Terms of Reference

Junior Data Engineer – Pulse Lab Kampala

Location:	Kampala
Application deadline:	November 22, 2015
Type of Contract:	Individual Contractor
Languages required:	English
Duration of assignment:	9 months

Background and rationale

Global Pulse (http://www.unglobalpulse.org/about-new) is an innovation initiative of the United Nations Secretary-General on Big Data. Its vision is a future in which big data is harnessed safely and responsibly as a public good. Its mission is to accelerate discovery, development and scaled adoption of big data innovation for sustainable development and humanitarian action. Global Pulse is building a catalytic network of in-country innovation centers, which will test new tools, data and analysis, share what lessons with the global community, mainstream successful approaches for real-time impact monitoring into policymaking. The first Lab has been established in New York (Pulse Lab New York) followed by Jakarta, Indonesia and Kampala, Uganda.

Pulse Lab Kampala (http://www.unglobalpulse.org/kampala) is an inter-agency initiative of the United Nations under the Office of the Resident Coordinator in Uganda. The first of its kind in Africa, it brings together researchers from Government, the UN, non-governmental organizations and private sector to explore the utility of new sources of digital "Big Data" (such as social media, mobile data, online information) and real-time analysis techniques for social development monitoring and program planning.

A data revolution is underway in Uganda and in Africa. There is more data now than ever. New technologies are leading to an exponential increase in the volume and types of data available, creating unprecedented possibilities for informing and transforming society and protecting the environment. There is more data produced in the last 2 years than in all of human history. There is a tremendous potential in new technology; indeed, this is the forefront of the data revolution already well underway in in the private sector. The new SDGs agenda will have increased demands – and opportunities- for the use of data. Pulse Lab Kampala supports the UN Country team to tap into the revolution obtaining more and better data to support development work and humanitarian action supporting:

1. Enhance Early Warning: Detection of anomalous trends and patterns of events enables early warning of emerging crises and earlier responses to prevent long-term harm;
2. Real-Time Awareness: An up-to-date picture of trends, hotspots and dynamic changes in population behaviour enhances programme planning and monitoring of implementation and
3. Rapid Impact Monitoring and Evaluation: Timely feedback on the impact of programmes and policies allows for adaptive course correction and accelerated achievement of results.

Under the guidance of the Pulse Lab Kampala Data Scientist, the consultant will support Pulse Lab Kampala to implement data innovation projects. The consultant will assist with the technical

development of projects harnessing Big Data sources (such us online media, social networks, imagery, geospatial data, population mobility, transaction records, etc.) and statistical datasets to improve both understanding of population behaviour, needs, and vulnerabilities as well as capacity to monitor and evaluate the impacts of development polces and programmes.

Description of assignment

The Junior Data Engineer will be a part of a team that will focus on accessing and deriving insights from large data sets to solve problems.

- Data processing
  - Converting unstructured data (such as public social media discussion, news articles) into structured records, using classification or clustering methods.
  - Extracting information from large datasets (such as satellite imagery, telecoms usage records, crowd sourced sensor measurements, radio recordings) in order to calculate statistics of interest.

- Data analysis and visualization
  - Writing software to generate maps, charts and other types of output.

Methodology

- The expert is expected to work in close consultation with the Data Scientist at Pulse Lab Kampala;
- Technical advise will be available from collaborators at Stellenbosch University;
- The Expert will work with the team at Pulse Lab Kampala;
- Skype meetings with Pulse Lab Kampala will be necessary, actual materials to be delivered may be worked on at the location of the expert's choosing and delivered via email;
- Copyright and ownership - all materials produced and other intellectual property will be solely owned by Pulse Lab Kampala. Any material provided to the expert will remain the property of Pulse Lab Kampala

Expected deliverables (that have been identified presently, these may be increased)

Specifically, the Junior Data Engineer will:

- Contribute to the efforts of the team in defining, designing and building projects harnessing data innovation to address global challenges;
- Help to develop interactive data visualisations for the web;
- Develop and use software tools to extract, process and analyse data sets from a variety of sources;
- Assist the team in the development of working prototypes and applications for the Pulse Library that will be used by UN agencies and partners;

Duration

The contract will be effective from date of signing for 9 months.

Working arrangements

Institutional Arrangement
- The consultant will report to Pulse Lab Kampala Data Science Officer on a regular basis on the progress in line with the set deliverables of the assignment;
- The consultant will liaise, interact, collaborate/meet staff at Pulse Lab Kampala and partners;
- UNDP (Pulse Lab Kampala) will support the consultant in the following:
  - Access to all reports and data relevant to the assignment. These will include donor reports, project documents and donor reports;
  - Support and assistance to gain access to relevant stakeholders for consultations to the extent possible.

Duty station

Kampala

Requirements on skills, competencies, education and experiences

Competencies
- Mathematical and statistical aptitude;
- Plans and produces quality results to meet established goals;
- Generates innovative, practical solutions to challenging situations;
- Demonstrates substantive and technical knowledge to meet responsibilities and post requirements with excellence;
- Demonstrates openness to change and ability to manage complexities.

Education
- Bsc in Computer Science, Software Engineering, Electrical Engineering, Mathematics, Statistics and related fields;

Experience
- At least 2 years of experience of web application development, preferably having worked on examples of interactive data visualization;
- Working knowledge of various programming languages and experience with software development. Experience with Python is an advantage.
- Experience of web application development, preferably having worked on examples of interactive data visualisation.
- Experience of writing software to process different types of data (e.g. numerical data, text, images or audio).
- Experience of working with Linux servers.
- Familiarity with statistical programming and discrete mathematics.
- Experience working with open source data processing frameworks desirable

Skills

- Excellent communication skills;
- Produces timely, quality outputs.

Language Requirements
Excellent command of English.

Evaluation method and criteria

Individual Consultants will be evaluated based on the Cumulative Analysis methodology. The ranking of the **Consultant** shall be made based on proposals that are;

a) Responsive/compliant/acceptable; and
b) Having received the highest score out of set of weighted technical criteria and financial criteria as per below weightages (technical-financial): 70%-30%.

Financial score shall be computed as a ratio of the proposal being evaluated and the lowest priced proposal received by UNDP for the assignment.

Technical Criteria for Evaluation (Maximum 70 points)
Applications will be evaluated on the following criteria:

- Education: BSc in Computer Science, Software Engineering or related field;– Maximum 20 points;
- Relevant experience in Software development, programming language, data visualization- Maximum 20 points;
- Methodology and understanding of assignment – Maximum 30 points

Only candidates obtaining a minimum of 49 points (70% of the total technical points) would be considered for the Financial Evaluation (30%).

Payment
- Services will be paid for upon completion of specific milestones as agreed in the TOR;

Application Procedure

The consultant is required to submit an electronic application by directly uploading all their documentation in one single pdf on this website no later than 29th November, 2015. For clarifications, please send your email to; justine.naiga-bagonza@undp.org with copy to diana.nabbanja@undp.org and agnes.kintu@undp.org.

The application should include the following documents/information:

- Duly accomplished Letter of Confirmation of Interest and Availability using the template provided by UNDP (see Annex II);
- Updated Personal CV highlighting past experience in similar assignments and with 3 professional references with contact details (email and telephone);

- Financial proposal (in template provided in Annex II) stating an all-inclusive fixed lump sum fee for this assignment in Ugandan Shillings, supported by a breakdown of costs. Such total lump sum price must include professional fee, and costs necessary to conduct the assignment such as communication costs, etc. The consultant will be paid against the completion of specific, measurable deliverables as identified in this TOR.

Annexes (Please down load these on the Procurement Notices Website, Ref # 26914 /
http://procurement-notices.undp.org/view_notice.cfm?notice_id=26914**):**

- Annex I: Individual Contractor General Terms and Conditions;
- Annex II: Template to Confirmation of Interest and Availability and Submit the Financial Proposal