** The reporting burden is calculated for the time needed: to answer the questionnaire, to retrieve the required information, to obtain internal or external expertise and to handle sensitive information.

7. **Limitation of questions.** Questions used to collect information which will not be published are limited and justified.

Indicator 9.3: The information sought from businesses is, as far as possible, readily available from their accounts and electronic means are used where possible to facilitate its return.

Methods at institutional level

1. **Manuals and technical tools.** Manuals and technical tools (e.g. software) are developed to increase electronic means for data collection.

2. **A plan for electronic data collection for businesses.** A plan for implementing electronic data collection for businesses exists.

3. **A web site for business data collection.** A common web site for business data collection is in place.

Methods at product/survey level

4. **Use of business accounting concepts and IT systems.** Business accounting concepts and standardized IT systems such as XBRL are used in data collections from businesses.

5. **Cooperation with the business community.** Survey managers aware of potential difficulties in obtaining information, work together with the business community in order to find adequate solutions.

6. **Tools to extract data from business accounting systems.** Software tools to directly extract data from business accounting systems are in place.

7. **Informing the businesses of the survey results.** To give thanks for their participation in surveys and to promote their importance in the Statistical System, businesses are kept informed of the results of surveys.

Indicator 9.4: Administrative sources are used whenever possible to avoid duplicating requests for information.

Methods at institutional level

1. **Tools to increase the use of administrative sources.** European collaborative networks develop tools to increase the use of administrative sources.

2. **Plans to explore and use administrative sources.** Planning actions at national level are developed in order to explore and use administrative sources for statistical needs (e.g. appropriate arrangements, development of modules to be used in a coordinated way reducing/limiting response burden, national legislation or agreements if necessary).

3. **Legal obligation to provide administrative data.** Legal access to the administrative sources is granted and the administrative authorities have the obligation to provide the administrative data if requested.

Methods at product/survey level

4. **Guidance on the availability and quality of administrative sources.** Guidance on the availability and quality of administrative sources is available to survey managers.

5. **Applications for the collection of administrative data.** Applications for the collection of administrative data to be used for statistical purpose are developed and implemented.

Indicator 9.5: Data sharing within statistical authorities is generalised in order to avoid multiplication of surveys.

Methods at institutional level

1. **Technical tools for data sharing.** Technical tools for data sharing within National statistical system (e.g. formal agreements, web services, common data bases) exist.

Methods at product/survey level

2. **Documentation of repositories for data.** Documentation of repositories for production and archived data exists.

3. **Sharing of data archives.** Data archives are shared within statistical authorities when useful and in compliance with confidentiality policies.

Indicator 9.6: Statistical authorities promote measures that enable the linking of data sources in order to reduce reporting burden.

Methods at Institutional level

1. **Key variables to be shared.** The statistical authority defines the key variables that need to be shared between data processes in accordance with confidentiality rules.

Methods at product/survey level

2. **Documentation on the data file structures and transmission formats.** Documentation is available on the data file structures and transmission formats required for linking data sources.

Principle 10: Cost effectiveness.

Resources are used effectively.

Indicator 10.1: Internal and independent external measures monitor the statistical authority's use of resources.

Methods at institutional level

1. **Monitoring and reporting indicators of human and financial resources.** Indicators of human and financial resources are monitored centrally and regularly reported to management.

2. **Allocation of resources to statistical processes.** Accounting systems allow allocation of resources to statistical processes.

3. **Evaluation of human resources.** Human resources are evaluated annually in line with office-wide guidelines. The evaluation covers allocation, performance and training needs of staff.

4. **Staff opinion surveys.** Staff opinion surveys are conducted regularly.

5. **Reviews of IT infrastructure.** IT infrastructure is reviewed regularly.

6. **Procedures to calculate ex-ante costs.** Ex-ante cost calculation procedures are available for statistical processes.

Indicator 10.2: The productivity potential of information and communications technology is being optimized for data collection, processing and dissemination.

Methods at institutional level

1. **Pooling of resources, investments and the identification of innovation/modernization potential.** Centralized IT and methodological units provide for pooling resources and investments and the identification of innovation/modernization potential.

2. **IT architecture and strategy.** An appropriate IT architecture and strategy exists and is regularly updated.

3. **Policies, procedures and tools to promote automatic processing techniques.** Policies, procedures and tools exist to promote automatic techniques for data capture, data coding and validation.

Methods at product/survey level

4. **Review of the use of automated processing techniques.** The use of automated processing techniques is regularly reviewed.

Indicator 10.3: Proactive efforts are made to improve the statistical potential of administrative data and to limit recourse to direct surveys.

Methods at institutional level

1. **Arrangements with owners of administrative data.** Appropriate arrangements (e.g. Service Level Agreements or National legislation) are signed with owners of administrative data and regularly updated. The statistical authority seeks to be involved at the design of administrative data collections.

2. **Assessment of possible administrative data sources.** An assessment of possible administrative data sources is carried out prior to launching any new survey.

Methods at product/survey level

3. **Data linking and integration methods.** Data linking and integration methods are pro-actively pursued subject to data security considerations.

4. **Quality indicators to improve the use of administrative data.** Quality indicators are developed and compiled to improve the methods for using administrative data for statistical purposes.

Indicator 10.4: Statistical authorities promote and implement standardized solutions that increase effectiveness and efficiency.

Methods at institutional level

1. **Standardization programmes and procedures for statistical processes.** Standardization programmes and procedures are defined and implemented in the main stages of statistical production areas, for example sampling, registers, data collection and data exchange, according to the business process model.

2. **A strategy to adopt or develop standards.** There is a strategy to adopt or develop standards in various fields e.g. quality management, process modeling, software development, software tools, project management and document management.

Methods at product/survey level

3. **A statement in the methodological documentation.** A statement explaining steps taken to move gradually towards or to comply with standardization is part of the reference metadata.

Statistical output

Available statistics meet users' needs. Statistics comply with the European quality standards and serve the needs of European institutions, governments, research institutions, business concerns and the public generally. The important issues concern the extent to which the statistics are relevant, accurate and reliable, timely, coherent, comparable across regions and countries, and readily accessible by users.

Principle 11: Relevance.

European Statistics meet the needs of users.

Indicator 11.1: Processes are in place to consult users, monitor the relevance and utility of existing statistics in meeting their needs, and consider their emerging needs and priorities.

Methods at institutional level

1. **Legislation on user consultation.** The statistical law (National and European) includes an obligation to consult users.

2. **Users' consultation activities.** Regular and structured activities for the consultation of users, including for instance a user's Committee, are in place focusing on both, the content of the statistical programme and the product quality of the statistics.

3. **Analysis of the data on the use of statistics.** Data on the use of statistics (e.g. evaluation of downloads, subscribers of reports) are analyzed to support priority setting and user consultation.

Methods at product/survey level

4. **A classification of users.** A classification of users of a given product is regularly updated and made available.

5. **A list of key users and their data uses.** A list of key users and their data uses, including a list of unmet user needs, are regularly updated and made available.

6. **Users' consultation procedures.** Procedures for user consultation on the statistics are in place.

7. **Relevance measurement and assessment.** Quality indicator(s) on relevance are regularly assessed.

Indicator 11.2: Priority needs are being met and reflected in the work programme.

Methods at institutional level

1. **Work programme priorities.** Procedures are implemented to prioritise between different users' needs in the work programme.

2. **Strategic goals and programme plans.** Strategic goals and programme plans are elaborated and published regularly.

3. **Agreements with most important users.** Service level agreements or similar arrangements are established with the most important users.

4. **Evaluation of the work programme.** Periodic evaluation of the work programme is carried out to identify negative priorities and emerging needs.

Indicator 11.3: User satisfaction is monitored on a regular basis and is systematically followed up.

Methods at institutional level

1. **User satisfaction surveys.** User satisfaction surveys (including e.g. compilation of quality indicators on user satisfaction) or similar user studies are carried out and assessed regularly with an office-wide scope.

2. **Improvement actions arising from the user satisfaction surveys.** Improvement actions arising from the user satisfaction surveys are defined and scheduled for implementation.

Methods at product/survey level

3. **Assessment of satisfaction of key users.** Measures to assess satisfaction of key users with particular products are in place (e.g. specific user satisfaction survey/indicators on product level).

Principle 12: Accuracy and Reliability.

European Statistics accurately and reliably portray reality.

Indicator 12.1: Source data, intermediate results and statistical outputs are regularly assessed and validated.

Methods at institutional level

1. **Systems for assessing and validating data,** Systems for assessing and validating source data, intermediate results and statistical outputs are developed, implemented and managed.

2. **Procedures and guidelines for data quality assessment.** Internal procedures and guidelines for data quality assessment exist and address accuracy and reliability issues.

Methods at product/survey level

3. **Comparison of results with other sources.** Results are compared with other existing sources of information in order to ensure validity.

Indicator 12.2: Sampling errors and non-sampling errors are measured and systematically documented according to the European standards.

Methods at institutional level

1. **Procedures and guidelines to measure and reduce errors.** Internal procedures and guidelines to measure and reduce errors are in place and may cover activities such as these examples:
   - Identification of the main sources of error for key variables;
   - Quantification of sampling errors for key variables;
   - Identification and evaluation of main non-sampling error sources in statistical processes;
   - Identification and evaluation in quantitative or qualitative terms of the potential bias;
   - Special attention to outliers as well as their handling in estimation;
   - Quantification of potential coverage errors;
   - Quantification of potential measurement errors (comparison with existing information, questionnaire design and testing, information on interviewer training, etc.);
   - Quantification of non-response errors, including systematic documentation for technical treatment of non response at estimation stage and indicators of representativeness;
   - Quantification of processing errors;
   - Analysis of the differences between preliminary and revised estimates.

Methods at product/survey level

2. **Quality reporting on accuracy.** Periodic quality reporting on accuracy is in place (serving both producer and user perspectives).

3. **ESS recommendations on quality reporting.** Quality reporting on accuracy is guided by ESS-recommendations.

4. **Methods and tools for preventing and reducing errors.** Methods and tools for preventing and reducing sampling and non-sampling errors are in place.

Indicator 12.3: Revisions are regularly analyzed in order to improve statistical processes.

Methods at institutional level

1. **A Revision Policy.** A Revision Policy stating principles and procedures is spelled out in writing and made public according to European requirements.

2. **Explanations on revisions.** The timing of revisions, their reasons and nature are explained publicly.

Methods at product/survey level

3. **Compliance of the Revision Policy with standard procedures.** The Revision Policy follows standard and transparent procedures in the context of each survey.

4. **Information on the size and direction of revisions for key indicators.** Information on the size and direction of revisions for key indicators is provided and made public.

5. **Use of analysis of revisions.** Regular analysis of revisions is used to improve the statistical process, incorporating lessons learnt to adjust the production cycle.

Principle 13: Timeliness and Punctuality.

European Statistics are released in a timely and punctual manner.

Indicator 13.1: Timeliness meets European and other international release standards.

Methods at institutional level

1. **Compliance with international standards on timeliness.** There is compliance with international standards on timeliness.

2. **Publication of a release calendar.** A release calendar is published covering all statistics, for which timeliness standards are established within European regulations or agreements at international level.

3. **A procedure to monitor and follow-up divergences from timeliness targets.** Divergences from European and international timeliness targets are regularly monitored and an action plan is developed if these targets are not met.

Methods at product/survey level

4. **Quality indicator(s) on timeliness.** Quality indicator(s) on timeliness are regularly calculated and published.

5. **Analysis and assessment of quality indicator(s) on timeliness.** Quality indicator(s) on timeliness are regularly analyzed and assessed to improve the statistical process, if relevant.

Indicator 13.2: A standard daily time for the release of European Statistics is made public.

Methods at institutional level

1. **A release policy.** A release policy is defined and published. The release policy distinguishes between different kinds of publications (e.g. press releases, specific statistical reports/tables, general publications) and their corresponding release procedures.

2. **Publication at a standard daily time.** Releases are published at a standard daily time.

Indicator 13.3: The periodicity of statistics takes into account user requirements as much as possible.

Methods at institutional level

1. **Consultation of users on periodicity.** The statistical authority consults users regularly on periodicity.

Indicator 13.4: Divergence from the dissemination time schedule is publicized in advance, explained and a new release date set.

Methods at institutional level

1. **Publication of a release calendar.** A release calendar is regularly published.

2. **A procedure to monitor and assess punctuality.** Punctuality of every release is regularly monitored and assessed.

3. **Publication of divergences from the pre-announced time, the reasons for divergence and a new release time.** Divergences from the pre-announced time are published in advance, the reasons are explained, and a new release time is announced.

Methods at product/survey level

4. **A procedure to calculate, monitor and disseminate quality indicators on punctuality.** Quality indicator(s) on punctuality for preliminary and final results are regularly calculated, monitored and disseminated.

Indicator 13.5: Preliminary results of acceptable aggregate accuracy can be released when considered useful.

Methods at product/survey level

1. **Review of the possibility of disseminating preliminary results.** The possibility of disseminating preliminary results is reviewed regularly taking into account the data accuracy.

2. **Reporting of the quality of preliminary results.** When preliminary results are released, appropriate information is provided to the user about the quality of the published results.

3. **A policy for scheduled revisions.** Key outputs, or groups of key outputs, which are subject to scheduled revisions have a published policy covering those revisions.

Principle 14: Coherence and Comparability.

European 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.

Indicator 14.1: Statistics are internally coherent and consistent (i.e. arithmetic and accounting identities observed).

Methods at institutional level

1. **Procedures and guidelines to monitor internal coherence.** Procedures and guidelines to monitor internal coherence are developed and carried out in a systematic way. Where appropriate they should deal with consistency between preliminary and final data (i.e. continuity), between microdata and aggregated data, between annual, quarterly and monthly data, between statistics and National Accounts and also with non-deterministic consistency (e.g. consistency between economic growth and employment, also called plausibility).

Methods at product/survey level

2. **Procedures and guidelines to ensure combination of outputs from complementary sources.** Process specific procedures and guidelines ensure that outputs obtained from complementary sources are combined so as to assure internal coherence and consistency.

Indicator 14.2: Statistics are comparable over a reasonable period of time.

Methods at institutional level

1. **Changes to concepts.** Significant changes in reality are reflected by appropriate changes to concepts (classifications, definitions and target populations).

Methods at product/survey level

2. **Identification and measurement of changes in methods.** Changes in methods are clearly identified and their impact measured to facilitate reconciliation.

3. **Publication and explanation of breaks in time series.** Breaks in the series are explained and methods for ensuring reconciliation over a period of time made publicly available.

Indicator 14.3: Statistics are compiled on the basis of common standards with respect to scope, definitions, units and classifications in the different surveys and sources.

Methods at institutional level

1. **A mechanism to promote coherence and consistency.** A common repository of concepts or a mechanism to promote coherence and consistency is used.

Methods at product/survey level

2. **Assessment of compliance with standards.** Periodic assessments of compliance with standards on definitions, units and classifications are carried out and reflected in quality reporting.

3. **Explanation of deviations from standards.** Deviations from standards on definitions, units or classifications are made explicit and the reasons for deviating are explained.

Indicator 14.4: Statistics from different sources and of different periodicity are compared and reconciled.

Methods at product/survey level

1. **Comparison of statistical output with related data.** Statistical outputs are compared with other statistical or administrative data that provide the same or similar information on same domain/phenomenon.

2. **Identification and explanation of divergences.** Divergences originating from different sources are identified and reasons clearly and publicly explained.

3. **Reconciliation of statistical outputs.** Statistical outputs are reconciled whenever possible.

Indicator 14.5: Cross-national comparability of the data is ensured within the European Statistical System through periodical exchanges between the European Statistical System and other statistical systems. Methodological studies are carried out in close co-operation between the Member States and Eurostat.

Methods at institutional level

1. **Institutionalization of assessment of comparability.** Periodic assessments of comparability are institutionalized.

2. **Collaboration in methodological studies.** Methodological studies are conducted in collaboration between Member States and Eurostat.

3. **Assessment by Eurostat of the comparability of data.** Eurostat assesses the comparability of data from the quality reports requested from Member States.

Methods at product/survey level

4. **Analysis of asymmetries.** An analysis of asymmetries is carried out where possible and reports on mirror statistics between Member States are made available to the public.

5. **Identification and corrections of discrepancies in mirror statistics.** Discrepancies in mirror statistics are identified and corrected whenever possible.

Principle 15: Accessibility and Clarity.

European 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.

Indicator 15.1: Statistics and the corresponding metadata are presented, and archived, in a form that facilitates proper interpretation and meaningful comparisons.

Methods at institutional level

1. **A Dissemination Policy.** A Dissemination Policy, defining dissemination practices, is in place and is made public. Procedures are in place to review the standards for the dissemination of statistical results.

2. **Consultations of users about dissemination.** Users are consulted about the most appropriate forms of dissemination (e.g. Focus groups, Customer Satisfaction Surveys) on a regular basis.

3. **Training courses for writing interpretations and press releases.** Training courses for interpretation of statistics and writing press releases are conducted.

4. **A policy for archiving statistics and metadata.** A policy for archiving statistics and metadata is in place.

Methods at product/survey level

5. **Comparisons included in publications.** Meaningful comparisons are clearly included in publications, when appropriate.

Indicator 15.2. Dissemination services use modern information and communication technology and, if appropriate, traditional hard copy.

Methods at institutional level

1. **Website and statistical databases' conformity with universal guidelines.** The website and statistical data bases conform so far as it is possible to universal web content accessibility guidelines.

2. **Website, statistical data bases and self-tabulation.** The website and statistical data bases are the main means for disseminating statistical results and facilitate self-tabulation in the most appropriate formats (e.g. XLS, HTML).

3. **An information service/call centre service.** An information service/call centre service composed of knowledgeable staff is available for answering requests and clarifications of statistical results.

4. **A publication catalogue.** A publication catalogue is available to users.

5. **Facilitating re-dessemination.** Statistical results are disseminated using tools and formats that facilitate re-dissemination by the media by means of, for example press releases, ready-made tables, charts, maps connected to statistics, metadata.

Methods at product/survey level

6. **Consideration of various forms of dissemination.** Various forms of dissemination are considered (e.g. optical discs, web-based tools and applications, hard copies) that would allow for better understanding and comparisons of particular results and better facilitate their use in decision making.

Indicator 15.3: Custom-designed analyses are provided when feasible and the public is informed.

Methods at institutional level

1. **Communication about the possibility and terms of custom-designed analyses.** The possibility and terms of custom-designed analyses are clearly communicated.

2. **Provision of custom-designed outputs.** Custom-designed outputs are provided on request.

3. **Publication of custom-designed analysis.** Custom-designed analysis are made public where possible.

4. **An information service for making requests for custom-designed analyses.** An information service is available to enable users to make requests for custom-designed analyses

Indicator 15.4: Access to microdata is allowed for research purposes and is subject to specific rules or protocols.

Methods at institutional level

1. **Consultation of researchers.** Researchers are regularly consulted about the rules or protocols to access microdata, about its effectiveness and about the effective access.

2. **Publication of the rules or protocols to access microdata.** The rules or protocols to access microdata are made publicly available.

3. **Facilities to access microdata in a secure environment.** Researchers are able to access microdata in a secure environment (e.g. Safe Centers).

4. **Remote access facilities.** Remote access facilities are available with appropriate controls.

Indicator 15.5. Metadata are documented according to standardized metadata systems.

Methods at institutional level

1. **Dissemination of statistical results and metadata.** All statistical results are disseminated together with the respective metadata allowing for a better understanding of the results.

2. **Metadata linked to the statistical product.**. Metadata are available and, if separate to the statistical product clear links are presented.

3. **Accordance of metadata with European Standards.** Metadata are structured and disseminated in accordance with European Standards.

4. **Metadata independent of the format of publication.** Metadata of statistical results are available independently of the format of publication (e.g. web, hard copies).

5. **Procedures to update and publish metadata.**. Metadata is regularly updated and procedures to ensure the updating are available.

6. **Ability to clarify metadata issues.** An information service/ call centre service is able to answer to clarification on metadata issues.

7. **Training courses for staff on metadata.** Training courses on metadata are provided for the staff.

Indicator 15.6: Users are kept informed about the methodology of statistical processes including the use of administrative data.

Methods at institutional level

1. **Planning of the production of quality reports.** The regular production of standardized up-to-date user-oriented quality reports and methodological documents are planned in the work programme of the statistical authority.

Methods at product/survey level

2. **Publication of quality reports and methodological documents**. User-oriented quality reports and methodological documents are made available to the public.

Indicator 15.7: Users are kept informed about the quality of statistical outputs with respect to the quality criteria for European Statistics.

Methods at product/survey level

1. **Publication of quality reports.** User oriented quality reports are made publicly available.

2. **Compliance of quality reports with ESS standards and guidelines.** User oriented quality reports are defined according to ESS standards and guidelines for quality reporting.

Annex. Reference documentation

The table below contains a list of selected references in English publicly available, which are considered a good source of guidance for the application of the ESS QAF principles and indicators. Numbers in the table show the principle (number before the dot) and the indicator (number after the dot) to which the reference is closely related.

A list of other quality assurance frameworks can be found after the table of references.

References	Commitment to Quality 4	Soundness of Methodology 7	Appropriate Stat. Procedures 8	Non-excessive Burden 9	Cost Effectiveness 10	Relevance 11	Accuracy and Reliability 12	Timeliness and Punctuality 13	Coherence and Comparability 14	Accessibility and Clarity 15
Austria										
Statistics Austria. (webpage). *Response Burden Barometer for mandatory business statistics*				9.2						
Canada										
Statistics Canada. (webpage). *Statistics Canada Integrated Business and Human Resources Plan 2010 to 2013.*		7.5								
Statistics Canada. (webpage). *Statistics Canada. Internal audit reports*	4.3									
Statistics Canada. (webpage). *Statistics Canada quality guidelines*	4.1						12.1			
Committee on monetary, financial and balance of payments (CMFB)										
Committee on monetary, financial and balance of payments (CMFB). (2007). *Guidelines on communication of major statistical revisions in the European Union.*			8.6							
Estonia										
Estonian official statistics act. (2010). *Announced with the President of the Republic Resolution No 703 of 21 June 2010*. Estonia			8.7 8.8 8.9							
Statistics Estonia. (n.d). *Dissemination policy*. Estonia						11.1 11.2 11.3		13.2 13.3 13.4		15.3 15.4

References	Commitment to Quality 4	Soundness of Methodology 7	Appropriate Stat. Procedures 8	Non-excessive Burden 9	Cost Effectiveness 10	Relevance 11	Accuracy and Reliability 12	Timeliness and Punctuality 13	Coherence and Comparability 14	Accessibility and Clarity 15
Statistics Estonia. (webpage). *Standards of services.* Estonia						11.1 11.2 11.3		13.2 13.3 13.4		15.3 15.4
Statistics Estonia. (webpage). *Statistics training courses.* Estonia										15.1
European foundation for quality management (EFQM)										
European foundation for quality management - EFQM. (webpage). *EFQM model*	4.1									
European institute of public administration (EIPA)										
European institute of public administration - EIPA. (webpage). *CAF: Common assessment framework*	4.1									
European parliament and Council of the European Union										
European parliament and Council of the European Union. (2009). *Regulation (EC) No 223/2009 of the European Parliament and of the council of 11 March 2009 on European statistics.* Article 24. Access to administrative records. Official Journal of the European Union. Luxembourg.				9.4						
European Statistical System (ESS) and ESS nets										
European Statistical System – ESS (webpage). *European statistical training programme*		7.6								
European Statistical System – ESS (webpage). *Outputs from the Sponsorship on Standardization.*					10.4					
ESS Net project. (webpage). *Data integration.*					10.3					
ESS Net project. (webpage) *Decentralised Access to EU-Microdata Sets.*										15.4
ESS Net project. (webpage) *Decentralised and Remote Access to*										15.4

References	Commitment to Quality	Soundness of Methodology	Appropriate Stat. Procedures	Non-excessive Burden	Cost Effectiveness	Relevance	Accuracy and Reliability	Timeliness and Punctuality	Coherence and Comparability	Accessibility and Clarity
	4	7	8	9	10	11	12	13	14	15
Confidential Data in the ESS (DARA)										
ESS Net project (webpage). *Handbook on Statistical Disclosure Control (SDC).*										15.4
ESS Net project. (webpage) *Integration of surveys and administrative data (ISAD).*					10.3					
ESS Net project. (webpage). *Preparation of standardization (Stand-prep)*					10.4					
ESS net project. (webpage). *The use of administrative and accounts data for business statistics.*			8.1 8.7		10.3					
Villeboordse, A. (1997). *Handbook on design and implementation of business surveys*. Luxembourg: Eurostat. Under revision: ESSNet MEMOBUST (2010-2012)				9.2 9.3						
Eurostat and European Commission										
Aitken, A., Hörngren, J., Jones, N., Lewis, D. & Zilhão, M.-J. (n.d.). *Handbook on improving quality by analysis of process variables.* Luxembourg: Eurostat.	4.2									
Bergdahl, M., Ehling, M., Elvers, E., Földesi, E., Körner, T., Kron, A. …& Zilhão, M.-J. (2007). *Handbook on data quality assessment methods and tools.* Wiesbaden, Germany.	4.2 4.4					11.3	12.1			
Brancato, G., Macchia, S., Signore, M.,, Simeoni, G., Blanke, K., Körner, T. …& Hoffmeyer-Zlotnik, J.H.P. (n.d.). *Handbook on recommended practices for questionnaire development and testing in the European Statistical System.* Project funded by Eurostat Grants.			8.2							
Dale, T., Erikson, J., Fosen, J., Haraldsen, G., Jones, J. & Kleven, Ø. (2007). *Handbook for monitoring*				9.1 9.2						

References	Commitment to Quality	Soundness of Methodology	Appropriate Stat. Procedures	Non-excessive Burden	Cost Effectiveness	Relevance	Accuracy and Reliability	Timeliness and Punctuality	Coherence and Comparability	Accessibility and Clarity
	4	7	8	9	10	11	12	13	14	15
and evaluating business survey response burdens. Luxembourg: Eurostat.										
Dalén, J. (2005). *Sampling issues in business surveys.* Project funded by European Community's Phare 2002 Multi Beneficiary Statistics Programme (Lot 1) devoted to "Quality Assessment of Statistics".			8.3							
European Commission. (2009, June). *Recommendation on reference metadata for the European Statistical System*.										15.6 15.7
European Commission. (2009, August). *Communication COM (2009) 404 from the Commission to the Council and the European Parliament on the production method of EU statistics: a vision for the next decade*.				9.6						
European Commission. (2009, October). *Communication COM (2009) 544 from the Commission to the Council and the European Parliament on the action programme for reducing administrative burdens in the EU sectoral reduction plans and 2009 actions.*				9.5						
European Commission. (webpage). *Evaluation in the Commission*.					10.1					
European Commission. (webpage). *Seventh Framework Programme*		7.7								
Eurostat. (2002). *Variance estimation methods in the European Union.* Luxembourg: Office for Official Publications of the European Communities							12.2			
Eurostat. (2003). *Quality assessment of administrative data for statistical purposes*. Paper presented at the 6th			8.1 8.7 8.8 8.9							

References	Commitment to Quality 4	Soundness of Methodology 7	Appropriate Stat. Procedures 8	Non-excessive Burden 9	Cost Effectiveness 10	Relevance 11	Accuracy and Reliability 12	Timeliness and Punctuality 13	Coherence and Comparability 14	Accessibility and Clarity 15
meeting of the Working Group "Assessment of quality in statistics". Luxembourg.										
Eurostat. (2008). *Survey sampling reference guidelines. Introduction to sample design and estimation techniques*. Luxembourg: Office for Official Publications of the European Communities			8.3	9.2						
Eurostat. (2009). *ESS guidelines on seasonal adjustment*. Luxembourg: Office for Official Publications of the European Communities.			8.3							
Eurostat. (2009). *ESS handbook for quality reports*. Luxembourg: Office for Official Publications of the European Communities. (under revision)	4.3			9.2			12.2 12.3			15.7
Eurostat. (2009). *ESS standard for quality reports*. Luxembourg: Office for Official Publications of the European Communities. (under revision)	4.3			9.2			12.2 12.3			15.7
Eurostat. (2010). *Business registers. Recommendations manual*. Luxembourg: Office for Official Publications of the European Communities		7.3 7.4								
Eurostat. (2011). *ESS guidelines for the implementation of the ESS quality and performance indicators 2010.* Luxembourg.						11.1		13.1 13.4 13.5		
Eurostat. (n.d.). *Guidelines on revision policy* (in preparation)			8.6				12.3			
Eurostat. (CIRCA-webpage). *Census hub public documents*				9.5	10.2					
Eurostat. (webpage). *Anonymised microdata files*.										15.4
Eurostat. (Excel file). Concepts of the *Euro-SDMX metadata structure*						11.1 11.2	12.2	13.1 13.4		

References	Commitment to Quality 4	Soundness of Methodology 7	Appropriate Stat. Procedures 8	Non-excessive Burden 9	Cost Effectiveness 10	Relevance 11	Accuracy and Reliability 12	Timeliness and Punctuality 13	Coherence and Comparability 14	Accessibility and Clarity 15
(ESMS). More details available at the *Eurostat's ESMS webpage*						11.3		13.5		
Eurostat. (webpage). *DESAP. The European self assessment checklist for survey managers*. See under *'Tools & standards"* the full version, the condensed version, the electronic version and the user guide.	4.2 4.4				10.2	11.1 11.2 11.3		13.1 13.3 13.4		
Eurostat. (webpage). *Dissemination guidelines.*										15.1 15.2
Eurostat. (webpage). *Edamis. Electronic data files administration and management information system*. General presentation.				9.3	10.2					
Eurostat. (webpage). *EuroGroups register.*		7.4								
Eurostat. (webpage). *Euro-indicators: monthly monitoring report*						11.1				
Eurostat. (webpage). *European statistical advisory committee*						11.1				
Eurostat. (webpage). *Euro-SDMX metadata structure (ESMS)*	4.3									
Eurostat. (webpage). *How Eurostat complies with the European Statistics Code of Practice*	4.1									
Eurostat. (webpage). *Legislation in force*				9.1						
Eurostat. (webpage). *Metadata*		7.2								15.1 15.5 15.6 15.7
Eurostat. (webpage). *Methodologies and working papers*.									14.5	
Eurostat. (webpage). *Quality. General evaluation results.*					10.1					
Eurostat. (webpage). *Quality profiles (Europe 2020 indicators)*	4.3									
Eurostat. (webpage). *Quality reporting*.										15.6

References	Commitment to Quality	Soundness of Methodology	Appropriate Stat. Procedures	Non-excessive Burden	Cost Effectiveness	Relevance	Accuracy and Reliability	Timeliness and Punctuality	Coherence and Comparability	Accessibility and Clarity
	4	7	8	9	10	11	12	13	14	15
										15.7
Eurostat. (webpage). *RAMON. Eurostat's metadata server*		7.1								
Eurostat. (webpage). *RAMON. Eurostat's metadata server. Classifications*		7.2 7.4							14.2	
Eurostat. (webpage). *RAMON. Eurostat's metadata server. Concepts and definitions*		7.2							14.1 14.2 14.3	
Eurostat. (webpage). *RAMON. Eurostat's metadata server. Index of correspondence tables*		7.4								
Eurostat. (webpage). *RAMON. Eurostat's metadata server. Legislation and methodology*		7.1								
Eurostat. (webpage). *RAMON. Eurostat's metadata server. Standard code lists*		7.4								
Eurostat. (webpage). *Recruitment*		7.5								
Eurostat. (webpage). *SDMX data and metadata exchange.*					10.2					
Eurostat. (webpage). *Selected ESS practices related to: Quality Management Framework, User and Respondent Dialogue, Methodology, Metadata, Dissemination Guidelines, Quality Assurance (QA)*		7.7								
Eurostat. (webpage). *User support*.										15.3
Luzi, O., Di Zio, M., Guarnera, U., Manzari, A., De Waal, T., Pannekoek, J. ...& Kilchmann, D. (2007). *Recommended practices for editing and imputation in cross-sectional business surveys*. Manual developed in the framework of the European Project "Recommended Practices for Editing and Imputation in Cross-Sectional Business Surveys (EDIMBUS)" with partial financial			8.5							

References	Commitment to Quality 4	Soundness of Methodology 7	Appropriate Stat. Procedures 8	Non-excessive Burden 9	Cost Effectiveness 10	Relevance 11	Accuracy and Reliability 12	Timeliness and Punctuality 13	Coherence and Comparability 14	Accessibility and Clarity 15
support of Eurostat.										
Rizzo, F. (2009). *The census hub project.* Paper presented at the SDMX global conference. Paris, France. For more information on the Census hub see CIRCA-webpage: *Census hub public documents*				9.5	10.2					
Zilhão, M.-J., Cardoso Santos, A., Davies, J., Howell, S. & Booleman, M. (2003). *State of the art concerning the auditing activity in NSI's (Recommendation 16) FINAL REPORT.* Luxembourg: Eurostat.	4.4									
Eurostat and United Nations Committee for the Coordination of Statistical Activities										
Eurostat & United Nations Committee for the Coordination of Statistical Activities. (2009). *Revised international statistical processes assessment checklist. Condensed version with the assessment questions. Version 3.0*	4.4									
Eurostat & United Nations Committee for the Coordination of Statistical Activities. (2009). *Revised international statistical processes assessment checklist. Version 3.0.*	4.4									
France										
French National Institute of Statistics and Economic Studies - INSEE. (2007). *Guidelines for finding a balance between accuracy and delays in the statistical surveys*. Project funded by Eurostat Grants in the field of quality management and evaluation	4.2		8.5							
French National Institute of Statistics and Economic Studies - INSEE. (webpage). *Official statistical system practices in accordance with the principles of the European Statistics*	4.1									

References	Commitment to Quality 4	Soundness of Methodology 7	Appropriate Stat. Procedures 8	Non-excessive Burden 9	Cost Effectiveness 10	Relevance 11	Accuracy and Reliability 12	Timeliness and Punctuality 13	Coherence and Comparability 14	Accessibility and Clarity 15
Code of Practice										
Finland										
Statistics Finland. (2007). *Quality guidelines for official statistics 2nd Revised Edition.* Helsinki, Finland.	4.1						12.1			
Greece										
Nikolaidis, I. (2009). *Quality improvements of the survey processes*. Project funded by Eurostat Grants. Piraeus, Greece: National Statistical Service of Greece.	4.4									
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