GUIDELINES AND STANDARDS FOR ACQUISITION OF INFORMATION TECHNOLOGY HARDWARE & SOFTWARE FOR GOVERNMENT MINISTRIES, DEPARTMENTS AND AGENCIES

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ABBREVIATIONS AND ACRONYMS

COBIT: Control Objectives for Information and related Technologies

CRT   :   Cathode Ray Tube

EULA :   End User License Agreements

EIT   :   Electronic and information technology

NITA-U: National Information Technology Authority-Uganda

IT   :   Information Technology

IT   :   Information and Communications Technology

IEEE :   Institute of Electrical and Electronics Engineering

IEC   :   International of Electro-technical Commission

IRR   :   Information Resources Request

ITIL   :   Information Technology Infrastructure Library

ITR   :   Information Technology Resources

ISO   :   International Organization for Standardization

LCD   :   Light Crystal Display

MDA   :   Government of Uganda Ministries, Departments and Agencies

NEMA: National Environmental Management Authority

PPDA: Public Procurement and Disposal of Assets Authority

RAM   :   Random Access Memory

UNBS: Uganda National Bureau of Standards

ROHS :   Restriction of Use of Hazardous Substances

URA   :   Uganda Revenue Authority

DEFINITIONS OF TERMS

1. **Computer:** means an electronic, magnetic, optical, electrochemical or other data processing device or a group of such interconnected or related devices, performing logical, arithmetic or storage functions; and includes any data storage facility or communications facility directly related to or operating in conjunction with such a device or group of such interconnected or related devices; (Definition adopted from the Computer Misuse Act 2011)

2. **Computer Hardware:** Is a comprehensive term for all of the physical parts of a computer, as distinguished from the data it contains or operates on, and the software that provides instructions for the hardware to accomplish tasks. A typical computer (Personal Computer, PC and laptop) contains the following parts:

3. **External Hardware/ peripherals:** Keyboards, mice, scanners, cameras, microphones etc. which provide input to the computer. Monitors, printers, projectors, speakers etc. which display output from the computer;

4. **Electronic and information technology (EIT):** EIT is information technology (IT) and any equipment or interconnected system or subsystem of equipment, which is used in the creation, conversion, or duplication of data or information;

5. **Electronic equipment:** is equipment that involves the controlled conduction of electrons (especially in a gas or vacuum or semiconductor) e.g. amplifier, audio and sound system, cassette player, CD player, Cathode Ray Oscilloscope, detector, equalizer, mixer, modem, telephone etc.

6. **Extended Producer Responsibility (EPR):** is an environment protection strategy that makes the producer responsible for the entire life cycle of the product, especially for take back, recycle and final disposal of the product;

7. **E-waste:** is a term encompassing various forms of electrical and electronic equipment that are old, end-of-life electronic appliances that have ceased to be of any value to their owners. (Definition by UNEP);

8. **Information Resources Request**: A formal Request to acquire Information Technology (IT) Resources;
9. **Information Technology Resources**: ITR resources include equipment, software and services;

10. **Life Span** The average or maximum length of time IT equipment can be expected to survive or last while being used for the purpose for which it was manufactured for;

11. **Restriction of Use of Hazardous Substances (ROHS):** Are restrictions set by the European Union to limit or ban specific substances such as lead, cadmium, polybrominated biphenyl (PBB), mercury, hexavalent chromium, and polybrominated biphenyl ether (PBDE) flame retardants in electronic and electric equipment;

12. **Standby power:** Is the electricity consumed by appliances when they are switched off or not performing their primary function. It's sometimes called leaking, vampire or phantom electricity;

13. **Office automation:** Refers to the varied computer hardware/machinery and software used to digitally create, collect, store, manipulate, and relay office information needed for accomplishing basic tasks and goals. Raw data storage, electronic transfer, and the management of electronic business information comprise the basic activities of an office automation system;

14. **Workstations**: A general-purpose computer with a higher performance level than a personal computer.

1.   INTRODUCTION

The Government of Uganda recognizes the importance of Information and Communications Technology (IT) in economic development and has initiated major steps to promote its use. One of the major initiatives is to improve IT infrastructure so as to bridge the digital divide and lower the cost of communication.

The government is leveling the ground through formulation and implementation of policies and regulations aimed at attracting investment in the IT sector. There has been tremendous growth in the number of Institutions providing IT training, internet service providers, suppliers of computers and related accessories/equipment.

Due to lack of standards the IT industry has been facing challenges like proliferation substandard, counterfeit IT products

The National Information Technology Authority-Uganda was established by the NITA-U Act 2009 with a mandate to coordinate, promote and monitor IT development within the context of National Social and Economic development.

As stipulated in the NITA-U Act 2009; functions of the Authority; Section 5(d); one of the core functions of NITA-U is "*To regulate and enforce standards for Information Technology Hardware & software planning, equipment* **procurement** *in all Government Ministries, departments, agencies and Parastatals*".

In addition to that, the National IT Policy provides for the development and enforcement of Information Technology Standards and guidelines for software and hardware through public and private partnerships for harmonized and coordinated IT Systems across Government.

It is against this background that the NITA-U embarked on developing these sets of guidelines and minimum specifications to complement the PPDA regulations on Public procurement with specific reference to procurement of IT hardware and Software across Government MDAs.

These guidelines have therefore been developed in line with the above function and it spells out the rationale for establishing minimum specifications and guidelines for use in the procurement of Information Technology Hardware and Software products by MDAs the criteria for verification of IT products to ensure quality, value for money and the responsibilities of the different stakeholders.

1.2 Objectives of the standards

1.2.1 Strategic objective of the standards

To establish minimum specifications to be used in the procurement of IT Products (hardware and Software) across different MDAs for sustainable and manageable IT development in Government.

1.2.2 Specific Objectives

1. To provide guidelines for MDAs to use in the procurement of IT hardware and software.
2. To establish uniformity in the specification of IT products procured across Government MDAs
3. To provide a basis for a policy and regulatory frameworks for procurement of IT products across Government

1.3 Purpose of the Standards

The guidelines laid down in this document establish minimum standards, specifications and requirement for the procurement of IT hardware and software equipment across Governments MDAs. It is intended to streamline the procurement and acquisition of IT hardware & software across Government in order to have uniform IT systems that meet Government user requirement.

1.4 Benefits of the Standards

Below are the benefits that shall be derived from the use of this standards document:

a) It will facilitate easy of rollout of E-Government Services across Government MDAs
b) It will facilitate the harmonization of IT Skills across Government MDAs
c) Government MDAs shall be able to benefit from Economies of Scale (Buying in Bulk)
d) It will reduce down time due to end of life Solutions
e) It will lead to improved monitoring and patching of software environments
f) Government MDAs shall be able to improve security of systems

1.5   Keywords

The Terms such as 'shall', 'should' and 'may' must be used appropriately to avoid confusion as to what requirements are mandatory, recommended or optional. The usual definition of these terms is as follows:

1. Shall - indicates requirements that are mandatory.
2. Should-indicates requirements that is recommended but not mandatory.
3. May - indicates requirements that are optional and, consequently, are at the discretion of the Government MDAs.

1.6   Scope

The guidelines focus on minimum specifications for IT hardware and software to guide Government MDAs during the procurement of the basic IT products for office Automation.

1.7   Life of these Guidelines

This Standard is a living document. The criteria contained in this Standard are subject to revisions and updating as warranted by advances in Information Technology.

2.   MEASURES AND POLICY

The guidelines and procedures provide minimum specifications to be used across Government MDAs to guide and streamline the process of acquiring IT hardware and Software products.

2.1   Policy

NITA-U shall in accordance with its Mandate and functions stipulated in the NITA-U Act 2009 issue and review these guidelines. The following guidelines shall apply:

1. All office automation equipment or software purchased or installed must adhere to the minimum standards/specifications provided in this operating procedure, unless an exception is granted in writing by NITA-U.

2. NITA-U shall conduct a formal evaluation and verification to determine the level of adherence to these set of guidelines. The results of the evaluation and verification IT shall form a basis for vendor certification for supply of IT products across Government MDAs.

3. The purchase of office automation equipment or software must adhere to the procurement guidelines and regulations contained in the Public Procurement and Disposal of Asset Authority Act 2003.

4. NITA-U will maintain a Reference Guide of the approved specifications and list of certified vendors on its website for commonly used IT Products. The Reference Guide will contain current information on workstations, software, and peripherals that conform to the established standards.

2.2   Product life span

1. All IT equipment and related hardware should not be purchased more than a year after manufacture.

2. All IT hardware equipment shall be expected to have a life span of at least four (4) years upon purchase.

3. Where applicable supplier (s) shall declare the useful life for all supplied IT equipment to the Head of Procurement and Disposal Units or head finance department in the respective MDAs.

4. Records of all purchased IT equipment shall be kept and maintained as per the IT best practices of record keeping and management in accordance with the recognized frameworks (such as COBIT and ITIL etc.). This shall ensure that track records of IT products are kept over the years of use for purposes of proper planning, upgrades, replacement and safe disposal after the useful life period.

2.3   Verification of IT Products supplied in MDAs

The following guidelines shall be applied in the verification of IT Products at delivery across the different Government MDAs:

(a) MDAs shall ensure that all IT hardware and software products are delivered with the following sets of documents in English; where in a different language the supplier shall ensure that the documents are accurately translated.

1. Certificate of origin

2. Documents specifying Manufacture date and Model

3. Packing declaration document to enables MDAs to check that the correct number of units has been received. Customs authorities can also easily identify a specific pack they wish to inspect

4. Evidence of testing, such as certificate of testing – proof of functional capability of item supplied

5. Inspection certificates prior to shipment to Uganda

6. Import permit for certain IT Products (if required)

(b) Any components found to be malfunctioning must be replaced with an equivalent or its superior by the supplier/vendor(s)

(c) If a defect covered by warranty is discovered, that item must be repaired or replaced by the supplier or vendor on-site within the stated working days of notification by the procuring entity.

2.4   Guiding Principles

The following guiding principle shall be used in the procurement of IT products across MDAs.

(a) Preference in the procurement of IT hardware and software shall be from an authorised dealer licensed and accredited by NITA-U or on PPDA Register of Providers;

    (1) The outward/external appearance of the item shall not show any non-conformance characteristics; such as dents,

    (2) It shall not be scrap; and

(b) Where satisfactory clearance is required NITA-U in collaboration with other relevant agencies shall inspect every consignment before discharge at the MDAs premises;

(c) MDAs shall ensure that the vendor(s)/supplier(s) of IT products describe their capacity to provide product support;

(d) MDAs shall ensure that the Bid and Contract document to supplier (s) include assigning a Technical Personnel (name and contact information) for addressing queries and support related with the use of the IT products supplied;

(e) In preparing the specifications for the procurement of IT Products (hardware and software) MDAs shall ensure that installation, testing and commissioning of IT equipment and software is included in the Bid and Contract document. In addition MDAs shall ensure that these are done successfully prior to use of the IT equipment and software;

(f) NITA-U or any other designated third party or authority shall inspect all the procured IT hardware and software equipment prior to usage by the procuring entity.

2.5 Registration and licensing of IT Product Suppliers.

MDAs shall cooperate with NITA-U in ensuring the following:
1. That the supplier (s) of IT equipment are registered and licensed locally by NITA-U or relevant designated Authority

2. That the suppliers (s) of specific brand of IT Products produce evidence or proof of certification and authorisation by the manufacturer of a specific brand of IT Products

3. That the supplier provides proof of sourcing from the said manufacturer as per the manufacturers authorisation provided before the IT products can be accepted by the procuring MDA.

3. IT EQUIPMENT ACQUISITION GUIDELINES

The problems associated with IT equipment can be traced back to improper or poor specification of the equipment. IT equipment purchased without a detail specification relies on the vendor to supply their standard equipment according to their own procedures. When this is done, the supplied IT equipment may not perform as required and be totally unsuitable for use.

3.1 Preparing IT equipment specifications

MDAs shall comply with the following guidelines in the preparation of minimum specifications for procurement/purchase of new IT hardware and software Products:

1. IT Products/equipment specifications should be detailed but with relevant information. Lengthy specifications run the risk of some key requirements being ignored or missed.

2. Specifications should be reviewed periodically to ensure they are kept up to date. This is especially for IT products that may be acquired or purchased from time to time. This avoids the purchase of a piece of equipment that may not meet the requirements of the project, is unsafe, will breakdown or will require excessive maintenance. Some of the reviewed areas shall be:

3. Vendors – reference to vendors that no longer exist or products that have been discontinued.

4. Standards and Codes – ensuring that the latest versions are referenced and that the standards and codes have not been discontinued.

5. Incorporation of "lessons learned" and experience from the last time the specification was used or feedback from vendors and other users.

6. The specifications must be written so that more than one supplier can satisfy the requirement. This will increase and encourage fair competition as required by PPDA and therefore achieve better value for money.

7. **Avoid unnecessary details**: Only the key characteristics of IT product should be specified. Each characteristic listed should be required for evaluation.

8. **Using Technical literature:** It is usually not possible or in some cases risky to write specifications without using technical literature from manufacturers. Therefore, it is acceptable to use technical literature from manufacturers, but the following should be kept in mind.

9. Use literature only as a reference and avoid preparing locked specifications that favour one supplier over others. Check that the specification written is general enough to be met by typical suppliers dealing with such IT products (hardware & Software).

10. Do not include every specification listed in the literature. Only list the important key characteristics.

11. Do not be too specific with the specifications when referring to catalogues. Unless they are standards, do not take measures literally. For example, if an engine power is given as *2325 watts* in the literature, in the specification you may say '*minimum 2300watts*.

12. Be careful when referring to specifications from different catalogues. Avoid mixing then and writing specifications that no manufacturer can meet.

13. **Subjective statements**: Subjective statements such as "high quality", "easy to use", etc. should be avoided. The IT equipment specifications must be objective and actual. Such statements are open for interpretation and are impossible to evaluate. Be aware that 'high grade' may simply indicate more features.

14. **Specifications should not be restrictive:** The specifications should be definitive not restrictive. The objective of writing technical specifications is to explain to the suppliers, what is required. Enough details should be issued to avoid bidders being confused and eventually offer the cheapest available IT Product.

15. In summary, specifications must be detailed enough to leave no question in the bidders mind as to what is required, but should be generic enough to allow multiple manufacturers' equipment to be offered.

16. **Dimensions or weight:** In some cases dimensions and weight may be part of the specifications. For example for a lift you need to specify the maximum weight it can withstand and for a projector screen you must specify dimensions.

17. **Model and manufacturer:** If compatibility is an issue then the model and manufacturer can be specified. This is usually acceptable for IT software. It is acceptable to specify operating system or specific software if it has to operate with existing systems. But you cannot specify the manufacturer or a model for a computer; however you may identify the processor type so that you either buy an IBM Compatible Personal Computer or a Macintosh.

18. MDAs shall ensure that **installation, setup, testing, commissioning and training** of user (s) or designated personnel are all included in the bids for purchase of IT hardware equipment and Software;

a) The **quality and cost of IT hardware** products to be purchased should depend on the need , the intended purpose of use and the available budget to avoid purchase of equipment with very high quality and not proportional to its intended usage or vice versa;

b) MDAs shall ensure that **vendors propose systems** which are configured with all components provided by the base system manufacturer. If a component is not available from the base system manufacturer, the vendor may propose a compatible third party component only if described in their written proposal. Systems and peripherals must be fully configured prior to shipment and delivery to the purchasing entity;

3.2   IT Hardware Products acquisition

NOTE: The use of specific vendor brands or manufacturer's model numbers in this section of the reference guide is for the purpose of describing standards of quality, performance, and/or desirable characteristics, and is not intended to limit or restricted IT competition.

3.2.1   Minimum Hardware Specifications

NITA-U shall endeavor to provide minimum specifications for commonly used IT equipment, as a measure of ensuring standardization of equipment used across Government MDAs. The following criteria shall be put into considering in developing minimum hardware specifications; **(See Annex 1 for the list of IT equipment with minimum recommended specification):**

1. **Interoperability:** All hardware equipment shall exhibit the ability to run application programs from different vendors, and to interact with other IT hardware across local or wide-area networks regardless of their physical architecture and operating systems. This shall be feasible through hardware and software components that conform to open standards such as those used for internet; this seeks to facilitate the exchange of information between potentially heterogeneous systems through conformance to open standards;

2. **Compatibility**: All warranty repairs made to the system during the warranty period must maintain full compatibility of the system with installed software. MDAs shall ensure that the supplier lists a range of compatible devices or software that can be used together with the computer;

3. **Upgradability**: MDAs shall ensure that the IT hardware parts and related accessories are easily upgradable with new features to avoid IT products being disposed prematurely because some parts cannot be upgraded. MDAs shall in addition ensure that a list of all upgradable parts (including up to what capacity the parts can be upgradable) of the

products supplied is provided by the supplier. IT component installations that need updates shall be updated according to the latest official versions available.

    a) This criterion provides the ability of IT equipment components to effectively and efficiently work together in an integrated system.

4. **Total lifecycle:** These specifications are meant to ensure that equipment acquired have useful life of not less than four (4) years.

5. **Long-term support:** This addresses the availability of vendor and/or internal support, including parts and labor.

6. **Scalability**: This is intended to ensure that the acceptable IT components enhance the ability of the system to support future growth and increased throughput.

7. **Availability**: This seeks to maintain a system's operational readiness through robust and/or redundant (e.g. fault tolerance) equipment.

8. **Accessibility**: This addresses operational readiness that includes the ability of users and operators to access the system in a timely fashion, to perform its intended functions.

9. **Functionality:** This intends to guarantee that operational requirements intended to be performed by IT systems, can be achieved effectively and efficiently with the equipment specified.

10. **Security:** This serves the need to protect system data and equipment, and the operational environment from loss or compromise. Each workstation connected to the Internet shall have a host antivirus and firewall active at all times.

11. **Energy efficiency:** Electronics play an increasingly large role in energy consumption. It should be noted that Uganda utilizes 220volts-240Volts 50Hertz whereas some Countries utilize the 110volts 60Hertz. As a requirement therefore power usage of the IT hardware and other related accessories shall conform to Energy star an international standard for energy efficient consumer products **(see www.energystar.gov).**

12. In addition all IT equipment supplied shall be expected to come with Power Saving features or energy-saving models. MDAs are expected to verify with the supplier that the IT equipment are tested for electrical Safety and test reports should form part of the documentations accompanying the products.

13. All IT hardware products should be tested for electrical Safety and test reports should form part of the documentations accompanying the computers.

14. IPV6 Support: This shall address the need for procurement of Hardware that supports IPv6 implementation and upgrades.

3.3 Roles and Responsibilities in Procurement

(a) NITA-U

Shall develop and update the minimum specifications, of all categories of equipment on a regular basis for the following reasons:

1. To ensure that prevailing state-of-the-art equipment are acquired for the purpose of enhancing value for money;
2. Cost effectiveness extended useful life,
3. Matching the equipment with the required function;

(b) The IT department

The IT department in each Government MDA shall ensure that:

a) Procurement of IT equipment shall be channeled through the Head of IT department who shall be responsible for the preparation and issuance of all technical specifications for the equipment, as well as ensuring that the guidelines stipulated herein are adhered to;

b) The Head of IT department shall be involved in the technical evaluation and inspection processes and that all requests for procurement of the IT equipment should be evaluated by the respective head of department;

c) All IT equipment procured or donated to MDAs is received by the Head of IT department who shall ensure proper custody and issuance. All donations shall be required to meet the minimum specifications. In addition all IT equipment and whether new, transferred and/or written off, shall be recorded by the IT department for audit and other asset management purposes;

d) Technical evaluation shall be undertaken to ensure that the equipment is fit for the purpose intended and that it meets the require specifications. Upon delivery of the equipment, the IT department shall inspect and ascertain that they meet the specifications as requisitioned;

e) The Head of IT department shall ensure that agreements on warranty and guarantees are provided and shall also oversee their administration. The minimum warranty for all IT equipment shall be one year and three years for servers;

f) Ensure that these standards are enforced and give advice where specifications above the minimum are required;

g) Be responsibility for installation, upgrading, support and maintenance of the equipment. They shall also sensitize end-users on the proper usage of equipment in their custody.

(c)   End Users

(a) End-users shall take care of any IT equipment allocated to them. Any issues arising in the course of usage of the equipment shall be brought to the attention of the IT department within each of the Government MDA;

(b) End-users are prohibited from carrying out any installation, maintenance or upgrade of any nature.

3.4   Documentation

All IT equipment supplied or purchased from a vendor shall comply with the following guidelines:

IT equipment purchased from a vendor should come with a set of documentation which allows the MDA/purchaser to operate and maintain the equipment. A complete document package may include the following:

1. Test and inspection reports/records that allow the procuring entity to verify that the IT equipment has been supplied according to the quality and fabrication requirements of the specification;

2. Operating and maintenance manuals;

3. IT equipment supplied or purchased with disconnected parts should be supplied with procedure guide for reassembling the parts.

4. Certificate of Warranty for each of the IT hardware Product supplied at least (1 year parts only/or as per the agreed Contract).

5. Instruction and Installation manuals for both software and Hardware products.

6. Electrical Safety and Test reports should accompany the IT equipment being supplied.

3.5   Characteristics of Non-compliant IT equipment

Where IT equipment/products exhibit the following characteristics, it shall be considered non-compliant:

1. The product is not complete and some essential parts are missing;

2. Functionality or safety is impaired;

3. The appearance is generally worn or damaged;

4. It is destined for disposal or recycling instead of use; and

5. It is old or outdated destined to be cannibalized to gain spare parts

3.6   Handling Malfunctioning IT Products

Where malfunctioning items are identified or detected during inspection among items supplied or procured by a particular procuring entity, the following guidelines shall apply:

(a)   Any malfunctioning IT hardware & software product identified among the items procured shall be replaced by the supplier;

(b)   NITA-U shall arbitrate any dispute arising between the MDA and the supplier (s) as a result of supply of malfunctioning IT products;

(c)   An administrative punitive fine agreed upon by the relevant authorities shall be imposed on the supplier (s) of the malfunctioning IT products (hardware & Software) to any Government MDA;

(d)   The disposal of such items shall be enforced in line with the guidelines and procedures provided by NITA-U and in consultation with key stakeholders;

(e)   In the event that a component must be returned to the manufacturer for warranted repairs, a replacement will be provided by the supplier. Charges for shipping and handling of the component and its replacement must be borne by the supplier during the on-site warranty period.

4.   SOFTWARE ACQUISITION

NOTE: The most significant difference between software procurement and purchases of other IT Products is that in most cases of software acquisitions one does not "own" the purchase.

The right to use the software must be acquired from the vendor under conditions defined within an End User License Agreement (EULA). These terms and conditions vary considerably between vendors and individual software products

The guidelines and standard provides and prescribes best practices for software development, acquisition, support and maintenance by MDAs. These best practices have been recognized to significantly contribute to the successful acquisition

Software guidelines and standards shall aim to assure software quality, ensure software internal usability, and help evaluate the software product. The application of the following guidelines aim at achieving the following objectives:

1. Enhance user satisfaction;
2. Ensure compatibility;
3. Enhance unified support and management;
4. Ensure data/ information sharing across Government;
5. Reduce cost and improve savings;
6. Improve staff productivity; and
7. Ensure coherence in upgrade management.

4.1   Issues associated with software acquisition

The unique Vendor/Reseller Relationship – Major software vendors do not generally sell directly, they instead utilize the services of a third party reseller. This relationship poses some challenges in purchasing as follows:

(a) While the purchase arrangement is with the reseller the actual contract usually exists between the organization and the vendor. This requires the organization to keep records in their purchasing and license management systems which accurately reflect this.

(b) The purchase of software from a reseller does not legally constitute license ownership of a software item. Ownership of the license does not exist until the vendor has issued the license. Typically this happens once the reseller has paid them for the software and the license is then issued in either hard copy or via an electronic license advice.

(c) Software purchases require entering into a legally binding contract with the vendor; the need to manage and review this contract can impact future purchasing.

4.2 Software License Agreement

Below is the general requirement for consideration in acquiring software licenses:

a) MDAs shall ensure that the software license agreements to do no prohibit data integration or movement of databases across different hardware platforms.

b) All Computer software purchased shall include licenses for each user within the MDA.

c) A more cost effective license, such as site licenses, is recommended and MDAs are responsible for purchasing licenses (through contracts, quotations, bids, or sole source) and furnishing their computer hardware vendors with proof of license or media;

d) The computer hardware vendor will install the software on the server or clients as appropriate as part of their quoted hardware price;

e) The vendor/supplier shall provide after sell training on the Software purchased/acquired for the IT personnel or any other designated officer within the MDA;

f) Clearly delegate and document responsibility and accountability for acquiring new software and records keeping of all items purchased;

g) Acquire software only from reputable resellers registered and licensed by NITA-U

h) Safely store evidence of license documentation (original CDs, Certificate of Authenticity, Retail Software License terms (also known as an End User License Agreement), original User's Manual, and sales receipt) in a centralized and safe location.

i) MDAs shall track and update the software inventory on a regular basis to help ensure proper licensing and compliance.

4.3. Warranty of functionality

(1) For the period of warranty as specified in the Contract following delivery of the Software to the MDA the Software shall perform in all material respects according to the developer's specifications when used with the appropriate computer equipment.

(2) In the event of any breach or alleged breach of this warranty, the MDA shall promptly notify the developer/vendor and return the Software to developer at MDAs expense. MDAs sole remedy shall be that vendor/developer shall correct the Software so that it operates according to the warranty. This warranty shall not apply to the Software if modified by anyone or if used improperly or on an operating environment not approved by the developer.

(3) After expiration of the warranty period licensee/MDA shall continue to receive maintenance support for a minimum of twelve (12) month period or as agreed in in the Contract. The charge for such maintenance support shall be developer's regular list price for maintenance and support for the Software as published from time to time by developer

4.4 General requirement for Software Procurement

The following guidelines shall be followed by the respective MDAs:

a) All software Procurement shall be done with consultation and coordination of the Head of IT department within the respective MDAs who shall be responsible for the preparation and issuance of all technical specifications for the software, as well as ensuring that the guidelines stipulated herein are adhered to;

b) MDAs shall ensure that requests for procurement of software are validated by the respective Heads of Department. MDAs shall also ensure that requirements are clearly defined and documented when procuring enterprise software. Where possible, MDAs shall endeavor to use enterprise version of software;

c) MDAs shall make sure that there is no already existing software application within Government that provides equivalent functions and that can be replicated in the organization before procuring any software to avoid duplication;

d) All IT software procured or donated to MDAs shall be received by the Head of IT department who shall ensure proper custody and issuance. All donations shall be required to meet the minimum specifications. Further, all software and assets (new, transferred and/or written off) shall be recorded by the IT department for audit and other managerial purposes;

e) MDA"s shall endeavor to procure and use the latest version of software. Where a previous version of software is to be used, MDA"s shall be required to give justifications;

f) Technical evaluation shall be undertaken to ensure that the software is fit for the purpose it is being acquired for and that it meets the provided specifications. Upon delivery of the software, the IT department shall inspect and ascertain that they meet the laid down specifications. The Head of IT department shall ensure that technical evaluation and inspection reports are prepared respectively;

g) The Head of IT department shall ensure that an agreement is in place to warrant software support and replacement when required, and that such agreements acquired are enforced.

4.5   Acquisition of Pre-installed software

The following guidelines shall be applied in the acquisition of pre-installed Software in consultation and with NITA-U.

(a) MDAs shall verify that the End User License Agreement (EULAs) are provided by the Software vendor (s) to the reseller of supplier and with detailed Terms and Conditions under which the use of their software is permitted, information regarding the media associated with the license to allow for backup copies, copies to be archive for disaster recovery purposes or define other allowable methods of distribution (including electronic methods).

(b) MDAs shall ensure that only registered and tracked Software by the vendor shall be purchased or acquired Uganda for ease of upgrade, maintenance and proof of ownership.

(c) All MDAs shall ensure that pre-installed Software will have maintenance or upgrade options. This allows the license holder to use newer versions of the product as they become available over the time specified in the agreement. Proof of ownership of the original base license is required to be retained to support all future upgrades.

(d) Any pre-installed Software shall include support options by the vendor which must be carefully recorded to enable later use or renewal. The available options shall include but not limited to the following:

a) Ability to access updates and bug fixes
b) Manuals and other reference material
c) Workshops, pre-release seminars, training and
d) Technical Support, Help desk and other support facilities

4.6   Acquisition of Non Pre-installed Software

The following guidelines shall be applied in acquisition of Non Pre-installed Software:

(a) MDAs shall verify that the End User License Agreement (EULAs) are provided by the Software vendor (s) to the reseller of supplier and with detailed Terms and Conditions under which the use of their software is permitted, information regarding the media associated with the license to allow for backup copies, copies to be archive for disaster recovery purposes or define other allowable methods of distribution (including electronic methods).

(b) MDAs shall ensure that only licensed, registered and tracked software by the vendor shall be purchased or acquired for ease of upgrade, maintenance and proof of ownership.

(c) All MDAs shall ensure that pre-installed Software will have maintenance or upgrade options. This allows the license holder to use newer versions of the product as they become available over the time specified in the agreement. Proof of ownership of the original base license is required to be retained to support all future upgrades.

(d) Any pre-installed Software shall include support options by the vendor which must be carefully recorded to enable later use or renewal. The available options shall include but not limited to the following:

   a) Ability to access updates and bug fixes
   b) Manuals and other reference material
   c) Workshops, pre-release seminars, training and
   d) Technical Support, Help desk and other support facilities

(e) Different licensing options shall be required to be listed by the Vendor and should define how the Software can be deployed. Its therefore important that software licensing options are stated and shall fall within the following categories:

   a) Site Licensing (to any user at a nominated site)
   b) Enterprise Licensing (to all desktops within an organization) and;
   c) Concurrent Licensing (which allows licenses to be allocated as required up to a maximum limit).

4.7   Classification of Software

This guideline classifies Software into three (3) categories based on its purpose, functionalities, type, or area of application:

(1) Application Software;

(2) Systems Software;

(3) Application Development software.

4.7.1   Application Software

The acquisition of application software shall require an elaborate approach due to nature of it specialization:

(1) The Acquisition shall be determined by the nature of the application as well as availability in the market of off-the-shelf programs that address the specific business requirements.

(2) In all application Software acquisition procedures, a technical committee comprising of business and IT subject experts should be instituted.

4.8 Acquisition of Application Software

The acquisition of application Software shall fall under the following measures

4.8.1   In-house Development

The development of all application software through in-house means shall be coordinated and guided by NITA-U. NITA-U will constitute a development team consisting of various specializations as may be required in specific software development task to provide support and expertise together with the task teams from other MDAs.

4.8.2   Outsourced Development

For sophisticated system development initiatives that require skills and knowledge not available within NITA-U, an external developer may be contracted to deliver the business application. The implementing agency in collaboration with NITA-U will adopt a project and constitute a technical team consisting experts in the business process, business/systems analyst with the relevant IT skills to carry out the tasks.

4.8.3   Commercial off-the Shelf

Commercial Off-the shelf software are readily available solutions in the market. Government MDAs intending to acquire application software through these means shall ensure that the specifications are well detailed to meet the business, functional and technical requirements in line with the requirement stipulated in ISO/IEC 25051.

4.9 Systems Software

Government MDAs wishing to procure Systems Software shall ensure the following:
   a) Licenses for commercial operating system are provided upon acquisition, duly registered and subsequently renewed as per the requirements of the copyrights;
   b) The latest stable version is purchased in each case;
   c) Vendor Support is provided;
   d) The software is regularly updated with the latest patches.

4.10   Responsibilities of IT departments

   1. IT Department shall keep an inventory of all operating system software installed and closely monitor and evaluate to ensure licensing and copyright agreements are maintained;
   2. The head of IT department shall take custody of all Operating System software installation materials, including manuals where supplied;
   3. They shall also ensure that where possible, back-ups are carried out before any reinstallation or upgrade of an operating system;
   4. The department shall organize training for users on any new client operating system software.

4.11   Application Development Software

Application development tools such as compilers and linkers, used to translate and combine computer program source code and libraries into executable programs.

All Government MDAs shall ensure that IT personnel responsible for development of software are adequately trained on all application software acquired.

MDAs shall take into consideration the following when acquiring application development software:

1. Type of application to be developed; Desktop application, Web based application or server application.

2. Operating System platform the software to be developed is to run on.

3. Integration with the existing systems.

4. Database to be used by the application.

5. Compatibility with existing and future hardware and software platforms.

6. Speed of development.

7. Performance of compiled code.

8. Assistance in enforcement of code

9. Portability; can the application developed be used in an operating systems other than the one in which it was created without requiring major rework.

10. Feasibility of the software for the application being developed

4.12   Commercial Software

Commercial Off-the Shelf Software (COTS) refers to ready-made software installed on Government information technology systems or acquired by Government agencies through initial purchase or upgrade, including leased software, shareware and freeware.

COTS software configurations must be based on Government user requirements. All COTS software that meets the Government MDA configuration shall be maintained by the MDAs concerned with guidance from NITA-U.

4.12.1 Minimum Requirements for Commercial Software

The following are the minimum requirements that MDAs shall comply with while acquiring COTS software.

1. **Total lifecycle cost**. This cost includes initial costs such as purchase, installation and training, plus the on-going cost of maintenance and support.

2. **Maintainability**. This criterion addresses the ability to administer and perform corrective, adaptive or perfective maintenance on the COTS product within defined tolerance for cost and service, using vendor and/or internal support. This criterion includes minimal operational disruptions and downtime, the ability to tune the software to improve efficiency and effectiveness and the cost and effort to upgrade to improved versions of the software product;

3. **Interoperability:** Should include flexibility in supporting changes over time and among multiple Government MDA and systems. This criterion seeks to minimize the additional

support required to integrate the COTS product as a functioning component in the Government IT portfolio;

4. **Portability**. This criterion addresses the ability of an existing software component to move from one physical or logical position in the IT infrastructure with minimum impact on cost and service;

5. **Scalability**. This criterion ensures that acceptable COTS software products enhance the ability of the system to support future growth and increased throughput necessary to meet Government goals;

6. **Availability/Accessibility**. This seeks to maintain a system's operational readiness and required level of service without disruption from software failure. This is achieved through robust and/or redundant (e.g., fault tolerant) software. Operational readiness will include the ability of users and operators to access the system, in a timely fashion, to perform its intended functions;

7. **Reusability.** This criterion addresses the ability to make repeated use of the COTS software product for additional requirements with minimum additional cost;

8. **Functionality/performance.** This criterion seeks to guarantee that the e-Government Operational requirements, especially its mission critical requirements, intended to be performed by IT systems, can be achieved effectively and efficiently with the specified COTS software. It includes the properties of efficient software/hardware integration that affects the ability of the overall system to perform adequately to meet operational requirements.

9. **Security.** This criterion addresses the need to protect system data and the operational environment from loss or compromise. It includes the ability of the COTS software to prevent and contain malicious as well as non-malicious security breaches.

4.13   Off-the Shelf Software.

Off-the-shelf or commercial software defines software which is ready-made and available for sale, lease, or license to the general public. Purchasing a commercial off-the-shelf software solution requires attention to technical and cost considerations:

The correct solution shall weigh heavily on the IT Staff and the Government MDAs who shall:

1. Identify and research specific products that could support the recommended solution for the target information system.

2. Solicit, evaluate, and rank vendor proposals.

3. Select and recommend the best vendor proposal.

4. Contract with the awarded vendor to obtain the product.

5. SOFTWARE MANAGEMENT AND USAGE GUIDELINES

NITA-U recommends the use of licensed Microsoft Software from recognized Microsoft recognized partners in Uganda. The software developer usually copyrights such software and, unless expressly authorized to do so, MDAs have no right to make copies of the software. The purpose of this guideline is to prevent copyright infringement and to ensure proper software asset management.

5.1 MDA Responsibilities

1. It is the responsibility of each MDA to respect and adheres to all computer software copyrights and to adhere to the terms of all Software licenses, manage its software assets and to ensure that it installs and uses only legal software on its desktop computers (including portables) and servers.

2. MDAs and local Governments shall ensure that necessary steps are put in place to prohibit its users from duplicating any licensed software or related software.

3. MDAs shall ensure that software acquisition, copy, distribution, transmission and use is in accordance with the terms and conditions in stipulated in the license agreement accompanying that particular software product

5.2 IT hardware and Software Acquisition

1. MDAs shall ensure that only legitimate software must be provided to all system users who need it. All requests for IT hardware and software including upgrades must be submitted to the IT Department. All software and hardware acquired by MDAs must be approved and purchased through the IT Department. Software must be purchased only from reputable, authorized software vendors and suppliers approved by NITA-U.

2. Where hardware and software is acquired through other means for example given free by implementing partners, the IT Department should be notified for documentation purposes.

3. MDAs shall ensure that hardware and software acquisition channels are restricted to ensure that it has a complete record of all her hardware and software that has been purchased for and can register, support, and upgrade such products accordingly.

5.3   Software Installation Guidelines

After the legal acquisition of the software the following installation guidelines must be observed.

1. Only personnel from the IT Department are recommended to carry out software installation on the MDA computers, laptops and the network.

2. Only those persons explicitly authorized by the MDA to install software may install software on the organization's computers and servers. Such persons shall not do so unless and until he/she has first obtained an appropriate license for that software.

3. A software upgrade shall not be installed on a computer that does not already have a copy of the original version of the software loaded on it.

5.4   Storage of Software and Documentation

1. When the software have installed, MDAs through the IT Department shall ensure that the original media is kept in a safe storage area maintained by the designated department. The designated department shall in addition store all original software licenses and registration and purchasing information in a safe storage area. User manuals, if provided, must reside with the IT Department but may be loaned to users if the IT Department keeps records of who has borrowed the manual. The IT Department shall destroy all copies of software that are obsolete or that the MDA is no longer licensed to use.

2. The IT Department in each MDA shall keep and maintain a register of all organization's software. The register must contain:

a) Title and publisher of the software
b) Date and source of Software acquisition
c) Location of each installation
d) Software product's key number

5.5   Software Version Control

MDA shall not modify, copy, duplicate, reproduce, license or sublicense the Software, or transfer or convey the Software or any right in the Software to anyone else without the prior written consent of developer/vendor; provided that Licensee may make one copy of the Software for backup or archival purposes.

5.6 Source Code management

Source code for in house developed solutions and libraries must be safely and securely stored in the repositories and shall not be freely distributed and modified without prior approval of the developer through the relevant authorities.

5.7 Software Support and Maintenance

(a) During the Warranty Period, software vendor/supplier/developer shall provide to the MDA any new, corrected or enhanced version of the Software as created by developer. Such enhancement shall include:

1. All modifications to the Software which increase the speed, efficiency or ease of use of the Software
2. Add additional capabilities or functionality to the Software, but shall not include any substantially new or rewritten version of the Software

(b) IT Departments shall keep an inventory of all software in the MDA, and give annual reports on status of utilization, support and adaptability.

(c) MDAs shall also determine which software have expired licenses for the purposes of upgrade or disposal. Where such systems have proprietary data, that data shall be extracted using suitable mechanisms.

(d) Software media and administration documentation, whether hardcopy or electronic, shall be securely stored in a central repository and copies may be created for backup and disaster recovery purposes as permitted by the license terms and conditions.

(e) Software maintenance shall be done in-house by IT Departments who shall develop a maintenance schedule on upgrading and debugging. Sub-contracting for software maintenance shall be through appropriate justification and approval by the relevant Authority in the respective MDAs. Due diligence shall be undertaken in retaining such contractors. The Head of IT Department shall prepare an annual maintenance report and forward it to the Accounting Officer.

(f) Software media shall be tagged with the standard government labeling conventions and appropriately physically secured.

(g) MDAs shall ensure that software upgrades and debugging is done on an annual basis, or adhoc to respond to incidents were necessary (e.g. if a patch is released to address a bug).

5.8   Software Disposal

a) IT Departments shall maintain a record of software media at all times including track of the physical location and status. MDAs wishing to dispose media shall seek the advice of the Head of IT Department. Software media that have become obsolete may be disposed of by forwarding to licensed e-waste handlers.

b) IT Departments in MDAs shall regularly evaluate software to determine its relevance to the organization.

c) When application software has expired or reached its end of life it must be uninstalled from the system. For system software patching must be managed until such a time that a new application is installed. Source code and libraries must be safely and securely removed from repositories once obsolete. All software uninstallations shall be documented and retirement of any enterprise applications shall be validated, reported and signed off on.

6.   COMPLIANCE REQUIREMENT

Below are the general guidelines to the different stakeholders involved in the acquisition supply and usage of IT equipment and other related electronic devices.

6.1   Return policy and/or warranty

1. MDAs shall ensure that all IT equipment purchased is supplied with warranty period of at least one (1) year parts only or whole equipment depending on the agreement.

2.   Where suppliers/donors may offer recycling programs or take back computer equipment for recycling and reuse, MDAs shall in consultation with PPDA and any other relevant authority follow disposal guidelines for Government IT Assets.

6.2   Enforcement of the guidelines

6.2.1   Prohibited Software

It is expressly forbidden to possess, distribute, reproduce or use computer programs for reasons such as scanning networks, intercepting information or password capture unless specific authority is obtained or held.

6.2.2   Software copyright compliance

1. The MDAs will only use a genuine copy of legally acquired software that is configured and used in accordance with the license terms and conditions as set out by the copyright holder.

2. The making or use of unauthorized or illegal software copies is prohibited in all MDAs. Where possible, controls will be in place within the MDAs to prevent the making or use of unauthorized or illegal software copies. These controls will include effective measures to verify compliance with acquired software licenses.

6.2.3   Software Audits

NITA-U will periodically conduct audit of software in MDAs, to ensure that they comply with all software licenses and the software developed meet the required guidelines.

6.2.4   Inspections

NITA-U shall conduct periodic inspections and surveillance to determine the level of adherence to these standards and guidelines which all MDAs are expect to comply with.

6.2.5 Compliance Assessments

NITA-U shall periodically conduct compliance/Conformity assessments to determine gaps in conforming to these guidelines and in addition determine which MDAs are complying and those that are not.

6.2.6   General Guidelines for MDAs

1. All Government MDAs at a minimum shall be required to:

2. Use IT equipment and related products in line with the specifications laid down by the manufacturer;

3. Procure/acquire IT hardware and software with proper and authentic certification;

4. Keep record of all IT equipment supplied to facilitate future e-waste collection;

5. Work with NITA-U in regard to safe disposal of the IT products after their useful life and to separate e-waste generated by the products to facilitate collection, Handling and recycling;

6. Dispose e-waste generated by IT equipment after their useful life to the e-waste collection centers or designated area or place;

7. Take back IT hardware equipment to the supplier or assembler, if they allow it after their useful life;

8. Be responsible for following recommended disposal methods or procedures especially dates of expiry or end of usage period of the IT products (hardware & Software);

9. In cases where the procuring MDA has more than one branch offices. The entity shall ensure that the IT Products (hardware & software) reach their pre-destined end user;

10. A record of end users including the number of IT products procured within the entity should be kept and maintained.

CONCLUSION

The guidelines have been developed in accordance with the requirement stipulated in the NITA-U Act 2009 and the National IT Policy which mandates the Authority to develop and enforce Standards for acquisition of IT Hardware and Software across Government. The guidelines laid down in this document are to be applied in procuring new Information Technology (IT) hardware and Software products across Government MDAs. It intended to supplement the PPDA Act 2003 with specific focus on the Information Technology acquisition. It should be used alongside other internationally recognized best practices and Standards and is subject to reviews as warranted by Technology advancements.

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