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**MINISTRY OF INFORMATION, COMMUNICATIONS TECHNOLOGY AND
NATIONAL GUIDANCE**

OPEN DATA POLICY

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ACRONYMS AND ABBREVIATIONS

API	Application Programming Interface
CSO	Civil Society Organization
CSV	Comma Separated Values
ICT	Information and Communications Technology
IPR	Intellectual Property Rights
MoICT & NG	Ministry of ICT and National Guidance
MDAs	Ministries, Departments and Agencies
NITA-U	National IT Authority- Uganda
NPA	National Planning Authority
MOFPED	Ministry of Finance, Planning and Economic Development
OPM	Office of the Prime Minister
GAPR	Government Annual Performance Report
UBOS	Uganda Bureau of Statistics
ODRA	Open Data Readiness Assessment

EXECUTIVE SUMMARY

Under the Open data policy certain data held by the government shall be made publicly available, with few restrictions on access. This data shall be presented in accessible and reusable formats. Open data is an important resource which has the potential to enhance and transform the delivery of government services in addition to stimulating innovation.

In addition, opening up data shall help improve the transparency and accountability of government and the enactment of this policy is a positive step in that direction. The public sector must aspire to meet the expectations of an increasingly demanding population, improve government services and improve the economy. New Technologies have transformed and revolutionized the interface between citizens and government and the release of open data shall fuel the development of innovative products and services in Uganda.

The implementation of this policy shall help transform current data management practices and create an 'open by default' culture within the public sector by developing ethos that embed publishing open data as a normal part of data management processes.

This policy shall put in place a public governance structure and a shared platform to deliver open data. Embracing the nine open data principles identified in this policy shall ensure that standards are adhered to, feedback is facilitated and that there is transparency about the reasons for withholding some data in the few instances data may not be accessible. The open data policy takes cognizance of the laws of Uganda and stipulates compliant policy actions.

1. INTRODUCTION

Innovative use of technology and data are changing the world we live in. New ground-breaking uses of data, novel insights into existing data and innovative ways of processing, presenting and delivering data through new technologies have improved public services delivery, improved accountability and transparency of government and better citizens' empowerment among other benefits. Opening access to public sector data coupled with removing usage restrictions is a growing trend nationally and internationally.

The open data policy provides a framework for opening up access to government data and provides governance mechanisms. In addition, this policy highlights the requirements for the successful implementation of open data in Uganda.

The policy aims at making all public sector data open by default with exception to personal identifiable information and data with security or commercial or intellectual property rights or environmental restrictions.

The policy is intended to embed the publishing of open data as part of normal internal data management processes in Ministries, Departments and Agencies (MDAs). However, this is expected to take time to implement so initially only data that is in high demand shall be prioritized for publishing.

It shall be mandatory to use open standards and the open government data license shall be used to ensure that there is clarity on which data is free to copy, adapt, utilize commercially and publish. All data at a minimum shall be published in non-proprietary formats and organizations shall be mandated to update their data regularly. In addition, MDAs shall put in place mechanisms to collect feedback on the quality of the open government data so that improvements can be made.

This policy takes into consideration the existing ICT laws, policies and strategies.

For this policy to be successfully implemented there is a need to build skills of public officials in the generation and analysis of data. In this regard, an open data implementation schedule covering a three year period (2017/2018-2019/20) is included in the appendix.

The key milestones to be delivered in the first year of the policy are:

- i. Establish the open data governance framework;
- ii. Develop standards and recommend format for publishing data;
- iii. Create a centralized platform to deliver open data;
- iv. Identify and publish high priority datasets;
- v. Develop and implement a stakeholder engagement plan.

1.1 Situational Analysis

In the process of providing public services and goods, MDAs in Uganda create and maintain vast amounts of data. There are a number of open data initiatives in Uganda being implemented by both the public and private sector.

1.1.1 Government Open Data Initiatives

The Government of Uganda has made significant progress on its Open Data initiative and examples include;

- (a) The online publication of the national budget allocations, releases and other statistical bulletins by Ministry of Finance, Planning and Economic Development (MoFPED). These data sets provide detailed information on how public money is spent on the provision of public services and goods;
- (b) The online publication of the Government Annual Performance Report (GAPR) produced by the Office of the Prime Minister (OPM). The GAPR provides a data-driven tool for assessing Government performance;

- (c) The online publication of Census and National Survey Reports by Uganda Bureau of Statistics (UBOS). The reports are highly valued sources of data for decision making and planning;
- (d) Online publication of the e-Government Readiness Survey and other ICT related surveys by the MoICT and NG, National Information Technology Authority – Uganda (NITA-U) and Uganda Communications Commission (UCC);
- (e) Existence of Government MDAs and Local Governments websites with information related to Government;
- (f) Facilitation of online Citizens’ participation and feedback in partnership with civil society organizations (CSOs) and other Non-Government actors;
- (g) The Development and operationalization of a Government of Uganda Web Portal;
- (h) Conducting a feasibility study for Integration of National Databases to inform priority information systems and integration requirements by the MoICT and NITA-U;
- (i) The Development and Operationalization of a One-Stop Centre Business Portals by Uganda Investment Authority (UIA) and Uganda Registration Services Bureau (URSB);
- (j) The Open Data Readiness Assessment (ODRA);
- (k) Set-up of an Inter-Agency Coordination Structure to oversee the implementation of the Open Data Initiative.

Government’s ongoing initiatives focus on how open data can support performance monitoring as a means to improving service delivery in priority sectors such as health, education, agriculture and energy, and to address cross-cutting issues in budget, expenditure and public procurement management.

1.1.2 Private Sector Open Data Initiatives

The Government has also made a deliberate effort to facilitate Citizens’ participation and feedback in partnership with civil society organizations

(CSOs) and other Non-Government actors. The Government has taken steps to engage with civil society across a wide range of activities—such as improving budget transparency as well as promoting public consensus and local ownership of reforms; giving voice to beneficiaries particularly the poor and marginalized groups; bringing innovative ideas and solutions to development challenges; and increasing country capacity for effective service delivery.

As part of the open data ecosystem, civil society, data journalists, developers, businesses, entrepreneurs, researchers, students, and others use government data to conduct their own business and to help government in understanding how effective they are delivering services to citizens.

The private sector stakeholders are active in posting open data online and some of the successful initiatives include:

1. Open data training; Private operators such as the Code for Africa and Data.ug have held a number of open data training workshops on how to use, understand, and visualize data. The targeted trainees were developers, policy makers and the general public.
2. Data conversion; To make use of the data, outside groups have had to convert the tables in these Government PDF documents into datasets through time-consuming reentry of the data. One specific example of this involves data published by the Ugandan National Roads Authority (UNRA) for the proposed national roads for periodic maintenance. The data was available from UNRA in a PDF document. The data in this table was then recreated by a developer as an interactive, online dataset in a CSV format, with an API (application programming interface) to allow reuse of this data.
3. Innovation Hubs. Some innovation hubs are involved in developing and analyzing government open data. These organizations are also involved in creating awareness on open data. Several hubs are

transforming government data into visualizations, innovative data sets and insights.

4. Open Data Apps; The GoU together with UNICEF used U-Report to deploy a mobile polling system that allowed 300,000 farmers and rural villagers to easily report the presence of a banana bacteria wilt disease that threatened the central crop of the Ugandan diet. Fast and easy reporting allowed quicker treatment of crops and control of the disease.
5. Research community; Research institutions like the Economic Policy and Research Center (EPRC) and University are teaching data literacy courses. EPRC began teaching courses to government officials in March 2015 focusing on data-driven decisions. Universities have courses open data presentation, usage, and analysis.

1.2. Legal and Regulatory Framework

1.2.1 The Access to Information Act

This policy is enshrined in the access to information act (2005). The access to information act, 2005 provides for the right of access to information pursuant to article 41 of the Constitution; to prescribe the classes of information referred to in that article; the procedure for obtaining access to that information, and for related matters. The access to information act, 2005 thus states that *“Every citizen has a right of access to information and records in the possession of the State or any public body, except where the release of the information is likely to prejudice the security or sovereignty of the State or interfere with the right to the privacy of any other person.”*

1.2.2 The National ICT Policy

The National ICT policy (2014) identifies the implementation of Government open data systems to enable citizen’s access to Government information as one of the priority e-Government applications and services. This requirement was identified through a survey and consultation with government agencies, citizens and the private sector.

1.2.3 The Data Protection and Privacy Bill

This Bill when enacted is intended to protect the privacy of the individual and of personal data by regulating the collection and processing of personal information; to provide for the rights of the persons whose data is collected and the obligations of data collectors, data processors and data controllers; to regulate the use or disclosure of personal information; and for related matters. This Bill applies to any person, institution or public body collecting, processing, holding or using personal data.

1.2.4 The Computer Misuse Act

The Computer Misuse Act (2011) makes provision for the safety and security of electronic transactions and information systems; to prevent unlawful access, abuse or misuse of information systems including computers and to make provision for securing the conduct of electronic transactions in a trustworthy electronic environment and to provide for other related matters. In this regard, the implementers of open data are therefore expected to act within the precincts of this law.

1.3 Rationale for the Open Data Policy

Implementation of open data initiatives is expected to bring about a number of benefits that include:

Better management and use of data within government, and enabling broader access and use (e.g. by non-government organisations, businesses and industry, academia, innovators and civil society) provides a range of benefits to both the public and private sector as shown in Figure 1 below:



Figure 1: Open Data Opportunities in Government

- i. **Enabling participatory governance;** increased access to government data provides the public with greater insight into government activities, service delivery and use of public resources.
- ii. **Improved government transparency and accountability;** Availability of open data helps citizens to hold their government and administration accountable. This will in turn help to reduce corruption and mismanagement
- iii. **Opportunity for improved or new private products and services -** Open and unrestricted access to scientific data for public interest purposes, particularly statistical, scientific, geographical, and environmental information, maximizes its use and value, and the reuse of existing data in commercial applications improves time-to-market for businesses.
- iv. **Share data:** allows easy access to data, particularly between MDAs, thus leading to improved efficiency and effectiveness of public services delivery.
- v. **Support for innovation -** Access to knowledge resources in the form of data supports innovation by reducing duplication and promoting

reuse of existing resources. This leads to creation of new opportunities for economic growth, new businesses and jobs.

- vi. **Improved efficiency and effectiveness of government services** – Uganda has invested in information and communications networks in the form of technical infrastructure and community services such as information centers and public Internet access points.
- vii. **New knowledge from combined data sources and patterns in large data volumes** - Government, citizens, academia, and the private sector shall ably work together and collaboratively find new answers to solve societal problems using available open data from previously conducted studies.
- viii. **Evidenced based Policy development Process;** open data facilitates a more efficient and effective public sector through improvements in the use and application of data for financial and evidence-based policy decisions; strategic and targeted cross-agency collaboration; and the development of innovative solutions, services and tools where there is an identified policy or community need.
- ix. Opening access to data also supports public sector efficiencies and savings through reduced duplication, streamlined processes, and the development and delivery of tools/services more quickly and at lower costs.

2. GUIDING PRINCIPLES

2.1 Access to Open Data

The open data platform shall be accessible through GoU open data portal. Not all data shall necessarily be held on the portal, but it shall be a means of signposting people to the data they require. The portal shall be designed with both technical and non-technical users in mind and shall adhere to open standards.

2.2 Use of open standards to ensure interoperability

Considering that good metadata is crucial in determining the usability of any data resource, this policy shall therefore mandate an appropriate standard for metadata to adhere to in order to enable interoperability with the central metadata catalogue on the open data platform. Guidance on tools to enable organizations to create and validate metadata shall be provided.

2.3. Data Presentation

All dataset owners shall publish their data in non-proprietary formats such as comma separated values (csv). Additionally, in consultation with the Open Source Policy and to the extent permitted by law, public bodies shall prioritize the use of open formats that are non-proprietary, publicly available, and that place no restrictions upon their use.

2.4. Providing for Open Data in e-Government

Going forward the ability to publish open data shall be built into all public sector contracts and procurements. This shall also ensure that the intellectual property of public sector data stays with the public sector and not 3rd party suppliers.

2.5. Copyright and Intellectual Property Rights

To ensure clarity on who can use the data and for what purposes, unless otherwise stated the users shall be free to copy, publish, distribute, adapt

and exploit the information commercially or otherwise so long as they acknowledge the source of the information via an attribution statement.

2.6 Feedback mechanisms

Public sector bodies shall publish their data in as raw a form as possible with any errors or limitations with the data noted in the metadata. Feedback loops on data quality shall be developed via the open data platform. This shall facilitate users to submit comments and feedback to data publishers to drive improvement in the data over time.

2.7 Updating of published datasets

Many open data initiatives which are initially successful in publishing data subsequently fail due to data not being refreshed. All datasets published on the open data platform shall be mandated to be refreshed according to the schedule stated in the associated metadata record.

2.8 Restricted data

Restricted data that shall not be released shall include:

- a. **Personal data** - the public sector holds citizen data to conduct business with the citizen and deliver appropriate services. Open data does not include citizen personal data; legislation (the Data Protection Privacy Bill) protects personal and sensitive data and must be complied with. If data can be released it shall be made anonymous or aggregated using recognized statistical methods to ensure data privacy for individuals

- b. **Security, commercial or Intellectual Property Rights (IPR) considerations** - data must not compromise national security, defense, or public security – or statistical or commercial confidentiality or have licensing restrictions. Where there is 3rd party IPR and data cannot be released – when renewing agreements or procuring new datasets, a right to releasing data as open data must be aspired to. Currently there are a number of areas within the public

sector which are income generating and subject to a commercial license such as mapping data from Land and Property Services.

- c. **Environmental reasons** - data of environmental importance where disclosure would adversely affect the protection of the environment to which the information relates.

2.9 Data archiving

Effort shall be made to create a permanent and lasting access to time stamps of data by creating an archiving policy that is aligned to the provisions of the National Records Policy. Subsequently, strategies and guidelines for data archiving by MDAs shall be developed that also take into consideration the current best practice.

3. VISION AND OBJECTIVES AND SCOPE OF THE POLICY

3.1 The Vision

The vision of the policy is to embed a culture of ‘open data by default’ within the Uganda public sector in order to drive public service efficiency, stimulate innovation and economic development.

3.2 The Objectives

The main objective of the open data policy is to ensure the availability and proper management of open government data. In order to fulfill this main objective, the following specific objectives shall be met:

- i. To ensure that government data and information shall be publicly available;
- ii. To provide a framework for promotion and implementation of open data initiatives in the public sector;
- iii. To create a single point of access to public sector open data;
- iv. To ensure compliance with open data standards and legislation;
- v. To encourage and drive uptake of the use of open data;
- vi. To promote the increase of open data skills.

3.3 Scope of the open data policy

The Policy applies to all MDAs as defined in the Constitution of Uganda. These shall include Ministries, Departments, Agencies, Statutory Bodies, Government Enterprises, Public Universities, Local Government Administrations, Courts, Parliament, tribunals, Consultants, Government Contractors and recipients of Government funding.

The Open Data Policy applies to information and data in the custody or under the control of all MDAs. The focus of the Policy is raw data (data not yet subjected to analysis or interpretation). However, the Policy can also apply to other types of information such as data that has been processed to provide greater value. The Policy also applies to all new data collection and

creation, development of systems that collect or create data, and any modernization projects that update existing data systems.

Before publishing data, MDAs shall consider their own legislative requirements, and the value and intended outcome of openness against the cost and potential implications of making that data open. This shall assist with decisions surrounding how best to manage the data, including whether to release the data and under what conditions, and the priorities for release.

The Open Data Policy shall institute specific actions to ensure all MDAs shall take steps to expand public access to government data by making it available online unless restricted by law, policy, regulations or contract.

4. PRIORITY ACTION AREAS

Achieving complete open data is a progressive and evolving process. This policy identifies the following as the key priority action areas that need to be implemented first:

- i. Conduct a full due diligence review of existing legislation, regulations and policies with respect to open data in order to identify gaps and inconsistencies.
- ii. Convene an Open Government Data Technical Working Group (TWG) to guide the open data initiative.
- iii. Establish an open government data portal that shall provide online public access to authoritative versions of government sanctioned open data. The open data portal shall a) provide a one-stop centre for users to find government data regardless of which ministry provides it, and b) provide an authoritative reference for anyone to access in case data is misinterpreted or used improperly.
- iv. Focus on the publication of a select number of high-value datasets for initial release, to be determined by the open data working group, aligned with the Governments' goals of improving performance management and service delivery.
- v. Add an open data component to the development of essential data e-government systems.
- vi. Promote the use of open government data in solving society challenges. For instance, partner with innovation hubs in Uganda to transform open government data into new economic opportunities.
- vii. Implement data monitoring and feedback systems to measure increased efficiencies from publication of open data, and identify demand for additional data.

- viii. Identify and allocate funding for open data activities by various MDAs.

- ix. Leverage existing training and capacity building programs to enable all Ugandans to use open data to make better, data-driven decisions about schools, health care and other critical issues.

5. GOVERNANCE

The Office of the Prime Minister (OPM) shall lead the overall national coordination of the implementation of the Open Data Policy and shall lead the monitoring of the MDAs' implementation of the Open Data policy actions with support from the Ministry of ICT and NG.

An open data Steering Committee and Technical Committee shall help to improve the interoperability and openness of government information. The Committees shall focus on leveraging government-wide communities of practice to help with the development of tools that support information interoperability and openness. Part of this work shall be to share best practices related to interoperability and openness within. These collaborations shall be subject to statutory limitations and conducted in a way that fully protects privacy, confidentiality, confidential business information and intellectual property rights.

6. INSTITUTIONAL FRAMEWORK

Open data requires agencies to manage their data assets with a transparent, organized process for data gathering, security, quality control, and release. To effectively carry out these responsibilities, agencies need clear business processes for data management as well as staff with adequate ICT skills and technical understanding of open data. Engagement among agencies at all levels of government to set common standards and remove impediments to data interoperability and exchange are also vital.

The following institutions are important in creating a favorable institutional framework that shall improve policy formulation, coordination and implementation of the open data initiative in Uganda. While the mandate for ICT portfolio lies in the Ministry of ICT, the following MDAs are key in defining and implementing the required institutional framework.

6.1 Ministry of ICT and National Guidance

The ministry of ICT and National Guidance shall among others:

- a. Issue guidance for all MDAs to publish open data consistent with best practices and establish high-level commitment;
- b. Ensure that the ICT staffs have adequate technical skills to implement open data in the MDAs (e.g. knowledge of open data standards, metadata, APIs, and database management);
- c. Provide technical support and guidance to other MDAs in the preparation of their datasets and in adhering to best practices for data management;
- d. Ensuring that the e-government systems being acquired by MDAs have adequate configurations to provide open data
- e. Provide technical support to MDAs in developing institutional open data plans
- f. Develop applications for open data

6.2 Office of the Prime Minister

The Office of the Prime Minister (OPM) shall among others:

- a. Engage citizens and advocate for new ways to use open data to improve performance management and service delivery
- b. Monitor and Evaluate the compliance of Agencies to the Policy
- c. Cause the amendment and update of the Open Data Policy from time to time to ensure currency of the policy and to address new or emerging needs and best practices;
- d. Issue supplemental Policy on categories of Open Data that shall be made publicly available and listed in the Open Data Catalogue;
- e. Issue procedures and best practices to support the open data policy;
- f. Ensure the open data portal and the open data catalogue are managed in accordance with the requirements set out in this policy;
- g. Recommend types of data that may or shall be made available as open data through the open data catalogue;
- h. Provide instructions or advise any action that Government Agencies shall undertake to support effective implementation of this Policy.

6.3 Ministry of Finance Planning and Economic Development

The Ministry of Finance Planning and Economic Development (MoFPED) shall:

- a. Provide guidance to MDAs/LGs to budget for Open Data activities as per their work plans.
- b. Setting up and Operationalization of an Integration of Government Information Systems Steering Committee;
- c. Ensure timely release of funds for implementing open data.

6.4 Ministry of Public Service

The Ministry of Public (MoPS) Service shall:

- a. Provide guidance on integration of Open data best practices in Polices, Management Systems,
- b. Put in place human resource structures that support the implementation of open data in Public Service.

6.5 Ministry of Justice and Constitutional Affairs

The Ministry of Justice and Constitutional Affairs (MoJCA) shall:

- a. Provide legal advice and legal services to Government with regard to Open Data;
- b. Provide technical guidance and support to the development of a comprehensive legal framework for Open Data governance.
- c. Conduct a full due diligence review of existing legislation, regulations and policies relevant to open data to identify gaps and inconsistencies.
- d. Provide legal advice to their Agencies regarding confidentiality and copyright matters (in consultation with the Office of the Solicitor General); and
- e. Provide advice to the government institutions regarding legal or contractual matters.

6.6 Uganda Communications Commission

Uganda Communications Commission (UCC) shall among others:

- a. Regulate the release and circulation of data/information across telecommunications, radio, television and postal and courier services industry.
- b. Create partnerships with telecommunications providers, intermediaries and businesses to help provide access to data in rural and low-bandwidth areas.

6.7 National Information Technology Authority (NITA-U)

The National Information Technology Authority – Uganda (NITA-U) shall among others:

- a. Establish a centralized online portal to provide a single listing of all available open data
- b. Provide Data Hosting Services for Agency Data Sets
- c. Initiate partnerships with developers and innovation hubs to begin to unlock the economic value of open data in Uganda

- d. Issue the Government Enterprise Architecture and Interoperability Framework for utilization to maintain Interoperability, data standards and processes related to data management
- e. Ensure that MDAs use open standards to publish their data

6.8 Uganda Bureau of Statistics (UBOS)

The Uganda Bureau of Statistics (UBOS) shall among others:

- a. Identify and coordinate preparation of not less than 6 high-value datasets for early release.
- b. To provide technical oversight with respect to data management, data production, and the establishment of data standards.

6.9 National Planning Authority (NPA)

The Uganda Bureau of Statistics (UBOS) shall among others:

- a. Identify and ensure that provisions for open data are embedded in the National Development Plans.
- b. Develop open data sets for publishing

6.10 Public Procurement and Disposal Authority (PPDA)

The PPDA shall among others:

- a. Ensure that authorized information about Government Agencies Procurements (e.g., Procurement Laws, Procurement Awards, Contractor Performance, Contract Status, etc.) is made available in form of Open Data based on International Best Practice.

6.11 Other MDAs

Agencies shall perform a self-assessment based on the compliance checklist or other parameters as may be circulated by the OPM at the time of assessment request, and submit report with OPM. Agencies shall submit any additional information or report as may be requested by OPM to assess progress of Open Data implementation.

Agencies shall undertake their utmost efforts to disclose information to the public, make such disclosure useful, and identify new opportunities for collaboration.

Senior officers assigned by the MDAs with the overall responsibility of Data Management shall carry out the following:

- a. Lead their institutions in release of open Data;
- b. Ensure that Policy requirements and targets as set out in this document are implemented and achieved in their institutions;
- c. Prepare and execute Open Data plan in accordance with the Policy targets as set out in this document;
- d. Report progress against the Open Data plan to senior management of their respective Agencies on a periodic basis, and OPM and Integration of National IT Systems Steering Committee as may be requested;
- e. Adhere to and report compliance on Policies and instructions issued on Open Data from time to time by the OPM.

7. MONITORING AND EVALUATION

This Policy shall be reviewed on an annual basis led by the Office of the Prime Minister. The various MDAs will directly monitor the key areas under their mandate using their own budgets.

As part of the M&E a policy monitoring tool will be developed that will automate the collection, analysis and reporting of the open data status.

8. RISKS

There are risks related to the release of public sector data around its interpretation and use. Examples include incorrect conclusions being drawn from faulty analysis, quality of data not being perfect and deliberate manipulation of the data or privacy disclosure. Most of the risks that result from using open data are due to a lack of communication or a lack of interpretation between the data provider and the data user about limitations, errors or the timeliness of the data. This risk exposure can be mitigated by introducing clear communication and validation procedures along with clear and precise metadata. Anonymizing and aggregating data properly to avoid disclosure of any personal data shall ensure that the fundamental right to the protection of personal data is maintained.

9. FINANCIAL IMPLICATIONS

In order to successfully implement actions and plans arising from this policy, special attention shall be paid to internal and external resource mobilization strategies; targeting the involvement of private sector through Public Private Partnerships (PPPs). The role of development partners and other stakeholders is very important. The Ministry of ICT (and its Agencies) shall be responsible for coordinating resource mobilization in conjunction with the Ministry of Finance, Planning and Economic Development for implementing the Software Innovation Strategy. This shall include coordinating investments, providing for equitable and transparent resource allocation as well as monitoring and evaluation.

In particular, financial resource mobilization shall include;

- a) Contributions from the E-Government Fund
- b) Contributions from the national budget reflected as percentage expenditure on ICTs in the sector budgets;
- c) Contributions/sponsorship from national stakeholders/local industries;
- d) Contributions from bilateral/multilateral development partners;
- e) Contributions from the RCDF and any other established Funds supporting ICT;
- f) Collections realized from charges, fees and revenue from ICT services provided by the Ministry of ICT through services by its Agencies.

The financial implication for implementation of the policy by the Ministry of ICT is estimated to cost **UGX2.36BN** over a period of three years. The details are reflected in the appendix. Individual sectors, institutions and the private sectors shall budget for activities in relation to their roles in the implementation of this policy.

10. CONCLUSION

The release of public sector data is an ambitious undertaking. The goal of this Policy is to change internal processes so that data is automatically published as open data, once collected. This shall take time to embed, however it shall be worthwhile in terms of the value derived from it. Value such as increased transparency, which in turn shall promote increased trust and participation from citizens, value from enhancing new innovation and providing new services, value from increased efficiency in driving down administrative costs in relation to answering requests and value from engaging in better information management practices such as metadata creation. In order to deliver the Policy we shall create both the appropriate governance to drive it and a technical platform to deliver it. Stakeholder engagement is crucial so we shall continue to engage with data-holders, data-users and developers, and investigate opportunities to publish new information through existing or innovative channels. In addition, by adhering to the 9 open data principles we are showing our commitment to fully embrace open data to achieve the vision of embedding a culture of open by default across the public sector.

11. GLOSSARY

Aggregated data - A form of anonymization of unit records involving combinations such that individual details cannot be discerned from the data.

Metadata - Data that describes or defines other data. Anything that users need to know to make proper and correct use of the real data, in terms of reading, processing, interpreting, analyzing and presenting the information. Thus metadata includes file descriptions, codebooks, processing details, sample designs, fieldwork reports, conceptual motivations, etc., in other words, anything that might influence the way in which the information is used.

Open data - Data which can be used, re-used and re-distributed freely by anyone - subject only at most to the requirement to attribute and share-alike. There may be some charge, usually no more than the cost of reproduction.

Public Sector Information (PSI) -The wide range of information that public sector bodies collect, produce, reproduce and disseminate in many areas of activity while accomplishing their Public Task.

Personal data - As defined by the Data Protection Act 1998, data relating to a specific individual where the individual is identified or identifiable in the hands of a recipient of the data.

Public task - Public task information consists of information that a public sector body must produce, collect or provide to fulfill its core role and functions, whether these duties are statutory in nature or are established through custom and practice.

12. APPENDIX

12. Open Data Implementation Schedule

No.	Activity	Timeline	Lead
1.	First draft of the open data policy	May 2017	MoICT
2.	Second draft of the open data policy	June 2017	MoICT
3.	TMT approval	June 2017	MoICT
4.	Submitted to Cabinet	July 2017	
5.	Dissemination of the Open Data Policy in MDAs and LGs	Aug 2017– June 2018	All
6.	Open Data Portal	July 17-July 18	NITA-U
7.	Training of Personnel in MDAs	July 17-July18	MoICT/NITA-U
8.	Development of the Institutional Open Data Plans	July 18-June 19	MoICT
9.	Development of the open data catalogue	July 17-Jul 18	NITA
10.	Identify key datasets to publish	July 17-July 18	MoICT
11.	MDAs to publish open data webpages	July 18-June 19	All
12.	Carry out an annual M & E	July 17-July 18	MoICT

12.3 Star Linked Open Data Model

The 5-star Linked Open Data Model by Sir Tim Berners-Lee (inventor of the World Wide Web) puts forward five levels of data openness, which are cumulative, in that the 2-stars encompasses what is required at the 1-star level, and so on:

*	Data is available on the web with an open license
**	Data is available in machine-process-able, structured form (e.g. CSV format instead of an image scan of a table)
***	Non-proprietary formats are used (e.g. CSV, XML)
****	Use URLs and open standards to describe data (e.g. RDF, SPARQL), so users can point at the data
*****	Data is linked to data from other sources or other datasets to provide context

5-Star Linked Open Data Model

Note that not all data needs to meet 5 star schema requirements described above. Some MDAs can create value by just publishing data straight away with an open license. While publishing data in machine readable formats is desirable, government officials shall not forget that the refinement of data to generate machine readable data can also be done by third parties.

12.4 Appendix - Open Data Assessment Guidelines

The attached Open Data Assessment shall be completed by the Agencies to ensure that there are no legal, policy, or contractual restrictions to making the Data publicly available as Open Data. The attached form and checklist must be completed by the Open Data official and approved by the IT Department Manager or delegate in the Government Agency before listing Open Data in the Open Data Catalogue.

A copy of the approved Open Data Assessment checklist must be kept in record for any future reference or audits.

Generally speaking, the majority of non-personal data can be considered for listing in the Open Data Catalogue. An assessment shall assist the Agency in objectively evaluating various considerations associated with opening up of government data. Government Agencies may add parameters to the assessment checklist as they may deem fit.

No.	Open Data Checklist	Yes	No
Privacy			
1	Is the Data free of information that may directly or indirectly identify an individual?		
Copyright (Agencies may contact their legal departments or counsels to assist in this assessment.)			
2	Do the materials include only content created and owned by the Government of Uganda (i.e., is it ensured that there is no third party content included in the materials)?		
3	Has it been ensured that there is no exclusive license for another party to use or access the materials?		
Legal, Contractual or Policy Constraints (Agencies may contact their legal departments or counsels to assist in			

this assessment.)		
4	Is the public release and use of the Data permitted under law, contract or policy including any data privacy laws if applicable?	
5	If there are legal, contractual or policy restrictions or limitations to the public release or use of the Data, have they been addressed?	
Security Controls		
6	Is the public release and use of the Data compliant with the National Information Security Framework (NISF) requirements?	
7	Has the information security officer or designate in the Agency been contacted to ensure that all necessary security controls have been implemented?	
Pricing Frameworks		
8	Is the Data available to the public without collecting a fee?	
Data Source		
9	Does the Agency have primary responsibility for the Data?	
10	Is the Data complete (i.e., a subset of the data has not been excluded)?	
11	Can the Data be provided in a machine-process-able format (e.g., CSV)?	

If the answers to these questions are “Yes”, the Data can be included in the Open Data Catalogue located on the Open Data portal. Any “No” responses indicate that the Data is either not eligible for inclusion in the Open Data Catalogue or potential barriers must be addressed before the Data can be included, in which case exceptions may require specific approvals.

12.5 Appendix - Data and File Formats

(a) Machine-readable formats

In the context of data release, machine-readable means making any underlying data used in publications accessible for use by a computer-based process, not requiring human interpretation. At one level, all information and data available on computer-based devices are machine-readable. Word document files are machine-readable in the sense that Word and other compatible programs are able to interpret the data and present it as text on a screen. Similarly HTML is a standard that indicates how to display Web pages in a browser. But these need human interpretation to make sense of them. The key aspect for release of underlying data is that it can be extracted from any particular format and reused and repurposed by a computer program without human interpretation.

(b) Open and closed file formats

The formats in which information is published – in other words, the digital base in which the information is stored - can either be '*open*' or '*closed*'.

An *open format* is one where the specifications for the software are available to anyone, free of charge, so that anyone can use these specifications in their own software without any limitations on reuse imposed by intellectual property rights.

If a file *format is 'closed'*, this may be either because the file format is proprietary and the technical specifications are not publicly available, or because the file format is proprietary and even though the specification has been made

public, reuse is limited. If information is released in a closed file format, this can cause significant obstacles to reusing the information encoded in it, forcing those who wish to use the information to buy the necessary software.

The ***benefit of open file formats*** is that they permit developers to produce multiple software packages and services using these formats. This then minimizes the obstacles to reusing the information they contain.

Using proprietary file formats for which the specification is not publicly available can create dependence on third-party software or file format license holders. In worst-case scenarios, this can mean that information can only be read using certain software packages, which can be prohibitively expensive, or which may become obsolete.

(c) Preference

The preference from the Open Government Data perspective therefore is that information be released in ***open file formats*** that are ***machine-readable***:

- (i) **Plain text** - Plain text documents (.txt) are very easy for computers to read. They generally exclude structural metadata from inside the document, however, meaning that developers shall need to create a parser that can interpret each document as it appears. Some problems can be caused by switching plain text files between operating systems. MS Windows, Mac OS X and other Unix variants have their own way of telling the computer that they have reached the end of the line.

- (ii) **Text document** - Classic documents in formats like Word, ODF, OOXML, or PDF may be sufficient to show certain kinds of data - for example, relatively stable mailing lists or equivalent. It may be cheap to exhibit in, as often it is the format the data is born in. The format gives no support to keep the structure consistent, which

often means that it is difficult to enter data by automated means. In this case, templates shall be used as the basis of documents that shall display data for reuse, so it is at least possible to pull information out of documents. It can also support the further use of data to use typography mark-up as much as possible so that it becomes easier for a machine to distinguish headings (any type specified) from the content and so on. Generally it is recommended not to exhibit in word processing format, if data exists in a different format.

(iii) **Comma separated files (CSV)** - CSV files can be a very useful format because it is compact and thus suitable to transfer large sets of data with the same structure. However, the format is so Spartan that data are often useless without documentation since it can be almost impossible to guess the significance of the different columns. It is, therefore, particularly important for the comma-separated formats that documentation of the individual fields are accurate. Furthermore it is essential that the structure of the file is respected, as a single omission of a field may disturb the reading of all remaining data in the file without any real opportunity to rectify it, because it cannot be determined how the remaining data shall be interpreted.

(iv) **Spreadsheets** - Many Agencies have information left in the spreadsheet, for example Microsoft Excel. This data can often be used immediately with the correct descriptions of what the different columns mean. However, in some cases there can be macros and formulas in spreadsheets, which may be somewhat more cumbersome to handle. It is, therefore, advisable to document such calculations next to the spreadsheet, since it is generally more accessible for users to read.

- (v) **HTML** - Nowadays much data is available in Hypertext Mark-up Language (HTML) format on various sites. This may well be sufficient if the data is very stable and limited in scope. In some cases, it could be preferable to have data in a form easier to download and manipulate, but as it is cheap and easy to refer to a page on a website, it might be a good starting point in the display of data. Typically, it would be most appropriate to use tables in HTML documents to hold data, and then it is important that the various data fields are displayed and are given IDs which make it easy to find and manipulate data. Yahoo has developed a tool (<http://developer.yahoo.com/yql/>) that can extract structured information from a website, and such tools can do much more with the data if it is carefully tagged.
- (vi) **JSON** - JavaScript Object Notation (JSON) is a simple file format that is very easy for any programming language to read. Its simplicity means that it is generally easier for computers to process than others, such as XML.
- (vii) **XML** - Extensible Markup Language (XML) is a widely used format for data exchange because it gives good opportunities to keep the structure in the data and the way files are built on, and allows developers to write parts of the documentation in with the data without interfering with the reading of them.
- (viii) **RDF** - A W3C-recommended format called Resource Description Framework (RDF) makes it possible to represent data in a form that makes it easier to combine data from multiple sources. RDF data can be stored in XML and JSON, among other serializations. RDF encourages the use of URLs as identifiers, which provides a convenient way to directly interconnect existing open data initiatives on the Web. RDF is still not widespread,

but it has been a trend among Open Government initiatives. The inventor of the Web, Tim Berners-Lee, has recently proposed a five-star scheme that includes linked RDF data as a goal to be sought for open data initiatives.

(ix) **Scanned image** - Probably the least suitable form for most data, but both TIFF and JPEG can at least mark them with documentation of what is in the picture - right up to mark up an image of a document with full text content of the document. It may be relevant to their displaying data as images whose data are not born electronically - an obvious example is the old historical records and other archival material - and a picture is better than nothing.

(x) **Proprietary formats** - Some dedicated systems, etc. have their own data formats that they can save or export data in. It can sometimes be enough to expose data in such a format - especially if it is expected that further use would be in a similar system as that which they come from. Where further information on these proprietary formats can be found shall always be indicated, for example by providing a link to the supplier's website. Generally it is recommended to display data in non-proprietary formats where feasible.

12,6 Appendix - Key Open Data Targets

No.	Task	Target	Responsibility
1.	Issue Government Directive or Standing Circular Instruction about the Open Data Initiative and the Guideline	1	<ul style="list-style-type: none"> • Prime Minister
2.	Designate senior Official with sufficient authority to assume the Open Data responsibilities	1	<ul style="list-style-type: none"> • Permanent Secretary • CEO • Executive Director
3.	Develop Agency's Open Data plan	3	<ul style="list-style-type: none"> • Senior officer assigned by the Government Agencies
4.	(a) Create a webpage dedicated to Open Data in the Agency's websites (b) Publish Agency's Open Data plan on the Agency's Open Data webpage with provision for public feedback/requests (c) Identify and publish at least Two (2) datasets on the Open Data webpage in accordance with the terms of this Guideline (d) Categorize, list and provide index for all datasets in form of Open Data Catalogue	5	<ul style="list-style-type: none"> • Senior officer assigned by the Government Agencies

5.	Establish or facilitate establishment of a national Open Data portal	5	<ul style="list-style-type: none"> • NITA-U
6.	Provide index and links to all Agencies Open Data and public feedback/requests on the national Open Data portal	5	<ul style="list-style-type: none"> • Senior officer assigned by the Government Agencies • OPM • NITA-U
7.	First Open Data implementation review	7	<ul style="list-style-type: none"> • OPM • NITA-U
8.	Identify and publish additional 3 datasets	12	<ul style="list-style-type: none"> • Senior officer assigned by the Government Agencies • OPM • NITA-U

Target - Duration from Date of Publishing this Guideline (Months)

Table 1 - Key Open Data Targets

12.7 Appendix - Open Data Guideline Compliance Checklist

The Progress of implementation of the Open Data Initiative at the Government Agencies shall be measured against the following broad checklist on an annual basis by Ministry of ICT and NG:

No.	Open Data Compliance Checklist	Yes	No
1	Has the Agency created an Open Data plan?		
2	Has the Agency assigned Open Data responsibilities to a senior officer in the Agency?		
3	Has the Agency created an Open Data webpage on their website?		
4	Is the Agency publishing information on the Open Data webpage?		
5	Has the Agency published their Open Data plan and related information on their Open Data webpage?		
6	Has the Agency published at least 2 datasets on their Open Data webpage in the assessment year?		
7	Does the Agency maintain Open Data Catalogue?		
8	Does the Agency maintain and update Open Data on its webpage on a routine basis?		
9	Does the Agency perform Open Data assessment and publish only qualifying information or data on their webpage?		
10	Does the Agency's Open Data webpage allow public to provide feedback and request for information?		
11	Does the officer assigned the Open Data responsibilities provide response to public query on a timely basis?		

12	Does the officer assigned the Open Data responsibilities provide progress report on Open Data plan to management on a periodic basis		
13	Does the management review the monthly progress and take remedial action to support effective implementation of this Guideline and Agency's Open Data plan?		
14	Does the Agency update its Open Data plan to include additional set of tasks and new datasets for opening up, on an annual basis?		

Table 2 - Open Data Compliance Checklist

The OPM reserves the right to update or modify the above compliance checklist as it deems fit for monitoring progress of implementation of Open Data Guideline. OPM may request the Agencies to perform a self-assessment and provide responses within 15 working days of such request. OPM may request for further information or details during evaluation of Agencies' self-assessment reports.