Annex 1

Terms of Reference (ToR)

Part-1: Development and Operationalize of Chatbots through Online Messenger Services for the knowledge bases of the Government Information Center (GIC-1919)

1 Introduction

Following the global trend, the Government of Sri Lanka initiated the Government Information Center (GIC-1919) in August 2006 under the aegis of the Presidential Secretariat and the Information and Communication Technology of Sri Lanka (ICTA) as the first one–stop government call Center of the country with the aim of providing citizens with information and services of the government in an efficient, effective and friendly manner. The GIC-1919 was launched as a public-private partnership and it is a single, electronic, trilingual, online knowledgebase of over 3,000 services available from more than 300 key government organizations. Currently, the call center operated by Sri Lanka Telecom receives over 5,500 calls daily on average and is operational throughout the week, 14 hours a day.

Key matters related to the operations of the GIC call center and associated services are resolved through a Steering Committee chaired by the Secretary, Ministry of Telecommunication and Digital Infrastructure (MTDI), with members of government organizations of which information related to their services are at very high public demand.

Considering the popularity of this information service, it was recognized as one of the key ICT initiative of the National Action Plan of the Open Government Partnership (OGP) – an international collaboration to promote openness of the government - in which Sri Lanka is actively engaged in through multiple sectors.

As the GIC completes a decade of operation, ICTA and its MTDI aim to improve the accuracy, user-friendliness of the GIC as well as to use new modes of interactions for citizens to obtain specific information they are looking for, especially deploying new technologies such as Chatbots using Artificial Intelligence and social media platforms.

For this purpose, MTDI aims to obtain the services of a reputed consultancy firm for a period of six (06) weeks to conduct the assignment to develop and operate a Messenger based Chatbot.

It is understood that there are over 6 Mn Internet users and over 4.5 Facebook users. Therefore, social media can be considered as an alternative and novel media for opening government information to citizens, specially to young generation. Moreover, social media based Chatbots is an innovative way to open such channels.

2 Objectives

2.1 Primary objectives

Primary objectives of this assignment are to:

i. Open more new media based channels to provide government information.
ii. Improve the accessibility of the government information to citizens through new innovative social media platforms.
iii. To provide a high-level user friendly interface that can be operated through a chat and button options.
iv. Provide more equitable platforms for citizens to ask questions in natural languages.

2.2 Specific objectives

High level objectives of the study are to:

i. Successful development and deployment of Chatbots which can replace the need for having to use mobile app or visiting a website to obtain information citizens may seek.
ii. Capture at least 500,000 or more unique users who would access government information thorough the social media.
iii. Enable end users to ask simple questions in natural language (Sinhala, Tamil, English) and can use assisted operations such as quick responses/ replies using texts or graphics.
iv. Enable users to request both static and dynamic information/data such as train schedules etc. without sending SMSs (structured).
v. Deliver user oriented (profiling and location based) content using Artificial Intelligence algorithms.

3 Scope

Tasks to be carried out

The following seven (07) key tasks should be carried out:

Task 1: Study the trilingual questions and answer based information related to 25 most demanding government services as identified based on the call statistics to GIC-1919 call center operated by Sri Lanka Telecom and the export agriculture related information of GIC for 7 crops.
Task 2: Suggest how the information could be organized, rewritten to optimize the performance of chatbot.
Task 3: Design the Messenger Chatbot for providing the above information.
Task 4: Demonstrate how the Chatbot would work and use artificial intelligence for the sign off by the stakeholder groups.
Task 5: Pre testing and implementation.
Task 6: Review feedback, fixing errors where necessary and further improvements.
Task 7: Deploy and provide support for improvements.

4 Final outputs, Reporting Requirements, Time Schedule for Deliverables

The project duration is six (06) weeks, including requirement gathering, designing, and development of the ChatBot solution.

No	Deliverables
4.1	Information verification report for assessing the suitability of the information and suggesting the improvements
4.2	Design document which explains the information architecture as well as the hosting platform
4.3	Functional prototype of chatbot
4.4	Chatbot (final product populated with all information)

Table 1.0 - Deliverables and timeline

5. Services and Facilities Provided by MTDI for the assignment

i. Question and answers based information from the GIC-1919 knowledge base related to most demanding 25 public services and export agriculture based information in electronic format in all English and Sinhala/Tamil.
ii. Facilitate meetings with information owner organizations and GIC call Center call operators.
iii. Access and hosting facilities in Lanka Government Cloud 2.0 if required.
iv. Facilitate meetings with Chief Innovative Officers (CIOs) and/or Information Officers who have been designated from 26 organizations to liaise with ICTA and SLT Call Centre.

6. Review Committees and Review Procedures

7.1. All deliverables will be reviewed by the team appointed by MTDI.

Terms of Reference (ToR)

Part-2: Development and Operationalize of Chatbots through Online Messenger Services for the knowledge bases the Life Long Learning for Farmers (L3F) Communities to provide information services to citizens

1. **Introduction**

Sri Lanka being a predominantly agriculture based country, 70% of its population who engage themselves in farming contribute only 30% to the Gross Domestic Production. Farmers depend on the both conventional agriculture extension services and informal communication channels for guidance and instructions for their farming practices. These modes of communication are not productive and reliable enough to meet the current demand. Face-to-face learning approach of the conventional extension systems have become outdated and many farmers find difficulties seems to be reluctant in participating these meetings leaving their field work aside. Informal channels of communication may disseminate unacceptable information which may lead to many uneconomical and environment unfriendly practices.

The Commonwealth of Learning (COL) has identified this issue and has initiated the programme called Life Long Learning for farmers (L3F) which has been successfully implemented in many countries including Sri Lanka. COL L3 farming has been implemented in Sri Lanka since 2007. Partners of COL L3 Consortium such as Department of Export Agriculture, Open University of Sri Lanka and University of Ruhuna have piloted a number of projects which have been successful in implementation. As a result of significant improvement of ICT literacy in Sri Lanka over the past few years, many farmers have acquired basic levels of competency in using IT tools for communication. Past experience of the Commonwealth of Learning Life Long Learning for farmers (COL-L3F) project of the OUSL showed that farmers are enthusiastic in attending IT training workshops and use these skills in upgrading their knowledge.

The main theme of the involvement has been identified as building the social and financial capital. The research conducted by COL has indicated that every US Dollar spent on such social and financial capital development would return 8 US Dollars.

COL L3 Consortium has identified few export markets for some of the crops in Sri Lanka which are usually grown for local consumption and even imported for local consumption. COL L3 Consortium has successfully implemented pilot projects for those crops. Most of the time COL L3F Consortium has used digital tools for capacity building and created platforms for giving flexibility for farmers to learn at their leisure. Since the involvement of digital platforms and devices will contribute the digital transformation that is envisaged by the Ministry, upscaling and expansion of the successful pilot project has been selected as a good investment.

Therefore, the Ministry of Telecommunication and Digital Infrastructure collaborated with these stakeholders for a special project under the Ministry's purview as it is important to empower the farming communities by providing appropriate digital tools and knowledge for improving their productivity.

The overall objective of the project is to empower the farming community to become social and financial capital by increasing accessibility to agro-based knowledge through digital information infrastructure in collaboration with COL L3F Consortium partners.

Some of the key project objectives include,

a) Providing necessary ICT equipment to the Agrarian Services Centers located in the identified locations
b) Improve the Call center for Export Agriculture and agri business/enterprises
c) Collaborating with COL L3F project consortium partners for identifying more crops and areas of where capacity of such farmers could be improved.
d) Developing Mobile Apps and software tools for instructional and problem solving purposes on the best farming practices for the crops identified.
e) Developing Open and Distance learning (ODL) material on crop development and marketing for farmers.

2. **Concise statement of the objectives**

MTDI intends to engage the consultancy firm to carry out creation of a virtual assistant to assist farmers via social media platforms preferably Facebook or Facebook Messenger

Key Requirements:

a) Chatbots should be developed to answer possible questions that can be asked by farmers
b) Multilingual support - Sinhala/Tamil/English
c) Stepwise guidance without asking specific questions
d) Use of Artificial Intelligence to provide most intelligent responses by learning through usage patterns and demand for content
e) Dashboard to view chatbot engagement and user insights
f) Dashboard with ability for humans to engage in the chat if needed

3. **Scope of Work**

a) Understand and narrow down the targeted audience and specific crops that needs to be facilitated.

b) On completing the above, submit a requirement specification comprising of the following, among others;

Farmers and general public should be able to contact the virtual assistant via Facebook or any other mostly popular social media platform:

i. Virtual assistant responds to pre-trained queries autonomously.
ii. Queries which failed to answer should be saved and have the ability to learn and

use artificial intelligence for providing most appropriate and intelligent responses.

iii. Users should be guided by using a stepwise conversation.

c) Maintain project deliverables on a reliable infrastructure.

d) Use a mechanism to request for changes and track issues.

e) Deploy in a Cloud with high availability and maintain without MTDI's involvement. This could either be deployed in Consultant's preferred cloud or Lanka Government Cloud 2.0.

f) Engage in the process to carry out awareness campaigns about reaching the assistants and using them effectively.

5. Final outputs, Reporting Requirements, Time Schedule for Deliverables;

Duration of the assignment is six (06) weeks including requirement gathering, designing, and development of the System. Consultancy firm is required to submit the following list of deliverables of the assignment.

No	Deliverables	Phase
5.1	Implementation Proposal 5.1.1 Implementation schedule 5.1.2 User Acceptance criteria for the UAT Issue tracking and change request management system (Slack)	Inception
5.2	5.2.1 Design and Architecture Document 5.2.2 Data migration and integration plan (if applicable) 5.2.3 Release Management plan (including staging, production and support and maintenance)	Elaboration
5.3	5.3.1. Development of the L3F Chatbot and Associated services to meet key requirements	Construction
5.4	UAT, migration to production and commissioning	Transition

Table 2.0 - Deliverables and timeline

6. Services and Facilities Provided by MTDI

6.1 Data and access to domain experts
6.2 Data in form of Q&A
6.3 Questions in various forms and relevant answers

7. Review Committees and Review Procedures

7.1. All deliverables will be reviewed by the team appointed by MTDI.

References:

[1] eGovernment Policy Approved By Cabinet of Sri Lanka - https://www.icta.lk/ictaassets/uploads/2016/03/eGov-Policy-structured-v4-0.pdf
[2] Lanka Interoperability Framework - http://www.life.gov.lk/