

Scope of Services

National ICT Workforce Survey ICTA/GOSL/CON/QCBS/2016/44

1.0 OBJECTIVE OF THE CONSULTING ASSIGNMENT

The aim of the workforce survey is to gain a clear understanding of the extent and the composition of ICT and BPM workforce in Sri Lanka and to weigh that against the extent of the supply of skilled personnel.

The achievement of this aim will enable;

- The ICT and BPM suppliers, ICT user organizations and the public sector gain a realistic picture of the overall demand and supply of IT Human Resources.
- Universities and other ICT and BPM training institutions to improve their offerings
- Students to make better course selections that will lead to employment in the IT industry
- Potential investors to have vital information about the IT and BPM workforce that will help them make their investment decisions.
- Policy makers to use the data for Human Resource planning and development

The ICT Workforce survey will also replicate and build on the four previous survey rollouts already completed in 2004, 2006, 2010 and 2013 which would enable a longitudinal study of the nature of the ICT workforce. Where important, modifications deemed necessary might be made, but always ensuring that longitudinal studies can still be carried out.

2. 0 SCOPE OF WORK AND TASKS TO BE CARRIED OUT

2.1 Task 1: Methodology, Sample Frame and Questionnaire Design

- i) Consult representatives of ICTA and gather details on the requirements for survey design, questionnaire development and implementation time schedule.
- ii) Recommend and develop a comprehensive representative sampling frame of software and hardware companies, non IT user organizations, IT degree and non degree awarding training organizations, IT BPM industry organizations and government institutes.
- iii) The Consultant must apply proven statistical methods when establishing the random sample. The Consultant in his bid shall discuss and make proposals on how to select a representative and statistical valid sample).
- iv) The survey mainly consists of three sub samples; a) organizations that employ IT professionals to assess the demand b) BPM industry organizations, 3) IT Training organizations to assess the supply of trained professionals. Different questionnaires will have to be used in each of the samples. Separate section for collecting information on ICT usage in each organization should be included in both questionnaires.

- v) In addition, secondary data should be collected on availability and content of IT subjects in schools. This data can be collected through going through records of IT units of line ministry as well as in the provincial education Ministries.

(a) The Employer Organizations Sample

The employer sample include four categories of organizations

- ICT Suppliers: Organizations with the primary business objective of providing ICT products and services *including* software, hardware and telecom companies)
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- ICT Users: Private Sector organizations outside the ICT sector, Public sector such as Ministries, departments, corporations and other government owned organizations

b) BPM Sample _ Business Process Outsourcing (BPO) sector companies

(b) The Training Organizations Sample

The sampler of training organizations should include Universities, degree awarding and non degree awarding private institutions, as well as government technical colleges (Degree, Higher National diploma).

- vi) The recommended respondents for the survey are CEOs, HR Managers and /or IT Managers, etc. In the case of government organizations it should be head of department or government Chief Innovation officers who are in charge of ICT subject
- vii) Provide, in English, a detailed Survey Implementation Plan outlining all the steps involved in the design and implementation of the survey, including a project time schedule and resource plan, draft questionnaires (in English) and outlines of the instruction manuals to be developed. Submit the survey implementation plan to ICTA in electronic form and as a hard copy.
- viii) Develop two different questionnaires for IT Human resources employers and Training organizations for conducting interviews with relevant respondents of selected organizations. Provide all instruments and documentation to ICTA in electronic form and as hard copies.
- ix) The survey questionnaire has to be developed by the Consultant in English. The Consultant in his bid shall present their understanding the potential risk and challenges that they would face in conducting interviews in a survey in this nature.
- x) Consultant in his bid shall discuss potential approaches that can be used for data quality assurance and validation.

2.2 Task 2: Survey Field Testing and Implementation

- (i) The Consultant must provide the appropriate training to enumerators, supervisors, and data entry personnel in order to safeguard the collection of accurate data. Consultant must also present briefly the enumerator training approach, survey management and monitoring methods and any other additional quality control elements that can be used to ensure the reliability and validity of data.
- (ii) Pre-test the questionnaire with appropriate sub sample (atleast 5%). After the pre-test, if necessary, revise the questionnaire and documentation, if necessary, adapt the sample size to ensure that final results will be of statistical valid. A test of data entry (data entry program and procedures) must also be included in the testing procedures. Provide ICTA with a summary of test results and relevant comments and suggestions.

- (iii) After approval by ICTA, conduct field operations and collect data in accordance with the plans and proposals developed previously. Measures should be in place to ensure the data quality.
- (iv) The Consultant will be responsible for appropriate awareness raising among respondents of the survey, to inform about its purpose, value and requirements, and how participants can benefit from contributing effectively during the data collection process. *(The Consultant in his bid shall present approaches on how the necessary awareness raising can be achieved)*
- (v) All appointments and arrangements with the companies need to be arranged and facilitated by the Consultant. ICTA will not be responsible for these meetings, but will help the Consultant to establish the initial contact with the relevant staff.
- (vi) For data collection, the method of face to face interviews and key informant interviews must be used to gather information.
- (vii) Consultants in his bid shall present techniques that can be used to ensure the required level of response rate and reduce as far as possible the non response errors.
- (viii) The Consultant must be able to facilitate the survey in three languages – Sinhala, Tamil and English. Additionally, the survey questionnaire will have to be produced and circulated in all three languages. Reporting requirements and other outputs of this assignment must be done in English.
- (ix) Consultant will be responsible for managing this project, which will include taking care of administrative activities to structure and run the project effectively.
- xi) ICTA will own the questionnaires and final report, and all related data/information in respect of this assignment. Additionally, ICTA will also have the right to reproduce and circulate the survey questionnaire, report and findings as its discretion.

2.3 Task 3: Data Entry, Processing, Analysis and Reporting

- i) Enter collected data into database software. The software must be able to verify ranges and consistency of the data and generate reports indicating missing data, data outside of the accepted ranges, and inconsistent answers. Clean data records and verify that the sample is still sufficient for reliable statistics. Provide a brief data entry report to ICTA in electronic form and as hard copy. Together with the report, deliver the data base in MS Excel format containing all entered data records.
- ii) Conduct data analysis. The Consultant will conduct exploratory data analyses (e.g. frequencies, percentage tabulations, and cross tabulations) of key survey variables and their correlations. Where necessary, statistical significance levels need to be calculated to enable proper interpretation of results.
- iii) *Provide, in English, a Final Survey Report presenting the results of the survey. The report must contain descriptive statistics of all variables of the survey, cross tables, and graphs. Selected variables should be presented by graphs and/or correlation measures. A critical review of the methodology, realisation, and results should be given, together with recommendations for improvement. The report must be submitted in electronic form and as a hardcopy.*
- iv) **Based on the findings, make recommendations that can be adapted by policy makers to improve the situation,**
- v) Conduct a presentation workshop at ICTA to present and discuss Final Survey Report findings, when specified by ICTA. The Consultant will be expected to produce a report on the workshop deliberations, and make amendments to the Final Survey Report based on the workshop outcomes if necessary.

- vi) Consultants are advised to present all requirements for effective carrying out of the assignment in their proposals.

3.0 QUALIFICATIONS OF CONSULTANTS

3.1 Staffing

The key functions are (1) Survey design, Planning and development of survey tools, (2) Field Management, (3) Statistical Data Analysis, and (4) Project Management (5) strong expertise in the local ICT industry 5) Report Writing.

The suggested minimum number of key staff is as follows (please see the table below). The Consultant is free to propose the number and structure of experts appropriate to his implementation approach, provided that the team properly covers the above mentioned functions. The following functions should be covered by project personnel: Survey Planning and Design, Field Management, Data Collection Supervision, Data Collection, Data Management, Data Entry, Data Analysis, Project Management, and Quality Assurance.

An adequate number of experts, who can, within the limited timeframe, facilitate and conduct surveys as well as analyze and report on survey data must be proposed by the Consultant. *[Personnel proposed to cover the key functions (Key Experts) must be included into the proposal with their full CVs (in accordance with the format provided)].* Positions to cover the other project functions must also be presented in the bid, including the number of staff, their input in terms of staff days, and their work schedule, but particular persons must not be nominated and their CVs not included into the proposal. A description of an appropriate team structure, team collaboration arrangements and project management functions must be included into the proposal.

Consultants are strongly recommended that all the survey enumerators/field staff are at least undergraduates from a recognized IT faculty. Consultants in their bid shall discuss potential approaches that can be used for selection and effectively coordinate capable field staff.

Expert	Preferable Academic Qualification	Preferable Experience	Preferable number of similar assignments conducted
Team Leader/ Survey Specialist	Master degree from a recognized university	Demonstrated experience at least 3 years in designing surveys, developing questionnaires, analysing and interpretation data, and compiling into report (Preferably for the public sector) Demonstrated knowledge of best practices in surveys and statistics Excellent language skills (Sinhala/ Tamil and English) of the relevant staff	At least 3 similar assignments specially in the areas of ICT for development
Statistician	Master degree from a recognized university	Minimum 3 years demonstrated experience in handling statistical analysis and implementing national level surveys /Project evaluations (Preferably for the public sector)	At least 3 similar assignments
ICT Industry Expert	ICT/Computer Science Degree from a recognized university	Degree in ICT Minimum 3 years Demonstrated experience in local ICT industry, In-depth knowledge in the local and global situation of the IT workforce	3 similar assignments specially in the areas of ICT for development
Project Manager	Degree from a recognized university in ICT	Minimum 3 years demonstrated experience in managing surveys	At least 3 similar assignments

- Survey Enumerators: demonstrated experience in conducting face-to-face interviews at least in 3 surveys; language skills; experience with the particular type of respondents will be an added benefit. Excellent language skills (Sinhala, Tamil and English) of the relevant staff. Survey Enumerators should be undergraduates or graduates from a recognized university.

3.2 Survey organization

The organisation should be specialised and have relevant experience in designing and conducting national level surveys, preferably in the area of ICT for Development.

The survey organisation should be able to provide a strong network of enumerators and office facilities to facilitate information gathering managing the survey successfully..

All enumerators Experience in similar assignments will be an added benefit.

4.0 OUTPUTS, DELIVERABLES AND PAYMENT SHEDULE

- All reports and deliverables need to be prepared in English and submitted to ICTA in electronic form (DOC format and PDF) and one hard copy.
- Questionnaire forms are to be prepared in English and translated into Sinhala and Tamil.
- Upon completion of the project, ICTA will own all evaluation tools and reports, and all related data/information in respect of this assignment. Additionally, ICTA will also have the right to reproduce and circulate the evaluation tools and report at its discretion.

Phase / main reports	Task	Deliverable	Deadline	Payment Schedule
Inception Report	Finalize work plan, survey sites schedule, survey sample, enumerator training and survey questionnaires	Report on the survey approach, sampling frame and the survey sample survey questionnaires Detailed work plan Report on field staff training	Contract date + Week 3	10%
Interim Report I	completion 50 % of the survey	Field Monitoring Report 1 (Details of survey implementation, monitoring and quality assurance activities conducted))	Contract date + Week 6	30%
Interim Report II	completion 100 % of the survey	Field Monitoring Report 2 (Details of survey implementation, monitoring and quality assurance activities conducted)	Contract date + Week 9	15%
Survey Draft Report	Completion of Survey, Completion of data entering and cleaning Completing data analysis Presentation of draft survey report	Draft Survey Report	Contract date + Week10	20%
Survey Final Report	Incorporating comments on the draft report Submission of final report	Final Survey Report Completed questionnaires Completed data base	Contract date+ Week12	25%

5.0 CLIENT'S INPUTS:

The clients will provide the following documents / information to the consultants

- Letters of introduction for conducting the surveys in the selected agencies.
- A list of government organisations, by which the Consultant can determine the sample frame.
- A list of variables which are mandatory to include into the survey.
- Background information of ICTA projects relevant for the implementation of the survey.
- Venue facilities to hold workshops to present key findings of the report.

6. 0 PROCEDURES FOR REVIEW OF OUTPUTS

Review committee will be comprised of the following members from ICTA:

- Programme Head M & E
- Programme Head, ICBP

Review and comment on the draft report (By the client):

- 2 week from the date of final audit presentation

Incorporate comments and submit final survey report (By the consultant)

- 2 week from the date of submission of comments