



United Nations  
Economic Commission for Africa

# New Data Sources and Innovation in Africa

**Session 2 - Beyond DA.14 – Country Experiences and Challenges with Novel Data Sources and Innovation**

**African Centre for Statistics**

**United Nations Economic Commission for Africa**



# Transforming Africa through Credible Data & Statistics



# ECA'S DATA SCIENCE AND BIG DATA INITIATIVES

*“To support Member States in effectively capturing alternative data sources, applying appropriate data science tools and techniques in providing credible and insightful data and statistics”*

# ECA BIG DATA AND DATA SCIENCE ACTIVITIES



CAPACITY BUILDING



COORDINATION AND  
LEADERSHIP



RESEARCH PROJECTS



# Regional Hub for Big Data and Data Science for Africa

- The Regional Hub for Africa is a collaboration between the National Institute of Rwanda (NISR) and the United Nations Economics for Africa (ECA).
  - The partnership is established via a Memorandum of Understanding among NISR, ECA, and DESA.
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# Regional Hub for Big Data and Data Science for Africa

- Aid the facilitation of cross-border collaboration projects that seek to apply big data, alternative data sources, and data science, to complement official statistics and fill data gaps for SDG indicators,
  - Provide knowledge on newly developed methods, algorithms and tools, via webinars, seminars and the UN Global Platform, and
  - Provide training in the use of big data and data science for the community of official statisticians in Africa.
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# ECA'S EXPERIENCES

<https://ecastats.uneca.org/regionalhub/en-us/>

- Scanner Data Architecture Survey (21 Jan 2025)
- Mobile Phone Big Data for Info Society Stats Part II (18 Jul 2024) & Part I (16 May 2024)
- Big Data Training Tools (8 Jul 2024)
- Transport & Commuting Stats (11 Apr 2024)
- Dynamic Population Mapping (21 Mar 2024)
- StatsTalk-Africa Spotlight (19 Mar 2024)MPD for Official Statistics (8 Feb 2024)
- EO-STAT for Agricultural Statistics (18 Dec 2023)MPD Use Cases (16 Nov 2023)
- Automated Occupation Coding (6 Sep 2023)
- Collaborative CPI Web Scraping (Mar–Jul 2023)

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## UN Regional Hub for Big Data and Data Science in Africa

Facilitation of Projects

Sharing of Knowledge

Provision of Training



### Welcome to the UN Regional Hub for Africa

The **United Nations Regional Hub for Big Data and Data Science in Africa** is a partnership between the United Nations Economic Commission for Africa (UNECA), the National Institute of Statistics of Rwanda (NISR), and the UN Department of Economic and Social Affairs (UNDESA).

Our main objectives are to facilitate cross-border collaboration projects that apply big data and data science to complement official statistics, provide knowledge on newly developed methods, algorithms, and tools, and offer training in the use of big data and data science for the community of official statisticians in Africa.



# Why novel data sources matters

- Timeliness
    - Traditional surveys lag behind rapid demographic shifts
    - Social media, sensor and administrative feeds deliver near-real-time insights
  - Granularity
    - Official data collection is often infrequent or costly in hard-to-reach areas
    - Geospatial and mobile-usage data support localized, targeted policymaking
  - Cost
    - Leverages existing data (transaction logs, web data) to cut survey and census expenses
    - In many African countries, widespread smartphone use as the main internet access point further boosts data availability
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# Lessons Learned from ECA's Work

- Start small with pilot projects, then scale up successful methods.
- Continuous communication among NSOs, telecoms, policymakers, civil society.
- Combine big data with censuses and administrative records for validation.



# ECA home-grown solutions

- ECASStats Statistical Data Portal
- Census/Survey Project Management Toolkit
- Census/Survey Field Monitoring Dashboard
- Census/Survey Communication and Dissemination Toolkit
- The Census and Survey Helpdesk System
- Performance Monitoring Dashboard
- Census Executive Monitor Mobile App
- ECA Mobile Statistical Platform
- Web Scraping tools
- AI-powered chatbot



## Welcome to the Economic Commission for Africa's Data Tools

The Economic Commission for Africa (ECA) Data Lab serves as the central portal for a suite of data and statistics tools designed to support informed decision-making and promote sustainable development across the continent. Developed by the African Centre for Statistics (ACS)/ECA using open-source technology, this platform offers access to a variety of tools for census and survey management, data collection, performance monitoring, and more.

### Explore our resources:



**Census/Survey Field Monitoring Dashboard**



**Census/Survey Project Management Toolkit**

This toolkit streamlines census and survey project execution with planning, management,

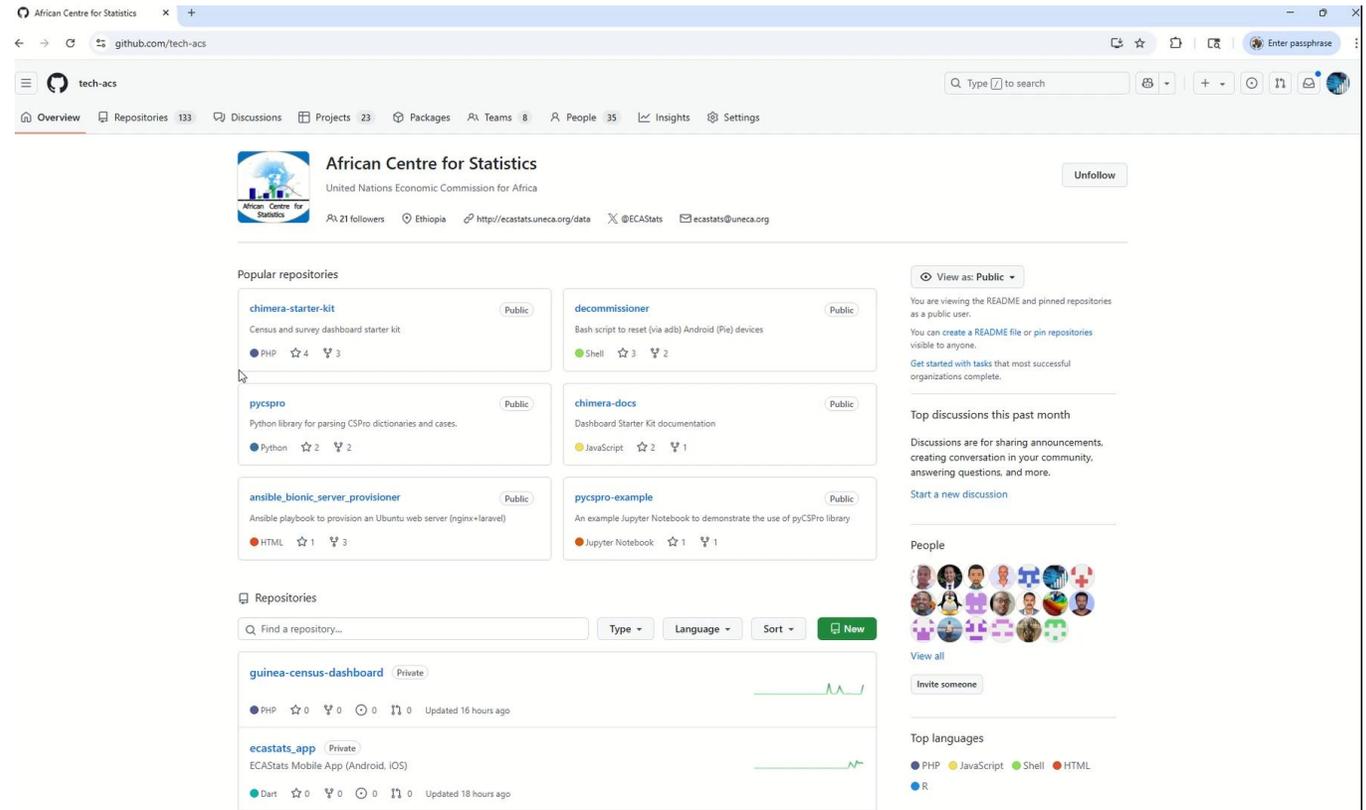


**Country Data Harvester**

Online data store for discovering and accessing

# Managing the Development

- Tech stack (Open source)
  - Python, R, PHP, PostgreSQL,, Angular, React, Vue.js, MySQL, Flutter, etc.
- Version control
  - GitHub repositories for collaboration and code management
- Agile methodology
  - Iterative development cycles
  - Regular reviews, feedback, and adaptation
  - Kanban boards
  - Teams Planner



African Centre for Statistics  
United Nations Economic Commission for Africa  
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tech-acs

Overview | Repositories 133 | Discussions | Projects 23 | Packages | Teams 8 | People 35 | Insights | Settings

Popular repositories

- chimera-starter-kit** (Public) | PHP | 4 stars | 3 forks | Census and survey dashboard starter kit
- decommissioner** (Public) | Shell | 3 stars | 2 forks | Bash script to reset (via adb) Android (Pie) devices
- pycspro** (Public) | Python | 2 stars | 2 forks | Python library for parsing CSPro dictionaries and cases.
- chimera-docs** (Public) | JavaScript | 2 stars | 1 fork | Dashboard Starter Kit documentation
- ansible\_bionic\_server\_provisioner** (Public) | HTML | 1 star | 3 forks | Ansible playbook to provision an Ubuntu web server (nginx+laravel)
- pycspro-example** (Public) | Jupyter Notebook | 1 star | 1 fork | An example Jupyter Notebook to demonstrate the use of pyCSPro library

Repositories

- guinea-census-dashboard** (Private) | PHP | 0 stars | 0 forks | 0 issues | Updated 16 hours ago
- ecastats\_app** (Private) | Dart | 0 stars | 0 forks | 0 issues | Updated 18 hours ago

View as: Public

You are viewing the README and pinned repositories as a public user.  
You can create a README file or pin repositories visible to anyone.  
Get started with tasks that most successful organizations complete.

Top discussions this past month

Discussions are for sharing announcements, creating conversation in your community, answering questions, and more.  
Start a new discussion

People

View all

Invite someone

Top languages

- PHP
- JavaScript
- Shell
- HTML
- R

# CLOSING THOUGHTS

- New data are a powerful tool that, when combined with traditional methods, can drastically enhance the quality, timeliness, and granularity of official statistics;
- Ongoing training for statisticians in data science;
- Ensure data-sharing agreements, protect privacy and define data ownership;
- Learn from the best practices across countries;
- Include AI & Machine Learning;
- Long-term commitment from governments and donors to maintain big data programs;
- Continual support for African NSOs in capacity building, policy guidance, and data ethics
- Educating the public on how official statistics use big data ethically and responsibly.

# Thank you!

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