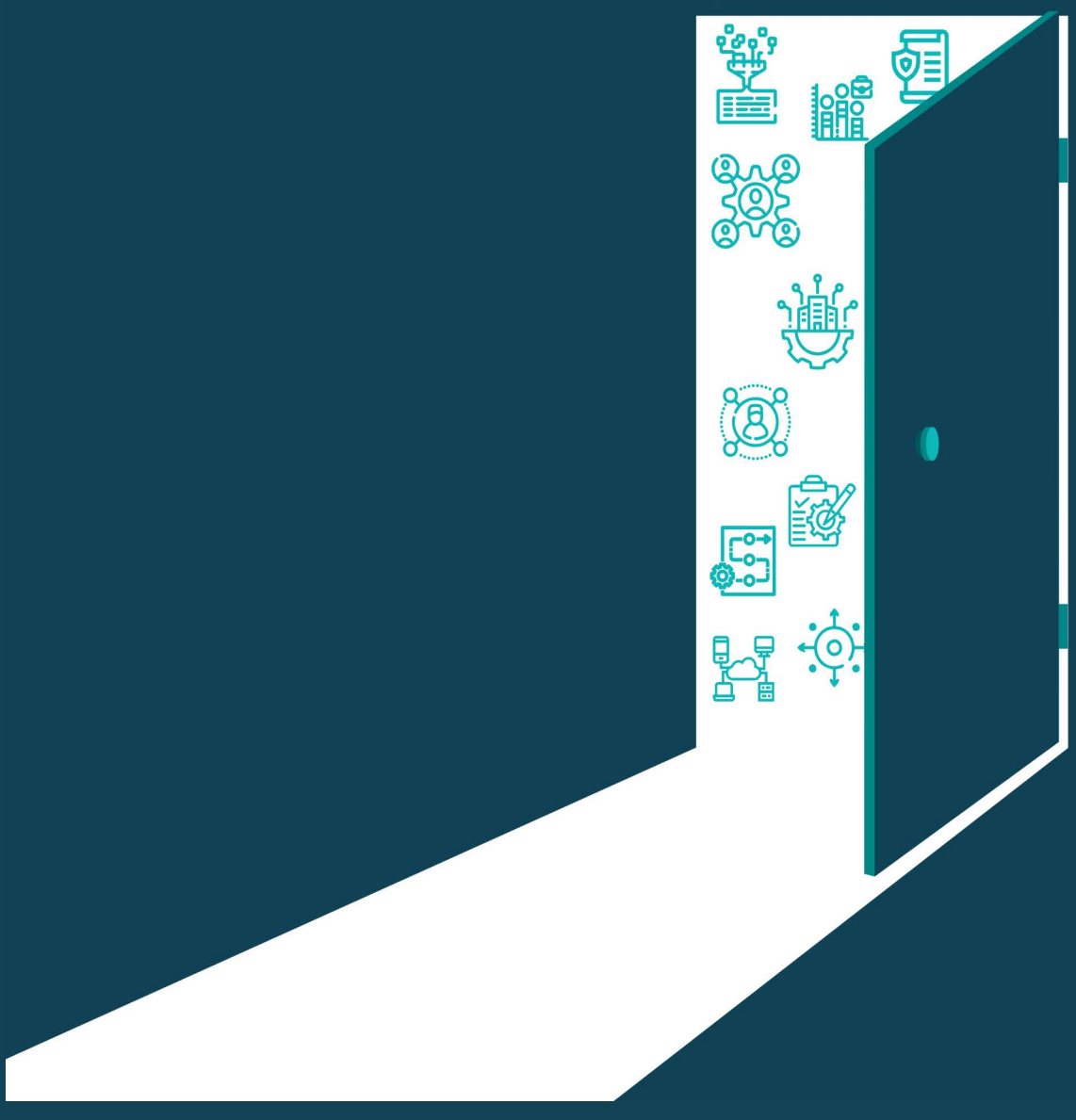
Introduction

Chapter 01



External and sudden shocks such as natural disasters economic turmoil and sanitary crises give rise to the question about the value of official statistics, and, in particular, national statistical offices (NSOs), in assessing the impact of these disruptive events on society, the economy and the environment and, eventually informing tailored and effective recovery policies. This Chapter describes the purpose users and uses of the Handbook. It provides contemporary guidance and examples of how the COVID-19 pandemic and other external shocks have been opportunities for National Statistical Systems (NSS) to transform and modernize to remain relevant and address emerging data requests.

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1.1 General Context

This *Handbook on Management and Organization of National Statistical Systems* is the fourth version of the series of Handbooks (see *Annex 1 - The Handbook Series* of the Handbook for more details). The Statistical Commission agreed, at its forty-eighth session[1], to develop this fourth edition of the Handbook.

1.1.1 Data revolution for sustainable development: the "first wave"

In July 2017, United Nations Member States adopted the 231 unique statistical indicators for assessing progress towards achieving 17 Sustainable Development Goals (SDGs) and 169 targets.

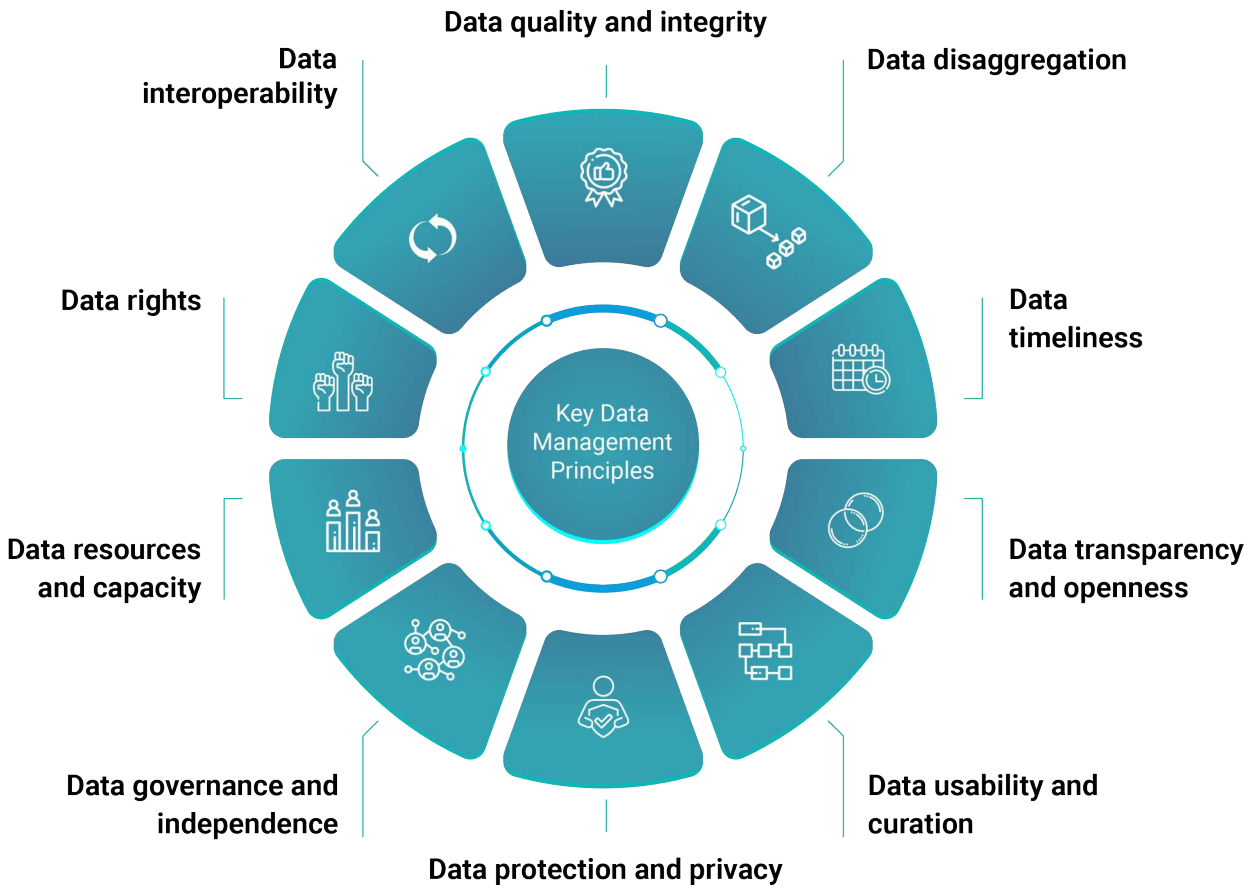
Prior to this formal adoption, the United Nations Secretary-General's Independent Expert Advisory Group on a Data Revolution for Sustainable Development (IEAG) in the 2014 seminal report, *A World that Counts: Mobilising the Data Revolution for Sustainable Development* (🔗) highlighted two big global challenges for the current state of data:

The challenge of invisibility: data is collected about what is known and visible, but what is not visible get forgotten.

The challenge of inequality: there is a gap between those with and those without the information needed to make decisions.

The Report highlights that new technologies lead to an exponential increase in the volume and types of data available, creating unprecedented possibilities for informing and transforming society and protecting the environment. Governments, companies, researchers, and citizen groups are in a ferment of experimentation, innovation, and adaptation to the new world of data, a world in which data are bigger, faster, and more detailed than ever before. Thus, the Report calls for urgent action to "mobilise the data revolution for all people and the whole planet in order to monitor progress, hold governments accountable and foster sustainable development" based on the following key principles:

1.Refer to decision 48/103, page 41 (🔗)



In the discussions that have taken place since, the principle of data interoperability has been added to the above. It is defined as ensuring that systems are using the same set of definitions, classifications and methodology, as well as technologically compatible platforms allowing for full harmonisation of interfaces and access protocols (*Chapter 10.7.1 — Dissemination by websites and data portals*). The principle of *data disaggregation* underpins the data requirements of the **Leave no one behind** promise of the 2030 Agenda. The other key principles precisely pinpoint critical challenges in meeting these requirements.

Statistical organizations have been discussing at the sessions of the United Nations Statistical Commission (UNSC), either in special-topic forums or as part of work under the formal agenda, what these principles mean for national statistical offices and national statistical systems. The mandate, functions and working modes of the United Nations Statistical Commission are described in *Chapter 16 - The International Statistical System (ISS)* and further details can also be found here.

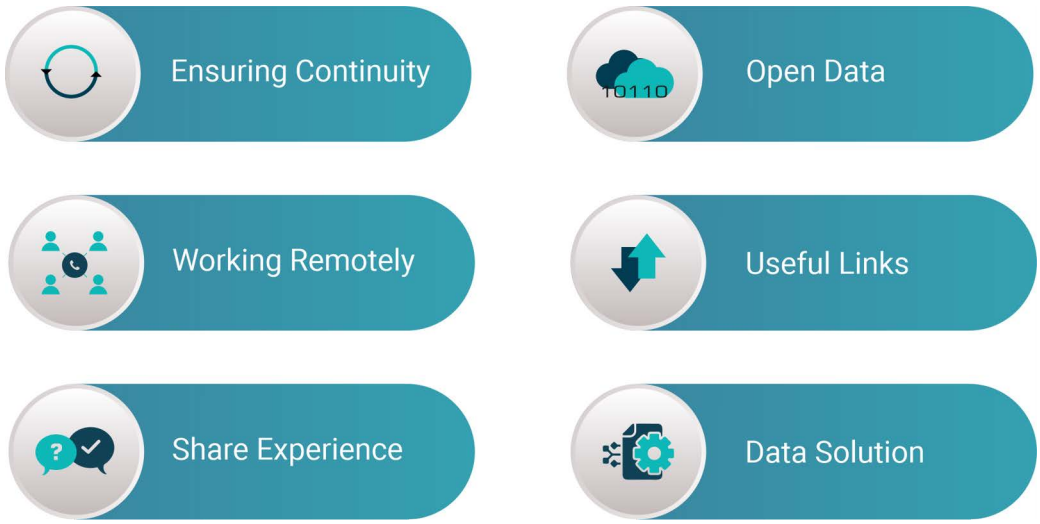
1.1.2 Data revolution for COVID-19: the “second wave”

While the original discussions on the data revolution in the context of official statistics were inspired by the challenges for meeting the data needs for the SDGs, it may be said

that a second wave of the data revolution became imperative in the context of the impact of the COVID-19 pandemic on national statistical systems.

The global COVID-19 crisis affected critical operations across the entire international statistical system. National and international statistical organizations had to take immediate action to ensure the continuity of key statistical compilation activities and the continued availability of data to inform emergency mitigation actions by governments and all sectors of the society. These actions are depicted in Figure 1.

Figure 1: COVID-19 response



Source: Adapted from: https://covid-19-response.unstatshub.org/

A description of the initial responses and links to the available knowledge resources on dealing with the impact of COVID-19 on statistical systems is presented in *Chapter 15 - Management of Buildings, Physical Space and Finance* and are structured around three main actions:

- establishing new procedures and workflows, collaborating in virtual teams, and implementing secure remote data access and data exchange capabilities;
- adapting and innovating data production methods and processes to ensure continuity of major official statistical programmes;
- addressing the increased need for data openness and accessibility to meet the urgent demand for reliable and accurate information.

  Before the COVID-19 pandemic, other external shocks or disruptions such as the Global Financial Crisis (GFC) gave rise to questions about what value national statistical systems (NSSs), and in particular national statistical offices (NSOs),

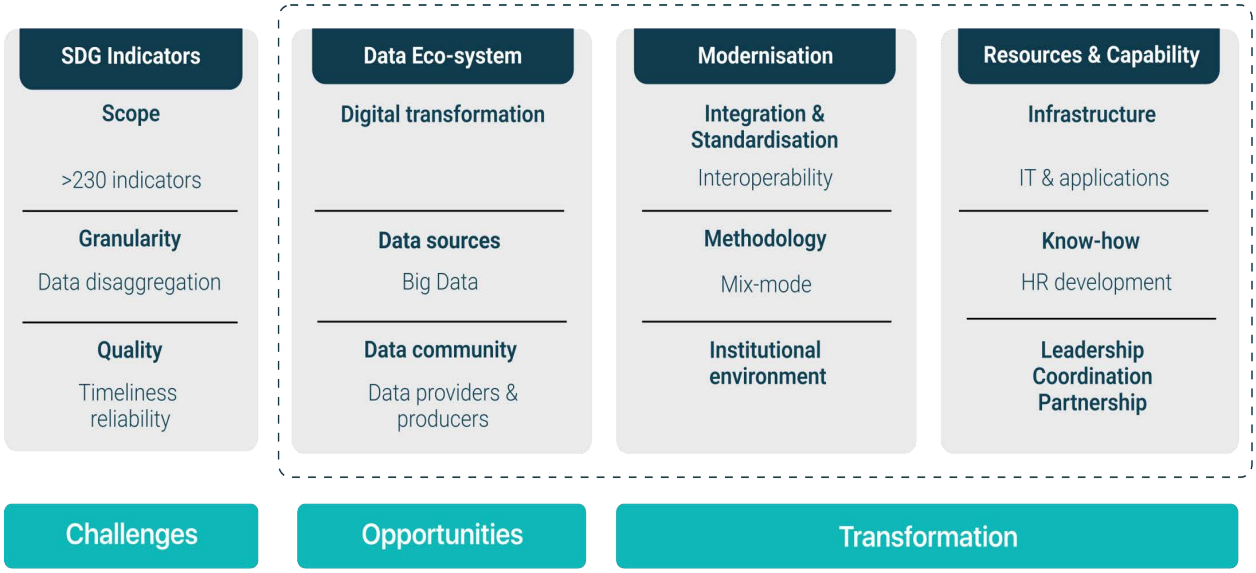
brings to societies and economies. However, these disruptive moments are opportunities for NSOs and NSSs not only to survive but also to thrive, and for which the Handbook provides contemporary guidance and examples.

1.1.3 Transformation and modernisation

Indeed, the changing environment within which national statistical systems and national statistical organizations operate has highlighted the imperative to transform and modernise to grasp the potential of innovative technologies in a rapidly changing data ecosystem. This data ecosystem is characterised by a plethora of sources of data and related producers that have crowded the data space. Thus, transformation also calls for reinforcing leadership, coordination, communication, and dialogue through institutional and organizational reform.

The discussions about a Transformative Agenda (🔗) under the auspices of the UNSC have mapped out an initiative with the primary objective of supporting national statistical institutions in their efforts to formulate a strategic direction and a national action plan for transforming the institutional environment of their national statistical systems and for integrating and modernising the statistical production processes of their sociodemographic, economic and environmental statistics programmes. The main focus of transformation and modernisation is to enhance national statistical systems' capacity to meet the increasing request **efficiently and effectively** for statistical information, and adapt their operations to address emerging data demands that cannot be anticipated. A schematic summary of the needed transformative changes and the opportunities to do so are shown in Figure 2.

Figure 2: What has changed since 2003



Discussions at national, regional and global levels have converged on the fact that modernisation and transformation are crucial to official statistics' ability to meet the widening and increasing requirements of policymakers, researchers, the media, and civil society for high-quality, timely and disaggregated statistics. These aspects are the basis for the *Cape Town Global Action Plan for Sustainable Development Data* (CTGAP) which is further articulated in *Chapter 16 - The International Statistical System (ISS)*. How to transform and modernise has been further explored in a series of global and regional conferences on a transformative agenda for official statistics. The consensus that emerged is that a review is needed of institutional, organizational, and technical processes across national statistical systems, and in conformity with the *United Nations Fundamental Principles of Official Statistics* (UNFPOS).

The response to the impact of the COVID-19 pandemic on statistical operations, addressing pressing and timely data needs, created unprecedented challenges for national statistical systems. The various webinars conducted by international and regional agencies, and the *Third World Data Forum* (🔗) (*Chapter 16 - The International Statistical System (ISS)*) shone a light on the many challenges and issues, but also solutions and good practices. Although not taken directly into account in the decisions leading up to the need to update the Handbook, these discussions are relevant to the topics covered in the Handbook.

1.2 Purpose, users and uses of the Handbook

The primary objective of this fourth edition of the Handbook is to guide chief statisticians and senior managers of national statistical offices (NSOs) and other producers of official statistics in maintaining and developing statistical capacity that is fit for purpose while strengthening trust in official statistics (see also *Chapter 4 - The National Statistical System*). At the same time, the Handbook is also designed to be useful to a broader range of users and stakeholders at all levels within and outside the NSS with the aim to develop a mutual understanding of official statistics and a common statistical culture.

The Handbook takes into account that national statistical systems and offices vary significantly in terms of size (human, financial and infrastructure), level of maturity or development (developing, developed, advanced), the extent of decentralisation (centralised, decentralised), but also the institutional environment in which producers of official statistics operate. The outcome of the review and consultation rounds, and the results of a survey conducted among chief statisticians revealed the need for the following:

- Increased focus on the implementation of the UNFPOS, both within the national statistical offices and among other producers of official statistics within the national statistical systems;
- Increased focus on the national statistical system, not just the national statistical office, and the need for coordination among national statistical system members;
- Increased focus on the systematic reuse and exchange of data;
- Better understanding of technological developments that have significant implications for data collection, handling, and dissemination;
- Increased dialogue and consultation with users to understand and, when possible, anticipate emerging data needs at national, regional, and global levels.

Thus, to address these requirements, the Handbook is designed with the following user-oriented features:

- It can be used as a checklist that an NSO, or any other producer of official statistics, would take into consideration when managing and carrying out the

various statistical processes in producing, analysing, and disseminating official statistics.

- It provides clear and sometimes firm guidance but, with the exception of elements related or referring to the UNFPOS, is not prescriptive as the situation in each country is unique, and only those in the country can determine the usefulness of provided guidance.
- It contributes to harmonising and aligning concurring definitions and terminology that have emerged recently through various, and sometimes uncoordinated, initiatives and programmes at the global and regional levels.

The Handbook relies heavily on relevant global, regional and subregional initiatives such, as the deliverables and recommendations of the High-level Group for Partnership, Coordination and Capacity-Building for Statistics for the 2030 Agenda for Sustainable Development (HLG-PCCB), the work of the High-level Group for the Modernisation of Official Statistics, (HLG-MOS), the 2019 United Nations National Quality Assurance Framework and its guidelines (UN-NQAF) as well as the outcome and conclusions of the series of regional Thematic Conferences (🔗).

In addition, the overall approach is to present general principles that appear to have withstood the test of time, location, tradition, and legal context and to illustrate them using national examples and practices. The Handbook draws on common challenges based on institutional principles, managerial practices, and innovative production processes and technologies acknowledged internationally and implemented successfully in countries. Likewise, illustrative examples of difficulties and failures serve to shorten the learning curve by analysing lessons learned or providing insights on what may be adapted in specific country contexts.

The 16 chapters of the Handbook can be read independently, as they focus on specific aspects of these processes. As a web-based publication with links generously distributed across chapters, users can create their own reading roadmaps, depending on their needs and interests. For illustration purposes, reading roadmaps are based: i) on the combination of all chapters of the Handbook into four cross-cutting themes used for the Thematic Conferences and covering broadly all strategic areas of the CT-GAP; and ii) by type of user and are provided in *Annex 2a - Illustrative Reading Roadmaps by User* and *Annex 2b - Illustrative Reading Roadmaps by Reading Objectives*.

1.3 Main topics, key concepts, and terminologies

1.3.1 Main topics discussed

The Handbook chapters cover the following main topics:

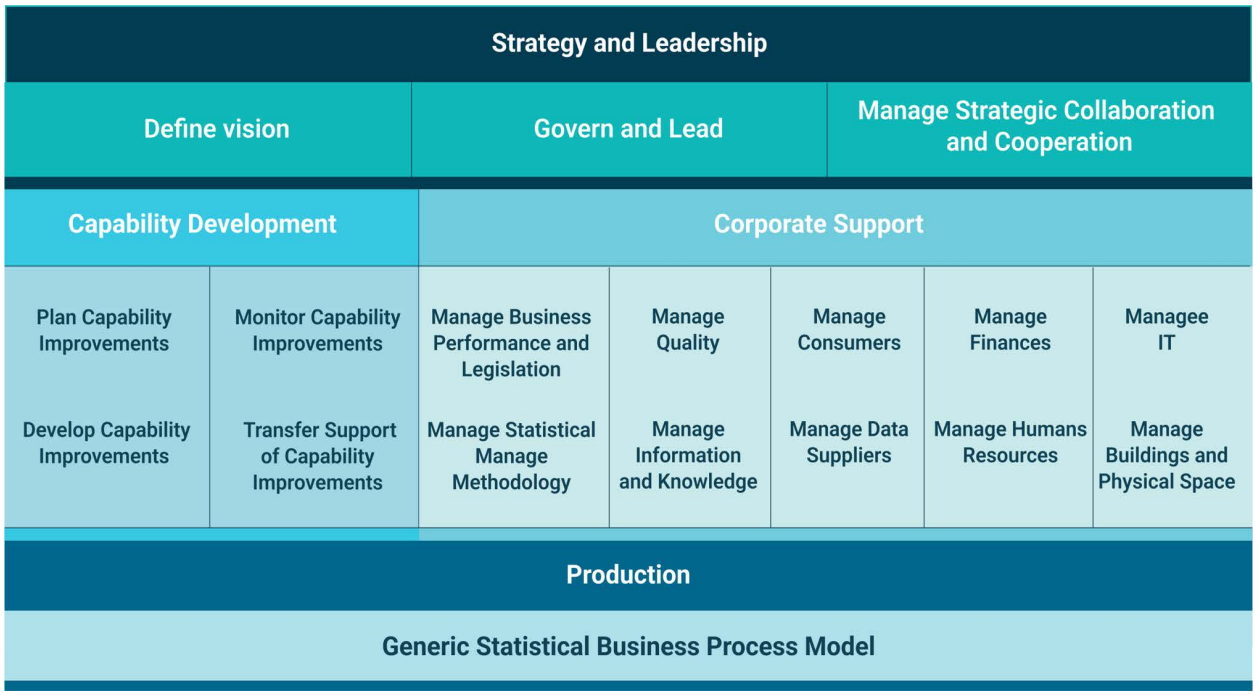
- Institutional and organizational frameworks securing resilience and the adaptability of official statistics;
- Communication, advocacy, and multi-stakeholder partnerships for official statistics;
- Production processes and data sources for integrated production systems in official statistics;
- Information technology infrastructure to support data collection and the sharing, processing, and dissemination of official statistics;
- Quality assurance frameworks, quality policy and quality management in official statistics;
- Capacity development, training, and resource mobilisation in official statistics.

The presentations and discussions are based on the most recent versions of the Global Inventory of Statistical Standards[2], concepts and definitions, classifications, and methodologies when writing the Handbook. The standards are presented and discussed in the specific chapters that refer to them.

Where necessary, the evolution and changes in the standards are presented. In discussing standards-based modernisation of the statistical production process, the Generic Statistical Business Process Model (GSBPM) is used as the organising framework. The discussion on the management of statistical activities is loosely based on another modernisation standard linked to the GSBPM—the Generic Activity Model for Statistical Organizations (GAMSO). A schematic diagram of the GAMSO and its relationship to GSBPM is displayed in Figure 3.

2.The Global Inventory of Statistical Standards is a work in progress and an updated version with improved content and functionalities should be available soon.

Figure 3. Activity areas of GAMSO



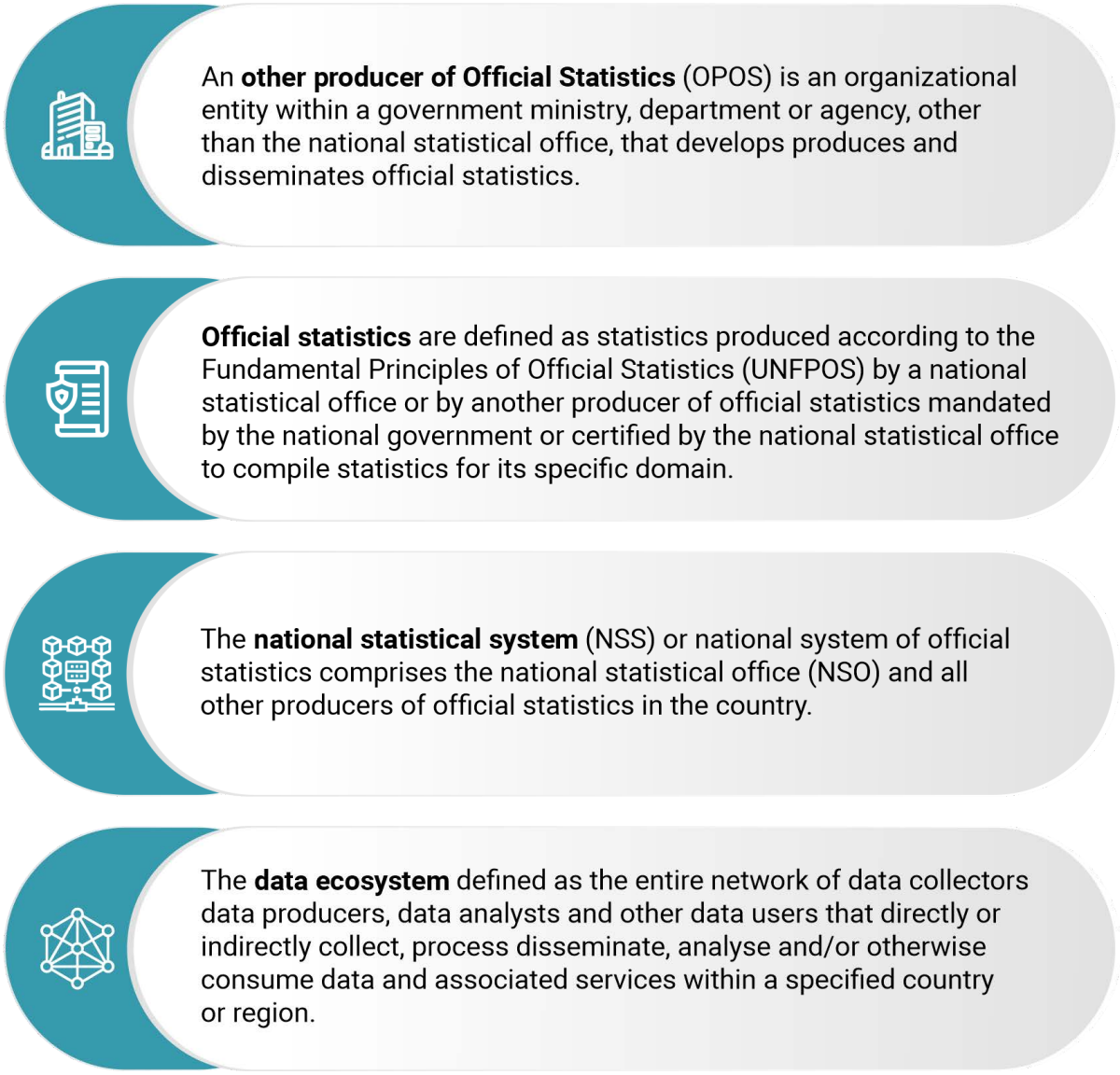
Source adapted from: https://statswiki.unece.org/display/GAMSO/II.+Structure

1.3.2 Key concepts and definitions

Each chapter introduces the terminologies and defines the key concepts necessary to have a common basis for understanding the topics. In addition, the Handbook has a Glossary that serves as a compilation of key terms and their definitions, along with explanatory notes where needed. A list and description of statistical applications, software and modernisation models and standards is also included in the Handbook.

The key concepts and terminologies in this handbook on the management of national statistical systems are the national statistical office, other producers of official statistics, official statistics, and the national statistical system defined as follows in the Glossary and further developed in - The Basis of Official Statistics:

The **national statistical office** (NSO) is defined as the main producer of official statistics in a country and or the organization responsible for coordinating all activities related to the development, production, and dissemination of official statistics in the national statistical system.



Typically, official statistics are produced and disseminated in compliance with the respective national statistical legislation and identified as such in the national statistical programmes.

All statistics produced by a national statistical office (NSO) are assumed to be official statistics except for those explicitly stated by the NSO as not official. Statistics produced by NSOs that might not be considered official statistics would be methodological studies that have not been adopted officially such as studies on seasonal adjustment procedures or experimental statistics using new methods or data sources.

Most countries have one organization for which the development, production and dissemination of official statistics is the core function. The name of this organization

differs among countries (e.g. National Statistical Institute (NSI), National Bureau of Statistics (NBS), Central Bureau of Statistics (CBS), National Statistical Agency (NSA), Central Statistical Agency (CSA), Central Statistics/Statistical Office (CSO), etc.). Another practice in naming the organization follows the form “Statistics [name of country]”. In this handbook, the term used is the national statistical office (NSO), defined above. In general, the NSO is the biggest producer of official statistics. It is typically responsible for major data collection activities for official statistics and, in most cases, the population census.

Countries have found different ways of placing the NSO within their administrative structure and in a few cases as an autonomous agency outside the main branch of the executive. In most cases, the function of chief statistician is assigned to the head of the NSO. *Chapter 5 - The National Statistical Office* discusses various aspects of the NSO as an organization. It includes its vision, mission statement, core function, strategic planning, finance and administrative structures. Chapter 5 also discusses statistical business architecture (🔗) project management and various options for (re) organising the NSO.

Chapter 4 - The National Statistical System further examines organizational issues for national statistical systems derived from the principles and the definition of official statistics and how these principles are translated into institutional safeguards for the various actors in official statistics. The chapter also discusses relationships between the NSO and other producers of official statistics; the ways NSSs are organised (the spectrum from centralised to decentralised, vertically and horizontally, etc.); legislative frameworks and governance; and the chief statistician position and function.

The data ecosystem within a country is broader than the national statistical system because it includes not only those producing official statistics but all producers and users of data in a country.

Considering and understanding the various issues, models, and practices in relation to one’s own NSS and functioning of the NSO and other producers of official statistics are significantly useful in undertaking transformative change, adopting modernisation principles and tools, and managing the resulting changes.

Annex 3 - Evolution of Usage of Terms in the Handbook Series provides an overview of how these definitions have progressed across the time dimensions represented by the three versions of the Handbook.

1.4 Features and outline of the Handbook

1.4.1 Features of the Handbook

The main topics and related key concepts and terminology discussed in this Handbook are organised into 16 stand-alone chapters (including this chapter). The distinctive features of the Handbook include:

All chapters, except for *Chapter 2 - Official Statistics - a general overview*, which has a hard-copy publication version (in all UN official languages), are available and published on an interactive web platform only.

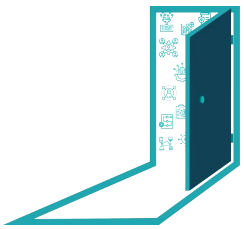
The interactive web platform supports the idea that the Handbook is a "living" document to be updated at regular intervals. The mechanism for doing so is described here. This strategy is more attuned to the needs for timely, rapid, and innovative responses to changes and challenges in the environment within which official statistics are produced, disseminated, and communicated.

While each chapter is a stand-alone chapter, they are linked together through hyperlinks where relevant.

As much as possible, the references and related materials included in the Handbook are available on the internet, with links provided. In some cases, hyperlinks to web resources are embedded in the related texts.

The platform allows for printing portions, specific sections, or whole chapters. The entire Handbook can also be downloaded in pdf format.

1.4.2 Outline of the chapters of the Handbook

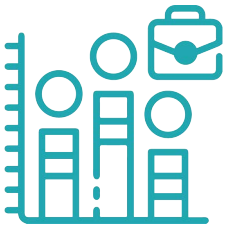


Chapter 1

Introduction

Chapter 1 traces the motives for issuing a revised version of the Handbook on the Organization and Management of National Statistical Systems; the 4th edition of the Handbook series of Statistical Organization. The chapter highlights the changes in the ecosystem in which national statistical offices and other producers of official statistics operate since the last edition (2003).

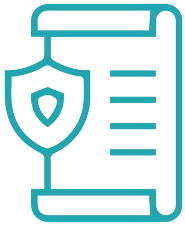
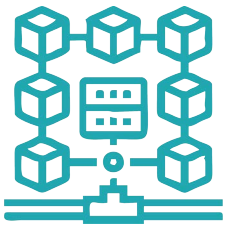
The chapter provides an informative summary of the main topics, contents and structure of the handbook. The chapter serves as a quick guide to users/readers to find which chapters/sections would have the information or resources of interest to them.



Chapter 2

Official Statistics - a general overview

Chapter 2 serves as statistical advocacy, awareness, and literacy piece, covering the main topics and critical issues dealt with in the various chapters of the Handbook. This chapter does not address only chief statisticians and senior managers of statistical offices, but target a broad range of users, data providers and stakeholders at all levels within and outside the national statistical system. Thus, the chapter is designed to be a stand-alone publication and will be the only hard-copy chapter of the Handbook, available in all UN official languages.

	Chapter 3 **The Basis of Official Statistics** Chapter 3 aims to provide a common basis for understanding what is meant by official statistics, the principles that should guide the production of official statistics, and how these principles can be implemented through legislation and guidelines.
	Chapter 4 **The National Statistical System** Chapter 4 defines the concept and describes the components of a national statistical system (NSS). The chapter discusses and illustrates its governance and associated programmatic and coordination mechanisms.
	Chapter 5 **The National Statistical Office** Chapter 5 covers the key features of a national statistical office (NSO) and describes the statistical processes using the Generic Statistical Business Process Model (GSBPM). Although many topics discussed in this chapter are mainly applicable to an NSO, good practices can be applied to any other producers of official statistics.

Chapter 6

Users and their Needs

Chapter 6 identifies the key users of official statistics, describes user needs and discusses ways a national statistical office (NSO) can meet these needs and measure user satisfaction for these efforts. Needs associated with the Sustainable Development Goals and other international policy frameworks are also highlighted.

Chapter 7

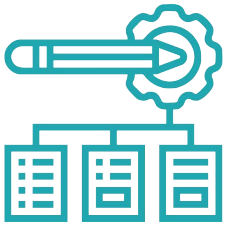
Quality Management

Chapter 7 discusses quality management for national statistical offices (NSOs), including general quality management principles, the development and administration of a statistical quality assurance framework, definition and implementation of quality monitoring and evaluation, user surveys, the labelling of official statistics, and quality certification of an organization, and the relationship of quality management to other strategic initiatives, such as risk management.

Chapter 8

Data Sources, Collection and Processing

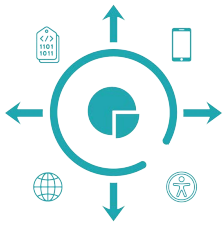
Chapter 8 describes the main sources of data for official statistics— the standard statistical surveys and censuses as well as administrative data, geospatial data, and Big Data. The chapter discusses the corresponding modes of collection and provides guidance on the choice of collection modes and data processing. For administrative, geospatial, and Big Data, the chapter discusses the challenges in accessing, using, and processing the data.



Chapter 9

Analysis and Analytical Frameworks

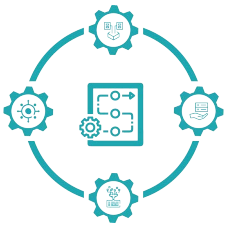
Chapter 9 covers the data analysis that a national statistical office carries out at different production stages, including preparing statistical content and ensuring outputs are 'fit for purpose' before dissemination to users.



Chapter 10

Dissemination of Official Statistics

Chapter 10 discusses all aspects of the dissemination of official statistics covering all activities that make official statistics, statistical analyses, statistical services, and metadata accessible to users. The chapter provides guidance on the "why", "what", and "how" of the dissemination, based on the UNFPOS.



Chapter 11

Common Statistical Infrastructure

Chapter 11 focuses on the statistical infrastructure that supports the production process, including the development and the maintenance of internal registers, methods, tools, systems, and standards. The topics and discussions complement and supplement considerations in other chapters on users and their needs; data sources, collection, and processing; analysis and analytical frameworks; and dissemination of official statistics.

Chapter 12

Human Resources Management and Development

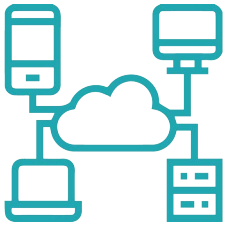
Chapter 12 discusses strategic issues on human resource management and development (HRMD) that need to be considered by national statistical offices as well as other producers of official statistics. The chapter provides information, guiding principles and examples of good practices addressing issues related to identifying skills needed now and in the future; careers and opportunities for growth development; and securing a stimulating working environment for the production of high-quality statistics.

This chapter has interlinkages with the various technical chapters where skills needed for the specific processes and subject matters are described.

Chapter 13

Data, Information, and Knowledge Management

Chapter 13 covers the management of data, information, and knowledge for the production of official statistics. The NSO and other producers of official statistics require well-functioning data systems, information systems and knowledge management systems to ensure that statistics are available to meet users' needs in the right format and at the right time.



Chapter 14

Information Technology Management

Chapter 14 describes current trends in the information technology (IT), reviews emerging and existing standards, and looks at how the rapidly changing environment impacts technology infrastructure required by a modern NSO.

Chapter 15

Managing of Buildings, Physical Space, and Finance

Chapter 15 covers management issues of an operational nature. General requirements of buildings and physical space regarding the working environment of a statistical office are highlighted. Financial management with a focus on setting priorities in the presence of budgetary constraints is also discussed.

Chapter 16

The International Statistical System

Chapter 16 focuses on international statistical activities—who undertakes them (members of the international statistical system), what they are covering (standards-setting and international cooperation activities) and how they are undertaken (consensus-building, tapping statistical expertise, capacity development).

Users can create their own reading roadmaps, depending on their needs and interests. For purposes of illustration, reading roadmaps for specific types of users are mapped in *Annex 2a - Illustrative Reading Roadmaps by User* and *Annex 2b - Illustrative Reading Roadmaps by Reading Objectives*.