PARIS 21
Partnership in statistics for development in the 21st century

Mo Ibrahim FOUNDATION

WORKING PAPER

BRIDGING THE DATA-POLICY GAP IN AFRICA

Recommendations to national statistical offices and governments to enhance the production and use of data for evidence-based policymaking

APRIL 2021

PARIS21

The Partnership in Statistics for Development in the 21st Century (PARIS21) promotes the better use and production of statistics throughout the developing world. Since its establishment in 1999, PARIS21 has successfully developed a worldwide network of statisticians, policymakers, analysts and development practitioners committed to evidence-based decision making. PARIS21's main objective is to help low- and middle-income countries achieve national and international development goals and reduce poverty. PARIS21 facilitates statistical capacity development, advocates for the integration of reliable data in decision making, and co-ordinates donor support to statistics.

MIF

The Mo Ibrahim Foundation (MIF) is an African foundation, established in 2006 with one focus: the critical importance of governance and leadership for any tangible and shared improvement in the quality of life of African citizens. The foundation focuses on defining, assessing and enhancing governance and leadership in Africa, based on sound and reliable data. It is committed to strengthening the data and statistics landscape in Africa through the production of the Ibrahim Index of African Governance and by supporting data projects on the continent, such as Afrobarometer.

Acknowledgements

The report was developed and drafted under the supervision of Johannes Jütting, Executive Head of PARIS21, Philippe Gafishi, Regional Co-ordinator for Africa at PARIS21, and Nathalie Delapalme, Executive Director at the Mo Ibrahim Foundation (MIF). Chapter content was prepared by Diego Fernandez (MIF), Camilla Rocca (MIF), Julia Schmidt (PARIS21) and Yannick Vuylsteke (ITAD). We thank Lauren Harrison (PARIS21) and Jurei Yada (PARIS21) for thoughtful comments and Yu Tian (PARIS21) for support with the data analysis. Gurtegh Singh (PARIS21) provided valuable research assistance.

Sasha Ramirez-Hughes (PARIS21) co-ordinated the editing and design of the report. The report was designed by Karamelaki Creatives.

Contact the PARIS21 Secretariat at contact@paris21.org
Visit www.PARIS21.org
Follow PARIS21
@contactparis21
/company/paris21/

Contact MIF at media@moibrahimfoundation.org
Visit mo.ibrahim.foundation
Follow MIF
@Mo_IbrahimFdn
/company/moibrahimfoundation/

Foreword

Data are central to inclusive and effective governance. You need to know where you are starting from, what you are aiming at, and whether you are getting there in the most efficient manner. Without data, governments drive blind – policies are misdirected, and progress on the road to development is stunted and risks excluding the most vulnerable groups and individuals.

The COVID-19 pandemic has highlighted and exacerbated fundamental data gaps in Africa, notably in relation to health and civil registration. Poor data coverage of health facilities and health outcomes in Africa adversely affects the crucial timely production of statistics during health emergencies, and makes response and recovery efforts more difficult. Closing the 'data gap' is critical if we aim to leave no one behind. If half of the African population cannot prove who they are, if they are not registered anywhere, how can they benefit from any public services or exercise any of their rights? According to the most recent surveys available in Ethiopia, Chad and Zambia, less than 10 percent of children under the age of had their births registered at the time of the latest survey. In these countries, and a few others, registration in urban areas was also less than 50 percent.

At the same time, the African continent has subscribed to a series of important commitments under the African Union's Agenda 2063, 'The Africa We Want', and the United Nation's Agenda 2030 and its Sustainable Development Goals. Both frameworks are based on a comprehensive set of targets and indicators for setting objectives and monitoring progress, and rely strongly on data and statistics for meeting these development objectives.

Emerging technologies and the expanding use of digital and mobile communications present new opportunities for Africa to harness new data sources for sustainable development – though they also raise new challenges. Issues of trust in data, privacy protection and effective data governance must be resolved, while the digital divide on the continent remains a key challenge.

The Partnership in Statistics for Development in the 21st Century (PARIS21) and the Mo Ibrahim Foundation (MIF) have come together around a shared goal: the need to strengthen data and statistics on the African continent. While this has been a long-standing commitment and key focus area for both organisations, the current context reinforces the urgency of efforts to modernise national statistical systems in Africa.

With this report, PARIS21 and MIF aim to unpack this complex scenario and stress the importance of data for good governance. The publication brings together PARIS21's technical expertise in supporting the development of statistical capacity globally, and MIF's African perspective and commitment to producing relevant data as a key pillar of efficient public policies. Relying on data-driven and expert analyses of the current data and statistics landscape in Africa, it offers avenues for both governments and national statistical systems to bridge the data-policy gap.

Johannes Jütting
Executive Head of PARIS21

Nathalie Delapalme
Executive Director of MIF

Contents

ABBREVIATIONS AND ACRONYMS 5

EXECUTIVE SUMMARY 6

01

THE DATA-POLICY GAP IN AFRICA: LOW CAPACITY BUT INCREASING EXPECTATIONS. 8

1.1. Agendas 2030 and 2063: a growing demand for data 10

1.2. The modern data ecosystem: increased responsibilities in data governance 11

1.3. A conducive governance landscape is key. 11

02

STRENGTHENING DATA SUPPLY: RECOMMENDATIONS FOR NATIONAL STATISTICAL SYSTEMS. 14

2.1. Institutionalise statistical capacity development to secure more and better funding . . . 15

Challenge: chronic underfunding of statistical systems 15

How to move forward? 16

Spotlight: improving NSS and NSO co-ordination to address key challenges 18

2.2. Build sustainable partnerships to close the skills gap 19

Challenge: under-staffing and a lack of expertise 19

How to move forward? 20

Spotlight: successful partnerships to advance big data skills across Africa 22

2.3. Improve communication to increase understanding and use of official statistics 23

Challenge: low capacity for making data available, accessible and user-friendly 23

How to move forward? 28

Spotlight: progress by NSOs towards transparent data dissemination and communication 29

03

BOOSTING DATA DEMAND: RECOMMENDATIONS FOR POLICYMAKERS 30

3.1. Value and invest in the basic building blocks of statistics. 31

Challenge: a lack of census data and weak administrative data systems 31

How to move forward?. 32

Spotlight: NEPAD, AUC and APRM's support to statistical capacity for Agenda 2063 33

3.2. Establish data governance frameworks and regulatory policies 34

Challenge: legal frameworks are not keeping up with the new data ecosystem 34

How to move forward? 35

Spotlight: better legal frameworks as prerequisites for data stewardship. 36

3.3. Invest in strengthening data literacy and access to ICTs among policymakers. 37

Challenge: the digital divide and poor data literacy. 37

How to move forward?. 38

Spotlight: improving ICT and data connectivity in Africa. 39

04

A ROADMAP FOR EMBRACING NEW APPROACHES TO CAPACITY DEVELOPMENT. 40

REFERENCES 44

Figures

Figure 1: Good governance and high-quality statistics go hand in hand. 9

Figure 2: References to statistics in policy documents in Africa are quite low on average, even more so in Central Africa. 10

Figure 3: Donor support to statistics across Africa has increased significantly over the past decade 16

Figure 4: African NSOs prefer training existing staff to hiring new staff 19

Figure 5: Most African countries have access to a functioning data portal. 24

Figure 6: African NSOs struggle to provide fully open data 25

Figure 7: Data availability and coverage remain low across African countries 25

Figure 8: Greater data coverage appears to stimulate data use in African countries 26

Tables

Table 1: Governance characteristics are diverse across the African continent 12

Abbreviations and Acronyms

AGRIS	Agricultural and Rural Integrated Survey
AfDB	African Development Bank
AU	African Union
AUC	African Union Commission
CRVS	Civil registration and vital statistics
DRC	Democratic Republic of Congo
ICT	Information and communication technology
IIAG	Ibrahim Index of African Governance
IMF	International Monetary Fund
NSDS	National Strategy for Development of Statistics
NSO	National statistical office
NSS	National statistical system
PHC	Population and housing census
REC	Regional Economic Community
SCI	Statistical Capacity Index
SDGs	Sustainable Development Goals
SSA	Sub-Saharan Africa
UNECA	United Nations Economic Commission for Africa
UNDESA	United Nations Department of Economic and Social Affairs

Executive Summary

National statistics are an essential component of policymaking: they provide the evidence required to design policies that address the needs of citizens, to monitor results and hold governments to account. Data and policy are closely linked. As Mo Ibrahim puts it: “without data, governments drive blind”. However, there is evidence that the capacity of African governments for data-driven policymaking remains limited by a wide data-policy gap.

What is the data-policy gap?

On the data side, statistical capacity across the continent has improved in recent decades. However, it remains low compared to other world regions and is hindered by several challenges. African national statistical offices (NSOs) often lack adequate financial and human resources as well as the capacity to provide accessible and available data. On the policy side, data literacy as well as a culture of placing data first in policy design and monitoring are still not widespread. Thus, investing in the basic building blocks of national statistics, such as civil registration, is often not a key priority.

At the same time, international development frameworks, such as the United Nations 2030 Agenda for Sustainable Development and the African Union Agenda 2063, require that every signatory country produce and use high-quality, timely and disaggregated data in order to shape development policies that leave no one behind and to fulfil reporting commitments.

Also, the new data ecosystem linked to digital technologies is providing an explosion of data sourced from non-state providers. Within this changing data landscape, African NSOs, like those in many other parts of the world, are confronted with a new data stewardship role. This will add further pressure on the capacity of NSOs, and presents additional challenges in terms of navigating issues of governance and use.

A six-point roadmap for bridging the data-policy gap

1. **Create a statistical capacity strategy to raise funds:** Statistical offices need to signal to political leaders and external partners that their capacity development efforts are well structured, diverse and objective-driven. A strategy for capacity development, often included in the national strategy for development of statistics (NSDS), is a good first entry point for discussions with policymakers in efforts to raise domestic funding. Better co-ordination with development co-operation partners around such strategic plans, as well as the monitoring objectives of Agenda 2030 and Agenda 2063, can further attract external funding for data and statistics.

2. **Connect to knowledge banks to hire and retain talent:** Statistical offices need to attract highly skilled young professionals motivated to transform the national statistical system (NSS) from the inside. NSOs should start building knowledge partnerships with academic institutions, as well as with the private sector, to develop new data science methodologies for reaping the benefits of the data revolution. Such partnerships can range from jointly developed curricula in universities to training arrangements and shared access to e-learning portals.

3. **Build good narratives for better data use:** Open data is the basis for the transparent public dissemination of data. However, it does not guarantee its use. NSOs need to go one step further, designing data stories that speak to local circumstances and connecting the data they collect and disseminate to the people they serve. A communication strategy – including regular press briefings, social media campaigns and interactive workshops with data users – led by a dedicated public relations officer from the NSO would be a first step towards better statistical communication and better use of data.

4. **Recognise the power of foundational data:** The basic building blocks of statistics, in particular census and CRVS, are key to designing economic and social policies. Strengthening administrative data systems also provides an entry point to complement traditional data sources with new data sources, such as geospatial or mobile phone data, to arrive at more accurate estimates that leave no one behind.

5. **Strengthen statistical laws to harness the data revolution:** Governments need to create an environment conducive to technological change and advanced data applications for the public good. Legal frameworks need to include regulations on how to share, store and manage new data sources while protecting the privacy of citizens. In countries where these frameworks already exist, their implementation and application need to be closely monitored, and any abuses sanctioned.

6. **Encourage data use in policy design and implementation:** Policymakers should start setting incentives for public service officials to use more and better data. Government institutions could offer innovative training to upskill operational staff and middle managers in NSOs. Moreover, performance evaluation schemes could be adapted to recognise the increased use of data in daily work routines, speeches, presentations and reports.

This report aims to describe and unpack the data-policy gap and to provide recommendations to NSOs and governments on how to bridge it. It merges PARIS21's leading expertise in statistical capacity development globally and MIF's longstanding advocacy and commitment to strengthening the data landscape for policymaking in Africa.

CHAPTER 1 introduces the data-policy gap and the factors set to aggravating this gap, such as increased demands for data and additional responsibilities for NSSs.

CHAPTER 2 focuses on the data supply side, offering three recommendations for NSOs and an in-depth analysis of the challenges for achieving optimal statistical capacity in Africa.

CHAPTER 3 focuses on the data demand side, offering three recommendations to governments, as well as analysing the challenges for improving the use of data in policymaking processes across the continent.

CHAPTER 4 pulls these recommendations together into a suggested roadmap for reconnecting data and policy moving forward.

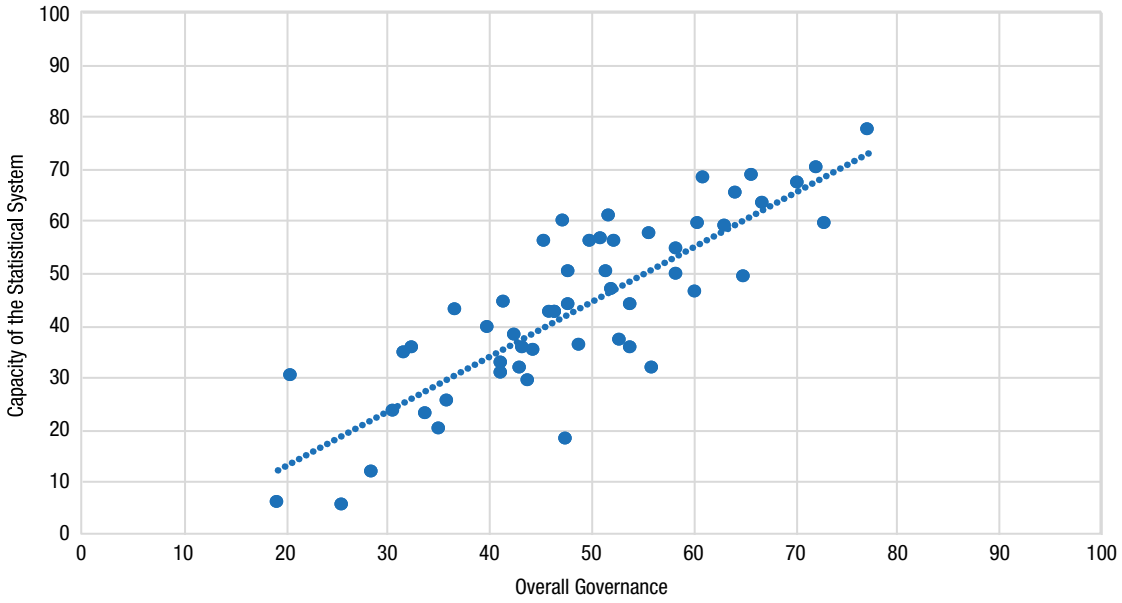
01

The data-policy gap in Africa: low capacity but increasing expectations

Statistical capacity is defined as "the ability of a country's national statistical system, its organisations and individuals to collect, produce, analyse and disseminate high quality and reliable statistics and data to meet users' needs" (PARIS21, 2020[1]). Statistical capacity is fundamental for allowing policymakers to understand, reason and engage critically with data (PARIS21, 2019[2]). A well-functioning NSS provides quality data on a country's economic and social progress, increases accountability and sets guidelines for defining its future development strategy.

There is evidence that strong statistical capacity is a key enabler of good governance. Indeed, using the 2020 Ibrahim Index of African Governance (IIAG) dataset, the graph shows a strong positive correlation between the 2019 levels of *Overall Governance*[2] in African countries and scores for the indicator *Capacity of the Statistical System*[3] (Mo Ibrahim Foundation, 2020[3]). This means that countries capable of producing high-quality statistics tend to perform better in delivering public goods and services to their citizens, which is the core objective of governance according to MIF.

Figure 1: Good governance and high-quality statistics go hand in hand



Note: Correlation coefficient r for 2019 scores for IIAG Overall Governance and Capacity of the Statistical System =+0.83
Source: Mo Ibrahim Foundation (2020[3])

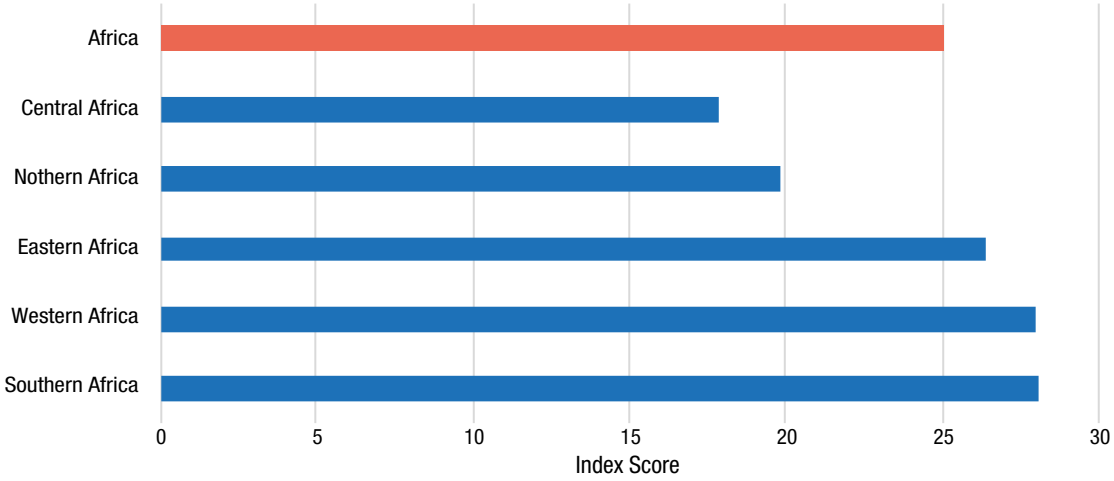
Data show that across Africa statistical capacity has improved over the past decade. The Statistical Capacity Index (SCI) measured by the World Bank shows a positive trend, with the continental average increasing from 56 to 57.2 points over the period 2004 to 2019. However, the African average is still low compared to Asia & Pacific (65.5), the Americas (68) and Europe (70.3) (World Bank, 2020[4]).

[2] *The Overall Governance score in the 2020 IIAG dataset is composed of 79 indicators. Capacity of the Statistical System is one of those.*

[3] *This indicator assesses the capacity of statistical systems using a diagnostic framework which consists of three assessment areas: statistical methodology; source data; and periodicity and timeliness. Moreover, it measures the extent of statistical data coverage and the openness of statistical data maintained by NSOs. Finally, it also assesses if the independence of the Office of National Statistics is guaranteed.*

At the same time, research reveals that there is still a long way to go in terms of the extent to which statistics are used in policymaking, and whether policy monitoring is data driven (Figure 2). As reported by the PARIS21 Use of Statistics Indicator (PARIS21, 2019[5]), the African average systemic reference to statistical concepts in policy planning and monitoring documents is at 27 out of 100 index points.[4] When comparing the different sub-regions, Southern Africa and Western Africa score above the average, at 28 points, while Northern, Eastern and Central Africa show values below the African average.

Figure 2: References to statistics in policy documents in Africa are quite low on average, even more so in Central Africa



Note: Total number of countries =38;
Source: PARIS21 (2019[5])

While there are strong theoretical and empirical arguments for the use of statistics in policymaking, in Africa the evidence points to a concerning data-policy gap driven by low capacity for data production and data use in policymaking. Moreover, this is set to be aggravated by current factors such as an increased demand for data or additional tasks and responsibilities straining the already low capacity of statistical systems in Africa.

1.1. Agendas 2030 and 2063: a growing demand for data

The 2030 Agenda for Sustainable Development and Agenda 2063 are the two main overarching frameworks encompassing the commitments of African countries to sustainable development and inclusive growth for the next decades. Organised according to specific timelines, benchmarks and indicators, both frameworks rely on the availability of data to measure and monitor progress, and therefore exert pressure on governments and NSSs to produce and use these data.

The data required for measuring progress towards these development agendas are unprecedented both in their scope and granularity (ECA, UNDP, OD and World Wide Web Foundation, 2016[6]). While the Millennium Development Goals (MDGs) framework required African countries to collect data to report on 8 goals and 21 targets, today countries are expected to do so for 20 goals and 255 targets under Agenda 2063 and 17 goals and 169 targets under Agenda 2030.

While the two agendas are relatively well aligned – they share 69.8% of targets and 67.2% of indicators – measuring benchmarks for both agendas at the same time is demanding.

[4] The indicator relies on a text-mining methodology, which scores documents based on the presence of a list of keywords defined from reference texts to evaluate the use of statistics in policy documents (National Development Plans and Poverty Reduction Strategy Papers). For details of the methodology, check the extended methodology on the Statistical Capacity Monitor (PARIS21, 2020[14]).

The African Union Development Agency – New Partnership for Africa's Development (AUDA-NEPAD) – coordinates guidelines for African Union member states to support the implementation of the objectives, but still governments and NSOs are placed at the centre of the process to measure progress.

Moreover, this demand for data rises in the context of weak statistical capacity in Africa. There is for instance a significant shortage of country and country-adjusted data for Africa in the Global SDG Indicators Database that measures progress towards Agenda 2030. An assessment in the 2018 African Statistical Yearbook revealed that of the 230 indicators only 96 (41.4%) have data available in African countries (Sustainable Development Goals Center for Africa (SDGC/A), 2019[7]). Moreover, the sources of most data points for African countries in the dataset are either estimations, global monitoring or modelling: in the period 2006-2016, only around one-third (33.5%) of data for Africa was produced by the NSSs themselves (UNECA, 2017[8]). Up to today, only 19 out of 54 African countries have produced voluntary national review (VNR) reports on SDG implementation.

1.2. The modern data ecosystem: increased responsibilities in data governance

Information and communication technologies (ICTs) have great potential to enhance public service delivery. The use of e-governance or technology can gather key data, improve access to national administration and deploy services to those that are difficult to reach.

At the same time, the data revolution is leading to an explosion in the volume of data and the number of data producers linked to new technologies such as mobile phones and smart devices, sensors and satellites. Compared to about a decade ago, non-state actors are increasingly involved in data production and dissemination, including the private sector, scientific communities and civil society organisations (UNECA, 2016[9]).This raises the need for NSSs to step up their tasks and responsibilities from data producer to a data stewardship role.

Currently, a majority of data production, sharing, dissemination and use other than official statistics occurs without appropriate legal barriers and safeguards. So far, only 24 African countries have adopted data privacy laws and regulations to protect personal data (PI, 2020[10]). On the one side, leaving the data ecosystem unregulated, will result in NSOs without guidance nor mandate to coordinate and steer the wider data ecosystem. On the other side, overregulation will impede governments to harness the data revolution. Therefore, governments need to carefully evaluate which trade-offs result from putting safeguards in place with the objective to create an enabling legal environment conducive to a data-driven economy.

1.3. A conducive governance landscape is key

Different political, economic and social contexts influence policymakers' incentives and willingness to support the production and use of statistical data. Across the continent, several countries face challenges in establishing a stable political environment with good governance, a bedrock that must underpin a reliable statistical system. In volatile political climates where governance is weak, data is more subject to manipulation by political actors and can be discarded as unreliable if needed (Hoogeveen and Nguyen, 2019[11]).

Governance is defined in the IIAG as the performance of governments in delivering public goods and services to its citizens. As shown by the average scores obtained by African regions in the 2020 IIAG's four underlying categories (Table 1), governments in Central African countries face low and declining levels of *Security & Rule of Law* and *Participation, Rights & Inclusion*, whilst lagging far behind Africa's other regions in terms of *Foundations for Economic Opportunity* and *Human Development*.

The Southern African region improves in these latest two categories but shows a decline in *Security & Rule of Law* and *Participation, Rights & Inclusion*. Northern Africa has the highest

levels of *Foundations for Economic Opportunity* and *Human Development* but remains characterised by lower levels of *Security & Rule of Law* and *Participation, Rights & Inclusion*. Western Africa is the fastest improving region in *Overall Governance*, but progress remains obstructed by a declining environment for *Participation, Rights & Inclusion*. In Eastern Africa, while there have been improvements in *Foundations for Economic Opportunity* and *Human Development*, both *Security & Rule of Law* and *Participation, Rights & Inclusion* have been declining during 2010-2019 (Mo Ibrahim Foundation, 2020[3]).

Besides the governance landscape, the influence of international actors such as development co-operation providers can have an impact on the planning, production, dissemination, funding and use of official statistics in African countries. For instance, only 0.33% of all official development aid is allocated to statistics, and even that is rarely co-ordinated, leading to a multiplication of parallel efforts (PARIS21, 2019[12]).

Table 1: Governance characteristics are diverse across the African continent

OVERALL GOVERNANCE	Score 2019	Δ 2010-2019
Africa	**48.8**	**+1.2**
Region (Rank/5)		
1 Southern Africa	53.3	+1.6
2 Western Africa	53.1	+2.4
3 Northern Africa	52.0	+2.3
4 Eastern Africa	46.2	+0.4
5 Central Africa	38.8	-0.1

SECURITY & RULE OF LAW	Score 2019	Δ 2010-2019
Africa	**49.5**	**-0.7**
Region (Rank/5)		
1 Western Africa	56.4	+1.7
2 Southern Africa	56.0	-1.0
3 Northern Africa	48.3	+2.6
4 Eastern Africa	45.9	-2.8
5 Central Africa	37.1	-3.0

PARTICIPATION, RIGHTS & INCLUSION	Score 2019	Δ 2010-2019
Africa	**46.2**	**-1.4**
Region (Rank/5)		
1 Western Africa	54.6	-1.0
2 Southern Africa	51.3	-2.0
3 Northern Africa	42.5	+1.7
4 Eastern Africa	41.5	-1.3
5 Central Africa	36.1	-3.2

FOUNDATIONS FOR ECONOMIC OPPORTUNITY	Score 2019	Δ 2010-2019
Africa	**47.8**	**+4.1**
Region (Rank/5)		
1 Northern Africa	54.9	+4.0
2 Southern Africa	51.4	+6.5
3 Western Africa	50.0	+4.3
4 Eastern Africa	47.3	+3.4
5 Central Africa	36.1	+2.3

HUMAN DEVELOPMENT	Score 2019	Δ 2010-2019
Africa	**51.9**	**+3.0**
Region (Rank/5)		
1 Northern Africa	62.3	+1.1
2 Southern Africa	54.3	+2.8
3 Western Africa	51.2	+4.3
4 Eastern Africa	50.2	+2.4
5 Central Africa	46.1	+3.4

Note: Based on the scores obtained by the five African regions in the IIAG Overall Governance and four underlying categories. All scores in the IIAG are expressed out of 100.0 (with 100.0 always being the best possible score).
Source: Mo Ibrahim Foundation (2020[3])

Closing the data-policy gap is a key priority for Africa as the continent stands committed to achieve the ambitious goals of Agenda 2030 and Agenda 2063, but also to ensure policies address the needs and expectations of citizens.

BUSINESS PLAN
Break-Even Analysis
5.00
3.75
2.50
1.25

02

Strengthening data supply: recommendations for national statistical systems

African NSSs have shown impressive consistency in improving their statistical capacity over recent years. However, capacity remains relatively low compared to other world regions, and there is margin for further improvement to sustain the progress achieved so far.

At the same time, the activities of NSSs have expanded well beyond mere data production and assembly of statistics with the advent of new technologies and data sources and the increasing quest for global monitoring. Their activities now include dissemination, co-ordination, technical advice and consultation, training, leadership and communication with users (PARIS21, 2014[13]).

This paper suggests three central recommendations[5] to accompany a strengthened capacity and the transformation from data producer to potential data steward,[6] with a view to help narrow the data-policy gap on the continent. They are discussed in turn in the sections which follow, with each section first outlining the challenge, then suggesting ways forward and finally spotlighting an area of particular relevance.

- **Recommendation 1:** Institutionalise statistical capacity development to secure more and better funding
- **Recommendation 2:** Build sustainable partnerships to close the skills gap
- **Recommendation 3:** Improve communication to increase understanding and use of official statistics

2.1. Institutionalise statistical capacity development to secure more and better funding

Institutionalised statistical capacity is key to attract and allocate domestic and external funding effectively. NSOs need to include explicit strategic objectives to develop institutional capacity as part of their overall planning to signal funding needs to development co-operation partners. This section describes challenges as well as innovative solutions and best practices to strategically plan and sustainably embed statistical capacity development.

CHALLENGE: chronic underfunding of statistical systems

Despite strong support, funding for statistics is still not enough to meet the data demand, and NSSs in Africa remain chronically underfunded. Africa as a continent receives the largest share of official development assistance (ODA) dedicated to statistics (50%). Over the past decade, external support to statistics has increased in all African regions. Donors' total annual commitments quadrupled over the period 2010-2014, from USD 6.5 million to around USD 26.7 million (Figure 3). Support to statistics then declined slightly to USD 22.5 million (constant) in 2016, before rising to USD 26 million again in 2017.[7]

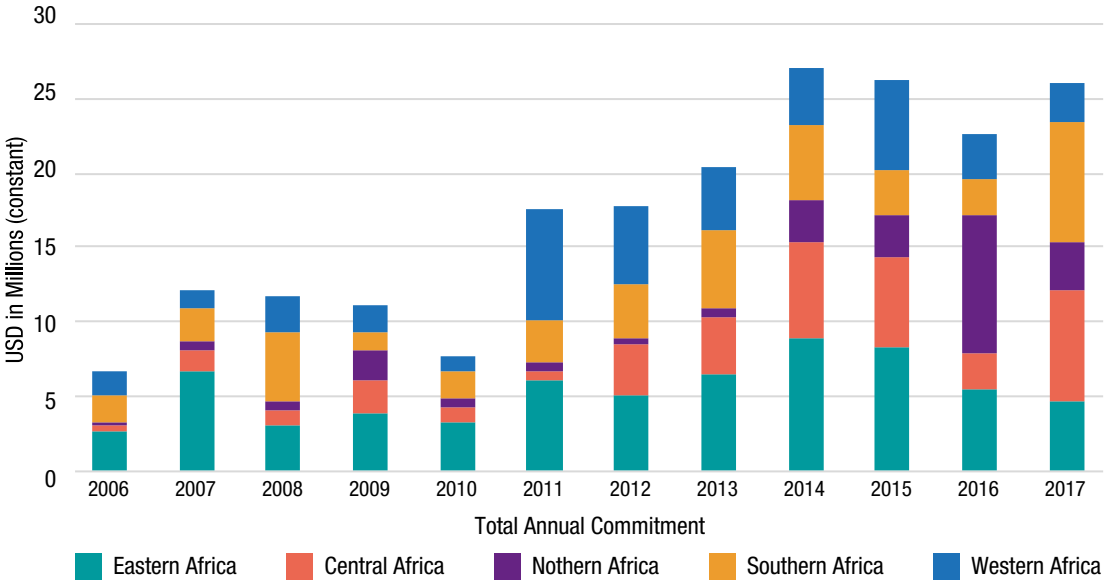
[5] *Other central challenges include a lack of adequate legal frameworks, the adherence to international standards, and co-ordination with and across new data providers (PARIS21, 2018[23]). This paper deliberately aims to focus on the challenges presented in this chapter following current debates in research and development co-operation.*

[6] *A data steward is a person or organisation with the responsibility for managing a specific set of data resources (OECD, 2008[67]).*

[7] *This period might coincide with the 2010 round of population censuses in Africa, which are very expensive and funded by both government and donors. In particular, Northern Africa (Egypt 2017, Algeria 2018, Tunisia 2014/2015 and Morocco 2014/2015) might have received increased funding due to census activities.*

When comparing commitments across sub-regions, Southern Africa receives the highest share (around USD 8 million), closely followed by Central Africa in 2017 (USD 7 million). Western Africa received the least support (around USD 2 million).

Figure 3: Donor support to statistics across Africa has increased significantly over the past decade



Source: PARIS21 (2019[12])
Note: Total number of observations n= 54; the reported value is the total amount of ODA received by a country as statistical support in the time period considered (current USD). Financial commitments are converted to US dollars using the period-average exchange rate of the commitment year of the projects/programme.

While the number of fully funded National Strategies for Development of Statistics (NSDSs) in Africa jumped from 4 in 2017 to 12 in 2020, 28 countries still did not manage to fully fund their NSDS process in 2020 (PARIS21, 2020[14]).[8] In terms of global data demands, the SDG financing gap for Africa is estimated at between USD 500 billion and 1.2 trillion annually (Sustainable Development Goals Center for Africa (SDGC/A), 2019[7]).

This means that statistical systems are limited in their ability to operate effectively. National governments need to start allocating more domestic funding, and where necessary attract external funding strategically. Development partners, on the other hand, need to scale up funding to statistics to strengthen statistical capacity across all African countries.

How to move forward?

Institutionalising statistical capacity development would enable NSSs to mobilise domestic resources, engage in cost-saving activities during data collection and production, improve co-ordination with development co-operation partners and attract international financial support to statistics.

Mobilising domestic resources such as setting up an executive office inside the NSO responsible for partnerships and fundraising would be a good first step. National funding could be pooled in a trust fund or funding facility which allocates funding to statistical activities. The NSO could remain in charge of statistical planning, while domestic resources could come from the fund (see Box 1).

[8] *Countries with a fully funded statistical plan: Algeria, Cabo Verde, Mayotte, Equatorial Guinea, Gabon, Mauritius, Morocco, Réunion, Sao Tome and Principe, Botswana, Tunisia and the United Republic of Tanzania. Countries that did not manage to fully fund their plan: Burundi, Cameroon, Central African Republic, Chad, Comoros, Congo, DRC Congo, Benin, Djibouti, Gambia, Guinea, Côte d'Ivoire, Liberia, Libya, Madagascar, Mali, Mauritania, Niger, Senegal, Sierra Leone, South Africa, Zimbabwe, South Sudan, Sudan, Eswatini, Togo, Uganda and Egypt. (PARIS21, 2020[14]). Data for the remaining 14 countries is not available.*

BOX 1: MALI SETS UP A NATIONAL TRUST FUND FOR STATISTICS

Mali is the first francophone country in the West African sub-region to have an operational National Fund for the Development of Statistics (FND.STAT), set up in July 2017 in the form of a treasury trust account. The fund is financed by a levy on the proceeds of the statistical fee (a tax on the import of goods at a uniform rate of 1%). The purpose of the FND.STAT is to collect and finance the main statistical activities, including surveys and censuses. The fund became operational in 2018 with the payment of CFAF 2.9 billion (USD 4.9 million), part of which was used for the preparatory work for the fifth General Census of Population and Housing (RGPH5) and the General Census of Economic Units (RGUE).

The fund not only raises domestic resources for statistics and data, it also supports the strategic planning of statistical activities, while improving cost effectiveness.

Source: Instat-Mali (2020[15])

Optimising financial resources across all NSS activities is also important. Besides more funding, being efficient with existing funding and being effective in allocating domestic resources across NSS activities will help to close the funding gap. Research shows that countries receiving a greater share of development aid in their government budget do not necessarily produce more or better-quality data (Beegle et al., 2016[16]). The investment by NSSs in technologies such as GPS trackable tablets and integrated analysis tools could improve the cost-effectiveness of data collection, reducing costs in the medium term. Moreover, some surveys are "over-funded" or executed with larger sample sizes than necessary. Researchers suggest that capping the average number of observations per stratum[9] at 750 would lead to cost savings of approximately 25% without compromising accuracy and with no consequences for the total number of strata in a survey (Jerven and Johnston, 2015[17]). Moreover, tapping into existing data sources such as administrative data might fill data gaps both cheaply and effectively.

Aligning interests between development partners and NSSs is key to achieving consistent and sustainable funding for statistical capacity needs. In the quest for resources, many African countries might produce data that do not align with national priorities. In many cases, development co-operation providers end up building parallel data collection systems or doubling support to specific statistical sectors due to a lack of communication and co-ordination (PARIS21, 2019[18]). The trade-off between ad-hoc funded surveys – often favoured by development partners – and the NSO's own planned data collection activities threatens the consistency and sustainability of the public statistics available.

Reassuring political leaders and external partners that statistical offices' capacity development efforts are well structured, diverse and objective-driven. Regular benchmarking and monitoring of the successes and failures of statistical capacity development help to identify leverage points in the NSS and measure impact. Investors interested in strengthening statistical capacities can follow those plans and allocate funding accordingly.

One way to achieve an institutionalised process and better co-ordination across the data ecosystem (see the Spotlight section below) might be developing an NSDS to guide strategic planning over the medium term. In a centralised system, the NSDS ensures that the NSO can co-ordinate and allocate financial resources across the NSS to ensure smooth operations. In decentralised NSSs, each ministry or government agency might have a specific budget for statistical activities relevant to their sector, but should report those budgets in an NSDS action plan which is co-ordinated by the NSO.

[9] *Refers to the number of cases that will be interviewed/collected for each stratum in society, in case of a census for example.*

SPOTLIGHT: improving NSS and NSO co-ordination to address key challenges

Co-ordination is a key dimension of statistical capacity. The Cape Town Global Action Plan for Sustainable Development Data emphasises the role of NSOs as co-ordinators of the data ecosystem (UNSD, 2017[19]). The United Nations Statistical Commission also stressed the importance of co-ordinating and co-operating at the supranational, regional and national level across statistical programmes whilst respecting government arrangements as well as financial and human resources (United Nations Economic and Social Council, 2019[20]).

The COVID-19 pandemic has underscored the role of resilient and well-coordinated public data systems in evidence-based policymaking. Despite joint efforts by the global community in the past, many public statistical systems continue to struggle to develop adequate capacities, including co-ordination, to cope with these new and rising data demands. According to the recent monitoring report released by the World Bank, national and international co-ordination in the collection of data on the COVID-19 pandemic has been inadequate in many countries, especially in Oceania and sub-Saharan Africa (UNSD/World Bank, 2020[21]). Co-ordination is also important to build an integrated statistical system that enables data collection from a variety of stakeholders, fills gaps with existing data, minimises reporting efforts and avoids duplication of work (United Nations Statistical Division, 2013[22]).

Across African countries co-ordination capacity is very limited. The large majority of NSOs in Africa indicated in a survey conducted by PARIS21[10] that co-ordinating inside the NSS is a primary challenge when evaluating their mid-term objectives (PARIS21, 2018[23]). Despite their potential to facilitate co-ordination, only 12 countries in Africa have national statistical plans that comply with the United Nations Fundamental Principles of Official Statistics[11] (UNFPOS) (PARIS21, 2020[14]). This reflects the lack of global coherence in short-and long-term statistical planning on the continent.

Strengthening co-ordination capacity can improve data quality in a variety of ways and can also ensure cost-effectiveness and create greater policy coherence across levels of policymaking. Moving forward, NSOs should strengthen co-ordination capacity to achieve three specific outcomes:

1. **To close data gaps at the national level.** Crisis response and recovery measures require highly disaggregated data, often combining information from different sectors and datasets. Yet, for low and middle-income countries, limited statistical capacity threatens response and future resilience. For instance, administrative data systems such as Civil Registration and Vital Statistics are often inefficiently co-ordinated (Misra, Schmidt and Harrison, 2020[24]).
2. **To manage new technologies and digitalisation.** These require improved co-ordination and data management capacity. Data producers, including the private sector, academia and civil society organisations, have started to report on demographic, social, labour and economic realities during the crisis. While NSSs with greater capacity can integrate these data sources into production and collection processes, those with less capacity struggle to do this. As well as changes to the data production chain such as enhanced quality audits and new data sharing and storing concepts, new data sources also require regulations on data sharing, storage and privacy (Verhulst and Zahuranec, 2020[25]).
3. **To attract funding and increase its efficiency.** As we saw above, increased co-ordination of statistical activities, for instance through a NSDS, can be conducive to attracting more domestic funding. At the same time, there is ample scope to strengthen co-ordination between and among development co-operation partners and partner countries and promote South-South co-operation to make existing funding for statistics more cost-efficient (Bern Network, 2019[26]).

[10] With the support of the High-level Group for Partnership, Coordination and Capacity-Building for Statistics for the 2030 Agenda for Sustainable Development (HLG-PCCB) and the United Nations Statistical Commission (UNSD).

[11] The UNFPOS are an important framework laying out the key elements of internationally coherent statistical systems.

2.2. Build sustainable partnerships to close the skills gap

Building and sustaining talent in the data ecosystem requires long-term partnerships with a variety of stakeholders. This section lays out the core challenges related to human resources and statistics, and provides innovative solutions and best practices to overcome the skills gap.

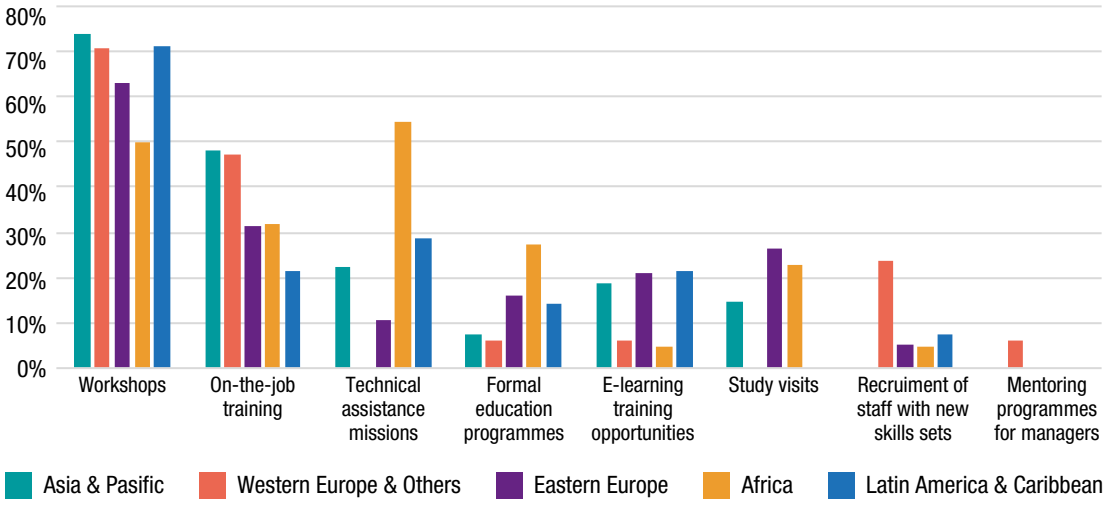
CHALLENGE: under-staffing and a lack of expertise

Improving statistical production processes and the quality and timeliness of data relies largely on the skillset available in the NSS. In many African countries, a highly skilled workforce capable of collecting, producing, and disseminating official statistics is a rare resource. Many statistical systems are understaffed and their employees insufficiently trained. In addition, many institutions within the NSS suffer from high turnover of their skilled workforce. Potential reasons might be a lack of opportunities to learn on the job or limited career development prospects.

A low-skilled work force combined with high staff turnover naturally affects the quality of official statistics. Too few staff are available to conduct adequate quality controls, and all staff are likely to be overworked. This also undermines sustainable knowledge management and expertise, thereby creating a 'brain drain effect'. One research study reported certain cases of data fabrication and misreporting during fieldwork in some African countries, possibly resulting from a high workload. The study also shows that by applying Benford's Law – a statistical methodology to identify abnormal patterns in large databases – such cases can be detected and traced. If employees are able to apply this methodology correctly this would improve data quality at a low cost (Finn and Ranchhod, 2017[27]).

There is great interest in Africa in training and building the skills of existing staff, as NSOs prefer upskilling strategies to hiring new staff. A closer look at methods adopted for human resource training reveals a preference for face-to-face training (Figure 4). NSOs in Africa also report engaging in workshops and technical assistance missions more often than other regions (PARIS21, 2018[23]). This might be driven by unsustainable incentives associated with development co-operation, such as paying per diems for training attendance. However, almost 30% of NSOs rely on formal education programmes, which are more sustainable training arrangements. E-learning programmes are used the least, despite being the most cost-efficient option. This might be due to the lack of or poor Internet and ICT infrastructure in certain countries.

Figure 4: African NSOs prefer training existing staff to hiring new staff



Note: Total number of observations =96; total number of African countries = 21
Source: PARIS21 (2018[23])

There is also a clear need to upgrade skills to reflect the new data ecosystem and to recognise their importance for harnessing the digital revolution. The results of an assessment in 2020 of NSO readiness for the use of big data in official statistics conducted by the UN Global Working Group Task Team on Training, Competencies and Capacity Development shows that Africa lags far behind North America, Europe, Asia and Latin America in accessing training in big data. While Cabo Verde, Morocco, Senegal, South Africa and Tunisia stand out in terms of established skills in data visualisation, mathematical and statistical modelling and coding, Sudan and Botswana have not planned to invest in building any of those skills in the coming years. Burundi and Sierra Leone have not considered yet training in IT architecture and coding (UNSD Global Working Group Big Data, 2020[28]). These results illustrate substantial issues in developing high-skilled staff in the statistical system.

Across Africa, there is still much scope to improve skillsets, develop long-term and sustainable career paths inside the NSSs and optimise training.

How to move forward?

In light of the changing data ecosystem, training, competency frameworks and human resource management in NSSs are more central to statistical capacity development than ever. Upskilling needs to become an essential part of statistical planning aligned with the data ecosystem and the skills effectively needed in the organisation.

Be more strategic about training. Technical skills are not the only skills needed in the NSS and ad-hoc workshops to upskill staff are no longer a sustainable solution. There is a need to position training more holistically and in partnership with others. Before engaging in any type of training, NSOs and other data stakeholders should conduct training needs assessments to identify people in the organisation who need training urgently and those who are able to pass on their knowledge. By identifying these multipliers of knowledge, the NSO can optimise the impact of training and create a context conducive to learning and personal development.

Training needs assessments prove particularly effective when conducted alongside a more holistic capacity assessment targeted at detecting major capacity gaps at the organisational and system level. The evaluation should take into account the legal framework, existing budget, human resources processes and management, institutional knowledge and collaborations with other data stakeholders.

Work with a range of partners. The format of training can vary according to the desired skillset and identified needs. E-learning can be an attractive short-term and cost-effective option for ad-hoc training, while partnerships with research and academia could complement on-the-job training and study visits. Peer-learning is an attractive way of amplifying the net impact of a single training intervention and exchange with partner organisations that face similar challenges and often offer innovative solutions. Moreover, agreements with universities and higher education institutions can enable NSSs to establish sustainable access to a more highly skilled workforce (Box 2). Recently, the private sector has begun offering attractive training programmes that could be harnessed by the NSO to develop new data skills such as programming, data visualisation or machine learning (see the Spotlight section below).

BOX 2: SUCCESSFUL PARTNERSHIPS BETWEEN NSOS AND HIGHER EDUCATION INSTITUTIONS

SENEGAL - École Nationale de la Statistique et de l'Analyse Economique (ENSAE)

The National Statistical Office (l'Agence Nationale de la Statistique et de la Démographie) in Senegal has established its own higher education institution *(École Nationale de la Statistique et de l'Analyse Economique - ENSAE)* to educate and train both current and future employees (junior and senior manager level). The school offers a variety of bachelor and masters degrees and short vocational courses that train professionals for certain job profiles (statistical engineer, statistical technical staff, etc.) with the option of obtaining a doctoral degree at a later stage.

The institution has access to a diverse network of academics, private sector representatives and practitioners working at the NSO. International experts from renowned European and African institutions are invited regularly to teach courses. As well as developing the capacities of staff working in the NSS, ENSAE intends to disseminate a statistical culture across Senegal, and aims to contribute to scientific research on statistical methods adapted to African countries.

Source: École Nationale de Statistique et de l'Analyse Economique DAKAR (2020[29])

CÔTE D'IVOIRE - École nationale supérieure de statistique et d'économie appliquée (ENSAE)

Founded in 1961, the higher education institution *École nationale supérieure de statistique et d'économie appliquée (ENSAE)* follows Senegal in offering bachelor, masters and doctorate degrees as well as shorter vocational training courses in statistics.

Unlike Senegal, ENSAE is under the direct authority of the Minister of Finance, Economic Affairs and Planning of Côte d'Ivoire. ENSAE Abidjan also collaborates with a variety of international partners such as the World Bank, the United Nations Economic Commission for Africa (UNECA) and the African Development Bank.

Source: École Nationale Supérieure de Statistique et d'Economie Appliquée (2020[30])

TANZANIA – East African Training Centre (EASTC)

The EASTC is a regional training institution founded in 1961 and based in Dar es Salaam in the United Republic of Tanzania. It currently serves 19 countries in Eastern and Southern Africa. EASTC offers degrees in official statistics and agricultural statistics at bachelor, masters and PHD level; it also offers certificates for certain skills (shorter vocational training).

EASTC strives to support the provision of quality data for effective planning and decision making by training staff from NSOs; ministries, departments and agencies; universities; private sector organisations; practitioners; and data production experts and users.

Moreover, EASTC is specifically mandated to provide training in collecting and managing different types of survey data in the areas of agriculture, labour, gender, business, crime, health, education, industry, trade, consumption, poverty, energy, water, transport, environment and households. The institution maintains a close relationship with the World Bank.

Source: East African Statistical Training Centre (2020[31])

SPOTLIGHT: successful partnerships to advance big data skills across Africa

Across African countries, academic institutes and private sector companies continue to advance knowledge in the domain of big data and data science. Many of these emerging activities could also contribute to bolstering the statistical capacity of NSSs. Statistical offices should thus engage more in building relationships with academia and the private sector that go beyond collection, analysis and use of big data to focus on providing training to NSS employees.

The data and research community in Africa has undergone a huge transformation in recent years. Scientific institutes not only collect and analyse scientific data – in particular in the domains of economic and demographic statistics and sectoral statistics such as environment and health – but also increasingly engage in designing methodological tools (UNECA, 2016[9]). Moving forward, the scientific data community can also play a key role in big data experimentation, especially satellite data and mobile phone data. This is an opportunity for NSOs to build institutional partnerships with academic institutions that develop employees' skills for big data projects. Academic institutions understand the local social, cultural and political context and can deliver targeted theoretical advice to NSOs.

One example of a leading data science initiative on the continent is the African Centre of Excellence in Data Science (ACE-DS) in Rwanda (African Centre of Excellence in Data Science, 2020[32]). Based at the University of Rwanda, the ACE-DS aims to train postgraduate students from Eastern and Southern African countries with combined expertise in statistics, economics and computer science to use big data. The training offer ranges from short courses in data visualisation and analytics, to a Masters Programme in Data Science and a PhD degree. The initiative is supported by the World Bank and actively encourages collaboration between the private sector, the government and academia.

Further opportunities for postgraduate training include those offered by the African Institute for Mathematical Sciences (AIMS) in Cape Town, South Africa (AIMS, 2020[33]). The AIMS has leveraged the support of the International Development Research Centre (IDRC) to initiate a Big Data for Development Short Course Program (BD4D-SCP) to boost regional capacity in data science, particularly big data analytics. With additional support from the World Bank Group and RelationalAI, a US-based artificial Intelligence company, a series of short courses have been rolled out across AIMS centres of excellence in Africa.

In addition to courses offered by academic institutes, vocational training by private sector companies could provide an interesting model for NSSs to follow. One successful example is the Microsoft 4Afrika skills development programme, which was established in 2013 to bridge the gap between postsecondary education institutions and the labour market (Microsoft, 2013[34]). The programme places students and recent graduates in six-month internships in Microsoft partners and provides digital skills training through applied work experience. Skills taught include coding software, data platform management and cloud-based collaboration. The training includes peer-learning methods and provides a promising entry point into a career with a Microsoft partner organisation. While this programme is designed specifically to develop a skilled workforce for the private sector, parts of the programme could serve as inspiration or the basis for a private-public partnership between an NSO and a private sector company.

2.3. Improve communication to increase understanding and use of official statistics

Aligning statistical outputs with policymakers' and citizens' needs requires statistical offices to innovate their communication and advocacy strategy to enhance data use. This section looks at challenges related to dissemination, and suggests innovative solutions and best practices.

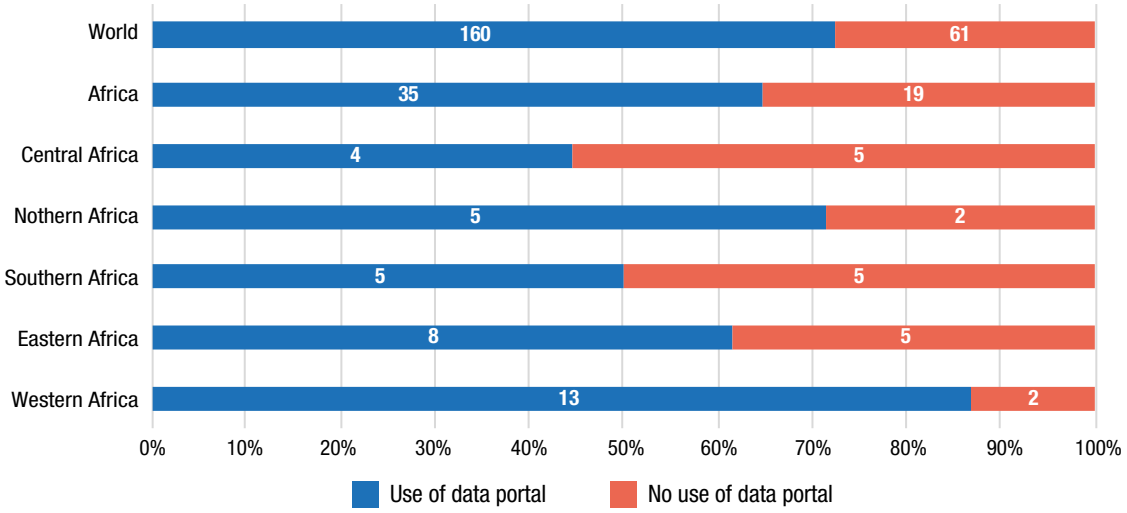
CHALLENGE: low capacity for making data available, accessible and user-friendly

Data that are easily available and accessible are more likely to be used in policymaking. Open data that are made available to others, have great potential to empower citizens, change how government works and improve the delivery of public services. When government data are made accessible and re-usable, they enable individuals, organisations and even governments themselves to innovate and collaborate in new ways. The benefits can be clustered into four dimensions (World Bank, 2019[35]):

- **Transparency:** Open data support public oversight of governments and helps reduce corruption by enabling greater transparency. For instance, open data make it easier to monitor government activities, such as tracking public budget expenditures and impacts. They also encourage greater citizen participation in government affairs and support democratic societies by providing information about voting procedures, locations and ballot issues.
- **Procurement of public services:** Open data give citizens the raw materials they need to engage their governments and contribute to the improvement of public services. For instance, citizens can use open data to contribute to public planning, or provide feedback to government ministries on service quality.
- **Innovation and economic growth:** Open data offer new opportunities for governments to collaborate with citizens and evaluate public services by giving citizens access to data about those services. Businesses and entrepreneurs can use open data to better understand potential markets and build new data-driven products.
- **Efficiency:** Open data make it easier and less costly for government ministries to discover and access their own data or data from other ministries, which reduces acquisition costs, redundancy and overheads. Open data can also empower citizens with the ability to alert governments to gaps in public datasets and to provide more accurate information.

NSOs across Africa are committed to open data policies and dissemination standards. Those policies aim at fostering transparency, encouraging statistical development and help create strong synergies between data dissemination and monitoring. For instance, Africa is second only to Europe in subscribing to the International Monetary Fund's (IMF) data standards initiatives, with 44 African country subscribers to the enhanced General Data Dissemination System and 6 subscribers to the Special Data Dissemination Standard.[12] In terms of using data portals, 35 out of 54 African countries use a data portal,[13] with Western Africa being the leading sub-region (Figure 5).

Figure 5: Most African countries have access to a functioning data portal



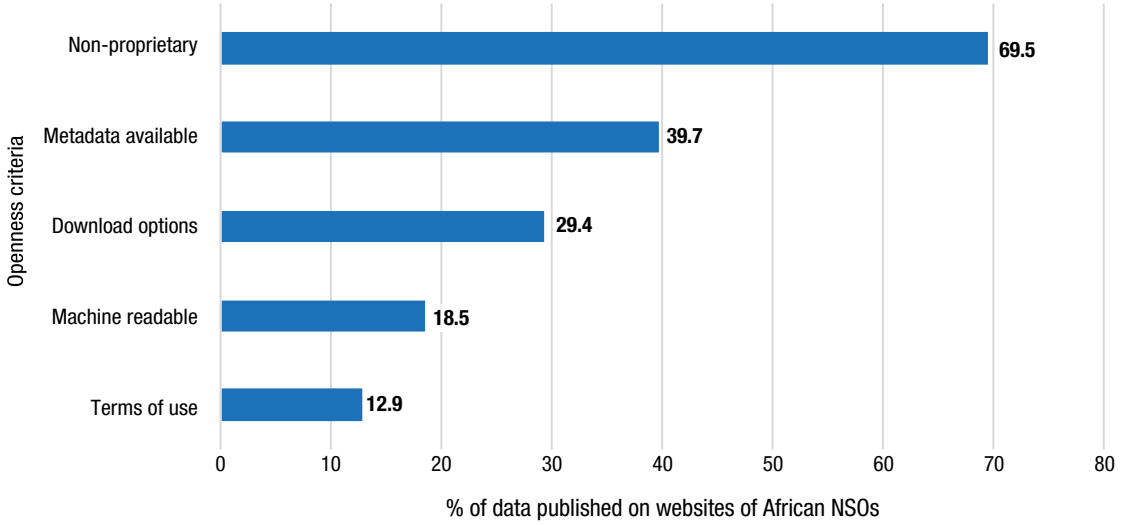
Note: Total number of countries = 54
Source: PARIS21 (2020[14])

However, African countries encounter difficulties in their capacity to implement those policies intended to make data available and accessible in a user-friendly format. As measured by Open Data Watch's Open Data Inventory (ODIN), Africa's 2018 overall score for data openness is 12 points behind the world average. Disaggregated data show that African NSOs have improved in certain openness criteria. Almost 70% of data available on the websites of African NSOs are in a non-proprietary format (such as .xlsx or doc.) and close to 40% have meta-data information. The key remaining challenges are providing machine-readable data (see the Spotlight section below) and free, unrestricted terms of use (Figure 6).

[12] The IMF has taken steps to enhance member country transparency and openness, including setting voluntary standards for dissemination of economic and financial data. The Special Data Dissemination Standard (SDDS) was established in 1996 to guide members that have, or might seek, access to international capital markets in providing their economic and financial data to the public. The General Data Dissemination System (GDDS) was established in 1997 for member countries with less developed statistical systems as a framework for evaluating their needs for data improvement and setting priorities. In 2012, the SDDS Plus was created as an upper tier of the IMF's Data Standards Initiatives to help address data gaps identified during the global financial crisis. In 2015 the enhanced GDDS (e-GDDS) replaced the GDDS (IMF, 2020[70]).

[13] Open data portals are web-based interfaces. Like library catalogues, they contain metadata records of datasets published for re-use, i.e. mostly relating to information in the form of raw, numerical data rather than textual documents. In combination with specific search functionalities, they facilitate finding datasets of interest (EU Commission, 2018[71]).

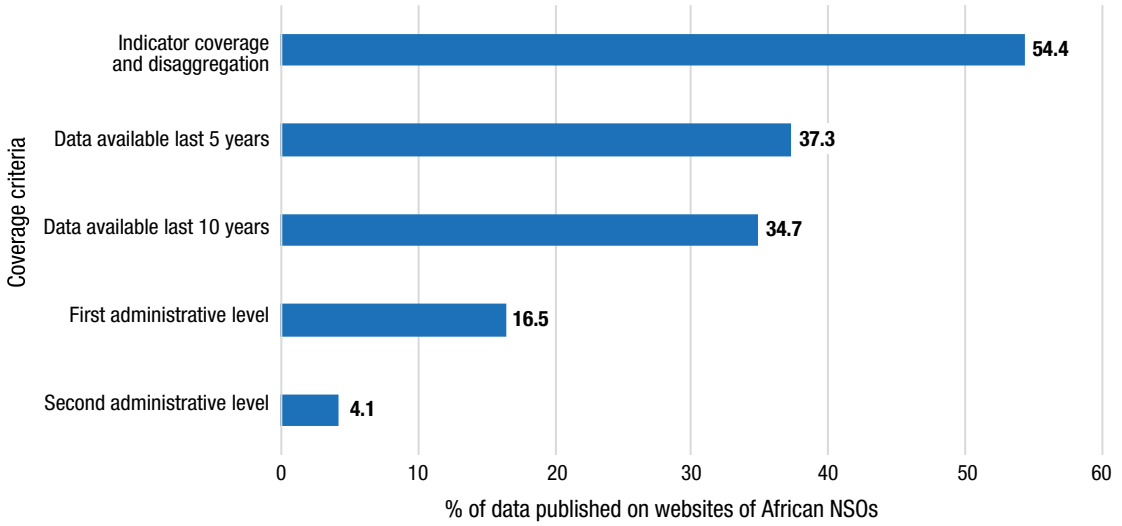
Figure 6: African NSOs struggle to provide fully open data



Note: Total number of countries = 49; Year = 2018; Data missing for Central African Republic, Chad, Comoros, Equatorial Guinea, Eritrea.
Source: Open Data Watch (2018[36])

Closely linked to data openness, data availability plays a central role in ensuring usability of official statistics (Figure 7). Open Data Watch reveals a decline in the coverage of available data on the official websites of African NSOs. In 2018, while 54.4% of data available on the websites of African NSOs fulfil the criteria for indicator coverage and disaggregation, the share of data that has data points for the preceding 5 and 10 years lags behind at 37.3% and 34.7%, respectively.

Figure 7: Data availability and coverage remain low across African countries

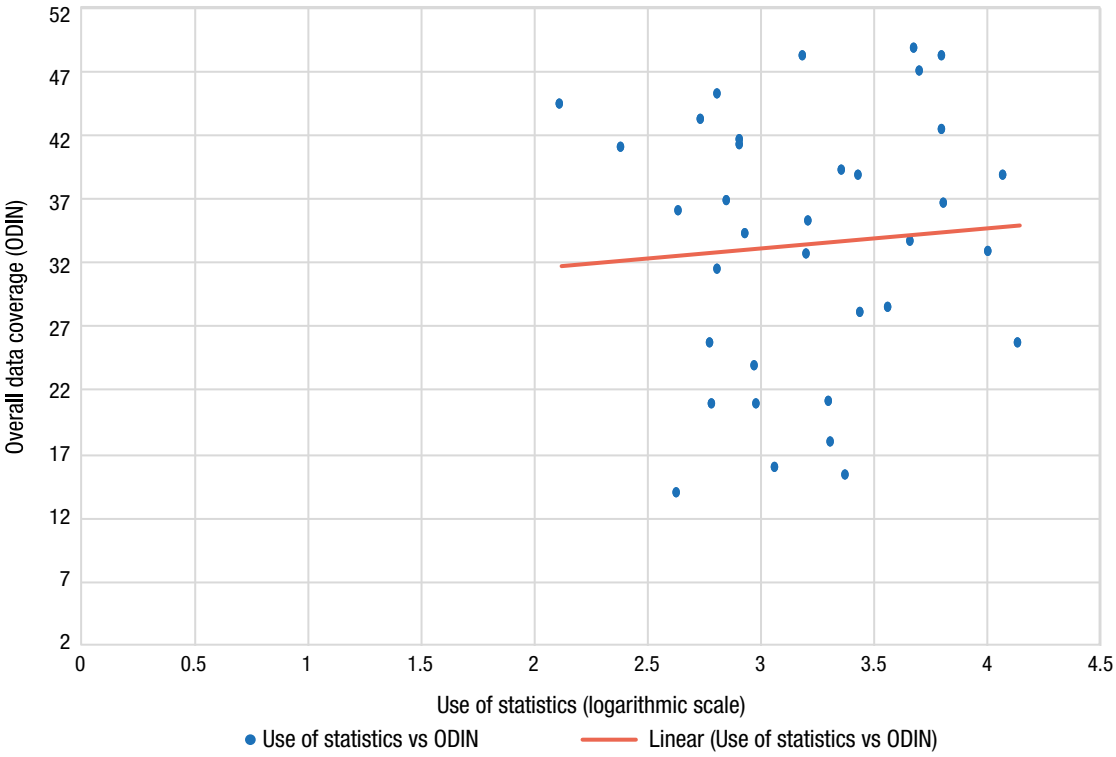


Note: Total number of countries = 49; Year = 2018; Data missing for Central African Republic, Chad, Comoros, Equatorial Guinea, Eritrea.
Source: Open Data Watch (2018[36])

Open and available data alone can spur increased data demand and use. For instance, statistics on data coverage as measured by ODIN, and on the use of statistics measured by PARIS21, show a modest positive relationship between data coverage and use of data across African countries (Figure 8). The graph shows that as the coverage of data increases (shown on the vertical axis, and implying greater availability of data), the use of statistics in official policy documents (namely national development plans) is likely to improve. This observation could thus support the claim that open data is a necessary condition to foster data demand and use. This would speak in favour of a reinforcing relationship between data supply and demand, as described in the virtuous data cycle (Pullinger, 2016[37]). The cycle illustrates the dynamic between demand and supply of data, whereby more demand incites a stronger supply of data.

Data for Africa appear to support this statement, but open data is not always sufficient to spur demand and use. In the future, more research is needed to explore which factors are at play. Such studies should account for potential confounding variables, political environment, and quality of governance; as well as different types of open data to show how strengthening data use can build up statistical capacity on the supply side of statistics.

Figure 8: Greater data coverage appears to stimulate data use in African countries



Note: The scatterplot shows data from the Open Data Watch indicator "Overall data coverage" on the vertical axis and the PARIS21 indicator "Use of statistics" on the horizontal axis for all 54 African countries. The dots represent the countries.
Source: PARIS21 (2019[5]); Open Data Watch (2018[36])

In some cases, open data initiatives might create an additional burden for low-capacity countries. Those countries often lack the financial and human resources to adequately disseminate data via various data portals and communication channels. Consequently, NSOs disseminate data in non-user-friendly formats because they are cheap and low-tech. While there is a genuine desire to make data available and accessible at national and even sub-national level, the trade-off between implementing open data policies and meeting other capacity priorities needs to be weighed up carefully in the context of the country's development and the most urgent needs of its statistical system. Aligning statistical output with citizen needs and targeting statistical dissemination to specific users should guide the NSOs dissemination policy.

How to move forward?

While Africa still has some way to go in strengthening capacity to make data available and accessible in a user-friendly format, the commitment is there. As open data initiatives are not always sufficient to drive more and better data use, using communication to demonstrate the value of statistics, and creating user friendly portals and data visualisation tools to facilitate access and use of data, targeted at specified user groups, might prove more beneficial to foster the use of statistics in policymaking and beyond (Center for Global Development, 2014[38]).

Target communication strategies. NSOs can improve their outreach by developing a communication strategy that caters to the needs of different users. The strategy should benefit from insights from user satisfaction surveys and make use of a variety of media channels, including print, TV news, and social media when designing messages and campaigns. In most cases, a communication officer or a public relations unit should lead the design of the communication strategy and identify important user groups relevant to the cause of improving official statistics and evidence-based policymaking. It is important that the communications unit not only focuses on disseminating statistics and data visualisation, but also has strategic knowledge of the data ecosystem and remains in close contact with the Director General's Office to design and implement advocacy campaigns as well as global, regional and national outreach.

Structural transformation to enable better data communication and outreach. Some statistical offices have transformed their organisational structure to ensure that communication and dissemination of data and statistics are at the core of their mission. This can result in a unit or directorate responsible for visualisation and communication, in charge of important outreach and campaign activities. For instance, establishing regular press briefings or even user-producer workshops where indicators and methodologies are presented and discussed may create in-depth understanding among governments, the media and citizens (Box 3). Moreover, a regular implementation of user satisfaction surveys can contribute to a better understanding of the statistical products disseminated.

BOX 3: JOURNALIST-STATISTICIAN DIALOGUES IN WEST AFRICA

Given their crucial role in informing the public, it is vital 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 detail.

To foster collaboration between journalists as data users and statisticians as data communicators, in 2015 PARIS21 – together with L'Observatoire économique et statistique d'Afrique subsaharienne (AFRISTAT), Gesellschaft fuer Internationale Zusammenarbeit (GIZ) and the Luxembourg statistical office (STATEC) – set up journalist-statistician dialogues in five West African countries (Benin, Côte d'Ivoire, Mali, São Tomé & Principe, and Senegal), as well as Burundi and Cameroon.

The goals of these dialogues were better statistical communication and a stronger relationship between NSOs and this group of data users. The dialogue began by selecting and instructing 12 participants from 6 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.

Source: PARIS21 (2020[1])

SPOTLIGHT: progress by NSOs towards transparent data dissemination and communication

Despite the challenges illustrated in this section, there are examples of African countries successfully navigating them to progress towards an open data environment. The 2018/2019 Open Data Watch Annual Report (Open Data Watch, 2019[39]) showcases three African countries that have improved significantly their data openness and coverage scores in the ODIN assessment:

- Statistics Sierra Leone (SSL) is a great example of how small but effective website updates can improve accessibility without the expensive infrastructure required to build complex data portals. SSL launched its new website in 2017, containing an accessible data portal, overview over censuses and surveys as well as ongoing statistical activities and strategic plans[14]. Between 2017 and 2018, Sierra Leone's overall score increased from 33 to 43 (of a 100 total) and their openness score increased from 33 to 46 (of a 100 total) as measured by Open Data Watch (Open Data Watch, 2019[39]).
- Tunisia's National Institute of Statistics (INS) has adopted an open data license[15] that increased their openness scores by 20 points. Additionally, more information has been published in their pre-existing data portal, resulting in higher scores in three additional categories that received zero scores in previous years (Open Data Watch, 2019[39]).
- Morocco has published a new database created by the High Commission for Planning (HCP). The database features newly published datasets, and an open terms of reference.[16] Following these improvements, Morocco's openness scores increased from 25 to 65 (out of a possible 100) (Open Data Watch, 2019[39]).

Moving beyond data dissemination, some African NSOs have also engaged in structural transformation to enable better data communication and visualisation. For instance, the Ghana Statistical Service (GSS) adapted their administrative structure and organigramme to acknowledge the role of communications and data visualisation as a key NSO mandate. The GSS regularly communicates to external stakeholders and conducts monthly workshops, press conferences and press releases mostly with the media – both print and electronic – for disseminating the Consumer and Producer Price Indices. Furthermore, GSS showcases events, especially when the products are novel, and conducts user engagements in most of its projects. These involve presentations on new challenges and opportunities and seek stakeholders' views on how to do things differently to improve effectiveness and efficiency.

Another best practice has been GSS's quick response to user data requests. This has been possible due to the establishment of the Resource and Data Centre, which houses the front desk where all data requests are sent for re-direction to the appropriate officer for approval and production of the data requested. This has reduced the response time for meeting data requests from three weeks to between one and two weeks. For instance, the 2016 User Satisfaction Survey (USS) revealed that about 65.9 % of users received their data requests within two weeks while 46.7 % got their request within one week (GSS, 2016[40]).

GSS has a free data access policy and offers free micro data to interested researchers on request. It also shares information within and outside of the public sector through its website and other electronic media platforms such as Facebook and YouTube. Finally, it has a call centre with dedicated phone numbers which stakeholders can call for information or to do business with GSS (PARIS21, forthcoming).

Overall, these best practices show how countries can adopt open and transparent data dissemination practices by either establishing new data portals or NSO websites, changing the terms of use or issuing open data licenses. Further, organisation-wide re-structuring and regular outreach to data users remain key to establish feedback loops between the NSS and data users.

[14] *See www.statistics.sl.*
[15] *Available at http://ins.tn/fr/page-de-base/licence (in French).*
[16] *Available at https://www.hcp.ma/Conditions-generales-d-utilisation-Version-1-0_a2194.html (in French).*

03

Boosting data demand: recommendations for policymakers

The ability of government actors to expand the use of data in policymaking, as well as to use data effectively remains a core challenge in many African countries. The following three recommendations, explored in this chapter, target a series of multifaceted challenges relating to the availability and use of statistics' building blocks, such as censuses and administrative data; skills and data literacy; and infrastructure and connectivity. The expanding data ecosystem exacerbates these challenges, calling for legal frameworks governing data use.

- **Recommendation 1:** Value and invest in the basic building blocks of statistics
- **Recommendation 2:** Establish data governance frameworks and regulatory policies
- **Recommendation 3**: Invest in strengthening data literacy and ICT access among policymakers

3.1. Value and invest in the basic building blocks of statistics

Fundamentally, policymakers need to recognise the value of investing in foundational data to boost the resilience of modern statistical systems. This section discusses the challenges related to increasing the demand for good data, and proposes strategies and best practices for moving forward.

CHALLENGE: a lack of census data and weak administrative data systems

Regular population and housing censuses, as well as high-quality civil registration and vital statistics (CRVS) systems provide the cornerstone data for good policymaking. These data serve as foundations for policymakers to take decisions, ensuring citizens have access to public goods and services and allowing them to monitor progress in various core areas, such as schooling, employment, housing and health-related services.

Civil registration is vital for countries to maintain continuous and complete records of vital events such as births and deaths (Mo Ibrahim Foundation, 2019[41]).Population and housing censuses (PHCs) are costly and time-consuming demographic data collection exercises but constitute the bedrock of a statistical system, providing benchmarks for a country's population and housing stock, as well as baseline information for the production of other statistics (UNECE, 2020[42]). PHCs are primary sources of data needed to design many policies and programmes that can be disaggregated by income, sex, age, race, ethnicity, migratory status, disability and geographic location.

In recent decades, African countries have made progress in carrying out censuses. In the 2010 round of the United Nation's PHC, 47 African countries conducted population censuses, up from 38 countries in the 2000 round. Some countries still lag behind, however. In DRC, Eritrea and Somalia, there has been no PHC since 1990 (Mo Ibrahim Foundation, 2019[41]).

Birth registration is a basic step towards a legal identity. However, according to the World Bank's Global ID4D Dataset, around 493.6 million Africans in sub-Saharan Africa are unregistered, just over half of the 987 million global unregistered population. (World Bank, 2018[43]) This is almost three times the total for Europe & Central Asia, Latin America & Caribbean, Middle East & North Africa and East Asia & Pacific combined. There are large gaps between registered births in terms of rural-urban, income level and gender. For instance, of those unregistered Africans, 96% are in the lower middle- and low-income category. Furthermore, between 2010 and 2016 only 27% of births were registered for those in the lowest wealth quintile in

sub-Saharan Africa, compared to 63% in the highest. This is the lowest of all regions in the world, above half the figure of the next lowest (South Asia, 45%). (World Bank, 2018[43])

Policymaking based on incomplete statistics carries severe risks (Mo Ibrahim Foundation, 2019[41]). Without census and CRVS data, critical to defining adequate public policies, policymakers cannot assess citizens' needs accurately. Many policymakers in Africa have yet to recognise the value of these foundational statistics and the implications for their work. In a 2017 study (Mo Ibrahim Foundation, 2018[44]), local governments were asked about the size of the population they serve. The average public official in Ethiopia overestimated the size by a quarter, while others thought they were serving two or three times the number of citizens they actually are. This in turn may have severe implications for the delivery of public services and social protection.

How to move forward?

Prioritise investment in the basic building blocks of statistics to make sure no one is left behind. These include, at a minimum, civil registration and vital statistics, basic administrative data (welfare, tax, health and educational record systems), basic economic statistics (e.g. price data), census data, and data from key surveys (households, establishments and agriculture). In order to produce these data with sufficient quality, frequency and timeliness, production systems within NSSs need to be both adequately resourced and mainstreamed.

Put in place frameworks that ensure policymakers have access to basic administrative data when designing, implementing and evaluating policy. Countries in Africa lag behind in compiling vital statistics based on administrative records. Underlying reasons often point to poor co-ordination in using existing administrative records or difficulties in compiling vital statistics. Recently, policymakers started to use innovative programmes and adaptable technology to increase access to administrative data, so called CVRS (Development Initiatives, 2020[45]). For example, mobile operators are now involved in birth registration systems in the United Republic of Tanzania, Uganda, Ghana, Senegal and other countries.

Work with international and regional organisations that play a fundamental role in developing guidelines and methodologies to develop statistical capacity and to better track progress against the goals and targets in Agenda 2030 and Agenda 2063 (Box 4; and see 'Spotlight' section below).

SPOTLIGHT: NEPAD, AUC and APRM's support to statistical capacity for Agenda 2063

The AUDA-NEPAD (African Union Development Agency – New Partnership for Africa's Development) plays the leading role in coordinating the preparation and submission to the AU of biennial performance continental reports on Agenda 2063. Guided by the approved AU Monitoring and Evaluation Framework and AU Indicator Handbook on Agenda 2063, the African Union Commission (AUC) and AUDA-NEPAD developed an empirical methodology to assess and report on the implementation of Agenda 2063 at national, regional and continental-level (African Union, 2020b[47]).

The methodology was validated at continental-level by Member States, RECs, AU bodies and other development stakeholders at a workshop held in November 2019 in Nairobi, Kenya. The workshop was attended by 40 AU member states and six RECs. Member states and RECs were oriented on the Agenda 2063 data and narrative reporting templates and provided with hands-on training on data entry using the Monitoring and Evaluation Framework and AU Indicator Handbook on Agenda 2063 (African Union, 2020b[47]).

Subsequently, the methodology was deployed to RECs and member states to serve as the main guide in preparing their first national and regional progress reports on Agenda 2063 through a set of tools and templates for data entry, analysis and standardised reporting

based on the goals and targets of the Agenda 2063 First Ten-Year Implementation Plan (African Union, 2020b[47]).

The supporting role by the AUC and AUDA-NEPAD also extended the preparation and consolidation of reports from Member States and RECs. Indeed, AUDA-NEPAD reviewed the national-level reports, with a focus on analysis and consolidation of the data entries. The data templates were sent back to Member States for re-validation and were finally re-submitted to AUC and AUDA-NEPAD to produce the continental-level report. The report is based on submissions received from thirty-one (31) AU Member States and 6 (six) RECs and provides an assessment of the continent's performance against the 2019 targets, calibrated from the expected target values in the Agenda 2063 First Ten Year Implementation Plan (African Union, 2020b[47]).

Moreover, a dashboard showing performance in the goals and strategic priority areas constitutes an additional tool developed by AUDA-NEPAD to facilitate tracking progress, forming the basis for review, dialogue and decision making among stakeholders (African Union, 2020b[47]).

BOX 4: THE AFRICA PROGRAMME ON ACCELERATED IMPROVEMENT OF CIVIL REGISTRATION AND VITAL STATISTICS

The Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics (APAI-CRVS) involves three pan-African institutions (United Nations Department of Economic and Social Affairs, African Union Commission and the African Development Bank) in building a common and consolidated policy and advocacy framework for CRVS initiatives on the continent. APAI-CRVS is implemented based on the guidance and mandate given by African ministers responsible for civil registration through their biennial conferences.

To date the ministerial conference has taken place five times (2010: Addis Ababa, Ethiopia; 2012: Durban, South Africa; 2015: Yamoussoukro, Côte d'Ivoire; 2017: Nouakchott, Mauritania; 2019: Lusaka, Zambia).

The programme is guided by a Regional CRVS Core Group led by Economic Commission Africa in partnership with the African Union Commission, African Development Bank, the Secretariat of the African Symposium on Statistical Development, United Nations International Children's Emergency Fund, World Health Organisation, UN High Commission for Refugees, United Nations Population Fund, INDEPTH Network, Plan International and PARIS21. The Secretariat of the Programme is located in the African Center for Statistics (ACS) at ECA.

The need for a comprehensive work plan for this decade led the Heads of State and Government in June 2016 to declare 2017-2026 the "Decade for repositioning of CRVS in Africa's continental, regional and national development agenda". Its main policy directives are as follows:

- Focus the CRVS improvement process on implementation at country levels, and in particular in the context of Agendas 2030 and 2063.
- Revitalise the APAI-CRVS through a systematic review and improved co-ordination, monitoring and reporting.
- Endorse the CRVS strategic plan (2017-2021) and approve the establishment of the "Africa CRVS Systems Improvement Fund".

Source: APAI-CVRS (2017[46])

3.2. Establish data governance frameworks and regulatory policies

Data governance frameworks and regulatory policies are necessary to steer and navigate the modern data ecosystem. This section discusses the challenges related to outdated legal mandates, and suggests strategies and best practices on how to move forward.

CHALLENGE: legal frameworks are not keeping up with the new data ecosystem

Policymakers face challenges to develop legal and regulatory frameworks adequate for a rapidly developing data ecosystem. The last few years have witnessed an unregulated proliferation of data from new sources and heterogeneous actors whose quality standards vary. A vast volume of "big data" is being generated, from call detail records to smart appliances. Unofficial data from social media, remote-sensing technologies and satellite imagery provide an opportunity to produce data faster, more cheaply and more easily (OECD, 2017[48]). Consequently, official statistics are now only one of many competing sources of data, and may not be the most relatable or accessible data sources.

At the same time, adequate regulations and safeguards to govern the modern data ecosystem are still lacking (Verhulst and Zahuranec, 2020[25]). Such safeguards are especially important in the context of developing countries, where a deficiency of legal frameworks and institutional mechanisms for co-ordination, regulating data-sharing and protecting privacy and confidentiality hinder the sustainable use of new technologies for statistical development.

Over the past decade, the data landscape has changed across African countries. An increasingly large volume of data are produced and used by actors outside the NSS, including scientific communities (e.g. remote sensing and satellite data); non-government and civil society organisations (e.g. project-based and sector-based development data, especially in the areas of water, sanitation and health); private-sector data communities (e.g. financial, retail and minerals data); and citizen-generated and crowd-sourced data (e.g. citizen science and social media data) (UNECA, 2016[9]).

Yet, in the majority of African countries, legal frameworks regulating data sharing, security and co-ordination are still limited. While the Reference Regional Strategic Framework for Statistical Capacity Building in Africa (African Union Commission et al., 2006[49]), the African Charter of Statistics (African Union Commission, 2009[50]) and the Strategy for the Harmonization of Statistics in Africa (African Union Commission, African Development Bank and UNECA, 2010[51]) provide a set of principles related to production, dissemination, storage and management of statistics, they do not provide explicit guidance on the management of non-traditional data sources.

There are very few national statistical laws adequately adapted to sharing, re-using and accessing new data sources. For instance, legislation securing data protection has been under debate in various national governments for several years, but never introduced into law. These include the data protection bills in Kenya (2012) and Uganda (2015) and the right to information acts in Ghana (1999) and Botswana (2010) (UNECA, 2016[9]). With legal frameworks lagging behind the national debate, actors inside the NSS are unable to enter into partnerships with new data stakeholders.

Even rather advanced countries lag behind in establishing adequate safeguards. Laws like the African Union's convention on cybersecurity and personal data have not been implemented, with only eight nations ratifying it since it was adopted in 2014 (African Union, 2020[52]). The low number of ratifications of the convention is believed to be due to shortage of skills and capacity to appreciate its importance, the lack of capability and will to assess the cost of cybercrime to national economies. In addition, investments in ICTs are not seen as a priority by most African governments and repressive governments may be fearful of being held accountable if they ratify the convention (African Academic Network on Internet Policy, 2018[53]).

In most countries that do provide legislation on data protection and privacy, the legal documents remain general. Often, these frameworks resemble undefined policy statements, integrated into the country's constitution or the national ICT policy. Key elements of strong legal data protection frameworks tend to be missing, such as the right of choice and consent, the right to access and correct, or the right to redress. Furthermore, only 28% of African countries have procedures for data anonymisation prior to publication to ensure sensitive, personally identifiable data are removed (UNECA, 2018[54]). Statistical laws often do include the protection of survey respondent's personal information identity. However, often those are not sufficient to cover the wider data ecosystem and non-traditional data sources.

Similarly, strong information laws and frameworks are largely absent from African counties (with some exceptions such as Sierra Leone, Tunisia, South Africa, Kenya, Ethiopia and Malawi). Even in those cases where there is a legal framework in place, it is often not really "effective" due to a lack of dedicated agencies to deal with information enquiries or mechanisms for accountability and redress. This results in unanswered requests for information, limited recourse for cases that are refused, slow response times, and poor quality information when it is provided (UNECA, 2018[54]).

The shortcomings of legal frameworks also hinder the uptake of modern technology and data collection methods by statistical offices. Until now, partnerships have been the preferred approach to accessing data held by third parties. While NSOs report a high interest in forging partnerships with new data sources and providers, most of them do not have adequate institutional mechanisms to do so and reap the benefits of big data sustainably. Findings from the United Nations Statistical Division's 2019 "Global assessment of NSO readiness for the use of big data in official statistics" indicate that only 44% of the 79 responding NSOs that engage in big data projects (planned or implemented) have a legal framework that covers access to big data from other government departments and big data partnerships (UNSD, 2020[28]).[17] In Africa, only five NSOs indicated relying on legal frameworks adequately prepared for the uptake of big data.

How to move forward?

An effective data governance framework should help governments to deal with the cyber-security and privacy concerns linked to the rise of digital connectivity, as well as with the other various ethics challenges stemming from the fast-changing data technologies. In particular, data protection and right to information policies and frameworks are key elements for giving support to a "data openness" culture in a government. Both instruments have the potential to contribute to greater data availability, while protecting individual rights to privacy.

Put in place a robust data governance framework, with legal and regulatory frameworks that work well in practice. This is essential for African governments to harness the data revolution in a way that works for everyone. In terms of data protection, key elements – such as the right of choice and consent, the right to access and correct, and the right to redress – need to be present in the framework. At the same time the legal framework needs to provide a certain degree of flexibility and adaptability to ensure government institutions can grow and expand their data sharing and storage practices to benefit from the new data ecosystem (see Box 5 for examples).

Build countries' capacity in the procedures that ensure that sensitive, personally identifiable data are anonymised prior to publication. Policymakers can use and adapt existing legislation such as the 2016 EU General Data Protection Regulation, which constitutes a model for many.

[17] *The authors are part of the UNSD Global Working Group on Big Data and have access to the raw data of the assessment survey.*

SPOTLIGHT: better legal frameworks as prerequisites for data stewardship

Despite the challenges, there is potential for African countries to bolster legal frameworks and harness the benefits of new data sources. This requires legal frameworks that place the NSS at the centre of the data ecosystem, and empower the NSO as a trusted data steward of official statistics.

In the private sector, data stewardship – an activity traditionally performed when managing large databases – refers to an individual or a group of individuals in a company responsible for data management and oversight (Allen and Cervo, 2015[55]). In the public sector, data stewards are tasked with identifying and maintaining collaborations with data providers that could be shared for the public interest. Most importantly, data stewards should be mandated with protecting potentially sensitive information and ensuring that the re-use of data does not violate privacy (GovLab, 2020[56]). Transferred to the context of the NSS, data stewardship extends the traditional role of the NSO as a co-ordinator and producer of official statistics to engaging the NSO in data governance.

Up to now, the process of reforming legal frameworks has been slow, as described above. However, a few countries are working towards a legal environment suitable for modern data governance (Box 5). Such legal frameworks place the NSO at the heart of national data ecosystems, and anticipate and provide for the participation of non-state actors within the NSS and beyond. Reforms like these have taken place in countries that include Côte d'Ivoire, Kenya, Mozambique, Nigeria, Rwanda, Senegal, South Africa and Uganda (UNECA, 2016[9]).

Building on such frameworks, experts observe considerable experimentation and innovation in using data produced by the private sector for the public good. For instance, the South African Government has worked with Digital Globe to use high-frequency and high-resolution satellite imagery feeds along with mobile phone applications to geo-locate each residential dwelling with an address (UNECA, 2016[9]). This is part of a broad government effort to digitalise census and household survey processes for planning and budgeting. Statistics South Africa, another example, is assessing the use of detailed scanner data from retail chains as inputs to the consumer price index (UNSD Global Working Group Big Data, 2017[57]).

Advanced legal frameworks also enable partnerships with the civil society data community. In Kenya, for instance, the Kenyan National Statistics Bureau, supported by PARIS21, has started to explore the option of re-using citizen-generated data for their SDG review processes. The pilot aims to identify the indicators that could be measured by relying on this type of data (GIZ/PARIS21, 2019[58]). This, in turn, can contribute to making more granular data available for more inclusive policy interventions.

BOX 5. LEARNING FROM AFRICAN DATA PROTECTION CHAMPIONS

Rwanda stands out as a champion in adjusting its legal framework. Since 1997, Rwanda has regularly amended and updated legal frameworks and their data policies to strengthen the quality, use and dissemination of official statistics as well as the human, financial and infrastructural capabilities of its NSS. Most recently, the National Institute of Statistics Rwanda (NISR) has implemented its Data Revolution Policy (2017). The policy aims at building capabilities of different stakeholders and equip them with skills to analyse the growing amount of data that are generated by alternative data sources within all sectors. The policy is embedded in the NSDS process and places the NSO as the main co-ordinator of the statistical system, mainstreaming all strategic objectives and training initiatives to the goal of harnessing the data revolution. Its co-ordination and governance framework provides for interactions between the official data communities and the scientific, private-sector, civil society and citizen-based data communities.

South Africa, too, can be seen as a pioneer in data protection and the use of personal information. The right to privacy is enshrined in Article 14 of the South African Constitution. In addition, South Africa's Protection of Personal Information Act 2013, introduced in 2013, came into effect on 1st July 2020. The right to privacy includes "a right to protection against the unlawful collection, retention, dissemination and use of personal information". In this model of legislation the right to privacy and data protection are thus inextricably linked. Moreover, the act delineates the minimum conditions for processing personal data, the roles of the supervisory authority for data protection and the rights of individuals regarding personal data flows to other countries (South African Government, 2013[59]).

As well as national legislators and policymakers working on data governance frameworks, academic institutions have also started to push for guidelines and principles on ethical data sharing and use. The African Academy of Sciences (AAS) has started work on the continent's first cross-disciplinary guidelines on how to collect, store and share research data and specimens in ways that protect study participants from exploitation while benefiting African citizens (Nordling, 2019[60]).

3.3 Invest in strengthening data literacy and access to ICTs among policymakers

Policymakers require access to ICTs and need to build their data literacy in order to engage in evidence-based decision making. This section discusses challenges linked to the digital divide and data literacy, and proposes a way forward as well as innovative best practices.

CHALLENGE: the digital divide and poor data literacy

Most people in Africa still lack access to ICTs. With a 2020 value of 0.37 (out of 1), Africa obtains the worst regional average in the latest Telecommunications Infrastructure Index (TII) (UNDESA, 2020[62]).

Broadband networks that provide Internet and data services remain especially limited in sub-Saharan Africa. While the share of the sub-Saharan African population with mobile broadband subscriptions amounted to 30% at the end of 2018, still significantly lower than in other regions, less than 0.6% had fixed broadband subscriptions during 2015-2017 (AFD & WB, 2020[63]). Mobile phone use, on the other hand, has expanded rapidly in sub-Saharan African countries and network coverage is a lot higher than for broadband networks. The number of mobile voice subscriptions was 15 times higher in 2015-17 than 2010-12; nearly 86% of the sub-Saharan African population were covered by mobile networks by the end of 2017. Despite the increased availability of mobile networks, mobile cellular services are still expensive given average income levels, and also of poor quality, with higher rates of unsuccessful and dropped calls compared to other regions (AFD & WB, 2020[63]).

Regional differences in ICT access reflect the pervasiveness of the digital divide. In 2017, Africa's continent-wide level of international Internet bandwidth used amounted to only 1% of the world's total: 7,314 billion bits per second. This was equivalent to the level of Chile or Romania. Of the 20 countries with the lowest levels of wireless connection in the world, 18 are located in sub-Saharan Africa (AFD & WB, 2020[63]). The digital divide, while highlighting inequalities at national and international level, also hinders the ability of policymakers to use data effectively.

Many government officials in Africa lack access to IT equipment and Internet infrastructure. The proportion of staff with a computer for which they have regular permission to use for work is highest at the federal level in Nigeria (38%), but strikingly low at local government level in

both Nigeria (6%) and Ethiopia (8%). In Ethiopia, local governments had Internet access on only 21% of working days, equivalent to only one day per working week. Three-quarters of managers surveyed stated that the absence of equipment or funding for equipment were the major bottlenecks in using IT. In Nigeria, local government offices had Internet access on only 3% of days on average, with many governments having no access at all. In 5 of the 18 local government offices surveyed, managers stated that they never had electricity, and half the organisations only had power for half the day on average (Mo Ibrahim Foundation, 2018[44]).

A second element of the digital divide refers to the resources and skills required to use ICTs and data effectively. Low levels of advanced education among public employees in Africa might affect their data literacy. A study assessing the public service quality of 23 African countries in the period 2009-2015 shows that employees with tertiary education constitute on average the lowest share of public employees of all regions (36.2%) (Mo Ibrahim Foundation, 2018, p. 56[44]). Moreover, an estimated 70,000 skilled professionals also emigrate from Africa each year, leading to a lack of availability of trained public officials on the continent (Mo Ibrahim Foundation, 2018[44]).

Overall, access to ICTs and low levels of data literacy among public government officials are limiting the use of data and evidence in policy design and implementation.

How to move forward?

Expand investment in regular access to basic information and communication technologies (ICTs) and infrastructure such as electricity, computers and the Internet. The COVID-19 pandemic has made the lack of infrastructure for teleworking and sustaining data production during a crisis even more urgent. To achieve this, domestic and external resources, public and private, need to be mobilised to significantly increase broadband connectivity, and ensure that public service officials have laptops and mobile Internet hotspots secured by VPN access when working outside of the office or travelling. Overall co-ordination and planning of digital technology investments across sectors and levels of governments are also fundamental to guarantee their efficiency, effectiveness and sustainability (OECD, 2019[64]). Furthermore, it is important to note that the role played by governments as users of broadband in their operations at all levels can also enable digital transformation, paving the way for universal, affordable and good-quality broadband connectivity (ITU & UNESCO, 2019[65]).

Despite the pertinent challenges described above, the availability of digital and information technology infrastructure in African countries has improved in recent years. Over the ten-year period covered by the 2020 IIAG dataset (2010-2019), *Mobile Communications*[18] and *Digital Access*[19] have been the two most improved IIAG indicators (out of 79), increasing by +22.3 and +18.4 points, respectively. However, *Digital Access* still obtains the second lowest IIAG indicator score in 2019 (24.6 out of 100.0). The 'Spotlight' section below gives examples of initiatives that are helping African countries improve their ICT access significantly further (Mo Ibrahim Foundation, 2020[3]).

Help government officials to develop better data skills to fully reap the benefits of evidence-based decision making. Governments need to put in place frameworks to ensure public officials and civil servants receive regular training to analyse and communicate data (Box 6). In particular middle managers need to be trained to guide staff on the strategic use of data in their daily work routines. HR managers could reflect on new HR schemes that incentivise and foster data use. For instance, a government institution could appoint officials according to specific criteria that will ensure statistics are used when it comes to developing policy. In addition, performance schemes could account for increased use of data and statistics in daily work routines, speeches and reports.

[18] *This indicator measures the extent to which mobile phones and mobile internet are accessible and affordable.*
[19] *This indicator measures the share of households with a computer and internet access, as well as internet speed and internet security.*

SPOTLIGHT: improving ICT and data connectivity in Africa

Across the African continent, there is ample potential to empower NSOs as data stewards, enabled by strong data governance frameworks conducive to policymaking that leaves no one behind.

To help African countries improve their ICT access significantly further and achieve universal and affordable access to the Internet by 2020 (UN Sustainable Development Goal Target 9.c), a variety of regional and international organisations are putting in place digital infrastructure initiatives, strategies and programmes, such as the Broadband Commission for Sustainable Development's 2015 Targets, International Telecommunication Union's Connect 2030 Agenda for Sustainable Development, the World Economic Forum's Internet for All Initiative, the African Union's Digital Transformation Strategy for Africa, the World Bank's Digital Economy for Africa (DE4A) Framework, as well as the European Union-African Union Digital Economy Taskforce (EU-AU DETF); (Broadband Commission for Sustainable Development, 2019[66]).

Examples of successful African initiatives to bridge the gender and rural-urban digital divide include Digital Girls ICT in Nigeria, and Huawei's RuralStar Solution. Digital Girls ICT aimed at developing ICT interests and skills among Nigerian secondary school girls through their participation in digital clubs which exposed them to cutting-edge training in ICT skills. Even though women constitute more than half of Nigeria's population, they occupy less than 20% of the ICT jobs in the country. Digital Girls ICT aims at closing this large digital skills gap (Broadband Commission for Sustainable Development, 2019[66]). Huawei's RuralStar Solution has enabled rural networks in eight African countries to provide lightweight coverage for 2G voice, SMS, mobile money services, as well as 3G broadband data services. In Ghana, in partnership with MTN Ghana, rural mobile Internet coverage was expanded in over 300 sites, increasing returns on investment and expanding network coverage in rural and remote areas where it previously was deemed unprofitable. In Kenya, the partnership of Huawei with Safaricom to bring RuralStar to a rural town has paved the way for improved healthcare, increased access to finance, better education, as well as improved security (Broadband Commission for Sustainable Development, 2019[66]).

BOX 6: PARTNERSHIPS FOR DATA IN DECISION MAKING IN SUDAN

Programmes such as the Sudan Evidence-Base Programme (EBP), a partnership between the Ministry of Finance and Economic Planning, the United Kingdom's Foreign Commonwealth & Development Office (FCDO), and the World Bank, aim to improve the use of data for decision making through targeted and sustainable capacity building. Recognising that sound policies are developed when communities, as well as government, can evaluate data and facts, the EBP got together policy influencers and implementers from both government and non-government organisations.

For statisticians and data publishers from various ministries, the EBP developed a detailed statistics handbook. In addition, for public sector professionals who may use these statistics for decision making, the programme provided them with an applied statistics curriculum.

For non-statisticians and data consumers from media, NGOs, CSOs and the private sector, the EBP put together an introductory data literacy course (e-learning), which was bolstered by an intermediate-level 'data storytelling' curriculum.

Source: World Bank (2016): https://blogs.worldbank.org/governance/increasing-data-literacy-improve-policy-making-sudan

04

A roadmap for embracing new approaches to capacity development

Over the past decade, evidence-based policymaking has emerged as an intrinsic component of good governance and effective public service delivery. Yet, in many parts of the world, policymakers operate in a fairly data scarce environment. Across African countries, the evidence points to a data-policy gap, potentially weakening the impact of well-intended policies.

One the one hand, NSOs, traditionally the key producers and co-ordinators of official statistics in a country, are often at the lower end of statistical capacity. African statistical systems remain chronically underfunded. Many NSOs struggle to employ and retain highly skilled employees. Core foundational data, such as civil registration and vital statistics, are still unavailable or difficult to access.

Policymakers, on the other hand, need to strengthen their knowledge on data and statistics as well as their data literacy. Legal frameworks require updated regulations to enable modern data governance and independent, transparent official statistics. Finally, more domestic resources should be mobilised to finance the building blocks of statistics such as censuses and household surveys. Overall, policymakers should build awareness of the role of official statistics for policymaking.

Both data producers and users have the agency to bridge the data-policy gap and put forward concrete recommendations for how to harness the benefits of a modern data ecosystem. New approaches for developing statistical capacity can reconcile some of the challenges faced by NSSs and government actors. A joint approach to strengthening institutional capacity can support governments and statistical stakeholders to align interests, detect common challenges and improve their relationships to strengthen the quality and timeliness of official statistics.

In this light, Capacity Development 4.0 (CD4.0), a term coined by PARIS21 in 2016, has emerged in an evolving political context in which the focus is on long-term sustainability and improvements to the entire system. CD4.0 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 capacity development (PARIS21, 2020[1]). Many African countries have already started to roll out holistic capacity development programmes. These efforts should be further extended and scaled up.

This report identifies the following key leverage points for developing statistical capacity sustainably:

1. **Create a statistical capacity strategy to raise funds:** Statistical offices need to signal to political leaders and external partners that their capacity development efforts are well structured, diverse and objective-driven. A strategy for capacity development, often included in the NSDS, is a good first entry point for discussions with policymakers in efforts to raise domestic funding. Better co-ordination with development co-operation partners around such strategic plans, as well as the monitoring objectives of Agenda 2030 and Agenda 2063, can further attract external funding for data and statistics in a country.
2. **Connect to knowledge banks to hire and retain talent:** Statistical offices need to attract high-skilled young professionals motivated to transform the NSS from the inside. NSOs should start building knowledge partnerships with academic institutions, as well as with the private sector, to develop new data science methodologies for reaping the benefits of the data revolution. Such partnerships can range from jointly developed curricula in universities to training arrangements and shared access to e-learning portals.

3. **Build good narratives for better data use:** Open data is the basis for the transparent public dissemination of data. However, it does not guarantee its use. NSSs need to go one step further by designing data stories that speak to local circumstances and connect the data they collect and disseminate to the people they serve. A communication strategy – including regular press briefings, social media campaigns and interactive workshops with data users – led by a dedicated public relations officer from the NSO would be a first step towards better statistical communication and better use of data.

4. **Recognise the power of foundational data:** The basic building blocks of statistics, in particular census and CRVS data, are key to designing economic and social policies. Strengthening administrative data systems also provides an entry point to complement traditional data sources with new data sources, such as geospatial or mobile phone data, to arrive at more accurate estimates that leave no one behind.

5. **Strengthen statistical laws to harness the data revolution:** Governments need to create an environment conducive to technological change and advanced data applications for the public good. Legal frameworks need to include regulations on how to share, store and manage new data sources while protecting the privacy of citizens. In countries where these frameworks already exist, their implementation and application need to be closely monitored, and any abuses sanctioned.

6. **Encourage data use in policy design and implementation:** Policymakers should start setting incentives for public service officials to use more and better data. Government institutions could offer innovative training to upskill operational staff and middle managers in NSOs. Moreover, performance evaluation schemes could be adapted to recognise the increased use of data in daily work routines, speeches, presentations and reports.

Moving forward, African countries need to improve and scale-up their statistical systems further – establishing NSOs as data stewards and key co-ordinators of modern data systems nationally and beyond. By recognising that good data and statistics are intrinsic to citizens' well-being and fundamental components of sustainable development, policymakers can set African countries on the right path to more inclusive, equal and accelerated progress for all.

The objective of the paper is to highlight the most recent and relevant facts and figures on statistical capacity development in Africa, based on the expertise of our two organisations. This is meant to lay the basis for an African-owned discussion among African stakeholders.

Moreover, the paper includes country examples and case studies, which are meant to serve as examples, and are not intended to provide an exhaustive review. We are well aware that the landscape in Africa is fast-changing.

To unpack the topics discussed in the paper further, additional research is needed.

Any questions about the methodology of the paper can be addressed to contact@paris21.org and research@moibrahimfoundation.org

References

AFD & WB (2020), *The Future of Work in Africa. Harnessing the Potential of Digital Technologies for All*, Africa Development Forum and World Bank, Washington, DC., https://openknowledge.worldbank.org/handle/10986/32124. [63]

African Academic Network on Internet Policy (2018), *Why it is Important for African States to Ratify the Malabo Convention*, Blog, African Academic Network on Internet Policy, https://aanoip.org/why-it-is-important-for-african-states-to-ratify-the-malabo-convention/#:~:text=It%20is%20believed%20some%20of,cost%20of%20cyber%20crime%20to. [53]

African Centre of Excellence in Data Science (2020), *Home*, https://aceds.ur.ac.rw/short-courses. [32]

African Union (2020), *African Union Convention on Cyber Security and Personal Data Protection*, https://au.int/en/treaties/african-union-convention-cyber-security-and-personal-data-protection. [52]

African Union (2020b), *First Continental Report on the Implementation of Agenda 2063*, https://au.int/sites/default/files/documents/38060-doc-agenda_2063_implementation_report_en_web_version.pdf. [47]

African Union Commission (2009), *African Charter of Statistics*, https://au.int/sites/default/files/treaties/36412-treaty-0037_-_african_charter_on_statistics_e.pdf. [50]

African Union Commission, African Development Bank and UNECA (2010), *Strategy for the Harmonization of Statistics in Africa*, https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/AfDB,%20SHaSA_web.pdf. [51]

African Union Commission et al. (2006), *Reference Regional Framework for Statistical Capacity Building in Afric*a, https://www.uneca.org/archive/publications/reference-regional-strategic-framework-statistical-capacity-building-africa. [49]

AIMS (2020), *African Institute for Mathematical Science*s, https://www.nexteinstein.org/. [33]

Allen, M. and D. Cervo (2015), *Multi-Domain Master Data Management*, Elsevier Inc., https://doi.org/10.1016/C2013-0-18938-6. [55]

APAI-CVRS (2017), *Africa Programme for Accelerated Improvement of Civil Registration and Vital Statistics. Costed strategic action plan 2017-2021*, https://au.int/sites/default/files/newsevents/workingdocuments/33070-wd-en-_crmc4_apai-crvs_5-year_costed_strategic_plan_august_10_2017.pdf. [46]

Beegle, K. et al. (2016), *Poverty in a rising Africa*, Washington, D.C. International Bank for Reconstruction and Development/World Bank Group, http://dx.doi.org/10.1596/978-1-4648-0723-7. [16]

Bern Network (2019), *Financing more and better data to achieve the SDGs*, https://paris21.org/sites/default/files/2019-07/BernDraftReport_SoftCopy_FINAL.pdf. [26]

Broadband Commission for Sustainable Development (2019), *Connecting Africa Through Broadband: A strategy for doubling connectivity by 2021 and reaching universal access by 2030*, Broadband Commission for Sustainable Development, ITU and UNESCO, https://www.scribd.com/document/464645020/Digital-Moonshot-for-Africa-Report. [66]

Center for Global Development (2014), *Delivering on the data revolution in Sub-Saharan Africa. Final report of the data for African development working group*., https://www.cgdev.org/publication/delivering-data-revolution-sub-saharan-africa-0. [38]

Development Initiatives (2020), *Digital civil registration and legal identity systems: A joined-up approach to leave no one behind: Chapter 3*, https://devinit.org/resources/digital-civil-registration-and-legal-identity-systems/delivering-digital-crvs-and-legal-identity-systems/ [45]

East African Statistical Training Centre (2020), *Home page*, https://eastc.ac.tz/. [31]

ECA, UNDP, OD and World Wide Web Foundation (2016), *The Africa Data Revolution Report 2016: Highlighting developments in African data ecosystems*, CA, UNDP, OD and World Wide Web Foundation, https://www.data4sdgs.org/sites/default/files/services_files/africa-data-revolution-report-2016.pdf. [6]

Ecole Nationale de Statistique et de l'Analyse Economique DAKAR (2020), *Home page*, http://www.ensae.sn/L-ENSAE-une-ecole-au-coeur-du.html. [29]

Ecole Nationale Supérieure de Statistique et d'Economie Appliquée (2020), *Home page*, https://ensea.ed.ci/ [30]

EU Commission (2018), *Open data portals*, https://ec.europa.eu/digital-single-market/en/open-data-portals. [71]

Finn, A. and V. Ranchhod (2017), *"Genuine Fakes: The Prevalence and Implications of Data Fabrication in a Large South African Survey"*, The World Bank Economic Review, Vol. 31/1, pp. 129–157, https://openknowledge.worldbank.org/handle/10986/30131. [27]

GIZ/PARIS21 (2019), *Final Report on SDGs Dataecosystem Mapping*, https://sdgkenyaforum.org/content/uploads/documents/project-3.pdf. [58]

GovLab (2020), *Wanted: Data Stewards. (Re-)Defining the Roles of and Responsibilities of Data Stewards for an Age of Data Collaboration*, http://www.thegovlab.org/static/files/publications/wanted-data-stewards.pdf. [56]

GSS (2016), *User Satisfaction Survey: Main Report, Ghana Statistical Service*, Accra, https://www2.statsghana.gov.gh/docfiles/publications/2016_USS_report_final.pdf. [40]

Hoogeveen, J. and N. Nguyen (2019), *"Statistics Reform in Africa: Aligning Incentives with Results"*, The Journal of Development Studies, Vol. 55/4, pp. 702-719, http://dx.doi.org/10.1080/00220388.2017.1417583. [11]

IMF (2020), *IMF Standards for Data Dissemination*, https://www.imf.org/en/About/Factsheets/Sheets/2016/07/27/15/45/Standards-for-Data-Dissemination. [70]

Instat-Mali (2020), *Systeme Statistique National du Mali : La Mutation Prend Corps*, http://instat-mali.org/contenu/act/reunion1-conseil-national-statistique_act.pdf (accessed on March 2020). [15]

ITU & UNESCO (2019), *Connecting Africa Through Broadband: A strategy for doubling connectivity by 2021 and reaching universal access by 2030*, Broadband Commission for Sustainable Development, https://www.broadbandcommission.org/Documents/working-groups/DigitalMoonshotforAfrica_Report.pdf. [65]

Jerven, M. and D. Johnston (2015), *"Statistical Tragedy in Africa? Evaluating the Data Base for African Economic Development"*, The Journal of Development Studies, Vol. 15/2, pp. 111-115, http://dx.doi.org/10.1080/00220388.2014.968141. [17]

Microsoft (2013), *Microsoft 4Afrika*, https://www.microsoft.com/africa/4afrika/academy/. [34]

Misra, A., J. Schmidt and L. Harrison (2020), *Combating COVID-19 with data: what role for national statistical systems?*, https://paris21.org/sites/default/files/inline-files COVID_Policybrief_Full.pdf. [24]

Mo Ibrahim Foundation (2020), *2020 Ibrahim Index of African Governance (IIAG)*, https://mo.ibrahim.foundation/sites/default/files/2020-11/2020-index-report.pdf. [3]

Mo Ibrahim Foundation (2019), *Agendas 2063 and 2030: Is Africa on track; African Governance Report*, https://mo.ibrahim.foundation/sites/default/files/2019-10/African_Governance_Report_2019.pdf. [41]

Mo Ibrahim Foundation (2018), *Ibrahim Index of African Governance (IIAG)*, https://mo.ibrahim.foundation/news/2018/whats-new-2018-ibrahim-index-african-governance-time-series-focus-youth-improved-data. [69]

Mo Ibrahim Foundation (2018), *Public Service in Africa - Ibrahim Forum Report*, https://mo.ibrahim.foundation/sites/default/files/2019-03/2018-Forum-Report.pdf. [44]

Nordling, L. (2019), *Africa's science academy leads push for ethical data use*, https://www.nature.com/articles/d41586-019-01894-0. [60]

OECD (2019), *Digital Government Review of Panama: Enhancing the Digital Transformation of the Public Sector*, OECD Publishing, Paris, https://doi.org/10.1787/615a4180-en. [64]

OECD (2017), *Development Co-operation Report 2017: Data for Development*, OECD Publishing, https://doi.org/10.1787/dcr-2017-en. [48]

OECD (2008), *Glossary of Statistical Terms,* OECD Publications, https://doi.org/10.1787/9789264055087-en. [67]

Open Data Watch (2019), *Open Data Inventory 2018/2019 Annual Report. A progress report on open data.*, https://odin.opendatawatch.com/Report/annualReport. [39]

Open Data Watch (2018), https://odin.opendatawatch.com/. [36]

PARIS21 (2020), *Guidelines for Developing Statistical Capacity. A Roadmap to Capacity Development 4.0*, https://paris21.org/sites/default/files/inline-files/UNV003_Guidelines%20for%20Capacity%20Development%20WEB_0.pdf (accessed on February 2020). [1]

PARIS21 (2020), *Statistical Capacity Monitor*, https://statisticalcapacitymonitor.org/. [14]

Calleja, R. and Rogerson, A. (2019), *Financing challenges for developing statistical systems. A review of financing options.*, https://paris21.org/sites/default/files/2019-01/Financing%20challenges%20for%20developing%20statistical%20systems%20%28DP14%29.pdf [18]

PARIS21 (2019), *Partner Report on Support to Statistics 2019*, https://paris21.org/sites/default/files/inline-files/UNV002_Press%202019%2011.pdf. [12]

PARIS21 (2019), *Statistical Capacity Development Outlook*, https://statisticalcapacitymonitor.org/pdf/Statistical%20Capacity%20Development%20Outlook%202019.pdf. [2]

PARIS21 (2019), *Statistical Capacity Monitor: Use of Statistics Indicator 127*, https://statisticalcapacitymonitor.org/indicator/127/ [5]

PARIS21 (2018), *Survey results: New approaches to Capacity Development and Future Priorities*, https://paris21.org/sites/default/files/inline-files/DRAFT%20-%20Report%20on%20joint%20survey%20results%20for%20UNSC.pdf. [23]

PARIS21 (2014), *Assessing the demand and supply of statistics in the developing world: Some critical factors*, https://paris21.org/sites/default/files/PARIS21-DiscussionPaper4-Demand.pdf. [13]

PI (2020), *2020 is a crucial year to fight for data protection in Africa*, Privacy International https://privacyinternational.org/long-read/3390/2020-crucial-year-fight-data-protection-africa. [10]

Pullinger, J. (2016), *"Invited Commentary Special Section: The Role of Official Statistics in Statistical Capacity Building"*, Journal of Official Statistics, Vol. 32/4, pp. 907–912,, https://content.sciendo.com/view/journals/jos/32/4/article-p907.xml?language=en [37]

South African Government (2013), *Protection of Personal Information Act 4*, https://www.gov.za/documents/protection-personal-information-act. [59]

Sustainable Development Goals Center for Africa (SDGC/A) (2019), *Africa 2030 Sustainable Development Goals Three Year Reality Check*, https://sdgcafrica.org/wp-content/uploads/2019/06/AFRICA-2030-SDGs-THREE-YEAR-REALITY-CHECK-REPORT.pdf. [7]

UNDESA (2020), *E-Government Survey 2020*, https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf. [62]

UNECA (2018), *Africa Data Revolution Report. Status and emerging impact of open data in Africa.*, https://webfoundation.org/docs/2019/03/Africa-data-revolution-report.pdf. [54]

UNECA (2017), *2017 Africa Sustainable Development Report: Tracking Progress on Agenda 2063 and the Sustainable Development Goals*, https://www.uneca.org/archive/publications/2017-africa-sustainable-development-report [8]

UNECA (2016), *The Africa Data Revolution Report. Highlighting developments in African data ecosystems.*, https://www.africa.undp.org/content/rba/en/home/library/reports/the_africa_data_revolution_report_2016.html [9]

UNECE (2020), *Population and housing censuses*, https://www.unece.org/stats/census.html. [42]

United Nations (2015), *Transforming our world: the 2030 Agenda for Sustainable Development*, https://www.unfpa.org/sites/default/files/resource-pdf/Resolution_A_RES_70_1_EN.pdf. [72]

United Nations Economic and Social Council (2019), *Statistical Commission. 5th Session. Report of the Committee for the Coordination of Statistics.*, https://undocs.org/en/E/CN.3/2019/30. [20]

United Nations Statistical Division (2013), *Implementation of the Fundamental Principles of Official Statistics*, https://unstats.un.org/unsd/statcom/doc13/BG-FP.pdf. [22]

UNSD (2017), *"Cape Town Global Action Plan"*, https://unstats.un.org/sdgs/hlg/cape-town-global-action-plan/. [19]

UNSD Global Working Group Big Data (2020), *Results of the UN Global assessment on the use of big data in official statistics*, https://unstats.un.org/unsd/statcom/51st-session/documents/UN_BigData_report_v6.0-E.html [28]

UNSD Global Working Group Big Data (2017), Report of the Global Working Group on Big Data for Official Statistics https://unstats.un.org/bigdata/documents/reports/GWG%20report%20-%202017-7-BigData-E.pdf [57]

UNSD/World Bank (2020), *Monitoring the State of Statistical Operations under the COVID-19 Pandemic*, https://unstats.un.org/unsd/covid19-response/covid19-nso-survey-report-2.pdf. [21]

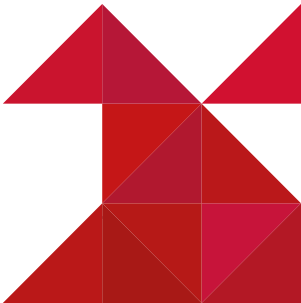
Verhulst, S. and A. Zahuranec (2020), *Using Data for COVID-19 Requires New and Innovative Governance Approaches*, https://medium.com/data-policy/using-data-for-covid-19-requires-new-and-innovative-governance-approaches-6c1350d9a2f2. [25]

World Bank (2020), *Statistical Capacity Score (database)*, https://data.worldbank.org/indicator/IQ.SCI.OVRL (accessed on February 2020). [4]

World Bank (2019), *Open Data Government Toolkit*, http://opendatatoolkit.worldbank.org/en/starting.html. [35]

World Bank (2018), *Global ID4D Dataset*, https://id4d.worldbank.org/global-dataset. [43]

World Bank (2018), *Identification For Development (ID4D) Global Dataset,* https://datacatalog.worldbank.org/dataset/identification-development-global-dataset. [73]



Contact the PARIS21 Secretariat at contact@paris21.org
Visit **www.PARIS21.org**
Follow PARIS21
@contactparis21
/company/paris21/

Contact MIF at media@moibrahimfoundation.org
Visit mo.ibrahim.foundation
Follow MIF
@Mo_IbrahimFdn
/company/moibrahimfoundation