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Maturity Model on Quality Culture in Official Statistics

Prepared by the Subgroup on Quality Culture
of the United Nations Expert Group on National Quality Assurance Frameworks (EG-NQAF)

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Acknowledgements and Disclaimer

This Maturity Model was developed by the Subgroup on Quality Culture of the United Nations Expert Group on National Quality Assurance Frameworks (EG-NQAF). The Subgroup was chaired by Colombia. The Maturity Model has been subject to a global consultation from April to June 2024, in which over 40 countries provided detailed comments. The Subgroup would like to thank all countries for their valuable comments, which are reflected in this version as much as possible. The Subgroup also thanks the countries that participated in testing the accompanying Assessment Checklist in November 2024.

The development of this Maturity Model on Quality Culture is a new effort stemming from the realization that shared values and behaviors are important for producing and disseminating official statistics. The lack of well-documented national practices and experiences was one challenge in developing this Maturity Model. Furthermore, there are inherent challenges in quantifying and measuring culture. The shared values and behaviours constituting a quality culture may be difficult or impossible to observe and measure directly and objectively. Therefore, this Maturity Model should be viewed as a practical tool to assess the level of maturity rather than a set of definitive measures. Users have flexibility on the measures they wish to consider depending on their circumstances. Users are encouraged to share their experiences using this Maturity Model with the EG-NQAF. The use of this Maturity Model is optional. However, the Maturity Model brings focus to the shared values and shared practices that underpin the production and dissemination of official statistics and allows the identification of areas for improvement, thereby strengthening the efforts and capabilities to ensure and improve the quality of official statistics.

The Maturity Model and accompanying assessment checklist are available here: <https://unstats.un.org/unsd/methodology/dataquality/qc/>

Part 1: Introduction

1. *Official statistics* play a critical role in informing decision-making. Their fitness for purpose directly impacts the effectiveness of the design and implementation of government policies and programs and supports the decision-making of the entire society, individually or collectively. Access to timely and accurate official statistics allows decision-makers to respond to challenges and opportunities swiftly and appropriately.

2. *Importance of a quality culture.* A strong quality culture encompasses a shared commitment to deliver statistical products and services to users that are fit for purpose. This commitment applies to everyone in a statistical agency or statistical unit and throughout the national statistical system who is involved in producing and disseminating official statistics and guides their actions and decision-making processes. A high level of management commitment and support is essential for successfully establishing a quality culture. Management must establish quality policies, monitor practices, and encourage continuous improvement efforts. In this context, adopting quality management systems and frameworks and complying with international standards are also very important. The achievement of a quality culture for official statistics is not only an internal effort that takes place in isolation but also a collective process that requires the support of a wide range of stakeholders and the users of official statistics. Without a well-established quality culture, the risk of producing data and statistics not fit for their intended use or even erroneous will increase and eventually undermine the trust and confidence in official statistics and the national statistical system. A commitment to quality assurance and a quality culture for official statistics is equally important for cooperation with other countries and regional and international organizations, as it supports global monitoring efforts, such as for the Sustainable Development Goals (SDGs), and enhances cross-border collaboration in research and ultimately helps to foster global development.

3. *Maturity Model on Quality Culture.* A maturity model is a framework that organizations use to assess and improve their processes and overall performance in a particular area. These models help organizations understand their current state and set improvement goals. This document introduces a maturity model to assess the quality culture in national statistical agencies, which includes the national statistical office (NSO) and other producers of official statistics. It does not address quality culture in the national statistical system (NSS), as discussed in Annex III. This Maturity Model provides a generic roadmap for the improvement of quality culture. Statistical agencies may focus on and prioritize efforts on the most critical aspects based on their circumstances. It also provides a common language for communication within the NSS, hereby supporting and fostering collaboration among different organizations. In addition, this Maturity Model can serve as a valuable tool for external stakeholders, including policymakers, international organizations, and funding bodies, by offering a transparent and standardized method for assessing and reporting on the quality culture within a statistical agency.

4. *Users and uses.* This Maturity Model on Quality Culture in Official Statistics is directed at all statistical agencies in a country that produce and disseminate official statistics and want to assess the prevalence of a quality culture in their organization and identify possible actions for improvement. However, it can also be used by international and regional statistical organizations, even if some of the identified measures may apply differently. There are inherent challenges in quantifying and measuring culture. The shared values and behaviours constituting a quality culture

may be difficult or impossible to observe and measure directly and objectively. Therefore, this Maturity Model should be viewed as a practical tool to assess the level of maturity rather than a set of definitive measures. Users have flexibility on what measures they wish to consider depending on their specific circumstances, and using this Maturity Model is optional. However, this Maturity Model focuses on the shared values and shared practices that underpin the production of official statistics and allows the identification of areas for improvement, thereby strengthening the efforts and capabilities to ensure and improve the quality of official statistics. The use of this Maturity Model is independent of the quality assurance framework used by a country or a statistical agency.

5. *Development of the Maturity Model.* The Maturity Model was developed by the Subgroup on Quality Culture (Subgroup) of the United Nations Expert Group on National Quality Assurance Frameworks (EG-NQAF) between June 2023 and January 2025. The Expert Group and its Subgroup comprise experts from Member States and international and regional organizations on quality assurance.¹ This Maturity Model is based on some research, responses to an initial survey among the Expert Group members, feedback received from countries during a workshop and an expert group meeting, a global consultation, and an iterative discussion process within the Subgroup on Quality Culture. One challenge encountered during this work has been the absence of well-documented national practices and experiences.

6. This Maturity Model on Quality Culture in Official Statistics complements the set of guidelines and tools developed by the EG-NQAF to support countries in developing and implementing a national quality assurance framework and in assuring the quality of their official statistics. These guidelines and tools include the United Nations National Quality Assurance Frameworks Manual for Official Statistics, the UN NQAF self-assessment checklist, the Roadmap for the Development and Implementation of a National Quality Assurance Framework, and the Module for Quality Assurance when using Administrative and Other Data Sources to produce Official Statistics.²

¹ See <https://unstats.un.org/unsd/methodology/dataquality/about/>. The terms of reference of the Subgroup are available here: <https://unstats.un.org/wiki/display/EGNQAFSQC/EG-NQAF+Subgroup+on+Quality+Culture>.

² Those guidelines and tools are available on the website of the Statistics Division at: <https://unstats.un.org/UNSDWebsite/data-quality>.

Part 2: Definition of quality culture for official statistics

7. **Quality culture for official statistics can be defined as the shared values, mindsets, behaviours, practices, and knowledge related to quality assurance within a statistical agency (or unit) of the national statistical system that shape and characterize the work environment and individual workplace. It is a shared commitment focused on user needs and delivering statistics products and services that are fit for purpose while continuously striving for improvement, innovation, and adherence to best practices and methods, hereby ensuring trust in official statistics. A common understanding of key concepts related to quality assurance of official statistics is fundamental to developing and sustaining this culture.**

Part 3: Key Characteristics, levels of maturity, and their measurement

8. *Identification of key characteristics.* The following six key characteristics³ reflect and support the implementation of a quality culture in statistical agencies:

- Key characteristic 1: Awareness and Innovation
- Key characteristic 2: Communication Management and Channels
- Key characteristic 3: Data Governance
- Key characteristic 4: Quality Assurance Monitoring and Error Handling
- Key characteristic 5: High-level Commitment
- Key characteristic 6: Staff Commitment

9. *Description of the maturity model.* The Maturity Model features four levels of maturity for each key characteristic.⁴ The subsequent section provides concise definitions of each level. Each key characteristic is evaluated individually, with proposed indicators (measures) for each level included in part 3.2. Based on their circumstances, statistical agencies may focus and prioritize improvement efforts on the most critical aspects. In the checklist accompanying the Maturity Model, the overall maturity is calculated as a simple average of the level achieved across the six key characteristics, and the maturity level of each key characteristic is calculated based on the assessment of the two essential measures of each level.⁵

Part 3.1 Levels of maturity and their measurement

10. *Levels of maturity.* The following four levels describe the maturity level of a quality culture within a statistical agency (or unit). The levels indicate the extent to which the entire statistical agency integrates a quality culture aimed at producing high-quality official statistics into its shared values and commitments.

- **Level 1 (Basic):** This level represents the foundational stage where the statistical agency has established a rudimentary and emerging quality assurance culture for official statistics.

³ The numbering of the characteristics does not indicate their priority or importance.

⁴ Many maturity models use five levels, but four levels were sufficient and more practical for this Maturity Model on Quality Culture, considering that those levels had to be defined for each key characteristic and given the challenges of measuring quality culture.

⁵ Please see para. 13 and Annex I for details.

The staff have an initial awareness and understanding of the importance of quality assurance, and there are basic efforts to establish a quality culture.

- Level 2 (Intermediate): At this level, the statistical agency transitions from a basic understanding of quality to a more structured and consolidated approach with an established quality assurance framework. Standardized data collection, processing, and dissemination procedures are implemented to ensure consistency. Quality policies and objectives are clearly defined and communicated. Training programs are more comprehensive, and staff members understand their roles and responsibilities in relation to quality management. Basic quality assurance tools and techniques are implemented to ensure the accuracy and reliability of the statistics.
- Level 3 (Advanced): This level indicates a culture of continuous quality improvement within the statistical agency, actively promoting best practices to other stakeholders involved in producing official statistics. A systematic approach to quality management is implemented, ensuring quality assurance is integrated and embedded into the regular workflow. A knowledge transfer and management system fosters a supportive environment where quality is valued.
- Level 4 (Established): At this level, a statistical agency has fully integrated a quality culture into its operation (in an all-encompassing way). This commitment is evident in the actions of both staff and management. Well-established processes, financial and human resources, and infrastructure support quality culture. A comprehensive and mature system is in place to monitor and improve quality. As a result, the statistical agency sustains and builds upon the high level of trust users already have in official statistics.

11. *Measures for assessing quality culture within the statistical agency.* A maturity model on quality culture requires the identification of measures that allow to determine the level of quality culture present within a statistical agency. The shared values and beliefs constituting a quality culture may be difficult or impossible to observe directly and objectively. Their measurement must rely on the observation of certain practices and behaviours or the conduct of surveys, interviews, focus group discussions, self-assessments, or behavioural tests.⁶ The measures suggested in this Maturity Model can be used to construct such assessments.

12. *Categorization of measures.* The measures identified in this maturity model have been categorized as "essential" or "additional". Two measures have been identified as essential for each maturity level within every key characteristic. They are listed in the Maturity Model in part 3.2, while the additional measures are presented in Annex II. The introduction of essential and additional measures aims to simplify the assessment process and focus on key aspects while allowing for a more detailed evaluation if desired and as applicable and resources allow. Users have the flexibility to determine which measures are essential and additional depending on their circumstances.

⁶ It is acknowledged that certain practices and behaviours, such as taking a training course, can result from a requirement and not an individual choice. Also, the responses to surveys or during interviews may be influenced by what respondents believe is expected in their responses. However, the existence of requirements and beliefs about what is expected are also part of and the result of a quality culture.

13. *Assessment Checklist.* The Maturity Model is accompanied by an Assessment Checklist, which is available in Excel format. The Assessment Checklist allows users of the Maturity Model to assess whether their statistical agency is in compliance with a specific measure and to provide a written assessment describing their practices (including deficiencies) and plans or possibilities for improvement, which would be a possible input for an improvement plan. The Assessment Checklist includes all essential and additional measures, but only the first two measures under each maturity level of every key characteristic are designated as essential and included in the calculation of the assessment score. Please refer to Annex I and the Assessment Checklist for further details.

14. *Measures to foster quality culture across the National Statistical System (NSS).* A strong quality culture across the National Statistical System (NSS) is essential for ensuring the high quality of all official statistics. Assessing the quality culture across the entire NSS can be challenging due to the complexity of assessing quality culture and the diverse circumstances within countries. The list in Annex III provides a few measures that could be used for guiding actions or plans for establishing or fostering quality culture across the NSS. The additional measures (#2 to #7) overlap with the requirements and elements to be assured of the UN National Quality Assurance Framework (UN NQAF).

Part 3.2 Key characteristics and maturity model

Key characteristic 1: Awareness and Innovation

15. There is a shared understanding of the importance of quality among all levels of staff involved in the production and dissemination of official statistics. Additionally, fostering a culture of systematic innovation is essential for continuously improving the quality of official statistics, which includes using new data sources, process refinement, and tailoring outputs to user needs. The use of technology and new methods and tools supports and drives innovations.

Essential Measures:

Maturity Level	Measure
Level 1	Half of the staff complete basic training on statistical quality assurance - At least 50% of the staff working in the production and dissemination of official statistics, with senior staff taking the lead, have completed basic training on quality assurance. Basic training should typically cover the concepts of quality, quality management, quality management in statistics, quality management frameworks for official statistics, the Fundamental Principles for Official Statistics, and basic tools for quality assessment such as quality indicators, quality reports, and user surveys.
	All staff use basic tools for statistical quality assurance - All staff working in the production and dissemination of official statistics use basic validation tools and procedures, such as basic comparison tables and tools to identify outliers, inconsistencies, and missing data points.

Level 2	Most staff complete basic training on statistical quality assurance - At least 75% of the staff working in the production and dissemination of official statistics, with senior staff taking the lead, have completed a basic and refresher training or workshop on quality assurance, covering the concepts of quality, quality management, quality management in statistics and quality management frameworks for official statistics, the Fundamental Principles for Official Statistics and basic tools for quality assessment such as quality indicators, quality reports, and user surveys. This measure directly builds on the first measure of level 1.
	Most staff use basic tools for quality assessment - At least 75% of the staff working in the production and dissemination of official statistics use basic tools of quality assessment such as quality indicators, quality reports, and user surveys. Alternatively, those basic tools are used by most processes (statistics) (at least 75%).
Level 3	All staff complete a basic training course on quality assurance and a knowledge test - All staff working in the production and dissemination of official statistics have completed a basic training course and knowledge test on statistical quality assurance covering the concepts of quality, quality management, quality management in statistics and quality management frameworks for official statistics, the Fundamental Principles for Official Statistics and basic tools for quality assessment such as quality indicators, quality reports, and user surveys. This measure directly builds on the first measure of level 2.
	Staff participate in internal knowledge-sharing activities - Selected staff participate in internal knowledge-sharing activities to identify and implement innovative methods and tools for producing and disseminating official statistics.
Level 4	Selected staff participate in periodic self-assessments, peer reviews, or benchmarking exercises.
	Most staff demonstrate in-depth knowledge of quality assurance during a staff survey - At least 75% of staff members demonstrate in-depth knowledge of concepts of quality assurance and quality assurance tools during a staff survey.

Key characteristic 2: Communication Management and Channels

16. Effective communication among all staff and management and with users and stakeholders is a fundamental characteristic of a quality culture.⁷ It requires clarity, openness, and transparency in both the internal and external channels (mechanisms) for communicating data quality, data transformation, quality issues, and improvements. This fosters the fitness-for-purpose of official statistics and continuous collaboration for improvements.

17. Users and stakeholders include policymakers and planners, users from other ministries and departments, the private sector, civil society, academia and research institutions (professional analysts and researchers), the general public, and international and regional organizations. Additionally, data providers are also considered stakeholders.

Essential Measures:

Maturity Level	Measure
Level 1	Reference metadata is published for all key statistics.
	Staff respond to user requests and inquiries - Staff involved in the production and dissemination of official statistics regularly and promptly respond to user requests and inquiries.
Level 2	Metadata is maintained and updated by staff members - Staff members and managers maintain and regularly update, as required, the metadata for the statistics under their responsibility.
	Statistics are disseminated to all users - Statistics are presented and disseminated through traditional and novel communication channels in a clear, inclusive, accessible, and self-explanatory way as required to reach all users and stakeholders.
Level 3	Quality challenges are openly discussed within the statistical agency - There are informal and formal internal communication mechanisms such as committees, meetings, workshops, and online forums that foster an open discussion of quality issues.
	Staff engage with external users to understand their needs and quality concerns - Staff and management regularly engage with external stakeholders, including but not limited to users, data providers and academia, through workshops, conferences, and other communication channels and mechanisms to obtain feedback on their needs and quality concerns.
Level 4	Staff establish partnerships and initiatives with external users and data providers to improve the quality of official statistics.
	There is a platform for knowledge-sharing and communication on quality assurance - There is a platform within the statistical agency, such as an intranet or portal, for knowledge management and communication. It is open to all statistical agencies and allows the sharing of tools, methods, and best practices.

⁷ Staff and management refer to everyone involved in the production and dissemination of official statistics. For a more detailed definition, please refer to "Management and Staff" in Annex IV: Glossary of Terms

Key characteristic 3: Data Governance

18. Data governance is the foundation of building trust in statistical agencies, ensuring the confidentiality and security of input data and official statistics, and is based on a common vision that high-quality (fit for use) data generates public value. It involves the establishment of policies, standards, rules, and measures for data access, use, and reuse and the authority and control over data production, management, and transformation with the goal of increasing the value of data assets and mitigating data-related risks. It also requires staff's commitment and compliance to safeguard data confidentiality. This commitment requires regular mandatory training and clear roles and responsibilities for every staff member. There is transparency about data governance and mechanisms to respond to and address public concerns.

Essential Measures:

Maturity Level	Measure
Level 1	All new staff declare their commitment to confidentiality - All new staff members sign a declaration indicating their commitment to protecting confidentiality in accordance with established policies and procedures.
	Basic procedures to ensure data confidentiality and privacy are in place - There are basic procedures to ensure data confidentiality and privacy in statistical production and dissemination.
Level 2	Standardized practices ensure confidentiality and security - Standardized practices, policies, and tools are implemented to ensure data confidentiality and data security while allowing required data sharing within the statistical agency.
	Staff complete mandatory training on confidentiality and security - Staff members working in the production and dissemination of official statistics must complete a mandatory training on data confidentiality and data security.
Level 3	Data governance is responsive to user needs and especially considers public policy needs.
	Data confidentiality principles are integrated into all aspects of the statistical production process.
Level 4	Data systems are monitored for security vulnerabilities - The data systems are continuously monitored for potential security vulnerabilities, and action plans are developed and implemented to maintain the highest level of security.
	Ethical principles are followed, and risks of new technologies are assessed - Compliance with ethical principles is ensured, and the impacts and risks of new technologies, such as artificial intelligence and the use of innovative methods in statistical production are assessed to ensure their proper use.

Key characteristic 4: Quality Assurance Monitoring and Error Handling

19. Regular quality evaluation and reporting will improve the staff member's awareness of quality assurance and thereby strengthen the quality culture within the organization. The establishment of appropriate measures offers valuable insights into the effectiveness of quality improvement initiatives. A strong quality culture emphasizes the use of standard tools for quality reporting and the importance of documenting and openly communicating errors, as well as their underlying causes. This transparent approach fosters a collaborative environment where appropriate error handling and the enhancement of the quality of official statistics become integral parts of the organizational culture, ultimately educating staff, and reinforcing the commitment to maintaining high-quality standards.

Essential Measures:

Maturity Level	Measure
Level 1	All statistics undergo basic validation before release - All statistics undergo basic data validation checks before release to catch major errors and inconsistencies.
	There is an error management policy and guidelines - There is a policy and there are guidelines and a concrete set of actions on what to do when there is an error in the published statistics. The policy, guidelines, and actions may be formalized or manifest themselves in established practices.
Level 2	Quality reports are available and updated - Quality reports are available for all key statistics and updated with every data release.
	Users can report quality concerns through clear and simple channels.
Level 3	Quality issues can be raised without the fear of negative consequences - Staff can raise quality issues and point out possible errors without the fear of negative consequences such as being blamed for them (no-blame environment). Quality issues and errors are viewed as opportunities for collective learning and improvement.
	Management and staff take responsibility for quality assurance - Management and staff take responsibility for the implementation and further development of quality assurance throughout the data lifecycle, starting at data collection/data acquisition/data entry as demonstrated in the development and implementation of improvement plans with specific actions.
Level 4	Revision studies are conducted and made public - Early releases of statistics are revised when more information becomes available. Statistics are often revised in periodic intervals due to conceptual and methodological changes. Revision studies compare the data before and after the revision and identify the reasons for changes in the data.
	GSBPM is implemented for all major statistics - The Generic Statistical Business Process Model (GSBPM) is implemented for all major statistics, meaning that all processes are documented and that, based on this documentation, possible process improvement actions are identified.

Key characteristic 5: High-level Commitment

20. High-level commitment is a cornerstone trait that shapes the entire organization's approach to quality. When leaders actively advocate for and prioritize quality assurance, they stress the importance of quality assurance throughout the organization. By implementing policies and measures to embrace quality assurance, leaders promote the responsibility for maintaining and improving quality standards within the organization. The high-level leadership typically consists of the head and deputy heads of the national statistical agency or unit and the subsequent director level, as applicable.

Essential Measures:

Maturity Level	Measure
Level 1	There is a public declaration of the statistical agency's (unit's) commitment to quality - A declaration or statement on the commitment to quality is publicly available and included in the strategy for the development of official statistics.
	Senior management actively engages with key users.
Level 2	Senior management publicly expresses its commitment to data quality - Senior management regularly expresses its commitment to data quality and continuous improvement at internal and at public meetings and events.
	Senior management discusses quality challenges and supports improvement efforts.
Level 3	Quality management is a priority, and this priority is reflected in the institutional arrangements - Quality management and assurance are institutionalized and properly resourced. The statistical agency has a quality unit, quality manager, quality focal point, quality circle, or similar instruments to ensure support for quality assurance activities and efforts.
	Senior management promotes international standards, including on quality - Senior management promotes and monitors the adoption and compliance with international statistical standards and classifications, including on quality management.
Level 4	The statistical agency participates in peer reviews or external audits.
	Quality assurance is reflected in the business planning and resource allocation - Senior management ensures that there are adequate resources to maintain quality assurance standards.

Key characteristic 6: Staff Commitment

21. Staff commitment is a pivotal characteristic of a quality culture within the organization. It is fostered through a sense of responsibility and accountability, where employees collectively share the duty to uphold the value of high-quality official statistics. This commitment is further strengthened by a culture of collaboration, where departments and teams work together across functions to establish and maintain quality assurance standards.

22. Key characteristic 6 focuses on evaluating staff commitment through behavioral indications rather than quantitative metrics, requiring tools such as staff surveys or direct observation. A statistical agency or unit may be in full compliance if a meaningful number of staff (not only a few) comply with the measure.

Essential Measures:

Maturity Level	Measure
Level 1	A designated team promptly handles user inquiries - A designated unit or team promptly responds to user inquiries and requests and technical experts promptly provide their inputs to the response as required.
	Most staff explicitly recognize quality assurance as their responsibility - Most staff (at least 75%) working in the production and dissemination of statistical outputs understand and would confirm in a staff survey that quality assurance is a responsibility of everyone and take responsibility for the implementation of quality principles and procedures. ⁸
Level 2	Staff provide suggestions for quality improvement actions.
	Staff work together to discuss and resolve quality issues.
Level 3	Staff adhere to international and national standards - Staff working in the production and dissemination of official statistics are committed to adhering to international and national standards, classifications, and guidelines in their work as demonstrated in their actions or identified in staff surveys.
	Staff seek to improve knowledge through training and self-study - Staff seek to improve their knowledge on innovative methods and tools, for example, by participating in workshops, seminars and training activities or self-study.
Level 4	Staff are aware of shared ethical principles in statistics - Staff are aware of the shared values and ethical principles of statistics as reflected in the Declaration on Professional Ethics of the International Statistical Institute.
	Staff develop novel ideas for the improvement of official statistics.

⁸ To measure the level of staff's understanding, some suggested methods include staff surveys, interviews, focus groups, and feedback forms. Staff surveys can assess staff attitudes towards their work and eagerness to adopt new methods and technologies. Interviews and focus groups provide qualitative insights into staff experiences and motivations, while feedback forms collected after participation in quality improvement initiatives or training sessions offer additional perspectives on staff engagement.

Annex I: Conducting a quality culture maturity assessment

The Maturity Model is accompanied by an Assessment Checklist.

Purpose and users

a) This checklist assesses the quality culture within the national statistical office (NSO) and other statistical agencies. The four maturity levels and corresponding measures under the six key characteristics indicate the extent to which the statistical agency integrates a quality culture to produce high-quality official statistics into its shared values and commitments. Measures at higher levels represent activities that are more complex and challenging to implement and a higher level of maturity and provide guidance on how to achieve a higher level of maturity.

b) Typically, this checklist is completed by the unit or focal point responsible for quality management at a statistical agency in collaboration with staff members of other units and management as appropriate and required.

How to use the Assessment Checklist

a) The checklist distinguishes essential and additional measures under each maturity level of the six key characteristics. The essential measures are highlighted in green. The essential measures are the first two measures of each level of each of the six key characteristics.

b) All measures should be assessed to obtain the most comprehensive assessment as applicable and as resources permit. However, to receive an assessment result, only the essential measures must be evaluated, while additional measures are optional and do not contribute to the result. The introduction of essential and additional measures aims to simplify the assessment process and to focus on key aspects while still allowing for a more detailed evaluation if desired and as resources allow.

c) Users have the flexibility to determine which measures are essential and additional depending on their circumstances. Therefore, users can exchange essential and additional measures in the assessment checklist. In principle, users could also modify and adapt the measures to their circumstances.

Methodology for assessment and scoring

a) Compliance for each measure is assessed using the following scale: full compliance (numerical score 1), partial compliance (numerical score 0.5), and no compliance (numerical score 0). Full compliance means there is no or only little room for improvement, partial compliance means there is room for improvement, and no compliance means urgent action is needed.

b) An additional column allows users to describe their practices (including deficiencies) and possible suggestions for achieving compliance with this measure.

c) The assessment and scoring of each key characteristic is based on assessing the two essential measures of each level. The additional measures are not considered in the scoring. There are eight essential measures under each key characteristic.

d) A statistical agency's maturity level is determined by the average of the maturity levels achieved across the six key characteristics.

Calculation of the maturity level of a key characteristic and the level of maturity of a statistical agency

a) Calculation of a summary score for each key characteristic: The score for each key characteristic is the sum of the numerical scores for each measure. If a statistical agency is fully compliant (numerical score "1") with each of the eight essential measures under a key characteristic, then the summary score for the key characteristic is "8".

b) Maturity level scale: A summary score of "8" corresponds to Maturity level 4. The Maturity level of each key characteristic is determined based on the following ranges: Level 1 (Basic): summary score ≥ 1.5 ; Level 2 (Intermediate): summary score ≥ 3.5 ; Level 3 (Advanced): summary score ≥ 5.5 ; Level 4 (Established): summary score ≥ 7.5 .

c) Example calculation of the maturity level of a key characteristic: If a statistical agency fully complies with 4 essential measures, partially complies with 2 essential measures, and does not comply with the remaining 2 measures of a key characteristic, then the summary score of this key characteristic is $4 \times 1 + 2 \times 0.5 + 2 \times 0 = 5$. A summary score of 5 falls within the range of ≥ 3.5 and < 5.5 , corresponding to maturity level 2 (Intermediate).

d) Calculation of the overall maturity level of a statistical agency: A simple average is calculated across all six key characteristics to determine the agency's overall maturity level. For example, if a statistical agency achieves a score of 4 for the first three key characteristics and a score of 7 for the other three key characteristics, then the average score would be $(4+4+4+7+7+7) / 6 = 5.5$, which meets the threshold to maturity level 3 (Advanced).

Recommendations for the conduct of an assessment of quality culture:

1. Establish a lead team at the statistical agency to oversee the assessment process. This team will facilitate the coordination among all stakeholders involved in the assessment.
2. The frequency with which such assessment should be conducted can vary based on the specific goals and context of the evaluation. The frequency could be 1-2 years to identify recent changes and provide suggestions for new policies. However, such a time frame may not reveal long-term trends.
3. Conduct such an assessment of quality culture following this Maturity Model first for the national statistical office (NSO). Other members of the national statistical system would conduct such assessments at a later stage, learning from the experiences gained from the assessment conducted at the NSO. Annex III contains some considerations for assessing quality culture for the National Statistical System (NSS)
4. Identify and engage key stakeholders within the NSO and the NSS, ensuring representation from staff and management. This approach facilitates reaching agreements on the achievement of a maturity level for each of the six characteristics while minimizing possible biases due to subjectivity.
5. Coordinate meetings with the key stakeholders representing different teams and perspectives from within the statistical agency. During the review of each key characteristic and its associated measures, it is important to identify the evidence supporting the assessment.
6. The results should be consolidated and shared with the top management for review, validation, and suggestions. Based on this feedback, a tailored action plan should be designed and implemented. The plan should consider activities, schedules, responsible persons, and resources. During the planning process, it is necessary to prioritize key characteristics and aspects to be improved.
7. It is necessary to monitor the implementation of the action plan and ensure follow-up on its results.

Annex II: Additional measures for assessing quality culture

Key characteristic 1: Awareness and Innovation

Additional Measures:

Maturity Level	Measure
Level 1	There is a basic documentation of the methods used in the statistical production process - There is reference metadata that describes the methods used in the collection and processing of the statistical data.
Level 2	All senior and middle managers have completed basic training in statistical quality assurance.
	Staff use IT tools for quality assurance - All staff working in the production and dissemination of official statistics have access to and, if required, use IT packages and software tools such as Excel, R, and other open-source and commercial tools if they can support their work.
Level 3	Staff proposals have enhanced statistical processes - All staff involved in the production and dissemination of official statistics are responsible for identifying quality issues that pass the initial validation and assessment process. They are also tasked with proposing measures to improve the quality and reliability of these statistics.
	Half of staff participate in advanced workshops - At least 50% of staff working in the production and dissemination of official statistics participate in advanced workshops addressing current challenges and relevant topics in quality assurance. These workshops cover advanced and new areas of quality assurance, such as using GSBPM, process automation, data validation, data linkage, anonymization, and use of AI, aligned with their specific responsibilities.
	Selected staff use advanced IT tools for quality assurance - Selected staff use advanced IT packages, software tools, and IT infrastructure such as the cloud for the production and dissemination of official statistics.
Level 4	Selected staff participate in external training - Selected staff participate in external workshops, research, and knowledge-sharing activities to identify and implement innovative methods and tools for the production and dissemination of official statistics.
	There is an initiative for implementing innovative methods and tools - There is an initiative and/or unit dedicated to exploring and implementing innovative methods and tools for the production and dissemination of official statistics.

Key characteristic 2: Communication Management and Channels

Additional Measures:

Maturity Level	Measure
Level 1	There is a public statement regarding the statistical agency's commitment to high-quality statistics.
	Issues of quality assurance are regularly discussed - There are periodical internal discussions of quality assurance issues with participation of management and quality focal points as applicable.
Level 2	Information related to quality assurance is well documented and communicated to all staff - Quality policies and objectives of the agency are well documented and clearly communicated to all staff.
	Information related to quality assurance and the quality of the statistics is communicated to external users - External users and stakeholders are informed about the statistical agency's quality policies, objectives and procedures and the quality of the official statistics through official communication channels, ensuring that external users and stakeholders are well-informed.
Level 3	All rules and policies governing the production of official statistics are publicly available.

Key characteristic 3: Data Governance

Additional Measures:

Maturity Level	Measure
Level 1	The IT infrastructure ensures data confidentiality and privacy - A robust IT infrastructure has been implemented to provide effective safeguards that protect data confidentiality and privacy.
Level 2	There are policies and standards for data access, use, and reuse - The statistical agency has a clear data governance policy with standards, rules, and measures for data access, use, and reuse with the goal of increasing the value of data assets while mitigating data-related risks.
	Staff are aware of the established data governance mechanisms - Staff members are aware of the standards, rules, and measures for data access, use and reuse, as demonstrated in their actions or identified in staff surveys.
Level 3	Management and staff attend refresher training at regular intervals - All management and staff members working in the production and dissemination of official statistics attend refresher and special training sessions on confidentiality and security practices at regular intervals as deemed appropriate and sufficient (such as, for example, once every two years).
	Data governance policies and processes are regularly reviewed - The policies, processes, and technical infrastructure for data governance are subject to regular reviews such as internal and external audits and peer reviews, conducted at least biennially, with respect to the implementation of best practices.

	Disclosure control measures are regularly reviewed - Disclosure control measures, including but not limited to organizational, technical, and software-based mechanisms, are implemented, validated, and regularly reviewed to ensure the confidentiality of data.
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Key characteristic 4: Quality Assurance Monitoring and Error Handling

Additional Measures:

Maturity Level	Measure
Level 1	Standard quality indicators are established for key statistics - Standard quality indicators are established for all key statistics. These indicators should consider different output quality dimensions ⁹ , including relevance, accuracy and reliability, timeliness and punctuality, accessibility and clarity, and coherence and comparability.
Level 2	User satisfaction surveys are conducted, and results are made available and used - User satisfaction surveys are conducted, their results are made available and are used to improve the statistical outputs
	Statistics undergo extensive validation before release - All statistics undergo extensive data validation procedures beyond basic validation checks before release to ensure data quality, including the identification and verification of key components and comparison with related statistics. This measure directly builds on measure 1 of level 1.
	Management and team leaders encourage the prompt reporting of any errors and quality issues - Staff promptly report any errors and quality issues and are encouraged to do so.
	Users are promptly informed about any errors and their reasons.
	Regular quality assessments identify improvement actions - Regular quality assessments (such as after each reporting cycle) identify possible improvement actions.
Level 3	Metadata and quality reports follow a standard format.
	Most of users are satisfied with the quality of statistics - At least 75% of users are satisfied with the quality of official statistics, based on the results of a user satisfaction survey.
	Data revisions are thoroughly documented and explained to users.
	Voluntary audits, peer reviews, or certifications are performed - Voluntary audits, peer reviews, and certifications are performed for key statistics and/or the statistical agency, and users are informed about the key results.

⁹ These dimensions are defined in the UN NQAF Manual (available at <https://unstats.un.org/unsd/methodology/dataquality/un-nqaf-manual/>)

Key characteristic 5: High-level Commitment

Additional Measures:

Maturity Level	Measure
Level 2	Senior management participates in the assessment of quality culture - Senior management leads or actively participates in initiatives assessing the quality culture with the statistical agency.
	Senior management reviews key statistical outputs - Senior management reviews and participates in the launch of key statistical outputs.
Level 3	Senior management ensures risk management is integrated with quality management - Senior management ensures that risk management is implemented in the organization at different levels alongside of quality management.
	Efforts of staff to achieve quality improvements are encouraged and recognized.
	Professional independence is guaranteed by law - The professional independence of the statistical agencies or units is guaranteed by law.
	Senior management leads the implementation of quality improvement plans and actions - Senior management is directly involved in the development and implementation of quality improvement plans and actions, hereby establishing a culture of continuous improvement.
	Statistical laws recognize quality assurance as a requirement for official statistics.
Level 4	As per statistical legislation, the head of the statistical agency has the responsibility for quality assurance and the quality of official statistics - The head of the national statistical agency is by law responsible for the quality of official statistics.
	Staff surveys confirm that senior management has a strong commitment to quality assurance
	Staff are encouraged to participate in regional and international conferences and workshops.

Key characteristic 6: Staff Commitment

Additional Measures:

Maturity Level	Measure
Level 2	Staff show interest in new tools for achieving quality improvement - Staff demonstrate interest in using new tools and technologies to achieve quality improvement.
	Staff take pride in producing high-quality statistics - Staff demonstrate a strong sense of pride in producing high-quality statistics in their actions. ¹⁰
	Staff contribute to research and train junior statisticians - Staff contribute to research on official statistics and provide training and lectures to junior statisticians.
Level 3	Staff take pride in quality improvement initiatives - Staff demonstrate pride in being involved in quality improvement projects or initiatives and are eager to adopt new methods, technologies, and tools.

¹⁰ To measure the level of pride, some suggested methods include staff surveys, interviews, focus groups, and feedback forms. Staff surveys can assess staff attitudes towards their work and eagerness to adopt new methods and technologies. Interviews and focus groups provide qualitative insights into staff experiences and motivations, while feedback forms collected after participation in quality improvement initiatives or training sessions offer additional perspectives on their engagement and enthusiasm.

Annex III: Measures to foster quality culture across the National Statistical System (NSS)

Measure No.	Measure
1	All major producers of official statistics have implemented Level 1 (Basic) and Level 2 (Intermediate) measures outlined in the Quality Culture Assessment Checklist.

The following additional measures could be used to foster quality culture across the National Statistical System

2	The NSS is perceived as innovative and as maintaining the high quality of its statistical outputs. ¹¹
3	Identified quality champions actively promote quality culture within and across statistical agencies, by for instance, fostering best practices, advocating for consistent application of quality assurance framework and sharing lessons learned and successful approaches in quality assurance.
4	Regular meetings among data providers within the NSS are conducted once per year to share best practices regarding data governance and to coordinate processes of access to data for statistical purposes. ¹²
5	User satisfaction surveys document the high trust of users into official statistics.
6	The head of the national statistical office or the coordinating agency of the NSS is designated by law as responsible for the coordination of the NSS.
7	Staff at statistical agencies are known for providing high quality statistics.

¹¹ To assess the innovation within the national statistical system, proposed indicators include: 1) technology adoption; 2) methodological advancements; and leadership committed to innovation. In terms of quality assurance, tools such as UN NQAF Self-Assessment Checklist (available at <https://unstats.un.org/unsd/methodology/dataquality/tools/>) and other internationally adopted standards can be employed. These tools help ensure adherence to quality standards and continuous improvement in statistical practices.

¹² The actual frequency of regular meetings among data providers within the National Statistical System (NSS) depends on the specific circumstances and structures of each NSS.

Annex IV: Glossary of Terms

The following list provides working definitions of important terms used in this Maturity Model. The primary reference for these definitions is the United Nations National Quality Assurance Frameworks Manual for Official Statistics (Manual). The definitions presented below are used throughout this Maturity Model, but countries may have their own definitions.

Ethical principles: are defined in the Declaration on Professional Ethics of the International Statistical Institute (see <https://isi-web.org/declaration-professional-ethics>). The shared professional values are respect, professionalism, truthfulness, and integrity. The ethical principles are 1. Pursuing Objectivity, 2. Clarifying Obligations and Roles, 3. Assessing Alternatives Impartially, 4. Conflicting Interests, 5. Avoiding Pre-empted Outcomes, 6. Guarding Privileged Information, 7. Exhibiting Professional Competence, 8. Maintaining Confidence in Statistics, 9. Exposing and Reviewing Methods and Findings, 10. Communicating Ethical Principles, 11. Bearing Responsibility for the Integrity of the Discipline, 12. Protecting the Interests of Subjects.

Key statistics: is a term used for whatever a country or statistical agency considers its most important statistical outputs based on users' needs.

Management and staff: management is the group of individuals within an organization who hold leadership and supervisory positions, responsible for overseeing operations and guiding teams to achieve organizational goals. In contrast, staff refers to individuals who do not occupy leadership or supervisory roles. Instead, they focus on performing specific tasks or duties essential to the functioning of the organization or the execution of a particular project.

Metadata: data that define and describe other data. Structural metadata and reference metadata can be distinguished from each other. Structural metadata defines and accompanies the data and consists of identifiers and descriptors that are essential for discovering, organizing, retrieving, and processing a statistical data set (e.g., titles, subtitles, short descriptions, dimension names, variable names, etc.) (Manual, para. 1.14).

National statistical office: 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 (Manual, para. 1.14).

National statistical system: 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). It is the responsibility of each country to define the scope of its NSS (see also statistical agencies, data providers and statistics producers and data ecosystem) (Manual, para. 1.14).

Official statistics: statistics that describe, on a representative basis, economic, demographic, social and environmental phenomena of public interest. Official statistics are developed, produced and disseminated as a public good by the members of the NSS in compliance with the Fundamental

Principles of Official Statistics and accepted quality frameworks such as the UN-NQAF, as well as other internationally agreed statistical standards and recommendations. In many countries, official statistics are defined and described in the statistical programmes (Manual, para. 1.14).

Other producers of official statistics: members of the NSS (see also statistical agencies) (Manual, para. 1.14).

Production and dissemination of official statistics: this refers to all activities that are part of a statistical process and relevant overarching processes as described in the Generic Statistical Business Process Model (GSBPM), see [Generic Statistical Business Process Model - Generic Statistical Business Process Model - UNECE Statswiki](#). .

Quality assessments: the part of quality assurance that focuses on an assessment of how well quality requirements (the stated needs or expectations) are fulfilled (Manual, para. 1.14).

Staff survey: a structured questionnaire designed to gather insights into employees' attitude, opinions, and perceptions regarding various aspects of their working environment, culture and experience.

Statistical agencies: members of the NSS, encompassing the NSO and other producers of official statistics. Statistical agencies other than the NSO normally have other main purposes and tasks than the production of official statistics and only a section or a small group of people within the institution produces statistics. The quality requirements for processes and output are the same for all official statistics. However, for a ministry or administrative body where only a part of that body produces statistics, the requirements linked to the institutional environment apply only to the entity producing official statistics. For example, while the ministry or administrative body is typically not independent, the unit within the ministries/administrative bodies that are responsible for producing statistics should decide on how to produce and when to disseminate its statistics independently (Manual, para. 1.14).
