

How Data Science is revolutionising National Statistics Offices

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Outline

1. Data science: the opportunities for official statistics
2. The implications for NSOs embracing data science
3. ONS, UK: supporting data science capacity building across Africa
4. NISR: embracing data science in Rwanda
5. Recommendations

Data science: the opportunities for official statistics

What is Data Science?

Using the statistical tools, methods and practices of the digital age to create new understanding and improve decision making from analysing big data:

- New tools/techniques such as machine learning, natural language processing, artificial intelligence
- New sources, for example:
 - admin databases previously too large/unstructured;
 - data collected as part of digital activities (payments, transport, web activity)
 - satellite imagery
 - remote sensing networks
 - mobile phone call data

Some of the benefits for NSOs

- Fresh insights from new data sources
- Frequency and timeliness of data
- Cost savings
- Utilising the potential of improved computing power



Cattle Camp in South Sudan on high resolution (0.5 m) image

The implications for NSOs embracing data science

What is required to embrace data science?

- Building new skills
- Developing/embracing new methodologies
- New data sources: identifying, accessing, evaluating, using new data sources
- Examine legal and ethical issues
- Appropriate ICT infrastructure

Support is available

- **UN Global Platform** – a collaboration to share data, methods and tools
- **Global Partnership for Sustainable Development Data (GPSDD):** a network to use the data revolution to achieve the SDGs
- **Capacity building support:** UNECA, NISR, ONS UK, others
- **Support to harness new data sources:** Digital Earth Africa (analysing satellite imagery), Flowminder (analysing mobile phone data/mobility), WorldPop (gridded population estimates)



Global
Partnership
for Sustainable
Development Data



GRID³
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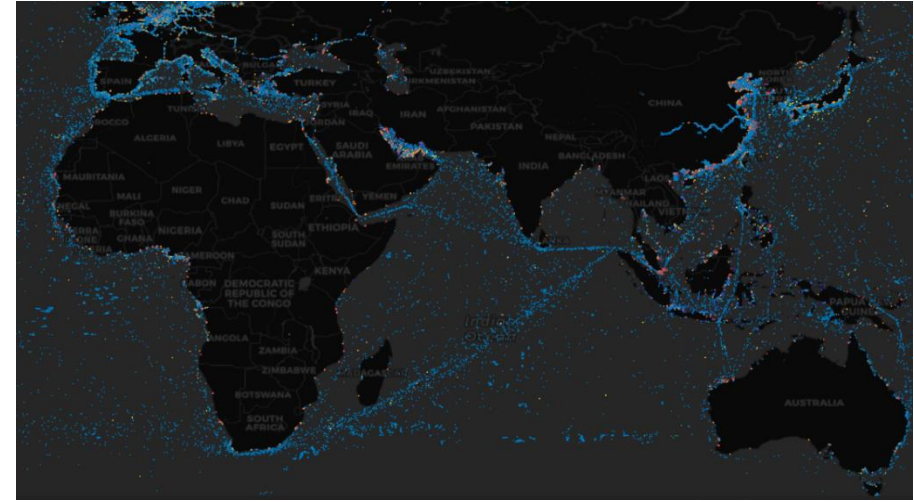
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 Office for
National Statistics

Data Science in the UK's Office for National Statistics: Supporting capacity building across Africa

- 2016: A review of the UK's economic statistics recommends embracing data science to strengthen outputs.
- 2017: the UK's **Data Science Campus** is established in the ONS to deliver **better data for the UK government**.
- 2019: the ONS creates the **ONS Data Science Hub** within the UK's Foreign, Commonwealth and Development Office (FCDO). Its role is to **use data science to make progress in international development** – and to help build the data science capacity of development partners, including in NSOs. We do this through:
 - Building tools to use data science to inform decision-making.
 - Providing training related to data science: advocacy, programming, techniques, etc.
 - Developing mentoring/coaching relationships with staff in NSOs and elsewhere to help grow their data science work.



Embracing data science in Rwanda

Objective:

Facilitating the use of Data Science to explore big data sources and produce timely updated Official Statistics in Rwanda and in the region.

Experiences/What is done so far

- Building a data ecosystem & investing in ICT infrastructure,
- The Data Revolution Policy was approved in 2017 as a backbone of data science development in Rwanda,
- NISR is collaborating with organisations across Rwanda and globally to build an environment for data science: MDAs, Academia, Private sector, United Nations Agencies (MoU), UK ONS, etc. The collaboration aims at building relevant infrastructure and skills, identifying and implementing projects, Developing appropriate policy and legal framework, etc,
- Establishing the Data Science Campus and a new department of Big data analytics: recruitment of 13 new staff is in progress and training will be organised for them.

Recommendations

1. To facilitate an Africa community of practice for data science

Having multiple data scientists in contact with each other in NSOs, banks, and universities enables a **sustainable community of skills**. Creating a community of practice across Africa might be achieved by **workshop series, seminars, and regular conferences** encouraging collaboration among NSOs. It could include formally identifying **regional NSO champions to regularly present and support lesson-learning and expertise-sharing** across the region.

2. Greater advocacy to develop data science capacity in NSOs

Increase advocacy to gain support of key stakeholders who can support NSOs develop data science capacity. For example, linking countries to **capacity building opportunities, jointly negotiating access to data and updated technologies** at low or no cost, supporting countries to **collaborate and mobilise funds for necessary infrastructure**, and supporting countries to develop **appropriate legal and policy frameworks**.

3. Support lesson-learning between UN Global Platform regional hubs

Provide support for regional hubs to gain crucial **stakeholder support for the resources** necessary to **establish and operationalize the hubs** including **skills, infrastructure, expertise** etc.