

## Guidelines for Developing Statistical Capacity

A Roadmap for Capacity Development 4.0 January 2020



### Preface

National statistics are an essential component of policy making. They provide the evidence required to improve the lives of citizens, monitor results and hold governments and other actors accountable. Recent international agreements such as the 2030 Agenda for Sustainable Development and Agenda 2063 for Africa recognise the central role of strong statistics and place a significant emphasis on goals, indicators and national reporting. At the same time, technological advances are creating a wealth of new data sources, some of which have the potential to enrich national statistical systems and enable more effective and responsive policy making.

Yet many national statistical systems face challenges in collecting, producing, analysing and disseminating the data required for sustainable development. Without making further improvements to their statistical capacity, they are at risk of falling further behind under the twin demands of the reporting requirements of international agreements and the need to ensure the quality and rigor of new data sources. However, PARIS21 experience shows that the capacity of national statistical systems can be strengthened, providing countries with a solid foundation for long-term national development and good governance.

These guidelines introduce a pioneering approach to capacity development – Capacity Development 4.0 – that brings together new data stakeholders, does more to involve users and promotes a holistic view of statistical capacity development. In addition to technical skills, they place an emphasis on softer skills such as leadership, change management, advocacy and networking. The guidelines are designed to align with the programme management cycle so that users can quickly identify which features and related actions are relevant to their particular situation, while numerous case studies provide practical context.

At this moment in time, we need to go beyond principles and standards. We need to focus our efforts on implementing the commitments that we have made. The Cape Town Global Action Plan (CTGAP), which emphasises the need for a country-led framework for planning and implementing statistical capacity development to achieve the 2030 Agenda, has shown us where we need to go. These guidelines are the detailed map of how to get there.

Ariunzaya Ayush

Executive Head of PARIS21

Dr. Johannes Jütting

Chairperson National Statistics Office Mongolia/ PARIS21 Chair

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### **Abbreviations and Acronyms**

ADAPT	Advanced Data Planning Tool
AFRISTAT	Economic and Statistical Observatory for Sub-Saharan Africa
AITRS	Arab Institute for Research and Training in Statistics
CARICAD	Caribbean Centre for Development
CARICOM	Caribbean Community
CARTAC	Caribbean Regional Technical Assistance Centre
CBS	Central Bureau of Statistics
CD4.0	Capacity Development 4.0
CGD	Citizen-generated data
CS0	Civil society organisation
CTGAP	Cape Town Global Action Plan for Sustainable Development Data
ECCB	Eastern Caribbean Central Bank
EUROSTAT	Statistical Office of the European Communities
GAMSO	Generic Activity Model for Statistical Organizations
GDDS	General Data Dissemination System
GIZ	Gesellschaft für Internationale Zusammenarbeit
GOPA	Gesellschaft für Organisation, Planung und Ausbildung
GPS	Global positioning system
GRDP	Gross Regional Domestic Product
GSBPM	Generic Statistical Business Process Model
HLG-PCCB	High-Level Group for Partnership, Coordination and Capacity-Building
HR	Human resources
ICT	Information and communication technology
ID	Identification
IDP	International development partners
IMF	International Monetary Fund
п	Information technology
KNBS	Kenya National Bureau of Statistics
LBS	Lao Statistics Bureau
MMM	Modernisation Maturity Model

MoFEP	Ministry of Finance and Economic Planning
MoU	Memorandum of Understanding
NGO	Non-government organisation
NSDS	National Strategy for the Development of Statistics
NSO	National statistical office
NSS	National statistical system
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
PARIS21	Partnership in Statistics for Development in the 21st Century
PRASC	Project for Regional Advancement of Statistics in the Caribbean
PSA	Philippine Statistics Authority
SDGs	Sustainable Development Goals
SDMX	Standard Data Model for data exchange
SIDS	Small island developing states
SNA	System of National Accounts
SSB	Statistisk Sentralbyrå (Statistics Norway)
STATEC	Institut National de la Statistique et des Études Économiques
SWOT	Strengths, weaknesses, opportunities, threats
ToRs	Terms of reference
UN	United Nations
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNFPOS	United Nations Fundamental Principles of Official Statistics
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNSC	United Nations Statistical Commission
UNSD	United Nations Statistics Division
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women

# Chapter 1: A Guide to Capacity Development 4.0

### 1. A Guide to Capacity Development 4.0

Statistical activities are no longer produced exclusively by designated official statistics organisations. The expansion of technologies has empowered new actors who traditionally lacked the capacity and resources to embark on data collection, analysis and dissemination. Private companies, civil society organisations and citizens themselves are emerging as data providers, thus blurring the lines between user and provider. National statistical systems (NSSs) need to adapt to these radical changes in the world of statistics and data.

To do so, national statistical systems need to be strengthened on three levels:

1. SYSTEM: There is an urgent need for better coordination inside and outside the NSS. National statistics offices (NSOs) need to co-operate more than before with other government organisations, such as the statistical departments of line ministries or planning agencies, as well as with private sector data providers and civil society organisations. System-level adaptation might also require adjusting the legal framework, updating national statistical planning, raising additional funding or developing advocacy strategies.

2. ORGANISATION: Strategic planning, co-ordination, monitoring and evaluation inside the NSO, as well as welltargeted human resource management and transparent statistical production processes, are all crucial for producing high-quality data. New models for public service provision are exploring co-production of data by civil society, the private sector and government, as well as ways of using existing data. At the same time, NSSs have to adapt to innovation standards and scale up their IT infrastructure to keep up with new technologies.

**3. INDIVIDUAL:** Next to training staff in the quantitative skills needed for data production, analysis and dissemination, NSSs should also aim to build communication, negotiation and leadership skills. These roles are gaining importance now that the traditional skills of data analysis are becoming more automated. Hiring interdisciplinary teams may boost productivity and foster problem-solving capacities.

Approaches to developing statistical capacity have come a long way. Over the years, the global community has changed its views on development co-operation, which has evolved from simply allocating development aid in the early 1950s to more targeted technical assistance and then to technical co-operation. However, this type of support focuses on development projects targeting specific sectors, rather than taking a whole-of-government approach. Projects follow distinct time and budget requirements and cease to exist once finalised. These traditional approaches have not led to substantial increases in statistical capacity.

Recent approaches to capacity development reach far beyond NSOs and reflect the current development agenda (see Figure 1.1). Capacity Development 4.0 (CD4.0), a term first coined by PARIS21 in 2016, has emerged in this evolving political context in which the focus is on longterm sustainability and improvements to the entire system. CD4.0 acknowledges the need to establish capacity across and within the three levels described above. It also takes into account new data providers and sources. Furthermore, it aims to integrate the user throughout the virtuous data cycle and fosters a holistic view of statistical capacity development.

These are the first guidelines to advise national statistical offices and development co-operation agencies on how to engage in country-led, sustainable and participatory statistical capacity development. The guidelines explain the characteristics of a CD4.0 approach, and present 30 activities for implementing capacity development programmes. Most of the activities are illustrated by case study examples, and aim to guide large-scale transformation in and beyond national statistical systems. They will be used and tested in PARIS21's pilot programmes in collaboration with its partners throughout 2020-2022.

### 1.1. Understanding Capacity Development 4.0

This section describes the Capacity Development 4.0 (CD4.0) conceptual framework and how it can be used for managing change. It highlights three novel features of the CD4.0 approach.

#### A conceptual framework

CD4.0 is the process through which a country's national statistical system, its organisations and individuals, obtain, strengthen and maintain their abilities to collect, produce, analyse and disseminate high-quality data to meet user needs (PARIS21, 2018<sub>(1)</sub>). CD4.0 aims to build capacity in order to leverage the cross-cutting nature of data and statistics and to allow the statistical system to become more interoperable, automated, participatory and inclusive.



### FIGURE 1.1: THE CD4.0 FRAMEWORK IN THE POLITICAL CONTEXT

Source: PARIS21 (2020), Corporate Design

The CD4.0 process is guided by a framework matrix (Figure 1.2) that includes the three levels of capacity development described above:

**INDIVIDUAL LEVEL:** a single human being within the NSS, for example a statistician, NSO employee or line manager.

**ORGANISATIONAL LEVEL:** a social entity (such as the national statistical office or a line ministry) comprised of multiple interacting individuals who are co-ordinated through a hierarchy of authority and responsibility to achieve an explicit, common purpose (such as official statistical production).

**SYSTEM LEVEL:** an organised, purposeful structure consisting of interrelated and interdependent individuals, organisations and stakeholders whose activities relate to official statistics.

For each of the three levels in the CD4.0 framework matrix, there are five target areas for capacity development:

**Resources:** the means (human, physical, financial, legal) required to produce an output.

Skills and knowledge: the cognitive and non-cognitive abilities required to perform a task.

Management: the combination of skills, knowledge and resources to produce an output.

Politics and power: the interactions and relationships between organisational units and individuals, which often determine the dynamics of the whole system.

**Incentives:** the motives guiding individuals, organisations and the system itself.

The columns (levels) and rows (targets) of the framework represent a generic model for state capacity, and not just specifically for data and statistics. The targets range from the most visible to the more intangible. The interaction between a target and a level is referred to as a "category" (e.g. organisational skills and knowledge), each of which has a set of specific capabilities. For example, innovation is the capability focused on in the category "organisational skills and knowledge" (Figure 1.2). In total these 15 categories are populated by 46 capabilities (please see Annex A.2 for definitions). A CD4.0 approach aims to solve local problems and adhere to country priorities. CD4.0 capacity development programmes aim to establish effective and sustainable procedures for data collection, production, dissemination and use within a clear and well-defined policy or governance context, such as a National Strategy for the Development of Statistics (NSDS). These procedures are legitimised through the inclusion of selected local stakeholders. By the time a CD4.0 programme has ended, NSOs should have taken ownership of the process and continue to work towards the intended outcome.

Moreover, the CD4.0 approach is results-based. It assumes that the procedures will lead to long-term results, be it a set of indicators or statistics, a specific policy based on such indicators or a structure that leads to the inclusion of relevant stakeholders in statistical processes. Furthermore, the CD4.0 approach ensures that the progress towards set objectives is regularly monitored and evaluated.

#### A tool for managing change

In addition to being a conceptual framework, the CD4.0 framework matrix is also a tool for change management in statistical capacity development programmes. Since a CD4.0 programme takes a wider perspective on the data ecosystem (see the Glossary in Annex A.1), developing certain capabilities in the CD4.0 matrix may require changing the way processes are organised inside the NSS. Change management is defined as a "process whereby groups and stakeholders in a planning process articulate their long-term goals and identify the conditions they believe have to unfold for those goals to be met. These conditions are modeled as desired outcomes and arranged graphically in a causal framework" (Taplin and Clark, 2012<sub>10</sub>).

Although the CD4.0 approach can be applied to relatively limited programmes, for example working on missing indicators, a required procedure or some specific skills, the approach is more effective in cases involving a fundamental change, such as a redesign of a statistical process, or the complete restructuring of the NSO as co-ordinating organisation of the NSS.



### FIGURE 1.2: CAPACITY DEVELOPMENT 4.0 FRAMEWORK MATRIX

Note: for detailed explanations of the terminology, see Annex A.2.

**Source:** (PARIS21, 2018<sub>[2]</sub>), Proposing a Framework for Capacity Development 4.0, https://paris21.org/sites/default/files/ inline-files/CD4.0-Framework\_final.pdf. The emphasis on the inclusion of new actors and sources, stronger user integration as well as the holistic approach on statistical capacity development will lead to more sustainable results in developing statistical capacities. In more encompassing programmes, change management does require profound skills and instruments, and consequently a higher level of commitment and interest by stakeholders (Step 4.7).

CD4.0 also allows the direction of change within the NSS to be tracked: targeting capabilities at the individual level could affect capabilities at the system level through changes at the organisational level, and vice versa. Developing capabilities related to one target could also affect capabilities within other targets at different levels. The nested structure of the levels and targets allows for the impact of a capacity development programme in the NSS to be assessed (Step 6.2). Systematically mapping the interlinkages by applying the CD4.0 matrix fosters high-impact and sustainable capacity development outcomes.

### **1.2. Novel features of the CD4.0 approach**

Three features distinguish the CD4.0 approach from traditional statistical capacity development. Each is described in turn below and illustrated in Figure 1.3.

#### Inclusion of new data sources and stakeholders

The CD4.0 approach actively seeks to consider new data sources and emerging actors relevant for the targeted statistical processes. Managing these requires revised and institutionalised co-ordination and co-operation mechanisms within the NSS to facilitate data sharing and knowledgeexchange procedures.

Since the 1990s, digitalisation and technological change have increased the variety of data sources and availability of data. Geospatial data, citizen-generated data and other forms of big data have successfully transitioned from statistical buzzwords to credible sources for public information (IEAG, 2014<sub>Id</sub>).

However, the new data have their limitations. The periodicity, selectivity, relevance and biases of certain phenomena, and the quality of the data used, raise obstacles.

The fact that data producers are located outside the "traditional" statistical systems implies that the procedures (methodologies, standards) they use are not part of the official statistics toolbox. Hence, these new statistical methods have to be integrated into official procedures, and quality assurance frameworks need to be revised for leveraging the potential of new data for official statistical production. These quality frameworks include all levels of quality management and vary from mathematical, statistical and conceptual aspects to the commitment of governments to ensure the NSS works according to the fundamental principles or codes of good practice. The Fundamental Principles of Official Statistics (UN, 2014, 5) and internationally endorsed Quality Assessment Frameworks (IMF, 2006<sub>161</sub>); (Eurostat, 2015<sub>171</sub>) will help to guide NSOs to ensure adequate quality in using this variety of data and information so as to guarantee trusted and authoritative statistical information.

New data sources and their providers are more and more important for official statistics. Many non-government actors have greater flexibility to test new data collection methods against established ones, which often allows them to produce and analyse data at a much faster pace than traditional statistical organisations. Therefore, beyond simply co-operating with them, building on the knowledge developed by new data producers is now a priority for NSOs (PARIS21, 2019<sub>[8]</sub>); (PARIS21, 2018<sub>[9]</sub>). This is causing the traditional barriers between "producers" and "users" of data to gradually fade.

NSOs now need to actively engage with organisations and individuals from other sectors (such as national geographers, crowd-sourcing agencies, as well as private sector agents), while at the same time considering tradeoffs between data-sharing agreements, cloud computing sub-contracting, and in-house collection and production procedures. Facilitating these processes and mitigating critical data failures requires revised and institutionalised coordination mechanisms within the NSS, such as a statistical committee, law or strategy (e.g. a National Strategy for the Development of Statistics or NSDS). In this context it is essential to increase capacity for and relevance of partnership building in a multi-stakeholder environment.

### Stronger user integration

Traditionally, users of statistics were only slightly involved in the collection, production and dissemination of official statistics as this was mainly the task of the NSO. However, in today's data ecosystem, participatory forms of official statistical production are rapidly gaining importance. In this context, the NSO has to shift from a production-based approach to a service-oriented mode of data delivery. As a result, the CD4.0 approach incorporates a demand-side focus in its statistical capacity development efforts. This includes an emphasis on:

**RELEVANCE:** For official statistics to be relevant, they have to meet user needs. Therefore, a statistical capacity development programme needs to integrate the user perspective from the early stages onwards. Involving users in selecting relevant statistics based on experience and feedback helps in evaluating the use of information and setting priorities for the development of the statistical system.

**EFFICIENCY:** Identifying user needs helps to pinpoint locally sustainable solutions to social problems. Therefore, evidence-based policy making creates social change by using hard statistical evidence based on user priorities stemming from real social problems.

**TRUST:** A transparent and participatory statistical production process fosters public trust in official information. This requires a certain level of statistical literacy on the part of users, as well as the ability of the NSO to act as a gatekeeper to help discern what is reliable and what is not (e.g. "fake news"). Ultimately, re-establishing trust in official statistics will lead to a "regime of truth" in which the NSO reclaims its role as central custodian of authoritative evidence within the NSS.

ACCOUNTABILITY: Better data and official statistics reveal public policy deficiencies and give the wider user base the possibility to hold policy makers accountable. Thus, official statistics are a tool to facilitate not only efficiency and society-wide welfare gains, but also demands for political change (Taylor, 2016<sub>[10]</sub>). As a result, user integration in official statistical production processes is a cornerstone of civic empowerment, preserving democratic values in society through an underlying accountability mechanism.

#### A holistic approach to statistical capacity development

To put the inclusion of new data stakeholders and stronger user integration into practice, new capabilities are required within a modernised national statistical system. Results of capacity development evaluations have shown that to be effective, efficient and sustainable statistical capacity development programmes cannot be restricted to one or a few isolated capabilities. Strategic interlinkages between capabilities and conditions that reflect the state of development in other capabilities also have to be reflected on and dealt with. This insight underlines why the three levels of the CD4.0 approach are not discrete, but instead interlinked through a holistic view on statistical capacity development efforts.

### 1.3. About these guidelines

These guidelines are the result of intensive desk research, insightful working group meetings and in-depth interviews with key stakeholders in the field, organised by the CD4.0 task team and PARIS21. Moreover, a reference group composed of NSO representatives from developing countries and leading development co-operation experts contributed their experience to bring these guidelines to life. In the coming years, the guidelines will be tested and updated based on the experiences of their users.

The guidelines shape ongoing debates in statistical capacity development. The UN Statistics Division is currently drafting a new edition of the Handbook of Statistical Organisation (UNSD, 2003<sub>[11]</sub>) to support the needs of senior managers in adapting and developing their statistical organisations and systems as stressed in the Cape Town Global Action Plan (CTGAP; Figure 1.1). The guidelines support the handbook by providing advice to NSOs at the operational level of statistical capacity development, supplying more concrete and practical recommendations on how to set up a capacity programme in statistics.

While the guidelines align with international standards of statistics, they are not a standard in themselves. They do build on established documents, in particular *Accountability* and *Democratic Governance: Orientations and Principles* for *Development* (OECD, 2014<sub>[12]</sub>), and the *United Nations Fundamental Principles of Official Statistics - Implementation Guidelines for Official Statistics* (UN, 2015<sub>(12)</sub>).



### 1.4. Who are these guidelines for?

The guidelines target the capacity development branches of national statistical offices in low and middle-income countries, and development co-operation partners implementing capacity development programmes. Mid-level management operationalising and implementing statistical capacity development programmes can use the guidelines for practical advice. The wider statistical community, NGOs, civil society and academia can also consult the guidelines for guidance on conceptual frameworks and good practice in capacity development.

### 1.5. How to use these guidelines

Every country and system is different in terms of its context, resources and needs. And capacity development through a CD4.0 approach is often an iterative rather than linear process: changes occurring to one part of the system will affect other parts. These guidelines therefore take a modular approach, and are designed for adjustable and flexible use in different institutional and regional settings. Although the guidelines align with the programme management cycle so that users can quickly identify which features and activities are relevant to their particular situation, they do not present the activities in a sequential order. The reader is encouraged to choose those steps and activities appropriate to their own context and stage of development. The chapters are structured following the CD4.0 Checklist (Figure 1.4), which offers an overview of all phases and facilitates navigation. In all, 30 activities are described – matching the activities shown in the checklist. Colour coding allocates each activity to one of the CD4.0 novel features (see Figure 1.3). The activities are illustrated by real-world practical examples of how the CD4.0 approach is being implemented across sectors and countries. These examples aim to inspire countries to create and implement their own activities; clickable keywords highlight the capabilities explored in each example.

The objective of the following chapters is to provide practical recommendations on how to implement the CD4.0 approach. Chapter 2 starts with the basics on how to set up a CD4.0 programme. Building on the programme life cycle, the ensuing chapters reflect the four phases of a statistical capacity development programme: the Preparatory phase (Chapter 3), the Design phase (Chapter 4), the Implementation phase (Chapter 5), and the Evaluation phase (Chapter 6). Each chapter goes through the steps and activities involved in applying the CD4.0 framework during each of these programme phases. Annex A.1 contains a glossary of terms. Annex A.2 provides detailed terminology for the CD4.0 framework and Annex A.3 links the CD4.0 approach to other statistical models.

### FIGURE 1.3. CD4.0 NOVEL FEATURES



Source: PARIS21 (2020), Corporate Design

### FIGURE 1.4. CD4.0 CHECKLIST

### SETTING UP A CD4.0 PROGRAMME

- **2.1.** Identify the problem
- **2.2.** Define a programme owner
- **2.3.** Structure a statistical development programme

### KQ INCLUSION OF NEW DATA STAKEHOLDERS

- 3.1. Identify stakeholders
- □ 3.2. Gather information on active partners and their programmes
- □ 3.3. Define a mechanism for stakeholder consultation
- 3.4. Understand the existing data ecosystem

### STRONGER USER INTEGRATION

 $\hfill\square$  3.5. Assess data user needs and capacities

 ${igodol}^{\sim}$  HOLISTIC APPROACH TO CAPACITY DEVELOPMENT

- **3.6.** Define a financing mechanism
- **3.7.** Define a reporting mechanism

### KQ INCLUSION OF NEW DATA STAKEHOLDERS

□ 6.1. Conduct a final internal evaluation

- □ 6.2. Evaluate the programme and its impact on CD4.0 capabilities
- □ 6.3. Disseminate final evaluation and lessons learned

### STRONGER USER INTEGRATION

□ 6.4. Assess user satisfaction

### HOLISTIC APPROACH TO CAPACITY DEVELOPMENT

 $\hfill\square$  6.5. Create mechanisms to improve collaboration and co-operation

Source: PARIS21 (2020), Corporate Design



QAN PHASE

### RO INCLUSION OF NEW DATA STAKEHOLDERS

- 4.1. Assess main stakeholder capacities
- **4.2.** Design governance structure and assign responsibilities
- □ 4.3. Choose data sets and methodologies
- **4.4.** Understand roles, context and risks

### STRONGER USER INTEGRATION

4.5. Design an advocacy strategy

### ာ္တို HOLISTIC APPROACH TO CAPACITY DEVELOPMENT

- □ 4.6. Assess data and capacity gaps
- □ 4.7. Develop a theory of change using the CD4.0 framework matrix
- **4.8.** Involve local experts and assign multi-disciplinary teams
- $\Box$  4.9. Check legal structures and frameworks
- 4.10. Develop performance indicators

### (-CQ INCLUSION OF NEW DATA STAKEHOLDERS

**5.1.** Engage with stakeholders to ensure motivation and feedback

**5.2.** Make programme outputs available to stakeholders



### STRONGER USER INTEGRATION

**5.3.** Engage users to improve relevance of official statistics

### HOLISTIC APPROACH TO CAPACITY DEVELOPMENT

- **5.4.** Motivate local staff and multi-disciplinary teams
- 5.5. Monitor objectives and activities focusing on CD4.0 capabilities



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# Chapter 2: Setting up a CD4.0 Programme

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### 2. Setting Up a CD4.0 Programme

This chapter explains how to start, steer and structure a CD4.0 programme, and describes the typical programme life cycle.

### 2.1. Identify the problem

### Activity: Identify the problem to be solved through a CD4.0 programme.

The first step in a CD4.0 programme is for the NSO or another entity that is part of the national statistical system to identify the problem. This can be based on the outcomes of an existing internal assessment of the statistical system conducted to prioritise programmes (for example an NSDS or a statistical work programme) or to indicate the strong and weak points in the system (e.g. via a SWOT analysis). In other cases, the problem identification might follow a request or requirement from the wider statistical community (for example, to measure an SDG indicator) or an ad-hoc request from a specific external stakeholder. Finally, an external partner or external monitoring process conducted by an international organisation might reveal the need for a capacity development programme (e.g. a peer review). Countries can also consult their entries in the PARIS21 Statistical Capacity Monitor to identify capacity gaps (Example 22 in Chapter 6). These examples show that a variety of stakeholders can initiate a capacity development programme. In all cases, however, the NSO should be the entity defining and supervising the initiation of a statistical capacity development programme (the programme "owner"; Step 2.2).

The type of problem identified largely determines the type of capacity development programme needed. Figure 2.1 illustrates some of the typical focal areas. The problem will also determine the type of stakeholders to be involved (for example internal experts, external organisations, data providers, policy makers; Step 3.1) as well as the type of support needed. The CD4.0 framework matrix (Figure 1.2) should be the first place to start in identifying the problem. The 46 capabilities in the 15 categories of the CD4.0 conceptual framework are seen as the most important capacities required in a statistical organisation (the NSO or any bodies that form part of the NSS). Capacity development programmes can be targeted at areas of the framework where these capabilities are weak.

In defining the problem, the entity should reflect on whether the problem can be handled with internal input (budget, resources), or whether external support – both expertise and financial resources – is needed. In many situations internal resources will be chosen as a major part of the programme.

The target problem should be described in an initial document which outlines the items currently missing or not functioning adequately, and indicates how a capacity development programme might solve the problem. This initial problem description can then help shape the terms of reference (ToRs) for the capacity development programme to be defined in the preparatory phase (Chapter 3).

<b>Guiding questions</b>
Does the NSO have data access to ensure high- quality production/dissemination processes?
To what extent does the NSO need budget support?
To what extent does the NSO need technical expertise?
Does the NSO have sufficient governance capacity to develop statistics relevant to users?
Does the NSO lack expert knowledge in a thematic area of statistics or in particular procedures; is there a

need to conduct more training on managerial issues?

#### **Notes**

### FIGURE 2.1. SCOPE OF CD4.0 PROGRAMMES

### The most relevant programmes tend to be based on:



Source: PARIS21 (2020), Corporate Design

**Notes** 

### 2.2. Define a programme owner

### Activity: Define a core group who steers the CD4.0 programme through all phases.

A core group (e.g. an individual staff member, a group of staff, an official authority, a unit or department with a set of clear responsibilities) should be the programme owner within the NSO and will aim to settle the main steps in the preparatory phase of the programme (Chapter 2). In the consultations, the stakeholders might express their preferences for a potential programme manager and define the role of the NSO in the programme (Step 3.3).

Depending on the target problem, the programme owner will consult with potential suppliers of support (implementing agencies). A supplier could be an organisation that provides specific expertise – such as methodologies, tools and procedures – or it might be an entity able to provide funding, advice, or facilitation. The programme owner is also responsible for aligning the CD4.0 programme with established international standards (Box 2.1).

### **?)** Guiding questions

Who has a central position, the expertise and the capacity to oversee all phases and steps of the envisioned CD4.0 programme?

### BOX 2.1. CD4.0 PROGRAMMES NEED TO ALIGN WITH ESTABLISHED INTERNATIONAL STANDARDS

Official statistics are created in a highly standardised environment: common tools and instruments for producing and disseminating statistics follow official statistical standards. The main objective of many statistics capacity development programmes is therefore the implementation of existing and welldescribed standards. A pool of common frameworks, methods and technical solutions, such as SNA 2008 (UNSD, 2008<sup>[1]</sup>), Quality Assessment Framework (European Statistical System, 2009<sup>[2]</sup>), the Generic Statistical Business Production Model (GSBPM) (Eurostat/Generic Activity Model for Statistical Organisations (GAMSO) (Eurostat, 2019<sup>[3]</sup>), the GDDS/e-GDDS (IMF, 2019<sup>[4]</sup>) and the Standard Data Model for data eXchange (SDMX) (Eurostat, 2019<sup>[5]</sup>) contributes to the core business of statistical organisations by increasing resource efficiency and keeping up to date with the developments of the data ecosystem (Annex A.2). When setting up a CD4.0 programme, harmonisation with these standards and co-ordination across differe nt frameworks are crucial for the global statistical community.

### 2.3. Structure a statistical development programme

### Activity: Structure the envisioned CD4.0 programme according to different phases.

A common way of organising capacity development work is through a programme. Programmes usually aim for a mid to long-term perspective, sustainable outcomes and an inclusive way of doing business. A programme can be structured as a series of individual projects, managed in such a way that they yield incremental benefits – described as outcomes. These outcomes are assigned a specific timeline and budget.

Programmes can take different formats. They differ according to the sectors, organisations, institutions or countries involved. The supporting partners may be foreign national governments, a consortium of national organisations with private experts involved, or a private organisation. Sometimes, a programme is fully executed by external experts. In other cases, internal experts implement the entire programme from its initial start to its closure. Often, a variation occurs where internal experts manage and design most of the programme, while implementation is partially outsourced to external consultants. The financial, technical, legal and managerial aspects of programmes can also vary.

Each programme is divided into phases, with sub-phases linked through feedback loops. Four dominant phases determine the successful tenure of a programme (Figure 2.3).

FIGURE 2.3. PROGRAMME LIFE CYCLE



Source: PARIS21 (2020), Corporate Design

In the **preparatory** phase the basic characteristics, requirements and objectives of the programme are formulated and agreed between the main stakeholders (inside and outside the NSS). The process of describing the problem should take into account the multi-disciplinary character of data and statistics.

During the **design** phase, the decisions on many operational actions are taken. Programme design should follow an inclusive analysis of the NSS. Consistent and reiterative consultation with all stakeholders, an active dialogue with data users as well as a profound understanding of the local economic and political context are key when designing a statistical capacity development programme. The design stage is crucial – forgotten or miscalculated elements threaten the quality of the result.

The **implementation** phase involves putting into action the programme objectives. Sub-phase by sub-phase, actions are initiated and finalised by a variety of actors. Stakeholders are encouraged to collaborate actively and work towards the programme's outcomes. Users are integrated into the process of statistical capacity development. Single capabilities are linked to each other to create multidimensional and sustainable statistical capacity.

The final phase of a programme focuses on **evaluation**. In this phase, the deliverables, processes and internal communication are assessed. Often this results in an external report and internal feedback. Outcomes of the evaluation should also be shared with all relevant stakeholders in the NSS and beyond. Relevance and impact should be evaluated against the categories of the CD4.0 conceptual framework.

The CD4.0 approach is a re-iterative process. Although the programme life cycle distinguishes activities for each of the programme phases as outlined above, there may exist feedback loops and overlapping activities between the phases, often leading to integrative and co-dependent processes (Andrews, Pritchett and Woolcock, 2017<sup>[6]</sup>). Moreover, CD4.0 programmes might require multiple iterations over activities and phases as political support, systemic infrastructure and user contexts can change rapidly over the lifetime of the programme. There are many overlaps between the preparatory and design phase, but for the purpose of simplicity these guidelines define the start of the design phase to be the point at which the terms of reference (ToRs) for the programme have been finalised.

### **?** Guiding questions

Can you categorise your planned activities into four programme phases? Which phases are central to your problem (see Figure 1.4)?

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# Chapter 3: Preparatory Phase

### 3. Preparatory Phase

The CD4.0 approach – as with the traditional approach to capacity development – begins with identifying the problem(s) to be targeted (Chapter 2). However, the CD4.0 approach places more emphasis than the traditional approach on the relevance and potential role of all stakeholders, and of new datasets, procedures and tools. It also considers how to integrate data users in the organisation and implementation of the programme phases.

The specific activities involved in the preparatory phase, following the CD4.0 checklist (Figure 1.4), are as follows, and are discussed in this chapter in turn, illustrated by real-life examples from countries around the world. They are colour coded to reflect the CD4.0 category to which they belong.

### Sequencing

This phase begins with the identification of the problem and can be completed quickly where the problem is already defined and the necessary budget and resources are secured. Alternatively, it might span several months - if defining the problem is not straightforward, or finding sponsors and team members is difficult, or the NSO lacks support to start the programme.

### **Outputs**

- A document describing the programme for wide consultation and to seek stakeholder approval (containing an analysis of the relevant data ecosystem, information on relevant partners, the main results from assessing user needs and capacities).
- A preliminary budgeting plan (including a cost-benefit analysis of the programme).
- Terms of reference (ToRs) for the programme, outlining the financing and reporting mechanism, and approved by all the main stakeholders.

### R INCLUSION OF NEW DATA STAKEHOLDERS

- **3.1**. Identify stakeholders
- 3.2. Gather information on active partners and their programmes
- 3.3. Define a mechanism for stakeholder consultation
- **3.4.** Understand the existing data ecosystem

### STRONGER USER INTEGRATION

□ 3.5. Assess data user needs and capacities

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**3.6.** Define a financing mechanism

**3.7.** Define a reporting mechanism

### 3.1. Identify stakeholders

Activity: Identify and map the chain of NSS stakeholders relevant to the programme topic and consult with them to engage their interest in the programme.

Preparing a stakeholder "map" is the first step in identifying the stakeholders and analysing their roles in the data ecosystem (Step 3.4 and Step 4.2). It also structures the selection of those stakeholders who need to be actively involved and leads to more insights into how the stakeholders can contribute to solving the identified problem.

The mapping exercise can be based on the countries' statistical co-operation strategy. The mapping should be done both through desk research and face-to-face consultations to foster direct discussions on the problem and possible solutions. A CD4.0 approach takes into account actors inside and outside the NSS. The key stakeholders are likely to include the producers of data

### Notes

and statistics (NSO/NSS organisations, research firms, data providers), users (policy makers, academia, civil society, business, citizens, and the media) and facilitators (government, management, media, other countries, international organisations).



Are the stakeholders interested in being involved in problem solving?

What is their opinion on possible solutions and statistical integration?

How can sceptical stakeholders be convinced?

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### Example 1. Assessing the chain of stakeholders relevant for gender statistics in NSSs

Gender statistics are systematically underreported at national level due to the lack of sex disaggregation in most national data and the fact that existing surveys, censuses and administrative sources do not collect data on particular gender-relevant topics. Moreover, the provision of gender statistics often does not reflect existing national and international demand. For this reason, PARIS21 - in partnership with UN Women under the initiative "Making Every Woman and Girl Count" has developed a framework and guidelines to assess data and capacity gaps in gender statistics in order to mainstream the gender focus in national strategies for the development of statistics (NSDSs). The framework and guidelines propose activities, methods and tools for guiding the assessment process and formulating a strategy to address gender statistic gaps in various country contexts.

Before launching the assessment activities, the responsible entity prepares a mapping document, marking the institutions, agencies and organisations whose main functions relate to gender statistics in the data ecosystem. The responsible entity consults these institutions and shares with them a concept note, which describes the objectives and proposed steps of the assessment. Upon obtaining the agreement of relevant stakeholders, the responsible entity prepares the ToRs for the gender statistics expert and other actors, where necessary (e.g. data planning expert).

While assessing gender statistics gaps, a country might first want to map the chain of stakeholders relevant for producing, disseminating and using gender statistics in the country. The NSO can engage a gender-statistics expert to conduct this assessment.

The main actors in the assessment process usually include a gender statistics focal person in the NSO, an adviser from the ministry of gender (or similar), an NSDS focal person, a data planning expert, and a group of relevant information providers, such as other line ministries, agencies or civil society organisations producing and using gender-specific information.

The NSO gender statistics focal person can organise an inception workshop to bring together all stakeholders of gender statistics in the country, including advocates of gender equality, heads of department and technical staff from the NSO, line ministries, CSOs, research, academia, media and the private sector. The purpose of the inception workshop is to officially kick off the assessment process and obtain sufficient interest from high-level representatives of institutions and media. This meeting should be opened by a keynote from the minister of gender to highlight the profile and importance of this event.

In-person meetings with focal persons from relevant ministries are another good way of obtaining more detailed information on co-ordination and production issues than can be collected during larger events.

This assessment of the chain of stakeholders leads to a comprehensive overview of stakeholders related to gender statistics and raises awareness of the topic in the respective country. Moreover, it is the first step in setting up a capacity development programme and ensures the interest and participation of the most important stakeholders (including the government).

#### CD4.0 capabilities covered

- ⊘ NSS co-ordination mechanisms
- ⊘ Data ecosystem co-ordination
- ⊘ Relationship between producers
- ⊘ Relationship with users
- Relationship with political authorities

- ⊘ Relationship data providers

Source: (PARIS21, 2019<sup>[1]</sup>)

 Stakeholder interest Political interest

### 3.2. Gather information on active partners and their programmes

Activity: Gather information on active partners and their programmes with a statistical component (whether sectoral or general) to exploit synergies and avoid duplication.

This activity aims at identifying the unique value to be delivered by this specific capacity development programme. It involves comparing all capacity development programmes with similar objectives against the value added of the planned CD4.0 programme.

This activity informs stakeholders of the projects or programmes already established in the statistical system.

Consequently, programme owners within the NSS need to co-ordinate. This might lead to joint activities or a division of labour where the objectives of the identified programmes align with those of the CD4.0 programme.

### **?)** Guiding questions

What projects or programmes are currently in place in the NSS and how can a new programme leverage on their interventions (e.g. joint activities, division of labour)?

### Example 2. Mapping partners producing citizen-generated data in the Philippines

Often the NSO is not the only data provider in a country. It is quite common for NGOs and CSOs to collect data for themselves, and these data are frequently more specialised as they reflect their specific mission. This provides a mutually beneficial opportunity in which the NSO can enrich its store of data without undertaking new collection efforts, and the NGO can make the information it has more widely accessible through inclusion in a central database. Thus, it is important that statistical organisations have accurate knowledge of partner activities so they can direct their own projects more efficiently. The Philippine Statistics Authority (PSA) has expanded its data resources in this way through its cooperation with NGOs and CSOs to gauge the availability of citizen-generated data (CGD).

The PSA has advocated for new sources of more detailed and frequent data to monitor the achievement of the Sustainable Development Goals. Among these new data are citizen-generated data. In partnership with PARIS21, PSA was able to map available data from various NGOs and CSOs in the Philippines. The initiative started with an orientation workshop in July 2019 with participation from many CSOs/ NGOs. The mapping was finished in October 2019 at a dissemination forum that showed

a comprehensive picture of the CGD availability in the Philippines. A CGD Quality Framework will be presented to the PSA Board by December 2019 for approval. This knowledge has also been operationalised throughout the data supply and analysis chain and the willingness of the PSA to research innovative methods of data production has made it an attractive co-operation partner for other entities in the data ecosystem. For example, the Philippine Statistical Research and Training Institute has committed to including CGD in its capacity development modules. Moreover, representatives of the Academy and professional Society of Statisticians in the Philippines have committed to participate in developing methodologies for incorporating CGD in estimating SDG indicators. Further co-ordination with partners was achieved when the Philippine National Volunteer Coordination Services Agency provided perspective on partnerships with volunteers for the CGD initiative.

The alignment of PSA's goals with those of other dataproducing institutions in the country will serve to move towards comprehensive inclusion of CGD in the data ecosystem for SDG monitoring at the subnational level, especially the city and municipality level.

### CD4.0 capabilities covered

- ⊘ Existing data
- Data ecosystem co-ordination
- Relationship between producers

Source: Personal communication, Philippine Statistics Authority

- Relationship with users
- Relationship with political authorities
- ⊘ Stakeholder interest
- ⊘ Statistical production processes
- Quality assurance
- Communication

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### 3.3. Define a mechanism for stakeholder consultation

Activity: Define a mechanism (e.g. council, committee and working groups) which will allow stakeholders to be consulted, and set the objectives and frequency of the consultations.

Joint meetings can be used to define the outcomes for the programme and identify potential synergies between the inputs (data, procedures, tools) each of the main stakeholders is able to provide. Moreover, these can be an opportunity for stakeholders to clarify details regarding budget, resources and staff. They allow actors to agree on the governance structure of the programme and to clearly define the responsibilities of each of the stakeholders involved. It is also crucial to assess whether the stakeholders support evidence-based policy making.

It is crucial to define how each stakeholder will be actively involved in consultations to ensure their views and needs are incorporated. A key stakeholder group to include are (current and future) users (Step 3.5). By including them in consultations, this approach ensures an open and transparent government approach that should increase trust in official statistics.

### **?** Guiding questions

What format should be used for stakeholder consultations?

What procedures are required to ensure accountability between partners?

#### Example 3. Defining a mechanism for the consultation of gender statistics stakeholders in NSSs

When a country decides to identify gaps in gender statistics, it is crucial that it defines a mechanism for consulting with the main gender statistics stakeholders. For this reason, PARIS21 in partnership with UN Women under the initiative "Making Every Woman and Girl Count" engaged in a programme to create awareness on and foster the integration of gender statistics in various countries' National Strategy for the Development of Statistics (NSDS). While formulating a strategy to address gender statistic gaps in various country contexts, mechanisms for stakeholder consultations were key to ensure a co-creative and participatory process.

The NSO could organise a set of bilateral and multilateral consultations, during which stakeholders complete a set of questionnaires to assess the statistical capacity related to gender statistics inside the NSS. This assessment process is initiated by an inception workshop gathering high-level representatives from the NSO and line ministries, as well as gender equality advocates from media, CSOs, academia, research and the private sector. Once the assessment report is ready, the assessment process is finalised at a validation workshop hosted by the NSO, gathering the same participants as the inception workshop. The purpose of the validation workshop is to inform all stakeholders of the results of the assessment, obtain their endorsement and formulate strategies to bridge the gaps identified. Additionally, PARIS21 is advocating for the creation of an Inter-agency Group on Gender Statistics in each country, which would gather the main producers and users of gender statistics at national level. This co-ordinating body can facilitate assessment and co-operation processes, and ensure smooth co-ordination and dialogue beyond the life span of the programme.

### CD4.0 capabilities covered

- NSS co-ordination mechanisms
- ⊘ Data ecosystem co-ordination
- Relationship between producers
- $\odot$  Relationship with users
- ⊘ Legitimacy
- $\odot$  Relationship with political authorities
- ⊘ Relationship with data providers

Source: (PARIS21, 2019<sup>[1]</sup>)

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**Notes** 

### 3.4. Understand the existing data ecosystem

### Activity: Assess the relevant data sources and providers in the NSS for the identified problem.

In this step, the programme owner assesses the data sources and providers available in the NSS that are relevant to the identified problem (Step 2.1). This activity is central to understand how stakeholders, data and existing structures function. The assessment is the first step in identifying the statistical capacity gaps to be filled by the programme (Step 4.6).

The assessment might include analysing relevant datasets, procedures, methodologies and tools available in the NSS. The analysis may – for example – aim to detect (future) synergies between existing and new data. The assessment also helps to merge or adjust the scope of the capacity development programme and ensures that all relevant data sets are embedded in the programme. This leads to the active empowerment of local stakeholders and respective data providers.

A variety of tools can be used for this assessment, as outlined in the PARIS21 guide, *Assessing the Capacity of National Statistical Systems* (PARIS21, 2018<sub>12</sub>). These tools support assessments of national planning/strategies, and include the NSDS evaluation tools and peer reviews. If a similar analysis already exists from earlier projects, the results can be re-used (after some updating).

### Guiding questions

Which datasets, procedures, methodologies and tools are currently available in the NSS?

Who are the providers of datasets, procedures, methodologies and tools relevant to solving the problem?

Does the NSO have access to those data, procedures, methodologies and tools?

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### Example 4. Assessing Kenya's data ecosystem for SDG monitoring using non-official data sources

PARIS21 and the Kenya National Bureau of Statistics (KNBS), with the support of GIZ, are implementing a project to improve the review process of the 2030 Agenda in Kenya. This exercise seeks to identify data producers within and outside Kenya's national statistical system (NSS), the kind of data produced and its characteristics, and the challenges that are currently preventing its use for officially monitoring the SDGs.

The data ecosystem mapping was limited to a few SDGs (SDG2, SDG3, SDG4, SDG6, SDG7), and focused on data and processes at both the national and the county level. The mapping exercise relied on three main sources of data: secondary programme/project documentation/ data, key informants, group interviews, and field observation. In this exercise, the following areas were identified as priority areas for collaboration between KNBS and other NSS members and new actors in the data ecosystem:

**INACCESSIBLE DATA:** most of the county and nonstate actors' data are in "closed" systems and tools. Data are stored in different formats, or reside on individual computers or in single department. This lack of accessibility means that the data cannot be used for measuring SDG indicators. **POOR QUALITY DATA:** data produced by non-state actors face various quality challenges. The study found biased data caused by intentionally wrong responses from those who think data collectors are donors or who are simply reluctant to provide certain information. Another quality challenge was intermittent data production due to irregular funding.

LACK OF DATA VALIDATION: there is a lack of trust between official and non-official data producers. The mapping exercise showed that non-state actors do not invite validation of their data by outside parties such as KNBS. This, in turn, contributes to mistrust of data produced by non-state actors.

**POOR CO-ORDINATION:** organisations may produce similar data but because they do not communicate with each other, efforts are duplicated.

The results of this initial mapping of the SDG data ecosystem in Kenya will help KNBS and PARIS21 to design the capacity development process so as to leverage the use of alternative data sources and close existing data gaps.

#### CD4.0 capabilities covered

- ⊘ Existing data
- ⊘ Data ecosystem co-ordination

Relationship between producers
Relationship with users

Relationship with data providers
Stakeholder interests

Source: (GIZ/PARIS21, 2019[3])

### 3.5. Assess data user needs and capacities

### Activity: Assess data user needs and capacities and adapt the programme accordingly.

Users should be actively involved in the preparatory phase, sharing expectations, decisions and options, knowledge and expertise. Communication strategies that aim to integrate users in the capacity development programme, including regular consultations and feedback mechanisms, should be prepared.

In order to target a CD4.0 programme to data users, it is crucial to first assess their capacities and needs. Different groups of users might require different communication strategies. For example, policy makers need to buy into the objectives of the statistical capacity programme. Programme managers might hence link the objectives of the programme to larger questions of good governance. Other groups of users, for example journalists, value user-friendly online access to data. Simple data formats and data visualisation tools help media representatives to analyse data for reporting. Experts from NGOs or academia appreciate comprehensive metadata and background material on published statistics. Therefore, it is important to assess the different user needs and profiles and adapt the programme accordingly.

In parallel to varying needs, different user groups specialise in different capacities (knowledge and expertise).

#### Notes

For example a research fellow at an academic institution might focus on data-specific skills such as programming or text-mining, while journalists might only have a basic understanding of data analysis and production. Understanding these different specialities will allow the NSO to design specific actions to train, empower or engage the different users in the programme.

User involvement can take many forms – such as hearings, (web) surveys, focus group discussions – beyond basic consultations.



What data do users need, for what purposes, and how do they access it?

Do these users possess adequate statistical capacities?

Which processes and procedures have been most effective and satisfying to users?

How can supply and demand be aligned through active involvement of users?

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### Example 5. Assessing needs of gender data users in the NSS

PARIS21, in partnership with UN Women, have developed a framework and guidelines to assess data and capacity gaps related to gender statistics, in order to mainstream a gender focus in National Strategies for the Development of Statistics (NSDS). Gender statistics are systematically underreported at national level due to the lack of sex disaggregation and the fact that existing surveys and censuses do not collect data on particular genderrelevant topics. Moreover, the existing provision of gender statistics often does not meet the existing national and international demand. For this reason, the framework and guidelines under the under the initiative "Making Every Woman and Girl Count" propose activities, methods and tools for guiding the assessment process and formulating a strategy to address gender statistic gaps in various country contexts.

The analysis of gender statistics gaps in the NSS would not be complete without identifying the data demand. For this purpose, PARIS21 prepared two questionnaires: 1) for line ministries; and 2) for the main national users: lawmakers, media, CSOs, academia, research and the private sector. In 2019, these questionnaires were tested in five pilot countries, taking into account each country's needs and priorities. The main users of gender statistics were encouraged to participate in a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis at the margins of the inception workshop organised at national level. The insights from the SWOT analysis are being used to feed into strategies that aim to improve the quality, frequency, relevance and reporting of gender statistics in the NSS by prioritising demand-side preferences and needs.

When pursuing dialogue with users, it is important to remember that it is not only users that create demand for statistics – NSOs also have the power to create demand by presenting the kind of information that can be collected and how it can be analysed.

#### CD4.0 capabilities covered

Relationship with users
Stakeholder interests

Statistical production processes
Quality assurance

Source: (PARIS21, 2019<sup>[1]</sup>)

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Holistic approach to capacity development

### 3.6. Define a financing mechanism

### Activity: Identify the programme's funding (e.g. Ioan, grant) and financing mechanism (e.g. basket, fund) based on a cost-benefit analysis.

In the preparatory phase, both funding and the financing mechanism need to be secured. The scope of the programme, the type of methodologies and procedures used and the number of staff employed all depend on the funding available. Often programmes have access to a variety of funding methods, such as lump sums, grants, and multilateral or bilateral official development aid (ODA). An overview over the different donor countries and the trends in financing for statistics can be found in the Partner Report on Support to Statistics (PARIS21, 2019<sub>[4]</sub>). It is important to include the voices of all stakeholders when selecting the entity to finance the programme. The selection process needs to be transparent and based on objective criteria. A budgeting plan should be made available to all stakeholders before taking a final decision.

A cost-benefit analysis helps to gain an overview over the entire process of programme implementation and ensures a resource-efficient allocation of funding across all preliminary activities planned. In many cases, comparing programmes might help to explore cost and benefits of an alternative intervention, legitimise the decision for allocating funding to specific activities or experts, or provide an alternative path in case of changing external circumstances.

### Notes

Naturally, the cost-benefit analysis will evolve with the development of the ToRs. Once the activities have been decided on by the stakeholders, each activity should be evaluated for the cost and impact related to its implementation.

### **?** Guiding questions

Who will finance the programme (internal/external/ which department)?

- What type of financing arrangement would be appropriate for the programme?
- Which institution is the main beneficiary?

How much budget will be needed for executing the programme?

Which other alternatives exist currently?
#### 3.7. Define a reporting mechanism

Activity: Define the mechanism for reporting between the lead partner and implementation agency, and work collaboratively to specify a reporting model for accountability, ideally in person.

Partnerships between NSOs and international or local partners are often essential to help countries develop capacity. Those partners do not necessarily have to be international organisations – partnerships between NSOs and the private sector, NGOs or civil society can be indispensable in order to adapt to a changing data ecosystem and establish the NSO as a data steward.

These partnerships provide technical support, training, knowledge transfer, and a model on which the NSO can base future statistical work. These partnerships are most effective when supported by clear communication between the parties involved and a system of accountability that allows the lead partner and the NSO to see the inputs provided and the progress made by the country in question. In many cases, management and planning tools support an efficient reporting mechanism. It is crucial to verify whether these tools are accessible to the executive team.

#### Guiding questions

What procedures are required to ensure accountability between partners? What is the understanding of the scope and type of

reports provided by the implementation agency to the lead partner?

Is there a need for supporting structures (e.g. cloud sharing, intranets, planning tools)?

What systems are needed to store the metadata, to archive intermediate and end results, and to document decisions?

#### Example 6: Reporting between Statistics Norway and the Central Bureau of Statistics of Sudan

In 2017, the Sudanese Central Bureau of Statistics (CBS) undertook a project to improve co-ordination among stakeholders and to develop statistical capacity across sectors. They worked with Statistics Norway (SSB) to enhance the effectiveness of their co-ordination efforts. The project linked with Sudanese owners of administrative data - the Tax Authority, Customs Authority, Civil Registrar and National Information Centre. The Mapping Authority was also included as a source of land-property information. In Norway, the project collaborated with the Norwegian National Register Authority, National Mapping Authority, and the Tax Authority. The project was also in contact with the World Bank Office in Khartoum and the African Development Bank. This pairing between the Sudan's Central Statistics Bureau and Statistics Norway exemplifies successful collaboration both for open communication and capacity development in the form of training. The training modules are explored in Example 17 - here, we discuss the accountability and reporting mechanisms established

between CBS and Statistics Norway, as well as within the NSS.

To ensure financial accountability for the project, the CBS signed a memorandum of understanding (MoU) with Statistics Norway. This clearly defined the responsibilities, routines, and conditions for accounting throughout the project, ensuring consistent reporting and documentation at all phases. An in-person meeting was held at project start up between accountants from CBS and SSB to establish trust and build a relationship. Later, webbased communication further ensured understanding of financial documentation and responsibilities. In addition, since Sudan has been under economic embargo for the duration of the project, there was little or no staff or financial resources available. Virtually all accounting is done in Norway under Norwegian law. These accounting mechanisms were supported by the strong and trusting relationship between CBS and SSB, built over the course of a long partnership begun in 2008.

#### CD4.0 capabilities covered

- ⊘ Funds infrastructure
- ⊘ Knowledge sharing
- $\odot$  Data ecosystem co-ordination
- Accountability
- Stakeholder's interests
- Communication
- Strategic planning, monitoring and evaluation

Source: Personal communication, Statistics Norway

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# Chapter 4: Design Phase

## 4. Design Phase

In this phase, the programme owner, together with key stakeholders, decides on the operational actions and develops a programme plan. The plan determines the desired programme outcomes and the specific activities to achieve them. It also allocates concrete roles to stakeholders, develops a risk analysis, includes an advocacy strategy and targeted data and capacity gaps, and defines performance metrics for monitoring the programme. The activities in this phase build on the specifications in the ToRs produced in the previous phase.

The specific activities involved in the design phase, following the CD4.0 checklist (Figure 1.4), are as follows, and are discussed in this chapter in turn, illustrated by real-life examples from countries around the world. They are colour coded to reflect the CD4.0 category to which they belong.

#### Sequencing

In these guidelines the design phase is assumed to start when the ToRs are finalised, the contract is signed and the order for starting the programme is given. In reality, the design and preparatory phases often overlap and feed into and influence one another. New insights gathered or problems encountered in the design phase might lead to reviewing the ToRs. In these cases, the programme protocol or contract will require the programme owner and the programme sponsor to be informed about any changes in the ToRs and in some cases, the programme manager might need to amend them. When the programme design is final, the programme is approved by the programme owner and key stakeholders and can move into the implementation phase (Chapter 5).

#### Outputs

- a work plan that describes the governance and scaling up structures, roles and responsibilities, procedures, human and financial resources, and expected final and intermediate results
- a list of data sets, statistical processes and methodologies relevant for the programme
- a risk analysis taking into account the economic, social and political context
- an effective advocacy strategy taking into account the user needs and capacities
- a document identifying the capacity gaps in the data ecosystem and the capabilities from the CD4.0 matrix needed to close those gaps
- a set of performance indicators for monitoring the programme.

#### (-KQ INCLUSION OF NEW DATA STAKEHOLDERS

- 4.1. Assess main stakeholder capacities
- □ 4.2. Design governance structure and assign responsibilities
- 4.3. Choose data sets and methodologies
- □ 4.4. Understand roles, context and risks

#### STRONGER USER INTEGRATION

□ 4.5. Design an advocacy strategy

#### O∑ HOLISTIC APPROACH TO CAPACITY DEVELOPMENT

- $\Box$  4.6. Assess data and capacity gaps
- 4.7. Develop a theory of change using the CD4.0 framework matrix
- 4.8. Involve local experts and assign multi-disciplinary teams
- □ 4.9. Check legal structures and frameworks
- □ 4.10. Develop performance indicators

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#### 4.1. Assess main stakeholder capacities

# Activity: Assess the capacities (including knowledge and expertise) of the main stakeholders in the domain concerned.

To make the programme as effective as possible, the level of expertise and knowledge of stakeholders as regards the identified problem must first be assessed. This will allow the programme owner to formulate specific actions to train, empower or engage the stakeholders in the programme. This step will involve establishing special arrangements and agreements with stakeholders, appointing contact persons, defining the human resources available and clarifying financial contributions. Based on the stakeholder consultation (Step 3.3), the roles of stakeholders in the programme are specified in concrete terms. The programme owner, together with the stakeholders, defines the scope of the task, the time lines, as well as the format of the assessment. At this stage, the programme owner should have ensured the buy-in and support of stakeholders for the programme..

#### Quiding questions

Do the main stakeholders have sufficient knowledge and expertise to contribute to the programme's outcome?

Which capacities are needed for solving the problem at hand?

#### Example 7. Assessing stakeholder capacities in using citizen-generated data for SDG monitoring in Kenya

The conceptualisation of a capacity development programme requires thorough knowledge of stakeholder capacity and expertise in their respective statistical domains. The joint PARIS21 and Kenya National Bureau of Statistics (KNBS) programme aims to strengthen capacities within the NSS to use non-official data sources. From 2019-2021, the programme will explore where in the NSS capacity development is most needed and what forms are applicable. Using a CD4.0 approach, KNBS will be able to tailor capacity development programmes to national priorities for the best results.

The programme designed a survey of the key stakeholders of the NSS to identify capacity development opportunities in Kenya. The survey had four main objectives:

1. Identify the KNBS's medium-term goals and challenges for capacity development.

- Identify the immediate capacity-building priorities for the NSO as they relate to the Sustainable Development Goals.
- 3. Explore what programmes/activities the NSO conducts to achieve these priorities, both in the short and medium term.
- 4. Describe how capacity development is currently implemented.

These broad categories allowed KNBS to create a goals-driven plan for capacity development with an eye on the SDGs, while reflecting on lessons to be learned from current capacity development programmes. The stakeholders' insights provide a framework for KNBS to identify precisely where capacity development is needed and how each element relates to its overall objectives. With this information in hand, Kenya's NSO can more effectively design new capacity development measures.

#### CD4.0 capabilities covered

- ⊘ Data ecosystem co-ordination
- Relationship between producers
- Relationship with users
   Relationship data providers
- Stakeholder interest
- Organisational design

Source: (PARIS21/GIZ, 2019,1)

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# 4.2. Design governance structures and assign responsibilities

# Activity: Define a governance structure and assign responsibilities.

As part of the design phase, the roles of the institutions and staff involved are assessed and translated into actions. The assessment of stakeholder roles and responsibilities helps the programme to decide which institution or department is best suited to implement the programme and to define a suitable governance structure. Staff responsibilities and working modes might vary across different groups of stakeholders depending on the organisations' structures and hierarchies.

As part of this, the programme owner should conduct a wider economic and political analysis to understand how the stakeholders are situated within the NSS (Step 4.4). This analysis might also help to describe how the influence and position of these stakeholders can used to benefit the programme actions.

#### Notes

In some cases, partnerships between certain groups of stakeholders might add value to the programme outcome. The programme manager should establish communication/ consultation channels to keep internal and external stakeholders informed and engaged. One example of a governance entity could be a steering committee or a board. For internal processes, it is recommended to define a process for reporting tasks, set the frequency of meetings, and appoint leading experts.

#### **?** Guiding questions

Who is best suited, in terms of capabilities and capacity, to take the leading role in implementing the programme?

How can team members communicate most effectively?

How often should they hold physical versus virtual meetings?

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## Example 8. Designing a governance structure for strengthening the use of data for economic planning in South Sudan

Promoting economic development is a high priority for many countries, but effective policies need strong direction informed by high quality statistics. Accurate economic data are necessary to understand what policies are needed, while the ability to manage resources and set such economic policies is greatly strengthened when a central planning authority is identified and grows its capacity to make appropriate use of this data. In 2017 South Sudan sought to establish a central governance structure in order to bolster the country's ability to establish sound economic statistics.

The request for the project came from the President of South Sudan. An important element of the design phase was to define the programme's placement and establish ownership within the governing entity, the Ministry of Finance and Economic Planning of South Sudan (MoFEP). The intent of the project was to strengthen the capacity for economic development and for making strategic choices – MoFEP was determined to be the most relevant institution to take the governing role. The South Sudanese project co-ordinator, the director of the Macroeconomic Department within MoFEP and the Norwegian project co-ordinator all led the work, which received financing from the Norwegian Ministry of Foreign Affairs.

The programme's success was aided by a well-defined governance structure inside the MoFEP that was designed with an eye towards self-sufficiency for South Sudan. The project co-ordinator from South Sudan oversaw the implementation of the project and was responsible for the division of labour among staff and for tailoring activities to their needs. The co-ordinator not only ensured the project was anchored in the MoFEP management, but also included staff from the Overseas Development Institute and the Budget Strengthening Initiative. The Norwegian co-ordinator played a supporting role by preparing budgets, donor reports and documents for the annual meeting; proposing work plans; bringing in Norwegian experts for specific aspects of capacity development; and carrying out practical work for seminars and workshops. The capacity development undertaken within this structure was generally handson. Staff learned how to integrate a macroeconomic framework into their usual processes for preparing budgets and forecasting; how to apply a macroeconomic model in a specific South Sudan scenario; and how to build a data library of their analysis methodology. They were assisted in applying for a loan and accounting for existing debts within the macroeconomic model.

While the overall goal of the project was hampered by the escalating crisis in South Sudan, the outcomes at project level were good. By selecting an appropriate governing institution and allowing them to take ownership of capacity development, Norway and South Sudan were able to organise a fruitful partnership and strengthen the country's overall ability to use its data for economic planning.

#### CD4.0 capabilities covered

- ⊘ Existing data
- ⊘ Knowledge sharing
- Human resources

Technical skills Work know-how

Leadership
 Fundraising strategies

Source: Personal communication, Statistics Norway

#### 4.3. Choose data and methodologies

Activity: Choose the data and methodologies which best fit the programme, the capacities of the main stakeholders and the capacity development programmes in place.

In the design phase, the programme manager and stakeholders choose the statistical processes, data sets and procedures to be analysed, and the standards, methodologies and procedures to be followed. In a CD4.0 programme it is crucial to look beyond traditional data sources and evaluate the potential of non-traditional data sets and innovative methodologies.

The process can include mapping or another type of visualisation of the functional relations between elements or the flow of actions, as well as a model of the expected outcome. The review of existing programmes (Step 3.2) as well as the assessment of relevant parts of the data

ecosystem (Step 3.4) can guide the choice of data and methodologies. This might require co-ordination within and outside the NSO.

# Guiding questions Are the available datasets and methodologies sufficient to execute the programme? Have the datasets and methodologies available to the programme owner proven successful in other

established programmes?

methodologies?

Does the programme executive team have sufficient resources and skills to use those datasets and

#### Example 9. Using tailored methodologies efficiently to create meaningful census data in Mongolia

Integrating databases creates important synergies of scale and scope when exploiting various data sources. It is essential that the integration process is tailored to the capacity, needs, and goals of the statistical office. Since 2016, the National Statistics Office of Mongolia (NSO Mongolia) chose an appropriate strategy that took advantage of existing data resources to consistently link stakeholder databases – a project that will facilitate the regular collection of census data in the future.

The NSO Mongolia linked the databases of relevant government agencies before administering a by-census (an intermediary census, conducted every five years in addition to the full census every 10 years). This involved co-ordinating 38 types of databases across 15 organisations. To ensure individual indicators were appropriately linked, NSO Mongolia made use of a personal ID number. By appropriately tailoring the methodology of the integration to be based on information that had already been consistently collected (the ID number), Mongolia was able to complete this ambitious project before the administration of the by-census.

Source: Personal communication, National Statistics Office Mongolia

The linked databases were then used to improve Mongolia's population indicators with information from the new census, like marriage and education. The project also enabled NSO Mongolia to eliminate duplicate information to achieve a clean base condition for population and household indicators. This facilitates further census administration and analysis of data collection, which reduces the potential cost to the NSO of a new law mandating a new census every ten years. The additional capacity and resources can then be used on geographical disaggregation. Thus, Mongolia's choice to link the databases was both made possible by good methodological choices and was in itself a methodological choice that laid the groundwork for further capacity development. In addition, by creating a baseline free of duplications and for a lower cost, the integration of databases also encouraged a sound methodology in the administration of future censuses.

#### CD4.0 capabilities covered

- ⊘ Existing data
- ⊘ NSS coordination mechanisms
- Data ecosystem co-ordination
   Relationship between producers
- ⊘ Statistical production processes

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#### 4.4. Understand roles, context and risk

Activity: Understand the role of the NSO and the NSS in the local political, economic and social situation, assess potential risks and develop a risk strategy.

To ensure smooth implementation, it is important to detect risks, potential undesired effects and the degree of uncertainty given the political context and the resources available in the NSS. The assessment should enquire how easily the programme could adapt to a changing local context. It might be useful to prepare a risk strategy in case of a rapid change of the political or economic environment. The risk strategy will anticipate challenges and solutions to unexpected events and potential failures. It will help to mitigate the impact of changes and improve the programme's overall outcome.

To assess risks adequately and situate stakeholders and users in the wider data ecosystem, the programme manager should understand the local political, economic and social situation. The economic situation of the country might substantially affect the current national strategy for statistical development. Similarly, the political system, the government in power and the structure of the government ministries might define the scope and strategies for implementing the capacity development programme.

Notes

Moreover, existing international partnerships in statistics, legal frameworks in place, freedom of the press, and investment in statistics should be reviewed. Social factors, such as the academic research culture, average levels of education and data literacy in the country, or environmental risks, might also affect the use of data through various channels. Regional or sub-regional elements should be included in cases where the programme focuses on specific geographic elements.

# Guiding questions Is the economic situation favourable for investing in official statistics? How stable is the current political situation?

How does the legal statistical framework conform to the programme objectives?

- What are the major social divisions in the country?
- How supportive are policy makers of evidenceinformed policy making?

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#### Example 10. Developing a risk assessment strategy in the Caribbean

A risk assessment strategy is a key factor for understanding the environment in which the NSS operates and how it fits into that environment. Accurate assessment of risk allows the NSO to prepare for such eventualities as a lapse in funding or roadblocks to projects that could otherwise severely handicap the production of official statistics. CARICOM (Caribbean Community) NSOs, along with Statistics Canada and other international development partners (IDPs), have developed a region-wide risk assessment mechanism along with standardised responses. As a result, potential risks and their response protocols are now a part of all current and proposed projects.

Risk assessment was built into the project from the beginning of its development and is carried out regularly throughout the project lifecycle, taking sociopolitical, operational/administrative and environmental factors into account. The risk assessment cycle follows several steps, including assessment of risk generators, identification of associated risks, assigning risk levels based on likelihood and impact, development of a risk response strategy for each identified risk, and a reassessment to identify residual risk and any adjustments, if needed, to the risk response.

To develop this risk assessment mechanism, regional stakeholders in CARICOM conducted meetings with Statistics Canada and relevant IDPs such as the Caribbean Regional Technical Assistance Centre

(CARTAC) and the Inter-American Development Bank (IDB) to identify challenges and discuss possible risk response strategies. The consulting pool has since expanded to more CARICOM member NSOs and other stakeholders and IDPs. These are consulted at least annually to update priorities, identify new or changing challenges and adapt the risk response framework accordingly. The goal of this development process is a strategy that is evergreen and responsive, adapting to new or changing risk generators and supporting the sustainability of project results. For example, one risk identified was project activity postponements related to conflict between NSO and project priorities. Stakeholders and the Project for Regional Advancement of Statistics in the Caribbean (PRASC) collaborated to identify a response, which included aligning project activities with already approved or funded activities, introducing risk management to budget forecasts and adjusting the Project Charter to clarify expected levels of effort and other related factors. This helped to reduce this risk from medium-high to medium.

By integrating risk assessment and preparation into every phase of project planning and execution, Caribbean NSOs have been able to decrease vulnerability even when operating in a precarious political or financial environment. Risk assessment and planning is an effective way to prevent external obstacles to capacity development from impeding the growth and production of the NSO.

CD4.0 capabilities covered		
<ul> <li>⊘ Funds infrastructure</li> <li>⊘ Plans</li> </ul>	<ul> <li>⊘ Monitoring</li> <li>⊘ Evaluation</li> </ul>	⊘ Stakeholder interests
Strategic planning	Operation Operatio	

Source: Personal communication, Statistics Canada

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Stronger user integration

#### 4.5. Design an advocacy strategy

# Activity: Define an advocacy strategy (for example aligned with the NSDS) to engage relevant users (especially the government).

Based on the user needs and capacities (Step 3.5), the programme owner needs to define an advocacy strategy to reinforce public confidence in the NSS and in the use of statistics, raise awareness about the importance of quality statistics for development, and fully inform relevant stakeholders about the prerequisites and challenges in designing and implementing a CD4.0 programme (PARIS21, 2018<sub>12</sub>).

Moreover, it is important to achieve high-level commitment to a CD4.0 programme in the short term, or to influence policy makers to allocate more national resources to data and statistics in the long term. Depending on the local context and the user groups, advocacy strategies might differ.

#### **?)** Guiding questions

How can the programme's objectives be phrased in such a way that it attracts policy makers' interest and fosters national demand for statistics (specifically those targeted by the programme)?

#### Example 11. Advocating for official statistics via public relations in Mongolia

The general public is an important stakeholder when it comes to national statistical systems. Their demand for data can galvanise political will around the production of national statistics, which often creates a virtuous cycle: the more official statistics are in demand, the more governments will be motivated to produce it, and the more NSOs can develop capacity to satisfy user needs. Starting this cycle often requires making users aware that official statistics on topics of interest exist and are accessible to them. Mongolia sought to do this through a public relations campaign.

The Chairperson of NSO Mongolia initiated the campaign, ensuring a top-down approach that was able to involve all parts of the organisation. A new public relations division within NSO Mongolia was created and sought to reach the widest audience possible by advertising on several forms of media. They exploited digital technology by carrying out the campaign on social media, as well as a mobile app, a website, and email campaigns. At the same time, they targeted traditional users of media through TV and newspaper advertisements as well as an information call service. Regular press conferences convened over 40 press organisations to report on Mongolia's socioeconomic situation. Since 2018, they have also established an Information Centre that disseminates video content. These videos provide statistical news updates as well as more in-depth lessons on methodology and production processes. In this way, NSO Mongolia is raising user awareness of the work they do and simultaneously improving data literacy among their user base by presenting statistics and methodology in an organised and accessible form. These efforts complement each other to increase public engagement with official statistical systems.

NSO Mongolia also developed a very precise schema of stakeholders that allowed them to identify the different groups they wished to target during their campaign. They first categorised stakeholders into External Conditions (consumers of statistics), and Internal Conditions (institutions that produce and process data). Within the External Condition, they further break down users into Ordinary, Business, and Researcher. This functional definition of stakeholders allowed the NSO Mongolia to identify the various needs of each group and target them accordingly. As a result, interest in the social media accounts of the NSO Mongolia has increased, as has attention from journalists. This has led to improved access to information and more accurate reports by the media, which builds trust among the public in official statistics.

#### CD4.0 capabilities covered

- ⊘ Data literacy
- ⊘ Advocacy strategy
- ⊘ Relationship with users

Stakeholder interests
 Legitimacy

CommunicationTransparency

Source: Personal communication, National Statistics Office Mongolia

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#### 4.6. Assess data and capacity gaps

Activity: Assess data and capacity gaps to better target the programme.

When setting up a statistical capacity programme, it is crucial to identify gaps in statistical capacity. The first step in assessing capacity gaps is to assess gaps in data produced by the NSO. Data gap assessments should build on data ecosystem mappings focusing on stakeholders (Step 3.1 and Step 4.1), as well as on the understanding of the existing ecosystem around the identified problem (Step 3.4).

As a first step, the programme owner can assess the data gaps in the NSS using the Advance Data Planning Tool (ADAPT) developed by PARIS21 (PARIS21, 2017<sub>[3]</sub>). ADAPT is a free cloud-based tool that brings together development stakeholders in the promotion of evidence in policy design and monitoring. It promotes the reuse of data and the quality assessment of data sources. Additionally, it reinforces a co-ordinated data infrastructure in a national or regional context. ADAPT uses database-management system technology and is hosted on a secure cloud-based set-up. Within an NSS, the tool can be used by multiple users simultaneously. It features multilingual support and can be customised according to the specific country needs.

The second step should identify gaps in statistical capacity in the relevant part of the NSS. This could be done by analysing the results of the Capacity Development 4.0

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survey for the specific country (PARIS21, 2018<sub>[4]</sub>). This survey has been designed by PARIS21 in consultation with the High-level Group for Partnership, Coordination and Capacity Building for Statistics (HLG-PCCB) and the support of the United Nations Statistics Division (UNSD). It aims to provide a better understanding of the current state of capacity development in NSOs and more broadly across NSSs, and the challenges, priorities and plans they have for the short and medium term. The results could provide guidance for conducting an online survey to identify specific challenges in statistical capacity development.



What important statistical capacity gaps need to be closed? Which capabilities of the CD4.0 are poorly developed in the NSS?

Which CD4.0 capabilities are crucial to develop first?

Which other CD4.0 capabilities would create additional synergies and significantly improve the impact of the programme in the data ecosystem?

#### Example 12. Identifying and understanding reasons for gender statistics gaps in NSSs using the CD4.0 matrix

Gender statistics are systematically underreported at national level due to the lack of sex disaggregation and the fact that existing surveys and censuses do not collect data on particular gender-relevant topics. Moreover, the existing provision of gender statistics often does not answer the existing national and international demand. For this reason, PARIS21 in partnership with UN Women under the initiative "Making Every Woman and Girl Count" developed a Framework and Guidelines to assess data and capacity gaps related to gender statistics, to mainstream a gender focus in National Strategies for the Development of Statistics (NSDS). The Framework and Guidelines propose activities, methods and tools for guiding the assessment process and formulating a strategy to address gender statistic gaps in various country contexts.

Recognising that "existing data" is one of the key capabilities when assessing the NSS, the first step of the gender statistics assessment is to identify data gaps. Data gaps result in missing statistics, low frequency of publications, lack of gender-focused analysis of existing data and a mismatch between what is produced and what is demanded by users. Data gaps are identified against priority frameworks specified by the country, including national and international frameworks of genderspecific indicators (e.g. 54 gender-specific SDG indicators selected by UN Women). For that purpose, PARIS21 proposes that countries use a data-planning tool in order to map the existing supply and demand of gender statistics. The supply corresponds to statistics produced by the NSS and the demand results from existing national policies (e.g. gender statistics policy), strategies (e.g. NSDS), as well as international commitments

(e.g. Convention on the Elimination of All Forms of Discrimination against Women or CEDAW, SDGs, etc.). The data-planning tool helps national stakeholders to build inventories of indicators, as well as information on data sources, responsible institutions, frequency and means of dissemination.

In order to identify statistical capacity problems, which can cause data gaps, PARIS21 has developed a set of questionnaires covering all aspects of statistical capacity in the national statistical system. To provide a holistic and comprehensive analysis, PARIS21 aligned the set of questions with the capabilities outlined in the CD4.0 conceptual framework. Each capability is covered by at least one question. The set of questionnaires includes: a global questionnaire for the gender statistics focal point in the NSO, an "individual level" questionnaire for the focal points in the NSO and the ministry of gender (or similar), a short questionnaire for ministries producing and using gender-related data, and a questionnaire for gender statistics users: lawmakers, media, academia, research and the private sector. The answers provided to these questionnaires are complemented with the data-planning report, the information from existing NSS assessments, as well as national and international reports on the topic. Specific legislation, institutional regulations as well as existing national plans and development strategies also serve as input for the assessment.

PARIS21 launched the pilot of the gender statistics assessment in 2019. The first countries participating in the pilots were the Dominican Republic, Maldives, Senegal, Egypt and the Kyrgyz Republic.

#### CD4.0 capabilities covered

- ⊘ Existing data
- Relationship between producers

Relationship with users
 Statistical production processes

 Strategic planning, monitoring and evaluation

Source: (PARIS21, 2019<sub>151</sub>)

#### 4.7. Develop a theory of change using the CD4.0 framework matrix

Activity: Develop the detailed theory of change taking into account relevant CD4.0 capabilities, their benchmark conditions, and interlinkages with other CD4.0 capabilities relevant to the programme.

Before implementing a CD4.0 programme, it is important to develop the underlying theory of change (Section 1.1). A theory of change gives a structure to the envisioned CD4.0 programme and enables the stakeholders to explain the way the activities are implemented and what impact those activities will have. The theory should aim to integrate all relevant CD4.0 capabilities, the needs and capacities of key stakeholders (Step 3.1) and of users (Step 3.5).

The programme owner should use the CD4.0 conceptual framework matrix (Figure 1.2) to lay out a detailed theory of change. The matrix allows one to map single capabilities and the interactions among them. Some of these capabilities might be considered necessary for the programme to have long-lasting benefits, while others may be priorities for a follow-up or larger programme with a longer-term horizon. For each capability identified in the matrix, the outcomes and concrete outputs of the programme can be identified. The theory of change will then contain a description of objectives and actions, actors and methodologies/tools to be used to achieve these objectives.

In this process, it is important to consider strategic interlinkages among individual capabilities to achieve a sustainable result. Programme managers will describe how the actions affect other capabilities. Gantt charts can be used to describe the order and relationship among activities in the overall programme, and give indications of durations, deadlines and key events in the running of the programme (Figure 4.7). On the chart, tasks are shown on the vertical axis while the scheduled time involved is laid out on the horizontal axis. Each task is represented by a bar that shows the time required for the project. The bar then represents or shows the percentage of tasks that have been completed. It also shows dependencies, i.e. the interlinkages between various activities in the programme. The inclusion of the CD4.0 capabilities and their interlinkages maximises the chances of building on synergies and achieving a sustainable and efficient result.

# Cuiding questions

- Which capabilities should be built through the CD4.0 programme?
- How can these capabilities be targeted effectively?
- What is the underlying theory of change?
- What activities will be required to accomplish the objectives of the programme?
- How are the capabilities interlinked with other capabilities?
- Can synergies be leveraged strategically?

#### FIGURE 4.7. AN EXAMPLE OF A GANTT CHART



Source: PARIS21 (2020), Corporate Design

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# Example 13. Assessing CD4.0 capabilities to design a strategy for the Arab Institute for Training and Research in Statistics

In 2019, the Arab Institute for Training and Research in Statistics (AITRS) began to prepare its strategic plan for the period 2020-2024 - a realistic and implementable plan upon which to build its annual work programmes for the medium term. It takes into account new developments in the field of statistics, the evolving statistical capacity needs of member states, and the support available at the international level. The activity also takes stock of AITRS's various achievements during the previous strategic plan period (2014-2018) and considers the political situation in the Arab region. The new strategy is essential for defining effective programmes based on statistical innovations and lessons from the previous planning period. CD4.0 capabilities provide a framework for structuring this plan based on the capacity development goals of the AITRS; they are also a way to clearly identify capacity gaps.

To facilitate this process, the AITRS requested the support of PARIS21 in preparing the new strategic plan. For its preparatory assessment, AITRS is using the recommendations of the 50th Session of the United Nations Statistical Commission (UNSC) and the strategic priorities of the Cape Town Global Action Plan for Sustainable Development Data (CTGAP) along with the Capacity Development 4.0 Framework (CD4.0).

The assessment examined the following aspects:

- the extent to which AITRS's vision and mission reflects the definition and requirements of capacity development in the context of CD4.0 and regional relevance
- the extent to which the AITRS's strategic goals for developing the capacity of Arab statistical systems address the capabilities needed at the three levels (individual, organisational and system)
- the extent to which planned and undertaken capacity development programmes address the capabilities needed at the three levels in accordance with the capacity categories and capacity dimensions of the CD4.0 framework.

An assessment framework is currently being prepared to define the scope of the review, including the tools to use for the study (desk review, questionnaires, face-toface meetings with key stakeholders). The assessment report will provide actionable information in the form of conclusions and recommendations for the 2020-2024 Strategic Framework and Plan.

#### CD4.0 capabilities covered

Change management
 Strategic planning

⊘ Organisational design

⊘ Leadership

Source: Personal communication, Arab Institute for Training and Research in Statistics (AITRS)

#### 4.8. Involve local experts and multi-disciplinary teams

# Activity: Involve local experts and assign multi-disciplinary teams for implementing the programme

Programme managers should involve as many local experts as needed in the programme. This increases the likelihood that the programme will establish sustainable, long-term processes. Consequently, local experts and NSO staff need to be motivated to participate in the CD4.0 programme. One important aspect of building motivation consists of positive learning experiences closely linked to successful performance while executing the CD4.0 programme. Thus, instead of hiring mostly external experts, local staff should be trained adequately. It is crucial to consider time and budget for these activities in the design phase.

Moreover, the wider scope of a CD4.0 programme also requires reflection on the disciplines to be involved. Multidisciplinary teams might be needed to achieve a broad outreach into the domains that are covered by the whole data ecosystem. Some activities in the programme might require specific tools (IT, management), which need specific knowledge to use them most efficiently. It is important to ensure that the experts/staff working with those tools have the required knowledge to operate them. Training might require additional time and budget. Moreover, some tools might need updates or require compatible formats to work correctly.

# Guiding questions What are the qualifications needed to ensure programme success (not only technical knowledge)? Which local institutions have the expertise needed? Which other entities could add value to implementing the CD4.0 programme? What type of training module would be needed to involve local staff? Does the executive team have the resources and skills

to use specific tools needed for the implementation?

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#### Example 14. Planning to involve local experts in the Caribbean

Capacity development projects should always be undertaken with the support of local experts, as they can combine knowledge in their field with first-hand knowledge of the politics and culture that could influence the planning and implementation. Relying on local human resources also enables the capacity development efforts to continue after partners withdraw, as it creates centres of expertise known by and accessible to the NSO. Local involvement also encourages a sense of ownership of the capacity development programme, which can in turn increase investment and participation by the country in question.

In the case of the Caribbean, "local" refers to both country-level and regional experts, particularly since the main development partner, PRASC, has a regional focus. This means that both levels are consulted when identifying the need for local experts. At the country level, consultations are held regularly with national statistical offices (NSOs), ministries, departments and agencies (MDAs) and other country stakeholders participating in the national statistical system (NSS). These actors gather in meetings facilitated by PRASC to discuss progress and challenges and to facilitate co-operation among the relevant disciplines, such as statisticians, IT and communications specialists. At the regional level, similar synergies are sought through regional stakeholder meetings, regional activities, and workshops.

Encouraging south-south collaboration to develop local expertise is another important facet of strengthening capacity. PRASC partnered with the Caribbean Centre for Development (CARICAD) to provide two workshops on leadership in 2018 and 2019, and with the Eastern Caribbean Central Bank (ECCB) to provide a "train the trainers" workshop on national accounts and ensure stewardship of related tools. The project is encouraging centres of expertise in the region through fostering country-to-country and country-to-region co-operation. For example, Jamaica is a rising centre of expertise in media relations and participates in training others in the region. Similarly, Belize is gaining expertise in business registers, MOU development and data sharing that can be likewise shared with other countries in the region.

By integrating local expertise into capacity development planning, the Caribbean region has succeeded in identifying, co-ordinating with, and further developing its human resources. These efforts have also improved communication and knowledge sharing in the region, which creates a good foundation for sustainable and country-owned capacity development.

#### CD4.0 capabilities covered

- ⊘ Human resources
- O Technical skills
- ⊘ Work 'know how'
- Knowledge sharing
- Communication
- Strategic planning, monitoring and evaluation
- ⊘ HR management
- Data system co-ordination

Source: Personal communication, Statistics Canada

#### 4.9. Check legal structures and frameworks

#### Activity: Check the legal structures directly affecting the operational actions of the CD4.0 framework

Apart from assessing the legal framework of the NSS, the programme owner needs to evaluate how data laws or legal structures affect the operational actions of a CD4.0 programme. The programme owner should also reflect on the legal aspects (copyrights, ownership rights) of using certain tools in the programme as well as on the legal position of international experts and the validity of their qualifications.

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#### **?)** Guiding questions

Which laws and legal frameworks are directly and indirectly relevant for the programme implementation and its long-term success?

Which legal requirements exist for the use of certain tools?

Does the CD4.0 programme secure intellectual property rights for the beneficiary country?

#### Example 15. Reformulating the legal framework to establish a new statistics office in the Philippines

The most fundamental element of an effective national statistical system is the laws that establish and govern it. Outdated laws hinder an NSO's ability to gather data and produce statistical products, resulting in an inefficient system that commands little political capital. Thus, it is essential that the governing laws be reviewed and revised periodically to ensure that they actively promote the efficient functioning of the entire NSS. This applies not only to laws around the NSS but the laws that define the NSO itself. In this example, the Philippines revised its statistical laws to transform four disparate agencies into one centralised organisation that is able to function more efficiently and command more influence.

In 2013, the Philippine Statistical Act abolished four major statistics agencies, two of which were agencies attached to the planning ministry and two of which were bureaus in line ministries. The Philippine Statistics Authority was created to replace them. It became the government's central statistical authority on primary data collection, statistical standards, continuing enhancement of statistical methodologies, and compilation of integrated statistical reports on the socioeconomic situation of the country.

The World Bank provided technical assistance in the crafting of a comprehensive organisational structure from the central office to regional and provincial offices that included the proposed personnel staffing. The process included the appointment of a chief statistician who then led the various consultations with all officials and employees of the four abolished agencies with technical assistance from the World Bank on human resources, and a change management consultant. The representatives of the planning ministry, the National Economic and Development Authority, and the Department of Budget and Management championed the whole process

that approved the organisational structure, staffing pattern, and the first PSA budget under the government appropriations act.

This then led to a three-phase process to appoint people to the PSA's approved organisational structure:

- 1. Retirement of officials and employees of abolished agencies who did not want to stay with PSA
- 2. Appointment of those who opted to stay in the new agency
- 3. Recruitment and hiring of new people into the new agency.

The ambitious goals set by the new statistics act of achieving solid, responsive, excellent statistics and a civil registration authority inspired rigorous measures to ensure successful construction of a new integrated system. It was undertaken with the input of various stakeholders, as advised by CD4.0 principles. In addition, the new NSO organised change management workshops to educate existing employees about the new vision of the statistical agency as laid out by the law, sessions on risk minimisation to the dissemination process as a result of employee displacement, and capacity building lessons for new employees. This unified vision of a new PSA provided the necessary political capital to support its attainment. The PSA was not only able to get the staffing it needed, it was able to get the budget for all core activities, some innovations and infrastructure to provide an enabling office environment for its staff and clients. The support of and confidence in the new system has continued into the present: recruitment continues as new recent mandates (national ID system and community-based monitoring system) have been given to PSA through new laws.

#### CD4.0 capabilities covered

Legislation, principles and institutional setting
 Relationship with political authorities'

Budget
HR management
Change management

Organisational design
 Leadership

Source: Personal communication, Philippine Statistics Authority

#### 4.10. Develop performance indicators



Ongoing monitoring allows for immediate reactions to any divergence from the desired programme objectives or milestones while executing the CD4.0 programme. Moreover, monitoring helps to detect risks, react to any potential undesired effects and evaluate the degree of uncertainty given the (local) political context and the resources available to the NSO.

Performance indicators for monitoring the outcome of the programme should also be defined, based on quality criteria. In some cases these will be aligned with the NSDS. Quality frameworks such as the UN Statistics Quality Assurance

#### Notes

Framework (UNCTAD, 2016<sub>[6]</sub>) will deliver principles and standards to assess the quality of the output of the activities implemented during the programme. However, programme-specific indicators might also need to be developed for monitoring the programme. The programme management will identify which indicators are suited for the assessment.

#### **?)** Guiding questions

Which indicators enable the continuous monitoring of the performance of the programme?

Are data available to measure these indicators?

## Example 16. Establishing performance indicators in a capacity development programme for environmental statistics in Lao People's Democratic Republic

As stated in the 2030 Agenda, protecting the environment and mitigating the effects of climate change are fundamental to ensuring sustainable development across the world. It has been recognised in the past few years that environment statistics are one of the most pressing areas for development in order to succeed in monitoring progress towards the SDGs. Despite its fundamental role, the environment is often a weak pillar of national statistics.

In this context, it has become essential for Lao PDR to improve its NSS and develop the domain of environmental statistics with the objective to collect, process, verify, store and disseminate the statistics required for monitoring and evaluating sustainable development initiatives. The Lao Statistics Bureau (LSB) together with the relevant ministries and national administrations within the Lao National Statistical System (NSS) aim to regularly provide high-quality statistics in collaboration with government, data providers and users. To achieve this, during 2018-2020 LSB is collaborating with the National Institute of Statistics and Economic Studies (STATEC) in a programme financed by the Government of Luxembourg and supported by the private sector consultancy GOPA. One of the main deliverables of this collaboration programme is a master plan to define a strategy for developing environment statistics in the NSS for 2019-2025.

Performance evaluation will be carried out throughout the programme's life span. In order to monitor the implementation phase, each ministry will carry out an annual self assessment at the implementation level of tools and statistical good practices. At the end of 2020, a second evaluation will be carried out on strategic, operational, risk, financial and human resource performance. This review will aim to identify the elements correctly implemented and to list those to be improved. LSB will write a synthesis of this review which will constitute the final report of the first phase of implementation under the current master plan (2019-2020). This report will be the analytical basis for developing the implementation plan for the second phase of the master plan (2021-2025).

The key performance indicators used to evaluate the achievement of the current master plan are:

- Are environment statistics regularly produced and disseminated in line with international standards?
  - Is the environment data repository in use?
  - Is a core set of environment indicators available?
  - Has the first physical flow account been compiled?
- Is the Statistical Information System on Environmental Statistics operational and does it function efficiently?
- Does the working group on environment statistics allow for open discussions on improving the production of environment statistics?

The performance indicators will help to identify and optimise the organisational framework of the capacity development programme for the period 2020-2025.

#### CD4.0 capabilities covered

Legal framework, institutional standards
 Statistical production processes'

 Quality assurance and codes of conduct  Strategic planning, monitoring and evaluation

Source: (GOPA, 2019,77)

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#### **Notes**

i. In some cases, it might be inevitable that some external collaborators are chosen for activities, especially when the NSS does not possess the capacity to act on its own. It is however crucial to first assess the local expertise available.



# Chapter 5: Implementation Phase

# **5. Implementation Phase**

In the implementation phase the aim is to carry out all the activities decided in the design phase. As we have seen, these are many and varied, and can range from data collection, over developing a questionnaire on staff training to strengthening user capacities. Unlike a traditional approach, implementation in a CD4.0 programme involves continuous communication with key stakeholders to share information, expertise and responsibilities with the local community of statisticians as well as the wider community of users.

Progress is monitored via interpersonal feedback loops, performance indicators and intermediary reports to ensure the CD4.0 objectives are still viable and to adjust the work plan to the local environment. Monitoring also tracks budgeting in real time, as well as the inputs, running and outputs of the programme. Agreed feedback mechanisms ensure that any unexpected events are analysed and then dealt with by adapting procedures and developing solutions.

The spcific activities involved in the implementation phase, following the CD4.0 checklist (Figure 1.4), are as follows, and are discussed in this chapter in turn, illustrated by real-life examples from countries around the world. They are colour coded to reflect the CD4.0 category to which they belong.

#### Sequencing

In a larger programme, activities may be carried out by a variety of actors, with the aim that all activities contribute to the overall planned outcome at the end of the implementation stage. When the activities in a programme are finalised and compliance with the (sub-) programme requirements is measured, reporting is arranged between teams and programme management to assess and handover the results (and close the step, project or programme).

The implementation phase ends once the programme owner together with the executive teams have implemented all programme activities. Regular and transparent reporting on the metrics are terminated, the lessons learnt are extracted across all process and capabilities at the individual, organisation and system level have been strengthened.

#### **Outputs**

- Updated work plan with adjusted CD4.0 objectives
- Intermediary internal monitoring report on the inputs, outputs and budgeting of the programme
- Intermediary external reports to inform the stakeholders of the programme
- Workshops with users to enhance understanding of statistics.

#### R INCLUSION OF NEW DATA STAKEHOLDERS

 $\hfill \Box$  5.1. Engage with stakeholders to ensure motivation and feedback

**5.2.** Make programme outputs available to stakeholders

#### STRONGER USER INTEGRATION

□ 5.3. Engage users to improve relevance of official statistics

#### HOLISTIC APPROACH TO CAPACITY DEVELOPMENT

**5.4.** Motivate local staff and multi-disciplinary teams

5.5. Monitor objectives and activities focusing on CD4.0 capabilities

#### 5.1. Engage with stakeholders to ensure motivation and feedback



The relationship with stakeholders remains key to successful implementation. This relationship relies on a strong basis of trust and on a reciprocal commitment to exchange and feeding back information.

Stakeholders must be kept informed and consulted on a regular basis. Even though key stakeholders have signed the ToRs and agreed to commit themselves, there might be changes in their expectations based on the intermediary outcomes of the programme. In the best case, stakeholder feedback helps to constantly optimise the programme and strengthens collaboration across the NSS.

#### Notes

Governance mechanisms (such as a Steering Group or a Management Board) can be essential to structure feedback and facilitate co-ordination. All changes to the original plan should be reported to maintain transparent communication with the supervising authority/financing entity and to simplify the evaluation phase.

### **?** Guiding questions

- What has been achieved so far?
- How have resources been spent?
- How is the project faring with regard to the statistical needs and expectations of stakeholders?

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# Inclusion of new data stakeholder

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#### Example 17. Enhancing stakeholder engagement through training projects in Sudan

Effective national statistical systems depend on stakeholders as sources of data, output points for dissemination, and for checking the objectivity and quality of statistical reporting. This is why ensuring stakeholders are engaged in the process of statistical production and are getting what they need from the national statistical office is so crucial. A joint project between the Sudanese Central Bureau of Statistics (CBS) and Statistics Norway aims to enhance stakeholder engagement and co-operation.

The project encouraged stakeholder engagement through a concerted effort to share statistical capacity. Statistics Norway did not confine itself to working solely with CBS, but also worked with other institutions such as the Customs Authority in order to improve data processing and transfers. This provided a way for stakeholders to be involved more meaningfully as data producers. CBS and Statistics Norway have paired these capacity development efforts with a focus on improving the enabling framework, namely by establishing a cooperative legal environment for CBS to get data from Tax Authority, Customs, Civil registrar, the Sudan Information Centre, and Mahalias among others. Ensuring that the institutional structure eases and encourages data sharing among these stakeholder institutions increases the sense of responsibility across the data supply chain and therefore the engagement of the data suppliers.

Another important component of the co-operation between CBS and Norway is its focus on training to engage with key stakeholders outside the government and other data producers. Special training was provided by Statistics Norway to nourish the relationship between CBS and the media, as well as CBS's own ability to communicate its findings. A more cooperative relationship with the media encourages greater commitment on their part to use statistics in their reporting and to present them in an accurate way. The additional step of strengthening CBS's own dissemination capacity may increase engagement by data user stakeholders. If data is accessible and easy to understand, users are more likely to take active part in both use and production of data, notably by giving feedback to CBS on which indicators would be most useful to add.

Improving stakeholder engagement not only improves an NSO's operations in data collection and statistical production but also ensures the continuation of these operations by marshalling political will and user demand. In this way, the data system outside the statistical office is as important as the internal workings of the service. CBS's co-operation with Norway shows how to optimise system-wide factors to improve statistical services.

#### CD4.0 capabilities covered

- ⊘ Data ecosystem co-ordination
- ⊘ Relationship between producers
- Relationship with users
- ⊘ Relationship data providers
- ⊘ Stakeholder interest
- Political support
- Communication
- Communication and negotiation skills

Source: Personal communication, Statistics Norway

#### 5.2. Make programme output available to stakeholders

Activity: Make the programme output available to stakeholders.

The team leading the statistical capacity development programme should share the programme's outputs and intermediary results with its key stakeholders. These loops of output sharing and taking on board feedback increase the likelihood of efficient and targeted results. In the evaluation phase, these intermediary results should be used to reevaluate the operational cycle of the statistical capacity development programme (Chapter 6).

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How can the outputs (datasets, methodologies, training material, etc.) be made accessible for the largest number of stakeholders? (Take into account the feedback received at the design stage and throughout the project when deciding on dissemination strategies)

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#### Example 18. Sharing outputs to improve gross regional domestic product reporting in the Philippines

The function of an NSO is not simply to create statistical products, but also to communicate them in a timely and effective manner to various data users. Doing so stimulates further demand for national statistics and so encourages increased political will and funding for the NSO. To start this virtuous cycle, dissemination must follow a timetable that ensures the statistics are relevant and responsive to user needs. This requires establishing lines of communication between data users and data producers – notably regional outposts that provide the central agency with more focused and granular data. The work of the newly established Philippines Statistical Authority (PSA) illustrates mechanisms for establishing such communication and the benefits that can be achieved.

The PSA was created as the Philippines national statistics office in 2013. At that time, the former statistics office in charge of reporting the System of National Accounts - the National Statistical Coordination Board - did not release reports on gross regional domestic product (GRDP) for all regions of the Philippines. Furthermore, those reports which were compiled were generally released seven months after the reference year. To respond to user demands for more comprehensive and timely data especially from the planning ministry that needed the data for the Philippines' annual socioeconomic report - the PSA decided to report GRDP for all 17 regions of the Philippines and to do so four months after the reference year. This schedule was decided on in conjunction with the planning ministry to meet their specific needs. This objective was achieved in two phases - first the PSA started releasing GRDP for all regions in 2015, seven months after the reference year; then in 2017 it released GRDP for all regions four months after the reference year.

Several significant activities were implemented:

 Training workshops held by the central office on the System of National Accounts for regional offices on data collection, data processing, estimation, and dissemination of the report.

- Building relationships and co-ordination among the regional and provincial PSA officials, technical staff, and agencies providing PSA with data, especially on building permits, agriculture and fishery data from administrative records.
- Visits and meetings by the national statistician and other top management with the government of the Autonomous Region of Muslim Mindanao to support the compilation of data, especially in conflict areas.
- An annual Summit of Regional Statistics Committees headed by the regional directors of the planning ministry.
- Simultaneous press conferences to report on regional economic performance based on the GRDP in all regions.

In all, these actions helped to knit together the regional statistical offices in this geographically disparate country. It is important to note that the PSA used resources efficiently by targeting particularly important sources of data. For example, the special care taken with the Autonomous Region of Muslim Mindanao ensured accurate data even from areas in conflict. Focusing individual attention on important sectors and fragile regions ensured consistently high-quality data despite limited resources. The simultaneous dissemination of this data ensured all stakeholders could see the improvement in turnaround time for the PSA. These significant activities illustrate the infrastructure that must exist to ensure a final output that is timely, easily accessible and accurate. To ensure that all of these qualities apply to their statistical outputs, an NSO must build capacity and connections with regional outposts as well as in the main office. The Philippines rigorously built channels of communication between central and regional agencies and succeeded in streamlining their statistical production process to meet the needs of governmental users.

#### CD4.0 capabilities covered

- Relationship between producers
- ⊘ Relationship with users
- Relationship with political authorities
- Relationship with data providers
   Communication
- ⊘ Statistical production processes
- ⊘ Co-ordination⊘ Leadership

Source: Personal communication, Philippine Statistics Authority

#### 5.3. Engage users to improve relevance of official statistics

Activity: Strengthen user integration to improve their understanding of official statistics (those addressed by the project) and gather feedback on how these outputs could be communicated better.

While implementing a statistical capacity development programme, it is crucial to interact with the users to receive their feedback on the usability, availability and accessibility of the programme's outputs. These processes might reduce the risk of redundant outcomes or dissatisfied users. Another positive effect is knowledge sharing and expertise, which in turn will lead to a sustainable and participatory process of statistical capacity development.

Common forms of mutual learning opportunities are international forums, conferences, workshops and other events which allow for open exchanges between the

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executive team and users. Forums and conferences are usually broader in scope and outreach while at the same time allowing for general feedback from the wider statistical community. Smaller working group meetings or expert consultations allow for in-depth discussions and analyses, providing deeper insights into user needs and capacities. The form chosen will depend on budget and programme objectives.

#### **?** Guiding questions

How can the output be used in a meaningful way?

Are users satisfied with the outputs of the programme?

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# Example 19. Improving user understanding of official statistics via journalist-statistician dialogues in West Africa

Amongst the many users of official statistics, journalists are one of the most important, as they often disseminate information to a large proportion of the public. It is therefore crucial that journalists fully understand official statistics and can communicate them in a way that is comprehensible to non-statisticians while remaining accurate and precise. To achieve this, statisticians must also be able to communicate their findings clearly and succinctly without losing important details.

To foster understanding between journalists as data users and statisticians as data communicators, in 2015 PARIS21 – together with AFRISTAT, GIZ and STATEC – set up journalist-statistician dialogues in seven West African countries (Benin, Burundi, Cameroon, Côte d'Ivoire, Mali, São Tomé & Principe, and Senegal). The goal of these dialogues was better statistical communication and a stronger relationship between NSOs and this particular group of data users. This dialogue began by selecting and instructing 12 participants from six countries to become trainers (including journalists, statisticians and NSO communication officers). It consisted of three phases:

- 1. Distance learning using Global Campus 21 e-learning modules developed by GIZ
- 2. One-week face-to-face training, including audio and video recording
- 3. In-country training, supervised by a senior or certified trainer.

The dialogues encouraged participant engagement and investment. This structure also allowed users to guide the programme and thereby ensured it targeted the skills most needed by journalists and statisticians. Proactive communication between NSOs and journalists paved the way for more accurate data reporting and thus a more satisfactory experience for data users in the general public as well.

#### CD4.0 capabilities covered

Relationship with users
 Communication

⊘ Legitimacy⊘ Reputation

⊘ Work know-how

Source: (PARIS21, 2017,1)

#### 5.4. Motivate local staff and multi-disciplinary teams

Activity: Motivate local staff and the workforce involved in the programme.

NSO staff and multi-disciplinary teams involved in the programme at large may need to be motivated to participate in the statistical capacity development programme. One important method of building motivation is to ensure positive learning experiences closely linked to successful performance while executing the CD4.0 programme. Instead of hiring mostly external experts, local staff should be trained adequately. This increases the probability of ensuring sustainable, long-term processes beyond the life of the programme.

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**?** Guiding questions

How to ensure training meets the expectations of local staff?

Which training modules should be executed first in order to align with the various planned activities?

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### Example 20. Training employees in environmental statistics in Lao People's Democratic Republic

As recognised in the 2030 Agenda, protecting the environment and mitigating the effects of climate change are fundamental to ensuring sustainable development across the world. It has been recognised during the past few years that environment statistics are one of the most pressing areas for development in order to succeed in monitoring progress towards the SDGs. Despite its fundamental role, the environment is often a weak pillar of national statistics.

In this context, it has become essential for Lao PDR to improve its NSS and develop the domain of environmental statistics so as to collect, process, verify, store and disseminate the statistics required for monitoring and evaluating sustainable development initiatives. The Lao Statistics Bureau (LSB), together with ministries and national administrations, aims to provide highguality statistics in collaboration with government, data providers and users. To achieve this, during 2018-2020 LSB is collaborating with the National Institute of Statistics and Economic Studies (STATEC), financed by the Government of Luxembourg and supported by the private sector consultancy GOPA. One of the deliverables of this collaboration programme is a strategy for the development of environment statistics in the NSS for 2019-2025.

The quality of environmental statistics depends on, among other factors, the technical competency of staff in charge of collecting and producing statistics, accounts and indicators. LSB's overarching Human Resource Strategy aims to develop this competency through sectoral strategies. These focus on training employees in the skills needed urgently on the job rather than in theoretical situations. This training is followed by mentorship that ensures the skills taught are used in daily work. Support is continued until delivery of the final project. Generally, LSB also favours local trainers who work in the local language as well as standardised tools to ensure the training is well understood. The initial step is to identify capacity gaps so as to target the training sessions (Example 16). Based on this assessment, five workshops will be conducted to increase technical skills in the following areas:

- Data collection tools
- Environment statistics
- Environmental economic accounts concepts (based on material flow accounts framework)
- Advanced physical energy flow accounts compilation
- Advanced material flow accounts compilation

The training includes participants from different ministries to ensure a co-ordinated process during data production. LSB has engaged in an intensive assessment of skills and organisational processes to ensure the workshops build on the existing skills levels of local staff. In order to ensure that these training efforts are being taken up and managed by local staff, project management by development partners has been an important factor, along with measures such as weekly task calendars, task forces, and the setting up local offices to manage training.

The training will increase the skills and competencies of the staff involved in the project, while also building their knowledge and skillsets for the job market and to meet their individual learning objectives.

### CD4.0 capabilities covered

Statistical production processes

⊘ Technical skills

⊘ Career expectations

○ Quality assurance and codes of conduct

Source: (GOPA, 2019<sub>121</sub>)

### 5.5. Monitor objectives and activities with a focus on CD4.0 capabilities

### Activity: Continually re-assess and monitor objectives and activities with a focus on CD4.0 capabilities.

Monitoring will focus on the performance indicators developed in step 4.10. Based on these indicators, the programme owner assesses the quality (usefulness and fitness for purpose) of the programme for the statistical process or targeted capabilities, and the extent to which set benchmarks are achieved. Examples of such benchmarks might be timely delivery of an indicator, the smooth functioning of a production process, the increase in quality of meta-information of a statistical process, the collection of data on a specific topic or the value of knowledge transferred to NSO staff members (for an overview of practices see (PARIS21, 2018<sub>[3]</sub>).

This step involves implementing the activities decided on in the design phase while ensuring that the most important activities necessary to develop the CD4.0 capabilities are prioritised. The programme owner should refer to the CD4.0 framework matrix (Figure 1.2), the theory of change (Step 4.7) and NSDS steps (if relevant) to make sure that implementation stays focused on the targeted capabilities.

During the implementation phase, other data, tools or procedures might be discovered and assessed for their usefulness for the programme, eventually leading to further synergies and efficiencies. Moreover, changing political and economic environments might affect stakeholder commitment, or the availability of resources. External restrictions such as limited resources could severely

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affect the implementation process and require transparent communication.

Through regular feedback loops and information exchanges, the programme owner ensures the programme benefits from potential synergies inside the data ecosystem, even in the context of limited resources. Moreover, the approach increases the chances of implementing a programme that provides long-term value to the NSS, rather than to single stakeholders with vested interests.

In the best case, these activities are carried out continually or at least on a regular and transparent basis (e.g. in the form of a mid-term review). The results of the monitoring should be used throughout the implementation phase to improve processes, tools and ways of communicating.

### **?** Guiding questions

- How is implementation progressing in comparison to the original work plan?
- How long will it take to complete the programme?
- What changes have occurred in the NSS or in the government?
- Are all the objectives still feasible?
- What changes are needed to incorporate lessons learned?

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### Example 21. Establishing a monitoring & evaluation framework for official statistics for the 2030 Agenda in the Asia-Pacific region

The implementation of the 2030 Agenda for Sustainable Development has brought attention to the new skills and practices that national statistical systems (NSS) will need to meet the unprecedented demand for data and statistics. Strong capacity in this area will help NSOs to keep track of their progress and to determine which improvements have been effective and why. Such record keeping can be invaluable for future projects and for creating a clear picture of the current state of the NSS.

In this light, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) has developed a monitoring and evaluation (M&E) framework and implementation guidelines, both of which were formulated in the context of strengthening the national statistical monitoring capacity of countries in the Asia-Pacific region to track progress in implementing the 2030 Agenda. The M&E framework aims at monitoring progress in implementing each of the topics addressed in the collective vision and framework for action prepared by UNESCAP Member States (UNESCAP, 2016<sub>[4]</sub>). The framework thus contributes to guide regional action on statistics and supports the road map for implementing the 2030 Agenda in Asia and the Pacific. It includes four elements:

 Results diagram: illustrates the rationale for the framework, integrating the vision and objectives of the collective vision with the commitments made in the declaration.

- 2. Results matrix: lists 20 indicators, baseline values, targets and data sources for monitoring derived from the PARIS21 Statistical Capacity Monitor (Example 22) and other international data portals.
- 3. Implementation guidelines: contain the indicator specifications and monitoring guidance.
- 4. M&E dashboard performance reporting template: a simple two-page dashboard template and methodology to be used for reporting to the Committee on Statistics.

UNESCAP Statistics Division will be responsible for implementing the M&E framework through regular monitoring and reporting to the Committee on Statistics every two years, commencing in 2020. Reports will adopt a simple dashboard format using the M&E dashboard performance reporting template. The Asia-Pacific Forum for Sustainable Development will also be used as a platform for discussing progress towards achieving the SDG targets related to statistical development.

This clear monitoring methodology will not only assist the NSO in tracking progress, but will also increase legitimacy in the eyes of the political administration and the public. Having a brief and simple reporting format is a straightforward way to demonstrate the progress the NSO has made in implementing the 2030 Agenda and the quality of its advancements. The wider data ecosystem will also benefit from having a transparent record of progress to facilitate co-ordination efforts.

### CD4.0 capabilities covered

- ⊘ Funds infrastructure
- ⊘ Existing data
- Data literacy
- ⊘ Knowledge sharing
- ⊘ Data ecosystem coordination
- ⊘ Advocacy strategy
- ⊘ Relationship with users
- ⊘ Relationship with political authorities
- ⊘ Strategic monitoring and evaluation
- ⊘ Quality assurance

- ⊘ Communication
- Innovation
- Technical skills
- ⊘ Leadership

Source: Personal communication, UNESCAP

GOPA (2019), Master Plan for the Development of Environmental Statistics, Deliverable 1.0.1.	[2]
PARIS21 (2018), Measuring Statistical Capacity Development: a review of current practices and ideas for the future: moving towards Statistical Capacity 4.0, PARIS21, Paris, https://paris21.org/sites/default/files/inline-files/ Measuring-Statistical-Capacity-Development_draft.pdf.	[3]
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UNESCAP (2016), Advancing official statistics for the 2030 Agenda for Sustainable Development: a collective vision and framework for action by the Asia-Pacific statistical community, United Nations Economic and Social Commission for Asia and the Pacific, https://www.unescap.org/sites/default/files/E.ESCAP CST%285%29.1.Rev .1.Collective Vision.English.pdf.	[4]



## Chapter 6: Evaluation Phase

### 6. Evaluation Phase

The evaluation phase involves a final assessment of the processes and mechanisms used in the various phases of programme development, as well as the programme's impact, so as to improve future collaboration and to share knowledge on good practices and lessons learned. Its goals are to provide an internal evaluation of the implementation of the programme, including assessing the progress of the programme against the CD4.0 framework; to build a community of practice by creating mechanisms to improve future programmes and by sharing knowledge; to disseminate monitoring data using transparent practices and open data principles; and to inform users of the programme outcomes and the lessons learnt.

Evaluation tools include instruments such as questionnaires, focus group discussions or structured interviews. More mathematical, statistical and technical tools are needed to measure the quality aspects, most importantly the reliability and efficiency of data and IT procedures. To allow for an independent assessment of these quality aspects it is advisable that an external monitoring and evaluation unit independent from the programme conducts the assessment.

### Sequencing

The evaluation phase starts when the actions in the implementation phase are considered to be finalised (as described in the implementation report). The evaluation phase ends when the programme owner declares that all steps have been executed and terminates the contract. Although the programme has formally finished, it is desirable to continue collaboration and build a community of practice.

### Outputs

- Reports on the roles of stakeholders and their contributions, and the quality of (overall and intermediate) results achieved.
- Complementary reports on topics and organisation of follow-up programmes, on process information in general, on specific tools and procedures, and on staff and resource requirements.
- A complete report for the key stakeholders of the programme in an objective and independent format highlighting the CD4.0 capabilities strengthened throughout the programme.
- A conference/forum (or online platform) to exchange best practices and lessons learnt.
- A sustainable community of practice to exchange further practices

### R INCLUSION OF NEW DATA STAKEHOLDERS

□ 6.1. Conduct a final internal evaluation

- **6.2.** Evaluate the programme and its impact on CD4.0 capabilities
- 6.3. Disseminate final evaluation and lessons learned

### \* STRONGER USER INTEGRATION

□ 6.4. Assess user satisfaction



### HOLISTIC APPROACH TO CAPACITY DEVELOPMENT

6.5. Create mechanisms to improve collaboration and co-operation

### 6.1. Conduct a final internal evaluation

Activity: Conduct a final internal evaluation to evaluate the internal processes during the preparatory, implementation and design phase and document lessons learned for stakeholders and future programme management.

In the evaluation phase, the programme owner assesses all (internal) programme management and processes during the preparatory, design and implementation phase. Evaluating these processes also involves analysing the monitoring of the programme performance. Monitoring should have taken place throughout all stages (including the design and implementation phases – Steps 4.10 and 5.5).

The programme owner also should assess how the team functioned throughout the programme and whether the workflow and socio-emotional environment were healthy and stable. Assessing strong and weak moments of collaboration will help the team as a whole, as well as allowing each employee to grow in their role and improve their competencies. The internal evaluation might contain an anonymous, objective assessment (e.g. through an internal survey), but should be complemented by open feedback and discussions.

The programme's final report should describe the activities, processes and deliverables, as well as the progress against (monitored) performance indicators. Activities that have not been finished or were not implemented should be justified in the final programme report. Furthermore, accounting and reporting on financial support should be done in a transparent manner.

### ?) Guiding questions

Which activities and outputs have been conducted?

- How did the programme score with regards to the performance indicators?
- How did the team function during the programme implementation?
- What did not work in the team?
- How have resources been spent?

### Notes

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### 6.2. Evaluate the programme and its impact on CD4.0 capabilities

Activity: Conduct a final evaluation to assess the impact of the programme on CD4.0 capabilities and document lessons learned for stakeholders and future programme management

Although processes are monitored regularly throughout all phases of the CD4.0 programme, it is particularly important to conduct a final evaluation against expected performance benchmarks. The evaluation should focus in particular on the impact on CD4.0 capabilities. In doing so, the programme owner contributes to sustaining the CD4.0 capabilities and linkages that have emerged and can share those results with the international community (Step 6.3).

In the evaluation phase, the programme owner uses the monitoring data as well as the CD4.0 framework matrix to evaluate the outcome and impact of the programme by mapping the capabilities developed against those targeted. New interlinkages and dynamics among individual capabilities might have emerged during the process that the stakeholders were not aware of beforehand. The programme can also be evaluated against country performance recorded in the Statistical Capacity Monitor (Example 22).

Sharing these and the overall results with PARIS21 will inform the continual revision and supplementation process of the CD4.0 matrix following its operationalisation in statistical capacity development programmes worldwide.

?	Guiding questions
	What activities and outputs have been conducted?
	What are the outcomes and impacts of the programme?
	Which stakeholder synergies were taken into account when targeting certain CD4.0 capabilities?
	Which interlinkages were the strongest?
	How can synergies between capabilities be sustained and reinforced in the local context?
	How did the programme score with regards to the performance indicators?
	How did the team function during the programme implementation?
	How have resources been spent?

### FIGURE 6.2. AN EXAMPLE OF AN OUTPUT FROM THE STATISTICAL CAPACITY MONITOR



**Source:** (PARIS21, 2019<sub>13</sub>)

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### Example 22. The Statistical Capacity Monitor: a global platform for evaluating statistical capacity

The Statistical Capacity Monitor, established by PARIS21, is an online platform featuring over 140 performance indicators on statistical capacity development. It describes trends in statistical capacity worldwide, as well as development efforts at the country and thematic level. The platform was launched at the UNSC in April 2019 as the background tool for the Statistical Capacity Development Outlook 2019 (PARIS21, 2019<sub>[1]</sub>). It was the result of substantial review of experts from various backgrounds (international organisations, governments, academia and NGOs) working in the field.

The data are presented in five categories: planning, production, dissemination, use and investment. This taxonomy is similar to what is known in statistical circles as the "statistics value chain" (OECD, 2017<sub>[2]</sub>). Moreover, all indicators are classified according to the 46 capabilities defined in the CD4.0 conceptual matrix and hence can be used to measure progress in developing these capabilities. The monitor allows for cross-country comparison and benchmarking across regions, through cross-tabulating different indicators.

Most of the indicators are annual and are regularly updated. The structure ensures that indicators are developed and targeted to provide a holistic view on statistical capacity development.

The value added of the platform is threefold:

**TRANSPARENCY:** It gives a comprehensive overview over statistical capacity measurements

**ANALYSIS:** It enables a quick understanding of regional and periodic trends in capacity development

**CO-ORDINATION:** It offers a detailed knowledge base for donors to target funding to countries in need.

For example, the monitor allows countries to compare the number of established data portals on the NSO websites (Figure 6.2).

The Statistical Capacity Monitor thus encourages stakeholders to track and update their performance using CD4.0 indicators in order to engage in targeted capacity development at the national and regional level.

### CD4.0 capabilities covered

○ All (the monitor covers indicators on all capabilities)

Source: (PARIS21, 2019<sub>131</sub>)

Notes

### 6.3. Disseminate final evaluation and lessons learned

### Activity: Disseminate the final evaluation and lessons learned to the larger statistical community following transparency practices and open data principles.

Internal and external evaluations, consultations with stakeholders, as well as monitoring data gathered throughout the statistical development programme should be disseminated to the wider statistical community – and especially data users. The process of dissemination is likely to increase trust in the statistical capacity development programme itself, as well as in the main stakeholders and institutions involved in the programme.

Given the stakeholder consultation and involvement in the preparation and design phase (Step 3.2 and Step 4.1), evaluation of a CD4.0 programme requires a high level of transparency and accessibility when following a multi-stakeholder approach. While the stakeholders who were involved in the programme are a priority target audience, so are those who were consulted in the earlier stages but who might not have been involved during the implementation phase. Special attention should be devoted to the users of the results or deliverables, and the satisfaction of their needs (Step 6.4). Their awareness, use and knowledge of the results influence the sustainability of programme outcomes, national or sectoral commitment to further improvements, and subsequent statistical business strategies and policies.

### Notes

The programme owner can disseminate this information through various channels, such as technical notes, reports, websites, or social media. In many cases, it is recommended to use established channels and re-usable platforms (established contact list, newsletters, wikis or flagship reports). In the case of a large programme, the programme owner might organise a stakeholder meeting or workshop with broad coverage of processes implemented, lessons learnt and main takeaways for future statistical capacity development.



What monitoring data, outputs and outcomes will be relevant to the programme owners and external stakeholder to understand the programme results?

How can dissemination target the different target groups?

Which dissemination format is most suitable?

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# Stronger user integration

### 6.4. Assess user satisfaction

Activity: Assess the programme's contribution to the satisfaction of user needs.

To assess whether the programme has contributed significantly to the functioning of the NSS it is important to interact with users of official statistics. Similar to the preparatory and the design phase when users were a key resource for planning the programme (Steps 3.5 and 4.5), they are now an important stakeholder to assess whether the programme has proved successful. Again, the programme owner can use anonymous methods such as surveys to assess the outcome. Open feedback and rounds of discussion should complement these methods. **?)** Guiding questions

In what way did the programme contribute to the functioning of the NSS?

How did it perform in comparison to its objectives?

To what extent are users satisfied with the outcome?

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### 6.5. Create mechanisms to continue collaboration and co-operation

### Activity: Create mechanisms to sustain cooperation within the NSS and to build a community of practice.

Sharing good practices is not sufficient when collaborating with important stakeholders inside the NSS. To keep stakeholders engaged beyond the implementation of the statistical capacity programme, the programme owner is advised to foster knowledge exchange across different groups of stakeholders and build a community of practice conducive to ongoing capacity development in the NSS.

The programme team will have to pay special attention to stakeholder incentives for sharing lessons learnt, and to their opinions and needs. Since most members volunteer to be part of a community of practice, its sustainability depends on the value of the contributions and their potential to improve organisational effectiveness – such communities only survive as long as they are useful to the members. For this purpose, the work of a community of practice should incorporate a broad range of areas: identifying and spreading good practices, securing expertise, developing capabilities at different levels, identifying as an organisational learning and teaching resource, and functioning as a social network. Other potential mechanisms to encourage further collaboration and share assessments include a website, a monitoring platform, a steering committee or communication channels such as a wiki or an intranet.

### Notes

Guiding questions
What fosters knowledge exchange and how are
stakeholders driven by incentives to build a larger
community of practice to work together in the area of
capacity development in data and statistics?

How can existing channels and practices be activated and used in the community of practice?

What concrete mechanisms could be developed to improve co-operation between stakeholders within the NSS?

How can such mechanisms be implemented and maintained?

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OECD (2017), Development Co-operation Report 2017: Data for Development, OECD Publishing, https://doi. org/10.1787/dcr-2017-en.	[2]
PARIS21 (2019), Statistical Capacity Development Outlook 2019, PARIS21, Paris, https://statisticalcapacitymonitor. org/report/.	[1]
PARIS21 (2019), Statistical Capacity Monitor, PARIS21, Paris, https://statisticalcapacitymonitor.org/.	[3]





### Annex A.1. Glossary

Term	Definition
Administrative data	"Data that Organisations collect about their operations" (Chapin Hall, 2019 <sub>(1)</sub> ). In this context, it is used to denote data from government ministries. Administrative data are often used to monitor how efficiently organisations are functioning and how successful their programmes are. They can also be used to supplement other sources of data.
Data ecosystem	A data ecosystem includes the national statistical system along with the complex organisations of dynamic social relationships, which move and transform data/information (data infrastructure, tools, media, producers, consumers, curators and sharers) (PARIS21, 2018 <sub>[2]</sub> ).
Data producer	An organisation which collects and disseminates data, metadata, and statistical products. These organisations can include the NSO or other government ministries as well as non-official data collection organisations. In some cases, a data producer can also be a data provider (see below) – for example a ministry that collects data on its own operations (Gould Library, $2019_{[3]}$ ) (Legwaila, $2010_{[4]}$ ).
Data provider	An entity that generates the data then collected by a data producer. These can include individuals, households, public bodies, and businesses, public enterprises, and service providers as well as NGOs and civil society organisations (Central Statistics Office, 2019 <sub>[5]</sub> ), (Office for National Statistics, 2019 <sub>[6]</sub> ) (Sundgren, 1996 <sub>[7]</sub> ).
Data user	Any institution or individual who accesses the output of the NSO or another data producer to process and analyse the data for various purposes. This can either be data sets for original research or finished statistical publications for more general information. Users are a specific group of stakeholders defined as policy makers, journalists, and representatives from academia, businesses, international organisations, NGOs or civil society organisations.
Donor	Entities that provide (financial) support for an NSO. While often of a monetary nature, support can also involve training, expert consultation, or other capacity development measures. Donors can be a variety of actors: other governments, international organisations, philanthropic foundations or NGOs.
Domestic resource mobilisation for statistics	Sources of financial support for the NSO that come from its own government, generally through tax revenue (OECD, $2017_{_{[8]}}$ ).
Implementing agencies	Organisations, often nationally managed, that provide capacity development assistance to NSOs. In some cases, they co-manage capacity development efforts with partner countries. Agencies can also be private sector organisations.
International statistical organisations	Departments of supranational or international organisations with a clear mandate for providing statistics on an international, national, or regional level as well as being custodians of the SDGs. Examples include UN organisations, the World Bank, IMF, the OECD and Eurostat.

Term	Definition
National statistical system (NSS)	The national statistical system "is the ensemble of statistical organisations and units within a country that jointly collect, process and disseminate official statistics on behalf of the national government" (OECD, 2002 <sub>[9]</sub> ). Official statistics compiled by the national statistical system exist to provide information to the general public, governments, businesses and research communities in the economic, demographic, social and environmental fields (IEAG, 2014 <sub>[10]</sub> ).
National Statistical Office (NSO)	The leading statistical agency within a national statistical system (OECD, $2002_{[9]}$ ).
National Strategy for the Development of Statistics (NSDS)	A country's plan for developing statistical capacity across the entire national statistical system (NSS). This strategy sets out a vision of where the NSS should be over a five-to ten-year timeline, and a roadmap for achieving this goal. It also presents a comprehensive and unified framework for the continuous assessment of the evolving needs of users and sets the priorities necessary to build capacity to meet these needs in a co-ordinated, synergistic and efficient manner. Furthermore, it provides both a framework for mobilising, harnessing and leveraging national and international resources as well as a basis for an effective and results-oriented strategic management of the NSS (PARIS21, 2018 <sub>[11]</sub> ).
New data sources	<ul> <li>Geospatial data (GPS, satellite images): can refer to data that are georeferenced, or to geographical aspects (Lopez, 2018<sub>[12]</sub>). They are newly available in high quantities because of the geolocation capabilities of smartphones.</li> <li>Citizen-generated data: Data that people or their organisations produce to directly monitor, demand or drive change on issues that affect them (Data Shift, the, 2015<sub>[13]</sub>).</li> <li>Big data (credit card data): An umbrella term referring to the large amounts of digital data continually generated by the global population as a by-product of every data interactions with digital products or services (UN Global Pulse, n.d.<sub>[14]</sub>).</li> </ul>
Statistical stakeholder	Any individual or organisation which has an interest in the efficiency and outputs of the NSO and NSS in general (UNDP, 2017 <sub>[15]</sub> ). This interest can stem from e.g. being a data provider/producer and wanting quality outputs or from being a donor who wants to see their contribution working to improve the NSO. The NSO itself and other official statistical collection agencies are also stakeholders.
Traditional data sources	Sources of data already largely exploited by most NSOs. This term is mainly used to indicate population data, which are collected through censuses, surveys and administrative records (Eurostat, 2018 <sub>[16]</sub> ).

### Annex A.2. Capacity Development 4.0 Terminology

The following explanations provide detailed definitions for the capabilities at the respective levels of the CD4.0 matrix (A.2.1 Individual, A.2.2. Organisational, A.2.3. System). The explanations help the reader to map processes to the CD4.0 approach.

### A.2.1. Individual

**Individual:** refers to a single person who works for the NSS, independently from the organisation he/she belongs to and his/her rank or position, e.g. a statistician, an employee of a line ministry, an NSO manager in charge of official statistics.

### Resources

**Professional background:** the educational background, graduate field of specialisation (e.g. Science, Technology, Engineering and Mathematics, management etc.), experience of working, skills and familiarity with a field of knowledge (e.g. National accounts, poverty, health etc.) gained through actual practice and fundamental for a statistical organisation.

### Skills and knowledge

**Technical skills:** the practical ability to carry out specific assignments; often mechanical, ICT, mathematical, scientific and/or other technology-related skills such as proficiency with a standard statistical package (e.g. R; Stata; SPSS) to carry out data processing, analysis and dissemination (OECD,  $2016_{(17)}$ ). They include the degree of confidence that an employee has in the skills he/she possess that enable him/her to be proactive.

Work know-how: an employee's knowledge and understanding – gained through experience – of work practices, processes, statistical concepts, definitions and classifications, business models, and organisational culture in use in their organisation, as well as about the power relationships within and between organisations – for example, how decisions are taken (Mahal, 2010<sub>118</sub>).

**Problem-solving and creative thinking:** the traits that support defining, approaching and analysing a problem in a technically correct manner and from a fresh perspective to devise new ways for carrying out tasks, meeting challenges and solving problems (Puccio et al., 2017<sub>[19]</sub>).

### Management

Time management and prioritisation: the efficiency with which an individual organises his/her time and prioritises his/ her various tasks and activities (Lexico,  $2017_{100}$ ).

**Leadership:** the ability of a manager to provide direction to others. It involves establishing a clear vision; sharing it with others, providing information, knowledge and methods for realising it; as well as coordinating and balancing the conflicting interests of members and stakeholders, mobilising and energising their efforts towards set objectives. Related abilities are talent management and strategic thinking (University of Cambridge Institute for Sustainable Leadership, 2017<sub>(21)</sub>).

### **Politics and power**

**Teamwork and collaboration:** the ability to work cooperatively and efficiently with others "with interdependent goals and common values and norms to foster a collaborative environment", while rising above any personal conflicts. Teamwork is crucial for leveraging diverse skillsets (OECD, 2014<sub>1221</sub>).

**Communication and negotiation skills:** the ability to effectively and efficiently convey information to others. Negotiation is a particular communicative situation where two or more individuals (each with his/her own aims, needs, and viewpoints) seek to discover a common ground and reach an agreement.

Strategic networking: the ability to build and maintain mutually trusting relationships and networks within the statistical organisation and outside, "with people who are, or might become, important actors in achieving strategicrelated goals" (e.g. policy-makers, private sector employees, statisticians working in other organisations) in order to develop partnerships with other institutions of the NSS (OECD, 2014<sub>122</sub>); (Tchume, 2014<sub>123</sub>).

### Incentives

Career expectations: the expectations surrounding development and advancement opportunities within the specific statistical institution or beyond. In public institutions, promotion schemes/advancement processes might be rigid, resulting in excessive turnover of highperforming individuals. **Income and social status:** Income refers to the financial rewards for work including wages, salaries, bonuses, merit awards and other incentive payments; and pensions or superannuation. Socioeconomic status is the social standing or class of an individual or group. It is often measured as a combination of education, income and occupation. Examinations of socioeconomic status often reveal inequities in access to resources, plus issues related to privilege, power and control (APA, 2019<sub>real</sub>).

Work ethic and self-motivation: Work ethic refers to the set of values that guide an individual's attitude to work e.g. honesty, diligence, reliability. Self-motivation means finding reasons and strength to complete a task without external influence.

### A.2.2. Organisational

**Organisation:** a structure with "planned coordination of the activities of a number of people for the achievement of some common, explicit purpose or goal through division of labour and function, and through a hierarchy of authority and responsibility" (Schein, 1980<sub>[25]</sub>), e.g. any producer of official statistics such as the NSO or line ministry.

### **Resources**

Human resources: all the employees working for an organisation. Producers of official statistics are labourintense organisations, employee "costs typically represent 70% to 80% of the total budget" of a statistical office. For this reason, human resources are the most valuable asset for the institutions in the NSS.

**Budget:** the financing that the organisation has in place for functioning (including data collection, processing and dissemination, technological upgrades, capacity development, etc.). It involves the budgeting process of calculating monetary costs of regular activities plus extraordinary costs for new and/or strategic activities (e.g. a major survey or a census) over a specific timeframe (Lexico, 2017<sub>1201</sub>).

**Infrastructure:** the office spaces, facilities, vehicles, IT devices and virtual resources (such as software, hardware, virtual data storage) that support the functioning of a statistical organisation.

### Skills and knowledge

**Statistical production processes:** all of the processes involved in the production and dissemination of statistical outputs, as described in the Generic Statistical Business Process Model (Eurostat, 2015<sub>[26]</sub>): the phases and subprocesses that organisations follow to decide what to produce; to design and implement data collection, process, analyses, ensure quality control and dissemination of statistical products; and to conduct evaluations of past implementation to improve future activities. They involve part of what is commonly known as 'statistical infrastructure': the knowledge produced by the organisation on statistical methods, such as procedural manuals and concepts.

### Quality assurance & professional codes of conduct:

"a planned and systematic pattern of all the actions" within an organisation aimed at guaranteeing the quality of statistical products according to established requirements and standards, and at securing trust in official statistics (UNSD,  $2012_{[27]}$ ); (Eurostat,  $2015_{[28]}$ ). Organisations typically have guidelines for implementing quality management. Codes of conduct are bodies of principles (e.g. respect, professionalism, honesty, integrity and confidentiality, etc.) governing the work and the expected behaviour of NSS personnel (OECD,  $2009_{[29]}$ ); (Royal Statistical Society,  $2017_{[30]}$ ).

Innovation: the organisation's ability (e.g. by creating a fostering environment) to become more efficient by developing new or improved statistical products, methodologies or processes; new communication and dissemination strategies; new organisational methods; new workplace organisations or partnerships with stakeholders, etc. (OECD, 2005<sub>[31]</sub>). Innovation is also concerned with absorption capacity - the ability to assimilate new knowledge (whether internal or external) and to implement it effectively (Cohen and Levinthal, 1989<sub>[32]</sub>). Closely related, modernisation is broadly defined as applying common statistical production processes, standards and tools across statistical systems (national, regional and international), enabling international comparison and exchange; and the integration of non-traditional data sources to deliver statistics in a timely and cost-efficient way.

**Communication:** the ability of the NSS organisations to convey official statistics in a way that is professional and technically correct, yet adapted to specific audiences to make them meaningful and persuasive for external organisations/stakeholders. This is done by providing clear narratives or applying various techniques and using appropriate language and media, such as storytelling and data visualisation (Government Statistical Service, 2016<sub>1331</sub>).

#### Management

Strategic planning and monitoring and evaluation:

strategic planning is the process by which the organisation defines a vision (referring for example to its role in society) with specific objectives (such as accelerating lead times for key indicators), followed by a sequence of steps to achieve them.<sup>1</sup> As the steps to achieve objectives are generally comprised of projects, strategic planning involves project management. Monitoring and evaluation tracks "progress towards objectives, identifying problems and strategies, and making adjustments to plans" (Bryson, 2018<sub>154</sub>).

**Organisational design:** the distribution of roles and responsibilities between positions and units (such as directorates) or subject-matter structures, as well as the technological resources needed by them, in order to run statistical production processes efficiently and achieve the defined strategic objectives (see strategic planning and monitoring and evaluation). It includes outlining a workflow that reduces redundant activities (e.g. General Activity Model for Statistical Organisations), and accelerates decision-making processes, etc.

Human resources management: the process by which an organisation obtains appropriate staff in terms of numbers, educational and skills mix, and its policy to develop them further through training and development programmes at all levels, in order to meet its knowledge requirements. It includes the entire spectrum of creating, managing, and cultivating the employer-employee relationship (Noe, 2003<sub>1951</sub>).

**Change management:** an approach for creating an environment that supports change in order to deal with a rapidly evolving environment. It involves communicating the need for change and training staff in how to manage it. It also implies anticipating and tackling risks through risk management (Van Muiswinkel, 2013<sub>[36]</sub>); (Rouse, 2018<sub>[37]</sub>); (Shore, 2017<sub>[38]</sub>). Change management is crucial for harnessing the data revolution.

**Fundraising strategy:** the plan an organisation lays out in order to secure funding for its statistical activities. It includes budgeting; defining a timeline; identifying possible resources and funders; and the required actions and activities, such as negotiating with national authorities and/or external partners, foundations, companies, etc.

### **Politics and power**

**Transparency:** the steps that an organisation takes in order to inform citizens in a comprehensible, accessible, and timely manner about (1) its activities, policies, accounts and the regulations and procedures that it follows (e.g. for handling confidential data) (OECD, 2002<sub>[9]</sub>); (ECOSOC, 2013<sub>[39]</sub>); and (2) the evolution of key indicators (such as poverty rates). It involves making datasets available, publishing metadata, providing information on the methodology used to calculate them and disseminating the results in such a way that they are comprehensible for all audiences. In this sense, it signifies 'open data'.<sup>ii</sup>

**Workplace politics:** the strategic activities, attitudes or behaviours of staff members in the workplace that aim at gaining or keeping power and serving self-interest (or the interests of the organisation). It can also refer to the use of power for policy decisions such as resources allocation in the framework of the organisation (Cropanzano and Kacmar, 1995<sub>[40]</sub>).

#### Incentives

**Compensation and benefits:** the rewards granted to employees in return for their labour, and to motivate them to deliver their tasks. In some countries, the remuneration schemes of the public sector are rigidly hierarchical according to grades, which may fail to encourage the behaviour and performance that are supportive of the institution (Noe, 2003<sub>135</sub>).

**Organisational culture:** a system of shared values, norms of conduct, underlying beliefs and expectations, which governs the behaviour of employees within an organisation, i.e. how they act, interact with each other and external stakeholders and perform their jobs. A strong organisational culture that adapts to changes in the environment (change management) is crucial to the success of a statistical organisation (Katzenbach, Oelschlegel and Thomas, 2015<sub>[41]</sub>). Some organisations are process-oriented (thus rigid and hierarchical), while others are results oriented (generally more flexible and flat). The potential for adapting to a changing context and to user needs depends largely on this orientation.

**Reputation:** the external perception of an organisation's ability to produce quality and timely statistics and to function according to the legal and ethical standards applicable to the public administration. It is linked to communication, since it is through regular contacts with the media and the public and proper branding that the organisations within the NSS maintain and enhance their reputations.

### A.2.3. System

**System:** the complex and interconnected network of individuals, institutions, organisations and stakeholders whose activities, mechanisms and actions relate to data and statistics at the regional, national and international levels. It also refers to the various channels and interactions that connect them, whether formal or informal (Denney, Mallett and Benson, 2017<sub>142</sub>).

#### Resources

**Legislation, principles and institutional setting:** all the written laws that guide the compilation, production and dissemination of official statistics in the NSS, as well as the principles guiding them (e.g. the UN Fundamental Principles of Official Statistics) to which the country subscribes. Institutional setting refers to all the organisations that are involved in the enforcement of such laws, as well as the organisational structure that the law stipulates (e.g. whether there are sub-national systems) (OECD, 2015<sub>1431</sub>).

**Funds infrastructure:** the sources of funds for the execution of statistical activities and all associated dealings, e.g. whether they are provided by the national government, a foreign/international institution or the private sector.

**Plans (NSDS, sectoral...):** any sanctioned "strategy for developing statistical capacity across the entire national statistical system (NSS)" or any of its components, which provides "a basis for effective and results-oriented strategic management" (PARIS21, 2018<sub>111</sub>).

**Existing data:** the collection of information that the NSS has acquired, such as raw data (e.g. administrative records, micro-data), manuals and codes, and officially validated or produced statistics (e.g. indicators). "Data" is understood broadly as "individual facts, statistics, or items of information" (Bhargava, 2015<sub>[44]</sub>). This includes part of what is generally called 'statistical infrastructure': classifications and code lists, business registers - business, household and population, sampling frames and databases.

### Skills and knowledge

**Data literacy:** Data literacy "encompasses elements and principles from each of the sub-kinds of literacy (such as media, statistical, scientific computational, information and digital literacies). It is based on four key pillars that form its foundation: data education, data visualisations, data modelling, and data participation" (Bhargava, 2015<sub>[44]</sub>). Data literacy involves the role of data in public debate, the efforts towards the promotion of data by the NSS and the extent to which society in general is able to engage critically with data.

Knowledge sharing: the ability of organisations and individuals to successfully pass skills and knowledge (such as best practices) on to others, in order for them to apply them autonomously in varying settings. An example is when the outgoing NSO head mentors her/his successor to take the lead of the organisation management.

**NSS co-ordination mechanisms:** the formal processes by which the governance of the NSS sets its policy direction, i.e. the implementation of the legislation, principles and institutional setting. Policy direction implies defining procedures, operational standards and methodological criteria for ensuring the synchronisation, consistency and efficiency of actions, activities, responsibilities and outputs (Edmunds,  $2005_{[45]}$ ); (OECD,  $2015_{[43]}$ ).<sup>III</sup> It involves the governance structure (such as the co-ordinating role and leadership responsibilities of an organisation, the council/board, the advisory committees, etc.).

**Data ecosystem co-ordination:** the partnerships and consultations involved in co-ordinating the data produced by the multiplicity of stakeholders involved in the data ecosystem.<sup>iv</sup> It takes into account technical challenges such as interoperability and harmonisation between various data sources, quality standards and definitions (Bhargava, 2015<sub>144</sub>); (PARIS21, 2017<sub>146</sub>).

Advocacy strategy: the approaches, techniques and messages for "defending or recommending an idea before key people" (PARIS21, 2010<sub>[47]</sub>). In the statistical context, it covers efforts to promote the use of statistics and support for statistical development.

### **Politics and power**

Relationship between producers: the interactions and collaboration between the organisations that produce official statistics (NSOs, statistical departments of ministries, Central Bank, etc.). This can occur through national conferences and seminars, council meetings, joint outputs or projects, peer reviews, assessments, and working groups/task teams. While the statistical law and/or the NSDS together with their implementation stipulate instances of exchange and co-ordination, the strength of the ties (and to what extent the institutions are willing to co-operate) depends on these more informal interactions.

Relationship with users: the interactions (their frequency, their modality, the content, etc.) between institutions of the NSS and the users of official statistics (such as academia, the private sector and policymakers).

Relationship with data providers: the interactions (their frequency, modality, the content, etc.) between NSS statistical organisations that process, analyse, produce and disseminate statistics and the organisations that collect, compile and own raw data.

**Relationship with political authorities:** the interactions between institutions of the NSS and those in the government with "capacity to impose duties on others" (Christiano, 2013<sub>[48]</sub>). These relationships define the degree of 'professional independence' of the NSS institutions. In other words, the freedom to define the methodology for data collection, analysis and dissemination; to select the most appropriate resources (technological, physical and human) and data sources; to interact with users and provide a scientific explanation of findings; and take decisions regarding internal administration, regulation and management (Kori, 2016<sub>[49]</sub>).

Accountability: the actions that NSS institutions take to guarantee that the needs of users of official statistics are satisfied; and to ensure that their obligations regarding citizens' best interest and scientific standards when selecting methods for data collection, analysis and dissemination are met. Accountability is the supreme ethical criterion for official statistics producers.

#### Incentives

Stakeholder interests: a stakeholder is any individual or group (including an organisation) directly or indirectly concerned with official statistics and the functioning of the NSS (or affected by it, regardless of being part of it). Every stakeholder has certain ideological predispositions and political preferences on the matter, and sets a course of action to make them prevail (for example, owners of administrative records may oppose changing privacy laws that would force them to share their data). Stakeholder interests are part of the external environment in which the NSS functions; and they can either create roadblocks or be supportive of statistical work. Political support: the endorsement and support of political authorities for statistical activities, for the development of the NSS's statistical capacity, and for the recognition of the importance of quality and timeliness of official statistics in informing public debate and planning, monitoring and evaluating policies.

Legitimacy: the perceptions or beliefs of civil society regarding the prestige and authority of the NSS and the statistics it produces and which reflect the state of development of society and the nation in its name (representation). For official statistics, the sources of this authority are the statistics law and the scientific methods used to compile the statistics.

### Annex A.3. CD4.0 and Other Models of Statistical Capacity Development

The holistic perspective of the conceptual framework makes CD4.0 different from other models used to describe and analyse statistical development. Currently, there exist a variety of different tools and models to assess a) national statistical development strategy, b) statistical capacities of a NSO or NSS, and c) the level of implementation of common statistical production and dissemination standards. In the following, these tools and models are briefly introduced and linked to the CD4.0 approach.

### A.3.1. NSDS Assessment

Since 2004, the NSDS Guidelines have evolved into a main tool for guiding countries and supporting Organisations in the direction and content of statistical capacity support programmes. The NSDS Guidelines combine current theoretical knowledge on capacity development and governmental policies with practical experience on how to plan, design and organise statistical development activities. Moreover, it focuses on the specific role of national governments to set targets within the context of overall economic, social and environmental plans. Plans based on the NSDS guarantee country ownership of the programme.

The NSDS and National Statistical Programmes need to be embedded in wider planning, economic and social programmes of the government and seen in the context of a wider provider and user community (PARIS21, 2018<sub>[11]</sub>). Statistical capacity programmes are one of several programmes that are aimed at developing state capacity, but co-exist with other initiatives. From the viewpoint of the partners involved, stand-alone programmes are easier to oversee and manage, but they risk being implemented in isolation and without visible results for all actors. Moreover, it is essential to integrate the NSDS in national planning activities to guarantee adequate funding across different phases.

The NSDS and the CD4.0 approach can provide strong value-added when applied in conjunction. In the case where a country is in the process of establishing a NSDS, a CD4.0 assessment could be applied to identify important statistical capacity gaps and ensure sustainable capacity development processes in the long-term. Vice versa, in the case where a country has started a CD4.0 programme, the NSDS is

needed to anchor and further develop statistical capacities in a holistic way. CD4.0 approaches without support on the systemic level will not work in the long-term nor meet the requirement of a holistic approach.

### A.3.2. Statistical Capacity Assessment

Aside from the NSDS, three other types of tools can be distinguished: i) tools to inform project design and monitoring, ii) tools for monitoring statistical performance internationally and iii) tools to assess quality and/or compliance with statistical codes of practice (PARIS21, 2018<sub>[50]</sub>).<sup>v</sup> These tools are used to assess the state of development (status, capacity, inputs, outputs, and intermediate processes) of a statistical organisation.

Depending on the specific case, these tools can be classified according to different phases of programme management (PARIS21, 2018<sub>[50]</sub>). The CD4.0 conceptual framework combines all elements of these tools: it can help the national authorities to plan for capacity building or certain statistical development actions; it can inform the partners that want to invest about the specific weaknesses and more in general the statistical capacities available; it gives measures about the international performance, and it allows to check the compliance with codes of practice. In that sense, the CD4.0 approach works as an overarching framework integrating the use and application of different tools throughout a programme's life cycle.

### A.3.3. Implementation of Statistical Production Processes Assessment

Specific models for assessing statistical production and dissemination standards are the Generic Statistics Business Process Model (GSBPM) and the Generic Activity Model for Statistical Offices (GAMSO, Version 1.2) (Eurostat, 2015<sub>[26]</sub>). GSBPM and GAMSO describe the managerial, methodological and technical aspects of a (ideal) statistical production process. All the phases, from the design of a production process until the reporting and evaluation, are included in these models. While GSBPM sets a focus on how statistical organisations undertake the activity of statistical production, GAMSO sets a focus on what statistical organisations do.

Set up in 2008, the GSBPM describes and defines the set of business processes needed to produce official statistics. It provides a standard framework and harmonised terminology to help statistical organisations to modernise their statistical production processes, as well as to share methods and components. The GSBPM can also be used for integrating data and metadata standards, as a template for process documentation, for harmonising statistical computing infrastructures, and as a framework for process quality assessment.

The GSBPM identifies the possible steps in the statistical business process and the inter-dependencies between them (Eurostat, 2015<sub>[26]</sub>). In this regard, it is similar to the CD4.0 approach and offers a modular approach to statistical capacity development. However, the GPSM focuses distinctly on the production and dissemination processes of official statistics on an organisational and systemic level. CD4.0 goes beyond these dimensions and integrates individual level processes in a holistic conceptual framework.

Developed in 2017, GAMSO describes and defines the activities that take place within an organisation that produces official statistics and thus extends its focus compared to the GSBPM. GAMSO aims to provide a common framework to support international collaboration activities, particularly in the field of modernisation. While individual collaboration typically focuses on modernising a particular aspect of production (as described by the GSBPM), statistical production occurs within a broader context of corporate strategies, capabilities and support. GAMSO helps to place collaboration in the wider context. In doing so, GAMSO provides a basis for resource planning within a statistical organisation. It supports the development and implementation of enterprise architectures, including components such as capability architectures as well as risk management systems. GAMSO is used as a basis for the measurement of costs of producing official statistics in a way that can be compared between organisations as well as a tool to measure and communicate the value of statistical modernisation activities across an organisation.

Similar to the CD4.0 approach, GAMSO focuses on different phases of capacity development. However, it complements capacity development with an explicit focus on corporate support, ranging from support in IT over Human Resources and financing. In that sense, it focuses on the capabilities categorized under the organisational level of the CD4.0 approach and provides classified guidance on improving processes in an NSO. Greater value will be obtained from the GAMSO if it is applied in conjunction with the CD4.0.

A third model to assess statistical production processes is the Modernisation Maturity Model (MMM) (Jones, 2018,151). The MMM allows statistical organisations to evaluate their current level of maturity against a standard framework. It is thus an assessment tool, describing the state of development of the statistical production system. As such, the MMM does not include ethical aspects, reflections on the organisational structure of the statistical office, or quality principles. The conceptual framework of CD4.0 is an approach for overseeing all elements relevant for developing statistical capacity, while allowing for measurement of the state of development. A country assessing the 46 capabilities of CD4.0 (Chapter 1) might use the MMM for assessing the modernity of the production system (with the most modern system as reference). Greater value will be attained by using MMM and CD4.0 in a complementary fashion.

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### **Notes**

- i. This includes setting priorities, systematically coordinating and aligning actions and resources with the defined goals, and ensuring that the agency/organisation's employees are working toward common goals.
- ii. Open data can be defined as "...digital data that is made available with the technical and legal characteristics necessary for it to be freely used, reused, and redistributed by anyone, anytime, anywhere" (Open Data Charter, 2015<sub>155</sub>).
- iii. According to the OECD Glossary of Statistical Terms (OECD, 2008<sub>[54]</sub>), the NSS refers to "the ensemble of statistical organisations and units within a country that jointly collect, process and disseminate official statistics on behalf of national government". NSS coordination mechanisms implies consultation and collaborations between data producers (e.g. statistical council, statistics board/committee) within the NSS.
- iv. Data ecosystems can be defined as "complex adaptive systems that include data infrastructure, tools, media, producers, consumers, curators, and sharers. They are complex organisations of dynamic social relationships through which data/information moves and transforms in flows." (Bhargava, 2015<sub>[44]</sub>). The data ecosystem includes the NSS. The co-ordination aims at ensuring consistency and efficiency of actions, activities and outputs between producers of data in the context of the emergence of non-traditional sources, and the explosion in the volume and production of data.
- v. For a detailed overview over these tools, their particular cases of application see NSS Assessment Guide (PARIS21, 2018<sub>Ison</sub>).

