Official Statistics for SDGs- Lesson 3

3.1 Lesson3

Notes:

Lesson 3 introduces quality and communication of official statistics.

3.2 Lesson Outline

Notes:

Lesson 3 introduces quality and communication of official statistics.

Quality of statistics is one of the key features of data that influences the value that users experience. Quality can be seen as "fitness for use" which includes many dimensions, such as relevance, accuracy, timeliness, accessibility, comparability and coherence. Quality is by no means a monopoly of official statistics. Private data providers may even be able to provide users with some better-quality features, for instance better timeliness. But it is undoubtedly true that the value offered by official statistics is supported by their legal and institutional framework that ensures the compilation of objective and independent statistics that are not subject to inappropriate influence.

3.3 3-1 Concept and frameworks

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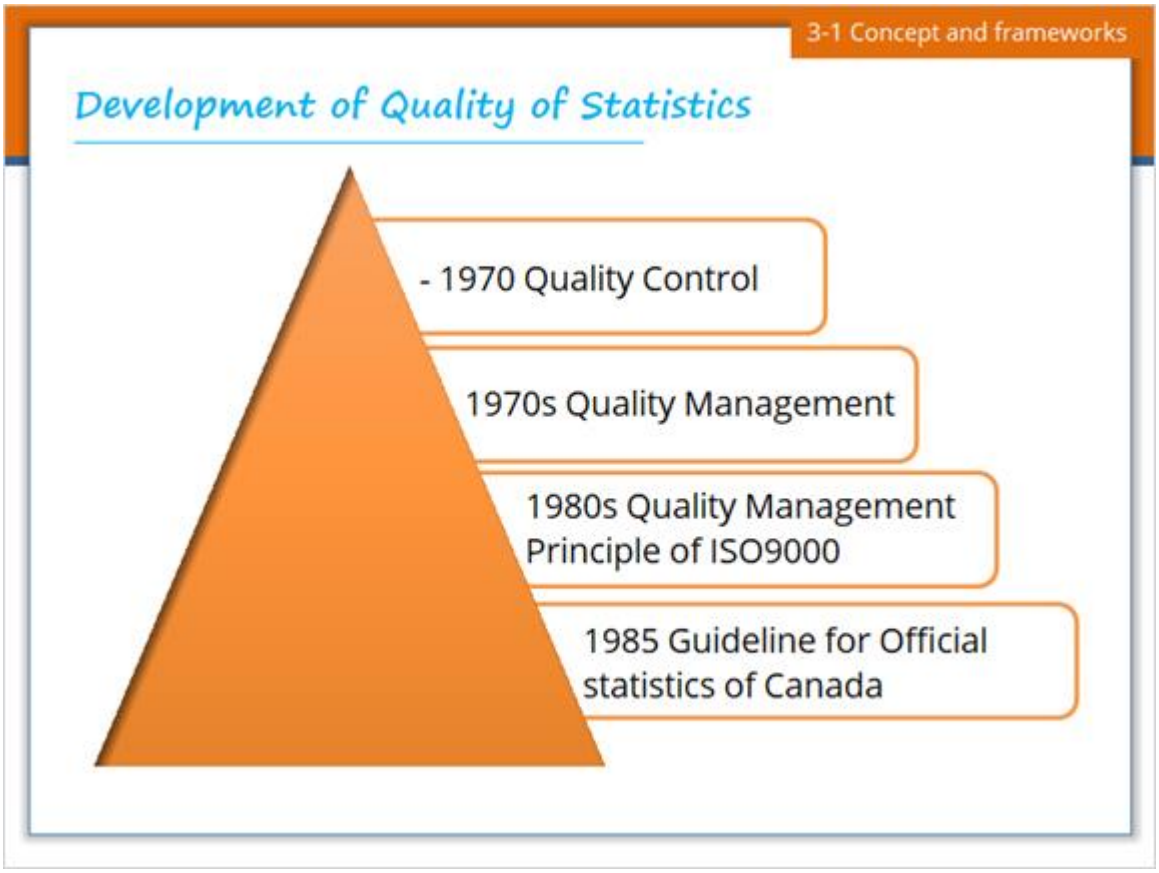
3.4 Development of Quality of Statistics



Notes:

Quality of Statistics had been used as management of the process from data collection to tabulation: quality control in the manufacturing process in the narrow sense before 1970. After 1970 Quality Management (QM) with the first purpose as meeting requirements from customers was developed. In the 1980s QM for customers: the first principle of Quality Management Principles (QMP) authorized internationally by ISO9000 was agreed upon. Concepts of quality of statistics was also used from a comprehensive aspect including user satisfaction and extending to the system in official statistics. The first country to introduce this was Canada, which created the guideline in 1985.

3.5 Quality Management Frameworks

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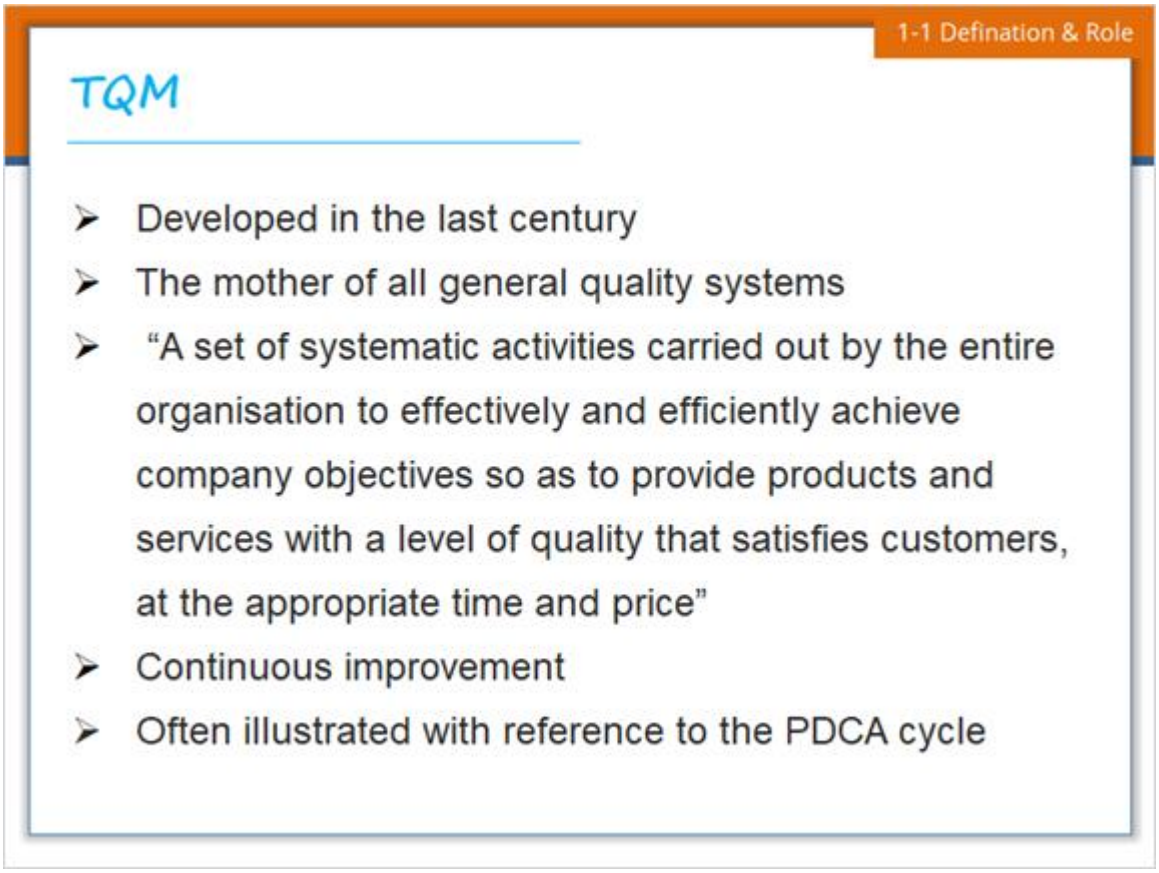
Quality management frameworks provide a coherent and holistic system as a basis for quality management. There are various general quality management frameworks applicable to any organization, such as Total Quality Management (TQM), International Organization for Standardization (ISO), Six Sigma, European Foundation for Quality Management (EFQM), Balanced Scorecard, Lean and Lean Six Sigma. These frameworks are largely based on common definitions and principles, but their main focuses and formalizations vary. For example, ISO emphasizes certification and standardization of “processes”, while Six Sigma focuses on quality control of the “products/outputs” using statistical methods. Lean emphasizes improvement in efficiency by reducing waste.

3.6 TQM



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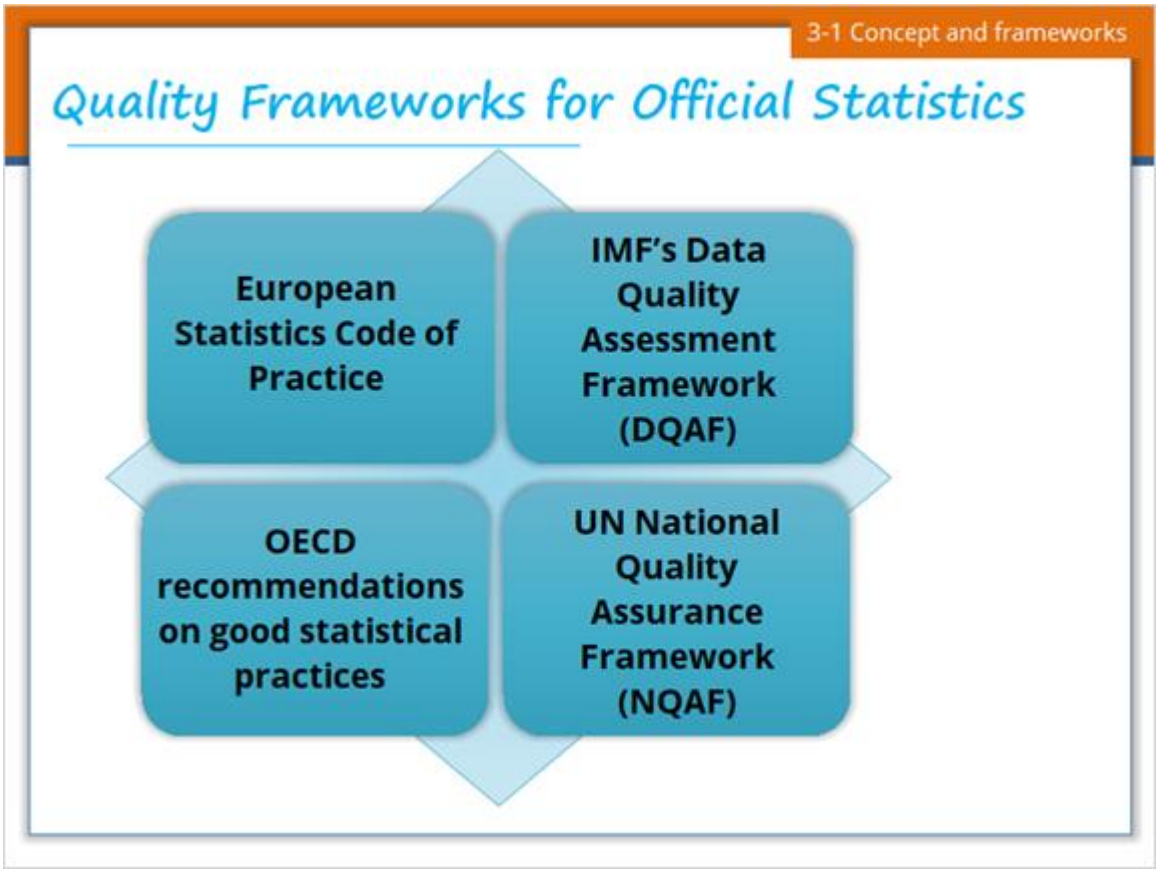
In many ways, TQM, which was developed in the last century, is the foundation of all general quality frameworks. TQM is "a set of systematic activities carried out by the entire organization to effectively and efficiently achieve company objectives so as to provide products and services with a level of quality that satisfies customers, at the appropriate time and price". The strategic core of all major TQM models is continuous improvement, often illustrated with reference to the PDCA cycle.

3.7 Quality Frameworks for Official Statistics

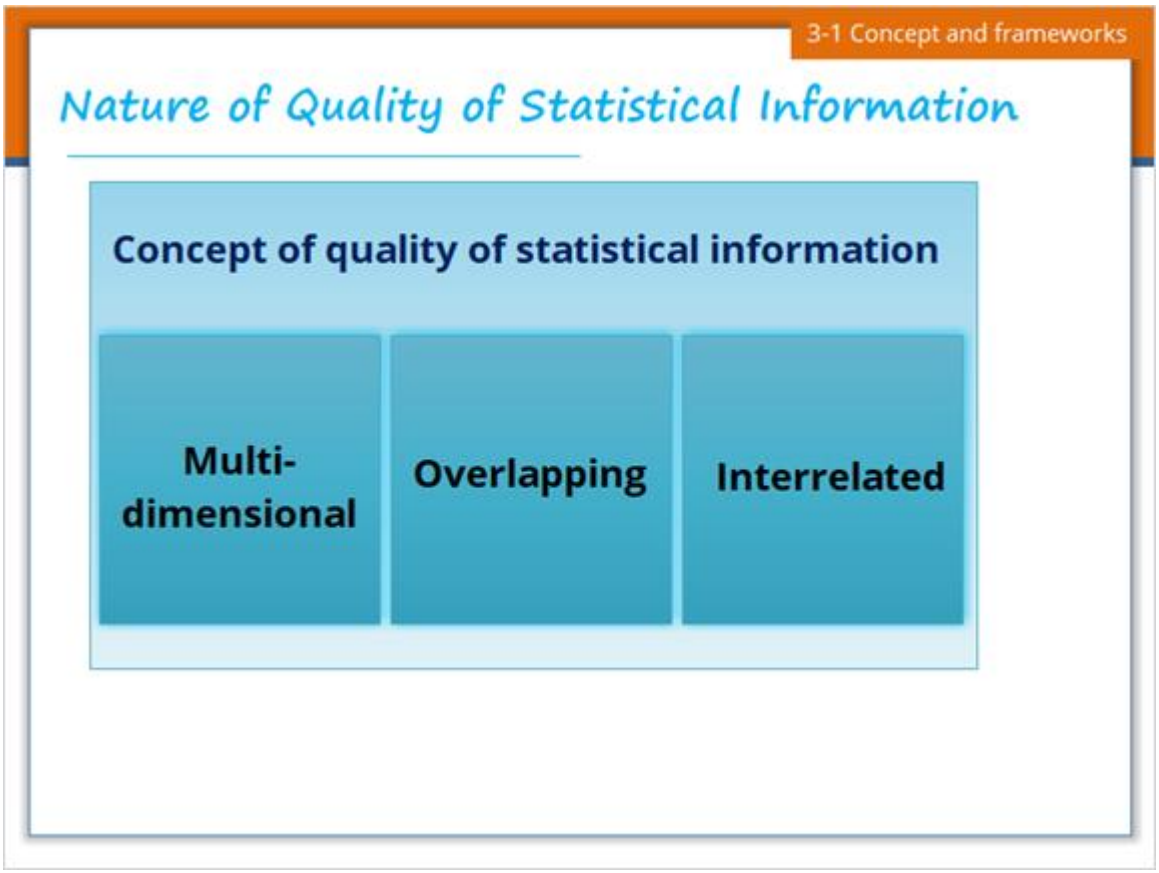


Notes:

A quality assurance framework is clearly just one of a number of other frameworks, policies and strategies that typically are in place in statistical agencies. They all should be developed and implemented in an integrated manner to achieve the agency's mission and vision statements. The formulation of a quality assurance framework requires an in-depth and thorough review of those mechanisms most directly related to quality since the framework's main focus is on the management of the core statistical functions. Statistical laws, regulations and acts, codes of practice, and statistical standards, policies and strategies will need to be explicitly considered, referenced and made readily available in the process of drawing up a quality framework.

Frameworks related to quality of statistics had been reviewed mainly in EU countries since the 1990s and created in some countries around 2000. Also, international organizations such as the OECD and IMF established similar frameworks. They listed criterions aimed at statistics including relevance, accuracy, timeliness and specified their checkpoints, sometimes with explanation of the evaluation process, used as a guidance for evaluations. In 2010s UN developed National Quality Assurance Framework (NQAF), too.

3.8 Nature of Quality of Statistical Information



Notes:

Over the past twenty years, statistical agencies have arrived at the consensus that the concept of the quality of statistical information is **multi-dimensional** and that there is no one single measure of quality. For a statistical product, the general definition is operationalized by specifying a set of factors or dimensions that characterize its quality: relevance, accuracy and reliability, timeliness and punctuality, accessibility and clarity, coherence and comparability. The dimensions of quality are **overlapping** and **interrelated** and there are trade-offs between some of them. Adequate management of each of them is essential.

3.9 3-2 European Statistics Code of Practice

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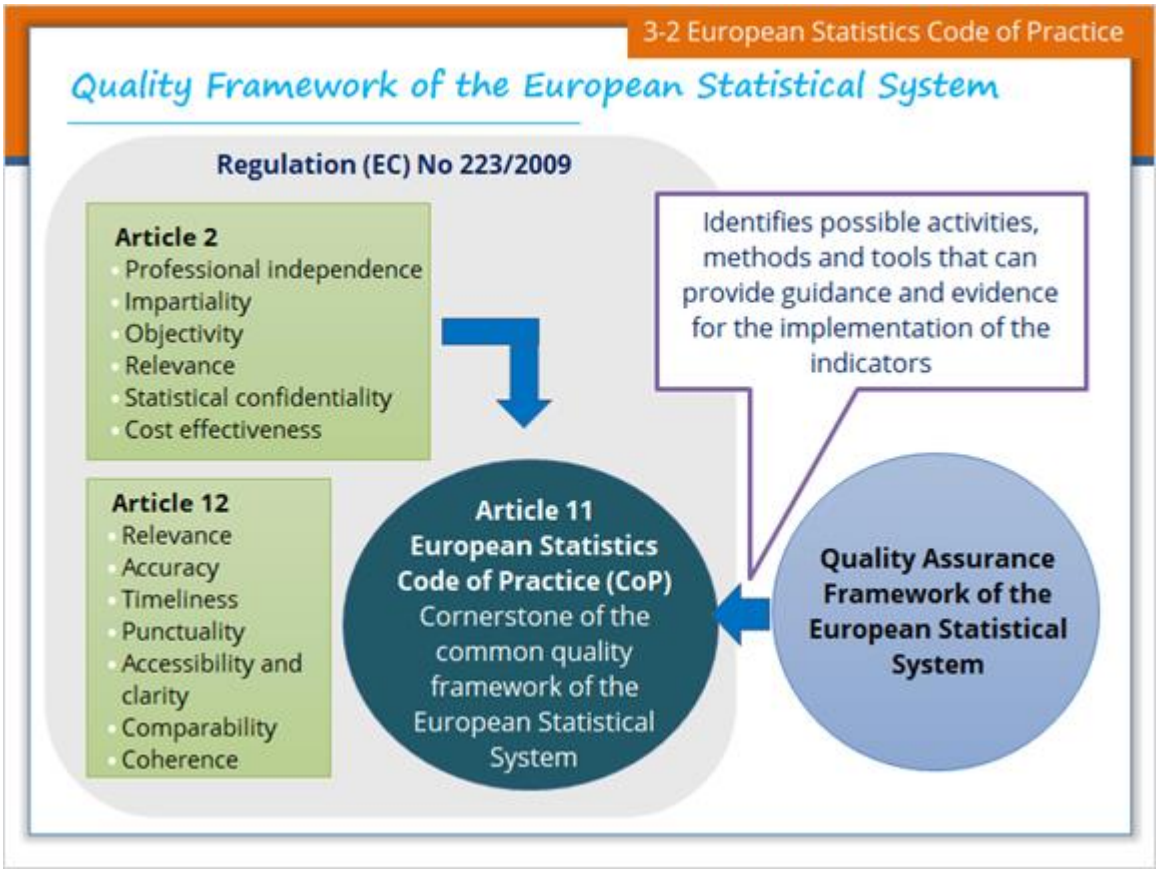
3.10 Quality Framework of the European Statistical System



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Statistics Law of Europe: Regulation (EC) No 223/2009 of the European Parliament and of the Council shows European Statistics Code of Practice (CpP) in Article 11 is as follows:

1. The CoP shall aim at ensuring public trust in European statistics by establishing how European statistics are to be developed, produced and disseminated in conformity with the statistical principles as set out in Article 2(1) and best international statistical practice.

2. The CoP shall be reviewed and updated as necessary by the ESS Committee. The Commission shall publish amendments thereto.

Statistics Law of Europe: Regulation (EC) No 223/2009 also shows statistical quality in Article 12.

1. To guarantee the quality of results, European statistics shall be developed, produced and disseminated on the basis of uniform standards and of harmonized methods. In this respect, the following quality criteria shall apply:

(a) “relevance”, which refers to the degree to which statistics meet current and potential

needs of the users;

(b) “accuracy”, which refers to the closeness of estimates to the unknown true values;

(c) “timeliness”, which refers to the period between the availability of the information and the event or phenomenon it describes;

(d) “punctuality”, which refers to the delay between the date of the release of the data and the target date (the date by which the data should have been delivered);

(e) “accessibility” and “clarity”, which refer to the conditions and modalities by which users can obtain, use and interpret data;

(f) “comparability”, which refers to the measurement of the impact of differences in applied statistical concepts, measurement tools and procedures where statistics are compared between geographical areas, sectoral domains or over time;

(g) “coherence”, which refers to the adequacy of the data to be reliably combined in different ways and for various uses.

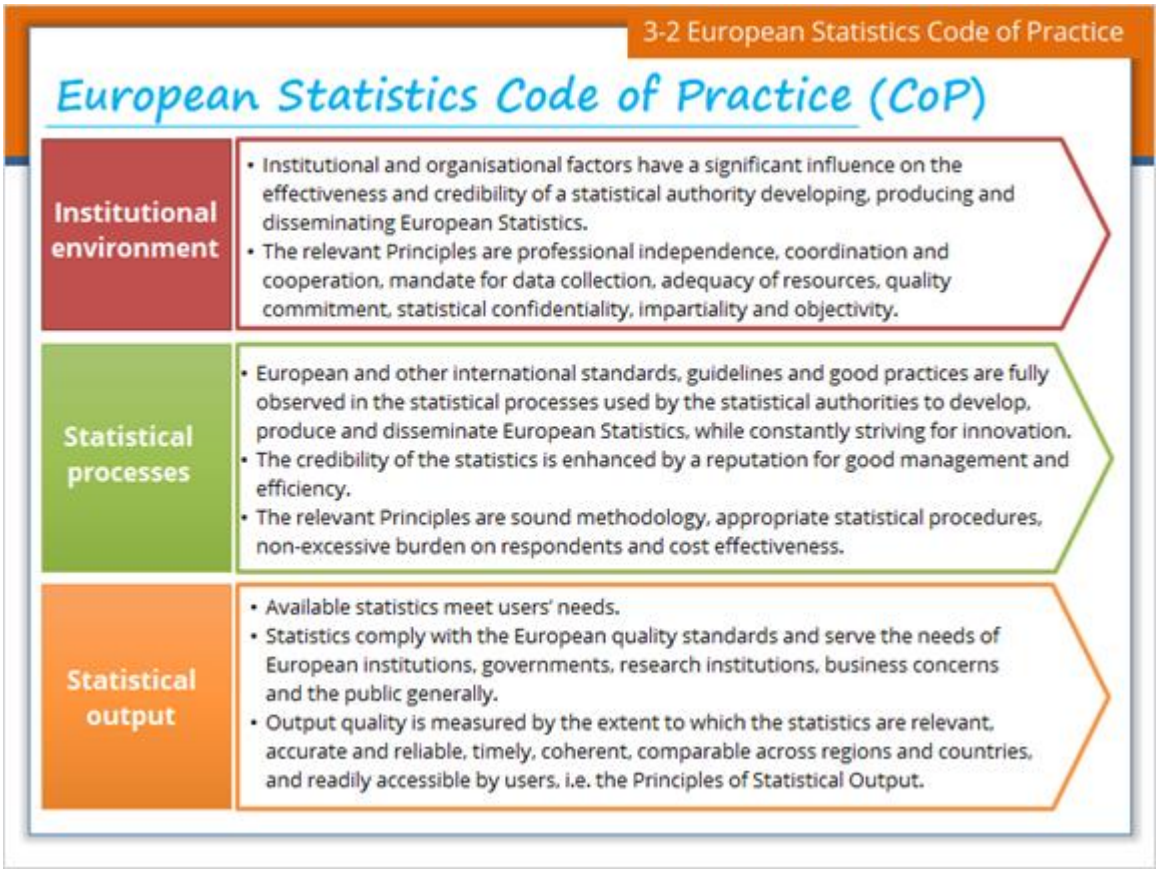
2. In applying the quality criteria laid down in paragraph 1 of this Article to the data covered by sectoral legislation in specific statistical domains, the modalities, structure and periodicity of quality reports provided for in sectoral legislation shall be defined by the Commission in accordance with the regulatory procedure referred to in Article 27(2).

Specific quality requirements, such as target values and minimum standards for the statistical production, may be laid down in the sectoral legislation. Where the sectoral legislation does not do so, measures may be adopted by the Commission. These measures, designed by the CoP is the cornerstone of the common quality framework of the European Statistical System. It is a self-regulatory instrument and is based on 16 Principles covering the institutional environment, statistical processes and statistical outputs. A set of indicators of best practices and standards for each of the Principles provides guidance and reference for reviewing the implementation of the CoP, increasing transparency within the European Statistical System.

The 2017 edition is the second revision of the CoP, originally adopted in 2005. It aims at reflecting the latest changes and innovations in the development, production and dissemination of official statistics in the European Statistical System and beyond, such as emerging new data sources, use of new technologies, modernization of the legal framework, and the results of peer reviews on the implementation of the Code of Practice.

The common quality framework of the European Statistical System is composed of the CoP, the Quality Assurance Framework of the European Statistical System and the general quality management principles such as continuous interaction with users, commitment of leadership, partnership, staff satisfaction, continuous improvement, integration and harmonization. It identifies possible activities, methods and tools that can provide guidance and evidence for the implementation of the indicators of the CoP.

3.11 European Statistics Code of Practice (CoP)



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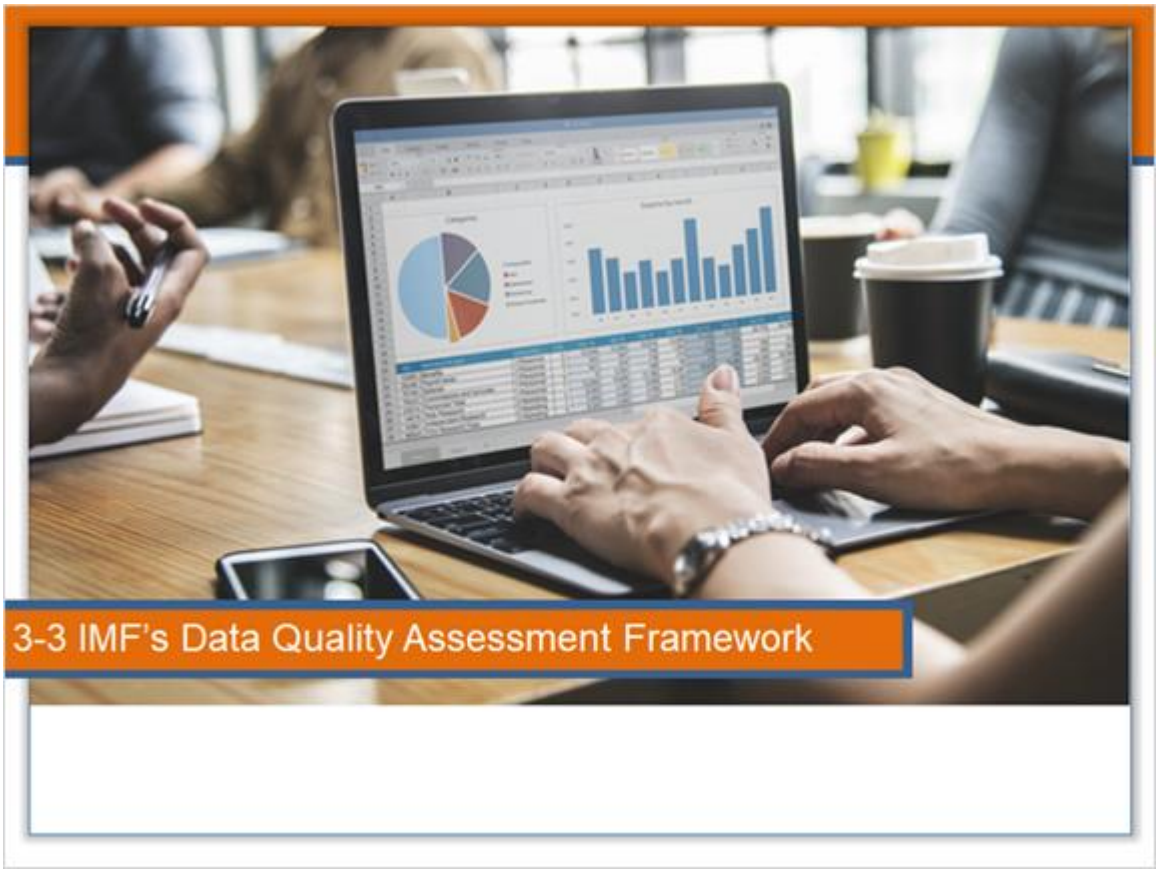
The slide summarizes the CoP.

The European Statistical System sees quality as the basis of their competitive advantage in a world experiencing a growing trend of instant information which often lacks the necessary proof of quality. Their work is governed by professional independence, impartial treatment of all their users, objectivity, reliability, statistical confidentiality and cost-effectiveness. The development, production and dissemination of their statistics are based on sound methodologies, the best international standards and appropriate procedures that are well documented in a transparent manner. Their principles of quality are: relevance, accuracy, timeliness and punctuality, accessibility and clarity, as well as comparability and coherence.

3.12 3-3 IMF's Data Quality Assessment Framework



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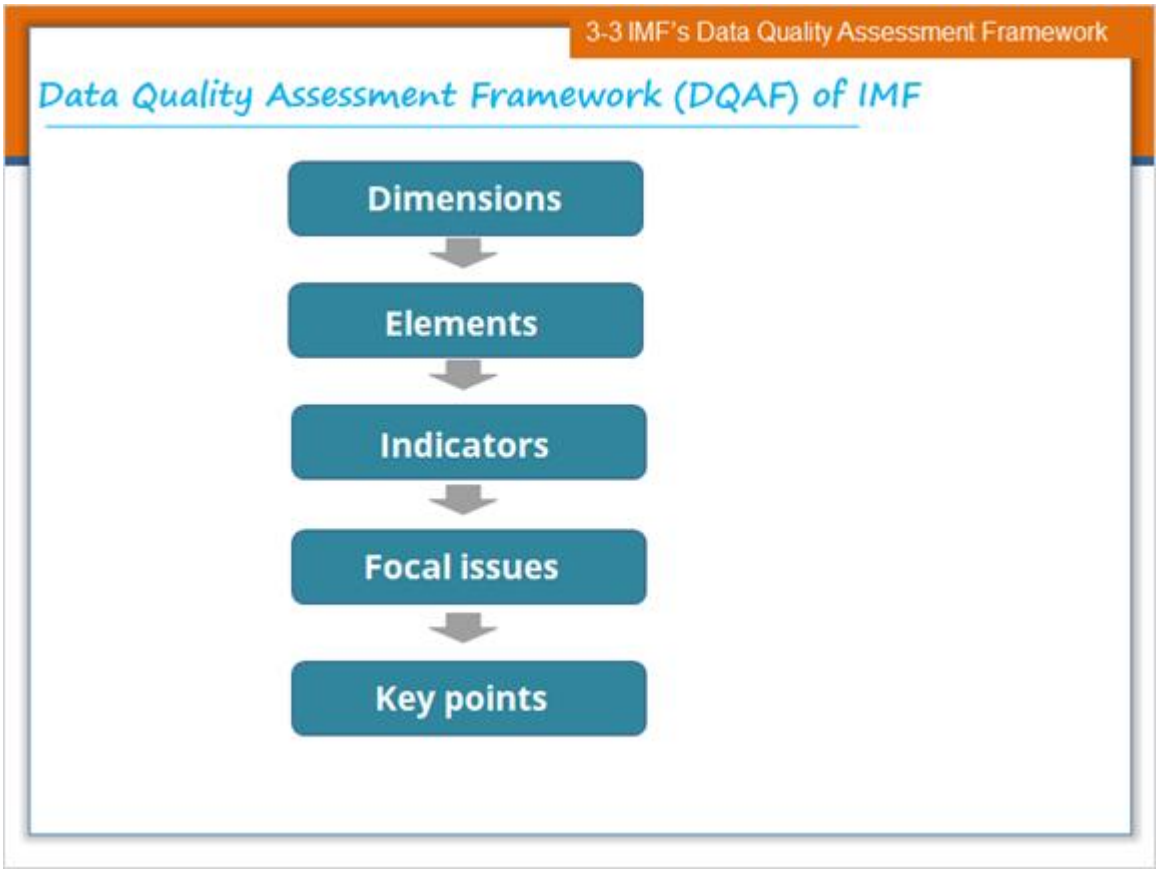
3.13 Data Quality Assessment Framework (DQAF) of IMF



Notes:

In 1997 the Statistics Department (STA) of the IMF started to work on an approach to assessing data quality, with the development of a framework that was based on five broad areas that were considered relevant to an assessment of data quality across a wide range of uses and users. Building on this earlier work, STA developed the Data Quality Assessment Framework (DQAF).

On the first point, the development of the DQAF took into account the consensus view that quality is a much wider, multidimensional concept than just accuracy. To promote a common understanding of data quality, STA established a Data Quality Reference Site on the Dissemination Standards Bulletin Board (DSBB).

After extensive consultations, the 2001 DQAF that emerged brought together the internationally accepted core principles, standards, or practices for official statistics and provides structure and a common language for the assessment of data quality. The DQAF facilitates a comprehensive view of data quality, one that recognizes interrelations, including tradeoffs, among elements of quality and allows emphases to vary across data categories and uses/users. It facilitates dialogue with national statistical agencies and country authorities, as well as a more homogenous approach to assessing data quality

by data compilers, data users, and IMF staff. The DQAF provides a structure for assessing existing practices against best practices, including internationally accepted methodologies.

The DQAF is organized in a cascading structure that progresses from the abstract/general to the more concrete/specific details. The DQAF comprehensively covers the various quality aspects of data collection, processing, and dissemination.

The first level covers the **prerequisites** of quality and five **dimensions** of quality: assurances of integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility. For each of these prerequisites and five dimensions, there are **elements** (two-digit level) and **indicators** (three-digit level).

At the next level, **focal issues** that are specific to the compilation of a particular dataset (e.g. national accounts statistics) are addressed. Below each focal issue, **key points** identify quality features that may be considered in addressing the focal issues. The key points are meant to be suggestive, not exhaustive.

The DQAF covers five dimensions of quality and a set of prerequisites for the assessment of data quality. The coverage of these dimensions recognizes that data quality encompasses characteristics related to the institution or system behind the production of the data as well as characteristics of the individual data product. Within this framework, each dimension comprises a number of elements, which are in turn associated with a set of desirable practices. The following are the statistical practices that are associated with each dimension:

Prerequisites of quality-the environment is supportive of statistics; resources are commensurate with needs of statistical programs; and quality is a cornerstone of statistical work.

Integrity-statistical policies and practices are guided by professional principles; statistical policies and practices are transparent; and policies and practices are guided by ethical standards.

Methodological soundness-concepts and definitions used are in accord with internationally accepted statistical frameworks; the scope is in accord with internationally accepted standards, guidelines, or good practices; classification and sectorization systems are in accord with internationally accepted standards, guidelines, or good practices; and flows and stocks are valued and recorded according to internationally accepted standards, guidelines, or good practices.

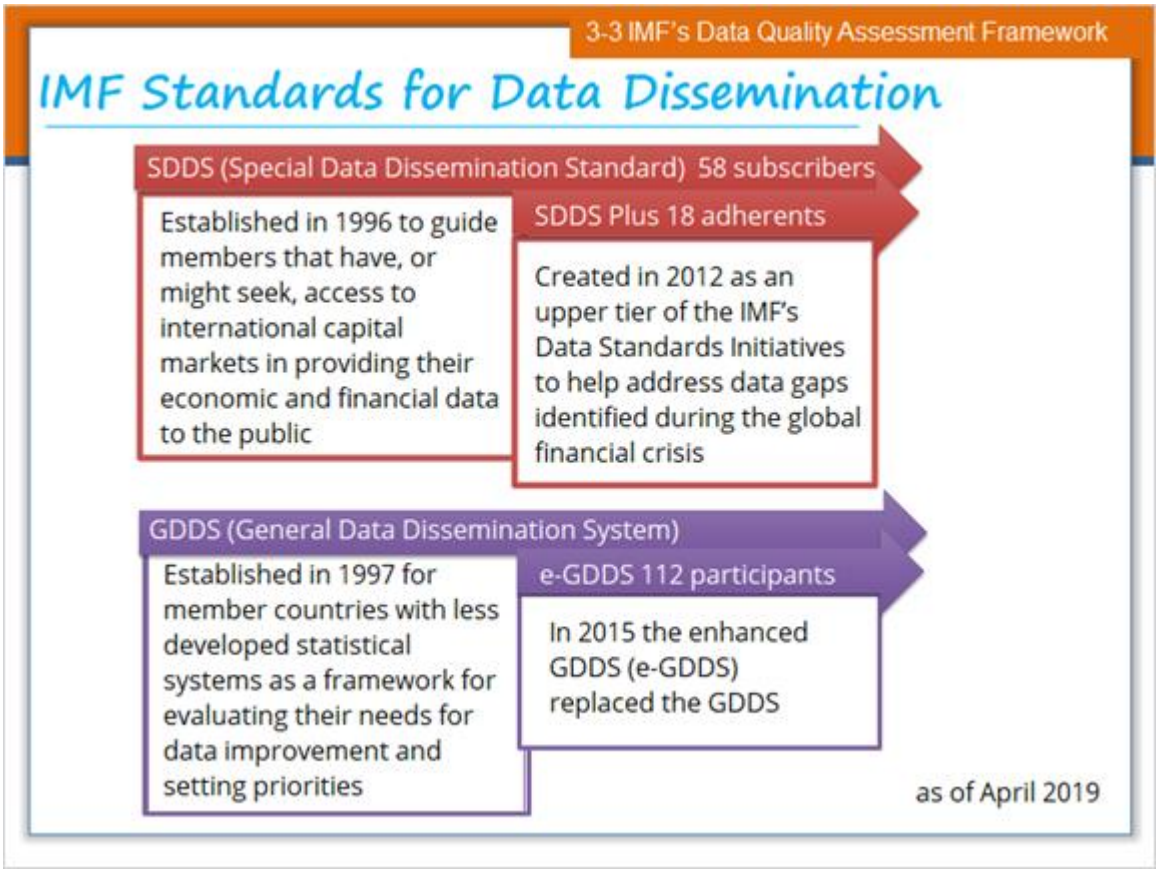
Accuracy and reliability-source data available provide an adequate basis to compile statistics; statistical techniques employed conform with sound statistical procedures; source data are regularly assessed and validated; intermediate results and statistical outputs are regularly assessed and validated; and revisions, as a gauge of reliability, are tracked and mined for the information they may provide.

Serviceability-statistics cover relevant information on the subject field; timeliness and periodicity follow internationally accepted dissemination standards; statistics are consistent within the dataset, over time, and with other major data sets; and data

revisions follow a regular and publicized procedure.

Accessibility-statistics are presented in a clear and understandable manner, forms of dissemination are adequate, and statistics are made available on an impartial basis; up-to-date and pertinent metadata are made available; and prompt and knowledgeable support service is available.

3.14 IMF Standards for Data Dissemination



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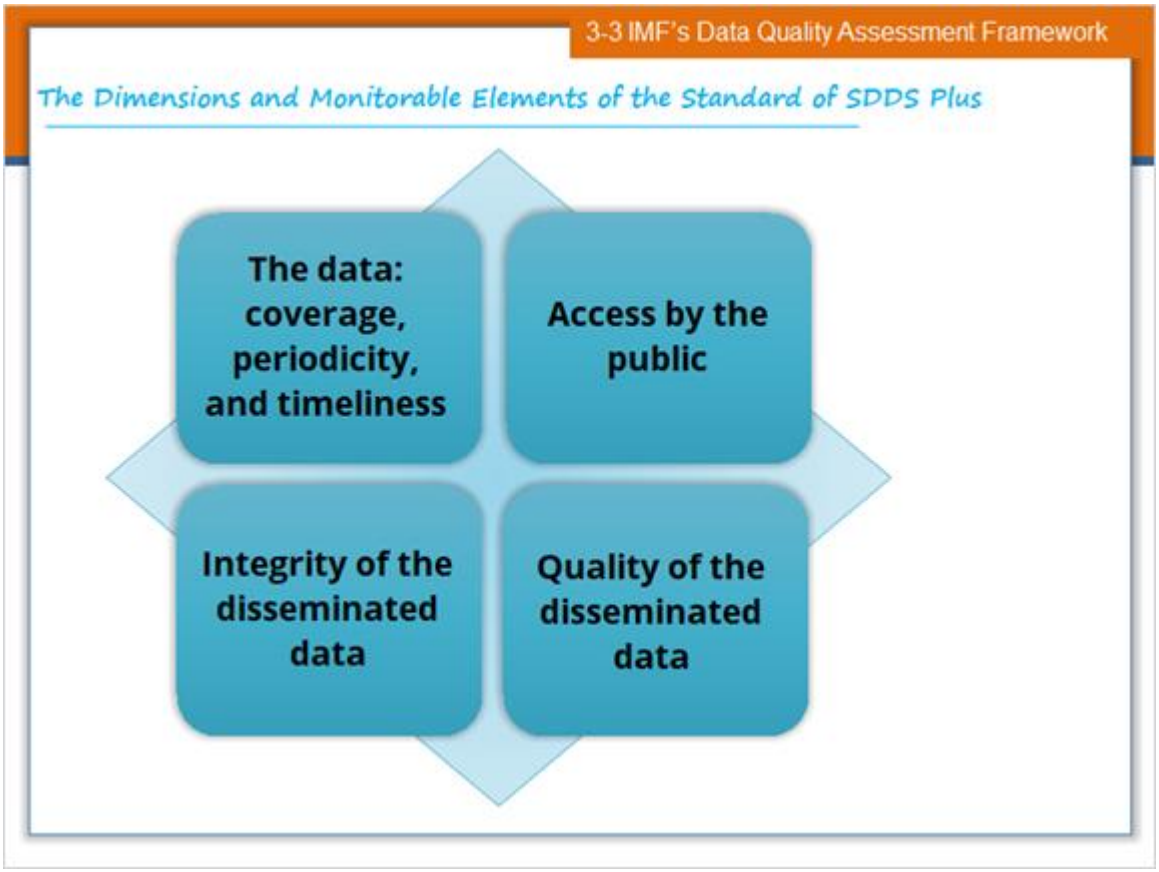
The IMF's work on data dissemination standards originated in the wake of the 1994-95 international financial crises, which underscored the role that information deficiencies could play in contributing to market turmoil. The IMF launched the data standards initiatives to enhance member countries' data transparency and to promote their development of sound statistical systems. The need for data standards was highlighted by the financial crises of the mid-1990s, in which information deficiencies were seen to play a role. Under the data standards initiatives, the IMF established the Special Data Dissemination Standard (SDDS) in 1996 to provide guidance to countries that have or seek access to capital markets to disseminate key data so that users in general, and

financial market participants in particular, have adequate information to assess the economic situations of individual countries. The SDDS not only prescribes that subscribers disseminate certain data categories but also prescribes that subscribers disseminate the relevant metadata to promote public knowledge and understanding of their compilation practices with respect to the required data categories. In 1997, the IMF introduced under the initiatives the General Data Dissemination System (GDDS) to provide a framework for countries that aim to develop their statistical systems, within which they can work toward disseminating comprehensive and reliable data and, eventually, meet SDDS requirements. Based on the global financial crisis in 2008, necessary data for monitoring economy had been reviewed. At the Eighth Review of the Fund's Data Standards Initiatives in 2012, the IMF's Executive Board approved the SDDS Plus as an upper tier of the Fund's data standards initiatives. The SDDS Plus is open to all SDDS subscribers and is aimed at economies with systemically important financial sectors. The e-GDDS was established in 2015 to guide countries in data dissemination by supporting transparency, encouraging statistical development, and helping create strong synergies between data dissemination and surveillance. The e-GDDS superseded GDDS.

Member countries' subscription to the SDDS (Plus) is voluntary. Nonetheless, countries subscribing to the SDDS (Plus) must undertake to observe the various dimensions and elements of the SDDS and to provide the necessary information to the IMF for dissemination on the DSBB on the IMF website. A basic tenet of the SDDS (Plus) is that a subscribing country wants the public-in particular, financial markets-to know that it produces and disseminates high-quality data in a timely manner. Inclusion in the list of subscribers to the SDDS (Plus), which is posted on the DSBB, indicates that the country concerned meets a certain test of good statistical citizenship.

Those participating in the e-GDDS also have to develop plans to improve their statistics. Empirical studies suggest that subscription to the SDDS (Plus) or participation in the e-GDDS, to varying extents, can help reduce the costs of borrowing in international capital markets. In addition, enhanced data transparency and data quality in member countries have been important to the IMF's work on surveillance and crisis prevention. A major accomplishment of the SDDS (Plus) is the availability of timely, accurate, and comprehensive information on the economies of SDDS (Plus) countries, accessible through the IMF's DSBB.

3.15 The Dimensions and Monitorable Elements of the Standard of SDDS Plus



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There are four dimensions of the SDDS (Plus).

Data coverage, periodicity, and timeliness

Comprehensive economic and financial data, disseminated on a timely basis, are essential to the transparency of macroeconomic performance and policy. Countries subscribing to the SDDS (Plus) are obliged to disseminate the prescribed categories of data with the specified coverage, periodicity, and timeliness.

Access by the public

Dissemination of official statistics is an essential feature of statistics as a public good. The SDDS (Plus) calls for providing the public, including market participants, with ready and equal access to the data. Countries subscribing to the SDDS (Plus) are obliged to (1) disseminate advance release calendars for the data and (2) release the data to all

interested parties simultaneously.

Integrity

To fulfill the purpose of providing the public with information, official statistics must have the confidence of their users. In turn, confidence in the statistics ultimately becomes a matter of confidence in the objectivity and professionalism of the agencies producing the statistics. Transparency of its practices and procedures is a key factor in creating this confidence. The SDDS (Plus) obliges subscribing countries to (1) disseminate the terms and conditions under which official statistics are produced, including those relating to the confidentiality of individually identifiable information; (2) identify internal government access to data before release to the public; (3) identify ministerial commentary on the occasion of statistical releases; and (4) provide information about revision and advance notice of major changes in methodology.

Quality

A set of standards that deals with the coverage, periodicity, and timeliness of data must also address the quality of statistics. Although quality is difficult to judge, monitorable proxies, designed to focus on information the user needs to judge quality, can be useful. The SDDS (Plus) obliges subscribing countries to (1) disseminate documentation on methodology and sources used in preparing statistics, including the identification of methodological deviations from internationally accepted statistical methodologies, encouraging them to undertake and publish data modules of the Reports on the Observance of Standards and Codes (Data ROSCs), which summarize the extent to which countries observe certain internationally recognized standards and codes, or other quality assessments every seven to ten years; and (2) disseminate component detail, reconciliations with related data, and statistical frameworks that support statistical cross-checks and provide assurance of reasonableness.

3.16 SDDS Plus Data Lists

3-3 IMF's Data Quality Assessment Framework

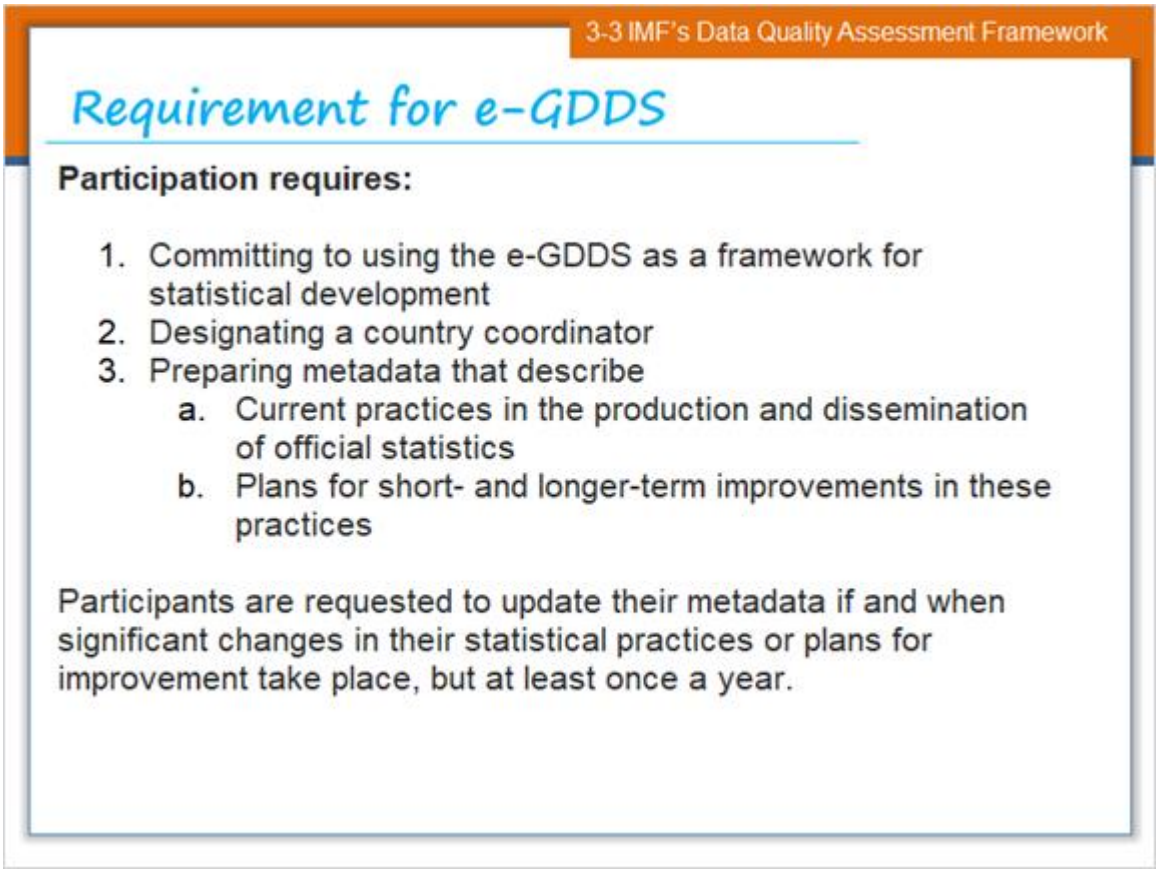
SDDS Plus Data Lists

National Accounts	General government operations	Financial soundness indicators	Balance of payments
Production index	General government gross debt	Regulatory Tier 1 capital to risk-weighted assets	International reserves and foreign currency liquidity
Forward-looking indicators	Central government operations	Regulatory Tier 1 capital to assets	Merchandise trade
Sectoral stocks of financial assets and liabilities	Central government debt	Nonperforming loans net of provisions to capital	International investment position
Labor market: Employment	Depository corporations survey	Nonperforming loans to total gross loans	Coordinated portfolio investment survey
Labor market: Unemployment	Central bank survey	Return on assets	Coordinated direct investment survey
Labor market: Wages/Earnings	Other financial corporations survey	Liquid assets to short-term liabilities	External debt
Price index: Consumer prices	Interest rates	Residential real estate prices	Exchange rates
Price index: Producer prices		Debt securities	Currency composition of foreign exchange reserves
		Stock market: Share price index	Population

Notes:

Most basic economic statistics are included in the SDDS Plus data lists. For each data, data coverage, periodicity, timeliness, flexibility options, and other considerations are designated by IMF.

3.17 Requirement for e-GDDS



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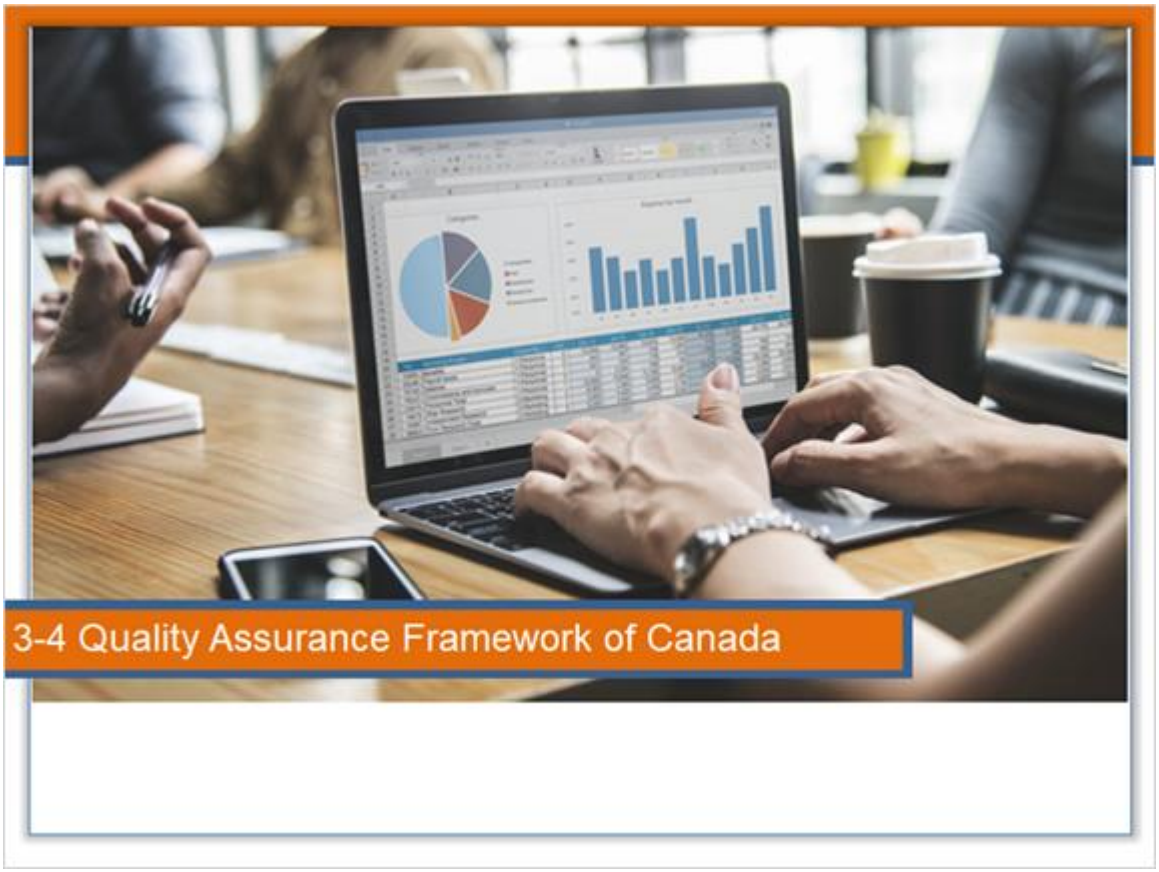
Members are encouraged to participate in the e-GDDS on a voluntary basis. Participants should make best efforts to disseminate the data, and are encouraged to discuss data and dissemination issues with staff. Participation involves: (1) a commitment to use the e-GDDS as a framework for the development of their national systems for the production and dissemination of macroeconomic, financial, and socio-demographic data; (2) designation of a country coordinator to work with IMF staff; and (3) preparation of descriptions ("metadata") of (a) current statistical production and dissemination practices and (b) plans for short-and longer-term improvements that would be disseminated by the IMF. Participants also are expected to describe recently implemented improvements. The descriptions of current practices and plans would correspond to each of the objectives for the data, coverage, periodicity and timeliness, access, integrity, and quality dimensions using the DQAF. The plans would identify the major shortcomings relative to the objectives set out in the e-GDDS; the steps by which the shortcomings would be addressed; the resources, including technical assistance, necessary to achieve the improvements; and the time frame during which the improvements would be achieved. In particular, the improvements to be undertaken within the next year and within two to five years would need to be identified.

Participation will depend upon the completion of the three actions set out above and be publicly recognized by the IMF when the metadata are posted on the IMF's DSBB. At any time before the completion of such actions, members may indicate their intent to participate by sending an appropriate communication to the IMF, which will provide the basis for work with the member on the actions involved in participation.

3.18 3-4 Quality Assurance Framework of Canada



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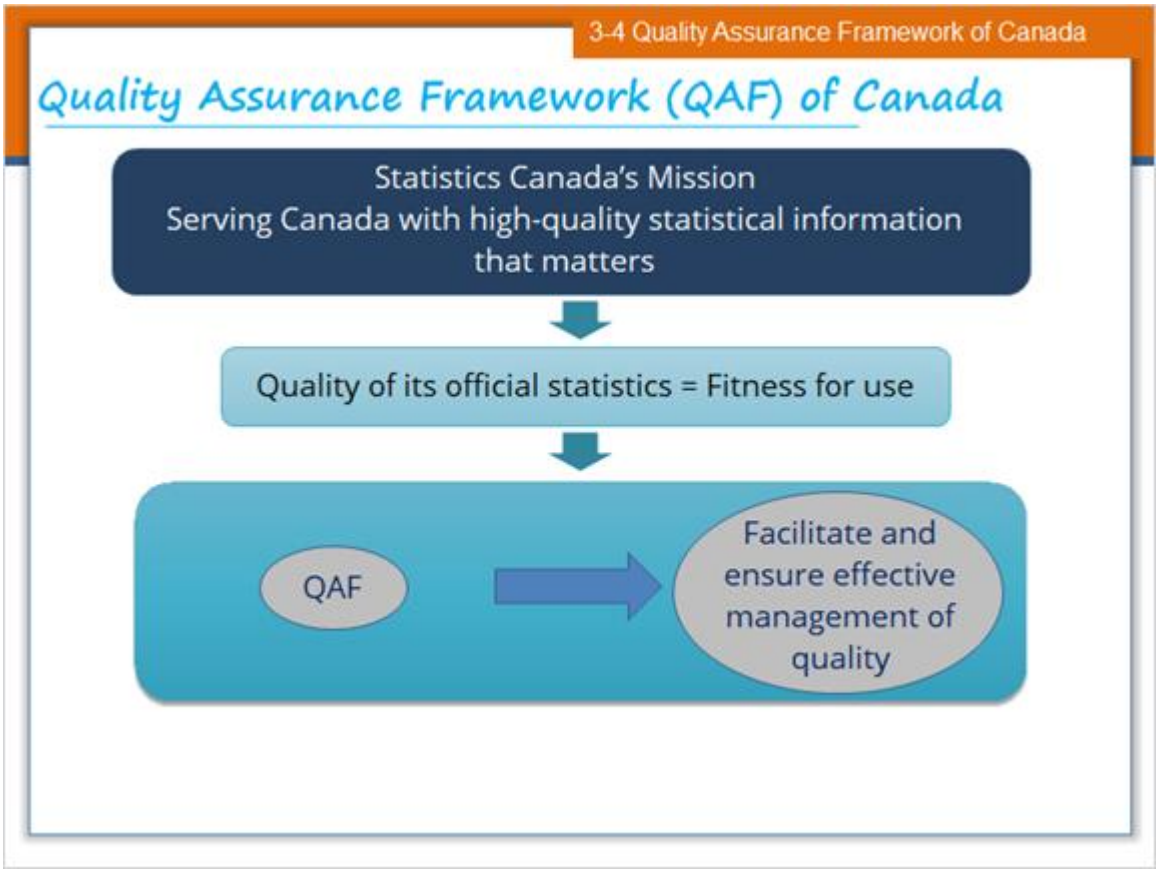
3.19 Quality Assurance Framework (QAF) of Canada



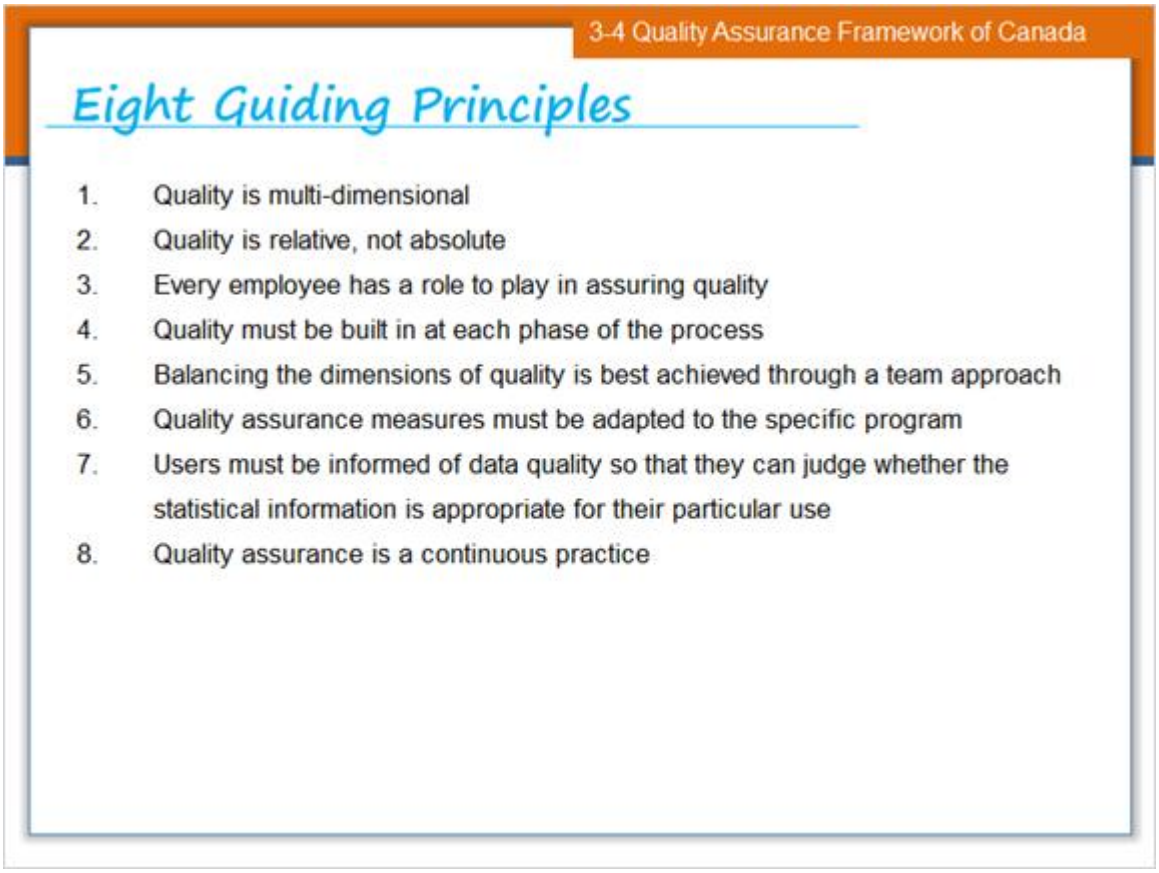
Notes:

Statistics Canada's mission statement "Serving Canada with high-quality statistical information that matters" expresses the Statistics Canada's mandate to provide all sectors of Canadian society with access to a trusted source that serves their information needs. Statistics Canada defines the quality of its official statistics in terms of their fitness for use. Maintaining confidence in the Statistics Canada through the management and assurance of quality is essential to the success of Statistics Canada. The Quality Assurance Framework (QAF) describes the strategies Statistics Canada has put in place to facilitate and ensure effective management of quality in all its statistical programs and organizational initiatives. Underlying these strategies are eight guiding principles.

QAF of Canada was one of the models for the UN NQAF.

The latest version of QAF of Canada was issued in 2017.

3.20 Eight Guiding Principles



Notes:

The Eight Guiding Principles of QAF of Canada are as follows:

1. Quality is multi-dimensional

Statistics Canada has identified six dimensions of statistical information to define its quality and evaluate its fitness for use. The six dimensions are overlapping and interrelated and achieving an appropriate level of quality in all dimensions is required, as failure in any one of them will compromise the fitness for use of an information product. Statistics Canada strives continuously to find innovative methods and data sources that can lead to achieving higher levels of quality in one or more dimensions without adversely impacting others.

2. Quality is relative, not absolute

Management of quality must be in conjunction with other important factors including the data needs of users and stakeholders, costs and response burden. As when managing the dimensions of quality, Statistics Canada counts on innovations, in areas

such as data integration, to fulfill user needs with high quality data at lower cost and lessened response burden. It also recognizes that effective management of quality does not demand maximization of quality over all other factors. Rather, it is the result of striking an appropriate balance between the resources available to the Statistics Canada and the information needs of its data users and stakeholders. Efforts to improve the quality of official statistics take into account factors such as existing budgets, availability of specialized resources and response burden.

3. Every employee has a role to play in assuring quality

Statistics Canada's management of quality reflects the principle, as stated by renowned American statistician William Edwards Deming, that "Quality comes not from inspection, but from improvement of the production process." That is, it is not possible to achieve quality by merely "inspecting" a final product. Rather, quality must be built into processes from the outset. Success in assuring quality at Statistics Canada requires the sound application of knowledge and expertise by employees at all levels within the Statistics Canada - in short, quality is "everyone's business" at Statistics Canada. An essential component of this strategy is recruitment and professional development programs that lead to a motivated and competent workforce.

4. Quality must be built in at each phase of the process

As operations at all stages can impact the quality of outputs, effective quality assurance requires measures at multiple phases of the statistical process and consideration of the impact of each phase on the process as a whole. Modelling the statistical process by dividing it into phases has proven to be an effective management tool. One such reference framework is the Generic Statistical Business Process Model, in which the principal phases are "specify needs", "design", "build", "collect", "process", "analyze", "disseminate" and "evaluate". A quality management structure can be conceptualized by considering each cell of the matrix defined by these phases and the six dimensions of quality. It is important to note that effective management of quality does not necessitate similar measures at all phases.

5. Balancing the dimensions of quality is best achieved through a team approach

The use of multidisciplinary teams ensures that the dimensions of quality and other important factors including cost and user needs are effectively managed. Subject-matter experts bring knowledge of content, stakeholder needs and relevance while mathematical statisticians (methodologists) contribute a sound foundation in statistical methods and expertise regarding accuracy. Operations personnel have experience in collection and processing methods, are well-placed to consider practicality and efficiency, and represent field staff and respondents. Systems personnel ensure the informatics point of view is considered in design and implementation, and bring specialist knowledge of technology standards and tools. Teams are supported by a

committee of senior managers who provide a forum for resolving issues and, when necessary, give guidance related to data quality trade-offs, especially with respect to timeliness and cost.

6. Quality assurance measures must be adapted to the specific program

At Statistics Canada, responsibility and accountability for quality assurance lie with the Statistics Canada's statistical programs. The Statistics Canada develops and maintains quality management strategies and tools that program areas can adapt to their individual needs. Within individual programs the challenge is to achieve an appropriate level of quality by effectively balancing program objectives, evolving user and stakeholder needs, costs, response burden, and the various dimensions of quality.

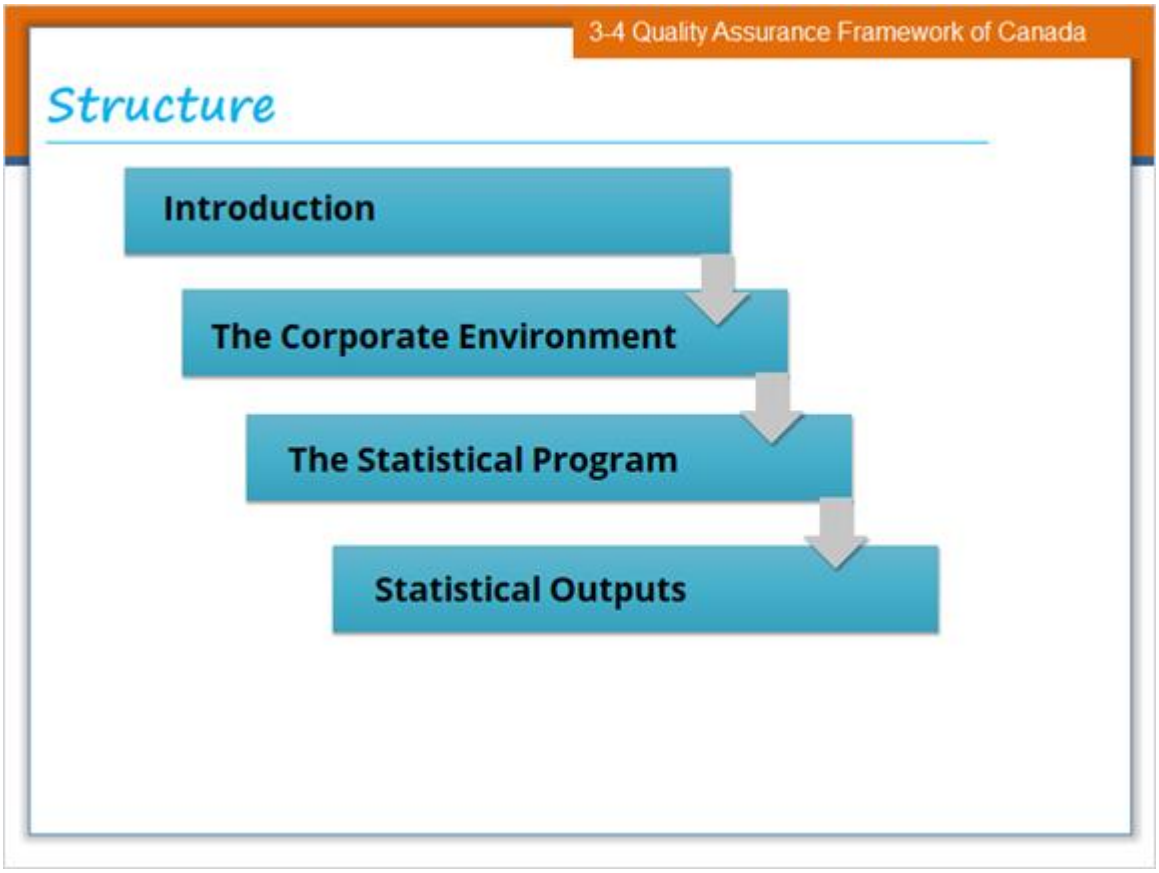
7. Users must be informed of data quality so that they can judge whether the statistical information is appropriate for their particular use

Some dimensions of quality, such as timeliness, can be observed directly by users. However for most other dimensions, users require objective information about data quality to evaluate fitness for use. Often, the Statistics Canada is the sole source of such information. Both quantitative measures, such as coefficients of variation and response rates, and qualitative information, such as a description of sources of error, are necessary.

8. Quality assurance is a continuous practice

There is constant evolution of the social and economic conditions in Canada, as well as in the user and stakeholder environments. Consequently, quality is not self-sustaining and will deteriorate in the absence of regular review and refreshment. In particular a "relevance gap" may open if official statistics do not keep pace with the changing needs of the Statistics Canada's users and stakeholders.

3.21 Structure



Notes:

The structure of QAF of Canada are in the slides.

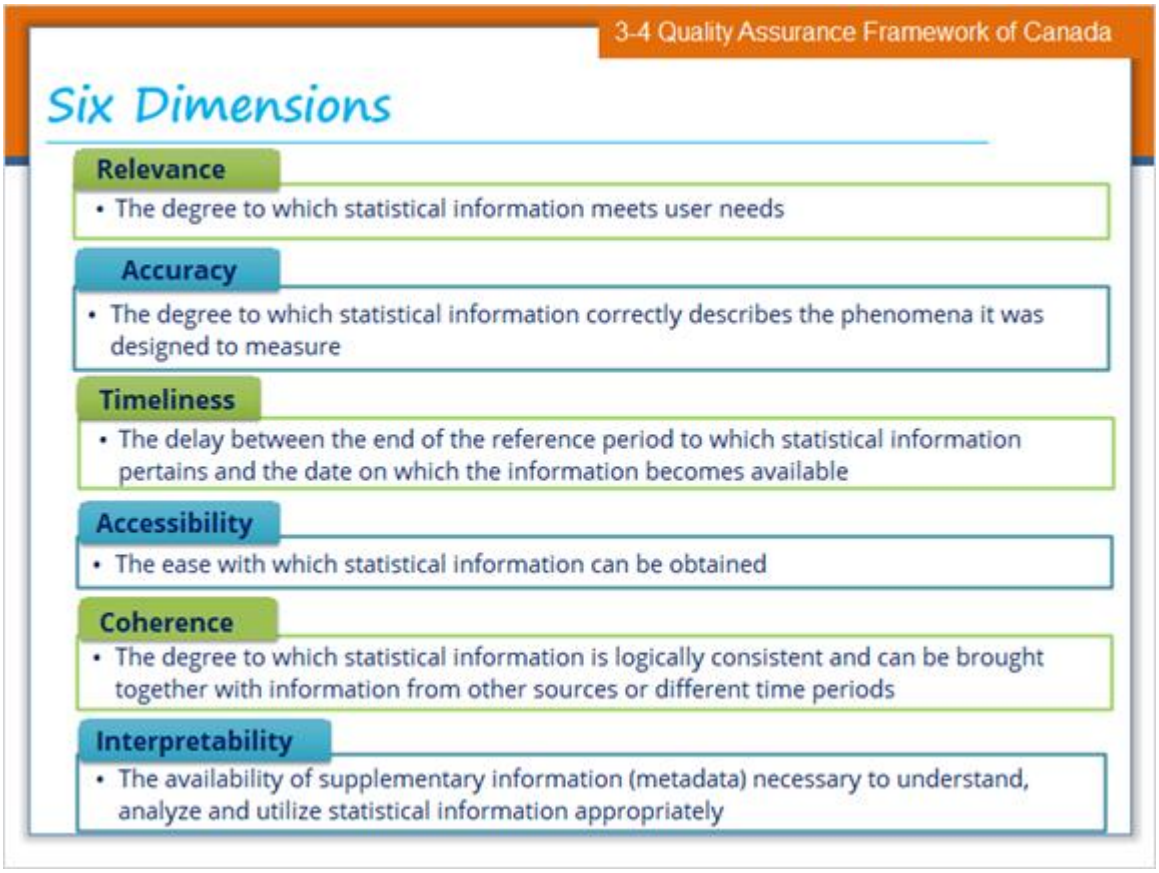
Introduction includes Guiding Principles, Background to the QAF and Organization of the QAF.

The Corporate Environment explains quality commitment, sound implementation of statistical methods, and assurance of confidentiality, privacy and security.

The Statistical Program depicts management of input data and relations with data providers, allocation and management of resources, and management of relations with data users and stakeholders.

Statistical Outputs elaborate on the six dimensions.

3.22 Six Dimensions



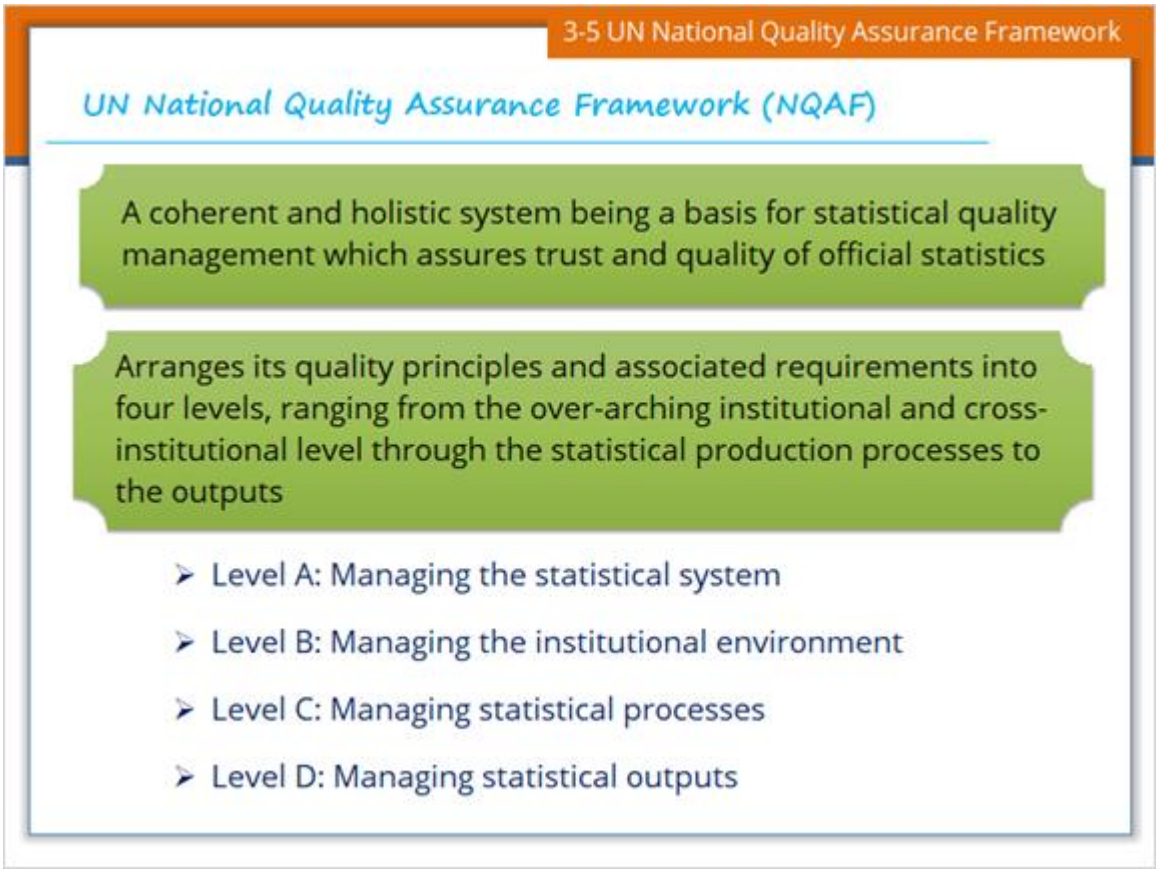
Notes:

Statistics Canada has identified six dimensions of statistical information to define its quality and evaluate its fitness for use.

3.23 3-5 UN National Quality Assurance Framework

Notes:

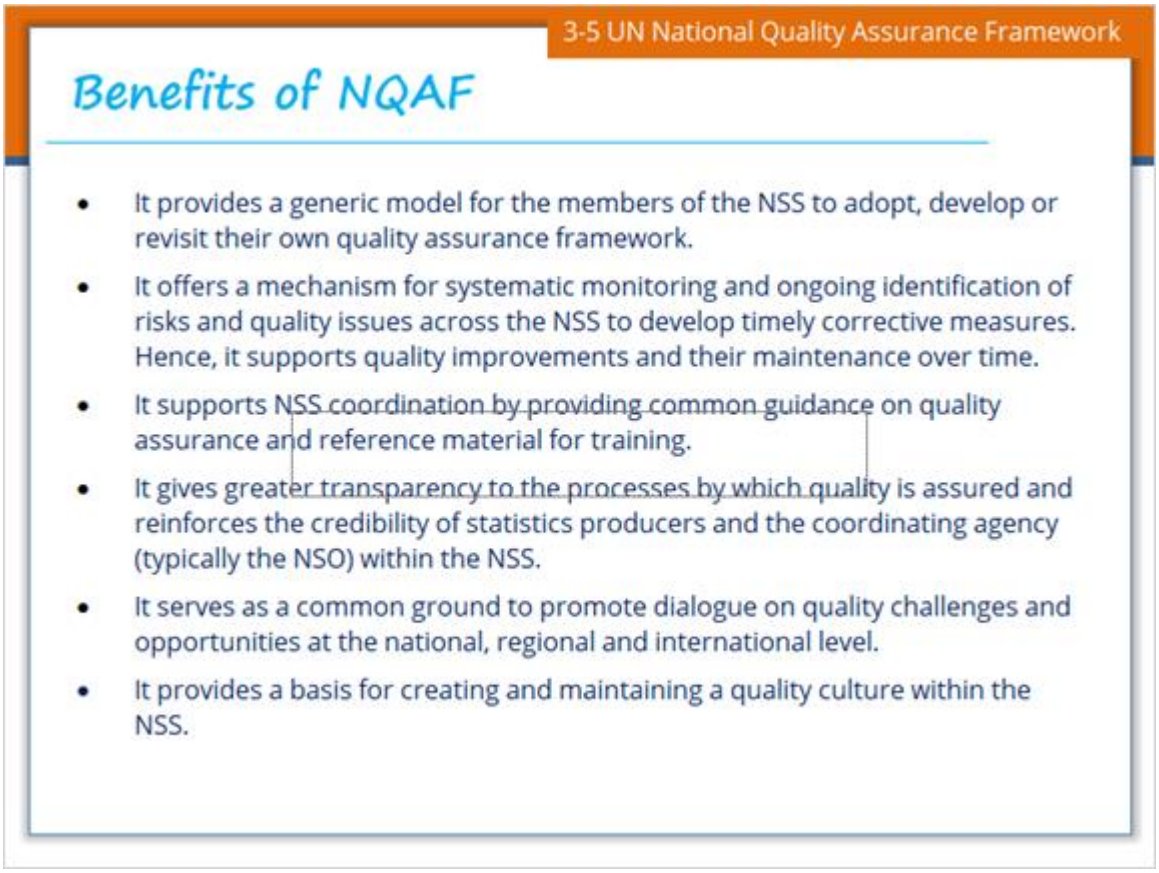
3.24 UN National Quality Assurance Framework (NQAF)



Notes:

UN NQAF is a coherent and holistic system being a basis for statistical quality management in the statistical system, the institutional environment, statistical processes and statistical outputs.

3.25 Benefits of NQAF



Notes:

The main benefits of having NQAF for official statistics are as in the slide.

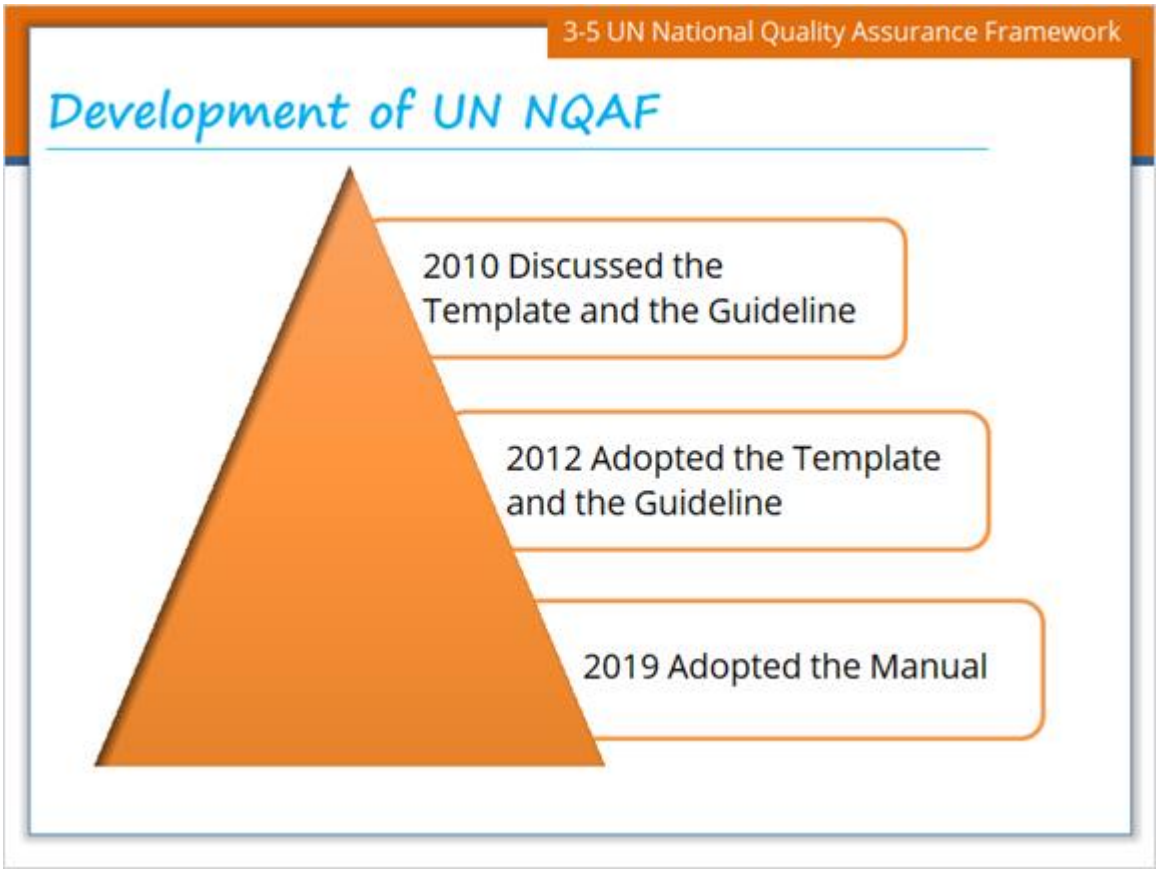
3.26 High-quality Data for SDGs

Notes:

Quality of statistics is also important for SDGs.

UN General Assembly Resolution for SDG monitoring in 2015 stressed follow-up and review processes at all levels will be informed by data which is high-quality. Thus, high quality data are significant for compiling and monitoring SDGs.

3.27 Development of UN NQAF



Notes:

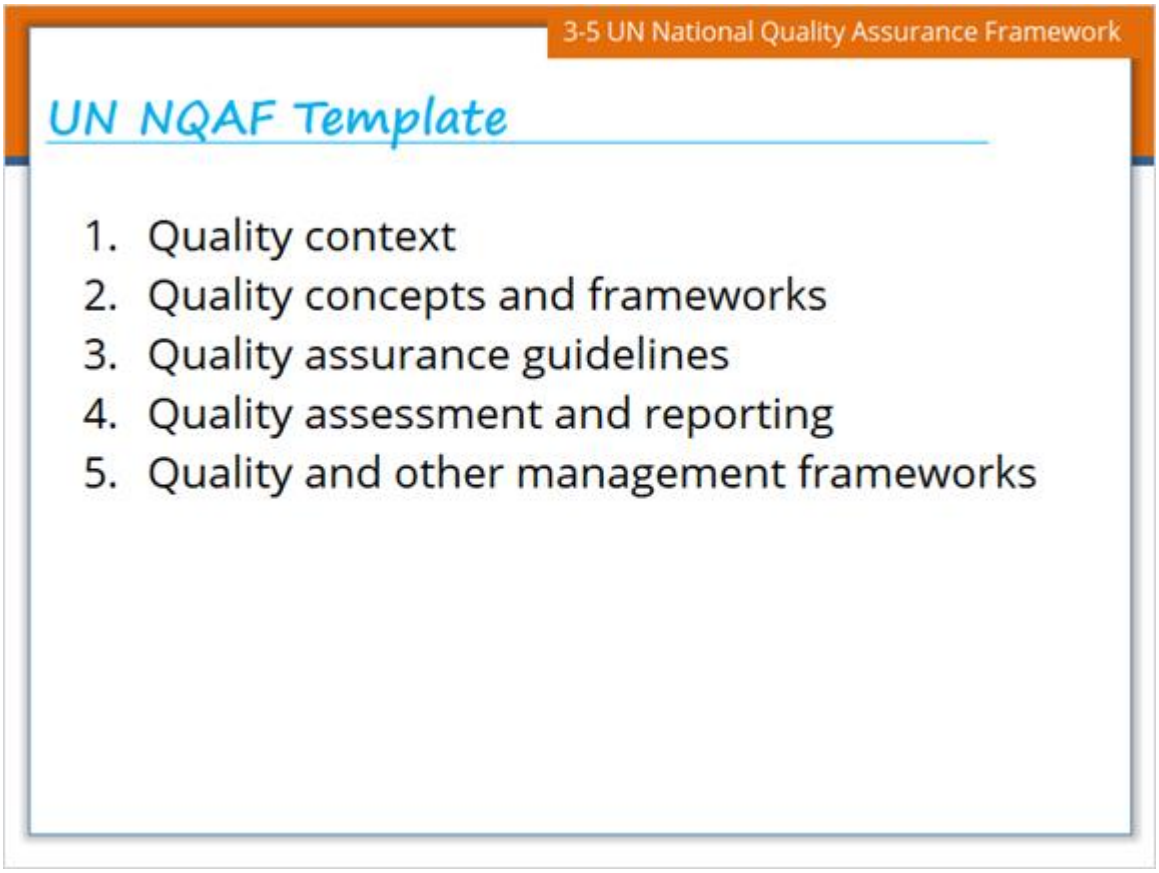
The slide recapitulates the development of UN NQAF in 2010s.

The UN Statistical Commission discussed in 2010 and adopted in 2012 the generic National Quality Assurance Framework (NQAF) template with its guideline. The template is intended to be used as a tool to provide a general structure within which countries that choose to do so can formulate and operationalize national quality frameworks of their own or further enhance existing ones.

The template and guideline were reviewed and amended as necessary to reflect the emergence of an enlarged data ecosystem with potential new data sources, data providers, new technologies and methods, such as earth observation/remote sensing and big data. The structure of the UN NQAF template had not been changed for reasons of continuity and to facilitate comparisons.

In 2019 the Statistical Commission welcomed and adopted the UN NQAF Manual. The UN NQAF Manual builds on and replaces the generic UN NQAF template and guideline.

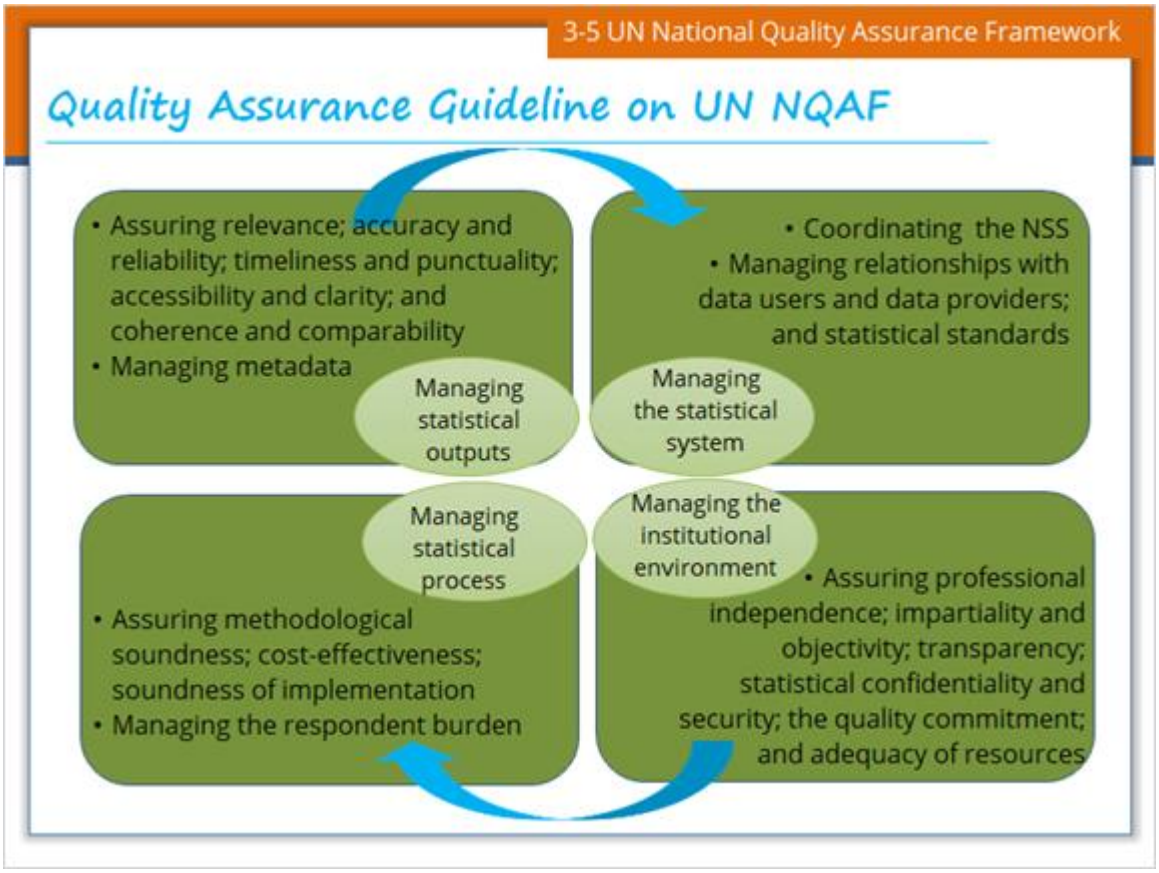
3.28 UN NQAF Template



Notes:

It should be understood that the application or implementation of the NQAF template was intended to be voluntary; the template was not meant to be prescriptive or viewed as a recommended replacement for other quality frameworks already adopted or in use by a country's NSO. The NQAF template was intended to be a tool to provide the general structure within which individual country-specific NQAFs can be developed by countries that choose to do so. Needless to say, the components of the template that may be most applicable to one country might be quite different for another country, depending upon aspects such as its stage of development, available resources, the institutional environment within which it operates, and its current most pressing concerns from a quality perspective.

3.29 Quality Assurance Guideline on UN NQAF



Notes:

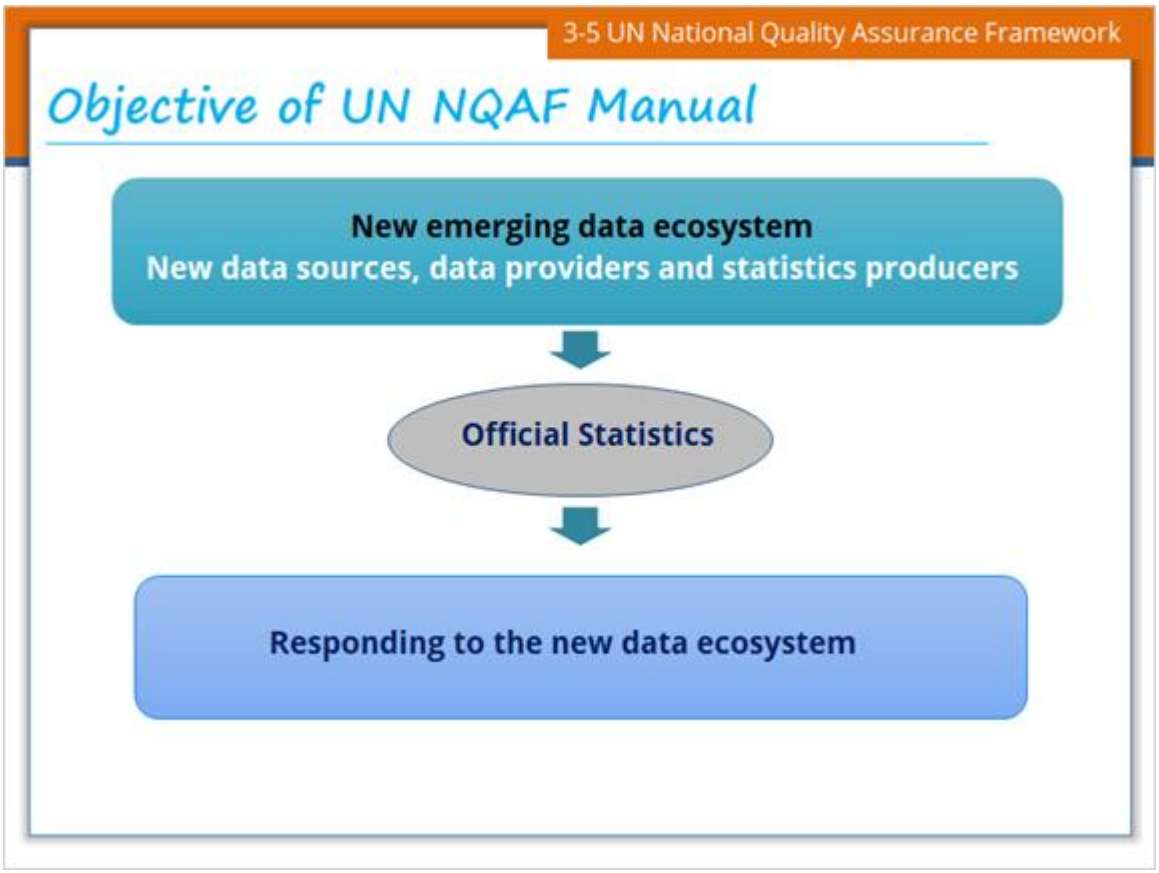
It is envisaged that the NQAF guidelines will contain real examples drawn from quality frameworks and assessments used by NSOs to illustrate the possible content of a framework. The content may vary considerably from one statistical office to another, depending upon its stage of development, its resources, the environment within which it operates and its current concerns from the quality perspective. For instance, the need for improvement in legislation might be a major issue affecting quality in one statistical office but not in another. This example serves to illustrate why a generic template for a NQAF with guidelines is a more realistic option than attempting to create a generic framework.

The guidelines for a NQAF should also provide guidance on how it can be operationalized, for example, ensuring the commitment of senior management, viewing a framework as a long-term commitment (an ongoing programme not a project), defining roles and responsibilities, setting quality targets and making quality tools readily available. In addition, to be of continuing use, national frameworks should be revised periodically to reflect newly arising quality concerns.

This slide contains the individual guidelines of the template, broken down into

subsections: Managing the statistical system; Managing the institutional environment; Managing statistical processes; and Managing statistical outputs.

3.30 Objective of UN NQAF Manual

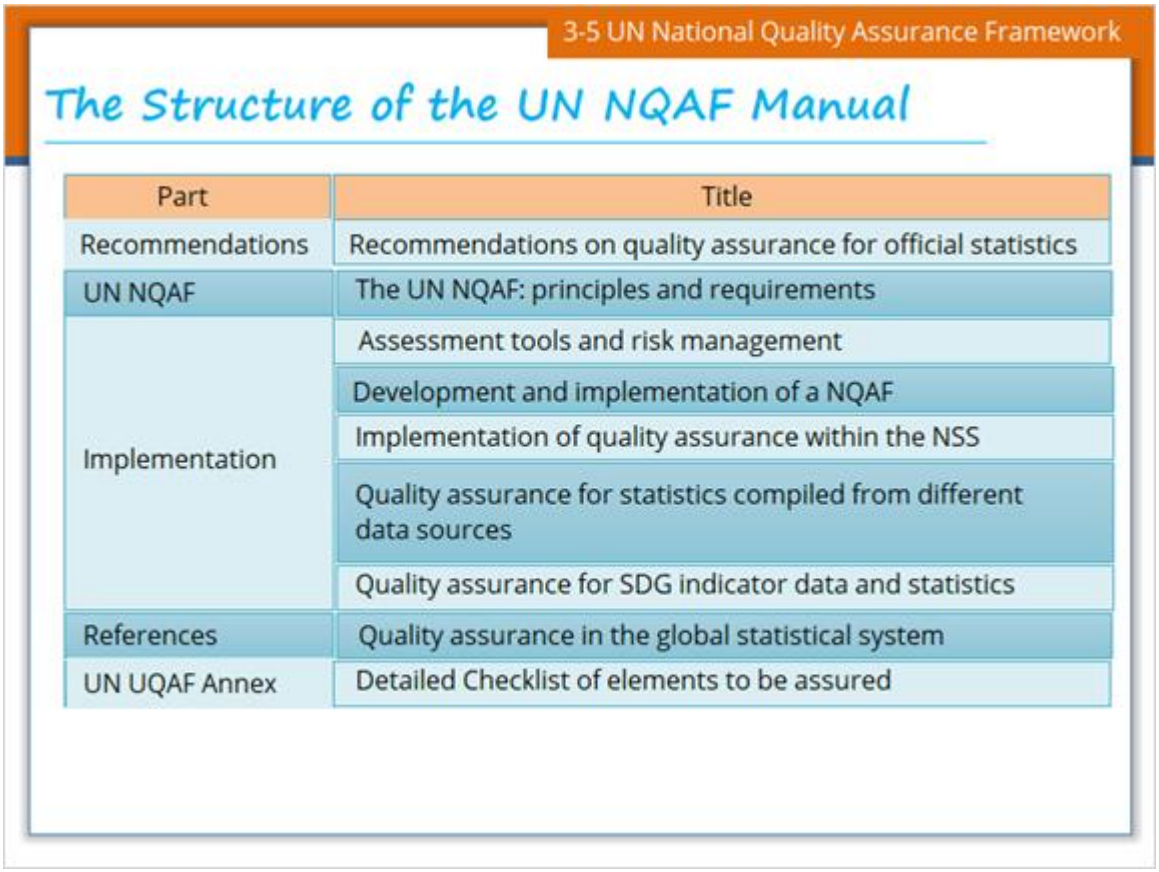


Notes:

The objective of the UN NQAF Manual is influenced by the change from the adoption of the template and guideline, highlighting SDGs.

New data sources, data providers and statistics producers are emerging fueled by technological advances and new demands for detailed and timely data for policy making in the context of the 2030 Agenda for sustainable development. This new emerging data ecosystem poses challenges and opportunities for official statistics. For example, in the future, NSOs may see their role in producing data for official statistics diminished while adopting a new role as curator of data and statistics produced by others. This Manual provides guidance for developing and implementing a NQAF and aims at addressing quality assurance in different circumstances and situations, hereby supporting countries in safeguarding the role of official statistics as a trusted source of information in a changing environment.

3.31 The Structure of the UN NQAF Manual

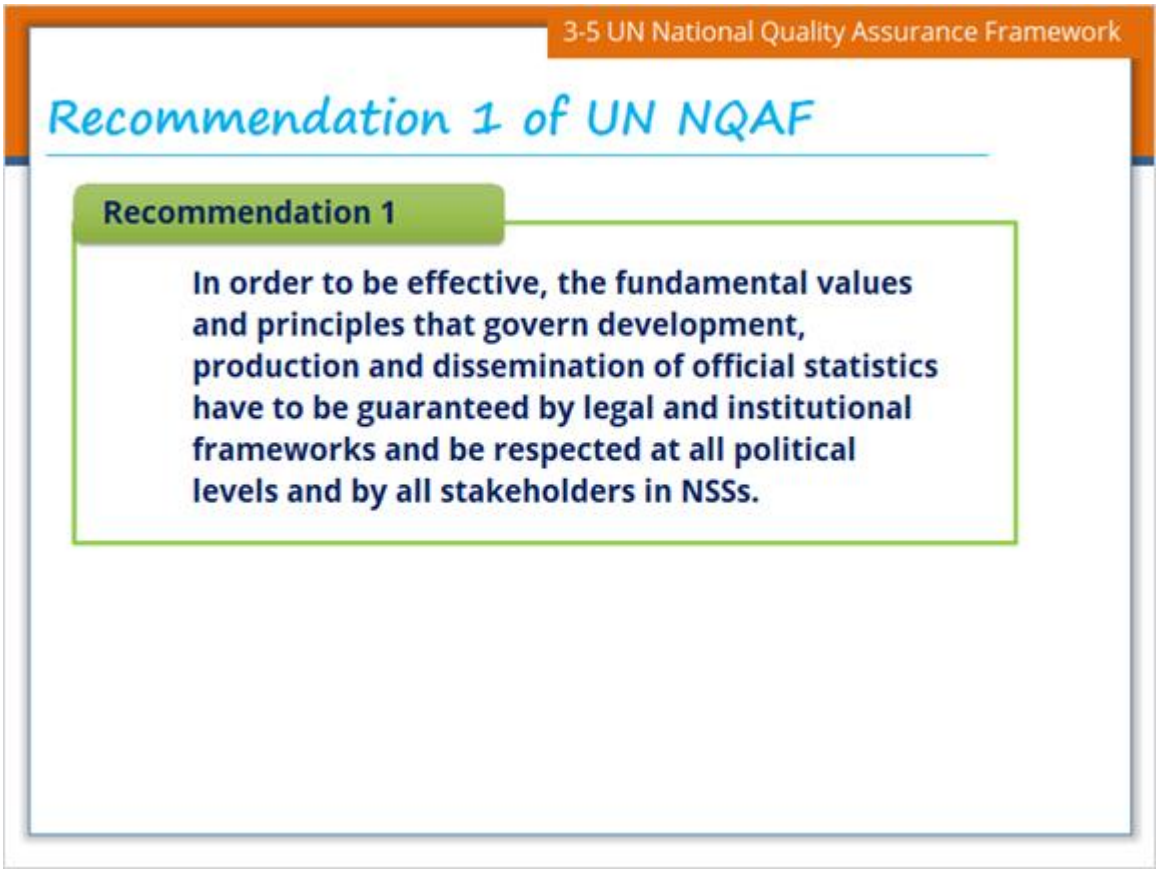


Notes:

The UN NQAF Manual contains recommendations, the updated UN NQAF and practical guidance for its implementation.

Principles are set in each of the four Levels: Level A: Managing the statistical system, Level B: Managing the institutional environment, Level C: Managing statistical processes, and Level D: Managing statistical outputs, mentioned before in this lesson. Principles are broken down into requirements.

3.32 Recommendation 1 of UN NQAF

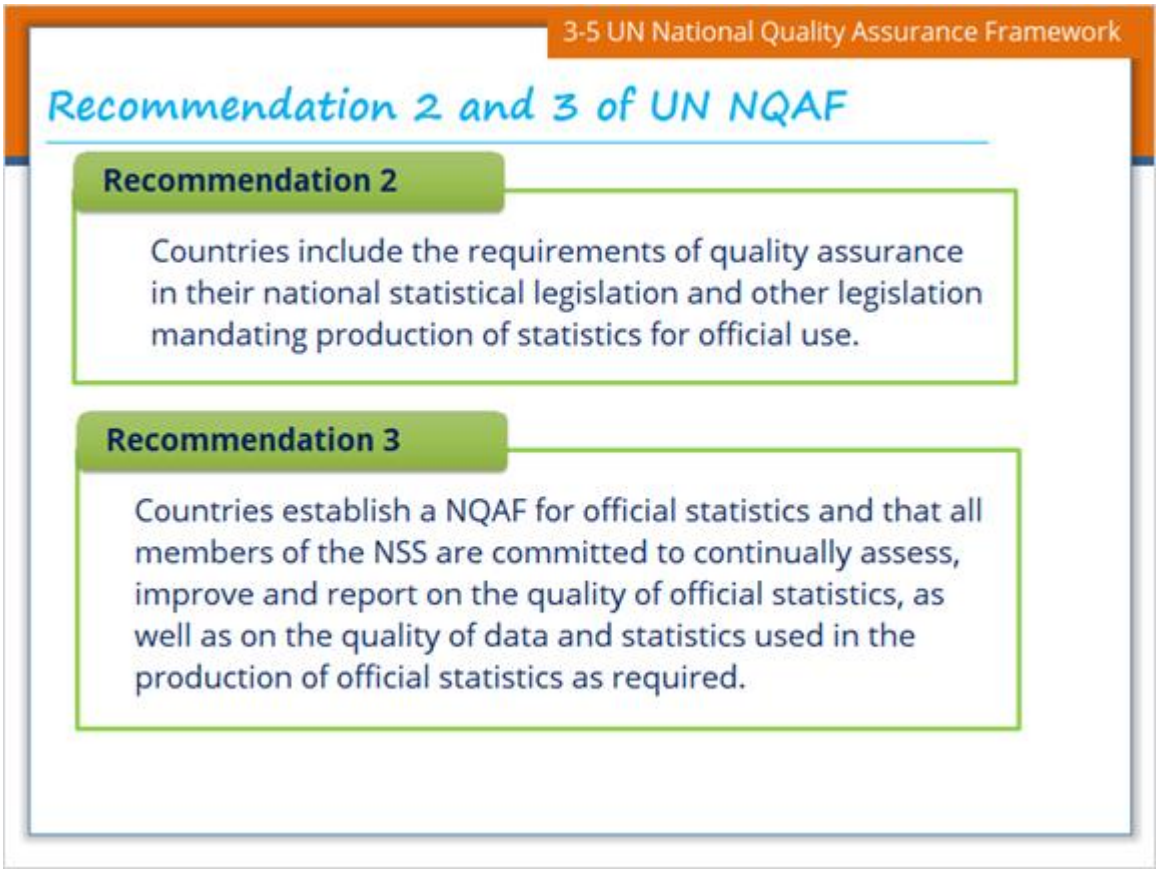


Notes:

The recommendations establish UN recommendations on statistical quality assurance based on the 10 principles of the Fundamental Principles of Official Statistics and related existing guidance. The recommendations are meant to guide and support the NSO and other members of the NSS in assuring the availability and quality of official statistics produced throughout the NSS by a multitude of statistics producers.

Recommendation 1, together with recommendations 2 to 5 form the overarching core recommendations that, if implemented, establish the basis for quality assurance for official statistics in a country. The recommendation 1 is directly derived from the existing two General Assembly resolutions on statistics (General Assembly resolution A/RES/68/261 on the Fundamental Principles of Official Statistics and General Assembly resolution A/RES/71/313 on the Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development).

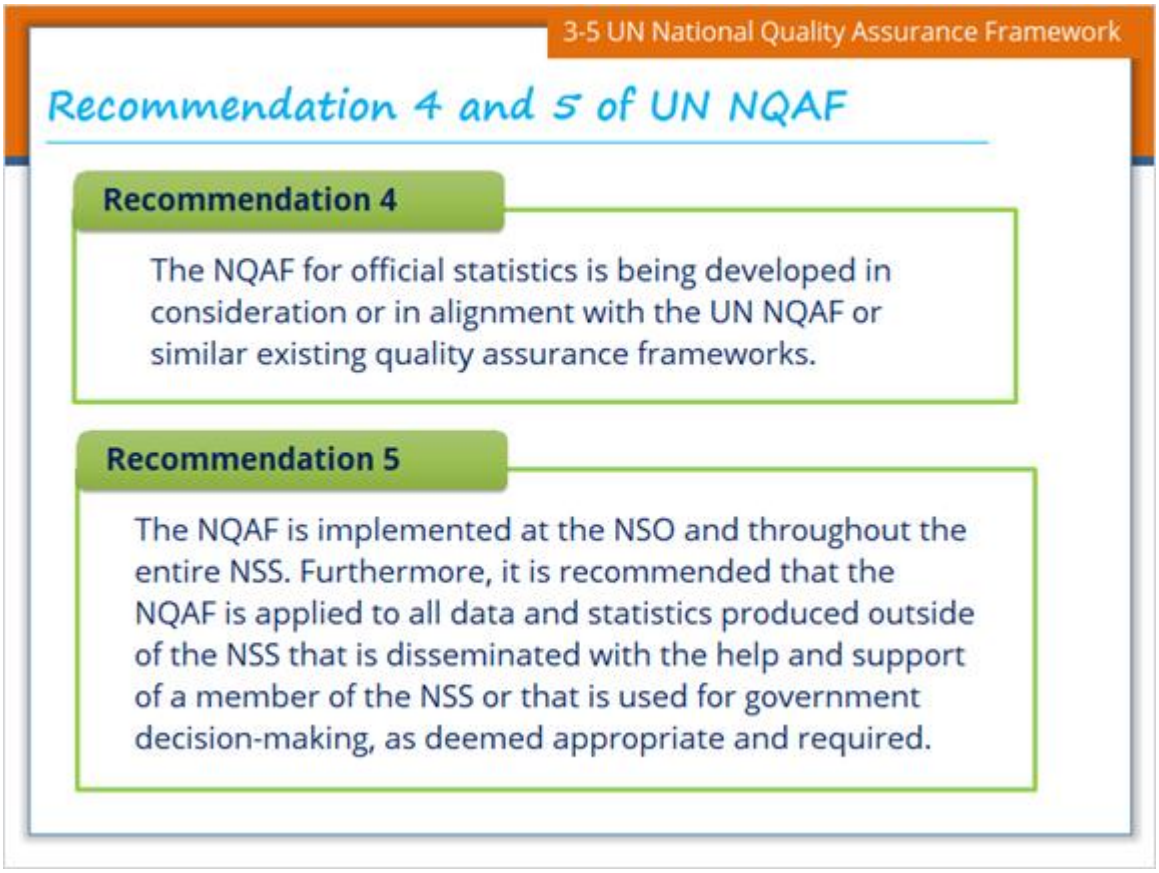
3.33 Recommendation 2 and 3 of UN NQAF



Notes:

Recommendations 2 and 3 were also derived from Principle 1 of the Fundamental Principles of Official Statistics.

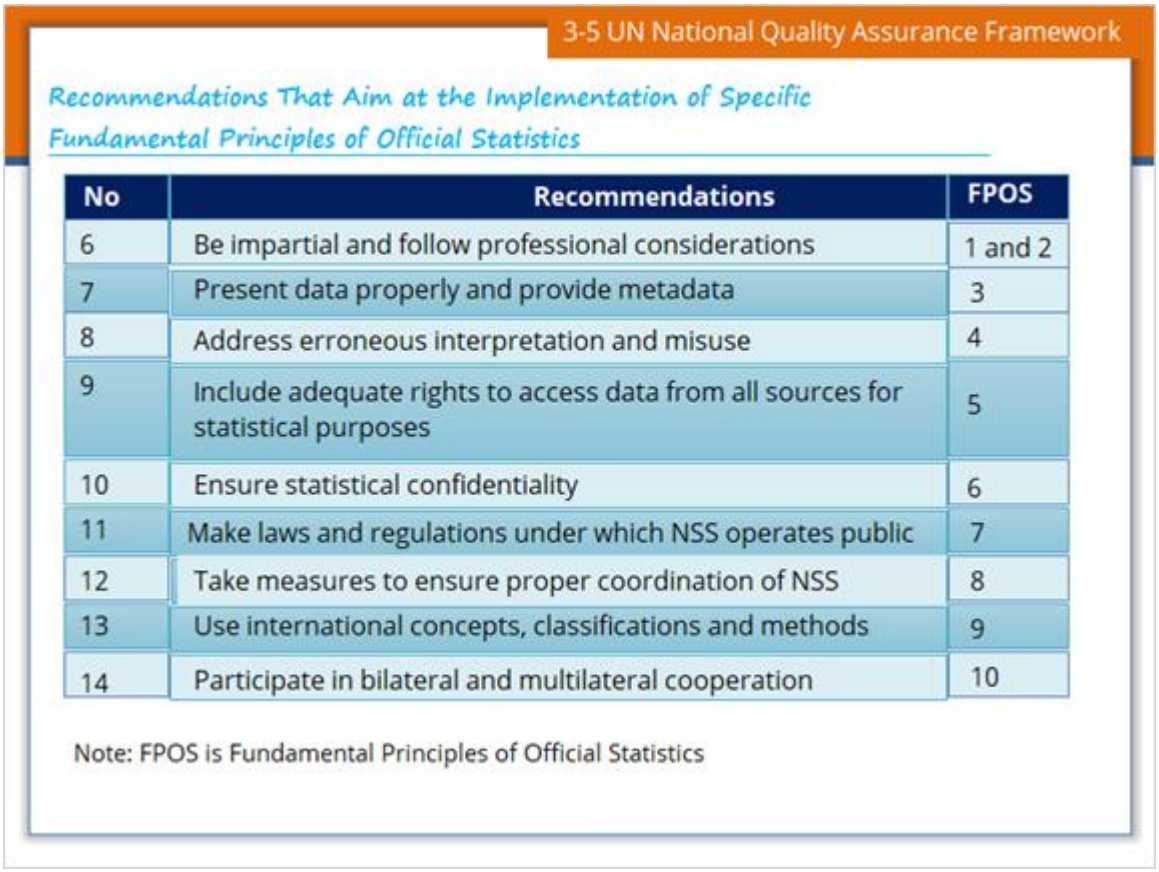
3.34 Recommendation 4 and 5 of UN NQAF



Notes:

Recommendation 4 was derived from Principle 1 and Principle 2 of the Fundamental Principles of Official Statistics. The NQAF is implemented at the NSO and throughout the entire NSS, and is recommended that the NQAF is applied to all data and statistics produced outside of the NSS

3.35 Recommendations That Aim at the Implementation of Specific Fundamental Principles of Official Statistics

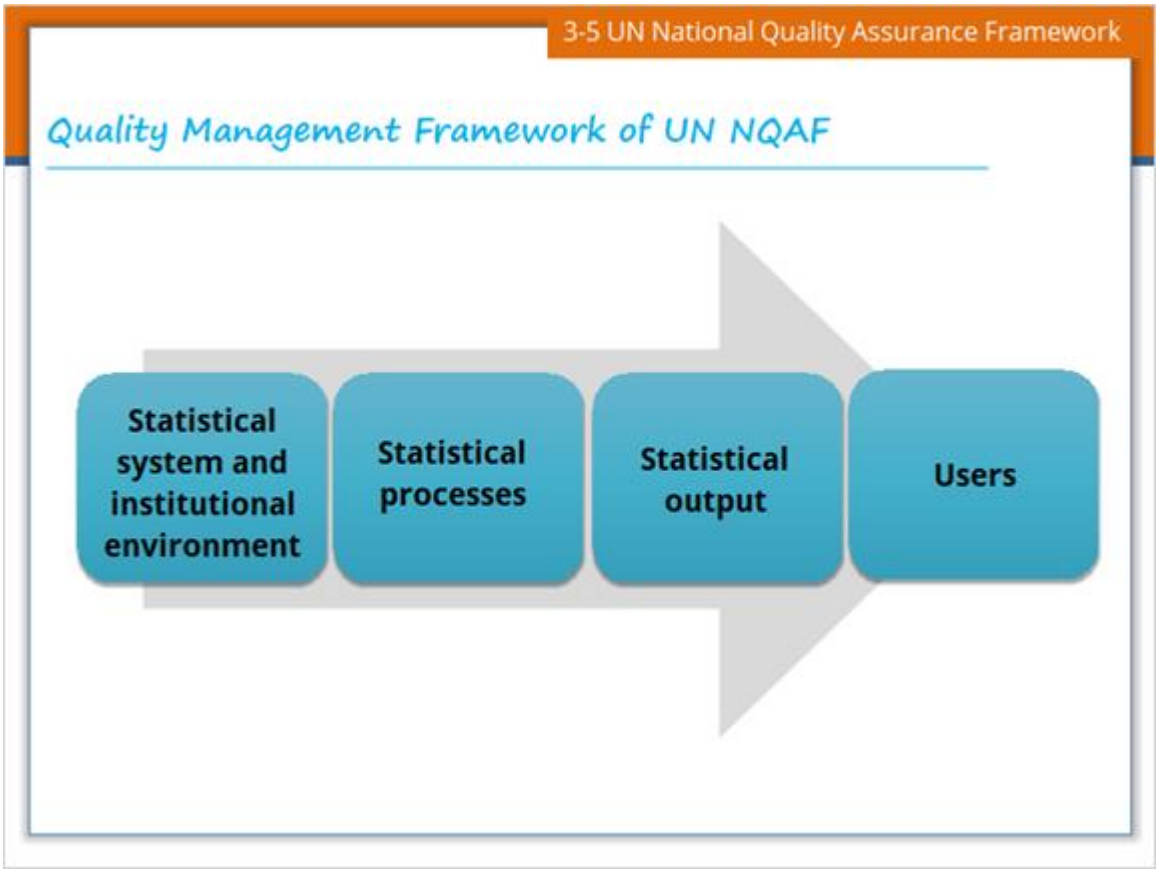


Notes:

The following recommendations in the slide provide an interpretation of the Fundamental Principles of Official Statistics to facilitate their implementation and to stress their importance in the context of statistical quality assurance, as the Fundamental Principles of Official Statistics provide the normative basis for official statistics. The recommendations may be incorporated into a country's statistical laws, as appropriate, to assure adherence to the Fundamental Principles of Official Statistics.

Recommendations 6 to 14 are either directly derived from one or two Fundamental Principles of Official Statistics or a repetition of one of its principles. The Fundamental Principles of Official Statistics and the associated recommendations support specific principles contained in the UN NQAF and give them an obligatory character.

3.36 Quality Management Framework of UN NQAF

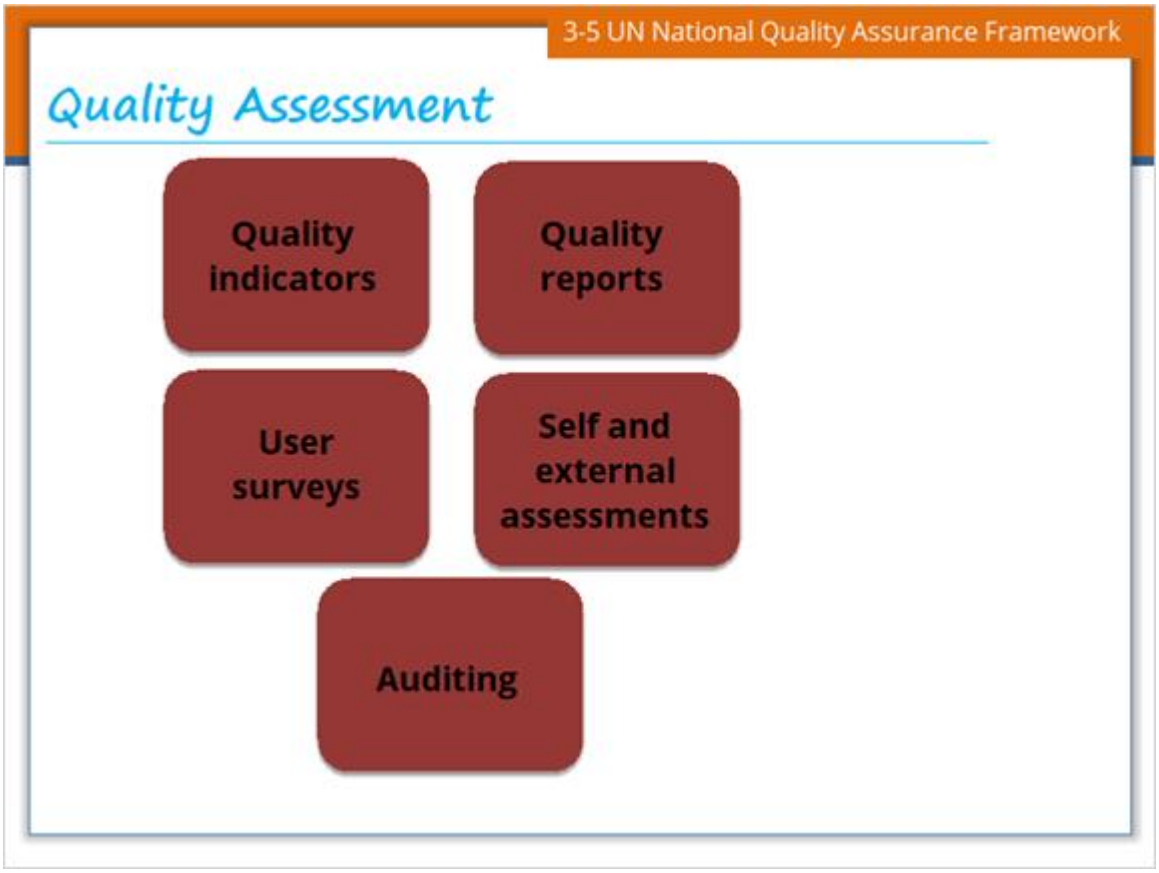


Notes:

UN NQAF was developed based on the existing statistical quality frameworks. It follows the holistic model of quality management, starting from the statistical system and institutional environment, and covering statistical processes and outputs.

The improvement in quality of statistical products requires the improvement of statistical processes. The GSBPM, studied in Lesson 2, describes and defines the set of business processes needed to produce official statistics, and hereby provides a framework for process quality documentation, assessment and improvement. Quality management is defined in the GSBPM as an over-arching process that includes quality assessment and control mechanisms. It recognizes the importance of evaluation and feedback throughout the statistical business process. Metadata management is recognized as another over-arching process that closely links to quality management.

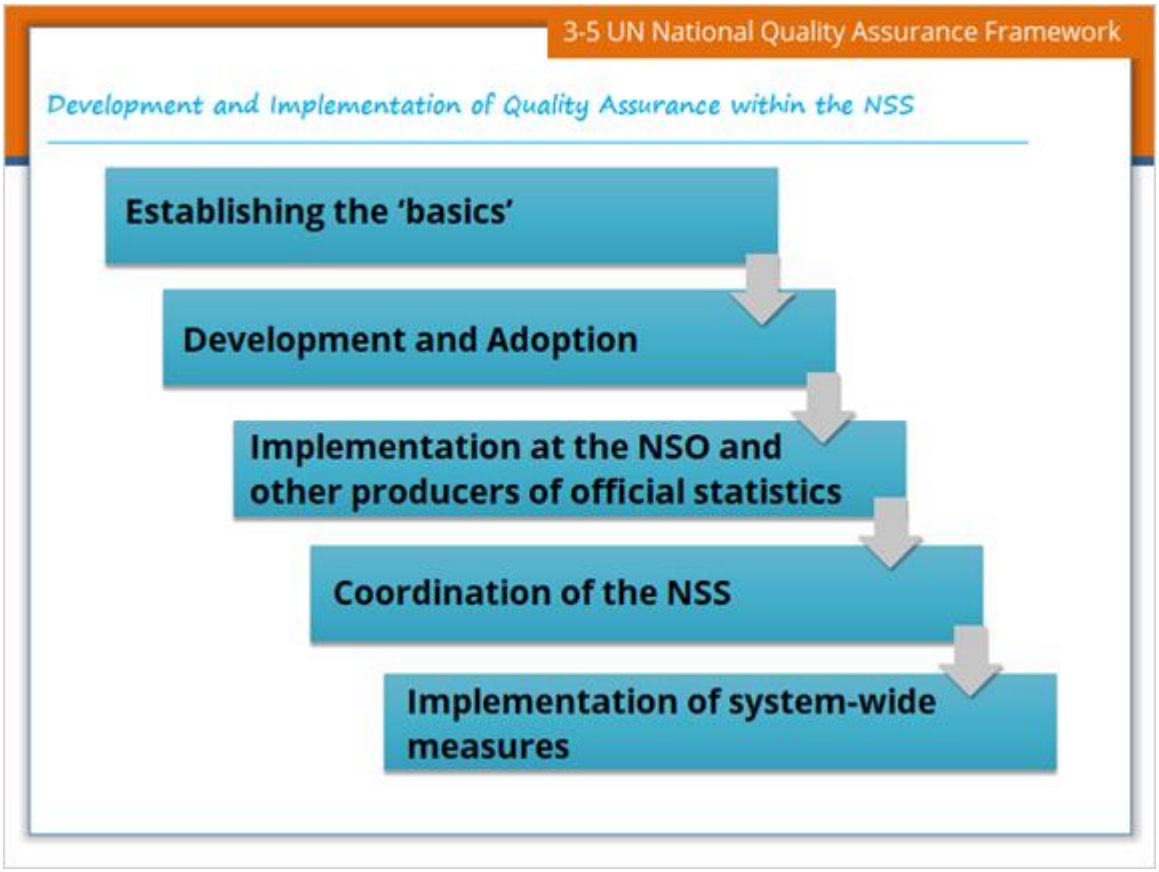
3.37 Quality Assessment



Notes:

Statistical quality assessment is an important part of the overall quality management system of a statistical organization. It frequently focuses on the statistical products and the processes leading to their production but can also encompass the statistical system and institutional environment. Methods and tools for statistical quality assessment comprise quality indicators both for products and processes, quality reports, user surveys, self and external assessments and auditing (internal or external quality reviews), including peer reviews. The assessments may lead to labelling and certification. An efficient and cost-effective use of these methods requires that they are used in combination with each other. For example, quality reports can be the basis for audits and user feedback.

3.38 Development and Implementation of Quality Assurance within the NSS



Notes:

As indicated in the above core recommendations, the NQAF applies to all members of the NSS and all official statistics, including some producers of statistics that may be considered by countries as being outside the NSS. The NSO is normally at the center of the NSS as its coordinator and as a main statistics producer. In this dual role, it is best placed to develop the NQAF, to support its implementation throughout the NSS and its application to all official statistics and, under specific circumstances and in collaboration with other members of the NSS, to non-official statistics.

Subsequently, it is assumed that the NSO is leading the development of NQAF for the entire NSS although specific arrangements in countries may vary. Countries may also decide to initially limit the NQAF implementation to the NSO.

Quality management must be institutionalized. However, the specific institutional arrangements and roles of the quality units, task forces, quality managers, quality champions and focal points, quality networks, etc., that are involved in quality assurance, are expected to evolve over time. The arrangements in countries may consist of a mix of permanent and temporary structures depending on the implementation stage and the

specific objectives. In general, as specific activities become more established, responsibilities may shift from more centralized structures such as quality units and task forces to more decentralized structures consisting of quality focal points and networks.

In most countries there is a central coordination body which is responsible for some or all of the above coordination tasks and additional tasks such as capacity building, regulation and Sustainable Development Goal (SDG) monitoring and reporting. The concrete functions and authority of the central coordination body depends on the level of centralization or decentralization of the NSS. Normally, the NSO has a role in and often the responsibility for the coordination. But depending on the national institutional arrangements, there can be several bodies involved in the coordination of different aspects of the NSS supporting and complementing the NSO or a central coordination body such as an NSS-wide governance body and NSS-wide advisory body and/or user committee.

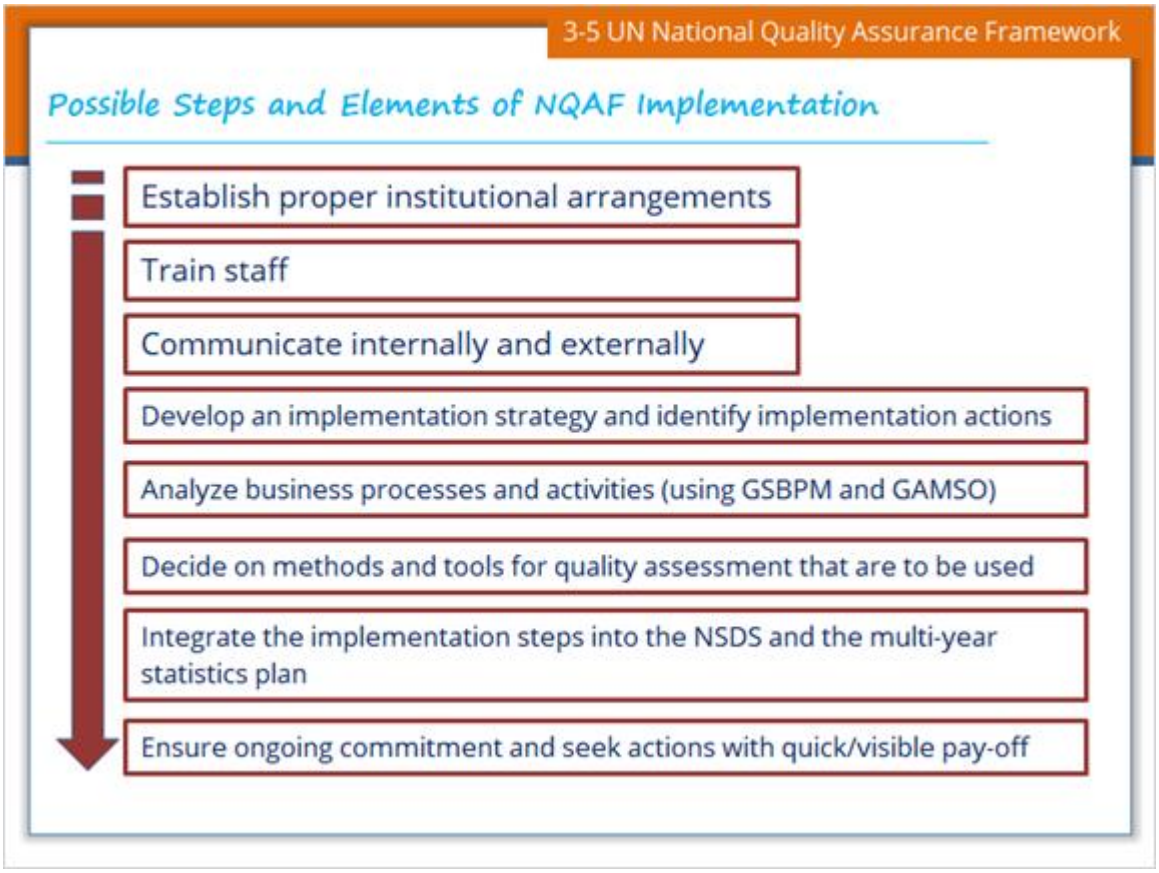
Coordination in general, including the coordination of activities concerning quality assurance, becomes difficult if clarity on some of these conditions is not sufficient. Therefore, the process of adoption and implementation of the NQAF should be preceded by a review of the adequacy of the statistical laws or legal framework and its functioning in practice. If necessary, proposals should be made to amend the statistical laws and the legal framework. The clarity of the legislation is a necessary condition but may not be sufficient as the concrete coordination arrangements also depend on a country institutional setup or other circumstances present in a country.

Many countries have NQAFs that go beyond general principles and include country-specific quality considerations.

Quality is typically considered a multi-dimensional concept - in other words, there are many different aspects of quality, such as relevance, timeliness and accuracy.

Quality assurance involves all phases of the statistical production process.

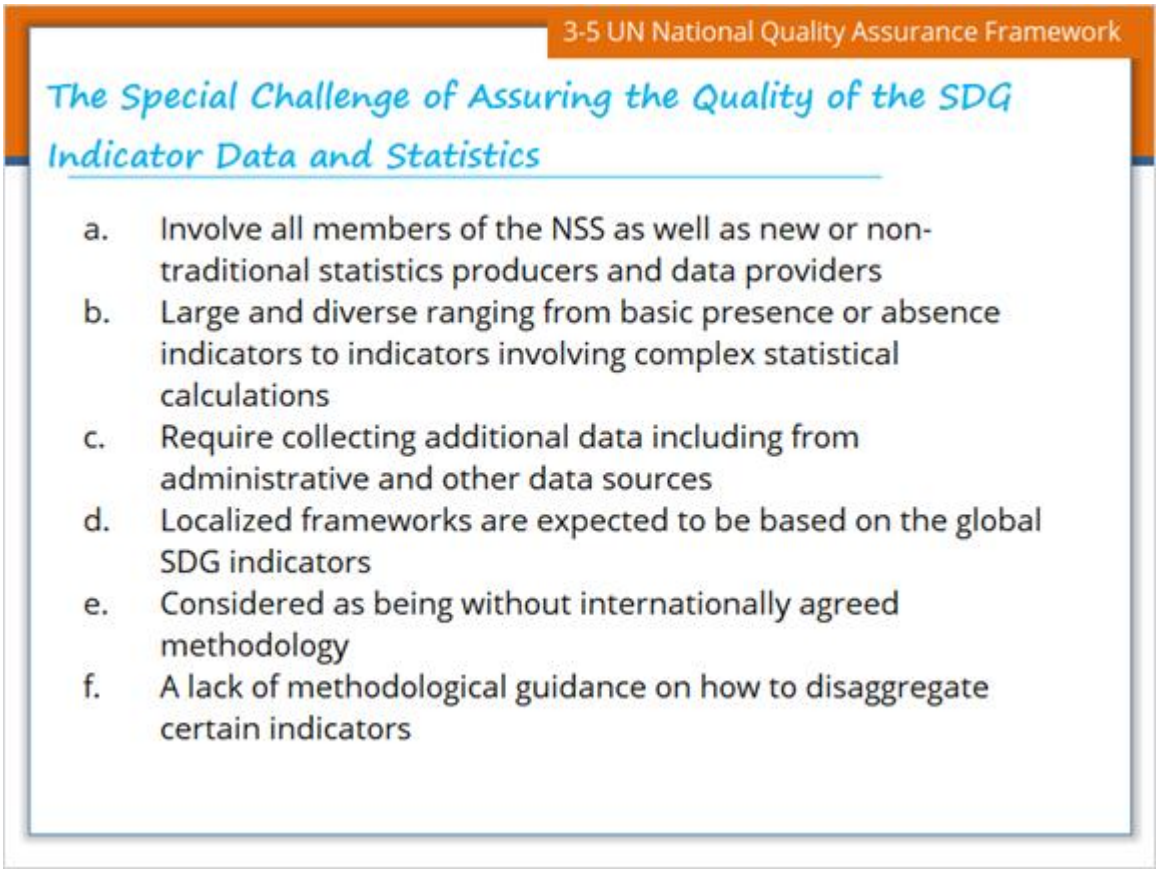
3.39 Possible Steps and Elements of NQAF Implementation



Notes:

Countries may wish to build on already existing quality management tools and guidelines when implementing NQAF. The slide provides a brief summary and a flow sequence of possible steps and elements for the implementation of a NQAF.

3.40 The Special Challenge of Assuring the Quality of the SDG Indicator Data and Statistics



Notes:

The following factors characterize the special challenge of assuring the quality of the indicator data and statistics for the monitoring of the SDGs:

a.The production of the SDG indicators is a task that may involve all members of the NSS as well as new or non-traditional statistics producers and data providers;

b.The set of identified global SDG indicators is large and diverse ranging from basic presence or absence indicators (e.g. presence or absence of a certain regulation) to indicators involving complex statistical calculations;

c.While some indicators are already calculated, others will require collecting additional data including from administrative and other data sources;

d.Countries are establishing their own national indicator frameworks according to their national circumstances and priorities; these localized frameworks are expected to be based on the global SDG indicators, containing some (or many) but not all global indicators and additional national indicators. Furthermore, countries

will utilize different types of proxy indicators, which provide indirect or partial measures of the phenomena which the global indicators cover;

e. The global SDG indicators when adopted in 2017 were at different stages of methodological development with many global indicators considered as being without any internationally agreed methodology. There was also an initial lack of compilation guidance aside from the general challenge for countries to understand and compile data for indicators that are new and have not been compiled before;

f. The disaggregation of the global SDG indicators is a major challenge for countries. However, as by the end of 2018, there has been a lack of methodological guidance on how to disaggregate certain indicators. Also, given that countries have different needs, there is a lack of guidance on which disaggregation should be provided on a priority basis across countries in support of global and regional reporting beyond what is reflected in the indicator titles and target names.

3.41 3-6 Communication

Notes:

3.42 Statistical Offices and Stakeholders

Notes:

A ‘stakeholder’ is a person or company that is involved in a particular organization, project, system, etc., especially because they have invested money in it according to the Oxford Advanced Learner’s Dictionary. For official statistics, stakeholders do not always invest money at least directly, and include users such as foreign citizens and international staff.

Statistics Canada describes Statistics Canada's stakeholders include the Canadian public and media, government, business and labour unions, the academic sector, foreign and international bodies, and other client groups.

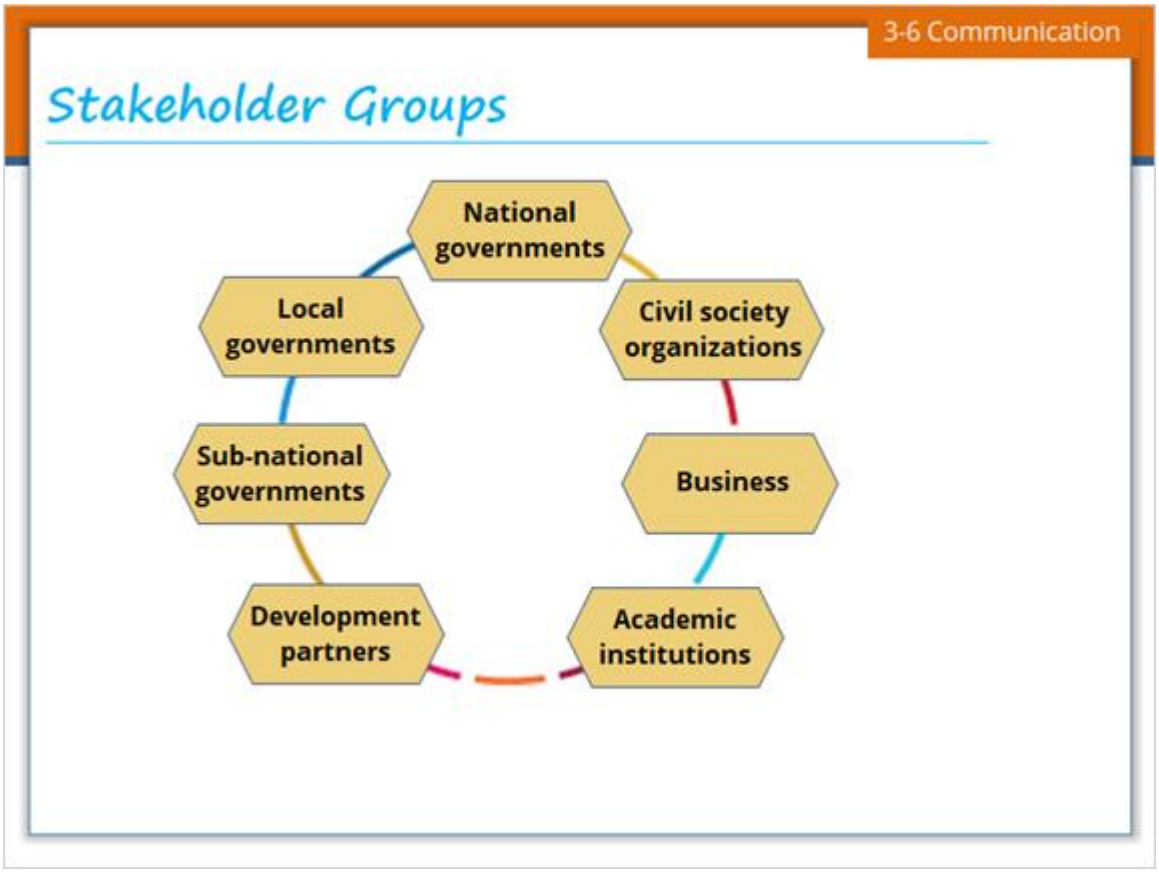
Stakeholders cooperate planning, funding, coordinating, compiling and monitoring statistics for statistical providers, i.e., statistical offices.

Statistical offices provide statistics as evidences for stakeholders to decide their actions,

comments or mind.

In these ways, the relationship between statistical offices and stakeholders is mutual and brings win-win benefits.

3.43 Stakeholder Groups



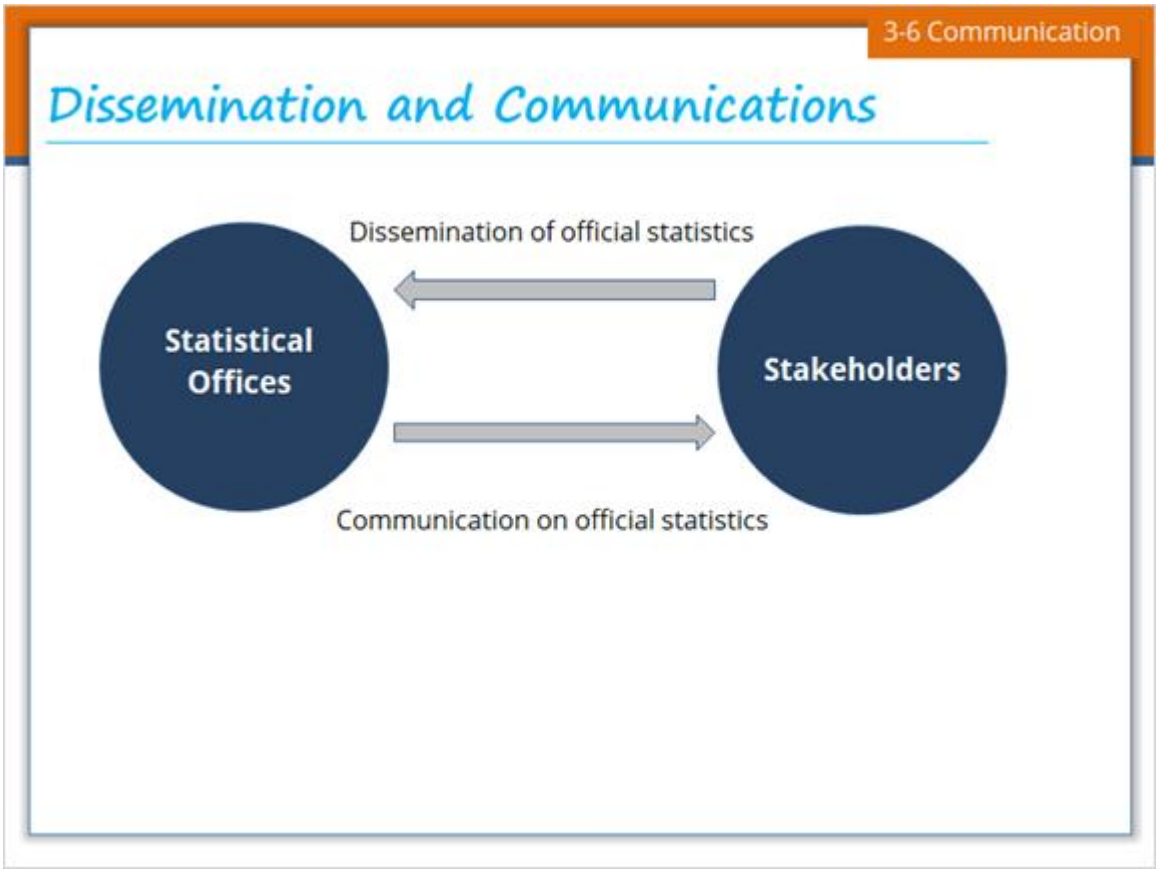
Notes:

The groups shown on the slide is a general list of the main actors at the national level. The list also includes specific stakeholder groups that play an important role in urban and regional development.

Examples of the national governments are professional staff with ministries, representatives from governments and municipalities. Civil society organizations include non-government organizations, indigenous people's organizations, faith-based organizations, social movements, and community-based organizations, business including business leaders, chambers of commerce and industry, cooperatives and unions, economic development corporations, and manufacturers. Main academic institutions are national Sustainable Development Solutions Networks (SDSNs), universities, technical institutions, research centers, national academies, and schools of

urban planning, social sciences, and public policy. SDSNs mobilizes global scientific and technological expertise to promote practical solutions for sustainable development, including the implementation of the SDGs and the Paris Climate Agreement. Development partners are exemplified by bilateral and multilateral donors, UN agencies, regional development and central banks, and international institutions such as the World Bank and IMF. Sub-national governments include state/provincial governments or other forms of regional government which are often responsible for urban and local development, local governments including local councils and elected representatives, public utility and service providers, and planning bodies.

3.44 Dissemination and Communications

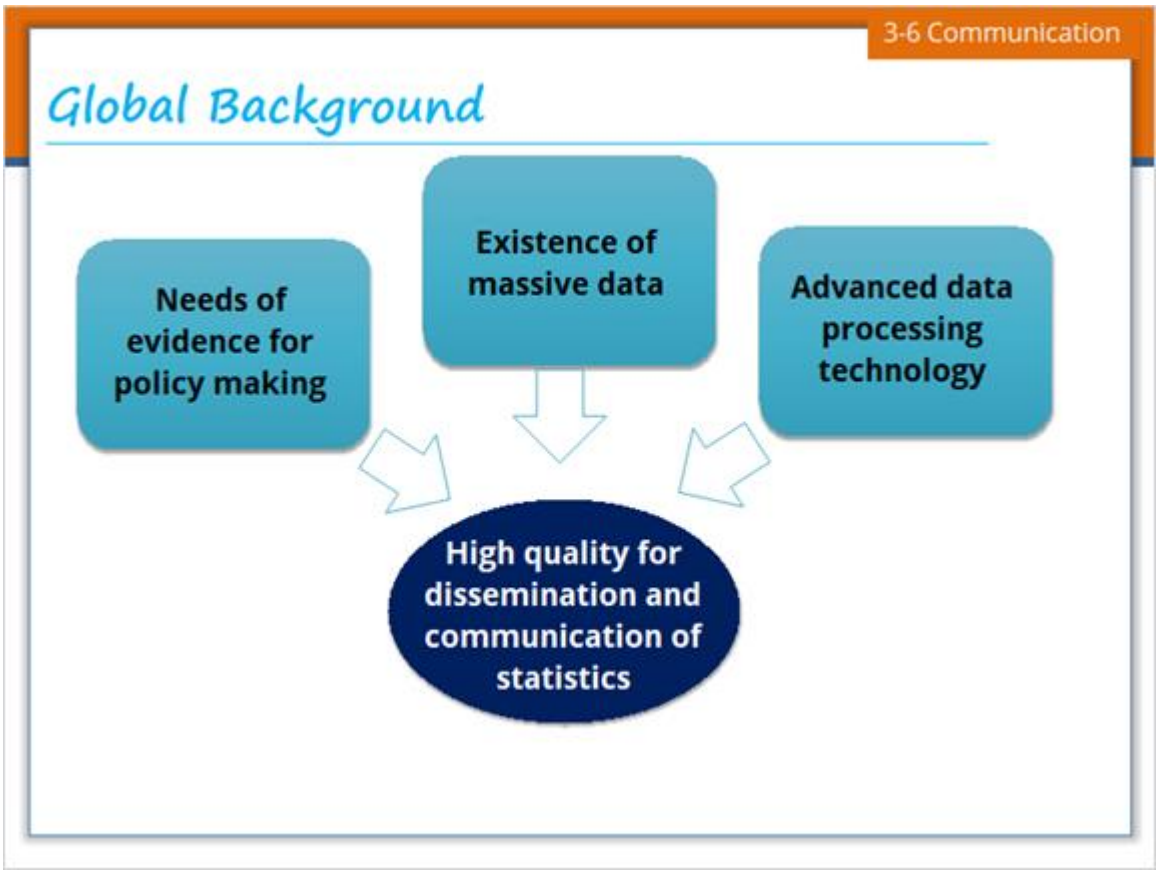


Notes:

Statistical Offices provide the service to disseminate official statistics to stakeholders. Although dissemination is a one-way service, stakeholders can give feedback and comments on the statistics. Statistical offices can show their way of thinking to the comments from stakeholders and develop rational explanations according to Principle 2 of the Fundamental Principles of Official Statistics. These comments would also help statistical offices improve statistics. In these ways, communication is two-way and

important for facilitating mutual understanding between statistical offices and stakeholders.

3.45 Global Background

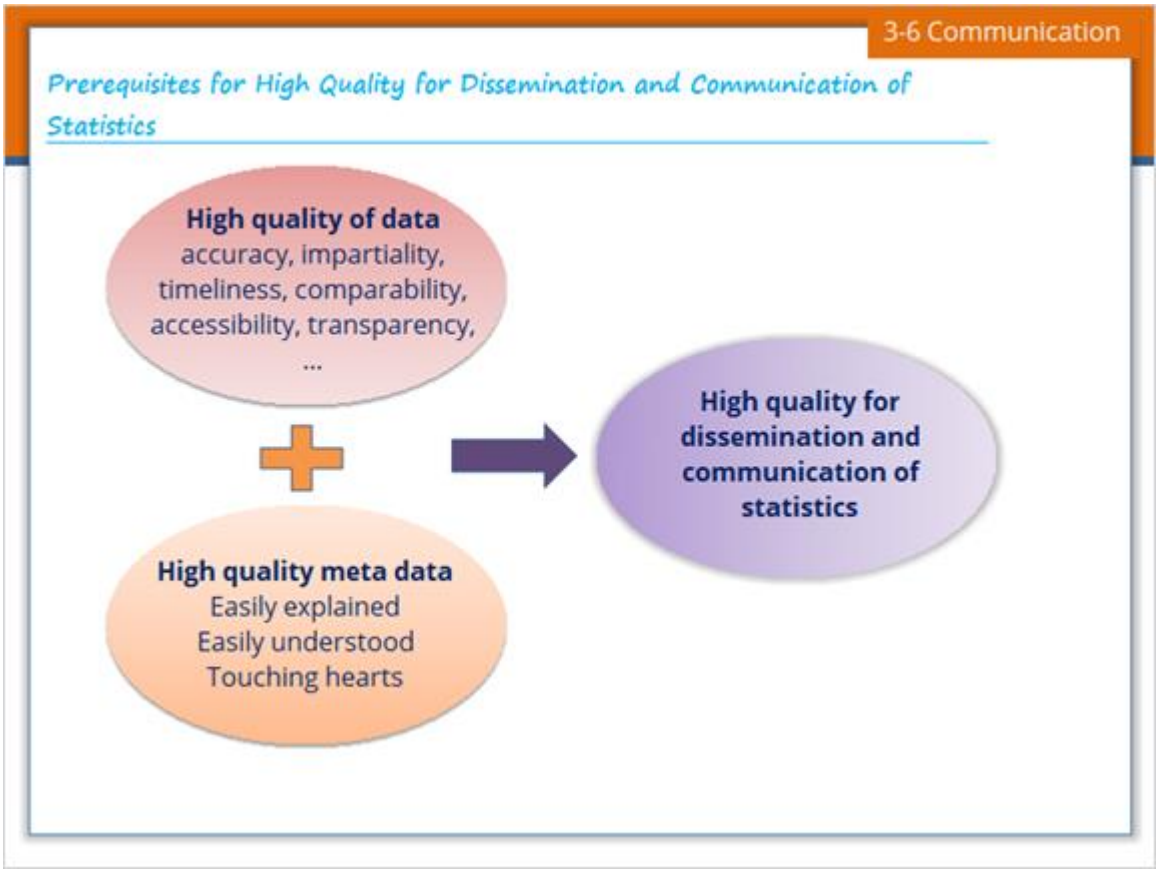


Notes:

At the end of this lesson, it is a good opportunity for you to reflect on the significance of quality in dissemination and communication which is highlighted in some NQAFs.

Dissemination and communication need high quality with the following backgrounds. First, most policies are made impartially based not on intuition but on evidence. Next, with the development of information and technology, massive data such as big data exist. These data can also be processes with advanced technology using statistical software.

3.46 Prerequisites for High Quality for Dissemination and Communication of Statistics

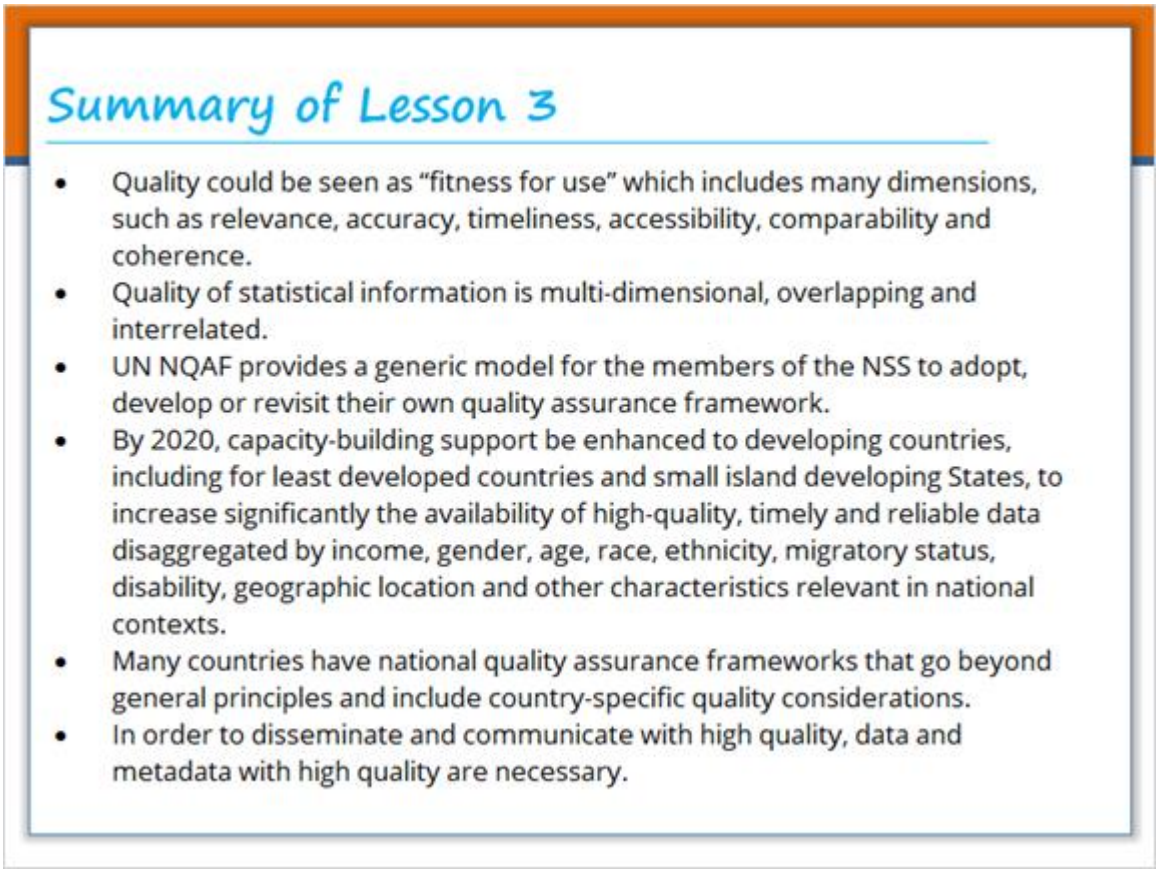


Notes:

In order to disseminate and communicate with high quality, data need high quality such as accuracy, impartiality, timeliness, comparability, accessibility, transparency, etc. In addition, meta data need high quality as well, that is, to be easily explained, easily understood and touching hearts.

This is the end of Lesson 3.

3.47 Summary of Lesson 3



Notes:

3.48 End of Lesson

Notes:

2. Menu

2.1 Menu