



MINISTRY OF ICT & NATIONAL GUIDANCE

A Knowledge and Productive Society driven by ICT & National Ideology

BIG DATA UTILIZATION STRATEGY

2023/2024 - 2027/2028

TABLE OF CONTENTS

03	ABBREVIATIONS	18	2.1 RATIONALE FOR THE BIG DATA STRATEGY
04	FOREWORD	19	2.2 VALUE PROPOSITION
05	PREFACE	20	3.0 STRATEGIC AREAS
06	EXECUTIVE SUMMARY	25	4.0 BDUS ENABLERS AND DRIVERS
07	1.0 INTRODUCTION	25	4.1 BDUS ENABLERS
09	1.1 DEVELOPMENT CONTEXT	25	4.2 BDUS GOVERNANCE AND ECOSYSTEM
17	2.0 THE BIG DATA STRATEGY ASPIRATIONS		

Appreciation

Authors: Amos Mpungu, Raymond Kugonza, Rowena Turinawe, Osbert Osamai, Steven Kirenga and Sylvia Nakanwagi.

Strategic Contributors: Senior Management Team (Ministry of ICT & National Guidance), Peter Kahiigi, Innocent Fred Ejolu, Berna Mugema, Nathan Tumuhamy, Martin Mubangizi, Vivian Ddambya, Hadijah Nabbale, and Dr. Grace Ssekakubo.

ABBREVIATIONS

B2B	Business to Business	NIRA	National Identification and Registration Authority
B2C	Business to Citizens	AI	Artificial Intelligence
G2B	Government to Business	UBOS	Uganda Bureau of Statistics
G2C	Government to Citizens	MDAs	Ministries Departments Agencies
G2G	Government to Government	LGs	Local Governments
MSMEs	Micro Small and Medium Enterprises	MOICT & NG	Ministry of ICT and National Guidance
UCC	Uganda Communications Commission	NITA	National Information Technology Authority - Uganda
OECD	Organisation for Economic Co-operation and Development	MOES	Ministry of Education and Sports
UNCTAD	United Nations Conference on Trade and Development	NCDC	National Curriculum Development Centre
NDP3	National Development Plan 3	MOPS	Ministry of Public Service
ICT	Information and Communication Technologies	MOJCA	Ministry of Justice and Constitutional Affairs
URA	Uganda Revenue Authority	NDPO	National Data Protection Office
NSSF	National Social Security Fund	MOFA	Ministry of Foreign Affairs
NWSC	National Water and Sewerage Cooperation	MEACA	Ministry of East African Community Affairs



It is with great pleasure that I offer to you the Big Data Utilization Strategy for Uganda. This document outlines our government's commitment to using data to enhance the quality of life for its people, spur innovation, and boost economic growth. Data is the new currency in the modern digital world, and its significance cannot be understated.

We can use data to make wise judgments, make the most of our resources, and further our development objectives. With the help of the Big Data Utilization Strategy for Uganda, we can use data to gain insights that will guide our agenda for national development.

Various stakeholders, including government organizations, businesses, academic institutions, members of civil society, and development partners, participated in a consultative process to establish this strategy. Together, we have worked to make sure that the plan is in line with our national aims while also considering the difficulties and setting we face.

The strategy offers a road map for implementing important measures that will promote the use of data across several sectors

FOREWORD



We can use data to make wise judgments, make the most of our resources, and further our development objectives. With the help of the Big Data Utilization Strategy for Uganda, we can use data to gain insights that will guide our agenda for national development.

and programmes, including business, agriculture, education, and health.

It lays out specific goals and targets as well as a structure for monitoring and evaluating progress and making necessary changes as we go.

I urge all citizens, residents and stakeholders to support the implementation of this policy, and I would want to thank everyone who helped develop it, specifically the United Nations Development Programme (UNDP) for the financial and technical support.

By working together, we can leverage the power of data to transform our country and create a better future for all.

For God and My country

Hon. Dr. Chris Baryomunsi, MP
Minister for ICT & National Guidance

 @chrisbaryomunsi1



PREFACE



This Big Data Utilization Strategy serves as a guiding framework for Uganda to leverage the power of data to achieve our economic, social, and environmental goals.



We are living in an era of unprecedented technological advancement, where the world is generating vast amounts of data every day. This data holds tremendous potential to drive economic growth, promote social development, and enhance the quality of life for people all over the world.

Countries around the globe recognize this potential and have embarked on initiatives to harness the power of data to drive innovation and improve their societies. In this context, the importance of developing a Big Data Utilization Strategy cannot be overstated.

This Big Data Utilization Strategy serves as a guiding framework for Uganda to leverage the power of data to achieve our economic, social, and environmental goals.

The aim of this document is to provide a comprehensive overview of the key considerations and strategies that governments can adopt to effectively harness the power of big data.

I believe that this Big Data Utilization Strategy document will serve as a valuable resource for the government, businesses, and individuals who seek to navigate the rapidly evolving landscape of big data. It is my hope and prayer that this strategy will stimulate discussion, inspire innovation, and drive positive change in our societies.

I extend our gratitude to all those who contributed to this document, especially the UNDP and Centenary Technology Services. I invite all stakeholders to join us in the ongoing efforts to leverage the power of big data for the betterment of our communities and the world.

Dr. Aminah Zawedde (PhD)
Permanent Secretary Ministry of ICT & National Guidance

@azawedde

EXECUTIVE SUMMARY

One of the key aspirations of the Digital Vision Uganda 2040 is “Digital and Data Driven Economy”. The Vision proposes for government to strengthen mechanisms of authorization, processing, analyzing, sharing and managing electronic data, information, knowledge, and practices between organizations and stakeholders in the country. This is aimed to strengthen its ability to effectively combine scientific and operational data and use this to support a data-driven scientific innovation that inform policy and other actions.

The Big Data ecosystem in Uganda, both in the government and private sector, is in its early stages of development. The government has shown interest in harnessing the potential of Big Data, but it is still limited by challenges relating to inadequate technical expertise, infrastructure and investment. On the other hand, the private sector has been more proactive in adopting Big Data technologies, mainly in sectors such as banking, finance and telecommunications.

This Big Data Utilization Strategy is designed to enable us to make data-driven decisions that will drive economic growth by focusing on the following:

Data Foundations and Governance

To ensure that the government of Uganda puts in place the enabling environment for big data, that fosters increasing investments in big data and infrastructure deployments that speed up the utilization of data for innovative and developmental objectives.

Data Literacy and skills

To ensure that citizens, government and private organizations acquire the relevant knowledge and skills to effectively use data as a resource for development.

Data Security, Privacy and Responsibility

To address information security and cyber security risks involved in data management in Uganda.

Data Access, Integration and Availability

To provide an enabling environment for the seamless use of data collected by the government, businesses, and individuals for developmental and innovative purposes without compromising data security and privacy.

Data Services and Innovation

To provide resources, capacity, and an enabling environment for the developmental and innovative use of data as a national resource for new value creation, social and economic growth and prosperity.

Data Sovereignty and Equality

to address data ownership, classification, control and access as related to residency and data localization according to the national laws and regulations of Uganda.

By adopting this Big Data Utilization Strategy, we will be able to make data-driven decisions that will drive the growth of a digital society.



1.0 INTRODUCTION

Big Data has a purpose and is crucial to the growth of the economy. Big data currently in use includes, among other things, data from mobile phones, satellite or aerial images, radio, social media, smart meters for electricity, radio, credit cards, public transportation use, and health records. Big Data can be described using the following characteristics famously known as the 5Vs; The total amount of data generated and stored referred to as “volume”, the type and nature of the data, referred to as “variety”, the speed at which the data is generated and processed known as “velocity”, the inconsistency of the dataset known as “variability” and the data quality as called “veracity”.

The National Development

Plan (NDP) III identifies ICT as a fulcrum of development with a huge potential to make Government and business enterprises more effective, efficient and competitive globally. Some of the key critical areas for intervention include increasing ICT penetration, reducing the cost of ICT services, creating 30,000 or more ICT sector jobs, increasing the number of local ICT innovation products and services and providing 80 percent of Government services online. Big Data has the potential to support the achievement of the targets above and is an area of special focus in the NDP under, objective 339 section viii which speaks to “supporting development and uptake of emerging technologies such as Fourth Industrial Revolution Technologies.”

One of the key aspirations of the Digital Vision Uganda 2040 is “Digital and Data Driven Economy”. The Vision proposes for government to strengthen mechanisms of authorization, processing, analyzing, sharing and managing electronic data, information, knowledge, and practices between organizations and stakeholders in the country.

Data as a critical factor of production complements labour and physical capital. Unlike capital or labour, data is non-depletable; the use of data by many does not diminish its quantity or value but rather increases its value. The genesis of value creation lies in the extraordinary amounts of detailed machine-readable information available about practically everything. This digital data arises from the digital footprints of various personal, social and

business activities taking place on digital platforms that increasingly form the digital substrata of economic and social activity in virtually every sector.

The data economy refers to the processes of producing, analysing, transmitting, disseminating, and consuming digital data in the modern digital era. Data's non-depletable quality and widespread use might raise its value. Data acquisition (to supply fresh sources of data), data storage and warehousing, data modeling and analysis/mining, data visualization, data transfer, and data protection are all included in the data value chain. This value chain produces "digital intelligence," which supports attempts at innovation and well-informed decision-making.

According to the United Nations Conference on Trade and Development (UNCTAD) 2019 study on the digital economy, value is created whenever data is turned into digital intelligence and monetized through commercial application. Because of this, productivity in the digital economy is primarily decided by how effectively digital intelligence is applied to various use cases. The "digital capital" of today is this digital intelligence. In the hyper-connected culture of today, many methods of data monetization are used to create the economic worth of this digital capital.

It is evident that in the digital age, data is the main source of income. Machine learning, artificial intelligence, big data analytics, and automation are all experiencing significant advancements thanks to the data economy, which is the core engine of the digital economy. The global data economy is estimated to be worth \$3 trillion by the World Economic Forum.

This demonstrates how the global data economy is expanding rapidly and exponentially.

It is generally acknowledged that the introduction of new digital technologies and the rapid global expansion in data are having a significant impact on the business, public, and research sectors. The Big Data revolution is expected to pick up speed in the future decades, and the impact of digital technology will fundamentally alter the state of the world economy throughout that time.

Digital technology has changed the socio-economy and society during the past several years, having an impact on all spheres of activity and the daily lives of all Ugandans. This transition is centred on data, and more will follow. Innovation based on data will greatly benefit citizens.

The manner that data are collected and used in a society where people produce ever-increasing volumes of data must prioritize the interests of the individual, in accordance with our values, fundamental rights, and laws. Only if citizens are convinced that any sharing of personal data would be subject to strict adherence to Uganda's data protection rules and regulations will they trust, and support innovations driven by data.

The amount of non-personal industrial data and public data in Uganda is rising, and technical advancements in data processing and storage have created a potential source of growth and innovation that should be exploited. Citizens should have the ability to use insights from non-personal data to make smarter judgments. And everyone should have access to that data, whether they are a

start-up, public or private entity. This will ensure that everyone reaps the rewards of the digital dividend and help society make the most of innovation and competitiveness.

In order to realize this goal, Uganda will build on its solid legal foundation in the areas of data protection, fundamental rights, safety, and cyber security. In the end, the goal will be to reap the rewards of improved data utilization, such as higher productivity, open governance, and practical public e-services. This strategy presents the National Guidance for the Development and Use of Big Data, together with the strategic priorities of the Ministry of ICT. In order to help planners and decision-makers in the research and public sectors make decisions regarding commitments and projects that take advantage of opportunities and address the difficulties posed by big data, this approach aims to give information.

As a result, its objectives and focus are consistent with other national plans and agendas for public and private sector investment in ICT and big data. This strategy supports the objectives and plans outlined in the National Development Plan, The Digital Vision for Uganda 2040, the Sustainable Development Goals, the President's Manifesto, and other pertinent goals.

We picture a Big Data ecosystem that fosters innovation, speeds up socio-economic progress, and puts Uganda in a better position to compete in the Fourth Industrial Revolution.

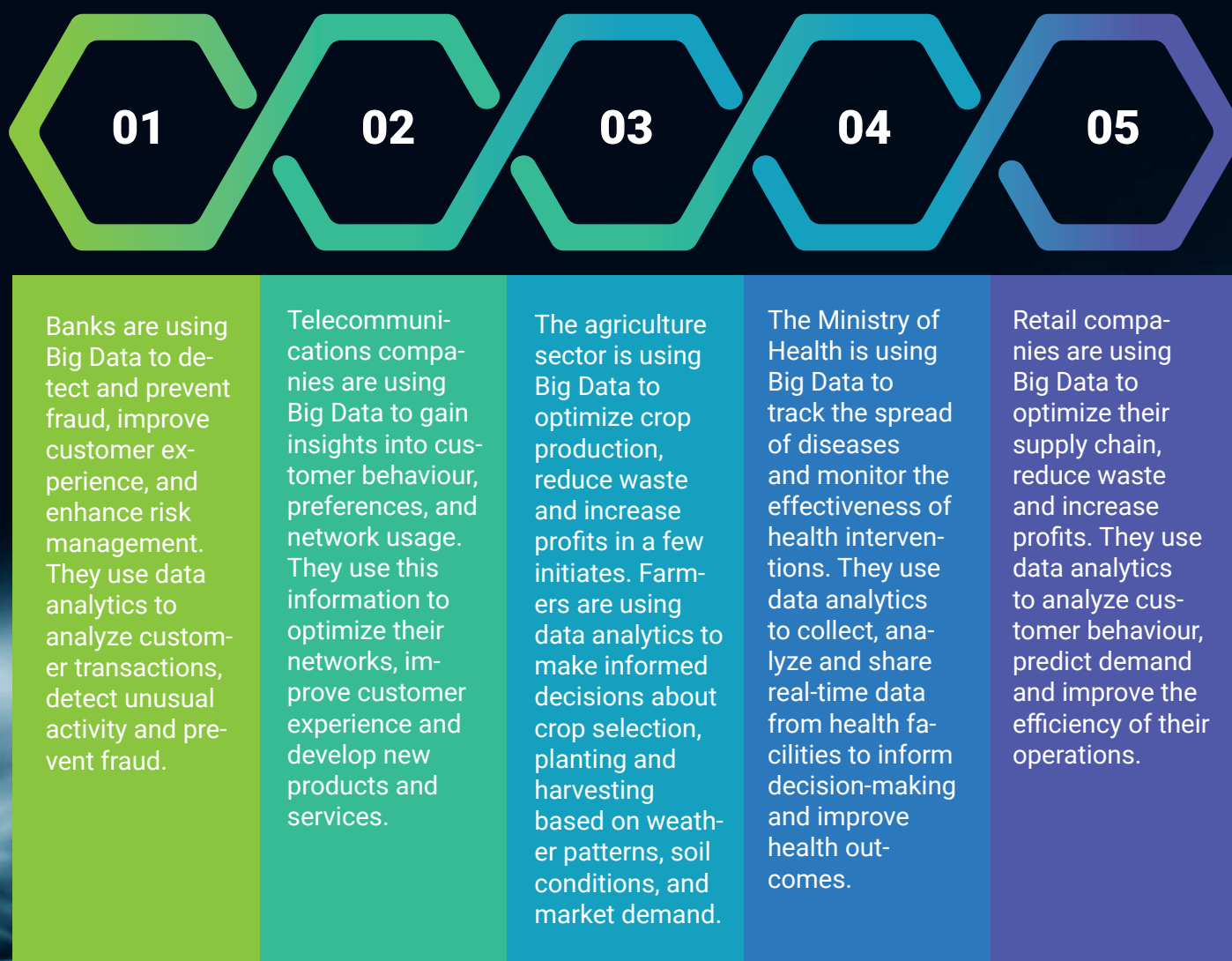
1.1 DEVELOPMENT CONTEXT

The Strategy was developed by analysing the Ugandan context by undertaking surveys, reviewing pertinent papers and by benchmarking against trends in Africa and around the world.

1.1.1 Current State

The Big Data ecosystem in Uganda, both in the government and private sector, is in its early stages of development. There are some initiatives aimed at improving data collection, management and analysis such as the Ministry of Finance, particularly through its Budget website, produces disaggregated data; not only financial data, but also district-level work plans and performance reports. The Uganda Bureau of Statistics (UBOS) curates data collected by itself and a range of administrative systems. It publishes a range of nationally aggregated statistics on a relatively timely basis. The Ministry of ICT and National Guidance established the Parish Development Model Information System which supports data collection at the Parish level, analysis, tabulation, storage and dissemination to aide in data driven decision community support planning.

Other common areas where Big Data is being used in various sectors to drive innovation and improve operations are noted below:



However, despite these developments, the Big Data ecosystem in Uganda still faces challenges that need to be addressed. One of the major challenges is the lack of skilled personnel with expertise in Big Data and data analytics. There is also a need to enhance investment in infrastructure, such as high-speed internet and data storage facilities, to support the growth of the ecosystem. Similarly, there is a need for more investment in research and development.

Legal and Regulatory environment

Uganda has put in place laws, standards and regulations relating to the security, collection, sharing, archival and use of data. These include The Archival Act, The National Data bank regulations and the Data Protection and Privacy Act among others.

Data Standards

The Government of Uganda with support from the World Bank put in place the Enterprise Architecture and Interoperability framework . This framework enables all government agencies design their data architecture to enable efficient and secure sharing of data.

Data Infrastructure – Collection, Storage and Processing.

The state of Big Data technology infrastructure in Uganda is still in its early stages of development. There are some initiatives aimed at improving the infrastructure, but significant investments are still needed to fully support the growth of the Big Data ecosystem.

One of the main challenges is the lack of high-speed internet connectivity in most parts of the country, which is critical for the processing and analysis of large amounts of data. The infrastructure is also limited by the availability of data storage facilities, which can be a barrier to the growth of the ecosystem.

However, there are some efforts underway to improve the infrastructure. The government is investing in the expansion of the National Backbone Infrastructure, which will improve internet connectivity and support the growth of the Big Data ecosystem. The private sector is also investing in data centres and cloud computing solutions to support the growth of the ecosystem. There are various fragmented efforts to setup data centres both in the public and private sectors to foster collection, storage and real-time processing of data. Private companies and telecommunications companies have built data centres whereas the National Data Centre serves the public sector interests for storage and processing of data.

Applied Big Data and Research

Makerere University operates the AI Lab which carries out research and implements big data and AI projects in collaboration with Government and the private sector. Other universities like Busitema University and Mbarara University have opened similar labs. The UN Global Pulse initiative opened its first African lab in Kampala and is conducting research on several big data use cases.

Capacity building and training

Makerere University and others have introduced data science courses at undergraduate and graduate levels to build the big data skills capacity in the country. In addition, Data Science Africa a continental non-profit organization has also opened a local chapter in Uganda to help identify and solve problems using local resources and talent.

Data Governance

Whereas, standards exist for data management, the mandate in terms of data ownership still lies with individual government bodies under various Acts of Parliament. This traditional based mindset approach, ‘territorial walls amongst organizations’ and low awareness levels of data sharing benefits has hindered the free exchange of data across entities and with the private sector as some data are withheld by the respective owners.

Data Sharing

The government is taking some steps to improve data exchange through the development of a National Data Management System by the Uganda Bureau of Statistics. This system is aimed at improving data collection, management, and analysis to support better decision-making. In addition, Government has established a national data exchange platform (UGHUB) as a shared service, which facilitates the sharing of data between government agencies and the private sector. This platform improves the accessibility and usability of data for decision-making, planning and e-service delivery.

Challenges

The strategy recognizes the following as challenges limiting Uganda from fully participating in and taking advantage of the data economy:

Access:

Much of the data that is accessible is only available in pdf format moreover some agencies sell their data at exorbitant rates. UBOS and other line ministries and agencies generally appear to be committed to the private sharing of data with any institution that formally seeks official approval from the chief executive. Reasons given for not making data accessible include that the integrity of the data is at stake if users can edit and republish it, and that those that need the data already get it through formal relationships and established channels. It would be fair to conclude that, in general, Ugandan institutions are committed to the use of their data in both aggregated and disaggregated format, but that their definition of the legitimate user group is a limited one.

Technology and big data:

One of the biggest challenges facing a national Data Revolution in Uganda are electricity supply, internet access and computer equipment.

Culture:

Culture refers to the inherent propensity of organizations in the public and private sectors to withhold information and prevent its usage and reuse. Data is thought to be a power that should not be lightly given up. The BDUS implementation will focus heavily on changing people’s perspectives and raising awareness of the value of open data and data utility for enhanced value creation for original data owners and potential users.

Trust:

Consumers in the digital economy and the general public generally lack faith in matters of data protection, privacy, security, and breach. The adoption of BDUS will put in place procedures that would provide consumer protection, data privacy and security, as well as reduce the promotion of monopoly and anti-competitive behaviour, to ensure that confidence is built.

Data Imbalances:

By virtue of their mandates and services, the government agencies in charge of data gathering, large businesses in the private sector, multinationals, and development partners control the data space. This makes it challenging for smaller businesses to successfully compete with data, allowing these data-haves to keep or perhaps increase their market domination. BDUS aims to create a data market in which MSMEs and smaller businesses will also have access to data held by the data haves.

Leveling-up with the Global Data Economy:

On the one hand, the world is supporting data privacy, while on the other, cross-border data flows. The two competing requirements must be balanced. To achieve and balance these international criteria, Uganda would need to develop its digital infrastructure and competence. BDS aims to develop the necessary digital infrastructure, including cloud computing, edge computing and connectivity to make Uganda the African nation with the best data protection and support for legally compliant cross-border data flow.

Integrated data:

Harmonization of data is necessary to enable efficient service delivery, initiatives for social and humanitarian development, and the improvement of national security, among other advantages. Currently, several sectors have duplicated data sources which increases complexity in data sharing and harmonization. One of the key areas of attention for BDUS implementation will be to encourage database harmonization so that users can benefit from the data economy and the wider digital economy.

Data Literacy, Capabilities, Intelligence and Insights:

There is lack of a critical mass of skilled big data related practitioners in Uganda. Data literacy and competencies are essential to use the tools and technology that make data collecting effective and enable data to be transformed into intelligence and insights. BDS will make sure that data literacy and capabilities are available to advance capabilities in cutting-edge fields like blockchain, deep learning, advanced analytics, artificial intelligence and machine learning.

Digital Identity:

One of the fundamental infrastructures for the digital economy is digital identity. There are challenges related to the legally compliant access to citizens national identity data. The huge potential of the data economy cannot be fully tapped if a significant section of the population is excluded.

1.1.2 International Big Data

No.	Country	Focus Area	Lessons Learned
1	Estonia	<ul style="list-style-type: none"> a) Open Data. b) Data Usage. c) Data Sharing and Research. d) Decentralized Data. e) Legislation. f) Enabling environment for innovation. 	<ul style="list-style-type: none"> a) Data ownership and usage is for the benefit of the Citizens. b) Decentralized control of data powered by integration. c) Development and constant r view of legislation related to data management. d) Create enabling environment for use of open data and innovation.
2	South Africa	<ul style="list-style-type: none"> a) Human Capital and Research Capacity Development. b) Cyber infrastructure for Big Data. c) Collaboration. d) Data governance. e) Overarching coordination and advocacy. 	<ul style="list-style-type: none"> a) Boost big data research and collaboration. b) Strengthen data governance structures. c) Build required enabling cyber infrastructure for big data and other technologies.
3	Republic of Korea	<ul style="list-style-type: none"> a) Private sector centered data eco system and innovation. b) Data utilization. c) Data services for daily use. d) Comprehensive data policy. e) Data Infrastructure. 	<ul style="list-style-type: none"> a) Setting up Data Markets to facilitate big data utilization. b) Strengthening Government Policies for data access, security and others. c) Ensuring Industry application of big data for the benefit of citizens.



4	Nigeria	<ul style="list-style-type: none"> a) Data Literacy and Skills. b) Data Security. c) Data Sovereignty. d) Open Data. e) Data Infrastructure / Technology. f) Data Harmonization. g) Data usability. 	<ul style="list-style-type: none"> a) Harmonized and integrated National databases for better strategy implementation. b) Digital Identity as an enabler for big data utilization.
5	UK	<ul style="list-style-type: none"> a) Data foundations. b) Data skills. c) Data availability. d) Responsible data. 	<ul style="list-style-type: none"> a) Ensuring a trusted data regime. b) Using government data to drive efficiency and improved public services. c) Ensuring security and resilience of data infrastructure. d) Championing the international flow of data.
6	US	<ul style="list-style-type: none"> a) Foundational activities (governance, planning, and infrastructure). b) Enterprise activities (standards, budgeting, and coordination). c) Optimized activities (self-service analytics). d) Data-Driven activities (proactive evidence-based decisions and automated data improvements). 	<ul style="list-style-type: none"> a) Promote information sharing through inter-agency councils, such as the CDO Council, to identify and share what practices work best for different use cases. b) Including statutory requirements in the action plan is helpful for comprehensive awareness and oversight and minimizes potentially duplicative data related activities. c) Encourage involvement of the CDOs in strategic planning and budget development activities for their agencies.
7	European Union	<ul style="list-style-type: none"> a) Availability of data. b) Imbalances in market power. c) Data interoperability and quality. d) Data governance. e) Data infrastructures and technologies. f) Skills and data literacy. g) Empowering individuals to exercise their rights. h) Cyber security. 	<ul style="list-style-type: none"> a) Putting in place A cross sectoral governance framework for data access and use. b) Enablers: Investments in data and strengthening Europe's capabilities and infrastructures for hosting, processing and using data, interoperability. c) Competences: Empowering individuals, investing in skills and in SMEs. d) Setting up common European data spaces in strategic sectors and domains of public interest.



1.1.3 Data Definition

The definition of data used by BDUS is taken from the literature on information science. Data are referred to as being organized in a hierarchy with information and knowledge. This strategy defines data to include the following:

- a) Unfiltered symbols or signals that are generated from all things (living or non-living) that belong to Uganda.
- b) Information collected either through a physical or digital method from the activities of the Ugandan Government, private businesses, development partners, multinationals and/or individuals within or outside of Ugandan territory.
- c) Information converted to digital formats and transformed into information through computing activities.
- d) Information used to support people's experiences, skills, thinking models, and decision-making processes which can lead to products and services among others.
- e) Information that contributes to a body of knowledge in research and innovation that can be used and reused by humans for governance and business performance, improvement of social and economic activities and sustainable development.

This strategy broadly classifies data, either at rest, in motion or in use, as follows:

- a) Personal or non-personal data.
- b) Private and public data.
- c) Data for commercial purposes, governmental and development purposes in different sectors and industries.
- d) Non-structured and structured data.
- e) Instant and historic data.
- f) Volunteered, observed and inferred data.

1.1.4 Applicability

Building and utilizing data as a national resource for value development and international competitiveness will be the focus of the BDUS. Although the public and private sectors produce, gather, store, and use data for various objectives, the data applications are comparable and consistent. Data sharing between the public and private sectors must have a cross-sectoral focus.

The following five categories define the fundamental framework of data sharing and collaborations amongst the key stakeholders:

Government-to-Government Model:

The purpose of G2G data sharing is to facilitate data sharing between MDAs and LGs, where relevant and appropriate, with proper protections to enable effective and optimal use of data for service delivery and informed decision-making. MDAs must assess and proactively address the procedural, regulatory, legal, and cultural barriers to sharing data within government entities and with external partners.

Government-to-Business Model:

The purpose of G2B data sharing is to ensure collaboration in which public institutions make their data available to private businesses and vice versa for the design and use of innovative services for the benefit of the public and their interest. An agreeable business model may be designed for the purpose. Parties must adhere to legal, and regulatory provisions in ensuring a secure collaboration and use of shared data.

Business-to-Business:

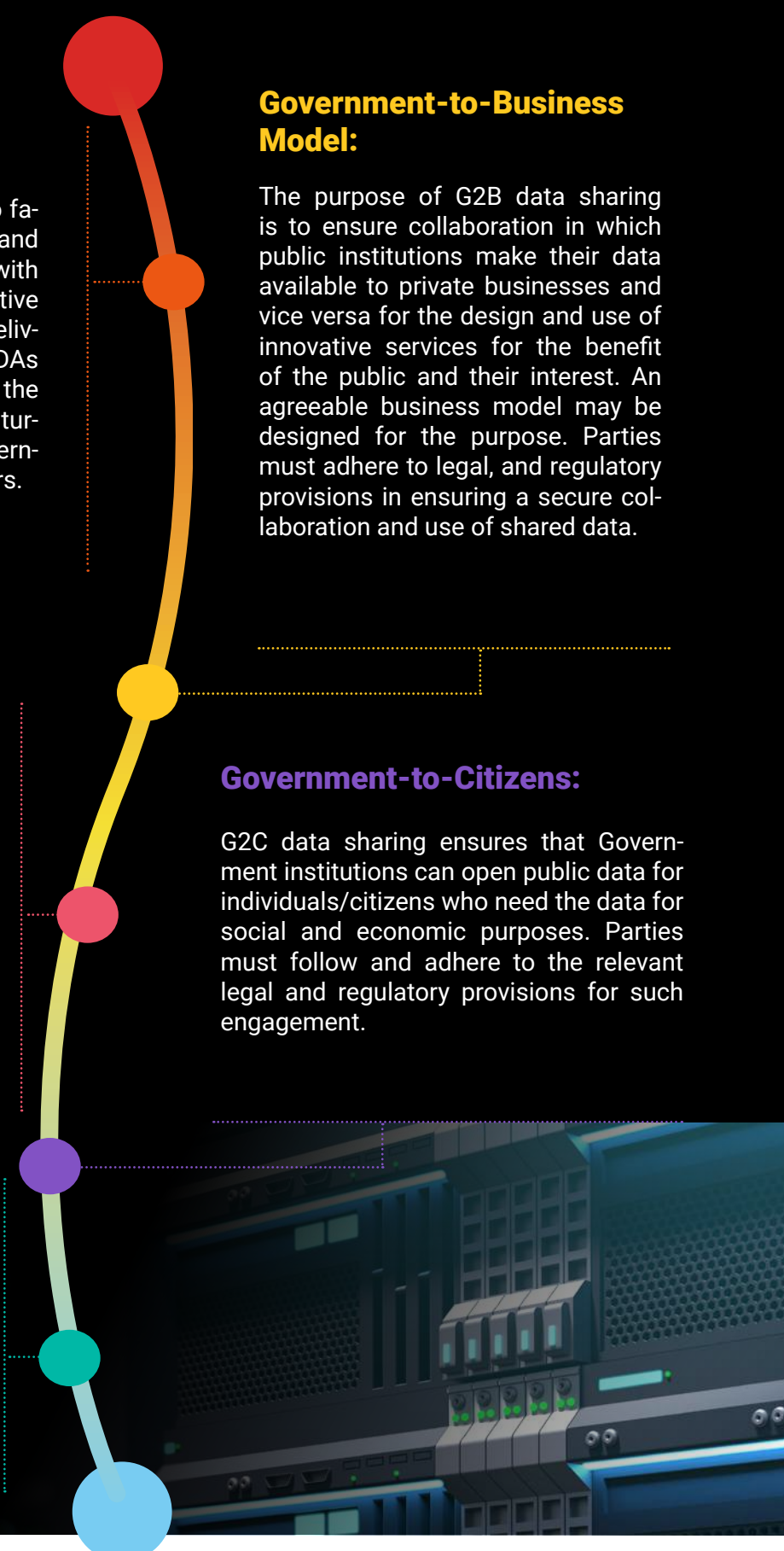
The B2B data sharing ensures that businesses share or trade more of their data with other businesses. This is to provide value-added services and create new values based on agreed business models. Parties must adhere to legal, and regulatory provisions in ensuring a secure collaboration.

Government-to-Citizens:

G2C data sharing ensures that Government institutions can open public data for individuals/citizens who need the data for social and economic purposes. Parties must follow and adhere to the relevant legal and regulatory provisions for such engagement.

Business-to-Citizens:

B2C data sharing ensures that businesses and private bodies can open private data for individuals/citizens who need the data for social and economic purposes. Parties must follow and adhere to the relevant legal and regulatory provisions for such engagement.



2.0 THE BIG DATA STRATEGY ASPIRATIONS

The Big Data Strategy (BDS) aspirations are founded and built on the following:

Goal:



Making data as accessible, shareable, and usable as possible for all types of stakeholders who require information for economic and societal gains.

Strategic statement

Data is the key to impactful planning and decision making.

Alignment statement:

Big Data is a key component that drives impactful planning and decision making to improve productivity of people, organizations, businesses and Government. This is based on innovation. Given the significance of data as a new economic resource for value creation, the BDUS is positioned to drive Uganda's transformation where every Ugandan, the Government, and the Private sector could harness the power of a data-driven society for personal and sustainable national development securely and safely.

2.1 RATIONALE FOR THE BIG DATA STRATEGY

With the introduction of the Data Protection and Privacy Act (2019), Uganda has made major strides in the areas of data protection and privacy in keeping with the global trend of protecting the sanctity of personal data. With this advancement, a brand-new economic sector has emerged, necessitating the establishment of a special agency—the National Data Protection Office. Only if there is a national strategy or plan to make the best use of the potential the data economy brings can increased efficacy in data usage and protection, as well as deeper achievement recorded by Uganda, be achieved. The rationale is driven by the following:

Analytics: The need to analyze humongous data that would be generated during digitisation and digitalization of various economic sectors will require huge analytics capabilities. The more data is digitized the more analytics will be required to make informed decisions and the more value will be created. Advanced analytics requires the use of digital technologies such as machine learning (ML), deep learning (DL), and artificial intelligence (AI) among others. Therefore, effective data analytics will drive BDUS aspirations and outcomes. Analytics will drive the digital economy and ultimately, the digital economy will drive the main economy.

Innovation: Uganda, as a developing nation that aspires to develop every aspect of its society must be driven by innovation. Most of the world's innovations in the digital age are driven by data. The Organization for Economic Co-operation and Development confirms that data-driven innovation forms a key pillar in 21st-century sources of growth. Big data sets are becoming a core asset in the economy, fostering new industries, processes and products and creating significant competitive advantages. The quest for innovations that will provide solutions to most of the country's challenges and change the narrative of being a consuming nation to a producing nation while putting the country at a highly competitive edge is needed now more than ever before.

E-Services: E-services come with convenience, reduce the cost of operations, and expand the coverage of public service delivery among other benefits. Because of these benefits, seamless access to electronic services will drive inclusive growth and sustainable development. At the core of electronic service delivery are quality data and digital intelligence. The quest for electronic end-to-end services will grow the digital economy.

This strategy therefore:

- a) Creates an environment that is conducive to data being a key driver for Uganda's innovations, productivity and performance, digital services, job creation, global competitiveness, social development, and economic prosperity.
- b) Provides guidance on how data can positively impact, and shape Uganda's future as economic activities move into the digital environment, expand the local data market, and greatly support the development and implementation of the nation's socioeconomic policy.
- c) Enables realization of opportunities to accelerate the adoption and use of digital technologies, particularly emerging technologies for data collection, validation, storage, analysis, transmission, protection, and reporting to improve research and innovations, digital services, the digital economy, job creation, enhanced quality of life, social and economic growth and prosperity, global competitiveness, and sustainable future demands. Uganda has some opportunities to leverage in order to accelerate its participation in the data economy optimally. These opportunities will be key incentives to drive the implementation of BDUS.

Opportunities

Uganda has some opportunities to leverage in order to accelerate its participation in the data economy optimally. These opportunities will be key incentives to drive the implementation of BDS.

- a) **Population:** As of Friday, February 10, 2023, the Uganda Bureau of Statistics (UBOS) estimates that there were around 45,080,056 people living in Uganda. Over 75% of the people in this figure are youth. In the digital age, this is a major force behind social and economic activity. More data-related initiatives by the government, commercial sector, civil society, and development partners are being driven by and will continue to be driven by the need to offer services to the public.
- b) **Increase in mobile and broadband penetration:** The increase in the number of mobile phones and smartphone users (over 33 million users as at March 2022) is driving broadband penetration (which is at 23.5 million in March 2022). This drives the creation of a massive amount of digital data every second.
- c) **Increase in digital platforms and services:** New platforms are coming up within the country to provide different services in the digital space. New platforms are emerging to offer various services in the digital sphere. This offers opportunities to profit from the utility of data on the one hand, and from data security on the other.
- d) **Digital Transformation Wave:** The growing digitization of data is fostering the digitization of various industries and sectors. Value will increase as more data are digitized. The wave of national and international digital revolution is what is driving this

2.2 VALUE PROPOSITION

BDUS will demonstrate the value listed below to its stakeholders:

- a) Access to data and its use for the public good will be available to everybody.
- b) The value created by the utilization of the data will be distributed.
- c) A favourable climate will be there to make data a significant source of employment.
- d) In order to compete in the global economy, Uganda will harness the economic and social value of both local and foreign data. The BDUS will promote the growth of data-driven and data mining businesses in the nation.
- e) Improved data management cycle governance will guarantee that data are produced and used in a standardized manner and with built-in quality.
- f) Data driven delivery of policy and public service.
- g) The strategy will foster deeper cooperation and collaboration between the public sector, academia, the private sector, civil society and development partners to utilize big data for the advancement of common aspirations.
- h) By implementing this strategy the public, students, pupils and public officers shall benefit by acquiring knowledge in data management tools, technologies, innovation and legal environment.
- i) The speed, efficiency and scope of scientific research will improve through the use of big data.

3.0

STRATEGIC AREAS

The Big Data Strategy focuses on the following strategic areas:

STRATEGIC AREA #1: DATA FOUNDATIONS AND GOVERNANCE

The purpose of this strategic area is to ensure that the Government of Uganda puts in place the enabling environment for Big Data, that fosters increasing investments in big data and infrastructure deployments that speed up the utilization of data for innovative and developmental objectives. The enabling environment includes an effective legal and regulatory framework, data infrastructure which includes infrastructure and technologies for data processing, storage and data sharing. Data foundations also include enterprise planning for data, standardization for data management, budgeting, planning and financing for big data.

Efficient and effective data management requires investment in electricity and modern digital technologies. This involves investments in technologies such as data centres, security operating centres, data transmission links (satellite, fibre optics cable, 5G, microwave, Internet), databases, the Internet of Things (IoT), big data analytic platforms, web applications, Artificial Intelligence (AI), machine learning (ML), and deep learning and among others. While many of these technologies are available in the country, there is a need to ensure the local production of some of these technologies to reduce the cost of deployment and increase national security.

Additionally, there is a need to ensure that all back-end related government digital infrastructure is integrated as an Integrated Shared Platform; this action will help reduce the wastage of government funds and increase the efficiency and effectiveness of government service delivery. Furthermore, a minimum standard for data infrastructure shall be made available to government and private organizations for reference.

Strategic Objectives:

- a) Ensure better adherence to current legal and regulatory frameworks for data protection regulations.
- b) Create an environment that will encourage more investment and advancements in data infrastructure.
- c) Develop models to guide organizations on the minimum standards required for data infrastructure.
- d) Put in place Data standardization mechanisms and provide assurance services for the big data ecosystem as well as data quality and eliminating barriers to data use.
- e) To harmonize all national data in disparate locations for the purpose of effective management, improved public service delivery, and the creation of new business models and services.

STRATEGIC AREA #2: DATA LITERACY AND SKILLS

The objective of this pillar is to ensure that citizens, government and private organizations acquire the relevant knowledge and skills to effectively use data as a resource for development.

Data literacy and skills refer to the possession of the knowledge and skills to effectively use and manage data. It includes the ability to read, collect, validate, store, analyses, securely transmit, protect and derive knowledge and intelligence from data. There is a national need to educate all citizens, and private, and government organizations on the importance of data and how to effectively use and manage data. This should also include the infusion of data literacy and skills as a subject in all tiers of the Ugandan educational system. This action will ensure that data is recognized and treated as a useful resource for advancement. It will also ensure that the citizenry is ready for data-related job opportunities in the global digital market.

Strategic Objectives:

- a) Integrate data literacy and skills into Uganda's educational system as a part of digital literacy and skills to build and enhance the skills over a significant number of gardens in data science, artificial intelligence, machine learning, deep learning and other big data related technologies.
- b) Raise awareness of the value of data as a national resource to produce new value.
- c) Assess data literacy and skills required for various sectors in the country.
- d) Support the capacity building and training for civil servants and public servants in big data skills.

STRATEGIC AREA #3: DATA SECURITY, PRIVACY AND RESPONSIBILITY

The objective of this pillar is to address information security and cyber security risks involved in data management in Uganda. For the effective realization of the goals and benefits of data, it is imperative the implementation of an effective data security strategy. Data security refers to the preservation of confidentiality, integrity (authenticity and non-repudiation), and availability of data. Additionally, data security also extends to the protection of the privacy of data owners. It ensures that data is not processed or divulged without the consent of the data owner. Data security strategies must be implemented in all government and private organizations in Uganda to ensure data and its owners are protected from information security and cyber security risks. Due care shall be exercised by the government and private organizations to ensure that the implementation of data security does not create unnecessary barriers to data use. This Strategy is cognizant of already existing initiatives in the National Cyber security Strategy.

Strategic Objectives:

- a) Create, adopt, and modify data security policies, procedures, programs, and initiatives to improve data use and security in the public and private sectors.
- b) Ensure and promote the lawful, secure, fair and ethical, sustainable and accountable use of data in Uganda.

STRATEGIC AREA #4: DATA ACCESS, INTEGRATION AND AVAILABILITY

The objective of this pillar is to provide an enabling environment for the seamless use of data collected by the government, businesses, and individuals for developmental and innovative purposes without compromising data security and privacy. This also includes encouraging the use of open data to engender economic value such as increasing transparency, stimulating new business applications, building trust between citizens and organizations, and improving the lives of citizens through improved service delivery.

To harness the economic potential of data for Uganda, reduce corruption and increase transparency and trust, government and private organizations must improve the openness of data to the public. An open data policy will ensure that the public can easily access, use, and share national data. Easy access to national data will help spur innovative development in the country and increase interaction between the public and government which may lead to improvement in public service delivery.

Government and private organizations can improve the openness of data by making data available on online platforms; for example, government budget and procurement information should be published online so that the public can monitor and evaluate the expenditure of the government budget. The following principles shall be considered for an open data strategy, Open data by default, accessible and usable data, data for citizen engagement, data for national development and innovation, digital technology-enabled open data.

Strategic Objectives:

- a) Ensure that the open data standards and guidelines are in place and implemented across government and the private sector.
- b) Ensure that cloud computing is adopted to increase access to data and reduced costs of operation.
- c) Ensure that all fragmented National data sources are identified, analyzed and integrated using the shared Government Integration Platform to provide data to the public and private sector.
- d) Provide an open data portal composed of data sets in machine-readable format from both the public, private sectors and civil society for further innovation and research.

STRATEGIC AREA #5: DATA SERVICES AND INNOVATION

The objective of this pillar is to provide resources, capacity, and an enabling environment for the developmental and innovative use of data as a national resource for new value creation, social and economic growth and prosperity.

Data usability will ensure the establishment of data as a usable and useful national resource for value creation to support social and economic development. For Uganda to enjoy the economic benefits of data, strategies shall be implemented to unlock the value of data and ensure the best use of data for economic gains by different sectors of the economy. The unlocking of data through the implementation of the BDUS will lead to the proliferation of data-driven and data analytic-based organizations. It will also enable access to both local and foreign data (data belonging to other countries) by the government and the business sector to harness for economic gains. The long-term result would be having a system that promotes the creation of more organizations with the capability to create digital platforms to collect, mine and generate useful intelligence from both local and foreign data for economic benefits and global competitiveness.

There shall be mass advocacy within the country on the value and importance of data and different use cases for data in areas such as research and development, national planning, population management, health, national security, national indices, banking and finance, science and technology, global competitiveness and many more.

Strategic Objectives:

- a) Promote data-driven innovation, research and digital services.
- b) Build the trust of citizens and other user groups within the data economy ecosystem.
- c) Create plans and initiatives for the quick use of data in social, economic, and research and development endeavours.
- d) Establish data innovation spaces through the National ICT Innovation Hub to leverage technology and application developments as incubators for new businesses and for the development of skills, competence and best practices.
- e) Identify big data use cases in critical sectors for pilot implementation to explore the potential of big data.

STRATEGIC AREA #6: DATA SOVEREIGNTY AND EQUALITY

The objective of this pillar is to address data ownership, classification, control and access as related to residency and data localization according to the national laws and regulations of Uganda. This implies that data collected in Uganda and from Ugandans within or outside the country is subject to all relevant laws, rules and regulations governing the use of data in Uganda.

Data Sovereignty ensures that any data generated is subjected to the laws and governance of the geographic location in which the data is collected and processed. Data Sovereignty is a key aspect of international data privacy that enables a country or any entity to regulate entities that can access sensitive data. Data Sovereignty is an important requirement that supports and strengthens data residency and compliance with national laws and regulations.

Strategic Objectives:

- a) Ensure the existence of guidelines regarding compliance with the legal and regulatory framework for data use in Uganda.
- b) Facilitate cross-border data flows.

4.0 BDUS ENABLERS AND DRIVERS

This section defines the strategic enablers and drivers.

4.1 BDUS ENABLERS

The outcomes of BDUS will depend on the following enablers:

Leadership: It is recognized that leadership is key to driving the implementation of BDUS in the public and private sectors. The top management in government and private organizations needs to recognize that data is a new valuable resource to drive the digital economy. Leadership must be ready to enable the right capabilities, an enabling environment, and effective governance for BDUS to achieve its aspirations. Therefore, BDUS recommends full leadership support and commitment at all levels for its implementation.

Enabling Environment: An enabling environment in terms of law, policies, regulations, guidelines, processes and measures will be required to ensure compliance and full implementation of BDUS.

Governance: Effective implementation of BDUS requires governance to facilitate responsibilities and ensure accountability in making the right decisions at all levels of compliance and implementation. A section is dedicated to the Governance approach that needed to be adopted for full implementation of the BDUS.

4.2 BDUS GOVERNANCE AND ECOSYSTEM

The BDUS governance is to provide adequate leadership and coordination to ensure responsibility and accountability for the successful implementation of the strategy. The BDUS Data ecosystem on the other hand comprises stakeholders, systems, facilitation, and an enabling environment that collectively empower people, businesses, public sector, among others to use data in pursuit of social and economic opportunities safely and securely in line with applicable standards, guidelines, regulations and laws.

4.2.1 BDUS GOVERNANCE STRUCTURE

The governance structure will take a programme-based approach to ensure ease of management and ownership. Therefore, each sector will have its governance structure and ecosystem to provide dedicated programme-specific leadership and coordination and be responsible and accountable for all decision-making and implementation. Under each programme governance structure and ecosystem, all actors are expected to develop their organization-specific data strategy following the national data governance model defined in the BDS. The governance structure should be made up of a data steering committee (DSC) or data governance committee (DGC), data stewards, data custodians, and data users. These entities will work together to enforce standards, policies, principles, practices, and processes for the effective management and use of data.

The membership of each programme data governance structure will comprise representatives from the public and private sectors. The composition of the representative shall be as follows:

Public Sector:

The public sector shall have representatives from the following organizations/entities:

- a) The Ministry of ICT;
- b) Any public institution with the responsibility for data governance;
- c) Uganda Bureau of Standards;
- d) The programme/industry regulator(s);
- e) The programme/industry development agency;
- f) The programme/Industry research institutes;
- g) Judiciary; and
- h) Tertiary institutions (Member must be the sector/industry specialist).

NOTE: The programme/industry Ministry or any responsible or equivalent public institution for the sector shall determine representatives from each organization/entity while ensuring that all the above organizations are represented. In the failure of the programme/industry Ministry to determine the representation, the Ministry of ICT and National Guidance shall determine the representation.

Private Sector:

The private sector shall have representatives from the following organizations/entities:

- a) The programme/industry accredited associations/consortia/interest groups;
- b) Non-Governmental Organizations/Civil Society Organizations promoting the peculiar sector/industry;
- c) Innovation support Network or start-up ecosystem; and
- d) Private Tertiary Institutions (Member must be the sector/industry specialist).

The Function of Governance Structure for BDUS

The functions of each governance structure is to:

- a) Coordinate implementation of the programme/industry's operational activities;
- b) Facilitate the establishment of the programme's integrated data platform;
- c) Develop business models and implementation plans for the sector data access and use as captured in the BDUS;
- d) Promote and ensure adequate investments in digital infrastructure that powers the sector/industry's data economy;
- e) Provide MOICT with the sector's activities report and datasets for the operation of the National open data platform;
- f) Determine and coordinate the development of relevant data policies, guidelines, frameworks, standards, plans etc. in the sector of the economy; and
- g) Any other functions as determined by the Ministry of ICT and National Guidance as part of the data governance structure.

4.2.2 BDUS Ecosystem

To encourage dialogue and feedback among the community of data beneficiaries and data-driven value-creating entities, the BDUS proposes a multi-stakeholder ecosystem group comprising the following:

- a) Data owners or subjects;
- b) Data users (users of data-driven services) including ordinary citizens;
- c) Data controllers and processors;
- d) Data-driven service providers and start-ups;
- e) Data policy makers, planners and practitioners;
- f) International organizations, development partners, and foreign collectors and users of Ugandan data;
- g) Industry players and academia working on how data can drive the Ugandan economy; and
- h) Members of the BDUS data governance structure.

The Responsibilities of the Sector BDUS Ecosystem

BDUS ecosystem will:

- a) provide feedback on the implementation of the programme BDUS;
- b) contribute to the development and implementation of relevant data policies, guidelines, frameworks, standards, plans etc. of the sector; and
- c) Any other functions as determined by the programme's public and private BDUS governance leadership.

4.2.3 The Ministry of ICT and National Guidance

The Ministry of Information and Communications Technology and National Guidance will provide overall coordination of the BDUS implementation and as well as carry out the following functions:

- a) Facilitate an appropriate enabling environment through relevant policies, strategies, regulations, standards, guidelines, frameworks, models, and plans related to data utility and protection;
- b) Institutionalize a data governance reporting mechanism to aid the effective implementation of the BDUS at the organizational and sector levels;
- c) Facilitate appropriate foreign direct and private sector-led investments in national data infrastructure;
- d) Coordinate the overall data governance of various sector-specific governance structures;
- e) Facilitate the development of strategy and business model for each sector;
- f) Facilitate the development of an online platform for the operation and coordination of the BDUS ecosystem; and
- g) Provide a mechanism for monitoring and evaluation of the BDUS implementation strategy.

4.2.4 Progress Monitoring and Risk

Monitoring and Evaluation

The implementation will be monitored through the Monitoring and Evaluation Framework provided for under the Digital Uganda Vision. The framework is aligned to the reporting and accountability frameworks for Government and includes annual as well as mid-term evaluation to report on lessons learned and identification of areas for improvement. In addition, all entities that have lead role shall be required to follow current reporting guidelines for quarterly reporting and will review work-plans and budgets for activities' implementation as presented in the implementation log frame.

Risk Mitigation

This will follow the Risk Mitigation strategies that are laid out in the Digital Uganda Vision. The strategies address risks in these area; operational, financial, organizational and technological.

REFERENCES

- 1 http://www.npa.go.ug/wp-content/uploads/2020/08/NDPIII-Finale_Compressed.pdf
- 2 https://archive.uneca.org/sites/default/files/uploaded-documents/ACS/SR-BIGDATA-GEOSPATIAL-SDG-2018/session3-uganda-harnessing_big_data_for_statistical_purposes_in_uganda_april_23-25_2018.pdf
- 3 <https://ict.go.ug/initiatives/digital-uganda-vision/>
- 4 <https://devinit.org/resources/some-thoughts-on-the-data-revolution-in-uganda/>
- 5 <https://ncb.govmu.org/ncb/strategicplans/DigitalMauritius2030.pdf>
- 6 http://data.parliament.uk/DepositedPapers/Files/DEP2020-0521/UK_National_Data_Strategy.pdf
- 7 <https://strategy.data.gov/assets/docs/2020-federal-data-strategy-action-plan.pdf>
- 8 https://mcit.gov.eg/Upcont/Documents/Publications_672021000_Egypt-National-AI-Strategy-English.pdf
- 9 <https://nitda.gov.ng/wp-content/uploads/2022/11/Final-Draft-National-Data-Strategy.pdf>
- 10 https://www.csir.co.za/sites/default/files/Documents/BDpublicationFinal22021003_0.pdf
- 11 <https://www.worldbank.org/content/dam/infographics/780xany/2022/apr/Presentations/Korea-s-Data-Ecosystem-20220428.pdf>
- 12 https://unctad.org/system/files/official-document/der2021_en.pdf
- 13 https://unctad.org/system/files/official-document/der2019_en.pdf
- 14 <https://au.int/sites/default/files/documents/42078-doc-AU-DATA-POLICY-FRAMEWORK-ENG1.pdf>
- 15 <https://digitalpublicgoods.net/standard/>

LIST OF ENTITIES THAT CONTRIBUTED TO THE DEVELOPMENT OF THE ROADMAP

Project Implementation Team	
Name	Entity
Shirley Nakyejwe	Ministry of ICT & National Guidance
Paul Kabagambe	Ministry of ICT & National Guidance
Dennis Ssubi	Ministry of ICT & National Guidance
Doreen Bujjingo	Ministry of ICT & National Guidance
Brandy Azeirwe	Ministry of ICT & National Guidance
Rita Kanya	Ministry of ICT & National Guidance
Reagan Matsiko	Ministry of Education and Sports
Sharp Mugabe	Government Citizens Interaction Centre (State House Uganda)
Samuel Wamukota	Centenary Technology Services
Sarah Ategeka	Centenary Technology Services
Nawalh Namudiba	Centenary Technology Services

1	Adjumani S S
2	African Centre of Excellence in Bioinformatics and Data intensive Sciences
3	African Excellence Centre of ICT for Education
4	Agwok Primary School
5	Alliance for Trade in Information Technology and Services (ATIS)
6	Amuria Town Council
7	Angwecibange primary School
8	Apuuton Primary School
9	Asili Fortune
10	Atratraka Primary School - Maracha
11	Awach S.S
12	Blockchain Association of Uganda
13	BPO and Innovation Council Council
14	Bubandi S.S Seed - Bundibugyo
15	Bugema Adventist Secondary School

16	Bugembe Muslim primary school - Jinja
17	Buhanda Primary School - Kibaale
18	Buikwe District Local Government
19	Bukhonzu Primary School - Namisindwa
20	Bukulula Girls Ss - Kalungu
21	Bunagana Town Council
22	Bunanganda primary school
23	Bunyoro Secondary School - Kagadi
24	Bunyoro Secondary School- Kagadi
25	Bupoto Primary School - Namisindwa
26	Bura Primary School - Maracha
27	Busia Border Seed SS
28	Busia District Local Government
29	Busoga College Mwiri
30	Buwagga Senior Secondary School - Wakiso
31	Buwembe Secondary School - Busia
32	Byabakoora Primary School - Kyegegwa
33	Camp Moses Junior Primary School - Rakai
34	Chemwania S. S - Kween
35	College of Business and Management Sciences, Makerere University
36	Comboni College - Lira City
37	Cwero Primary School - Gulu
38	Destiny Christian High School - Luwero
39	Development Initiatives (DIVINIT)
40	Digital transformation Program working group
41	Directorate of Government Analytical Lab
42	Dokolo District Local Government
43	East African Civil Aviation Academy
44	Education Digital Agenda Committee
45	Education Policy Review Commission
46	Entebbe comprehensive secondary school
47	Entebbe Secondary School – Wakiso
48	Equal Opportunities Commission
49	Ericsson Uganda
50	Erussi SS Nebbi
51	Excel College Pakwach
52	Fairland high school – Mukono
53	Five Star High School - Ntungamo
54	Gayaza Road Triangle SS-Kiwenda
55	Good Times Infant School Kawaala

56	Government Citizen Interaction Centre
57	Gulu City High School
58	Gulu District Local Government
59	Hands of Love Primary and Secondary School - Mayuge
60	Higher Education Students Financing Board (HESFB)
61	Ibanda District Local Government
62	Ibanda S. S
63	ICT Teachers Association of Uganda
64	Iganga District Local Government
65	Iguli Girls Secondary school - Dokolo
66	IJB Junior School
67	Infectious Diseases Institute
68	Internet Society
69	ISACA Uganda
70	Jacarandas Junior School - Wakiso
71	Japan International Cooperation Agency (JICA)
72	Jinja District Local Government
73	Kabaale Sanje SS - Kyotera
74	Kabale Preparatory School - Kanungu
75	Kabingo seed secondary School - Isingiro
76	Kabulasoke Demonstration School - Gomba
77	Kagadi Peoples - Kagadi
78	Kahinju Ss Fort-Portal - Fortportal
79	Kaloi Primary School - Moroto
80	Kampala Capital City Authority
81	Kanyengero Community SS – Nkanga
82	Katakwi District Local Government (DLG)
83	Katakwi Township P/S
84	Katakwi Township Primary School
85	Katalemwa Ss-Matugga
86	Kibaale District local government
87	Kichinjaji Primary School – Soroti City
88	Kihanga public secondary school - Ntungamo
89	Kiira Primary School - Jinja
90	Kiira Primary School – Jinja City
91	Kinyara SS - Masindi
92	Kitamba High School - Kalungu
93	Kochi Secondary School KOBOKO
94	Kyakabadiima Parents Secondary School -Kagadi
95	Kyankwanzi District Local Government

96	Kyenzige Junior Nursery And Primary School - Kagadi
97	Kyotera Central Secondary School - Kyotera
98	Logoba Ss - Moyo
99	Lords Meade Vocational College - Buikwe
100	Lubaale C/U Primary School – Gomba
101	Lubugumu Jamia High School - Wakiso
102	Luwangula Secondary School - Kamuli
103	Makerere AI Lab
104	Makerere University
105	Masinya Secondary School - Busia
106	Mastercard Foundation
107	Ministry of Agriculture, Animal Industry and Fisheries
108	Ministry of Education and Sports (MoES)
109	Ministry of Finance Planning and Economic Development (MoFPED)
110	Ministry of Gender, Labor and Social Development
111	Ministry of Justice and Constitutional Affairs
112	Ministry of Local Government
113	Ministry of Public Service
114	Mountains of the Moon University
115	Moyo District Local Government
116	MUKONO DLG
117	Mungula Secondary School -Adjumani
118	Musese Secondary School - Mbale
119	Nam High School
120	Namasyolo Primary School - Busia
121	National Curriculum Development Centre (NCDC)
122	National Housing Construction Company (NHCC)
123	National ICT Innovation Hub
124	National Information Technology Authority (NITA-U)
125	Ndejja PEAS High School - Ntungamo
126	Ndekye Ss - Ntungamo
127	Nebbi District Local Government
128	Nebbi Town S. S
129	Nemba Secondary School - Namisindwa
130	Nomad primary school - Mayuge
131	Ntungamo District local government
132	Office of the Prime Minister

133	Ojingo Primary School
134	Okwira Primary School - Tororo
135	Omach Primary School
136	Omara Ebek Memorial Primary School - Amolatar
137	Optimus 7 Ltd.
138	Overseas Development Institute (ODI)
139	Pakwach Senior Secondary
140	Panyadoli Self Help Secondary School - Kiryandongo
141	Peak primary school - Kampala
142	Peas High School Kazingo – Fort Portal
143	Pilkington college muguluka
144	Planit Consults
145	Public Sector Foundation Uganda
146	Refractory Limited
147	Rubongi Army Secondary School - Tororo
148	Rugarama Sec School - Ntungamo
149	Ruhinda SSS - Mitooma
150	Rwengiri Primary School - Kiruhura
151	Science, Technology and Innovations Secretariat
152	Sibuse Primary School – Namisindwa
153	Sironko Progressive S.S
154	SNV Netherlands Development Organisation
155	St Joseph's College Ombaci – Arua City
156	St. Andrews College Ssanda - Wakiso
157	St. Charles Lwanga Ss Bukeerere - Mukono
158	St. Daniel Comboni S. S - Moroto
159	St. John's SS Nandere
160	St. Joseph Buganda Secondary School - Mityana

161	St. Leonard's Ss Maddu - Gomba
162	St. Mary Assumpta Girls SS/ Pagirinya Refugee SS - Adjuma
163	St. Peter's Primary School Nsambya
164	St. Stephens SS, Mukono
165	St. Thomas More SS Minakulu, Omoro
166	St. James S.S Hoima - Hoima
167	St. Kizito S.S
168	Stanbic Uganda
169	SunBird AI
170	Swedish Embassy
171	Taibah International School
172	The Amazima School - Buikwe
173	The Innovation Village
174	The Judiciary
175	The Overseas Development Institute (ODI Global)
176	Uganda Bureau of Statistics
177	Uganda Civil Aviation Authority
178	Uganda Communication Commission (UCC)
179	Uganda Institute of Information and Communications Technology (UICT)
180	Uganda Law Society
181	Uganda Media Centre
182	Uganda National Council for Science and Technology
183	Uganda National Meteorological Authority
184	Uganda Police
185	Uganda Registration Services Bureau (URSB)
186	UN Capital Development Fund (UNCDF)
187	UNDP Chief Digital Office
188	Yumbe District Local Government



With support from the United Nations Development Programme

