

Cloud for Development

Technological and Legal framework for

Data Storage, Data Analytics, Data Sharing

Michael Lokshin

Cloud for Development

- World Bank-led project is a part of the UN Global Platform Initiative
- Based on the partnership of the World Bank, Private Cloud Providers, NSOs, and International Data Standard Institutions
- Fast-track project to address the immediate needs of NSOs in developing countries
- Strong emphasis on financial sustainability and public-private partnership
- In addition to the direct objectives, Cloud for Development will pilot a business model for other project in the UN Global Platform Initiative
- Aims at delivering the cloud infrastructure in several pilot countries by the end of 2017

“Government data was destroyed in a fire that engulfed the main server room of the National Statistical Office”



Challenge: Many NSOs face problems of supporting reliable and secure infrastructure to store, analyze and disseminate data

This results in:

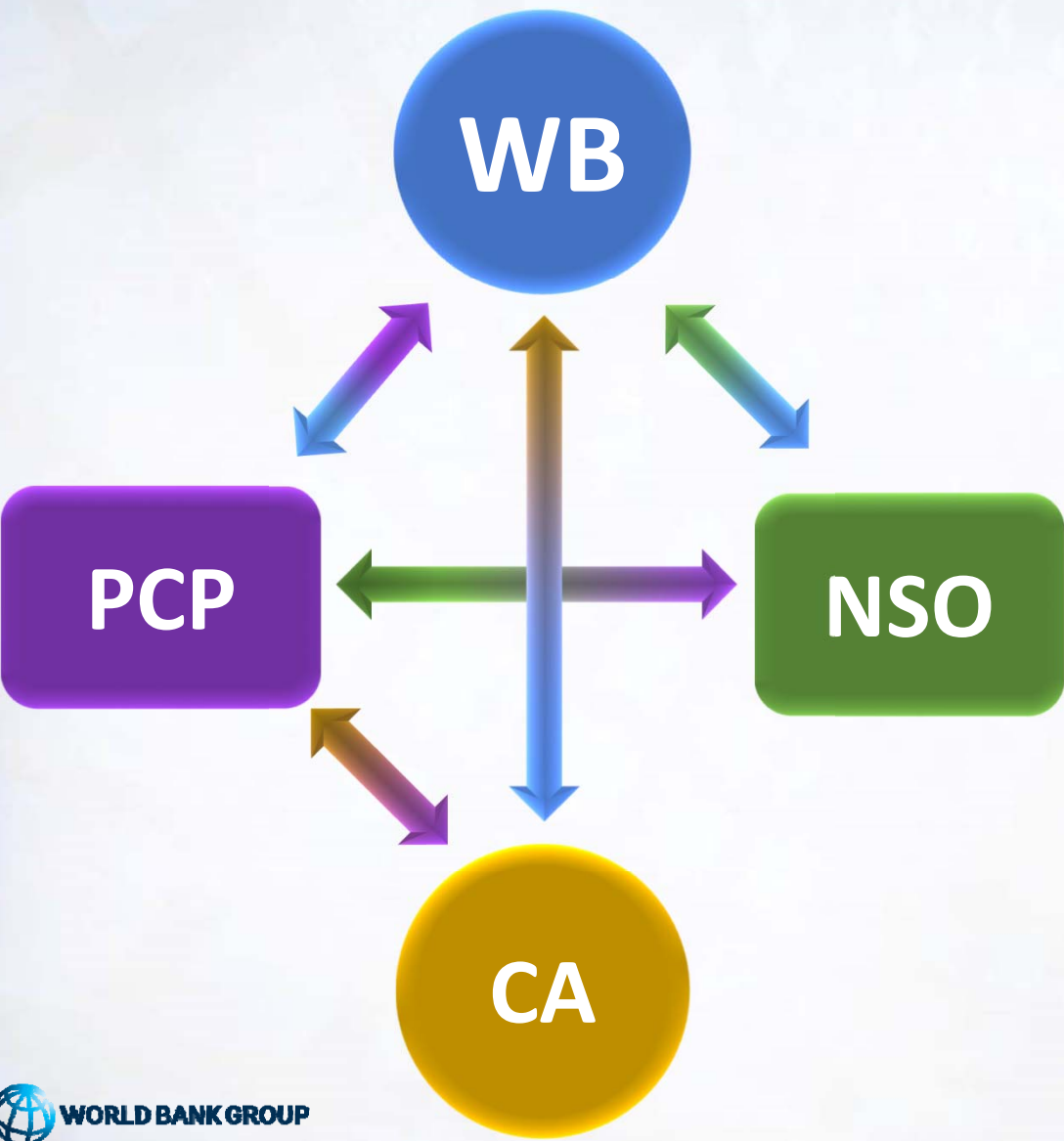
- Potential losses of data
- Unauthorized access to private and sensitive data
- Inability to effectively disseminate and share data.
- Cannot scale up the infrastructure in periods of peak demand
- Lack of standards in methods of data collection, data analysis, difficulties in cross-country comparisons.
- Difficult or impossible to integrate NSO-collected data with other data sources (e.g., GIS).
- Prohibitively high costs and inefficiencies in applying Big Data algorithms, AI and Machine learning

Why? What prevents NSOs from developing such infrastructure?

- High costs of supporting local secure server environment
- High skill requirements for staff
- No or unclear standards for data storage and data dissemination.
- Limited access to analytical and high power computational tool.
- Limited experience in data documentation and data anonymization
- Legal rules and regulations that prevent NSOs from storing data off premises and to share the data.
- Difficulties in building long-term productive relationship with private sector.

Solution: secure and reliable data storage on the cloud for NSOs

- Cost effective cloud storage: huge economies of scale
- Uninterrupted, redundant storage: 99.997% uptime or better
- Disaster recovery
- High level of data encryption
- Flexible and secure data access protocols
- Compliance with most international standards on data security
- Virtually infinite scalability in response to pick demands
- Increased collaboration, access data from anywhere in the world
- Simplified access to global datasets and analytical tools



1. Technological and Legal Framework Specifications
2. Pilot with NSOs of one or several countries
3. Refinement of specifications based on pilot
4. Certification of the framework
5. Helping NSOs procure services

National World Bank Office
Certifying Agency

Cloud for Development: technological framework



Cloud for Development: technological framework

1. Storage: Secure and reliable infrastructure for data storage and data access

- *Low cost*
- *High reliability, redundancy*
- *Differential levels of access*
- *Strong security and data protection; encryption*
- *Flexible infrastructure, configurable for conditions in a particular country*

2. Analytics: Set of Analytical tools for data collection and analysis

- *Tools and technologies for data collection (e.g., CAPI, CAWI)*
- *Analytical tools – R, SAS, Stata, SPSS, etc*
- *GIS tools – ArcGIS*

3. Sharing: Tools and infrastructure for data data sharing, access to global data sources

- *Data cataloging, MicroData library, metadata (DDI)*
- *Data anonymization*
- *Big data analytics, Big data marketplace*
- *Machine Learning*

Cloud for Development: Financing

- Main principle: Long-term financial Sustainability
- Cloud for Development should provide NSO with a cost-efficient, higher value alternative compared to other options
- PCP should see a long-term business value in this initiative.
- Countries can finance the work themselves or seek financial support from international development institutions, for example, from the World Bank.

Next Steps: Piloting the Cloud for Development Framework

- The World Bank and international cloud providers define the scope of the pilot and develop technical specifications
- Based on this preparatory work a PCP will be identified for a pilot
- In parallel, the WB will approach countries (group of countries) interested in participating in a pilot.
- The WB and PCP will organize missions to these countries to identify the feasibility of building the infrastructure in these countries.
- The pilot project will be implemented in one or several countries. A real infrastructure will be developed.
- We are working with NSOs of Botswana, SA, and Pacific Island States on setting up the pilots.

AWS, World Bank, STATCAN work with CARICOM/OECS

- Damages by hurricanes Irma and Maria
- Need to build resilient infrastructure that will not be affected by natural disasters
- Realization by CARICOM countries of benefits of standardization and sharing resources and expertise
- AWS commits significant resources to build and support cloud infrastructure for Caribbean countries.
- Cloud system will be run in parallel with the existing system for up to a year so NSOs could test it and decide whether to switch.
- The World Bank will support local capacity building and training activities.
- The workshop with participation of 12 countries of CARICOM is scheduled for the next week, Nov 13th.
- The first version of C4D platform should be functional before the end of 2017