



GOVERNMENT OF THE REPUBLIC UGANDA

**Terms of Reference for
Expression of Interest for Feasibility Study
for Electronics Manufacturing in Uganda**

MINISTRY OF ICT AND NATIONAL GUIDANCE

October, 2017

1.0 Introduction

Growth of various services in Information and Communications Technology (ICT) including telecom, broadcasting and broadband in Uganda has created a demand-supply gap for various electronic equipment. Most components (active and passive) are sourced from other countries. In the Uganda Vision 2040, it was observed that there was limited manufacturing of ICT products taking place in Uganda and as such, there were no exports in this Sector. This makes Uganda a net importer of ICT products. This is in contrast to emerging economies that have relied on ICT to change export orientations with substantial increases in the proportion of ICT goods to total exports estimated at 56 percent in Philippines, 45 percent in Singapore, 45 percent in Malaysia and 64 percent of Hong Kong's total exports in 2015.

To address the above trend, His Excellency the President of the Republic of Uganda directed the Ministry of ICT and National Guidance in June 2016 to develop electronics industry and propagate the use of electronics in Uganda and supervise the mastering of that technology; and to encourage assembly of computers in Uganda and eventually, build our own computers. His Excellency further guided the Ministry to conduct a study on the size of the market and profitability of computers in Uganda and the region. The basic premise of this feasibility study therefore is to determine the viability and potential for success of this business venture.

The Ministry of ICT&NG now invites Expression of Interest (EOI) from consultants with regional and/or international experience to conduct a feasibility study for ICT equipment assembly and manufacturing in Uganda consisting of project assessment and business plan development; analysis of business and financial model; conceptual modeling of an electronics manufacturing framework; preparing of procurement documentation of computer assembly/manufacturing and electronics manufacturing opportunities like modems, set top box etc.; other passive items like cables, antennas etc and preparation of a detailed project implementation plan.

2.0 Rationale for Electronics Manufacturing in Uganda

At a macro level, implementation of this project has potential of attracting both foreign and local investment, generate tax revenues; improve the balance of payment position; and consequently contribute to overall GDP position of Uganda in addition to boosting domestic innovation and manufacturing. In more specific terms, investment in electronics industry envisages achieving four (4) main outcomes in the medium term:

- i. Increased employment opportunities for the youth;
- ii. Increased ICT Innovation products in use locally and exported;
- iii. Increased local content development; and
- iv. Increased saving of foreign exchange on imported products

The multiplier effect of associated secondary and tertiary industries will also have tremendous impact on the economy. It will solve the problem of low level of business automation and use of ICT in industrial development. This is in line with the policy objective of the National Industrial Policy for Uganda with focus on knowledge-based industries such as ICT, call centres, and pharmaceuticals that exploit knowledge in science, technology and innovation.

This study is therefore intended to assess the viability of assembling/manufacturing of various electronic items – sub categorized clearly like computers and peripherals including notebooks, desktops, tablets, servers, monitors and printers; communication equipment such as mobile and other phones; consumer electronics such as TVs, set top boxes and solar equipment and passive items like cables, antennas etc. Other areas for future consideration will include automotive, industrial, oil and gas, aerospace and military electronics. In due course, Uganda should be able to manufacture standard components that can be exported directly to distributors and manufacturers in overseas markets.

3.0 Goal of Electronics Manufacturing in Uganda

The overall goal of the ICT electronics manufacturing intervention is to promote the development of local electronics industry including assembly and manufacturing, with linkages to the ICT innovation eco-system so as to increase the level of employment, income and improve service delivery.

The specific objectives of these interventions will be;

- i. To assess and document the requirements for an effective, profitable electronic assembly/manufacturing plant;
- ii. To develop an electronics manufacturing policy and strategy;
- iii. To develop electronics industry and propagate use of electronics in Uganda;
- iv. To leverage linkages between the ICT innovation facilities, industrial research institutes, and industry players in advancing the electronic assembly and manufacturing plants;
- v. To propose a suitable incentive scheme that needs to be put in place; and
- vi. To propose a branding/marketing strategy for Uganda as an ICT manufacturing hub.

4.0 Benefits of Local Assembly and Manufacturing of ICT Products

The expected benefits of local assembly and manufacturing of ICT products will include:

- i. Skills development and knowledge transfer in the country in electronics hardware and software, ICT design, manufacturing, testing, maintenance and service;
- ii. Job creation and economic growth - jobs both within the factory and in adjacent industries such as transportation and logistics, support and maintenance and software development;
- iii. Spillover effect – benefits to other sectors such as packaging, finance, banking; and power and energy distribution;
- iv. Local income streams so as to reduce import bill;
- v. Address local ICT needs on demand; and
- vi. National pride and self-dependence.

5.0 Scope of the Feasibility

In order to establish electronics industry in Uganda and popularise the use of electronics including computers, the Ministry will analyze the feasibility of building an electronic assembly plant in Uganda. This will include estimating the present and future demand; conducting make or buy decision analysis to indicate which components to make in the country and which ones to import from outside sources; financial model and viability of

the project. The industry analysis will also cover the factors influencing companies such as new product development environment; economic environment; lifestyle and demographic influences; distribution and supply chain factors; pricing issues; and how the market responds to emerging industry trends. Implementation requirements and roadmap will be documented. The study should also analyse the extent of value addition of each products over a period of time and what qualifies for locally manufactured product.

The study will also cover full eco-system for electronics manufacturing and critical success factors including issues such as preferential market access to domestically manufactured electronic products, incentives, taxation, green technologies, and alignment of manufacturing with eWaste management and environmental protection standards, and health and safety risks of workers.

In particular, the consultant will be expected to:

(1) Conduct a detailed analysis of the following elements:

- a. Identifying alternative scenarios or business models of what the project will entail, how it will be organized, and how it will generate profits. This will include the type and quality of product(s) or service(s) to be marketed;
- b. Market feasibility including industry competitiveness, market potential, access to market outlets, and sales projection both locally and within the region;
- c. Technical feasibility including facility needs; suitability of production technology; availability and suitability of site; investigate access to raw materials, transportation, labor, production inputs (electricity, water, etc.); Investigate potential emissions problems, analyze other environmental impacts, identify regulatory requirements, and explore economic development incentives; and raw materials
- d. Financial/economic feasibility including estimating the total capital requirements and expected budget costs; and to test the expected profitability of the project from the perspective of the already existing investors or a similar projects in the region or elsewhere.

- e. Environmental and social evaluation of the electronic industry – intended to capture the spillover effects or externalities which could be positive or negative;
- f. Organizational/managerial feasibility, including business structure, legal structure of the business, staffing and governance structure, availability and potential to attract skilled and experienced business managers, and availability of consultants and service providers with the skills needed to realize the project, including legal, accounting, industry experts, etc. plus estimated wage rates; and
- g. Risk /uncertainty analysis and mitigation measures.

(2) Specific activities will include the following:

- a. identification and analysis of stakeholders that should be involved, e.g. citizens, firms, schools, government agencies and their requirements;
- b. undertake internal and external environment/situational analysis;
- c. assessment and analysis to the current initiatives undertaken in electronics assembly and manufacturing in Uganda and the region and explore potential opportunities for fostering partnerships;
- d. Identifying key success areas including activities, roles and responsibilities of various stakeholders;
- e. conducting cost benefit analysis and analyzing the economic-financial model;
- f. Assessment of procurement method to be used and Public Private Partnership (PPP) model in accordance with Public Private Partnerships Act of 2015;
- g. undertaking an assessment of necessary infrastructure costs, estimated operational and maintenance costs required for establishment a computer manufacturing firm based on a recommended best-fit model;
- h. recommending electronic systems and peripherals for assembly/manufacturing based on end-users' business needs;
- i. facilitating stakeholder engagement workshops; and
- j. preparing feasibility study reports.

6.0 Key Deliverables *Feasibility study report*

The key deliverables of the consultancy arising from the feasibility study will include the following:

- i. Key stakeholder analysis

- ii. Environment analysis
- iii. Demand Analysis – in Uganda and region including justification for public investment
- iv. Identification of the products to be assembled or manufactured with clear road maps
- v. Technical /engineering analysis – technical design, production plan and cost estimates
- vi. Short term and long term goals
- vii. Financial viability of electronics manufacturing, including financial analysis, economic analysis, risk analysis and mitigation measures of the industry;
- viii. Investment incentives;
- ix. Environmental impact assessment and health report;
- x. Incentives guidelines;
- xi. Project management and implementation Roadmap;
- xii. Terms of Reference (EOI & RFP) for procurement of an investor.

The above components are further described as follows:

i. Financial and business model report

The Consultancy team will assess the strengths and weaknesses of three best choices of investing and how to raise funding under each funding model. The financing model may be fully owned or a private-public partnership (PPP) scheme or privately leased depending on the potential contractual models to ensure the efficient maintenance of a public infrastructure, the commercial management of the plant, and fair access to third parties (open, non-discriminatory, and at reasonable price), within the framework of an efficient regulation.

The consultant should provide a detailed cost estimate to support the proposed business model. The estimates should cover points of innovation in the electronics industry and indicate how the local general business will be associating with the business model to create new value for themselves. The costs should cover the land acquisition or lease, site development options (i.e. based on model buildings and open areas), site management, business promotion and other related costs.

ii. Market sounding exercise report

The consultant must conduct a market sounding exercise to ensure that there is sufficient interest from the market to bid for the project given the optimal technical, economic and contractual alternatives assessed. The consultant shall prepare the conceptual documentation to enable bidders understand the assignment well in

advance. The feedback obtained from potential service providers would be used while drafting the procurement documents.

iii. Environmental impact assessment report, health and socio economic promotion guide

Studies should be carried out to assess the potentially significant social and environmental impacts arising from developing the electronics industry. Both positive social impacts, including job creation and business opportunities, as well as negative social impacts must be analyzed. Proposals including specific components and related costs of measures to mitigate against the negative impacts should be prepared. A description of the competitive environment should be included and its impact on the ICT development in Uganda. This study should take into account comparative advantage of Uganda which would allow a market positioning to attract an investor base.

Preparation of Health and Safety Standards Guide and Manual; The consultant is required to prepare a manual to guide all aspects of facility construction, operation, monitoring, and post closure activities, with regard to health and safety, including measures to deal with hazardous (potentially toxic, ignitable, explosive, gas-producing, reactive, infectious) wastes, fires, explosions, accidents and injuries.

iv. Project management and monitoring Plan

The consultant is required to provide a project specific monitoring and evaluation plan that will be used for daily guidance on contract management, periodic evaluation and reporting.

v. Procurement documentation

The consultancy team must prepare a complete set of procurement documents in compliance with public sector procurement law, policies and guidelines and in accordance with best international practice. These documents include Request for Proposals with indications on optimal solutions based on the studies listed above and other draft contractual agreements.

7.0 Qualifications, Skills and Experience

The Consultant firm must demonstrate that it has experience and capacity to conduct feasibility study for the establishment of an electronics assembly and manufacturing industry in Uganda. The consulting firm will show evidence of experience in undertaking similar assignments.

The Consultant is expected to present the following experts amongst others as the key personnel:

No	Requirement	Minimum Standards	Pass / Fail
		Overall firm capabilities	
1	Experience of the Consultants	Experience of international/regional projects of comparable size, complexity and technical expertise	
		Not less than 5 years' experience in conducting feasibility studies of this magnitude and not less than 3 years' experience in development of electronics / computer industry in developing countries under comparable conditions	
2	Adequacy of proposed Methodology and Work Plan	Technical Approach and Methodology	
		Workplan	
		Organisation, roles and responsibilities	
3	Qualifications and Competence of Staff	<i>As a bare minimum, the following personnel are expected to comprise the Consultant's team. The consultant is at liberty to propose other experts in the Expression of Interest.</i>	
		<ul style="list-style-type: none"> i. General Qualifications (education, length of experience, types of positions held, length of service with the consultant, etc) ii. Roles and suitability for the project (experience of performing duties which will be assigned to them in the project) 	
		Team Leader	
		The team leader shall possess the following minimum qualifications:	
		Master's Degree in Electrical, Electronic, Computer Engineering, MBA or a relevant qualification;	
		At least 5 years' experience consulting on policies, frameworks and strategies for electronics assembly/manufacturing industry at regional levels and/or international levels;	
Proven experience in team leadership			

Business Development Expert	
The Expert shall possess the following minimum qualifications:	
Masters degree in Business Administration, Marketing, Accountancy, Finance, Economics, or other relevant fields.	
At least 5 years' experience in any or combination of the following: feasibility study preparation, business plan preparation; project proposal writing; project development; market research to identify demand gaps for business products and services; strategic planning; financial analysis; or identifying investment requirements	
Strategic Management Expert	
Masters degree in Business Administration, Strategic Management; Economics and other related fields.	
A minimum of five years relevant experience in strategic management, feasibility study preparation; project development; or equivalent.	
Financial Management Expert	
Masters degree in Business Administration, Accountancy, Finance and other related fields. ACCA, CPA or its equivalent is required	
Proven knowledge and 5 year experience of financial modelling for investments	
Electronics Hardware Design Expert	
Bachelors degree in Computer Engineering, Electronics, Electrical or any relevant field.	
Masters degree in any of the above fields will be an added advantage	
5 year experience in computer hardware research, analysis of customer needs and production requirements, design, development, or test of computer systems and components such as processors, circuit boards, memory devices, networks, and routers.	
Electronics Hardware Production Expert	
Bachelors degree in Computer Engineering, Electronics, Electrical or any relevant field.	

		Masters degree in any of the above fields will be an added advantage	
		At least 5 year experience in designing, building and/or testing of computers, or development of individual components for computer systems, including processors and circuit boards, as well as computing peripherals, such as keyboards and printers.	
		Environmental Management Expert	
		Minimum of a Masters degree in environmental or natural science, such as chemistry or biology	
		5 year demonstrable experience in environmental management; Environmental Impact Assessment related research/consultancy; pollution prevention; developing policies, strategies, frameworks, or regulatory documents to improve environmental compliance and procedures	
		Human Resource Management Expert	
		A minimum of a Master's degree in organizational development or strategic management, human resource management, or a related discipline.	
		At least 5 years' experience in human resource management in an electronics or computer industry including employee relations, health, safety, and environment, training and development, recruitment, benefits and payroll	
4	Suitability of knowledge transfer	<ul style="list-style-type: none"> i. At least two Ugandans on the team of experts above ii. Qualifications of support specialists to the above experts; at least one being a Ugandan iii. Proposed knowledge and skills transfer strategy in electronics manufacturing 	

8.0 Responsibilities

The Consultant shall be responsible for:-

- a. Providing experts all of whom shall be adequately qualified and experienced to undertake the assignment and timely delivery of the expected outputs.
- b. Notwithstanding the qualification written above, the consultant shall remain fully responsible to deliver the described assignment output.

- c. The Consultant shall be responsible for all costs for the assignment, except for items specifically listed under Client Responsibilities
- d. Provision of own office space and IT equipment.

The Ministry shall be responsible for;

- a. Preparing letters of introduction of the consultant
- b. Logistics and costs associated with stakeholder participation in workshops

9.0 Copyrights to designs and other materials

Unless otherwise indicated in the **Special Conditions of Contract (SCC)**, all reports and relevant data and information such as maps, diagrams, plans, databases, other documents and software, supporting records or material compiled or prepared by the Consultant for the Client in the course of the Services shall be confidential and become and remain the absolute property of the Client. The Consultant shall, not later than upon termination or expiration of this Contract, deliver all such documents to the Client, together with a detailed inventory thereof.

If license agreements are necessary or appropriate between the Consultant and third parties for purposes of development of the plans, drawings, specifications, designs, databases, other documents and software, the Consultant shall obtain the Clients' prior written approval to such agreements, and the Client shall be entitled at its discretion to require recovering the expenses related to the development of the program(s) concerned. Other restrictions about the future use of these documents and software, if any, shall be specified in the **SCC**.

10. Project Schedule/Timelines

The Consultant shall provide monthly progress reports summarizing efforts underway to address the above scope of work and activities, outlining problems and constraints encountered, and presenting issues for client decision-making, as needed. The project is expected to follow the schedule below:

	Activity	Estimated Duration
1	Inception report including the scope check, methodology, and timelines for the assignments	10 working days
2	Carrying out Feasibility Study as per tasks listed in Sections 5 and 6 above and producing draft report	25 working days
3	Final feasibility study report	5 working days
4	Facilitate two consultative workshops with key stakeholders as part of the study process and produce workshop reports	5 working days
5	Develop ToR and Draft RFPs, Bills of Quantities and the estimated Design/Build implementation cost	10 working days
7	Final bid documents and proposed roadmap	5 working days

Total Estimated duration: 60 Working Days

11.0 Monitoring and Reporting

The Consultant will work under the general supervision of the Permanent Secretary on strategic issues and will report to the Commissioner Information Technology on operational and contract management matters.

The consultant will be required to provide progress reports as per the above project schedule. The consultant will be required to make monthly reports on progress towards the completion of the study and preparation of the RFP.

12.0 Payment Schedule

Installment	Deliverable	% of total sum
1	Acceptable Inception Report	15%

2	Acceptable Draft Feasibility Study Report and Procurement Documents	40%
3	Acceptable Final Feasibility Study Report and Procurement documents	45%

The date of exchange rates will be based on Bank of Uganda rates and the contract will be in Uganda shillings.