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Items for discussion and decision: National quality assurance frameworks

Background document
Available in English only

Roadmap for the implementation of a National Quality Assurance Framework for Official Statistics (Roadmap)

Prepared by the United Nations Expert Group on National Quality Assurance Frameworks

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Why do we need an NQAF?

A National Quality Assurance Framework (NQAF) is a coherent and holistic system for statistical quality management. It is a tool for all working in official statistics:

1. Its objective is to achieve quality improvements at the level of the statistical system, including management, coordination and institutional arrangements, processes and statistical outputs in order to meet user needs.
2. It sets a standard of quality and hereby assures trust in official statistics.

What is the United Nations National Quality Assurance Framework (UN NQAF)?

The UN NQAF is the generic United Nations (UN) national quality assurance framework which is contained in Chapter 3 and the Annex of the UN National Quality Assurance Frameworks Manual for Official Statistics (Manual). The Manual and the recommendations contained therein were adopted by the UN Statistical Commission in March 2019. The UN NQAF consists of principles, requirements and elements to be assured.

The UN NQAF does not aim to replace any of the existing statistical quality assurance frameworks and guidelines for official statistics. Countries and individual producers of official statistics that are already fully engaged in quality assurance and are following one of the existing quality frameworks may view the UN NQAF and the Manual only as an additional reference point that supports what they are already doing, and as a source of information on the application of quality assurance in different situations. In general, all existing quality frameworks for official statistics are based on the UN Fundamental Principles of Official Statistics, and their basic principles are common. If the UN NQAF is introduced, it must be adapted to national conditions.

Who should use this Roadmap?

This Roadmap aims to support statisticians and managers in government statistical services (official statistics) that are tasked with implementing a national quality assurance framework or considering doing so in their own or other statistical organizations.

A national quality assurance framework applies to all members of the national statistical system, which comprises the national statistical office (NSO) and other producers of official statistics (such as statistical units within ministries). Depending on the specific circumstances, the NQAF (or parts of it) can be used by other statistics producers and providers of data that do not produce official statistics and are not part of the national statistical system (NSS).

The Roadmap emphasizes the main steps and tools in the development and implementation of an NQAF. Countries can find themselves at different places on the Roadmap and may find confirmation of the steps already taken. National circumstances are different and flexibility in the processes of establishing an NQAF is necessary.

Are there any references and examples?

This Roadmap is based on chapters 4, 5 and 6 of the Manual. Chapter 4 lists the various tools and instruments for quality assessment and contains a small section on risk management. Chapter 5 is concerned with the development and implementation of an NQAF at the NSO and other statistical
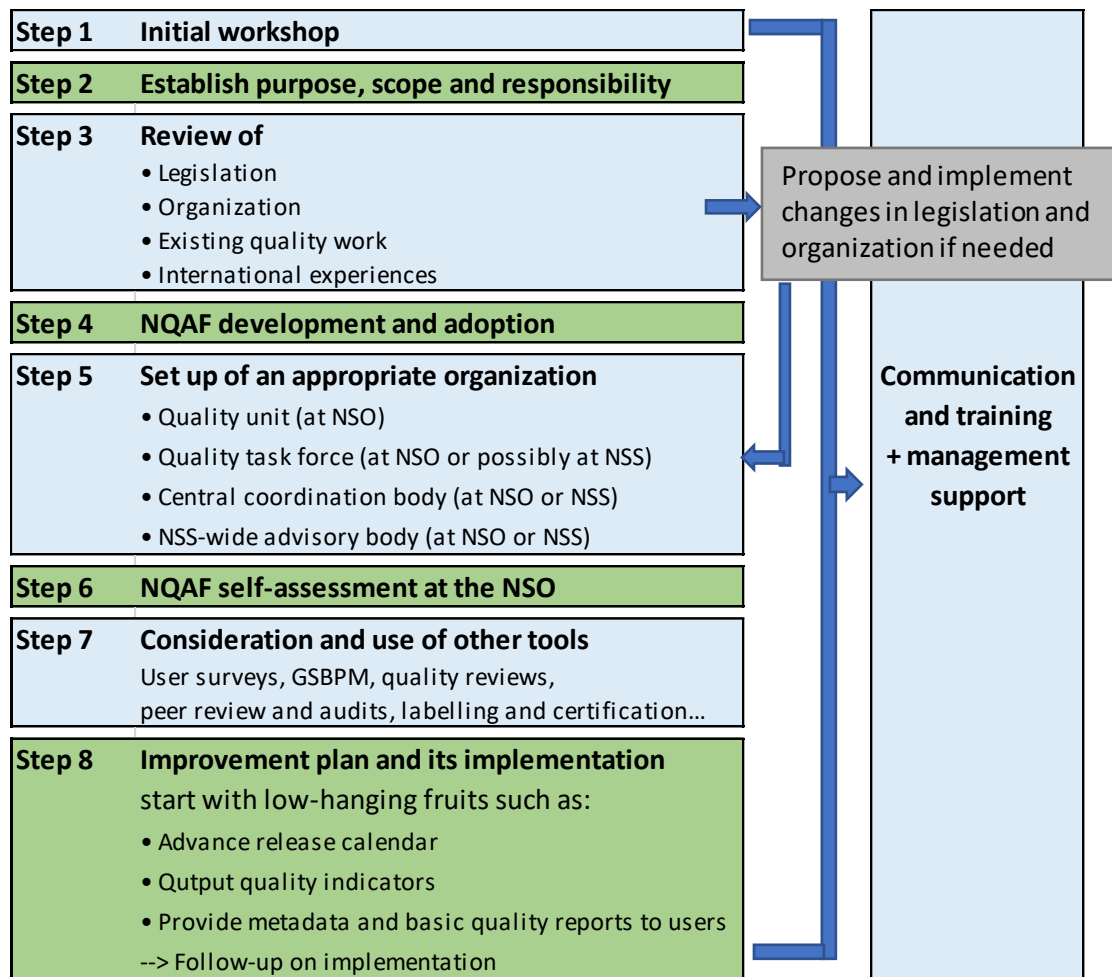
agencies. Chapter 6 builds on chapter 5 and discusses the role of NSS-wide bodies for the implementation of an NQAF throughout the NSS. A few country examples are included.

Some important definition

National statistical office (NSO): the leading statistical agency within a national statistical system. National statistical office and national statistical institute mean the same thing. In general, the NSO has a coordination role within the national statistical system, and is responsible for the development, production and dissemination of official statistics across multiple statistical domains.

National statistical system (NSS): the ensemble of statistical organizations and units (statistical agencies) within a country that develop, produce and disseminate official statistics on behalf of the national government (and other levels of government). Statistical agencies include the NSO and other producers of official statistics (such as statistical units within ministries). It is the responsibility of each country to define the scope of its NSS.

Figure 1. Roadmap for the establishment and implementation of an NQAF

Step 1	**Initial workshop**
Step 2	**Establish purpose, scope and responsibility**
Step 3	**Review of**
	• Legislation
	• Organization
	• Existing quality work
	• International experiences
Step 4	**NQAF development and adoption**
Step 5	**Set up of an appropriate organization**
	• Quality unit (at NSO)
	• Quality task force (at NSO or possibly at NSS)
	• Central coordination body (at NSO or NSS)
	• NSS-wide advisory body (at NSO or NSS)
Step 6	**NQAF self-assessment at the NSO**
Step 7	**Consideration and use of other tools**
	User surveys, GSBPM, quality reviews, peer review and audits, labelling and certification...
Step 8	**Improvement plan and its implementation**
	start with low-hanging fruits such as:
	• Advance release calendar
	• Output quality indicators
	• Provide metadata and basic quality reports to users
	--> Follow-up on implementation

Propose and implement changes in legislation and organization if needed

Communication and training + management support

Important milestones

The steps of the roadmap are explained in the following →

Steps in the Roadmap

WARNING: Institutional arrangements and circumstances vary in countries and the various steps may need to be re-arranged, combined or adjusted to the specific circumstances.

Establish NQAF (or revisit and re-introduce NQAF)

Step 1: Initial workshop (or set of workshops)

➢ *Conduct an initial workshop; this is typically done by the NSO or the agency responsible for the coordination of the NSS; the workshop is usually conducted by a quality unit or quality team often with the help of an external consultant specialized in statistical quality assurance as determined or established by management.*

➢ At the workshop, introduce the concept of an NQAF to senior and middle management at the NSO and other statistical agencies (as applicable) and to the staff directly responsible for supporting the work on quality.

➢ Cover the basics: quality concept, quality management, quality management in statistics and quality management frameworks for official statistics, UN NQAF, the Manual and tools.

• Note: High-level commitment and basic staff resources in terms of time commitment are absolute prerequisites for the introduction of an NQAF.

• Note: The quality unit may be fully or formally established only at a later stage (but not later than Step 5) and the initial arrangement can be more informal or on an ad-hoc basis.

Step 2: Clarify and establish purpose, scope and responsibility for developing an NQAF

➢ *Typically, step 2 takes place at the NSO or the agency responsible for the coordination of the NSS; it is normally conducted by the quality unit (or quality team) at the NSO often with the help of an external consultant specialized in statistical quality assurance; it also may need to involve representatives of other members of the NSS.*

➢ Establish the purpose. Usually, the purpose of the NQAF is to achieve quality improvements to better meet user needs and assure the trust in official statistics.

➢ Establish scope and responsibility:
Option 1: The NSO implements an NQAF only at the NSO
Option 2: The NSO and/or NSS governance body implement an NQAF at the NSO and other producers of official statistics
Option 3: The NSO and/or NSS governance body implement an NQAF at the NSO, at other producers of official statistics and at other statistics producers that are normally not members of the NSS.

• Note: An NQAF should be implemented throughout the NSS, where applicable, but implementation typically start with the NSO, which is normally at the centre of the NSS and serves as its coordinator and as a main producer of statistics.

Step 3. Review of legislation, organization, existing quality work and international experiences

➢ *The quality unit (or quality team) at the NSO or the agency responsible for the coordination of the NSS, possibly supported by specific experts and other members of the national statistical system, will review the following, depending on national circumstances and as appropriate and needed:*
1. Legal basis and framework of official statistics (very important)
2. Organization of the NSO and NSS, and beyond (very important)
3. Existing quality work including the use of quality frameworks
4. International and regional experiences and practices

Excursion: Possible amendments of statistical legislation and organization

- This review may result in very important proposals for changing both the legislation and the organization in order to establish a well-functioning NSS.
- Modern statistical legislation frequently:
  1. Emphasizes professional independence.
  2. Includes quality requirements for official statistics by reflecting the Fundamental Principles of Official Statistics (FPOS) or a quality framework.
  3. Includes the definition or description of the NSS and coordination bodies such as an inter-agency committee for producers of official statistics.
  4. Includes a requirement for a multi-annual national statistical programme.
- Note: See, for example, the Generic Law on Official Statistics.
- Note: The Manual, Chapter 5B lists possible institutional arrangements for the development and adoption of an NQAF. The organizational setup could comprise a quality unit (or quality team) at the NSO responsible for quality assurance, to drive the process forward. Also, a quality task force with subject matter experts from the NSO and, if appropriate, important members of the NSS, will be useful (see Step 5 for details)
- Note: Changes to statistical legislation and organizational setup take time. Development and implementation of an NQAF should proceed as much as possible within the existing setup.

Step 4. NQAF development and adoption

➢ *The quality unit (or quality team) at the NSO or the agency responsible for the coordination of the NSS, supported by other members of the national statistical system, will need to undertake the following actions, depending on national circumstances and as appropriate:*

➢ Seek high-level commitment and establish good communication about the work and plans both within the NSO and NSS if applicable, to ensure support by all employees.

➢ Analyse and document the instruments, tools, and practices for statistical quality management that are currently being used.

➢ Adapt your NQAF to national legislation, organization, existing quality work, and other national conditions and intended scope of usage.

➢ Establish a timeframe for the development and implementation of your NQAF. Starting from scratch, development or establishment of an NQAF may be undertaken over a period of a minimum of one year, including review, revision, and approval.

➢ The NSO, or if applicable, a higher coordination or governance body formally adopts the NQAF.

- Note: The quality unit (or quality team) needs high level support and representation, e.g., through the director of methodology and development in order to approach others with the necessary level of authority.

- Note: Once adopted,
  1. the implementation of the NQAF should be included, as appropriate, in the national strategies for the development of statistics, and in the annual workplans.
  2. Communication or sensitization about and training in quality assurance should be a part of development and adoption in the relevant organizations. Training on quality frameworks and quality assurance in statistics should be mandatory for all new staff working in statistics production and dissemination.

Step 5. Set up of an appropriate organization
➢ *The management at the NSO or at the agency responsible for the coordination of the NSS will need to undertake this step, typically supported by the quality unit (or quality team) at the NSO.*
1. A fully established quality unit at the NSO is required to drive the implementation process.
2. A quality task force with representatives of the statistics production units from across the NSO and, if relevant other producers of official statistics, complements and supports the quality unit.
3. NSS-wide bodies such as a central coordination body, a governance body and an advisory body or user committee, depending on national circumstances, need to support the NQAF implementation if the scope of implementation goes beyond the NSO. In some countries the NSO is the central coordination and governance body. (see Manual, Chapter 6.B for a much more detailed discussion of possible arrangements and the respective responsibilities of various bodies).
• Note: Manual, paras. 5.11 and 6.6 contain descriptions of the basic setup and tasks of the quality unit, quality task force and NSS-wide bodies that can serve as an initial outline of the terms of reference for the respective groups.

Step 6. Self-assessment at the NSO
➢ *Conduct a self-assessment at the NSO (and other producers of official statistics, as appropriate and desired) based on the NQAF as major step and a natural starting point for the implementation of an NQAF. The objective of an assessment is always the identification of improvement opportunities in (i) the management, coordination and institutional arrangements (ii) processes and (iii) products. The quality unit at the NSO would initiate and lead this process.*
• Note: The self-assessment should be done by a group of staff from different levels of management and should involve experts from different areas across the statistical agency with adequate experience and training.
1. The self-assessment could be combined with or discussed in a workshop with participants from both management and experts from different areas.
2. The self-assessment will result in an overview of strengths and weaknesses, as a basis for improvements and further work. The self-assessment may be repeated after some years.
3. The risk of self-assessments is to be overly subjective and positive and dis-attached from the actual situation. Appropriate composition of the assessment team, appropriate documentation and independent verification of the evidence can help to address the risk of subjectivity.
• Note: A self-assessment tool based on UN NQAF is available on the website of the UN Statistics Division at: https://unstats.un.org/unsd/methodology/dataquality/tools/. This checklist is primarily meant to be used for an assessment of the NSS from the point of view of the coordinating body (typically the NSO) at the institutional level and primarily for internal purposes.
• Note: There are already some well-established peer review mechanisms in which many countries are participating. Examples are the OECD assessments, the global assessments of UNECE and Eurostat (plus here), the IMF Reports on the Observance of Standards and Codes (ROSCs) and the European peer reviews.
• Note: Self-assessment can be done at different levels by those responsible for the work.

Step 7. Use of other tools (aside self-assessment)
➢ *The tools can be used at different levels, such as for individual statistics, in individual statistical domains, at individual statistical units, the entire NSO or the entire NSS with all its statistical products. Typically, the management at the respective level decides on the use of the different tools, unless it is decided at higher level or externally.*

- ➢ Use the essential tools for quality assessment such as quality indicators, quality reports for users and user surveys which constitute the basic level of quality assessment.
- ➢ Use more advanced assessment tools such as
  - • Internal audit or quality review (done by someone independent within your organization)
  - • External peer review (done by a peer or a team of peers that are independent and from outside of your organization)
  - • External audit (done by someone independent and outside of your organization, but not a peer)
- ➢ Use the Generic Statistical Business Process Model (GSBPM). The improvement in the quality of statistical products requires the improvement of statistical processes. The GSBPM describes and defines the set of business processes needed to produce official statistics, and thereby provides a framework for process quality documentation, assessment and improvement. (WARNING: The introduction of GSBPM throughout an entire statistical agency may be very resource intensive)
- ➢ Use the Generic Activity Model for Statistical Organizations (GAMSO) that extends and complements the GSBPM by modelling additional activities that support statistical production.
- ➢ Use certification and labelling which compare the results of the assessment to defined standards and requirements. It enhances trust and credibility in official statistics.
- • Note: Consider the coordination or integration of quality management with risk management.
- • Note: UN NQAF includes the use of these tools as requirements or elements to be assured (see Manual, Annex).
- • Note on the use of tools:
  1. Sequence of application: Some of the possible measures are sequential, some can be carried out in parallel. Internal reviews of selected statistics carried out by a team with participants who are not responsible for working with these statistics may be a natural first step. User surveys, GSBPM, the use of quality indicators and quality reports for users can be implemented or utilized in parallel.
  2. If not already used, the GSBPM should be introduced at the NSO together with the NQAF
  3. Audits are typically carried out by a third-party and may result in a certification, such as an ISO certificate to the relevant organization. The ISO-standards are general and apply to any organization. Therefore, it does not necessarily assure the quality aspects specific for official statistics. A certification process is quite time-consuming and costly. However, a key word is documentation, which is just as important for statistical organizations as for any other.

Figure 2. Overview of the use of quality assurance tools
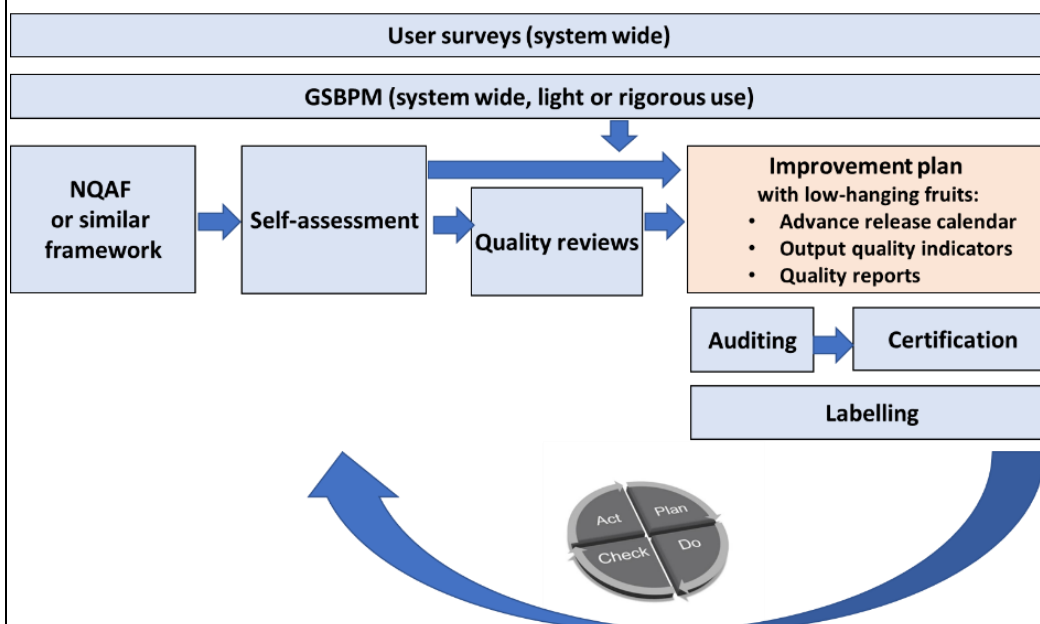
Step 8. Improvement plan and its implementation – overview of the process

➢ *Develop an improvement plan based on self-assessments, reviews and audits, and additional SWOT analysis (strengths, weaknesses, opportunities and threats) if available. This step is undertaken by the management of the statistical agency with support of the quality unit.*

➢ *Address implementation: The improvement plan needs to be discussed and agreed with the management of the statistical agency and the concerned departments. Priorities, responsibilities and tasks, timeframe and resources need to be established, together with clear indicators of achievement. The improvement plan should be reflected in the annual work plan and longer-term planning such as in the national strategy for the development of statistics (NSDS).*

➢ Catch low-hanging fruits: Experiences show that there are some low-hanging fruits with quick/visible pay-off. These show ongoing commitment and can be relatively easily implemented not only at the NSO but also at other producers of official statistics. These are:
1. Establish an advance release calendar
2. Establish and publish some output quality indicators
3. Provide metadata and basic quality reports for users.

➢ Follow-up: Improvement plans should be regularly followed up and monitored, and regularly revised, in line with the PDCA-cycle (Plan-Do-Check-Act). Follow-up should be institutionalized to ensure accountability. Figure 2 shows how quality assurance should follow the PDCA-cycle, by following up on the improvement plans and possibly repeat the self-assessment and reviews.

Important considerations

• Objective and approach: The objective of quality assurance is to achieve quality improvements in order to meet user needs. Quality assessments aim to identify weaknesses and opportunities for improvement at the level of the statistical system, including management, coordination and institutional arrangements, processes and statistical outputs. Assessments constitute an important element of the "Plan-Do-Check-Act" cycle made popular by W. Edwards Deming, guiding all changes for continuous improvement.

• Resources: The process of establishing and implementing the NQAF and other tools for quality management will typically be driven by a quality unit with at least 2 – 3 employees and support from management on all levels. Depending on the size of the organization, internal set-up and specific responsibilities, the number of staff at the quality unit can be much larger. The quality unit may be organized within or together with a larger methodology unit and be composed of specialists with experience in different statistical and functional areas. The coordination role for the NSS and statistical agencies outside the NSO will require at least 1 – 2 extra employees. A quality task force can support the work of the quality unit.

• Iterative approach: Quality management is a continuous effort, and the use of an NQAF is a long-term task. The establishment of an NQAF may be undertaken over a period of a minimum of one year. Once adopted, an NQAF and other tools might typically be used for a period of 1 – 2 years before revisions are being considered, unless a specific need arises.

• Process: Development and implementation should not be too fast and comprise too many simultaneous efforts. A step-by-step strategy should be followed concentrating on the main steps and not necessarily abide all proposals and possibilities that are mentioned in the Manual.

• Risks: Obstacles or risks are linked to the possible lack of support and ownership of quality assurance. High level commitment is crucial as is communication and cooperation.

➢ Address the management and coordination of the statistical system: Experiences show that coordination can be one of the greatest challenges within the NSS and of statistics in individual domains. Therefore, the NSS and the responsibilities within the NSS, including for coordination should be clearly defined. This might require changes to the statistical legislation which can take one or more years. Coordination and collaboration between all producers, possibly also other stakeholders such as data providers is frequently key to achieving quality improvements, such as in the case of the use of administrative data for statistics production.

> ➢ <u>Make communication and training central parts of the implementation of quality assurance and create a culture of quality:</u> Communication and training and also management support is linked to all steps of the development and implementation of an NQAF (see Figure 1). An NQAF provides a basis for creating and maintaining a culture of quality within the NSS.

We hope this Roadmap will be useful to you! - Let us know your feedback and experiences by completing a brief survey at https://forms.gle/vEvr58Jhu8aStbz37.
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