

**e-Government for Good Governance: Establishing Efficient Governance through  
Data-Driven Policymaking in Africa**



Submitted in partial fulfilment of the requirements of the degree  
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by

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## **DEDICATION**

To all those who fought for a better Africa...

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## ACRONYMS

AU	African Union
BDRI	Big Data Readiness Index
D4D	Data for Development
DDA	Data-Driven Approach
DDP	Data-Driven Policymaking
DIA	Data-Informed Approach
DU	Delivery Units
EBPM	Evidence-Based Policy-Making
ICT	Information and Communication Technology
OGD	Open Government Data
OGP	Open Government Partnership
UN	United Nations
UNECA	United Nations Economic Commission for Africa

# CHAPTER ONE

## GENERAL INTRODUCTION

### 1.1 Background and context

The good governance agenda in Africa as supported by the New Partnership for Africa's Development (NEPAD) and the Bretton Woods Institutions—the IMF and World Bank—emphasised on the structural and formal institutional arrangements of States with the assumption that directing attention to institutional and economic issues will provoke positive change.<sup>1</sup> However, over the past three decades, the Bretton Woods-initiated structural adjustment programs have fallen short of delivering the expected outcomes. The conveyed norms of accountability, transparency and formal institutional rule found themselves in constant tension with the dominant neo-patrimonial political practices in much of Africa; whereas development necessitates engaging in forms of management that may not be compatible with neo-patrimonialism.

Governance, on the other hand, needs to be on good terms with local dynamics to make sense. Therefore, the exploration for an effective approach requiring a new conceptualisation of the relationship between the politics and the economics of responsibility is strongly called for.<sup>2</sup> Although a few African countries score well in the Ibrahim Index of African Governance,<sup>3</sup> good governance remains a challenge in the continent.

From a development standpoint, good governance is a key means for the promotion of sustainable development, poverty reduction and peacekeeping. Countries with good governance are efficient in delivering public services, respecting the rule of law and having inclusive institutions that respond to the needs of citizens. They are transparent and promote participation, demonstrate respect for citizens, and enable a free press and freedom of expression, and in other words protect human rights.<sup>4</sup> In the fight against multidimensional poverty, common in Africa, good governance plays a crucial role. In most cases, economic growth can only reduce poverty if states have good governance. Rapid growth without good

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<sup>1</sup> 'APRM toolkit: Good governance in African development' (*Electoral Institute for Sustainable Democracy in Africa*, 2007) <<https://www.eisa.org/aprm/toolkit/resources-literature1.htm>> accessed 25 October 2022.

<sup>2</sup> P Chabal 'The state of governance in Africa' (2009) Occasional Paper No 26.

<sup>3</sup> 'Ibrahim Index of African Governance' (2020) <<https://mo.ibrahim.foundation/sites/default/files/2020-11/2020-index-report.pdf>>.

<sup>4</sup> S Asefa & W-C Huang 'The challenges of good governance and leadership in developing countries: Cases from Africa and China' in Sisay Asefa and Wei-Chiao Huang (eds) *The Political Economy of Good Governance* (2015) 131–132.



governance cannot improve the design and implementation of inclusive development policies and social programs to directly fight poverty.<sup>5</sup>

In parallel with the structural adjustment programs, the pace of scientific and technological advancement accelerated considerably, particularly in the realm of information and communication technologies (ICTs), opening up new possibilities for development. ICTs offered opportunities for accelerated development and a chance for developing countries to catch up with the developed ones for the first time and even to leapfrog.<sup>6</sup> E-government (electronic government) and open data, emerged as the culmination of the interactional evolution of three distinct sets of forces which are ICTs, the concepts of management and governments,<sup>7</sup> are considered catalysts for transparency, accountability and efficiency in public administration. Governments, therefore, have a duty to consider more aggressive and goal-oriented strategies in that regard, or plan sustainable development strategies to introduce such model and open up their data.<sup>8</sup> In sub-Saharan Africa, the open data movement is still in its infancy, but has made significant progress in recent years, seen in particular by the promising use of data by civil society to support citizen engagement with government (i.e. civic technology). When compared to other development projects, which are focused on building physical, agricultural, educational, health, and sanitation infrastructures, open data is considered a secondary priority. The availability of financing sources is another factor that makes open data a lesser priority. In Africa, open data is often perceived to be an external donor-owned priority, rather than embraced and valued to serve national agendas.<sup>9</sup>

In 2017, the World Bank delved into the challenges facing development policies' formulation and implementation in Africa, including why purportedly well-designed policies often fail to be adopted, and when they are, they do not achieve the intended purposes.<sup>10</sup> In its World Development Report on Governance and Law, it highlighted two main reasons for policy failure in Africa. One reason is the undue emphasis placed on 'best practices' by decision-makers, at the expense of factors such as commitment, coordination, and co-operation that are critical to a successful policy. The other reason is the unequal distribution of power in the political sphere, which contributes to policy failure by diverting resources through mechanisms such as

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<sup>5</sup> as above 136.

<sup>6</sup> J-F Rischard 'Forces reshaping the world economy' *Marshaling Technology for Development: Proceedings of a Symposium* (1995) 10.

<sup>7</sup> D Brown 'Electronic government and public administration' (2005) 71 *International Review of Administrative Sciences* 241.

<sup>8</sup> P-Y Chu & H-L Tseng 'Open data in support of e-governance evaluation: A public value framework' *Proceedings of the 11th International Conference on Theory and Practice of Electronic Governance* (2018).

<sup>9</sup> L Mutuku & T-WI Tinto 'Open data around the World: Sub-Saharan Africa' in Tim Davies, Stephen B Walker and Mor Rubinstein (eds) *The State of Open Data: Histories and Horizons* (African Minds and International Development Research Centre, 2019).

<sup>10</sup> LF López-Calva, Y Zhou and World Bank Group (eds) *Governance and the Law* (2017).

clientelism. This unequal distribution of power prevents policies from being successful and contributing to development.<sup>11</sup>

Development policy makers have turned to evidence-based tools, including randomised controlled trials (RCTs), to inform policy and evaluate programs. RCTs have been implemented in Africa, including studies on deworming children and its impact on school results in Kenya,<sup>12</sup> fighting corruption to improve schooling in Uganda,<sup>13</sup> and evaluating the impact of voter awareness initiatives in Sierra Leone.<sup>14</sup> However, RCTs remain controversial due to concerns over the reliability of results when replicated on a large scale and the limitations of generalizability due to differing social norms and other unobserved factors.<sup>15</sup>

Unlike evidence-based policy making which relies on three types of evidence, which are systematic (or scientific) research, program management experience (or practice), and political judgment; data-driven policy making uses ICTs to take advantages of the new sources of data and also encourages the collaboration with the citizens. It is mainly about the inclusion of big and open data sources in policy-making and the co-creation of policy by involving citizens in the process which is particularly important because public data and statistics arouse growing distrust among citizens. Overall, data-driven policy making should not only lead to better policies, but also aims at creating legitimacy.<sup>16</sup>

Data-driven policymaking has the potential to revolutionise the way governments in Africa make decisions. By utilising data and analytics to inform decision-making processes, governments can ensure that their policies based on evidence, are more efficient, and better target the needs of their citizens. This type of governance has the potential to lead to more effective and sustainable outcomes, and can help address some of the challenges that Africa faces, such as poverty, inequality, and limited access to essential services. The effective use of data can also improve transparency and accountability, enabling citizens to hold their governments to account and encouraging greater public participation in the policymaking process.

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<sup>11</sup> L Signé 'Why do development policies often fail in Africa? Perspectives on the World Development Report 2017' (2017) <<https://africaupclose.wilsoncenter.org/why-do-development-policies-often-fail-in-africa-perspectives-on-the-world-development-report-2017/>> accessed 25 October 2022.

<sup>12</sup> S Powers 'Deworming: A best buy for development' *J-PAL Policy Bulletin* (Cambridge, MA, 2012).

<sup>13</sup> R Reinikka & J Svensson 'Fighting corruption to improve schooling: Evidence from a newspaper campaign in Uganda' (2005) 3 *Journal of the European Economic Association* 259.

<sup>14</sup> K Bidwell et al 'The impact of voter knowledge initiatives in Sierra Leone' (2015).

<sup>15</sup> L Veshapidze 'Randomized controlled trials: Opportunities and limitations for evidence-based policymaking in Africa' (2021) <<https://democracyinafrica.org/randomized-controlled-trials-opportunities-and-limitations-for-evidence-based-policymaking-in-africa/>> accessed 25 October 2022.

<sup>16</sup> AF van Veenstra & B Kotterink 'Data-driven policy making: The policy lab approach' in Peter Parycek and others (eds) *Electronic Participation* vol 10429 (2017).

The intent of this study is to assess the introduction of data-driven approaches to public policies in Africa, with a focus on their impact on good governance. Rather than exploring the technical aspect of the topic, this study will concentrate on the practical application of data-driven policymaking in the African context and its potential to enhance good governance. The study will explore the conceptual framework of data-driven policymaking, examine the role of data as a catalyst for change, and evaluate the current state of data-driven initiatives in Africa. Additionally, the study will explore the impact and opportunities of e-government and data-driven approaches in fostering good governance, and provide a comprehensive overview of African initiatives in this field. By doing so, this study aims to gain a deeper understanding of the added value and impact of data-driven policymaking in Africa.

## **1.2 Problem Statement**

Bad governance has been a widespread problem across Africa for decades, impeding the development and hampering progress. This not only harms the structural transformation of societies but also impedes the development of institutions and public services, and therefore of national economies. Public policies are consequently inadequate and do not meet the needs of the population, since in the majority of cases they do not address the issues at stake but deepen the inequalities or even institutionalise them. Several states base their policy decisions on academic research, however, only 1% of worldwide research is produced in Africa; which suggests that given the lack of data, 'many African governments make policy in the dark.'<sup>17</sup>

Improving the standard of living for citizens is a challenge for governments. As governments must develop a vision that is both clear and comprehensive, as well as employ the tools and resources at their disposal as effectively as possible in order to provide the outcomes that the public demands. Great leadership involves taking calculated risks in establishing and presenting a positive future vision. Effective risk management, or good governance, is necessary to realise that vision as efficiently as feasible.

The evaluation of public policies, as well as the measurement of their effectiveness, performance and impact, is one of the ways opted by some governments to make necessary adjustments to policies and put things back on track, but this also requires a number of indicators and monitoring instruments to reach relevant conclusions.

To overcome these challenges, this research aims to explore the use of a new approach to public policy that is data-driven in order to establish more effective governance in Africa.

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<sup>17</sup> 'Lacking data, many African governments make policy in the dark' (*The Economist*, 7 May 2020) <<https://www.economist.com/middle-east-and-africa/2020/05/07/lacking-data-many-african-governments-make-policy-in-the-dark>> accessed 25 October 2022.

### 1.3 Justification of the study

Governance has repeatedly been highlighted as a serious problem in Africa. The management of States is at the centre of governance challenges on the continent as a result of many leaders' failures to effectively manage institutions, economies, diversity, and political inclusion. As a consequence, people lose trust in government institutions and their capacity to carry out fundamental duties, particularly those related to delivering on the public good. The persistence of dysfunctional governance procedures is another all-too-common manifestation of weak governance. Accordingly, the World Bank's analysis and assessment of African government institutions and policies revealed inconsistent performance and a continuing problem with governance.<sup>18</sup> Experts in the field have emphasised that addressing the issue of weak governance in Africa will aid in the structural development of the region,<sup>19</sup> and that in order to establish an effective and inclusive governance system, each nation must consider its own governance issues and engage in a vigorous political dialogue about institutional reform.<sup>20</sup> From this standpoint, this present study intends to contribute to the reflection on the subject, by proposing a novel approach geared towards the use of data in public policies with the aim of improving the state of governance in Africa.

### 1.4 Objective of the study

The aim of the research is to explore how a data-in-policy approach can contribute to improving governance in Africa. In addition, the research also aims to examine the methods that can be adopted by states to observe a change in practices and transform public administrations. Currently, there is a gap in scholarship on the use of data in public policy in across the continent. This research will therefore contribute to the ever-growing literature of studies around the links between data and development in Africa.

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<sup>18</sup> 'New assessment of African government policies and institutions finds uneven performance, governance remains a challenge' (*The World Bank*, 26 June 2013) <<https://www.worldbank.org/en/news/press-release/2013/06/26/new-assessment-of-african-government-policies-and-institutions-finds-uneven-performance-governance-remains-a-challenge>> accessed 25 October 2022.

<sup>19</sup> A Ahouassou 'Solving the problem of poor governance in Africa will contribute to the structural transformation of its economies, say conference partners' (*African Development Bank Group*, 6 December 2017) <<https://www.afdb.org/en/news-and-events/solving-the-problem-of-poor-governance-in-africa-will-contribute-to-the-structural-transformation-of-its-economies-say-conference-partners-17650>> accessed 25 October 2022.

<sup>20</sup> JM Mbaku 'Good and inclusive governance is imperative for Africa's future' (*The Brookings Institution*, 8 January 2020) <<https://www.brookings.edu/research/good-and-inclusive-governance-is-imperative-for-africas-future/>> accessed 25 October 2022.

## **1.5 Research questions**

This research will attempt to answer the main question: to what extent can a data-driven approach to policymaking enhance good governance in Africa? In order to approach the core question, the following sub-questions are also examined:

- a. What is a data-driven approach to policy making? And how can data build public trust and enable the co-creation of public policy?
- b. How can perceived benefits of data-driven policymaking be used to justify its adoption in Africa? Is Africa ready to embrace this model?
- c. How can African states adopt a data-driven approach? And what is the way forward to shift the paradigm and foster transformational change in public administration and governance practices across the continent?

## **1.6 Methodology**

This research was based mainly on desktop research, which entailed a review of both qualitative and quantitative information including research reports, academic publications, news and media reports, governmental documents, online sources and other relevant literature.

The study uses a qualitative method by focusing on the study of the data-driven approach to policy making. The qualitative method was used since the research aims is to explore the strategies that governments might use to help enhance good governance and observe a shift in public administrations practices while also making recommendations based on the learnings that emerge from the analysis.

## **1.7 Definitions of terms**

For the purpose of this research study, definition and clarification of key concepts provided hereafter are adopted:

e-government, also known as electronic government, can have multiple meanings. It can be defined as 'the delivery of government information and services online through the Internet or other digital means.'<sup>21</sup> The World Bank refers to it as 'the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of

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<sup>21</sup> DM West 'State and federal e-Government in the United States' (2001)  
<<http://www.insidepolitics.org/egovt03us.pdf>>.

government.<sup>22</sup> Baum and Di Maio define it as ‘the continuous optimisation of service delivery, constituency participation and governance by transforming internal and external relationships through technology, the Internet and new media.’<sup>23</sup> A definition synthesising these explanations can be ‘the use by government agencies of ICTs for a continuous optimisation of service delivery to transform relationships with citizens.’

e-governance, refers to the performance of governance through the electronic medium in order to allow an effective, quick, and transparent method of transmitting information to the public and other agencies, as well as fulfilling government administrative duties.<sup>24</sup>

Good governance, is defined by the United Nations (UN) Human Rights Office as the exercise of authority through transparent and accountable political and institutional processes, and encouragement of public participation.<sup>25</sup> The UN Human Rights Council recognises five pillars on which good governance rests and which are the *sine qua non* foundations for the promotion of human rights, namely transparency, responsibility, accountability, participation and responsiveness to the needs and aspirations of the population.<sup>26</sup>

Data, refers to a factual information, which can be in digital form, used as a basis for reasoning, discussion, or calculation, and also be transmitted or processed.<sup>27</sup>

Data-driven policymaking, is the use of information and communication technologies to capitalise on the benefits of new sources of data such as big data and open data with the aim of creating better policies.<sup>28</sup>

## 1.8 Literature review

Most existing literature in the area of technology and governance has largely dealt with the relationship between e-government and good governance, hence scholars have established

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<sup>22</sup> The World Bank ‘E-government’ (2015)

<<https://www.worldbank.org/en/topic/digitaldevelopment/brief/e-government>> accessed 25 October 2022.

<sup>23</sup> CH Baum & A Di Maio ‘Gartner’s four phases of e-government model’ (2000)

<<https://www.gartner.com/en/documents/317292>>.

<sup>24</sup> N Verma et al *E-government tool kit for developing countries* (UNESCO, Asia Pacific Regional Bureau for Communication and Information: National Informatics Centre, Dept of Information Technology, Govt of India, 2005).

<sup>25</sup> OHCHR (ed) *Good governance practices for the protection of human rights* (2007) 2.

<sup>26</sup> Commission on Human Rights ‘Resolution 2000/64 on the role of good governance in the promotion of human rights’ (2000) E/CN.4/RES/2000/64.

<sup>27</sup> Merriam-Webster ‘Data’ <<https://www.merriam-webster.com/dictionary/data>> accessed 25 October 2022.

<sup>28</sup> C van Oirsouw ‘Big data for public policy – The state of play’ (2019) <<https://www.big-data-value.eu/wp-content/uploads/2019/05/Big-Data-for-Public-Policy.pdf>>.

the positive impact that e-government has on good governance. It has been argued that e-government serves as a tool for advancing good governance. It is also seen as a tool for concurrent contribution to the improvement of the public service delivery, public administration efficiency, and the openness and transparency of political processes.<sup>29</sup> Okot-Uma<sup>30</sup> argues that the practice of e-governance is one way that good governance is being re-invented. Similarly, Ali and Mujahid<sup>31</sup> stated that e-government serves as a practical instrument for reinventing governance and a means of fostering good governance. Making government responsible, transparent, responsive, effective, and efficient are the goals of both e-governance and good governance. Basu<sup>32</sup> noted that the term 'electronic' in e-governance denotes the promotion and support of good governance, and in light of this, the goals of e-governance and good governance are the same.

In the same way, others highlighted that good governance is significantly and favourably impacted by e-government activities.<sup>33</sup> Electronic services, in particular, have a favourable and considerable impact on good governance. In addition, good governance is achieved through the transition from traditional to electronic governance and consequently citizens are directly impacted by e-government efforts.<sup>34</sup>

On the other hand, much past literature on the (big) data in the African context has not contributed to discussion of its use in decision-making, or even in policy processes. In fact, most literature focused on the apparent challenges and the opportunities that are presented. Scholars such Leonelli et al.<sup>35</sup> have tackled the impact of open data, and documented its significant impact, whether positive or negative, that a shift towards data openness might have in the African context and highlighted the need for open (science) policies and infrastructure to learn from different conditions, resources and research goals around the world. Empirical research was deemed necessary to document how data can be made accessible, interoperable and reusable in these contexts, and also emphasised on the urgency to have collaboration and feedback among African countries.

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<sup>29</sup> C Von Haldenwang 'Electronic government (e-government) and development' (2004) 16 *The European Journal of Development Research* 417.

<sup>30</sup> RW Okot-Uma 'Building cyberlaw capacity for eGovernance: Technology perspectives' *IUP Journal of Cyber Law* (2005).

<sup>31</sup> M Ali & N Mujahid 'Electronic government re-inventing governance: A case study of Pakistan' *Public Policy and Administration Research* (2015).

<sup>32</sup> S Basu 'E-government and developing countries: An overview' (2004) 18 *International Review of Law, Computers & Technology* 109.

<sup>33</sup> H Alaaraj & FW Ibrahim 'The influence of e-government practices on good governance from the perspective of public in Lebanon' (2014) 4 *Journal of Public Administration and Governance* 171.

<sup>34</sup> NS Kalsi et al 'Effective e-governance for good governance in India' *International Review of Business Research Papers* (2009).

<sup>35</sup> S Leonelli et al 'Introduction: Open data and Africa' (2018) 17 *Data Science Journal* 5.

Other scholars such as Baisch<sup>36</sup> have discussed the potential and challenges of data in vital sectors as water management, arguing that Africa suffers from both a shortage of water and a shortage of data, noting the absence or insufficiency of available hydrometeorological data even though they are of great importance for the sustainable management of water resources.

In terms of data governance and fears of 'data colonisation', Nhemachena et al.<sup>37</sup> advocated for greater attention to data sovereignty, noting that 'African people are increasingly datafied, dehumanised and deprived of self-knowledge [and] recolonised by foreign corporations and states engaged in the new scramble for African data.' According to them, big data threatens African people and states' autonomy, privacy, data and national sovereignty. Whereas others such as Lopes<sup>38</sup> highlighted the importance of data to achieve development goals in Africa, advancing that the use of big data techniques has provided the African Union-led Regional Integration Index with opportunities to be a forerunner in innovative methodologies, and highlighted that additional investments are needed to fully leverage the potential of big data to boost intra-African trade and accelerate Africa's regional integration.

Additionally, Joubert et al.<sup>39</sup> have measured the big data readiness, which refers to the level of preparation and willingness to leverage big data, by developing the 'Big Data Readiness Index' (BDRI) which was applied to all African countries to find out how they are performing against the BDRI. The index comprises the five components that are; volume, variety, velocity, veracity and value, with three drivers under each. The application and use of the BDRI provide an evidence base and monitoring tool for policy making, which is a complex process apart involving multiple stakeholders.

In this respect, the addition of this present research consists in exploring the use of data in informing public policies in Africa, and therefore discussing its relationship with good governance. The study attempt to bring a contribution to the scholarship and address the identified existing gap in the literature that is the use of the (big) data in decision-making and in policy processes for governance purposes in the African context.

## **1.9 Scope and limitations**

The study is restricted to the comprehensive evaluation and analysis of the introduction of a new approach to governance and public policies across Africa, that is the data-driven approach. Due to the nascent nature of data science for public policy, research in this area is

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<sup>36</sup> J Baisch 'Data shortage in Africa' (2009) 248 *Desalination* 524.

<sup>37</sup> A Nhemachena *et al* 'Relationality or hospitality in twenty-first century research? Big data, internet of things, and the resilience of coloniality on Africa' (2020) 8 *Modern Africa: Politics, History and Society* 105.

<sup>38</sup> C Lopes 'The role of big data in Africa's regional integration' (Geneva, 2015).

<sup>39</sup> A Joubert *et al* 'Measuring the big data readiness of developing countries – Index development and its application to Africa' [2021] *Information Systems Frontiers*.



limited. This work, therefore, draws on existing and available work to achieve the objectives of this research. Another limitation is due to the fact that this approach is still largely unexplored and unexploited across Africa, which thus prevents from bringing and discussing case studies. The study will not delve into the technical aspect of the topic; rather it will focus on the application of the concept in the African context and its added value and impact on good governance.

### **1.10 Structure**

This mini-dissertation is made up of five chapters. The first chapter provides a general overview and background to the study. The second chapter addresses the research sub-question (a) by examining the conceptual framework and grounds of data-driven policymaking. The third chapter develops on the last part of the sub-question (a) and covers the (b) , by exploring data as an effective catalyst for change and its state across Africa. The fourth chapter focuses on sub-question (c), discussing the impact and opportunities of e-government and data-driven approaches in fostering good governance with a specific overview on African initiatives. Conclusively, the fifth chapter provides a general conclusion and makes recommendations.

## CHAPTER TWO

### CONCEPTUAL FRAMEWORK OF THE DATA-DRIVEN POLICYMAKING

#### 2.1 Introduction

The chapter intends to clarify the concepts and theoretical notions on which the study is based in order to obtain a comprehensive understanding of the approach in question. This second chapter covers the emergence of the concept of Data-Driven Policymaking (DDP) through the debunking of the concepts related to the use of data (2.2), and discusses the theories that have shaped the DDP, as well as the specificities of the latter (2.3). It also analyses how this model fits in the process of developing public policies and its practical application (2.4).

#### 2.2 Nuancing the concepts of (data)-driven, -informed, -based, and -inspired

With the development of information communication technologies over the past two decades, data has grown rapidly which, amidst its complexities and dimensions, has emerged big data. The use of big data was thus considered to support decision-making within business industries and organisations.<sup>40</sup> Data-based decision-making, which is a continuum of the evidence-based approach, has been recognised to be more effective than the one simply based on the individual's expertise and judgment.<sup>41</sup> Lately, several specialists have categorised ways in which data plays a role in supporting decision or policy-making into data-driven (or -based), data-informed<sup>42</sup> and data-inspired decision-making.<sup>43</sup>

##### 2.2.1 Data-driven approach

In the service sectors, these terms are frequently employed interchangeably to describe how the analysis of data supports the organisation's decision-making. However, these expressions have different features, and so it is important to delineate their characteristics and highlight their variations in order to have a conceptual clarity, as the notion of data-driven policy-making will be highly used in the remainder of this chapter and study.

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<sup>40</sup> R Naqvi *et al* 'The nexus between big data and decision-making: A study of big data techniques and technologies' in Aboul Ella Hassanien and others (eds) *Proceedings of the International Conference on Artificial Intelligence and Computer Vision (AICV2021)* vol 1377 (2021).

<sup>41</sup> The Chartered Institute of Personnel and Development 'Evidence-based practice for effective decision-making' (2022) <<https://www.cipd.co.uk/knowledge/strategy/analytics/evidence-based-practice-factsheet>>.

<sup>42</sup> KL Webber & HY Zheng (eds) 'Data analytics and the imperatives for data-informed decision making in higher education' *Big Data on Campus: Data Analytics and Decision Making in Higher Education* (2020).

<sup>43</sup> T Tamm *et al* 'Creative analytics: Towards data-inspired creative decisions' (2022) 32 *Information Systems Journal* 729.

Data-based or data-driven approach to decision-making is defined as a process of collection and analysis of different types of data to support decision-making.<sup>44</sup> It refers to 'the practice of basing decisions on the analysis of data rather than purely on intuition.'<sup>45</sup> This notion, which gained momentum in the 1980s, relies on a set of operations (such decision algorithms, heuristics and decision rules) that reinforce decision processes and reduce human involvement.<sup>46</sup> The decision process is directed by algorithms backed by data elements that can be both historical and actual and these algorithms can be mathematical formulas, engineering or machine learning models. The decisions, usually of routine and operational nature, are maintained and even proposed by these algorithms in a manner that human decision-makers do not need to include new inputs and in most cases, algorithms generate decisions that are automatically approved by computing systems.<sup>47</sup>

Therefore, in such situation, the data is the driver of the decision-making process whose outcome is made through data and information that are verifiable. Although few authors use the notions of data-driven and data-informed interchangeably, the 'driver' in the data-driven infers that data determines the course of the decision-making process and whose decision recommendations are usually accepted by the decision-makers. In practice, several decisions made at the level of businesses are data-driven while it is not duly realised. For example, data-driven approach (DDA) may be used for the replenishment of stocks within supermarkets when a low inventory is detected by the tracking systems, and consequently triggering an order. Another example of data-driven decision-making use is when a beneficiary of a service has not paid his subscription, an e-mail will be automatically generated to remind him and the system will block the ability to access the service, which can be an online newspaper, gym, etc.

## 2.2.2 Data-informed approach

While the so-called data-driven method can offer and guarantee some proactive effects upon the full implementation of the decision, the data-informed approach (DIA) requires the obligation of intervention of human intelligence and flexibility. The data-informed decision-making was introduced more recently and focuses on taking advantage of data to produce insights in order to provide to the decision formulation process with the overall background and evidence base.<sup>48</sup> In such a model, the data represents an essential piece of the decision equation but not the only one that determines the decision<sup>49</sup> Data-informed decision-making

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<sup>44</sup> D J Power 'What increases success for data-based decision support?' (2017)

<<https://dssresources.com/faq/index.php?action=artikel&id=388>> accessed 25 October 2022.

<sup>45</sup> F Provost and T Fawcett 'Data science and its relationship to big data and data-driven decision making' (2013) 1 *Big Data* 51.

<sup>46</sup> Webber & Zheng (n 42) 6.

<sup>47</sup> as above 6–7.

<sup>48</sup> as above 6.

<sup>49</sup> MS Knapp *et al* 'Understanding the promise and dynamics of data-informed leadership' (2007) 106 *Yearbook of the National Society for the Study of Education* 74.

is defined as the process involving the organisation of data resources, performance of data analysis, and development of data insights in order to present the contexts and evidence ground for the formulation of organisational decisions. The data-informed approach acknowledges that the human judgment is a crucial part in complex, dynamic and strategic decision-making. Due to this complexity, it implies substantially more variables than a single set of algorithms can deal with efficiently. Politics, temporal considerations, organisational values, and human sensibilities are among a few instances of why computing programs cannot be fully integrated to make “data-driven” decisions for such dynamic situations.<sup>50</sup>

Being informed by data requires finding a balance between the expertise and understanding of the information which plays as important a role in decisions as the information itself.<sup>51</sup> As previously mentioned, data is therefore just the evidence ground, while the decision context is just as crucial, if not more crucial than the data. Decision makers, even with plenty of data and great analytics, will need to rely on their professional expertise, intuition, political savvy, ethical practices, and strategic considerations to make their decisions.

### **2.2.3 Data-inspired approach**

The data-inspired approach is a bit more nuanced compared to the data-informed one when it comes to informing strategy and driving innovation. While they both require the conjunction of other influences to achieve an outcome,<sup>52</sup> the data-inspired approach is of an exploratory nature and not single-minded on finding a solution to a highly precise problem. The approach is divergent in its processes but convergent in creating results with common patterns. It involves examining data from different sources to identify data patterns or commonalities to provide new ideas that can be adopted. It is a technique used at the initial phase of a process, helping decision makers to think of new hypotheses to solve problems using data.<sup>53</sup>

Overall, decision-makers can use data as the principal source or an inspiration for knowledge in order to make decisions and policies, and can be coupled with human expertise and judgement to arrive at a concluding decision.<sup>54</sup> Whether data-based/driven or data-informed/inspired, the essential element in gaining information is the conduct of the data

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<sup>50</sup> Webber & Zheng (n 42) 7–8.

<sup>51</sup> HO Maycotte ‘Be data-informed, not data-driven, for now’ (2015) <<https://www.forbes.com/sites/homaycotte/2015/01/13/data-informed-not-data-driven-for-now/>> accessed 25 October 2022.

<sup>52</sup> S Walter ‘Data-driven, data-informed, and data-inspired product decisions. What are the differences and when should you use each one?’ (2022) <<https://gopractice.io/data/data-driven-data-informed-data-inspired/>> accessed 25 October 2022.

<sup>53</sup> as above.

<sup>54</sup> IM Tirta *et al* ‘SHINY OFFICE-R: A web-based data mining tool for exploring and visualizing company profiles’: (2022) <<https://www.atlantis-press.com/article/125970044>> accessed 4 October 2022.

analysis task not only as a complement to the modelling process but as part of it.<sup>55</sup> In any case, the knowledge derived from the data must be taken into account in decision-making, the development of policies or institutional plans, so that policies can be more realistic and adapted to the needs.

## **2.3 Data in policymaking**

The concept of data-driven policymaking (DDP) finds its roots in two organisational models of decision-making and policy, namely, the data-driven decision-making and the evidence-based policymaking.

### **2.3.1 Data-driven decision-making**

While data use takes several forms, these must be supported by a theory of action which outlines how data can be utilised in order to support the intended ultimate objective of improving the situation. A general theory of action for data-driven decision-making, developed in the education sector, can be applied to other public sectors; it involves three sequential steps that together could produce improved results.<sup>56</sup>

First, collecting high quality raw data. It can be gathered from different sources, such as administrative and human resources records; qualitative knowledge from observations, surveys, interviews and focus groups; and also public departments and agencies such of statistics, labour, education and health, etc. Second, performing analysis to ensure the relevance and diagnosis of the resulting data. Data to be used for decision-making must be relevant to the decision-maker and properly diagnosed for the decision to be made. Third, using the relevant and diagnostic data to inform operational and instructional decisions. The best data and analysis will not improve the outcomes, if the outputs are not exploited. A data use culture is therefore essential to make sure that relevant and diagnostic data are not relegated and disregarded.

These three stages represent a continuum and logical progression in which data is transformed into information, and finally into knowledge that can be applied to produce decisions. Other theorists break down each of these steps into a duality of actions and skills to have a six-step process, and whose outcome of moving from data to information to knowledge represents a decision.<sup>57</sup>

At the data level, 'collecting' and 'organising' are the two relevant skills. In substance, when confronted with a problem or question for which data collection should be useful, the decision-

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<sup>55</sup> J Fernández-Gracia 'From mechanisms to data-inspired modeling of collective social phenomena' (2013).

<sup>56</sup> B Gill *et al* 'A conceptual framework for data-driven decision making' (2014) 2–3.

<sup>57</sup> E B. Mandinach *et al* 'A theoretical framework for data-driven decision making' (2006) 8–9.

maker must determine the data to be collected, which can be either new data to query or existing data sources. Once the data has been collected, it is necessary to organise the data in a systematic way so that meaning can be given to the data. Extracting meaning from raw data that has not been meaningfully assembled can be difficult or even impossible.

Then, at the information level, the skills are 'analysis' and 'summarising.' From the raw data, an organisational scheme is created which the decision-maker analyzes for information purposes, and can have a wide or restricted scope, depending on the type of examination and the role of the decision-maker, then there must be some sort of summary of all the accumulated information.

Then, at the level of knowledge, 'synthesis' and 'hierarchy' are the skills deemed relevant. The decision-maker must proceed to the synthesis of the available information, then the prioritisation of the knowledge with a view of setting priorities and determining possible feasible solutions.

The culmination of this six-step process is the decision, which is then either implemented or fails to be due to other external reasons such the lack of resources. The implementation leads to some kind of result or impact, after which the decision-maker can decide to go back to one of the six steps, thus producing a feedback loop.

Given the skill-intensive nature of this process, researchers have also conceptualised a five-dimensional framework to build the capabilities needed to become more data-driven and increase the efficiency of decision-making, and that decision-makers should focus on building and strengthening them.<sup>58</sup> This framework is composed of 'data governance capability, data analytics capability, insight exploitation capability, performance management capability, and integration capability.' In other words, the ability to manage, analyse, exploit the knowledge that emerges, manage performance and integrate data means the process of consolidating data from several sources into a single whole in order to give users with a cohesive view. Each capability corresponds to a step in the data-based decision-making process, and whose relationships between them can be of causality, correlation or bi-directionality (i.e. functioning in the two directions).<sup>59</sup> The first three capabilities concern the data-information-knowledge cycle, and the other two the (post-) decision stage.

### **2.3.2 Evidence-based policymaking**

Evidence-based policymaking (EBPM) refers to a set of methods that informs the policy making process favouring a more rational and systematic approach. It is based on the assumption that policy based on systematic evidence is seen to produce better results, and that policy decisions

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<sup>58</sup> L Jia *et al* 'The conceptualization of data-driven decision making capability' (2015).

<sup>59</sup> as above 7.

should be better guided by the available evidence and should incorporate rational analysis.<sup>60</sup> Proponents of this model advocate for the inclusion of robust research evidence in public policy discussions and internal public sector processes for policy evaluation and program improvement in order to enhance the reliability of advice on the efficiency and effectiveness of policy parameters and alternative options.<sup>61</sup>

Evidence-based policymaking has a double objective of using what is already known from program evaluation to make policy decisions, and gaining more knowledge to better inform future decisions. This approach privileges solid research findings, data, analytics, and evaluation of new innovations over ideology, narratives, marketing as well as inertia and status quo bias. EBPM can take different forms, such as the use of research results for the development of new policies or the improvement of the effectiveness of existing programs; encourage data collection and analysis for research and management; the development of policies encouraging the use of evidence, etc.<sup>62</sup>

Three critical enabling factors underpin evidence-based policy designs, the existence of (i) high-quality information bases on key subjects, (ii) skilled individuals in data analysis and policy evaluation, and (iii) political incentives for the use of evidence-based analysis and advice in government decision-making processes.<sup>63</sup> The EBPM model, which is as much about institutional development as it is about information and competencies, has been applied most often to social and human service programs, such as in public health. A wide range of government programs could benefit from this approach which is inspired by the desire to improve socio-economic outcomes through the application of reliable knowledge.

Debates around evidence-based policy focus primarily on the types of evidence that are used and their credibility; how evidence is integrated into the policy-making process; and also the issue of other factors, other than evidence, impacting how policy is made, which is by nature a political process.<sup>64</sup> It must be noted as matter of fact that not all forms of evidence share equal importance, relevance, or weight. Departments and government units have a tendency to make hierarchical judgments about what evidence to use, where, and how. These decisions are often firmly rooted in assumptions about validity and authority. In the United Kingdom, for example,

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<sup>60</sup> S Sutcliffe & J Court 'Evidence-based policymaking: What is it? How does it work? What relevance for developing countries?' (2005) iii <<http://cdn-odi-production.s3-website-eu-west-1.amazonaws.com/media/documents/3683.pdf>>.

<sup>61</sup> B Head 'Evidence-based policy: Principles and requirements' *Strengthening evidence-based policy in the Australian federation: roundtable proceedings: Canberra, 17-18 August 2009* (2010).

<sup>62</sup> 'Principles of evidence-based policymaking' (2016) <[https://www.urban.org/sites/default/files/publication/99739/principles\\_of\\_evidence-based\\_policymaking.pdf](https://www.urban.org/sites/default/files/publication/99739/principles_of_evidence-based_policymaking.pdf)>.

<sup>63</sup> Head (n 61).

<sup>64</sup> Sutcliffe & Court (n 60) 3.

public sector policy is guided by a limited collection of evidence, focused on empirical research, policy evaluation, and expertise, and thus creating a tacit hierarchy.<sup>65</sup>

### **2.3.3 Features of the data-driven policymaking model**

This study uses van Veenstra and Kotterink's framework to introduce data-driven policymaking.<sup>66</sup> This framework focuses on the innovations of the model and its applications. This approach, though quite compendious, represents a pioneer schematisation of the newly introduced concept. In essence, the framework of van Veenstra and Kotterink makes it possible to identify the added value of the data-driven approach to policymaking.

Grounded on the two notions previously discussed, data-driven policy making uses ICTs to leverage the benefits of new data sources and support collaboration with the concerned citizens and other stakeholders. DDP recognises the importance of three types of evidence that are considered relevant in evidence-based policy making; which are research, expertise, and political judgment; but it can be distinguished from this model because it is primarily concerned with the incorporation of big and open data sources in policy-making and the co-creation of policies by and for the public. Not only should data-driven policymaking lead to better policies, but also aims to create legitimacy. Involving citizens in a data-driven policy-making process is particularly important as public data and figures are increasingly viewed with suspicion by citizens. Thus, data-driven policymaking aims to take advantage of ICTs to both use new sources of data such as (real-time) sensor data and new techniques to process these data and achieve the co-creation of policies, involving relevant stakeholders and citizens.<sup>67</sup>

On the one hand, the use of new data sources is very promising, as it should provide organisations with greater operational efficiency and effectiveness and lead to the development of new products and services;<sup>68</sup> and in the case of governments, when data is combined with new technologies and analytical techniques, it has the potential to inform decision-making and policy development in a striking manner. Three steps are involved in the use of (sensor) data in policy-making that are; the capture of data, the integration of data from different sources, and the application of the data.<sup>69</sup>

On the other hand, policy co-creation, which is the exchange of ideas and information among relevant stakeholders leading to policy development, requires governments to collaborate with

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<sup>65</sup> as above.

<sup>66</sup> van Veenstra & Kotterink (n 16).

<sup>67</sup> as above.

<sup>68</sup> European Parliament 'Big data: definition, benefits, challenges (infographics)' (29 March 2021) <<https://www.europarl.europa.eu/news/en/headlines/society/20210211STO97614/big-data-definition-benefits-challenges-infographics>> accessed 25 October 2022.

<sup>69</sup> C Harrison *et al* 'Foundations for smarter cities' (2010) 54 *IBM Journal of Research and Development* 1, 3.



citizens and businesses and engage in inter-organisational coordination. ICTs not only offer the possibility of collaborating with other public or private organisations, but also with citizens. The engagement of citizens in the policy-making process is particularly important, and can take different forms, depending on the level, ranging from simply informing and signalling public administrations, to participation in decision-making and in the implementation of policies.

These two innovations seem to be difficult. In practice, most Global North governments are using new technologies and datasets for policymaking, but they are using them to enrich traditional statistical data rather than achieve co-creation.<sup>70</sup>

## **2.4 Applicability of the data-driven approach with the policy making process**

Innovations in the data-driven policymaking model were mapped into the cycle of the policy-making process. Inspired by Janssen and Helbig's works<sup>71</sup>, the cycle comprises three stages which are 'predictive and problem definition, design and experimentation, evaluation and implementation':<sup>72</sup>

In the first phase, sensor data (in real time) is used, including physical sensor data such as road traffic data and virtual data such as social media data. Additionally, innovative approaches such as crowdsourcing and nowcasting are also used to forecast and identify problems. This leads to the availability of (real-time) information that enables more accurate forecasts than those that are simply based on expertise. Among the main challenges are the availability, quality, reliability and security of the data as well as the representativeness of the data which should include the views of different groups of citizens without excluding the other groups concerned.

The second phase should ensure collaboration between government, private organisations and citizens in the decision-making process and the choice of policy options. This requires the use of more advanced analytical approaches such as sentiment analysis, location mapping, social media analysis, visualisation techniques, computer simulation and games to enable the involvement of other stakeholders in decision-making. A major challenge for integrating different data sources, performing more advanced analytics, and ensuring citizen engagement is setting up an infrastructure that enables data interoperability and integration.

The third phase enables the joint implementation of policies and the co-creation of services by government, businesses and citizens. A benefit of using new datasets and technologies is the use of an agile approach that allows for short decision-making and implementation cycles. The

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<sup>70</sup> M Poela *et al* 'Data for policy: A study of big data and other innovative data-driven approaches for evidence-informed policy making' (2015).

<sup>71</sup> M Janssen & N Helbig 'Innovating and changing the policy-cycle: Policy-makers be prepared!' (2018) 35 *Government Information Quarterly* S99.

<sup>72</sup> van Veenstra & Kotterink (n 16) 105–107.

involvement of relevant stakeholders in the implementation and ongoing monitoring of the policy creates public value. More insight and collaboration can lead to greater transparency and accountability, but also greater oversight. Accuracy of data and data models and ensuring privacy and security are major challenges. Furthermore, policy co-creation requires specific citizen skills and motivation as well as specific government agency skills and culture.

## **2.5 Conclusion**

This conceptual framework has set the theoretical ground of the study and examined the interconnected variables to explain the relationships between the key notions, in order to answer the question of defining the data-driven policymaking model. In the service sector, terms such as data-driven and data-informed are commonly used interchangeably to describe how data analysis supports decision-making within an organisation. However, it is important to understand the differences between these two approaches. Data-driven approach refers to making decisions based on data analysis rather than intuition, and relies on algorithms and decision rules to minimise human involvement. In this approach, data drives the decision-making process and the decisions made by algorithms are usually accepted without the need for further input. On the other hand, the data-informed approach focuses on using data to gain insights and provide a context for decision-making. In this approach, data plays an important role but is not the only factor determining the decision. Human judgement and expertise are also crucial. Finally, the data-inspired approach uses data patterns to provide new ideas and is used as an exploratory tool in the early stages of a problem-solving process. In any case, data analysis must be considered as a key part of decision-making and policy development in order to create realistic and adapted policies. In summary, the use of data in decision-making provides viable solutions for improving the efficiency of and within institutions. The model of data-driven policy making, which is its iteration, is suitable for endorsement and usage by governments, in particular thanks to its adaptability with the classical policy-making process but also by the innovations it brings which tend to introduce more participatory governance. However, beyond the conceptual and theoretical aspect, the adoption of this model in the African context requires, first of all, a review of the state of the data across the continent, as well as the capacity of the states and their aptitude to take advantage of it.

## CHAPTER THREE

### DATA AS A CATALYST FOR CHANGE AND LIMITATIONS IN AFRICA

#### 3.1 Introduction

This chapter discusses the key values that make data as a catalyst for transformational change, while having an overview of its state in Africa. It particularly examines how the use of data in public sector and service settings contributes to building public trust and involvement in the creation of public policies. It also exposes the situation of data in Africa, by presenting the political and legal framework that governs it regionally and locally, while indicating the existing limits in those instruments. The chapter concludes by demonstrating the level of readiness of African states to take advantage of big data, and ultimately its use in public value production.

#### 3.2 Key values of data

This section provides an overview of the key values of data in the public sector, by focusing on its capacity in building public trust and co-creating policies. It particularly advances that the utilisation of data through the digitalisation of administrative processes can improve public services and increase trust in the government, while the use of open government data has the potential to facilitate and drive co-creation resulting in higher levels of transparency and involvement of citizens in policy-making.

##### 3.2.1 Building public trust

The three major aims of most government institutions are to provide efficient public services, reduce expenses by operating more effectively, and gain and keep the public trust.<sup>73</sup> Effective communication with the public is crucial to avoid misconception and misperception since it is difficult for governments to function efficiently without mutual trust. During public emergencies, such as a pandemic, trust is crucial. By utilising data to enhance these services, public experiences may improve, which may lead to an increase in their trust in the government.<sup>74</sup> The United Kingdom's Chief Executive of the Civil Service argued that:<sup>75</sup>

'With the evidence of data, [government] can spend less time developing policy and services that don't work, and instead focus on continuously improving those that do. By doing so,

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<sup>73</sup> S Hofmans & F Ducheyne 'Building trust in government through data-driven decisions' (18 November 2021) <<https://www.globalgovernmentforum.com/building-trust-in-government-through-data-driven-decisions/>> accessed 25 October 2022.

<sup>74</sup> as above.

<sup>75</sup> S Lauchlan 'Government's big data dilemma - building public trust during a data science skills crisis' (21 February 2017) <<https://diginomica.com/governments-big-data-dilemma-building-public-trust-data-science-skills-crisis>> accessed 25 October 2022.

[government] can actually change the way citizens interact with [it] – by making the relationship more transparent, more responsive, and based on increasing levels of trust.'

Building confidence requires governments to demonstrate that they pay attention to each phase of the government data value cycle. Therefore, in order to develop the enabling environments that maximise the impact of data-driven practices inside public sectors, activities aiming to establish a strong culture of ethical data use are crucial. It must be also noted when there is less trust in the government, policy implementation is slowed down.<sup>76</sup> The ability of government officials to handle and utilise the promise of big data is just as important as public trust in the government's ability to use it.<sup>77</sup>

Simply digitising some administrative processes can lead to significant impacts. The Covid-19 pandemic has demonstrated that the use of data insights can help to effectively communicate with citizens in order to ease their fears, particularly for getting vaccinated, and therefore contributed to putting in place new mechanisms to strengthen public trust. Recent studies have confirmed that delivering effective digital public services is key to building trust, showing that 'citizens who were satisfied with a public service were nine times more likely to trust the government overall than those who were not.'<sup>78</sup>

### **3.2.2 Co-creation of policies**

The advancement of the e-government framework gave rise to the notion that data should not only be utilised to inform and serve the public, but also to encourage social actors to actively participate in the public value creation, particularly in the formulation of public policies and the development of public services.

Open data is thought to make policy-making easier by enabling the development of policies and services that truly serve the public good and address real needs. Open and electronic governments objectives have been linked to a number of significant advantages, given that open data is viewed as a means of enhancing government transparency and citizens' involvement. Open data is also thought to open up economic prospects through the involvement of the public and other private actors in the realisation of practical applications from it.<sup>79</sup>

In essence, the data held by the government and made accessible to the public, commonly referred as open government data (OGD), reduces the barriers to involvement in co-creation and provides greater options for more stakeholders to use and exploit data to create public

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<sup>76</sup> OECD 'The role of data in building trust' *The Path to Becoming a Data-Driven Public Sector* (2019).

<sup>77</sup> Lauchlan (n 75).

<sup>78</sup> M Daub *et al* 'Digital public services: How to achieve fast transformation at scale' (15 July 2020).

<sup>79</sup> M Toots *et al* 'Open Data as enabler of public service co-creation: Exploring the drivers and barriers' *2017 Conference for E-Democracy and Open Government (CeDEM)* (2017) <<http://ieeexplore.ieee.org/document/8046277/>> accessed 17 October 2022.

services. It particularly fosters the flow of creativity as the data can be used in different ways to create any type of service desired.<sup>80</sup>

OGD seems to have the potential to be a catalyst for co-creating new public policies and services, both by facilitating and driving them. In one case study, the use of OGD has enabled the co-creation of a new department service to improve food safety and inspection service policy in the city of Chicago, Illinois based on a forecasting model.<sup>81</sup>

Even if it is feasible to co-create services without using OGD, it does appear that having OGD available reduces the barriers for individuals who would like to engage in such process. Compared to other forms of co-created policies and services, OGD-driven co-creation results in higher levels of public value. It offers indeed valuable insights into public value both when involved parties need and ask for the data and then also while the service is produced and exploited, in contrast to other services that only yield public value after the creation of the service.<sup>82</sup>

Amid the Covid-19, data-driven co-creation initiatives have focused on the collection, integration, analysis, and/or presentation of data to support addressing the pandemic. The projects' outcomes include data platforms and software applications providing insights and digital solutions. Governments, research organisations, media outlets, and the general public were among the ultimate users.<sup>83</sup>

### **3.3 Data governance and policy in Africa: The African Union and country contexts**

This section discusses data regulation at the continental and national level in Africa, to give insight into how African stakeholders are dealing with the data, as it is crucial for use in a public policy context. This also makes it possible to identify the challenges that emerge from these situations, and which could possibly hinder the implementation of the data-driven approach in policies. The section also discusses the strategies adopted by States, and their current capacities in the area of (big) data.

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<sup>80</sup> K McBride *et al* 'How does open government data driven co-creation occur? Six factors and a "perfect storm"; insights from Chicago's food inspection forecasting model' (2019) 36 *Government Information Quarterly* 88.

<sup>81</sup> as above 89–95.

<sup>82</sup> McBride *et al* (n 80).

<sup>83</sup> 'Co-creation during COVID-19: 30 comparative international case studies' vol 135 (2022) OECD Science, Technology and Industry Policy Papers 135 <[https://www.oecd-ilibrary.org/science-and-technology/co-creation-during-covid-19\\_08f79edd-en](https://www.oecd-ilibrary.org/science-and-technology/co-creation-during-covid-19_08f79edd-en)> accessed 17 October 2022.

### 3.3.1 AU Convention on Cyber Security and Personal Data Protection

The African Union adopted in 2014 the Convention on Cyber Security and Personal Data Protection, also known as the Malabo Convention. Several concerns relating to the rising use of information and communication technology in Africa are concurrently addressed by this Convention, which sets a standard legal framework for performing electronic transactions, safeguarding personal information, advancing cyber security, and combating cybercrime. This convention is going also beyond cyber security and data protection, and regulates other areas such e-commerce with a variety of operational implementation requirements. Even though the instrument aims to cover all emerging challenges, such as cryptography and digital signatures, it actually misses the opportunity to tackle data management in the context of e-government and the delivery of public services.

The Convention solely indicates that the processing falls within its scope of application, and describes it as any operation performed on personal data, whether by automated means or not,<sup>84</sup> but however it does not define what 'automated' or 'non-automated' processing represents, which is a problematic omission considering the steady increase of profiling and automated decision-making in Africa.

As of March 2022, only thirteen of the 55 AU Members states had ratified the Convention,<sup>85</sup> while at least 15 ratifications are needed to become effective. The Malabo Convention adoption process has been slowed down by African states' lack of political will, as the majority of them have already established their own national legislations and standards and see no need for another one. As a result, the Convention remains a text with limited application.

### 3.3.2 AU Digital Transformation Strategy for Africa

In February 2020, The African Union adopted a ten-year strategy for digital transformation in Africa aiming at assisting of state members in their efforts to take advantages from the socioeconomic gains of digitisation and cutting-edge technologies. It aims for an 'integrated and inclusive digital society and economy in Africa' by providing states pathways to harness digital options social and economic development.<sup>86</sup>

The Digital Transformation Strategy for Africa intends to accelerate the digital transition through five cross-cutting themes; that are 'digital content and applications, digital ID, emerging technologies, cyber security, privacy and personal data protection, research and

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<sup>84</sup> AU Convention on Cyber Security and Personal Data Protection Article 9.

<sup>85</sup> 'List of countries which have signed, ratified/acceded to the African Union Convention on Cyber Security and Personal Data Protection' (*African Union*, 25 March 2022)  
<[https://au.int/sites/default/files/treaties/29560-sl-  
AFRICAN\\_UNION\\_CONVENTION\\_ON\\_CYBER\\_SECURITY\\_AND\\_PERSONAL\\_DATA\\_PROTECTION.pdf](https://au.int/sites/default/files/treaties/29560-sl-<br/>AFRICAN_UNION_CONVENTION_ON_CYBER_SECURITY_AND_PERSONAL_DATA_PROTECTION.pdf)>  
accessed 25 October 2022.

<sup>86</sup> African Union 'The digital transformation strategy for Africa (2020-2030)' (2020).

development,' on the basis of four foundation pillars ('enabling environment, policy and regulation; digital infrastructure; digital skills and human capacity; digital innovation and entrepreneurship') in six critical sectors ('digital industry; digital trade and financial services; digital government; digital education; digital health; digital agriculture'). Under each fundamental pillar, critical sector and cross-cutting theme, it includes policy recommendations and actions.<sup>87</sup>

In terms of data in policy making, the Strategy advocates for a 'better use of data for better decision-making around policy and regulation' without defining in detail the method to follow and the way to proceed, stating only that it 'implies systematic collection and assessment of market data (both supply and demand) to inform regulation and guide policy priorities,' and that such actions necessitate precise measurement frameworks and technical skills for monitoring the data.<sup>88</sup> In this same perspective, it also calls for the integration of digital entrepreneurship in policies, and recommends to African stakeholders, and mainly Members States, to:<sup>89</sup>

'Embed digital entrepreneurship in continental, regional and national policies and enable structured policy dialogue between public and private partners to inform policymakers about the most pressing actions to be made in creating a favourable environment for digital entrepreneurship, with a focus on building on continental, regional and national partnerships.'

### **3.3.3 AU Data Policy Framework**

In 2021, the African Union (AU) Commission initiated a process for developing a framework on data policy, and collaborated with regional and international organisations to inform the realisation of the document.<sup>90</sup> The AU Executive Council endorsed the Framework in February 2022,<sup>91</sup> which was subsequently released in July of the same year.<sup>92</sup> The AU Data Policy Framework represents a resource designed to support member states to maximise the advantages of a data-driven economy by developing supportive national and regional policy environments. The Framework provides advice on how to get value from data produced by government and non-governmental entities, and it also advocates for policy interventions to maximise cross-border data flows, such the harmonisation of data governance models.

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<sup>87</sup> as above 5–6.

<sup>88</sup> as above 8.

<sup>89</sup> as above 28.

<sup>90</sup> Research ICT Africa 'Consultation workshop: Africa data policy framework, African Union Commission' (5 August 2021) <<https://researchictafrica.net/2021/08/05/consultation-workshop-africa-data-policy-framework-african-union-commission/>> accessed 25 October 2022.

<sup>91</sup> 'Decision on the reports of the Specialized Technical Committees (STCs) and other ministerial meetings' (2022) EX.CL/Dec.1144(XL) <[https://au.int/sites/default/files/decisions/41584-EX\\_CL\\_Dec\\_1143-1167\\_XL\\_E.pdf](https://au.int/sites/default/files/decisions/41584-EX_CL_Dec_1143-1167_XL_E.pdf)>.

<sup>92</sup> African Union 'AU Data Policy Framework' (2022).

The development of the Data Policy Framework stems from a recommendation of the AU's Digital Transformation Strategy, aimed at 'guiding a common, coordinated response to reap the benefits of the fourth industrial revolution',<sup>93</sup> and advised that a continental framework be created for data management and policy to support actions aimed at consolidating cyber security at continental and regional levels.<sup>94</sup>

The newly-adopted Framework envisions the development of 'a shared data space and standards' regulating the data production and usage across the continent,<sup>95</sup> by formulating a number of recommendations for member States as well as for the African Union Commission, the Regional Economic Communities and other regional institutions. It called on states to 'invest in data capabilities and complementary assets to support policy making'<sup>96</sup> and emphasised that 'priority needs to be given to the collection and storage of quality data to realise public value and reduce existing information and associated power asymmetries within the public sector, between the public and private sector, and between both public and private sectors and citizens and consumers.'<sup>97</sup>

The fact that organs of the African Union have endorsed this continental framework demonstrates that there is a political will and commitment of African leaders to invest in data by fostering cross-sector collaboration and building the necessary infrastructure for the hosting, self-management, processing, and usage of data generated by individuals and organisations to guide the formulation of policies and processes of decision-making.

### **3.3.4 Data in national legislations**

African countries have made considerable efforts to pass legislation establishing a legal framework for data governance and protection, given the increased use of personal data in recent years. In this perspective, several states have developed or enacted comprehensive data privacy and protection regulations, relying mainly on the principles of the European Union General Data Protection Regulation,<sup>98</sup> due to the absence of a similar framework at the African level then.

As a matter of fact, between 2012 and 2021 there has been a proliferation of data protection laws and regulations tripling the number of African countries with such legal framework;

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<sup>93</sup> African Union (n 86) 1.

<sup>94</sup> as above 47.

<sup>95</sup> African Union (n 92) 3.

<sup>96</sup> as above 21.

<sup>97</sup> as above 16.

<sup>98</sup> W Schneidman *et al* 'Tech regulation in Africa: Recently enacted data protection laws' (13 December 2021) <<https://www.covafrika.com/2021/12/tech-regulation-in-africa-recently-enacted-data-protection-laws/>> accessed 25 October 2022.



however, the adoption rate remains the lowest in the world compared to other regions.<sup>99</sup> Currently, 33 countries have data protection laws and/or regulations in place, the last being Zimbabwe in December 2021 with the Data Protection Act No. 05/2021.<sup>100</sup>

It is noteworthy that the data governance framework frequently places more emphasis on cultivating protections, such as data protection and privacy and less emphasis on enablers, such as data portability and localisation.<sup>101</sup> African nations increasingly believe that it is necessary to safeguard the personal data of the citizens, to regulate the way public and private entities utilise these data, and to set up data protection bodies to enforce these laws.<sup>102</sup> A data governance framework that takes advantage of potential gains (via enablers) and minimises the risks (via safeguards) is required since the intersections of the threats could have a substantial impact on the transformational effects of digitalisation.<sup>103</sup>

The socioeconomic grounds for data localisation include fostering innovation and inclusive growth nationally through the expansion of the digital economy, the creation of jobs, and the attraction of capital flows, and making evidence-based policy decisions to improve the quality of government services provided to the citizens.<sup>104</sup> Stricter data localisation provisions were introduced in Africa in 2021.<sup>105</sup>

Most states have prohibited, in their respective legislations, cross-border personal data transfers, except when authorised by data protection bodies or other relevant authorities; including: Cabo Verde (2001),<sup>106</sup> Tunisia (2004),<sup>107</sup> Senegal (2008),<sup>108</sup> Morocco (2009),<sup>109</sup> Angola

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<sup>99</sup> A Adeniran 'Developing an effective data governance framework to deliver African digital potentials' (*The Brookings Institution*, 21 March 2022) <<https://www.brookings.edu/blog/africa-in-focus/2022/03/21/developing-an-effective-data-governance-framework-to-deliver-african-digital-potentials/>> accessed 25 October 2022.

<sup>100</sup> A Sylla 'Recent developments in African data protection laws – Outlook for 2022' (1 February 2022) <[https://www.engage.hoganlovells.com/knowledgeservices/news/recent-developments-in-african-data-protection-laws-outlook-for-2022\\_1\\_1](https://www.engage.hoganlovells.com/knowledgeservices/news/recent-developments-in-african-data-protection-laws-outlook-for-2022_1_1)> accessed 25 October 2022.

<sup>101</sup> Adeniran (n 99).

<sup>102</sup> Schneidman *et al* (n 98).

<sup>103</sup> Adeniran (n 99).

<sup>104</sup> S van der Berg 'Data protection in South Africa: The potential impact of data localisation on South Africa's project of sustainable development' *Mandela Institute, University of the Witwatersrand*, (Johannesburg, 2021).

<sup>105</sup> Sylla (n 100).

<sup>106</sup> Lei n° 133/V/2001 de 22 de Janeiro do regime jurídico geral de protecção de dados pessoais das pessoas singulares Article 19.

<sup>107</sup> Loi organique n° 2004-63 du 27 juillet 2004, portant sur la protection des données à caractère personnel Articles 50,52,90.

<sup>108</sup> Loi n° 2008-12 du 25 janvier 2008 portant sur la Protection des données à caractère personne Article 49.

<sup>109</sup> Loi n° 09-08 relative à la protection des personnes physiques à l'égard du traitement des données à caractère personnel Articles 43,44.

(2011),<sup>110</sup> Lesotho (2011),<sup>111</sup> Côte d'Ivoire (2013),<sup>112</sup> South Africa (2013),<sup>113</sup> Chad (2015),<sup>114</sup> Madagascar (2015),<sup>115</sup> Guinea Conakry (2016),<sup>116</sup> São Tomé e Príncipe (2016),<sup>117</sup> Mauritius (2017),<sup>118</sup> Niger (2017),<sup>119</sup> Algeria (2018),<sup>120</sup> Congo Brazzaville (2019),<sup>121</sup> Kenya (2019),<sup>122</sup> Togo (2019),<sup>123</sup> Uganda (2019),<sup>124</sup> Burkina Faso (2021),<sup>125</sup> Rwanda (2021),<sup>126</sup> Zambia (2021),<sup>127</sup> Zimbabwe (2021)<sup>128</sup>. According to a recent study by the Collaboration on International ICT Policy for East and Southern Africa (CIPESA), further African states have other legislations to enact provisions for data localisation, such as laws on financial services, cyber security and cybercrimes, and telecommunications.<sup>129</sup> Others, like Benin, incorporate it into a larger framework, namely the Digital Code,<sup>130</sup> which brings together provisions applicable to all the legal aspects of digital activities.

Legislation to impose restrictions on trans-boundary flow of personal data typically takes the form of an obligation to store data locally and to prohibit unauthorised cross-border data transfers and provided that the country of destination has an adequate level protection of personal data.<sup>131</sup> Some countries have specified instances where data about citizens or residents of a country must be collected, processed, and/or stored within the country. Burkina

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<sup>110</sup> Lei n.º 22/11 de 17 de Junho da Protecção de Dados Pessoais Article 34.

<sup>111</sup> Data Protection Act, Lesotho Article 52.

<sup>112</sup> Loi n° 2013-450 du 19 juin 2013 relative à la protection des données à caractère personnel Article 7.

<sup>113</sup> Protection of Personal Information Act Section 72.

<sup>114</sup> Loi N°07-PR-2015 portant protection des données à caractère personnel Article 29.

<sup>115</sup> Loi n° 2014-038 du 9 janvier 2015 sur la protection des données à caractère personnel Article 20.

<sup>116</sup> Loi L/2016/037/AN du 28 juillet 2016 relative à la Cybersécurité et la Protection des Données à Caractère Personnel Article 28.

<sup>117</sup> Lei n.º 3/2016 de 10 de Maio de Protecção de Dados Pessoais Article 19.

<sup>118</sup> Data Protection Act, Mauritius Section 36.

<sup>119</sup> Loi n° 2017-28 du 3 mai 2017 relative à la protection des données à caractère personnel Article 24.

<sup>120</sup> Loi n° 18-07 du 10 juin 2018 relative à la protection des personnes physiques dans le traitement des données à caractère personnel Article 44.

<sup>121</sup> Loi n°29-2019 du 10 octobre 2019 portant protection des données à caractère personnel Article 23, 29.

<sup>122</sup> Data Protection Act, Kenya Sections 48, 49.

<sup>123</sup> Loi n° 2019-014 du 29 octobre 2019 relative à la protection des données à caractère personnel Article 28.

<sup>124</sup> Data Protection and Privacy Act Section 19.

<sup>125</sup> 'Loi n°001-2021/AN du 30 mars 2021 portant protection des personnes à l'égard du traitement des données à caractère personnel' Article 42.

<sup>126</sup> Law No. 058/2021 of 13 October 2021 Relating to the Protection of Personal Data and Privacy Articles 54,55.

<sup>127</sup> Data Protection Act, Zambia Sections 18,70.

<sup>128</sup> Data Protection Act, Zimbabwe Section 28.

<sup>129</sup> CIPESA 'Mapping and Analysis of Privacy Laws in Africa' (2021) 28.

<sup>130</sup> Loi n° 2017-20 portant code du numérique en République du Bénin Article 391.

<sup>131</sup> CIPESA 'Privacy imperilled: Analysis of surveillance, encryption and data localisation laws in Africa' (2022) 63.

Faso, for example, mandates that, unless the data protection authority makes an exception, health data pertaining to identified or identifiable individuals must be hosted in the country.<sup>132</sup> On the other hand, Morocco has put in place requirements beyond the localisation of data, imposing a requirement on businesses and organisations to host their digital databases and infrastructure on Moroccan soil if they operate in purportedly vital sectors and use data deemed sensitive.<sup>133</sup>

### 3.3.5 Open government data strategies

Open government is greatly facilitated by e-governance, and particularly a data-driven e-government.<sup>134</sup> The latter allows, thanks to the digitisation of public services, an abundance of data that governments can decide to release to the public, and eventually greatly facilitate to inform public policies and create public values. For this purpose, strategies are developed by States along international stakeholders.

Fourteen African states are currently participating in the Open Government Partnership (OGP), which is a multilateral initiative striving to promote the transparency and integrity of the government as well as the use of new technologies to facilitate its opening. These countries are Burkina Faso, Cabo Verde, Côte d'Ivoire, Ghana, Kenya, Liberia, Malawi, Morocco, Nigeria, Senegal, Seychelles, Sierra Leone, South Africa and Tunisia.<sup>135</sup> As part of the conditions of membership, governments have developed action plans committing to open government principles and reforms, such as fostering the growth of an openness in governance, legislative and laws.

These countries are at different stages of implementing their national action plans, and have also gone through the Independent Review Mechanism process.<sup>136</sup> It is worth noting two peculiar cases, that of Tanzania which decided to withdraw from the OGP in 2017, six years after joining, citing reasons of overlap with the African Peer Review Mechanism that prevent effective participation;<sup>137</sup> and that of Malawi which has been under procedural review due to

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<sup>132</sup> 'Loi n°001-2021/AN du 30 mars 2021 portant protection des personnes à l'égard du traitement des données à caractère personnel' (n 125) Article 37.

<sup>133</sup> Loi n° 05.20 relative à la cybersécurité Articles 11,49.

<sup>134</sup> E Agbozo & BK Asamoah 'Data-driven e-government: Exploring the socio-economic ramifications' (2019) 11 *JeDEM - eJournal of eDemocracy and Open Government* 81.

<sup>135</sup> 'National members' (*Open Government Partnership*) <<https://www.opengovpartnership.org/our-members/#national>> accessed 25 October 2022.

<sup>136</sup> While Ghana, Kenya, Liberia, Sierra Leone, South Africa, Tunisia are in their fourth cycle of national action plans, Burkina Faso and Côte d'Ivoire are in their third, Morocco and Nigeria in second, and Cabo Verde, Senegal, and Seychelles are in their first.

<sup>137</sup> Augustine Philip Mahiga 'Letter from United Republic of Tanzania regarding membership withdrawal from the Open Government Partnership' (29 June 2017) <[https://www.opengovpartnership.org/wp-content/uploads/2001/01/Tanzania-Withdrawal-Letter\\_Sept2017.pdf](https://www.opengovpartnership.org/wp-content/uploads/2001/01/Tanzania-Withdrawal-Letter_Sept2017.pdf)> accessed 25 October 2022.

'failing to deliver an action plan for two consecutive action plan cycles' and as a result has been designated as inactive since March 2022.<sup>138</sup>

Of the fourteen African countries, none have OGP commitments in the area of transparent rulemaking.<sup>139</sup> Only Morocco and South Africa, among these states, achieved a higher score on the transparent regulation metric of the World Bank's Global Regulatory Governance Indicators. Both states' governments produce regulatory plans, which include 'a public list of anticipated regulatory changes or proposals intended to be implemented within a specified time frame.' Furthermore, both states have unified websites where the public can access the forward regulatory plans. South Africa serves as a good example of participatory rulemaking for the continent, as the regulatory agencies, legislators and ministries publish documents describing future policy developments and present them on specific websites, such that of the Department of Forestry, Fisheries and the Environment<sup>140</sup> and the Parliamentary Monitoring Group.<sup>141</sup>

Several participating African nations seem committed to enhancing government integrity, boosting fiscal transparency, and improving public service delivery through the use of open data and its development, new technical tools, and public participation strategies that foster accountability and transparency. However, in certain nations, state officials have not proven their dedication to the OGP process and in the formulation and execution of national action plans. Indeed, almost all of the action plans' commitments are restricted to the executive and civil society, thus giving the impression that they are government initiatives rather than state or national states, which makes execution difficult, especially in case of change of administration.

### **3.3.6 Big data readiness**

As noted in the literature review, the 'Big Data Readiness Index' has been recently introduced by researchers to measure the African states' level of preparation and willingness to leverage big data. It provides a broad view on the situation of big data across the continent, and enables to identify the actions to be taken to remedy the shortcomings. For the purposes of this study, the Index also helps in the assessment of the current capacity of African states in terms of big

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<sup>138</sup> OGP Steering Committee 'Resolution of the OGP Steering Committee regarding the participation status of Malawi in OGP' <[https://www.opengovpartnership.org/wp-content/uploads/2022/03/Malawi\\_Approved-Inactivity-Resolution\\_March-24-2022.jpg.pdf](https://www.opengovpartnership.org/wp-content/uploads/2022/03/Malawi_Approved-Inactivity-Resolution_March-24-2022.jpg.pdf)>.

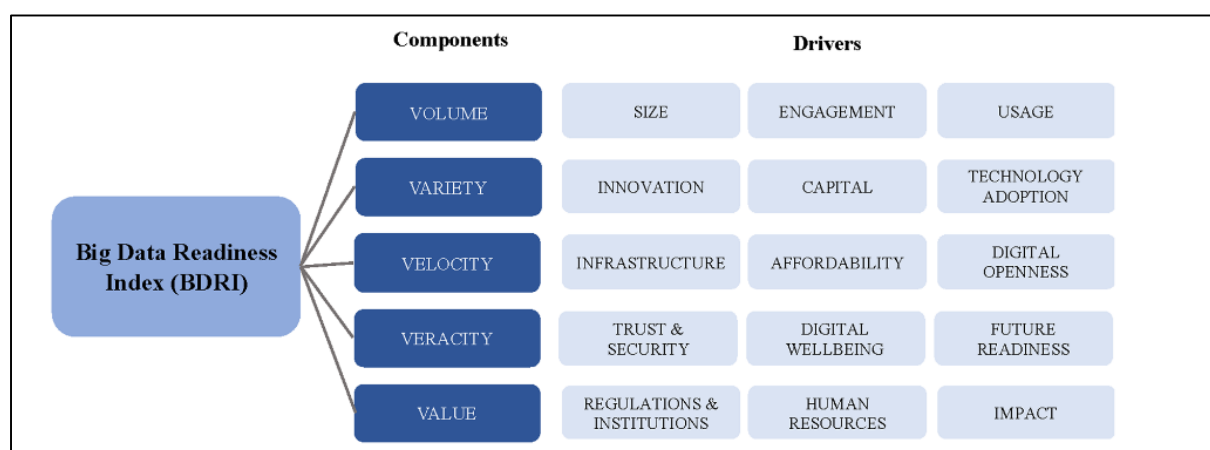
<sup>139</sup> Open Government Partnership 'Regulatory governance in the Open Government Partnership' (2020) 33.

<sup>140</sup> Department of Forestry, Fisheries and the Environment 'White papers' <<https://www.dffe.gov.za/legislation/whitepapers>> accessed 25 October 2022.

<sup>141</sup> 'Parliamentary Monitoring Group' <<https://pmg.org.za/>> accessed 25 October 2022.

data, which is crucial for the adoption of the data-driven approach, given that it is heavily based on data, as the term suggests.

The model relies on the five characteristics of big data, known as the 5 V's<sup>142</sup> – namely, 'volume' referring to the size of data; 'variety' referring to the diversity and range of different data types (including structured, unstructured and raw data); 'velocity' referring to the speed of data generation and its delivery frequency; 'veracity' referring to the quality and accuracy of data; and 'value' referring to the benefits extracted, insights and patterns discovered. These features serve as components of the BDRI, to which are added for each three drivers (see figure 1), the aggregation of the indicators makes it possible to make the calculation using an equal weighting, then give the score for each country and establish the rankings.<sup>143</sup>



**Figure 1.** BDRI's components and drivers<sup>144</sup>

Assessing overall performance by component indicates that a digital divide exists in Africa in terms of size, engagement, and usage, as the most imbalanced performance is observed for volume. On the other side, states perform less variably in terms of variety and veracity. The velocity and value components, on average, demonstrate better overall performance.

Top-ranked countries achieve well in the value component, which assesses the capacity to translate existing data into valuable insights and added value. They also do perform well in terms of velocity which depends on the cost of creating the data and the existence of a supporting infrastructure that can promote digital openness. An analysis of performance by component of the top 10 African countries shows that the variety component has the biggest potential for improvement.

<sup>142</sup> Ishwarappa & J Anuradha 'A brief introduction on big data 5Vs characteristics and hadoop technology' (2015) 48 *Procedia Computer Science* 319.

<sup>143</sup> Joubert *et al* (n 39).

<sup>144</sup> A Joubert *et al* 'Big Data Readiness Index – Africa in the age of analytics' in Ilias O Pappas and others (eds) *Digital Transformation for a Sustainable Society in the 21st Century* vol 11701 (2019) 6.

The geographic distribution of the top 10 does not single out an apparent trend as to the performance across the regions, since at least two countries per region are in the top ten, but it nevertheless indicates a slight emergence of southern Africa as being the most efficient region. It was concluded that 'neighbouring countries influence each other via diffusion patterns.'<sup>145</sup> The top 10 ranking is as follows, by regional distribution: Southern Africa (Mauritius [first], South Africa [second], Seychelles [third], Namibia [sixth]); East Africa (Rwanda [fourth] and Kenya [fifth]), North Africa (Morocco [seventh] and Tunisia [eighth]), and West Africa (Cabo Verde [ninth] and Ghana [tenth]). Interestingly, three of the countries rising in the ranking are island countries (Mauritius, Seychelles, and Cabo Verde), noting also the absence of Central Africa among the top firsts.

On the basis of the scores obtained by each country, three distinct groups were constituted from those 'forging ahead' and surpassing the rest, those 'gaining momentum' and catching up with the implementation trends, and finally those who are 'lagging behind.'<sup>146</sup>

Those belonging to this last category constitute a geographical band which extends from Libya in the north to Angola in the south (including Chad, Central African Republic, DRC, Burundi, Gabon, Congo Brazzaville, Equatorial Guinea and São Tomé e Príncipe), also adding two other clusters; one on the eastern portion including Sudan, South Sudan, Eritrea and Somalia; and the other in West Africa including Guinea, Guinea-Bissau, and Sierra Leone. These countries require the most substantial interventions in order to develop the technological capacity needed to benefit from big data. Are also identified countries showing potential for catching up and moving towards the high performance cluster. By showing comparable performance in a particular component of the BDRI to their counterparts in a higher overall group, these countries have the potential to progress from the 'gaining momentum' to the 'forging ahead' group, or from the 'lagging behind' to the 'gaining momentum' group. However, no country appears to surpass from 'lagging behind' to 'forging ahead' for any of the components.

Countries that can transition from 'gaining momentum' to 'forging ahead' are particularly progressing in one or several components such as Egypt (volume, variety and velocity), Côte d'Ivoire (variety and value), Cameroon (veracity), Gambia (value) and Nigeria (velocity). Similarly, a number of countries in the 'lagging' group are moving towards 'gaining momentum' in some components, and should take advantage of this in order to gain ground in big data readiness; examples include Gabon (variety, veracity and velocity), Sao Tome and Principe (variety and veracity), Libya (volume), Swaziland (variety), Madagascar (velocity), Congo Brazzaville (veracity), Comoros and the Democratic Republic of Congo (value).

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<sup>145</sup> Joubert *et al* (n 39) 20.

<sup>146</sup> Joubert *et al* (n 39).

Conclusively, and as noted by leading researchers, the identification of trends in the data can benefit both businesses in making strategy adjustments and governments in policy decisions.<sup>147</sup> In this perspective, and based on the knowledge emanating from such index, solid policy recommendations can be made to foster an environment where big data can result in social, developmental, and economic improvements.

### **3.4 Conclusion**

Beyond its use as evidence in decision-making processes, data offers opportunities that contribute to improving governance. Data is seen as a catalyst and means of change in government institutions with the aim of providing efficient public services, reducing expenses, and gaining and maintaining public trust. Effective use of data can improve public experiences, increase transparency and responsiveness, and build trust in the government. The use of open government data has the potential to facilitate and drive co-creation of policies and services by reducing barriers to involvement and fostering creativity. Indeed, the fact that it allows states to build and regain the trust of their citizens also implies that governments must make progress and advances to ensure better transparency and responsiveness towards the citizens. Similarly, the co-creation of policies and services that data enables is consistent with the value of active participation which is one of the characteristics of good governance. On the other side, the newly introduced regional instruments have established respectable advances in introducing a digital orientation across Africa, and particularly for the use of data to inform public policies; however without a proper implementation and a demonstrated political willingness, these texts will remain unheeded so long as they are deemed to be 'non-binding.' Noting also that the level of disparity is quite high between African states in terms of the development and use of big data, and by extension the digitalisation of public administration.

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<sup>147</sup> A Katal *et al* 'Big data: Issues, challenges, tools and good practices' 2013 *Sixth International Conference on Contemporary Computing (IC3)* (2013) <<http://ieeexplore.ieee.org/document/6612229/>> accessed 15 October 2022.

## CHAPTER FOUR

# IMPACT AND OPPORTUNITIES OF E-GOVERNMENT AND DATA-DRIVEN APPROACHES IN FOSTERING GOOD GOVERNANCE IN AFRICA

### 4.1 Introduction

The adoption of the electronic government model has allowed the dematerialisation and digitisation of administrative and governmental services, which has resulted in the emergence of new sources of data and forms of citizen contribution. This chapter intends to demonstrate how African states can benefit from these advancements to adopt a data-driven approach that can shift the paradigm in public administrations and foster transformational change in governance practices. To this end, four cases are discussed hereinafter: government delivery units (4.2), policy labs (4.3), open data and e-participation (4.4) and finally data for development (4.5). These will be further detailed, in subsequent sections, through practical applications as well as their impact in public policies and the public value creation, which can serve as models in improving governance practices across Africa.

### 4.2 Government delivery units

Several African states have embraced the delivery unit model over the past few years for good management and better execution of government policies and strategies. It refers to structures set up within the Presidents' and Prime ministers' offices in the context of support for public policies, monitoring, follow-up of execution and evaluation of their impacts.<sup>148</sup>

Delivery Units (DU) are defined as structures comprising a small team of highly qualified individuals working at the government's core and assisting line ministries in achieving results for a number of programs that the government considers to be of vital or top priorities.<sup>149</sup> DUs adopt a focused and targeted approach to problem-solving, by employing data to fuel improvement cycles that produce better results more rapidly.<sup>150</sup> In practice, enhancing the implementation of governmental policies and services requires having more steering and monitoring capacities, and in this perspective several States have considered the tools that Delivery Units provide in light of the significant role they have to play in improving their

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<sup>148</sup> P Spencer *et al* 'Deliver better: how government can facilitate recovery and transformation in Africa' (Tony Blair Institute for Global Change, 29 April 2021) <<https://institute.global/advisory/deliver-better-how-government-can-facilitate-recovery-and-transformation-africa>> accessed 25 October 2022.

<sup>149</sup> Deloitte 'What is a delivery unit?' (July 2016)

<<https://www2.deloitte.com/content/dam/Deloitte/us/Documents/public-sector/us-fed-what-is-a-delivery-unit.pdf>> accessed 25 October 2022.

<sup>150</sup> as above.



steering capabilities and, more significantly, making effective use of data and monitoring to enhance public policy and service delivery.<sup>151</sup>

Among the lessons learned in Africa on adopting the delivery culture is that by integrating data technology solutions, delivery operations can be made more efficient.<sup>152</sup>

In Morocco, for example, a data-driven delivery unit has been set up within the Head of Government's Office having the capacity to establish a reporting structure to aid in decision-making for important government-planned initiatives and reforms.<sup>153</sup> The structure consists of an operational tool that relies on on-the-fly data collection to feed a reporting system for the Head of Government (HoG), to ensure the operational monitoring and evaluation of the implementation of the government policy program, while assisting ministries engaged in the execution of these initiatives and reforms in producing data, analysing and interpreting it, and submitting it to the HoG to inform his decisions.<sup>154</sup> The policy makers greatly benefited from this data-driven approach as they sought to make an impact since it enabled them to track their progress, ask for arbitration, and also pinpoint implementation-related trouble areas.

In Tanzania, which was one of the early African nations that adopted the DU model in 2013, the approach has been applied to monitor the advancement of the government's strategic plan and measure the effectiveness of the policies in vital sectors such as agriculture, energy and transport.<sup>155</sup> The model has been also adapted to the educational system in a context of a development strategy, and delivered encouraging outcomes.<sup>156</sup> In practice, for example, the introduction of the 'National Key Results Area' target by the national strategy's delivery architecture in 2013 has improved pass rates for the National Primary School Leaving Examination which fell to 31% in 2012, as there was a rapid improvement in pass rates to reach 50.6% in 2013, then 57.0% in 2014 and 67.8% in 2015.<sup>157</sup> The target of 80% was about to be reached.

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<sup>151</sup> J Vellozo Júnior 'The role of delivery units in the implementation of public policies and services' (2015).

<sup>152</sup> Spencer *et al* (n 148).

<sup>153</sup> H Lakhdar Ghazal 'Bringing data into Moroccan policymaking' (*Abdul Latif Jameel Poverty Action Lab*, 26 April 2021) <<https://www.povertyactionlab.org/blog/4-26-21/bringing-data-moroccan-policymaking>> accessed 25 October 2022.

<sup>154</sup> B Mokhliss 'Gouvernance: Comment Saâd Eddine El Othmani fait le suivi du programme gouvernemental' *Le Matin* (8 August 2019) <<https://lematin.ma/journal/2019/ad-eddine-el-othmani-suivi-programme-gouvernemental/320883.html>> accessed 25 October 2022.

<sup>155</sup> J Kohli & C Moody 'Improving outcomes for citizens: The case for delivery units'.

<sup>156</sup> R Todd *et al* 'Delivery Units: can they catalyse sustained improvements in education service delivery?' (2014).

<sup>157</sup> R Todd & I Attfield 'Big Results Now! in Tanzanian education: Has the delivery approach enabled teachers & delivered learning?' (2017) 17.

Senegal also possesses a delivery unit, entitled the *Bureau Opérationnel de Suivi du Plan Sénégal Emergent* (BOS, or the Operational Monitoring Office for the Emerging Senegal Plan),<sup>158</sup> which is responsible for providing technical support to the implementation structures for strategic policies and submitting decision-making proposals to the government.<sup>159</sup> The BOS has set up steering bodies to carry out its mission, and works in close collaboration with all stakeholders to ensure the steering and operational coordination within the sectorial ministry in charge. The system for monitoring and evaluating the implementation of flagship projects and reforms relies on a weekly dashboard based on data from the field and collected within the sector ministries and executing structures, which is subsequently transmitted to the President of the Republic to report transparently on the progress in the implementation of the Plan, which thus makes it possible to reinforce transparency and success in the execution of the country's priority projects, by facilitating the unblocking of problematic situations.<sup>160</sup> The Senegalese DU made it possible to solve problems faster, in particular on the factors of production, supply and human resources,<sup>161</sup> and to achieve record performances, for example in terms of electrification in rural areas which reached the rate of 40% in 2017 then 55% in 2020,<sup>162</sup> compared to the 24% in 2012 prior to the implementation of the Plan and the BOS.<sup>163</sup>

In light of these experiences across the continent, it appears that the delivery unit method has permitted to optimise the government's resources and taken advantage of data to keep track of the implementation of policies while adjusting and evaluating them accordingly. Nonetheless, there is an important factor that drives such realisation that is the political will. In the Moroccan case, policy makers have shown willingness to cooperate in setting up the unit and contribute in the improvement of the reporting cycles and adjustment of their actions, although some challenges exist in terms of the capacity of the public administration to keep up with the newly introduced data-driven method.<sup>164</sup> However, in Tanzania despite the

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<sup>158</sup> C Chahed 'Senegal: New African delivery units network launched' (*African Development Bank Group*, 23 January 2019) <<https://www.afdb.org/en/news-and-events/senegal-new-african-delivery-units-network-launched-18940>> accessed 25 October 2022.

<sup>159</sup> 'Africa leading on agriculture: Supporting country-led agricultural transformation "Supporting Adaptive Management and Policy Learning"' (*Africa Lead*, 2019).

<sup>160</sup> Africa Lead II Team 'Feed the future: Building capacity for African agricultural transformation' (2018).

<sup>161</sup> AfDB Group 'Government delivery unit - Experience from Senegal and Kenya' (*Youtube*, 15 April 2019) <[https://www.youtube.com/watch?v=n\\_2iMVMdJII](https://www.youtube.com/watch?v=n_2iMVMdJII)> accessed 25 October 2022.

<sup>162</sup> 'Sénégal: le taux d'électrification rurale est-il passé de 24 % en 2012 à 55 % en 2020?' (*Africa Check*, 13 January 2022) <<https://africacheck.org/fr/fact-checks/articles/senegal-le-taux-delectrification-rurale-est-il-passe-de-24-en-2012-55-en-2020>> accessed 25 October 2022.

<sup>163</sup> A Adélé 'Le bureau de suivi du plan Sénégal émergent et le delivery unit du Maroc partagent leurs expériences à la banque africaine de développement' (*African Development Bank Group*, 1 October 2019) <<https://www.afdb.org/en/news-and-events/press-releases/le-bureau-de-suivi-du-plan-senegal-emergent-et-le-delivery-unit-du-maroc-partagent-leurs-experiences-la-banque-africaine-de-developpement-31804>> accessed 25 October 2022.

<sup>164</sup> Lakhdar Ghazal (n 153).

promising results, the DU model was abandoned in 2017 following the change of leadership in the country without providing an explicit reason.<sup>165</sup>

The delivery units contribute to an improved implementation of policies and reforms and offer the possibility of evaluating their progress in real time and highlighting shortcomings and settling them if necessary, thus strengthening mechanisms for transparency, responsabilisation and accountability. In this perspective, the delivery units model seems to fit well into the policy-making process, and particularly in the implementation and evaluation phases, which thus contribute both to strengthening the transparency, responsibility and accountability of political actors in the context of policy implementation.

### **4.3 Policy labs**

Unlike the previous model, policy laboratories (or policy labs) are found at the very beginning of the policymaking process and are intended to formulate policies. Policy labs are collaborative and multidisciplinary spaces that can be academic, governmental or non-governmental, or a combination of the three, aimed at solving public problems, and within which public policies and services are developed using a range of innovation methods.

Data-based policy labs have been developed to support data-based decision-making, as they enable decision-makers to benefit from new data sources by facilitating social responses to quickly evolving and emerging technologies.<sup>166</sup> They use a variety of data sources, cutting-edge technologies, and innovative methods such as crowdsourcing and design thinking to improve the public's experiences with social services. Furthermore, data-driven policy labs include citizens in the co-creation of policies and services. In fact, the citizen participation in co-designing happens to be essential in backing in the data analysis.

As of mid-2022, more than three quarters of data-based policy labs were located in Europe and North America, whereas only three labs have been identified in Africa (representing 2.3% of the total).<sup>167</sup> Among these, two are established in Uganda and privately run as part of an international network. PATH Uganda working on the area of healthcare digital transformation via the use of health data, enabling doctors to deliver effective patient care using digitalised sources of data and Global Pulse Lab Kampala which encourages the use of artificial intelligence (AI) technology and its application for sustainable development objectives, and while providing advices on how to utilise big data and AI responsibly.<sup>168</sup>

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<sup>165</sup> 'Unanswered questions as BRN disbanded' (*The Citizen*, 28 June 2017)

<<https://www.thecitizen.co.tz/tanzania/news/national/unanswered-questions-as-brn-disbanded-2594458>> accessed 25 October 2022.

<sup>166</sup> S Kim *et al* 'Policy capacity and rise of data-based policy innovation labs' [2022] *Review of Policy Research* ropr.12494.

<sup>167</sup> as above.

<sup>168</sup> as above.

Seemingly, policy labs make it possible to formulate policies on the basis of evidence, such as government data, and make sure to adopt a collaborative participation involving several stakeholders to clearly define the solutions proposed to the identified public issues. The policy labs contribute to a better formulation of public policies through the adoption of a multidisciplinary approach based on data and involving several stakeholders to respond to societal problems by taking into account several angles. They consequently contribute to the strengthening of governance by supporting in particular the pillars of participation and responsiveness to peoples' needs and aspirations.

In fact, more collaborative and design-focused approach to public services and policies modernisation can be fostered by policy laboratories.<sup>169</sup> This seems to be a key area where labs excel and have the potential to enhance policy formulation.

#### 4.4 Open data and e-participation

For citizens to participate in consultation and decision-making processes, access to information has been established as a fundamental prerequisite.<sup>170</sup> Open government data helps to meet this need, which increases transparency and encourages citizen engagement through e-participation platforms and initiatives. A policy objectives perspective is one approach to look at the scalable elements of e-participation. The DataCipation initiative, which stands for 'Citizen Involvement and Innovative Data Use for Africa's Development,'<sup>171</sup> seeks to increase engagement between AU institutions, states, and citizens by utilising data, digital and non-digital methods for development and good governance. Policy objectives involve the application of digital technology to advance democratic practices, better state governance, and legitimate, responsible, and transparent governmental structures

In some cases, e-participation can be misused and diverted from its goal of promoting citizen engagement, in order to serve other interests, such as legitimising the power in place. The *e-istichara* platform launched in Tunisia in January 2022 serves as an illustration.<sup>172</sup> Although the digital divide and the inequalities of access and use of the Internet are visible in the Tunisian context, the ruling authority has chosen to adopt this mode of consultation to solicitate the population to make strategic choices for the future of the country (such as the type of political

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<sup>169</sup> JM Lewis *et al* 'When design meets power: design thinking, public sector innovation and the politics of policymaking' (2020) 48 *Policy & Politics* 111.

<sup>170</sup> OECD *Citizens as Partners: OECD Handbook on Information, Consultation and Public Participation in Policy-Making* (2001).

<sup>171</sup> GIZ 'Citizen engagement and innovative data use for Africa's development (DataCipation)' (*Deutsche Gesellschaft für Internationale Zusammenarbeit*, December 2021)

<<https://www.giz.de/en/worldwide/98533.html>>.

<sup>172</sup> BE Mutlu & S Yasun 'Tunisia's e-consultation process is another pretence for Saied's power grab' *TRT World* (4 March 2022) <<https://www.trtworld.com/opinion/tunisia-s-e-consultation-process-is-another-pretence-for-saied-s-power-grab-55131>> accessed 25 October 2022.

system) which will be reflected in a draft constitution to be approved by referendum motion. Rather, it served to legitimise the pre-determined political project of the President of the Republic. The instrumentalisation of this method of consultation intended mainly to create a consensus around the current leadership's political project and reinforce its legitimacy, given that the adequate basis to ensure the participation of the different segments of society had not been prepared beforehand. This has consequently posed a real challenge of legitimacy in light of the fact that the participation rate is regarded insufficient to decide on this basis on a significant change to the political system through a Constitutional amendment.

Open data and e-participation have been highlighted as two crucial projects to boost government openness, improve citizen engagement, and ultimately accelerate the shift towards a knowledge-based society. It makes it possible to lay the foundations for good governance by allowing greater transparency and participation via the digital systems offered by e-government, and this by giving citizens the possibility of taking part in the decision-making processes and also using open government data to make applications for the public good.<sup>173</sup> In short, the publication of data held by the government (open data) makes it possible to reinforce transparency, and paves the way for their reuse by the public to create value, while e-participation offers new opportunities for citizen participation in the public debate.

On the other side, using open data for development has extra advantages because data is published in ways that make it easier for the general public to access and use. Nonetheless, it must be highlighted that open data efforts are dispersed across the African continent as the notion is still very nascent. Although open data is highly encouraged, the use of data for development purposes in Africa involves as well data that is not accessible (i.e. closed data).

#### **4.5 Data for development initiatives**

The digital development movement has spawned initiatives for the use of data for development (D4D) whose main objective is to improve decision-making by utilising the vast amounts of data produced by technologies such mobile phones, government mechanisms such population and housing censuses, and citizen data from electronic administration services. The D4D is related to the United Nations' Sustainable Development Goals in different forms, and consist of combining new sources of data with the existing ones such the governmental statistical data in order to offer additional insights for policy makers.<sup>174</sup>

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<sup>173</sup> U Sivarajah *et al* 'The role of e-participation and open data in evidence-based policy decision making in local government' (2016) 26 *Journal of Organizational Computing and Electronic Commerce* 64.

<sup>174</sup> S Ziesche 'Innovative big data approaches for capturing and analyzing data to monitor and chieve the SDGs' (2017)  
<<https://www.unescap.org/sites/default/files/publications/Innovative%20Big%20Data%20Approaches>

In Kenya for instance, several key initiatives have been developed by the government and non-governmental entities (or in collaboration between them). For access to healthcare, a project was launched to proceed at the digital registration of new births in order to improve the data collection and facilitate the access to services which was limited to millions of unregistered new-borns.<sup>175</sup> With regards to the housing and urbanisation, researchers have been able to identify and map the presence of slum settlements using a wide range of data sources, including socio-economic and physical sensor data, which enabled to map their evolution and facilitate the monitoring of their growth.<sup>176</sup> Such technique can highly assist the local governments, not only in Kenya but across Africa, in making targeted policies that can improve the living conditions of the population in order to ultimately eradicate the informal settlements.

The use of data for development purposes in Africa also attracts large corporations that are able to open their strategic databases to researchers or analysts in a controlled space. This kind of practice is commonly referred to as data philanthropy.<sup>177</sup> The phone operator Orange had proceeded in the same way in French-speaking Africa (in Côte d'Ivoire and Senegal) by launching the D4D Challenge which made it possible to reuse call detail record data and to make applications in several sectors such as the agriculture, energy, transport and urbanisation. One of the uses has been to plan electrification through electricity consumption data.<sup>178</sup>

The use of data therefore seems to be a new field in which major corporations in Africa are active, and are trying to align themselves on the scene to offer services to African States to achieve high levels of development and maximise benefits of these new data sources. Data is therefore a strategic and precious element of sovereignty and which sheds light on decision-making. Leaving its use to only a handful of for-profit actors is a way of delegating the exercise of sovereignty in a definitive way.

Consequently, the States will have to show goodwill in adopting a clear strategy in this matter, since the exploitation of data from big data is considered by specialists as a lever for action for development and solutions in several sectors. For example, the fight against poverty, the acceleration of access to education and health services, facilitating agricultural productivity,

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>for%20Capturing%20and%20Analyzing%20Data%20to%20Monitor%20and%20Achieve%20the%20SDGs.pdf> accessed 25 October 2022.

<sup>175</sup> World Health Organisation 'Improving civil registration, vital statistics and health data through strengthened partnerships in Kenya' (*World Health Organisation*, 18 May 2022) <<https://www.who.int/news-room/feature-stories/detail/strengthening-health-data-kenya>> accessed 25 October 2022.

<sup>176</sup> R Mahabir *et al* 'Detecting and mapping slums using open data: a case study in Kenya' (2020) 13 *International Journal of Digital Earth* 683.

<sup>177</sup> UNECA 'Africa Data Revolution Report 2018: Status and emerging impact of open data in Africa' (2019) 13.

<sup>178</sup> EA Martinez-Cesena *et al* 'Using mobile phone data for electricity infrastructure planning' (2015) <<https://arxiv.org/abs/1504.03899>> accessed 28 October 2022.

optimising the management of essential services and also providing responses to crisis situations.

Data for development initiatives contribute to addressing socio-economic issues that span development while meeting the needs of the population. Thus, the use of data to address public problems or development-related issues is an important tool to address the needs of society and meet their expectations, and which therefore contributes to the strengthening of an important pillar of good governance, that is the responsiveness.

#### **4.6 Conclusion**

Through this chapter, the possible uses of e-government services and data in public policies and for the creation of public value have been demonstrated, including also their impacts on good governance.

The case of delivery units contributes to the improvement of processes at the end of the policy development chain, in other words the implementation and evaluation phases. While the case of policy labs strengthens policy formulation mechanisms. The abundance of data created by the digitalisation of services has paved the way for the emergence of practices such as e-participation, open data, and the use of data in development objectives which reinforces transparency, participation and responsiveness to the needs of the population. The adoption of these practices and their institutionalisation can contribute to a paradigm shift in public administrations and bring about a transformational change in governance practices.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This section presents the chapters' highlights, conclusions and recommendations to different stakeholders in order to advance the use of e-government services and the adoption of data-driven approaches to policy making with the aim of improving governance practices in African countries.

#### 5.2 Summary

Having identified poor governance and ineffective public policies in Africa as major problems across the continent, this dissertation has sought to respond to those challenges by exploring and proposing the adoption of a data-driven approach in public policies, and which could eventually improve the state of governance. This study has tried to answer the question, to what extent can a data-driven approach to policymaking enhances good governance in Africa, and to do so it has addressed sub-questions across the chapters.

The first chapter gave the general introduction and outline of the study, while chapter two analysed the conceptual framework around data-driven policy making. It particularly focused around the distinction and nuances of existing concepts on how data is used, that are the data-driven/based and data-informed/inspired approaches. The terms 'data-driven' and 'data-informed' approach are often used interchangeably in the service sector to describe how data analysis supports organisational decision-making. However, these expressions have different characteristics, which is why it is important to understand their variations. A data-driven approach is a process where decisions are made based purely on data analysis and not intuition. The chapter also shed light on the models that have inspired the emergence of the use of data in public policies, which has particular characteristics such as the integration of new sources of data and the collaborative approach of co-creation with different stakeholders, including citizens.

Chapter three looked at the key values of data and its state across Africa. It was found that the data can be of great importance in building the public trust as it reinforces the principle of transparency, and it also facilitates the participation of the public in the creation of policies and services along with other stakeholders. The chapter finds out that African countries are making progress in adopting data-related frameworks and legislations. However, some challenges that may hinder the implementation of a data-based approach have been identified, such as the data-related national legislations that focus more on safeguard measures than on enablers. Adding also the lack of structural preparation of a large number of States to seize the



opportunities offered by big data, as indicated by studies that have shown that there is a digital divide in Africa in terms of the size, engagement, and usage of big data, with the volume of data being the most imbalanced. Overall, African countries have taken steps to safeguard personal data and regulate the use of data, but there is still work to be done to ensure that African nations are fully prepared to embrace a data-driven approach to policy making.

Chapter four introduced the ways in which (big) data-driven and e-government initiatives can contribute to the improvement of governance practices in the context of policy making processes. It presented multiple applications and experiences across Africa that capitalise on data to produce a public value and support the policy making process. It was found that in the majority of cases, initiatives came from civil society and private entities with very little from governments. African states can shift to a data-driven approach in public policy by taking advantage of the digitisation of administrative services and the emergence of new sources of data and citizen contribution. This can be done by implementing government delivery units and policy labs, supporting the development of open data and e-participation initiatives, and using data for development purposes. These initiatives can improve policy formulation and implementation, increase transparency, and enhance responsiveness to the needs of the population. The institutionalisation of these practices, which can create public values, can serve as models for improving public administration and governance practices across the continent.

In summary, the study has demonstrated that a data-driven approach in public policy brings many opportunities and solutions to meet the challenges related to public affairs and services, and can truly establish efficient good governance practices. For this to happen, the implementation requires, however, a certain number of prerequisites such as a better predisposition of States to take advantage of the benefits of e-government services and big data. The adoption of a data-driven model requires mainly two elements, which seem crucial, the first being the political will and the second skills and competencies.

### **5.3 Conclusion**

Governance in Africa has traditionally been hindered by a lack of accurate data and information. This has resulted in policies that are poorly informed and ineffective in addressing the needs of citizens. However, advances in technology and the increasing availability of data have provided a new opportunity for African governments to improve their decision-making processes. By collecting and analysing data, governments can identify the most pressing issues and develop targeted policies to address them. For example, data can be used to track the distribution of resources and ensure that they are reaching the people who need them most. It can also help to monitor the progress of policies over time and make necessary adjustments to ensure that they are achieving their desired outcomes.

This study attempts to tackle the question of the use of data in public policies in the African context for the purposes of good governance and democratisation. It follows numerous reflections and discussions over the past few years which have placed particular interest on Africa's ability to capitalise on and benefit from technological advances to achieve high levels of development and governance. Most recently, the UN Economic Commission for Africa reported that 'good data helps African countries to make best development policy decisions.'<sup>179</sup>

Despite that, few African states have made advancement in digitalising the public administrations and services, and by extension taking advantage of the benefits of new means of maximising data value. Several findings emerge from this present study, in particular on the current capacity of African States to exploit data in public policies, since it has been observed that the level of disparity is quite high between African States in terms of development and use of big data, and creation of public value. This requires special interventions, which mainly involve the digitisation of public administration and the adoption of the e-governance model to deliver public services.

Data in itself promote values aligned with the good governance principles, in particular that of transparency and participation. And when exploited and used in frameworks that intend to introduce innovative ways to solve public issues, and help maximise the benefits of it, others principles can be reinforced. The initiatives of delivery units, policy labs, open data and e-participation, and data for development serve as illustrations.

The table below (see figure 2) provides a summary of the added value of each initiative vis-à-vis the five foundations for good governance. Each initiative contributes to strengthening one or more pillars in order to eventually improve the general state of governance within the countries.

Initiative Pillar	Transparency	Responsibility	Accountability	Participation	Responsiveness
Delivery units	✓	✓	✓		
Policy labs				✓	✓
Open data & e-participation	✓			✓	
Data for development					✓

**Figure 2.** Data-driven initiatives vs. Good governance pillars

<sup>179</sup> UNECA 'Good data helps African countries to make better development policy decisions – ECA's Chinganya' (*United Nations Economic Commission for Africa*, 21 October 2022) <<https://www.uneca.org/stories/good-data-helps-african-countries-to-make-better-development-policy-decisions-%E2%80%93-eca%E2%80%99s>> accessed 25 October 2022.

Overall, through these applications, it has been demonstrated the approaches which governments can adopt to observe a transformational change of practice in their management of public affairs, and which can improve governance and therefore the impact of public policies. The implementation of e-governance must not be perceived by governments as a secondary priority, but rather as a tool that can complement and assist in addressing the top priorities, as for the vital sectors such as education and health. Concerns related to the cost of implementation can be easily overcome through a better budget reallocation, and co-operation with the AU organs and other African states that have successfully implemented such models. Also it must be highlighted that similar to other development projects, there is a likelihood that data and public participation in policy making could exclude marginalised groups such as the disabled, the underprivileged, and rural people. Stakeholders should therefore support programs that bridge the digital divide and reduce the gaps. In this regard, the following section will present a number of recommendations for different actors to facilitate the institutionalisation of the use of data in public policies across Africa.

## **5.4 Recommendations**

### **5.4.1 To AU organs**

The organs of the African Union should make sure that the national legislations are aligned and in full harmonisation with the continental strategies and directives. As well as encourage the exchange of inter-African expertise and create mechanisms to facilitate collaboration between States for the implementation of initiatives to take advantage of the opportunities offered by data and e-government services. The African Union should emphasise in its resolutions the value of developing a data-driven approach to public policies. It is also important to encourage Member States to take actions in this regard.

### **5.4.2 To AU members states**

National, regional and local governments across Africa are urged to exert more effort in providing and leveraging various data sources in public policy particularly by (i) accelerating the process of digital transformation of public administration in light of continental and international commitments, through the adoption of national strategies with clear and measurable objectives; and (ii) investing on the improvement of data literacy and access to ICTs among the policymakers so they can make data-driven decisions. Governments should ensure leadership and political support for their digital e-government and open data strategies while they are being developed. To achieve this, they should make a variety of efforts to encourage cross-sector and inter-ministerial coordination and collaboration, set priorities, and make it easier for relevant agencies to work together across levels of government to advance the digital government agenda.

### **5.4.3 To civil society**

Civil society and non-governmental actors should engage in persistent, action-focused advocacy to urge States to abide by the directives and recommendations resulting from African and international instruments in order to set up and strengthen electronic and data governance mechanisms. Actions can include also collaborating with the various associations and non-governmental organisations active in the area to learn from their experiences and replicate similar initiatives in the local context in order to raise awareness, and leverage public government data to identify and address community issues in order to deliver small-scale solutions.

### **5.4.4 To academia**

Researchers should constitute communities of practice and networks for exchanging competencies through the establishment of data-driven policy labs within universities and institutions to inform governments in their policy formulations. More practical components should be included in curricula, whether in the social sciences or engineering, to build students' skills to leverage available data to create value through modelling or visualisations, which can settle public problems and possibly enlighten decision-makers.

### **5.4.5 To donor agencies**

In order to build internal capacity and bridge the data gap, donors must continue to offer funding, training, and assistance to African stakeholders. This includes not only initial support and assistance to get things started, but also assistance in addressing and overcoming long-standing obstacles like low connectivity, inadequate data management infrastructures, weak legal foundations, and a shortage of skilled workforces that prevent data-driven approaches from becoming widely adopted. In that process, from the beginning of planning to the end, African governments and people should maintain control over their projects. Any assistance should be completely in line with the needs identified by the African governments and population. The setting up of projects geared towards the training and capacity building of civil servants, practitioners and civil society will be more beneficial and sustainable for the introduction of a data culture in society and public administration, instead of imposing 'good governance' plans which will not be implemented properly and will only create mistrust.

## **5.4 Further research**

More advanced research may look at the modes of operationalising the implementation of a data-driven approach to policy making in Africa. It can consider how to set up delivery units and policy labs in less developed countries and underserved communities, particularly, and how to take advantage of the use of e-government, open data and e-participation in these contexts. In this regard, researchers and academics can make these suggestions to operationalise these activities and put them to the test with empirical evidence. Taking into

account that this current study is restricted to the analysis from a qualitative point of view, other research can adopt a closer comparative analysis of the emerging African nations in order to yield insightful inputs to reinforce the e-government model for good governance and assist the policy makers. Additionally, as e-government deployment normally necessitates the formulation and enforcement of new legislation and policies through an updated set of legislative measures, further research can look at the new legal challenges that arise.

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