

# Data Ecosystems for Sustainable Development

## *The Africa Data Revolution Report 2016*

**Aritra Chakrabarty\***

*The underlying message of this report, and in particular, on the topic of data ecosystems, is the gradual change occurring in the rhetoric --- that revolution of any kind, including a data revolution, has always been brought about by actors outside the system. And this poses challenges.*

\*Scholar, IIT Mumbai. [aritrabutan@gmail.com](mailto:aritrabutan@gmail.com)

Data ecosystems in Africa have undergone a transformation in the last decade in their conceptual structure, policy and technological practice, and infrastructure and governance. From a state of underutilization of data, lack of funding of such data driven agencies and limited use of statistics, African nations have finally arrived at the early stage of data revolution with the systematic involvement of non-state actors such as academic universities and research institutes. The real change, according to recently released *The Africa Data Revolution Report 2016* ([http://www.africa.undp.org/content/rba/en/home/library/reports/the\\_africa\\_data\\_revolution\\_report\\_2016.html](http://www.africa.undp.org/content/rba/en/home/library/reports/the_africa_data_revolution_report_2016.html)), is not in the physical transformation of the data (volume, type and speed), rather the change in the collective thought process towards data and more importantly, the recognition of the data communities.

This important report is the first of its kind to focus on data preparedness of African nations. It aims to serve as the foundation upon which the nations can create data eco-systems to serve developmental aims. The report is the result of the collaborative efforts of four esteemed institutions: United Nations Economic Commission for Africa (ECA), the United Nations Development Program (UNDP), the International Development Research Centre of Canada and the World Wide Web Foundation.

The report starts by explaining the role of data in sustainable development and the revolution in data that is needed in Africa. It then goes on to explain the data ecosystem followed by case studies of select African nations who have led the data revolution. It ends by putting forth recommendations for the future road map of Africa in terms of achieving the Sustainable Development Goal (SDG) 2030 and Agenda 2063 of inclusive growth and development for all.

To give a brief backdrop of ‘data revolution’, it was first expressed by the United Nations High level Panel, appointed by Secretary-General Ban Ki-Moon in the context of Millennium Development Goals (MDGs) 2015. A need was felt to provide data driven advice on achieving the then MDGs, which later paved way to the current SDGs (2030). Currently, the consensus refers data revolution to the transformation needed in the production of data and its use; building capacity and data literacy; modernizing systems of data collection; taking steps to ensure

accountability and transparency of data; all of these actions in respond to the needs of the development agenda.

For Africa, the collaborative group has taken a step in the right direction by giving a certain direction to this revolution. United Nations, ECA has laid down 12 principles of the data revolution, which will enable the creation of a vibrant data eco system. It would however, have been much beneficial for the target audience if the principles had been described in detail and how they may be applicable in practice.

### **Data ecosystems in Africa**

The report defines a ‘data community’ as a group of individuals who share common social, economic, political and/or professional interests in data in the data value chain. The crucial part is the presence of a data value chain, in the geo-political backdrop of Africa. The emergence of the new wave of data from multiple sources, such as the Internet of Things, Sensor Networks, Open data on the Web, mobile applications, social network data along with the organic growth of datasets inside organizations (Maniyaka at al 2011), has created a demand for new data management strategies which can cope with the new scales of data environment. Such high volume of data necessitates a value chain system. Value chain has been in existence in the field of managerial sciences and business studies. It is used a decision making tool to model the chain of activities that an organisation performs in order to deliver a valuable product or service to the market (Porter 1985). A value chain is made up of sub-systems each with inputs, transformation processes, and outputs. Similarly, a data value chain comprises several actors/group of actors who are involved at different stages of inputs-production, analysis, management, dissemination, use and storage. These actors or groups form the data communities, which form the most important part of Africa’s data revolution.

The report has classified data communities by sectors and types of data, as follows:

- Official statistics data communities
- Private sector data communities
- Civil society data communities
- Scientific data communities
- Open data communities
- Big data communities
- Citizen-based data communities

The chapter has described in detail each of the data communities but the focus is prominently on the non-state actors. In my opinion, the novelty of the report lays in the recognition of civil society communities and scientific (academic) communities as sectors of data. These set of actors have been in existence since the 1980s but their role in the data value chain has gained prominence now because of their support and promotion of open data.

It needs to be understood that the underlying idea of this report, and in particular, the topic of data ecosystems is the gradual change in the rhetoric --- that revolution of any kind has always been brought about by actors outside the system. The importance of data communities as agents/actors in the data value chain is a clear indication of this change. The involvement of non-state actors as promoters and supporters of open data signifies a society based on equity and equal access to all --- even to data. This is a very important development, given the geography being discussed is Africa, where many nations are still in the process of developing a stable political system. Many countries are on the path of achieving the Sustainable Development Goals (SDGs)

Open data communities such as civil society organizations, academic institutes or citizen-led organizations have helped in campaigning for reforms. They have helped in pushing forth legal and political reforms pertaining to data and data related activities, which form a part of the value chain. They have also aided in opening up national data systems, which hitherto were the privy of the governments.

There are of course challenges. The report has identified three main challenges for the non-state actors. Scale of data-because the actors are limited in their scale of operation and infrastructure meeting the requirement for large scale data and scaling up a data system will remain a technical challenge for some time to come. The report mentions that meeting official quality standards is still an area of improvement. However, the standards set by the non-state actors are in majority of the cases, higher than the national data systems. The third challenge for the non-state organizations is to align their data priorities with that of the SDGs, which in my opinion, is the major challenge for these actors.

Surprisingly though, the report is muted on the difficulties faced by the non-state actors in becoming an active agent of change in the data eco-system. More should have been given to these communities to talk about the difficulties faced so far --- lack of adequate financial and human resources, technical infrastructure, limited digitization, frequency of use of scientific data in policy circles, lack of coordination and cooperation with national data system. The mere mention of these in the report is a gross understatement of the efforts taken by the non-state communities to be agents of change. The break away from a bureaucratic mindset of looking at data towards allowing data to be driven by public interest is not without hurdles. For a developing geography like Africa, those hurdles are manifold. A suggestion for the subsequent reports would be to focus more on the development of the non-state communities in the cultural, social and economic context of Africa.

The report also presents case studies of select countries, which have experimented with innovation in data. The first such case study is of Rwanda where the national statistical system has undergone considerable innovation in the last ten years. To improve the quality of governance on parameters like social, economic and political, the government has launched Citizen Report Cards and Community Score Cards. These are surveys for feedback on

perception of the user on the quality, adequacy and efficiency of public sector services. In Tanzania, the National Bureau of Statistics set standards for collecting, analyzing and publishing statistics. Investments have poured in upgrading databanks and data platforms. Interesting is the case of Kenya, which has developed a data platform based on crowdsourcing data supplied by citizens. In South Africa, the government has partnered with the Institute for Security Studies for reporting crime data. South Africa has a history of high crime levels, its crime statistics need special scrutiny. Due to systematic underreporting and negligence in reporting, the country along the Institute for Security Studies adopted a standard methodological framework for data collection in 2013.

The report concludes by speaking about the obstacles in its way ahead. These obstacles are in the form of uneven data coverage, demand and supply mismatch of data, and lack of data storage. One of the factors that needs to be discussed at length and hopefully will be taken up in subsequent reports is the social acceptability of this technological revolution across Africa. Subsequent reports will also need to focus on the institutional barriers towards sustaining the revolution such as political, economic, and social. Certain select countries have brought about policy and legal changes in their structures to enable the data ecosystem to flourish. Of all the recommendations mentioned in the report, the most crucial one is the 'proof of premise'. Evidence-based policy making will depend on data. And data is needed on all accounts-economic, social and environmental. This task in itself demands the dedicated involvement of public actors supplemented by private players. It encompasses creating the physical infrastructure and institutional support mechanism, as well as standardizing the framework, methodology and practice of data collection, delivery and data-led solutions.

## References

Maniyaka, J et al 2011. *Big Data: The Next Frontier for Innovation, Competition and Productivity*, McKinsey Global Institute White Paper, May.

Porter, M. E.1985. *The Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press, NY.