16. Opportunities for Big Data and Data Innovation for Evaluations: Examples from Uganda

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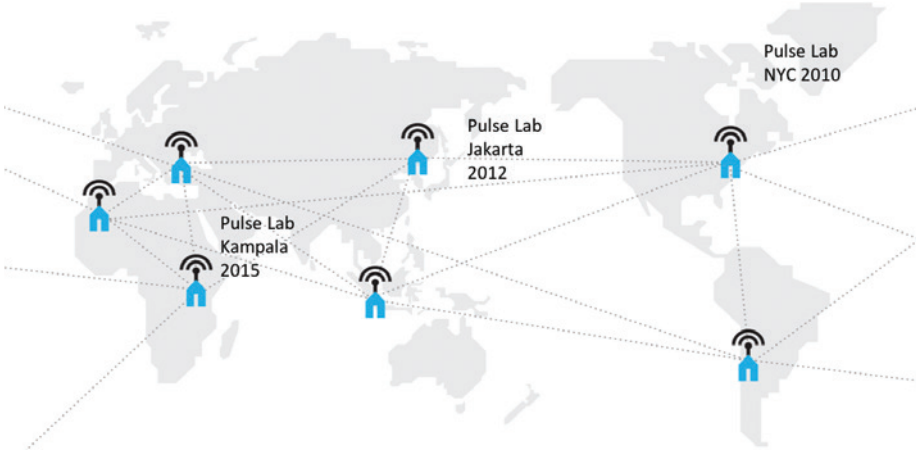
The Pulse Lab Kampala is one of the three labs of United Nations Global Pulse, an initiative of the United Nations Secretary-General on big data. The main objective of the labs is to promote and facilitate the adoption of big data for sustainable development. To achieve this, Global Pulse works with academia, the private sector, governments and development practitioners.



We live in a digital era. This means that vast amounts of data are generated every day and everywhere in the world as people go about their daily lives. Research says that more data have been generated in the last two years than in all of human history. But is this happening everywhere in the world? Is it happening also in Uganda? Is it happening in Africa?

Digital data are generated from digital devices. The most popular digital data device nowadays is the mobile phone. For many people, it is difficult to imagine life without a mobile phone. This is also happening in Africa right now. The growth of mobile phone usage is increasing exponentially in Africa, faster than anywhere else in the world. Nigeria, for example, had around 100,000 phone lines (land lines) about a decade ago. Today, there are 140 million estimated active mobile phone lines in the country. Researchers estimate

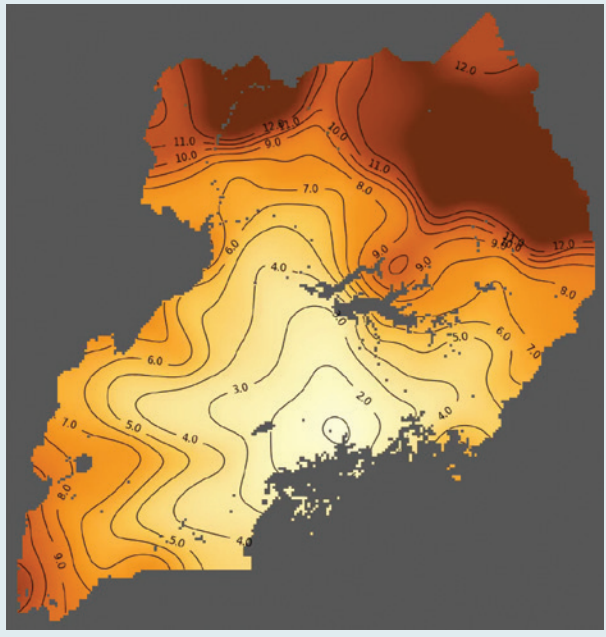
that the use of the Internet and mobile phones in Africa is growing 10 times more than anywhere else in the world. The estimations reflect that this tendency will continue for some more years.

While understanding that big data do not represent universes of analysis as do other types of data, we can assume that millions and millions of data bits generated on a daily basis by large sections of the population can provide valuable insights into how programmes and policies impact people's lives.

EXAMPLES OF HOW BIG DATA AND DATA INNOVATION CAN SUPPORT EVALUATION PROCESSES

The dynamic image represented in the figure below shows estimated daily fluctuations in travel times from Kampala to the rest of the country. The underlying data used for the representation are call records recorded by telecom companies. Travel times change every day because of different reasons such as road, traffic or weather conditions; the figure shows these fluctuations on a daily basis. The data reflected in the dynamic presentation have been generated by 10 million people when they use their phones to make phone calls. While the total population in Uganda is around four times the size of the sample data used for the real-time analysis, daily data generated by 10 million people can be considered representative of valuable dynamics.

ESTIMATED DAILY FLUCTUATIONS IN TRAVEL TIMES



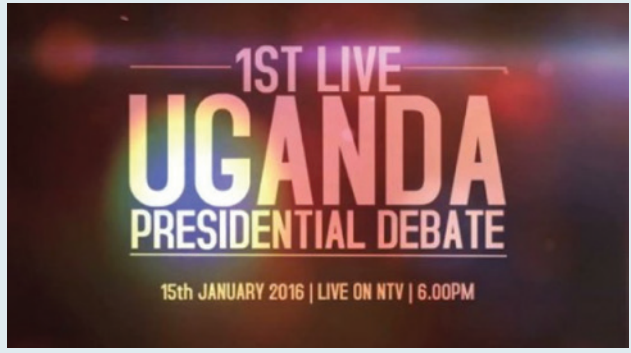
An important characteristic of big data and digital data is that they are generated on an ongoing basis, which allows understanding of processes in real time. Another exercise charted movements of "boda-boda" (motorcycle taxis) in Kampala through the day, with each motorcycle taxi moving in Kampala in real time represented by a dot.

An important source of big data is public discussions on social media platforms. In 2016, the first live televised Presidential debates were held in Uganda as a precursor to the general elections that took place in February and March. With support from the United Nations Development Programme (UNDP), the debates were organized by a tripartite of impartial entities as a joint and balanced space for Presidential candidates to share their vision and plan with the people of Uganda. The debates raised a lot of interest and were heavily discussed on social media, in particular on Facebook. Pulse Lab Kampala worked with UNDP to unearth public opinions around the organization of the debates to understand how they were perceived by Ugandans. The project examined, in aggregate, the level of public satisfaction with the overall organization of the debates and how they were viewed as relevant to the electoral process. In order to filter posts related to the debates, Pulse Lab Kampala created a taxonomy of keywords and categorized the comments into "general" and "thematic". The analysis yielded 50,000 relevant public Facebook posts from January and February 2016, when the first and second televised debates took place. It also revealed four specific topics of discussion related to the candidates, the organizers, the moderators and the outreach of the debates (in Uganda, not everyone owns a TV).

Results from the body of data analysed showed a general high degree of positive perceptions, with debates being viewed as an important milestone for democracy in Uganda.

In rural areas of Uganda, where almost 90 percent of the population live, radio serves as a vital platform for public discussion, information sharing and news. Pulse Lab Kampala and partners have developed a prototype, the Radio Content Analysis Tool, which converts into text public discussions in various African languages that take place on the

FACEBOOK – DEMOCRACY



radio. Once converted, the text can be searched, filtered by topics of interest and then selected for analysis.

Radio campaigns are popular ways to reach remote villages in countries like Uganda, and development organizations use them to implement behavioural change campaigns. Pulse Lab Kampala worked with Save the Children on a study to monitor and evaluate the implementation of the "Every Last Child" campaign. Save the Children, an international non-governmental organization that promotes children's rights, was running the global Every Last Child campaign to promote better access to life-saving health care and quality education for all children. As part of global efforts, in July 2016 the organization launched a radio and video campaign in Uganda, to reach children in remote areas of the country. The Global Pulse Lab used the Radio Content Analysis Tool to monitor the frequency with which the campaign was promoted, with particular focus on a song that aired as part of the campaign. The results showed that the detection rate of the automatic software was 68 percent with zero false alarm rate, suggesting that campaign detection using the radio tool can be an effective monitoring and evaluation method.

With this application, Pulse Lab Kampala was able to evaluate simply whether the song had been played or not as agreed. All we had to do was to check if the radio campaign had been on the air or not. We are not going to say that the tool was a 100 percent accurate, but it was able to check and evaluate in real time, giving us real numbers on how many times the campaign was played.

RADIO APPLICATION

Dying during childbirth is a frequent cause of death among women in Uganda. Often, pregnant women cannot reach a health facility for childbirth and have no help at home. The Government of Uganda has received support to pilot an ambulance service in two regions of the country (Rwenzori and West Nile) to provide women the basic transportation and

assistance they need to reach a hospital for delivery. If the initial project is successful, the project will be scaled up at national level. Pulse Lab Kampala and partners have developed a system to evaluate in real time the use of the ambulances. The application utilizes global positioning system trackers installed in the vehicles to provide real-time analytics of the efficacy and efficiency of the use of the ambulances.

AMBULANCE TRACKING

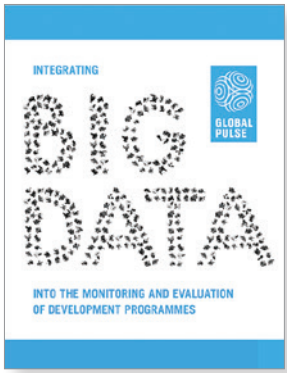
NATIONAL EVALUATION CAPACITIES AND BIG DATA

> *"… There is no longer any doubt that the explosion of available data and the speed with which it can be provisioned will revolutionize the way global challenges are solved…".*
>
> VERONICA OLAZABAL, DIRECTOR, MEASUREMENT, EVALUATION AND ORGANIZATIONAL PERFORMANCE, THE ROCKEFELLER FOUNDATION

New forms of digital data and big data have the potential to complement more traditional approaches to evaluation and lend greater insights into the impact of development programmes on poor and vulnerable people. National evaluation capacities need to be strengthened in the use of new available data and technologies to tap into it. Practitioners and institutions engaged in evaluation at national level need to familiarize themselves with new data sources, technologies and methodologies and begin integrating them into their work.

United Nations Global Pulse has produced a guide, Integrating big data into the monitoring and evaluation of development programmes,[268] which provides guidelines for evaluators, evaluation and programme managers, policymakers and funding agencies on how to

268 https://www.slideshare.net/unglobalpulse/integrating-big-data-into-the-monitoring-and-evaluation-of-development-programmes.



take advantage of the rapidly emerging field of big data in the design and implementation of systems for monitoring and evaluating development programmes.

The report is organized in two parts. Part I, on development evaluation in the age of big data, reviews the data revolution and discusses the promise and challenges it offers for strengthening development monitoring and evaluation. Part II, on guidelines for integrating big data into the monitoring and evaluation frameworks of development programmes, focuses on what a monitoring and evaluation system that includes big data would look like.

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