DATA ETHICS, GOVERNANCE, AND QUALITY IN A CHANGING DATA ECOSYSTEM

INTERNATIONAL DATA AND STATISTICS FRAMEWORKS

National Capacity Building Workshop for High-Level Stakeholders

Nairobi, Kenya | 5 September 2025

United Nations

KNBS
KENYA NATIONAL
BUREAU OF STATISTICS
Keeping you informed

ECA

1. *Governance and Coordination of National Statistical Systems*
2. *Data Governance for National Data Ecosystem*
3. *Data Quality Assurance Frameworks (DQAF) and New Data Sources*
4. *Generic Statistical Business Process Model (GSBPM) for Quality Assurance*
5. *Conclusions and Future Directions*

1. Governance and Coordination of National Statistical Systems

From Data to Knowledge

- We live in a **world overwhelmed by data**, more than at any time in history

- **But data alone does not speak**; it often lacks meaning for most users when presented without context or structure

- **Statistics provide the tools** to organize, analyze, and interpret data effectively

- Based on scientific methods, statistics ensure **accuracy, consistency, and usefulness**

- By transforming data into knowledge, **statistics facilitate a deeper understanding and informed decision-making**

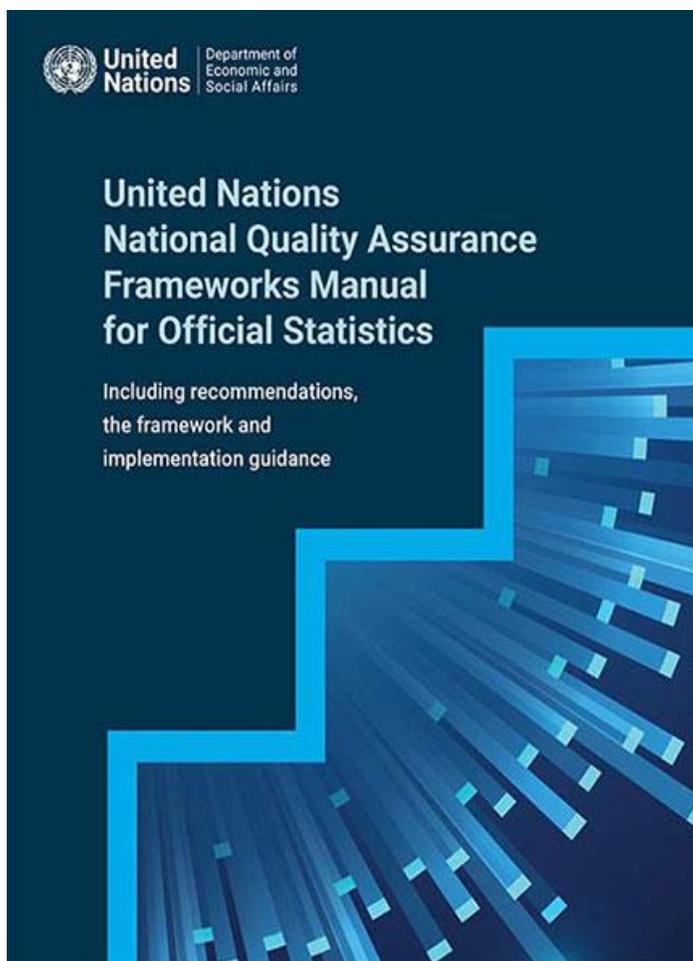# What Makes Official Statistics Distinctive?

- **Produced in accordance with the Fundamental Principles of Official Statistics**

  Ensures impartiality, objectivity, and adherence to ethical standards.

- **Based on rigorous scientific methods**

  Guarantees reliability, comparability, and accuracy over time and across domains.

- **Serve the public good**

  Official statistics are designed to meet the needs of all users: government, business, civil society, and the public.

- **Prioritize trust, transparency, and accountability**

  Unlike some other data or statistics, official statistics are held to standards that promote openness and public confidence.

United Nations | Department of Economic and Social Affairs

United Nations National Quality Assurance Frameworks Manual for Official Statistics

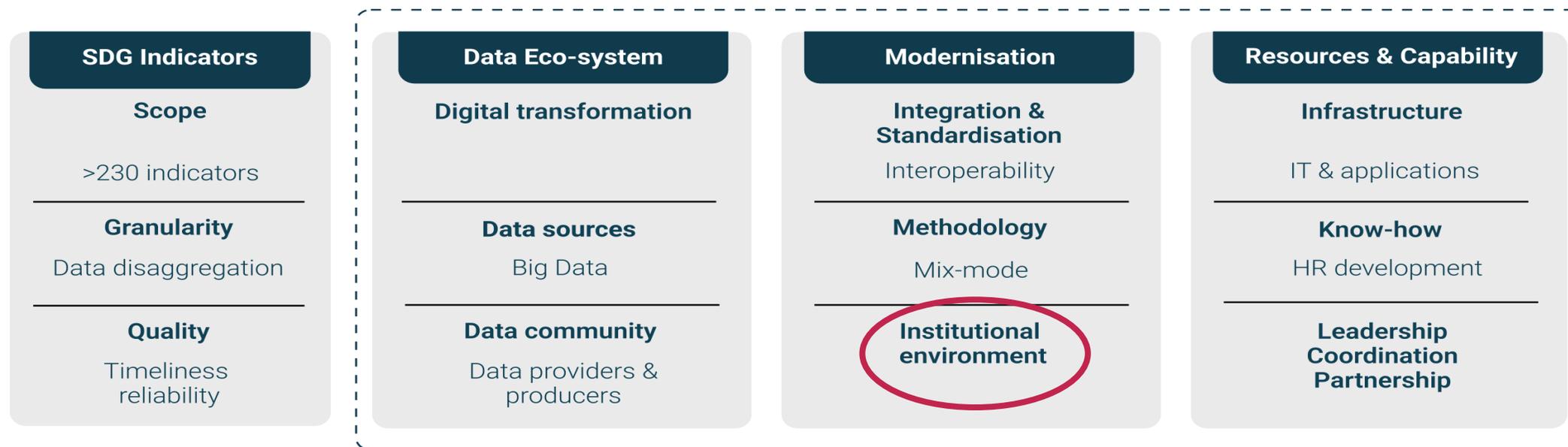Including recommendations, the framework and implementation guidance

- **The Fundamental Principles underpin international, regional, and national statistical frameworks**

- **Examples of supporting standards include:**

  - Regional Codes of Good Practice (Europe, Africa, Latin America, Caribbean, etc.)

  - United Nations National Quality Assurance Framework (UN-NQAF)

  - Regional Generic Laws on Official Statistics (GLOS)

  - Other international and regional methodological guidelines

- **Purpose:** To promote trust, consistency, and comparability of official statistics across countries and over time, and to support institutional development, modernization, and capacity building within national statistical systems

Challenges and Opportunities for Official Statistics

- **2030 Agenda for Sustainable Development** and related regional and national development policies

+ Emerging data needs for addressing health crises, climate change, and economic turmoils

SDG Indicators	Data Eco-system	Modernisation	Resources & Capability
Scope	**Digital transformation**	**Integration & Standardisation**	**Infrastructure**
>230 indicators		Interoperability	IT & applications
Granularity	**Data sources**	**Methodology**	**Know-how**
Data disaggregation	Big Data	Mix-mode	HR development
Quality	**Data community**	**Institutional environment**	**Leadership Coordination Partnership**
Timeliness reliability	Data providers & producers		

Challenges	Opportunities	Transformation

+ Resilience and Agility

Advantages of sound Governance and Coordination

Coordination: within a system, activities, responsibilities, command and control structures are synchronized, harmonized and, when appropriate, integrated

The advantages of a coordinated NSS are the following:

- Efficiency and synergies of operations by avoiding overlapping efforts, duplication of work and reducing the response burden through data sharing

- Effectiveness by addressing demands for statistics in an organized and timely manner through the capability to produce expected outputs jointly

- Quality, coherence, comparability and accessibility of official statistics within and across statistical domains through the harmonization of methodology, classifications and dissemination channels

- Develop a corporate identity and secure trust in Official Statistics (branding)

Modernization of the Regulatory Framework:

- Strengthening the independence and coordination of the National Statistical System

- Establishing Integrated National Statistical Programmes

- Enhancing the leadership role of the National Chief Statistician

- <u>Engaging with users and data communities</u>

- Enabling access to novel data sources, including administrative records and registers, for the production of official statistics

- Expanding provisions on statistical confidentiality and data protection to novel data sources

Sound Institutional and organizational Frameworks

Main provisions of a modern statistical law:

- Scope of the Law and delineation of the National Statistical System (NSS)

- Role and mandate of the NSO in leading and coordinating the NSS and beyond

- National Chief Statistician (CEO of the NSO)

- User engagement (Statistical Advisory Council)

- Coordination instruments (statistical programmes)

- Data sources and confidentiality (beyond censuses and surveys)

- Precedence of statistical legislation over other legislation

- Other provisions

Delineation of the National Statistical System

National Statistics Bureau (NSO):

- Main producer of Official Statistics

- Professionally independent body

- Coordinates the development, production and dissemination of statistics within the NSS

- Not to be assigned responsibilities or given instructions conflicting with the Principles

Other Producers of Official Statistics (OPOS):

- Operate in compliance with the Statistics Act and adopted standards

- Professionally independent entities within their respective ministries and public agencies

- Responsible for their assigned activities in the statistical programmes

Administrative data sources and other non-traditional data sources (secondary data sources):

- Secondary data are primarily collected for non-official statistical purposes, in general by a public authority implementing an administrative regulation or a private company for management/commercial purposes

- The authority that supplies the secondary data to producers of official statistics is a priori not considered a producer of official statistics.

Provisions on Data Sources

- Data for the production of official statistics may be drawn from all types of sources, be they statistical surveys (primary sources) or other sources (secondary sources)

- Producers of Official Statistics choose the data sources based on professional considerations and, in particular, about quality, costs, and the burden on the respondents

- The Law grants the right to NSO to get access to administrative records for statistical purposes at the required level of granularity, including identifiers

- The Law explicitly allows Producers of Official Statistics to edit and validate data, combine data from different sources, carry out record linking and matching of individual data, and use statistical estimation techniques to fill data gaps, including through the application of computational techniques.

Confidentiality

- Individual data/micro-data from natural and legal persons held by Producers of Official Statistics are to be strictly confidential and used exclusively for statistical purposes

- The principle of confidentiality applies to all data sources, be they statistical surveys (primary sources) or secondary data sources (e.g. administrative records).

- Statistical confidentiality is guaranteed in the Statistics Act

# Memorandum of Understanding with data providers

Establishing MoUs with data providers (secondary data sources) is a good practice.

MoUs should contain at least these elements:

- Legal basis (law, statistical programmes, contractual arrangements…)

- Description of the purpose of the data transfer/data access

- Detail description of data covered, including frequency and timeliness

- Quality standards and quality reports

- Technical standards

- Cooperation mechanisms for improving the adequacy of the data with statistical requirements (consultation and partnership mechanisms)

- Contact persons …
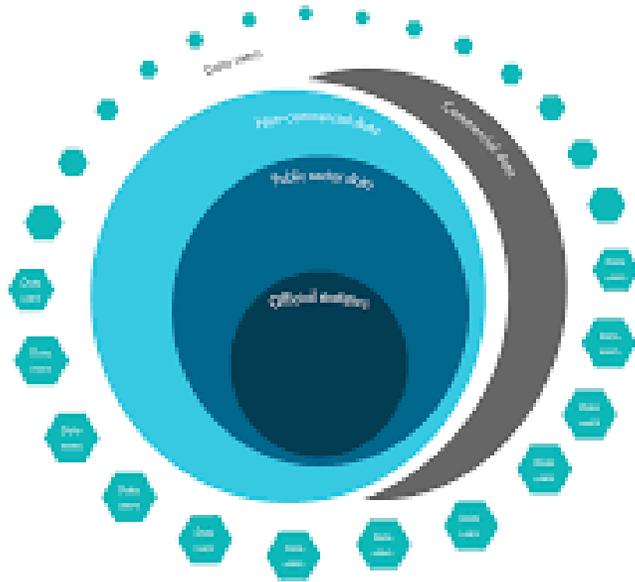
2.Data Governance for National Data Ecosystem

Traditional and New Data Ecosystem

Statistical sources

Statistical surveys / censuses

Administrative sources

Traditional Data Sources

Statistical sources

Statistical Surveys / Censuses

Secondary Data Sources

Administrative sources

Other sources Private / NGOs

New Data Sources

National Data Ecosystem

Challenges and opportunities:

- New competitors / loss of quasi-monopoly of official statistics / new and additional expectations of data users

- Statistical data sources are expensive, and often lack timeliness and granularity

- Administrative and other data sources offer greater cost efficiency, timeliness and granularity

- One of the key issue for NSOs and NSSs is data access and use

However, a new, larger data ecosystem has arrived

Key issue: Access and use of admin. and other data sources such as
1. mobile phone data
2. data from media, e-commerce and internet services providers,
3. data based on Earth observation and remote sensing
4. data of private companies
5. data collected by citizens (citizen-generated data)

Principles, Codes and Normative Frameworks

National Data Ecosystem

- Privacy and Data Protection Act

  Governs personal data collected, processed, and/or shared by public and private operators

- Public Information Access Act

  Governs the procedure that ensures free access to and the right to reuse information held by public authorities

- Archiving Act

  Rules the procedure for archiving data of national interest

- Data Sharing Policies

National Statistical System

- UN Fundamental Principles of Official Statistics (A/RES/68/261)

- UN National Quality Assurance Framework (UN-NQAF)

- Regional Statistics Code of Good Practices

- National Legal Framework and national code of practices

- Other Guidelines, Methodology and Technology applying to the NSS and promoted beyond the NSS

Working definition: Data ecosystem

Handbook on Management and Organization of National Statistical Systems
Chapter 5: NATIONAL DATA ECOSYSTEMS AND GOVERNANCE

The entire network of actors (data collectors, producers, providers, analysts, users and others) **(WHAT/WHO)**

- that directly or indirectly generate and produce, collect, process, disseminate, analyse and/or otherwise consume data and associated services, **(WHAT)**

- as well as the necessary legal, policy, administrative, technological and technical infrastructures, **(WHAT/HOW)**

- that **[ideally]** combine to support interactions and partnership, facilitate the use of data and hereby **generate value of data** for society as a whole, within a specified country or region. **(WHY)**

Working definition: Data governance

A system of decision rights and accountabilities (WHAT)

- for the management of the availability, usability, integrity and security of the data and information **(WHAT)**

- to enable coherent implementation and co-ordination of data stewardship activities as well as increase the capacity (technical or otherwise) to better control the data value chain, and the resulting regulations, policies and frameworks that provide enforcement. **(WHY)**

This includes

- the systems within an enterprise, organization or government that define who has authority and control over data assets and how those data assets may be used,

- as well as the people, processes, and technologies required to manage and protect data assets.

Working definition: Data stewardship

The ethical and responsible creation, collection, management, use, and reuse of data. (WHAT)

- It is expressed through long-term, inter-generational curation of data assets such that they benefit the full community of data users and are used for public good. (WHY)

- Made visible through a range of internal and external functions associated with stewardship roles – including data access, security, and data quality and standards – it influences proactive and responsible data practice to help deliver data strategies, maintain trust, and promote accountability. (WHY)

Functions of a Data steward within the NSS
(proposed by UN Working Group on Data Stewardship)

1. Building trust in data and promoting data-sharing and use of data in decision-making

2. Safeguarding data quality

3. Facilitating greater collaboration, coordination and data integration across the national statistical system

4. Maintaining citizen confidentiality and data security

5. Implementing strong data management and capacity building practices
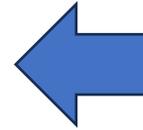
Enablers/tools:

1. Data governance

2. Statistical laws and regulations

3. National quality assurance framework

Options for NSOs in the larger data ecosystem

1. Do nothing (not engaged)

   a) The NSO **decides not to react** to the expansion of the national data ecosystem.
   b) This option is not recommended as there is a high risk that it could lead to the NSO becoming marginalised and losing relevance.

2. Observe and wait for opportunities (passive engagement)

   a) The NSO **decides to observe** the development of the national data ecosystem, without engaging unless clear opportunities present themselves.
   b) Potential of missed opportunities to influence how the national data ecosystem evolves, particularly in terms of legal and institutional frameworks, as well as data standards.
   c) Potential of increased difficulties accessing and using data from other actors
   d) NSO may have no other option due to resource constraints.

Options for NSOs in the larger data ecosystem

3. Influence and shape (active engagement)

   a)   The NSO realises the importance of engaging with the national data ecosystem, and **allocates specific resources**

   b)   Build partnerships and ensure the NSO is present when important discussions take place and decisions are made.

   c)   Often part of cross-government data or digitalisation initiative.

4. Lead (pro-active engagement)

   a)   The **NSO seeks and is given the or a leading role** in shaping the national data ecosystem.

   b)   Significant costs in terms of resources.

   c)   Potential risks to reputation and increased confusion as to the role and mandate of the NSO.

   d)   Several successful examples, but opinions are split.

Impediments for larger role (preliminary list)

1. Lack of mandate and authority, and clear objectives

2. Lack of data governance framework

3. Lack of resources (human and other)

4. Lack of clearly identified and immediate benefits

5. Too many obstacles, including resistance to change

Possible solution:

National data strategy and roadmap suitable to national circumstances (but NSO cannot do it alone)

Working group of the Statistical Commission on data governance

United Nations Statistical Commission (2025)

Tasks

1. **Developing a common set of terminology, building pillars and the framework, and the roadmap.**

2. Facilitating the exchange of national practices and experiences.

3. Proposing a way forward for the Commission to support national statistical offices in developing coherent strategies to respond to rapid technological changes and the growing availability of data from multiple sources.

4. Identifying global and regional principles on data governance and their applicability to official data and statistics at the national level.

Expect outputs and outcomes

1. Lexicon of definitions - Data ecosystems, components of data, data governance

2. "**Data governance framework**" focusing on data governance within official statistics while also considering the Commission's broader mandate

3. **Knowledge repository -** Statistics Wiki on data governance

Looking outside of official statistics: Data governance frameworks in the public sector

OECD (2019), The Path to Becoming a Data-Driven Public Sector

- New Zealand: 3 levels: Strategy – Policy – Practice

- Argentine: 3 layers: Strategic – Tactical – Delivery

- UN E-Gov Survey 2020: Principles – Pillars – Elements

→ All consist of:

1. **A vision/objectives**

2. **Enablers such as legislation, institutional arrangements etc.**

3. **Modes and aspects of delivery**

Proposed Framework of Data Governance
(for discussion only)

Key Elements:	Key Elements:	Key Elements:	Key Elements:
National Data Bureau	National Data Officer	Data sharing policy	Cloud computing
NSOs	Council of Chief Statisticians	Data partnership	PETs
Ministries	Data stewards at ministries	Data access rights	SDMX
Private sector		Data storage with time	
Individuals		Cross-border data flows	
		Data quality	
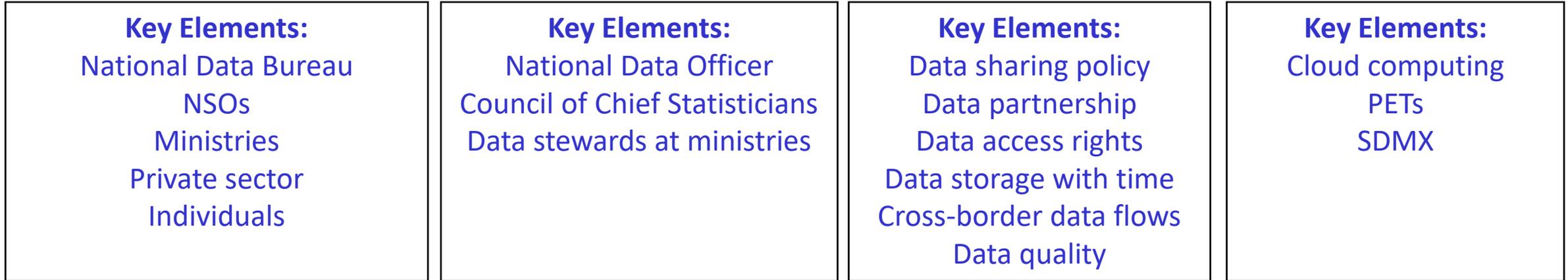
Building Pillars

Institutional Setting	People	Processes	Enabling Technologies

Foundation

FPOS

3. Data Quality Assurance Frameworks (DQAF) and New Data Sources

What is quality in Statistics (Definition)

- Quality is the degree to which a set of inherent characteristics of an object fulfils requirements (see International Standards Organization, ISO 9000:2015).

- In the context of statistical organizations, the object is the statistical output or product, the process, or the whole statistical system

- **A simple definition of quality is "fit for use" or "fit for purpose".**

What is quality in Statistics (Definition)

Notes:

- It is the users' needs that define the quality.

- It is multi-dimensional. The dimensions of quality are interrelated and, there are trade-offs between some of them.

- Quality is crucial for the confidence in a statistical institution and its products.

- Quality is the responsibility of all!

- The essence of quality management is continues improvement

Cycle of continuous improvement

- Standardize successful changes
- Document lessons learned
- Begin cycle again
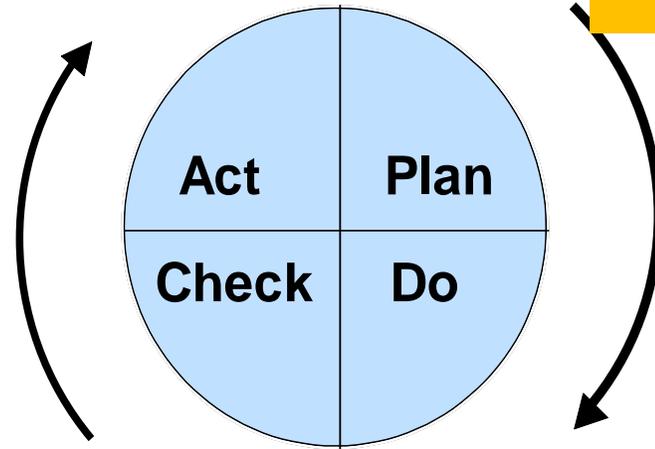
- Identify problem/opportunity
- Analyze current processes
- Develop a plan

Act	Plan
Check	Do

- Monitor results
- Compare against goals
- Analyze variances

- Implement the plan
- Document the process
- Train employees

Quality assurance frameworks for official statistics

1. **Definition:** A National Quality Assurance Framework (NQAF) is a coherent and **holistic** system for statistical quality management.

    a. It is a tool for all working in official statistics

    b. Its objective is to achieve quality improvements at the level of the statistical system, processes and statistical outputs in order to meet user needs.

    c. It sets a standard of quality and hereby assures trust in official statistics.

2. Are all based on the UN Fundamental Principles of Official Statistics (FPOS)

3. What is specific about official statistics?

    1. Professional independence; impartiality; protection of privacy; access to all types of data requires high trust;

    2. This is reflected in laws, quality frameworks and ethical standards that go beyond the generic quality management systems

UN NQAF: a coherent and holistic system for statistical quality management

- UN NQAF arranges its quality principles and associated requirements into <u>four levels</u>, ranging from the over-arching institutional and cross-institutional level through the statistical production processes to the outputs:

- Level A: Managing the statistical system

- Level B: Managing the institutional environment

- Level C: Managing statistical processes

- Level D: Managing statistical outputs

Quality assurance implementation guidance and tools

At the level of the statistical organizat ion

➡️ ❑The *Manual* (2019)

➡️ ❑The UN NQAF self-assessment checklist (2019)

➡️ ❑The Roadmap for NQAF development and implementation (2023)

❑ Module for Quality Assurance when using Administrative and Other Data Sources to produce Official Statistics (2025)

➡️ ❑ Maturity Model on Quality Culture in Official Statistics (2025)

Other tools

❑ Generic Statistical Business Process Model (GSBPM)

❑ Quality indicators, Quality reports, Metadata standards, Assessments and audits (see ESS Guidelines on quality reporting)

→ Next step: Define GSBPM overarching process of quality management + Integrate tools

Quality assurance implementation guidance and tools

At level of individual outputs

❑ The *Manual* (2019)

❑ The UN NQAF self-assessment checklist (2019)

❑ The Roadmap for NQAF development and implementation (2023)

❑ Module for Quality Assurance when using Administrative and Other Data Sources to produce Official Statistics (2025)

❑ Maturity Model on Quality Culture in Official Statistics (2025)

Other tools

❑ Generic Statistical Business Process Model (GSBPM)

❑ Quality indicators, Quality reports, Metadata standards, Assessments and audits (see ESS Guidelines on quality reporting)

→ Next step: Define GSBPM overarching process of quality management + Integrate tools

The Manual

Part	Chapter	Title
Introduction	Chapter 1	Contents and use of this Manual
Recommendations	Chapter 2	Recommendations on quality assuarance for official statistics
UN NQAF	Chapter 3	The UN National Quality Assurance Framework: principles and requirements
Implementation	Chapter 4	Assessment tools and risk management
	Chapter 5	Development and implementation of a national quality assurance framework
	Chapter 6	Implementation of quality assurance within the national statistical system
	Chapter 7	Quality assuarance for statistics compiled from different data sources
	Chapter 8	Quality assuarance for SDG indicator data and statistics
References	Chapter 9	Quality assurance in the global statistical system
UN NQAF Annex	Annex A	Detailed Checklist of elements to be assured

United Nations | Department of Economic and Social Affairs

United Nations National Quality Assurance Frameworks Manual for Official Statistics

Including recommendations, the framework and implementation guidance

See https://unstats.un.org/unsd/methodology/dataquality/
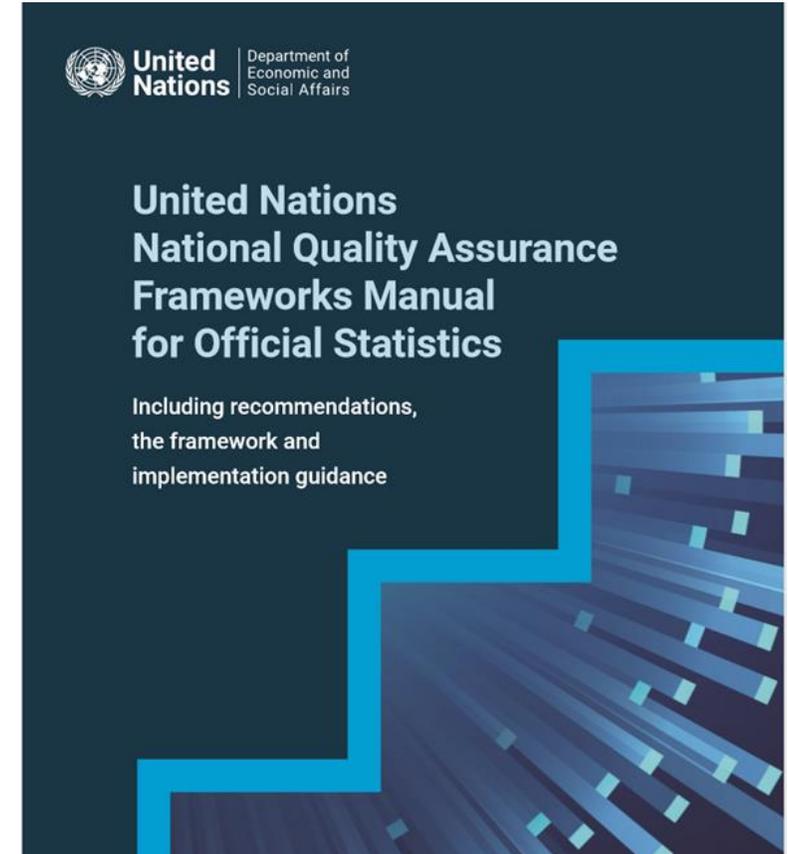
Self-assessment checklist

Self-assessment checklist based on the UN Quality Assurance Framework contained in the Manual

Purpose:

1. For conducting regular and rigorous quality assessment with the objective to identify improvement actions

2. Also be used to provide an initial assessment for learning purposes or to introduce staff to quality assurance

3. Can be used to draft quality assurance framework

19 Principles
87 Requirements
356 Elements to be assured (good practices)

The
Roadmap

Roadmap for NQAF development and implementation

https://unstats.un.org/unsd/methodology/dataquality/roadmap/
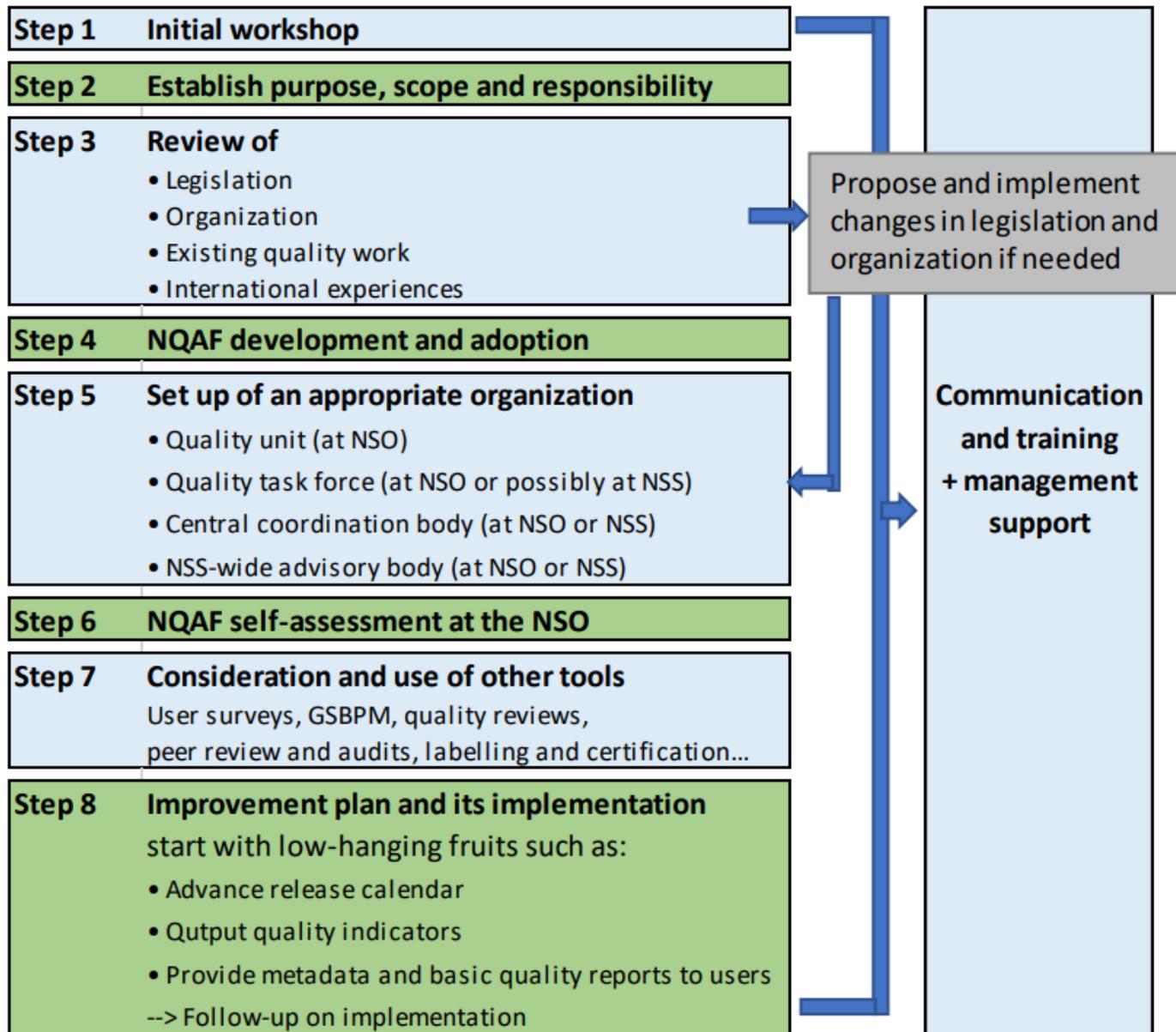
A Roadmap for the Development and implementation of NQAF

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 • Qutput 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

UN National Quality Assurance Framework – Are We Equipped for New Data Sources?

➤ The UN-NQAF <u>applies to all data and statistics</u> regardless of the source, <u>but the challenges to obtain compliance can be different</u> depending on the data source.

➤ UN Expert Group developed a <u>module</u> that complements existing generic national quality assurance frameworks (NQAF) <u>to provide more specific and detailed guidance when using administrative and other data sources to produce official statistics</u>.

➤ Synthesizes existing country practices and available guidelines

Module for Quality Assurance when using Administrative and Other Data Sources

- <u>Part 1</u>: Conceptual approach to assure quality when using administrative and other data sources
- <u>Part 2</u>: List of ten critical requirements

- <u>Annex 1</u>: Sub-module for input data validation
- <u>Annex 2</u>: Glossary of working definition of relevant terms
- <u>Annex 3</u>: Relevant UN NQAF requirements
- <u>Annex 4</u>: Mapping of the Module's ten critical requirements to the conceptual approach and relevant UN NQAF requirements
- <u>Annex 5</u>: Link between GSBPM and the 10 critical requirements

Available at: https://unstats.un.org/unsd/methodology/dataquality/aos

Introduction of the Module

- **Target audience**: Statistical agencies that want to use admin and other data sources to produce official statistics

- **Purpose**: This module complements existing generic national quality assurance frameworks (NQAF) and provides more specific and detailed guidance when using administrative and other data sources to produce official statistics.

- **Conceptual approach and list of 10 critical requirements**

  - The **conceptual approach provides an overall structure and understanding** for using administrative and other data sources for producing official statistics.
  - The list of ten critical requirements **provides a concrete tool and practical guidance** for using an administrative and other data source.
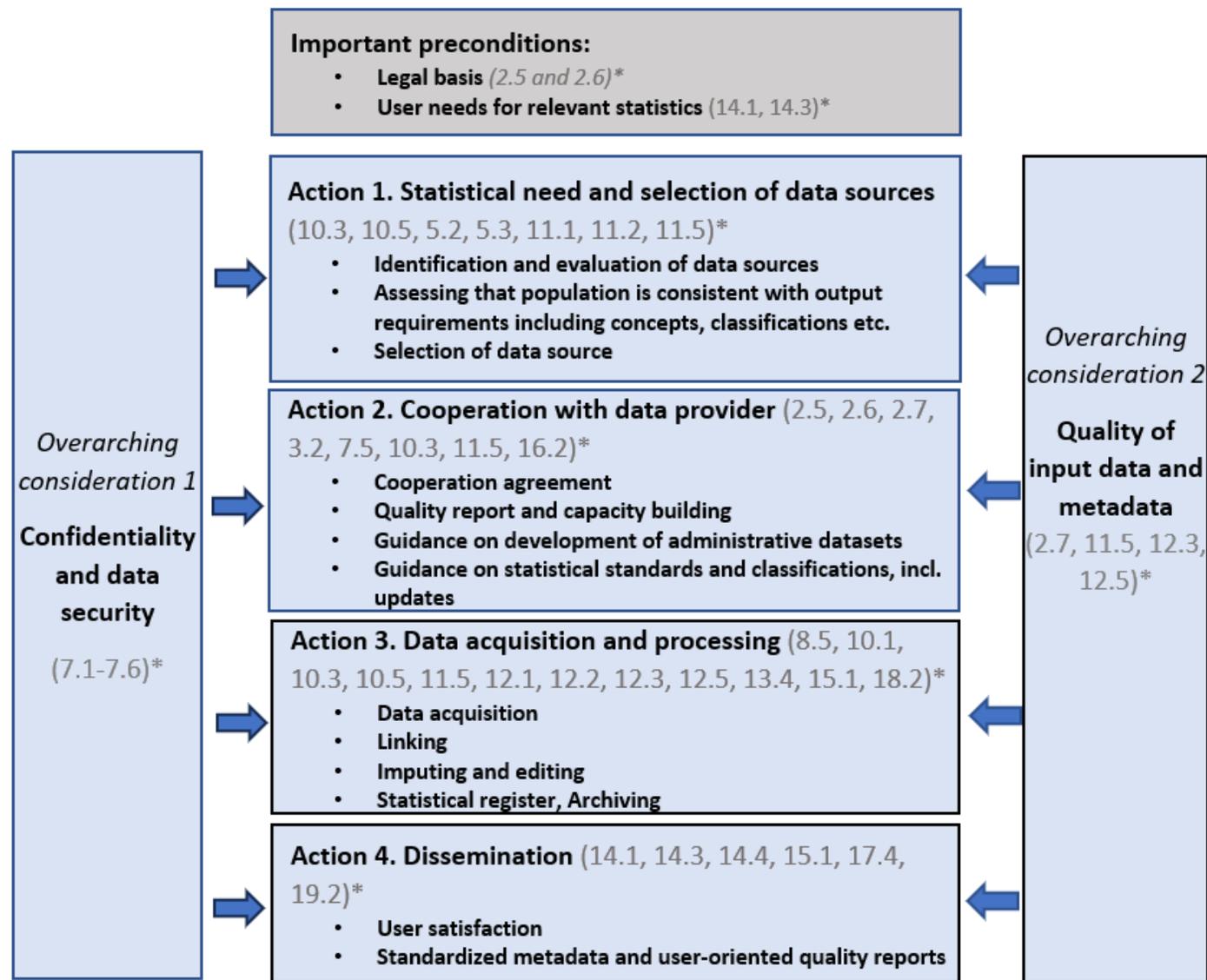
45

Part 1: Conceptual approach identifying relevant actions and aspects to be considered:

- The **four actions** can be understood as activities or steps that typically need to take place when using administrative and other data sources.

- The **four actions** can follow each other or can be undertaken individually, depending on the specific circumstances.

- The **two overarching considerations** reflect aspects that must be considered during the four actions and concern confidentiality and data security, the quality of input data, and metadata.

Figure 1: Assuring the quality of official statistics when using administrative and other data sources – a conceptual approach identifying relevant actions and aspects to be considered.

Important preconditions:
- **Legal basis** *(2.5 and 2.6)**
- **User needs for relevant statistics** (14.1, 14.3)*

Overarching consideration 1

Confidentiality and data security

(7.1-7.6)*

Overarching consideration 2

Quality of input data and metadata

(2.7, 11.5, 12.3, 12.5)*

Action 1. Statistical need and selection of data sources (10.3, 10.5, 5.2, 5.3, 11.1, 11.2, 11.5)*
- Identification and evaluation of data sources
- Assessing that population is consistent with output requirements including concepts, classifications etc.
- Selection of data source

Action 2. Cooperation with data provider (2.5, 2.6, 2.7, 3.2, 7.5, 10.3, 11.5, 16.2)*
- Cooperation agreement
- Quality report and capacity building
- Guidance on development of administrative datasets
- Guidance on statistical standards and classifications, incl. updates

Action 3. Data acquisition and processing (8.5, 10.1, 10.3, 10.5, 11.5, 12.1, 12.2, 12.3, 12.5, 13.4, 15.1, 18.2)*
- Data acquisition
- Linking
- Imputing and editing
- Statistical register, Archiving

Action 4. Dissemination (14.1, 14.3, 14.4, 15.1, 17.4, 19.2)*
- User satisfaction
- Standardized metadata and user-oriented quality reports

* The numbers in brackets indicate the link to relevant UN NQAF requirements or principles. The relevant UN requirements are listed in Annex 3.

Part 2: List of ten critical requirements

1. The use of administrative and other data sources must be based on legal and actual access, ensure confidentiality and take user needs into consideration.
2. New data sources, data providers as well as the use of multiple data sources to produce or improve existing statistics or develop new statistics.
3. There is basic information about the data provider and general information about the data source.
4. The data provider and data source are assessed for their risks.
5. There are cooperation agreements with the data providers, and there is ongoing applicable.
6. The data provider assures the quality of its data, and a quality report (or quality declaration) is produced in cooperation with the statistical agency, as applicable.
7. The quality of the input data is systematically evaluated by the statistical agency.
8. There is comprehensive metadata about the input data.
9. Processing of input data at the statistical agency follows standards, guidelines, and best practices.
10. The special characteristics of administrative and other data sources are considered when disseminating statistical outputs.

The Basics & prep.

The Data Provider

At the Stat. Agency

The AOS Assessment Checklist of the "Module"

1. The purpose is to **identify areas of improvement when using administrative and other data sources for producing official statistics**.

2. This checklist corresponds **one-to-one** to the list of **ten critical requirements and suggested practices**.

3. This **checklist assesses individual statistics mainly produced from a single administrative or other data source (AOS)**. If multiple data sources are used, their individual impact must be explained.

4. The assessment checklist distinguishes suggested practices which are "**essential**" (15) and "**additional/advanced**" (40) to simplify the assessment and concentrate on main points. This designation can be adjusted by users.

The AOS Assessment Checklist of the "Module"

Please complete this part first

| Statistical output:	[Please complete / enter name]				Overall scores		
Data source:	[Please complete / enter name]				Total [55]	Essential (good)>=80	Additional (good)>=50
Ten Critical requirements	**Suggested practices**	**Instruction (please assess at least all essential (basic) practices [15])**	**Assessment: Full, partial, no compliance* [use drop down options in the cell)**	**Assessement: Describe your practices and possible improvement actions (possible input to quality report and improvement plan)**	0%	0%	0%
1. The use of administrative and other data sources must be based on legal and actual access, ensure confidentiality and take user needs into consideration. This critical requirement summarizes the preconditions of data access and user needs, and consideration of confidentiality and data security that are well reflected in UN NQAF and other commonly used quality assurance frameworks but require special attention when using administrative and other data sources. Efforts to ensure confidentiality and data security must consider that the data from administrative and other data sources is often very sensitive and access to it highly restricted. This critical requirement is reflected in the Important preconditions and Overarching Consideration 1 of the conceptual approach shown in Figure 1.	1.a. There is legal access to the data.[1]	Additional / advanced		Describe your practices here			
	1.b. There is actual access to the data.	Additional / advanced					
	1.c. The data source complies with existing laws and regulations (including the consent of data owners, where applicable) and its data can legally be used for producing official statistics.	Essential					
	1.d. Confidentiality of personal data and business information and data security are assured through appropriate means such as written instructions and guidelines based on best practices, staff training, and regular audits.	Essential					
	1.e. User needs are considered, and the statistical need is clearly identified.	Essential					
2. New data sources, data providers as well as the use of multiple data sources are proactively explored to produce or improve existing statistics or develop new statistics.	2.a. There are policies, guidelines, and practical procedures for exploring and testing the potential of new data sources for producing or improving existing statistics and the development of new statistics; this extends to the possible use of multiple data sources through data integration.[2]	Additional / advanced					

Two categories:
- Essential
- Additional/ advanced

Complete your Assessment here:
- Full Compliance
- Partial Compliance
- No Compliance
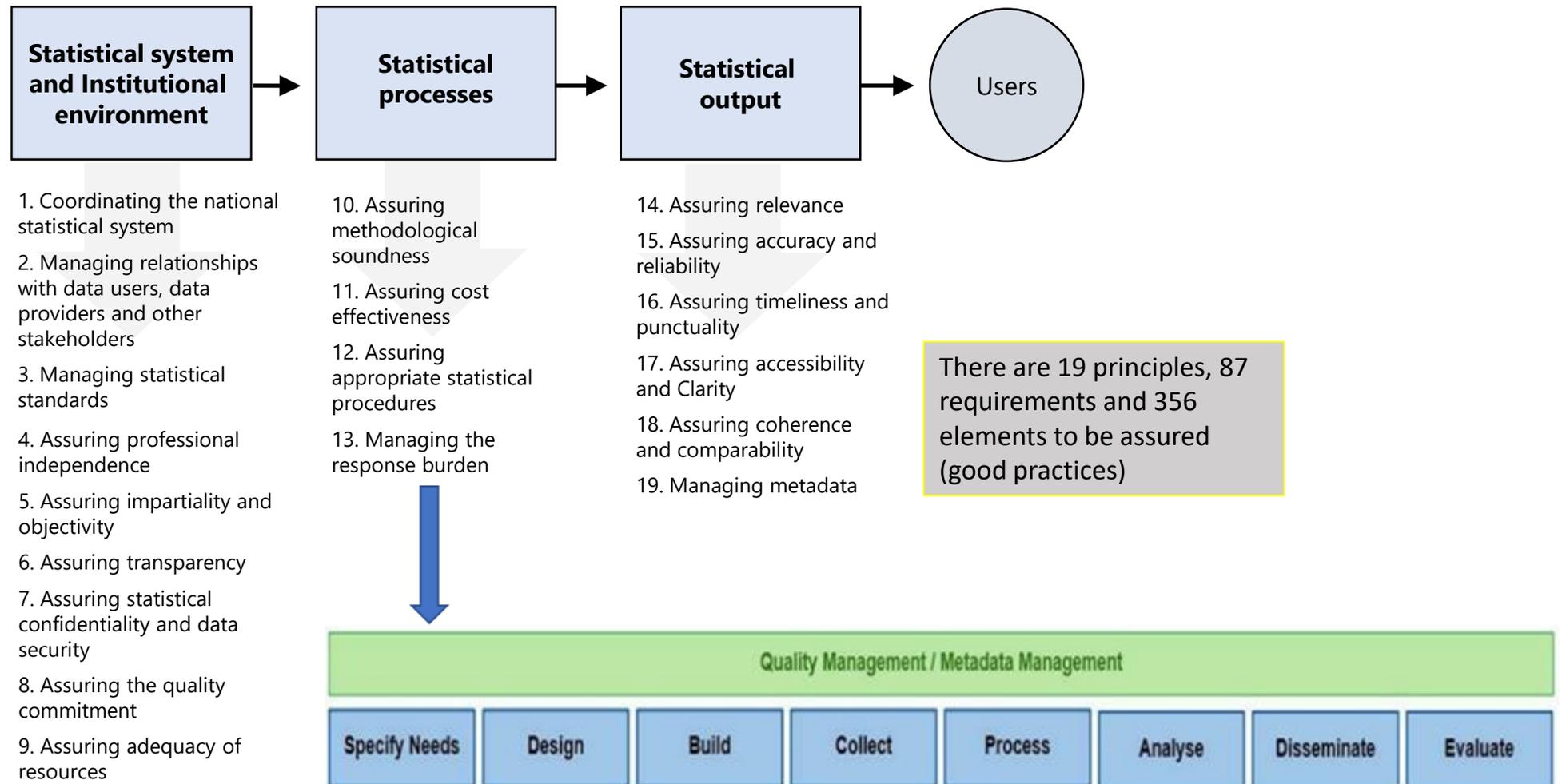
49
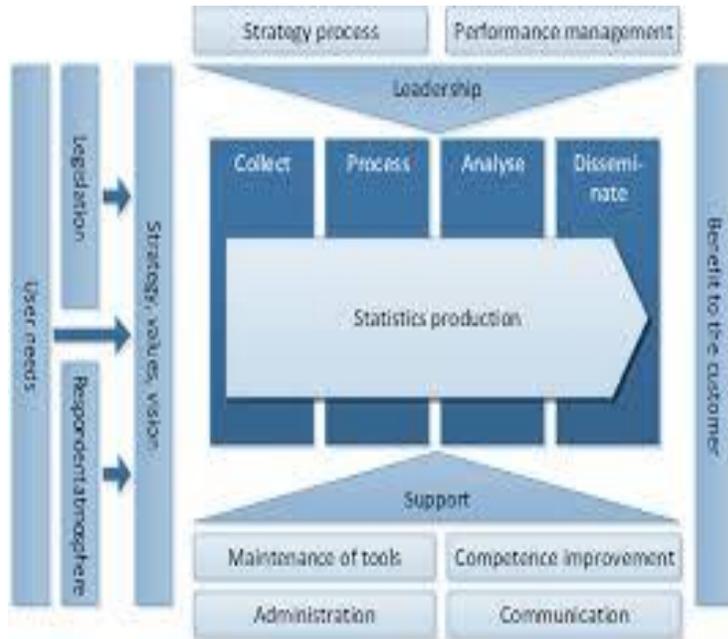
4. Generic Statistical Business Process Model (GSBPM) for Quality Assurance

Integration of quality management and GSBPM

1. **The improvement of the quality of statistical outputs requires the improvement of the statistical process.**

2. **Quality assurance must be embedded throughout the phases and sub-processes of the GSBPM –> further guidance is currently being developed**

UN NQAF structure – logic

Statistical system and Institutional environment	→	Statistical processes	→	Statistical output	→	Users

Statistical system and Institutional environment

1. Coordinating the national statistical system

2. Managing relationships with data users, data providers and other stakeholders

3. Managing statistical standards

4. Assuring professional independence

5. Assuring impartiality and objectivity

6. Assuring transparency

7. Assuring statistical confidentiality and data security

8. Assuring the quality commitment

9. Assuring adequacy of resources

Statistical processes

10. Assuring methodological soundness

11. Assuring cost effectiveness

12. Assuring appropriate statistical procedures

13. Managing the response burden

Statistical output

14. Assuring relevance

15. Assuring accuracy and reliability

16. Assuring timeliness and punctuality

17. Assuring accessibility and Clarity

18. Assuring coherence and comparability

19. Managing metadata

There are 19 principles, 87 requirements and 356 elements to be assured (good practices)

Quality Management / Metadata Management

Specify Needs	Design	Build	Collect	Process	Analyse	Disseminate	Evaluate

What is the GSBPM?

- Flexible model that *describes* and *defines* the *set of business processes* needed to *produce official statistics*

- *Standard framework* and *harmonised terminology* help statistical organisations

What is the GSBPM?

- **GSBPM Phases Covered**:
  1. Specify Needs
  2. Design
  3. Build
  4. Collect
  5. Process
  6. Analyze
  7. Disseminate
  8. Evaluate

Overarching Processes							
Specify needs	**Design**	**Build**	**Collect**	**Process**	**Analyse**	**Disseminate**	**Evaluate**
1.1 Identify needs	2.1 Design outputs	3.1 Reuse or build collection instruments	4.1 Create frame and select sample	5.1 Integrate data	6.1 Prepare draft outputs	7.1 Update output systems	8.1 Gather evaluation inputs
1.2 Consult and confirm needs	2.2 Design variable descriptions	3.2 Reuse or build processing and analysis components	4.2 Set up collection	5.2 Classify and code	6.2 Validate outputs	7.2 Produce dissemination products	8.2 Conduct evaluation
1.3 Establish output objectives	2.3 Design collection	3.3 Reuse or build dissemination components	4.3 Run collection	5.3 Review and validate	6.3 Interpret and explain outputs	7.3 Manage release of dissemination products	8.3 Agree an action plan
1.4 Identify concepts	2.4 Design frame and sample	3.4 Configure workflows	4.4 Finalise collection	5.4 Edit and impute	6.4 Apply disclosure control	7.4 Promote dissemination products	
1.5 Check data availability	2.5 Design processing and analysis	3.5 Test production systems		5.5 Derive new variables and units	6.5 Finalise outputs	7.5 Manage user support	
1.6 Prepare and submit business case	2.6 Design production systems and workflow	3.6 Test statistical business process		5.6 Calculate weights			
		3.7 Finalise production systems		5.7 Calculate aggregates			
				5.8 Finalise data files			

Purpose and use of GSBPM

Originally the aim was to provide a basis for statistical organisations to agree on a standard terminology on statistical metadata systems and processes. Use has been extended. Main areas of use:

o [ ] Documentation and metadata

o [ ] Communication

o [ ] Standardisation of processes, statistical methods, and software tools

o [ ] Sharing of statistical methods and software tools

o [ ] Linking of statistical standards to GSBPM phases and sub-processes to support their implementation

o [ ] Used as a framework for process quality assessment and improvement

o [ ] Monitoring of statistical processes

o [ ] Measuring costs, measuring system performance, and benchmarking

o [ ] Modernisation of statistical processes and the statistical office

o [ ] Design of training frameworks and plans

o [ ] Informing changes to the organisational structure of the statistical office

o [ ] Other

Example: Sub-process 1.1 and 1.2

- **1.1 Identify Needs**: This sub-process includes the initial investigation and identification of what statistics are needed and what is needed of the statistics. It may be triggered by a new information request.

- **1.2 Consult and Confirm Needs**: This sub-process focuses on consulting with the internal and external stakeholders and confirming in detail the needs for the statistics

Statistical Product - Consumer price index (monthly) of Armenia

- **1.1 Identify Needs**: CPI is considered the only indicator describing inflation in the Republic of Armenia…

- **1.2 Consult and Confirm Needs**: Consumer price observations and index calculations are carried out according to Annual Statistical Program of Armstat, which is approved every year by the State Council on Statistics of RA and within the frameworks of the Five-year Statistical Program…

Specify needs

1.1
Identify needs

1.2
Consult and confirm needs

1.3
Establish output objectives

1.4
Identify concepts

1.5
Check data availability

1.6
Prepare and submit business case

What does the implementation of GSBPM mean?

- Use of quality indicators linked to GSBPM?
- Full implementation entailing at least the following:
  - Use of common language throughout the organization,
  - Documentation of all processes,
  - Use as a tool for quality reviews and standardization.

→ Develop the link between quality assurance and the use of GSBPM

1. Specify the GSBPM overarching process of quality management at the level of the organization

2. Develop a set of GSBPM quality indicators (integrate quality assurance into the GSBPM) – covering 1) process as a whole, 2) quality of the sub-processes and 3) GSBPM Phase 8 Evaluate

   → **Prospect of a universal tool for quality assurance at the level of individual statistical outputs**

3. Develop guidelines to use GSBPM to support NQAF implementation (integrate GSBPM in quality assurance)

Possible important quantitative GSBPM quality indicators

	GSBPM phase
INPUT	
Compliance rates for concepts, definitions, standards	1.4, 2.2
Data input quality (many indicators)	1.5, 4.1, 5.1
Response rates	4.3
PROCESS	
Reporting burden and response time	2.3, 3.1
Costs	2.6, 3.6, 4.4, 8.2
Archiving	3.7, 4.4
Sampling details	4.1
HR and infrastructure (many indicators)	4.2
Linkage rates and errors (several indicators)	5.1
Editing, imputation rate, revisions	5.4
Metadata update	7.1
OUTPUT	
Ratio of statistical products that are disseminated with quality statements	7.2
Rate of available statistics	7.2
Several indicators for how statistics cover user needs	2.1,7,2
Timeliness and punctuality	7.3
Metadata dissemination	6.5, 7.4

Develop guidelines to use GSBPM to support NQAF implementation

References to GSBPM in UN NQAF as a starting point

Under the following UN NQAF principles and requirements, GSBPM is a useful tool that should be used for process management including monitoring, risk analyses, standardization and documentation:

Principle 8: Assuring commitment to quality
Requirement 8.7: Statistical products and processes undergo periodic reviews.
Requirement 8.8: Risk analyses addressing the quality of important statistical products and processes are performed.
Good practice: It refers to GSBPM for managing the quality of production stages

Develop guidelines to use GSBPM to support NQAF implementation

Principle 11: Assuring cost-effectiveness

- **Requirement 11.6**: The statistical agencies define, promote and implement integrated and standardized production systems.

Good practice: The statistical business architecture is based on standards such as GSBPM and GAMSO

Principle 12: Assuring appropriate statistical procedures

- **Requirement 12.2:** Statistical processes are well established and regularly monitored and revised as required.
- **Requirement 12.5:** Metadata and documentation of methods and different statistical processes are managed throughout the processes and shared as appropriate.

Good practice: Documentation and metadata should follow the GSBPM

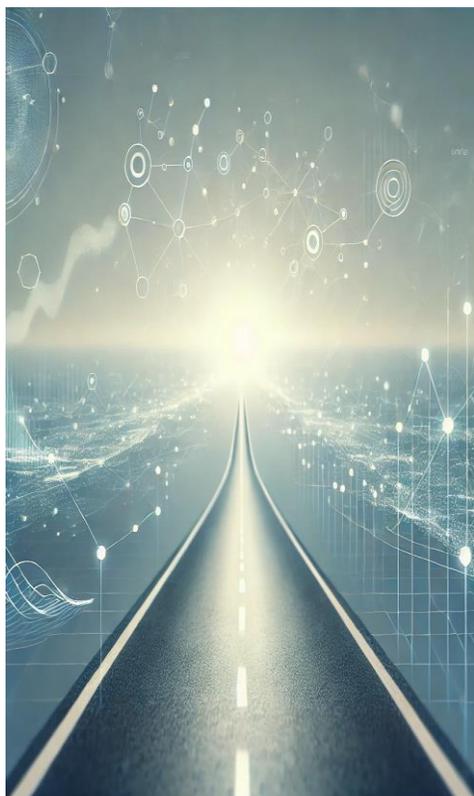# Develop guidelines to use GSBPM to support NQAF implementation

Next step is to collect more country practices:

❑ June 2025 seminar: Colombia, Italy, Mongolia, Norway, Türkiye

❑ This workshop..

❑ Country survey on the use of GSBPM in September 2025

References

- See Generic Statistical Business Process Model (GSBPM), (Version 5.2, May 2025) at https://unece.org/statistics/documents/2025/07/standards/generic-statistical-business-process-model-gsbpm-version-52

- See examples: https://www.armstat.am/en/?nid=373

- See UNECE presentation by Steven Vale of November 2022, available at https://www.sesric.org/event-detail.php?id=2690

- See UNECE presentation by Steven Vale of January 2022, available at https://unstats.un.org/unsd/methodology/dataquality/meetings/Workshop-on-the-implementation-of-NQAF-and-GSBPM

Conclusion and Future Directions

- The Fundamental Principles, establishing official statistics as a trusted foundation for informed decision-making.

- Coordination of NSS through legal and institutional framework could achieve many benefits, esp. efficiency and synergies.

- With data governance framework in place, NSOs could be better equipped to leverage digital technologies and use novel data sources while ensuring ethical practices.

- Communication strategy to engage society, parliament and other stakeholders in the broader data ecosystem is important to solicit policy and funding support.

- NSOs and other producers of official statistics should advance digital transformation with strong leadership and new mindsets.

- NQAF is a useful tool for quality management to ensure public trust.

- Commit to evolving official statistics to address society's changing needs and actively contribute to advancing sustainable development policies.

Thank You for Your Attention

Keping Yao| Statistician

Statistical Capacity Management | Data Innovation and Capacity Branch
United Nations Statistics Division
Department of Economic and Social Affairs | United Nations
2 UN Plaza | Office DC2-1936 | New York, NY 10017, USA
Email: yaok@un.org