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

ideas for a prosperous Africa
Ideas to Action

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.

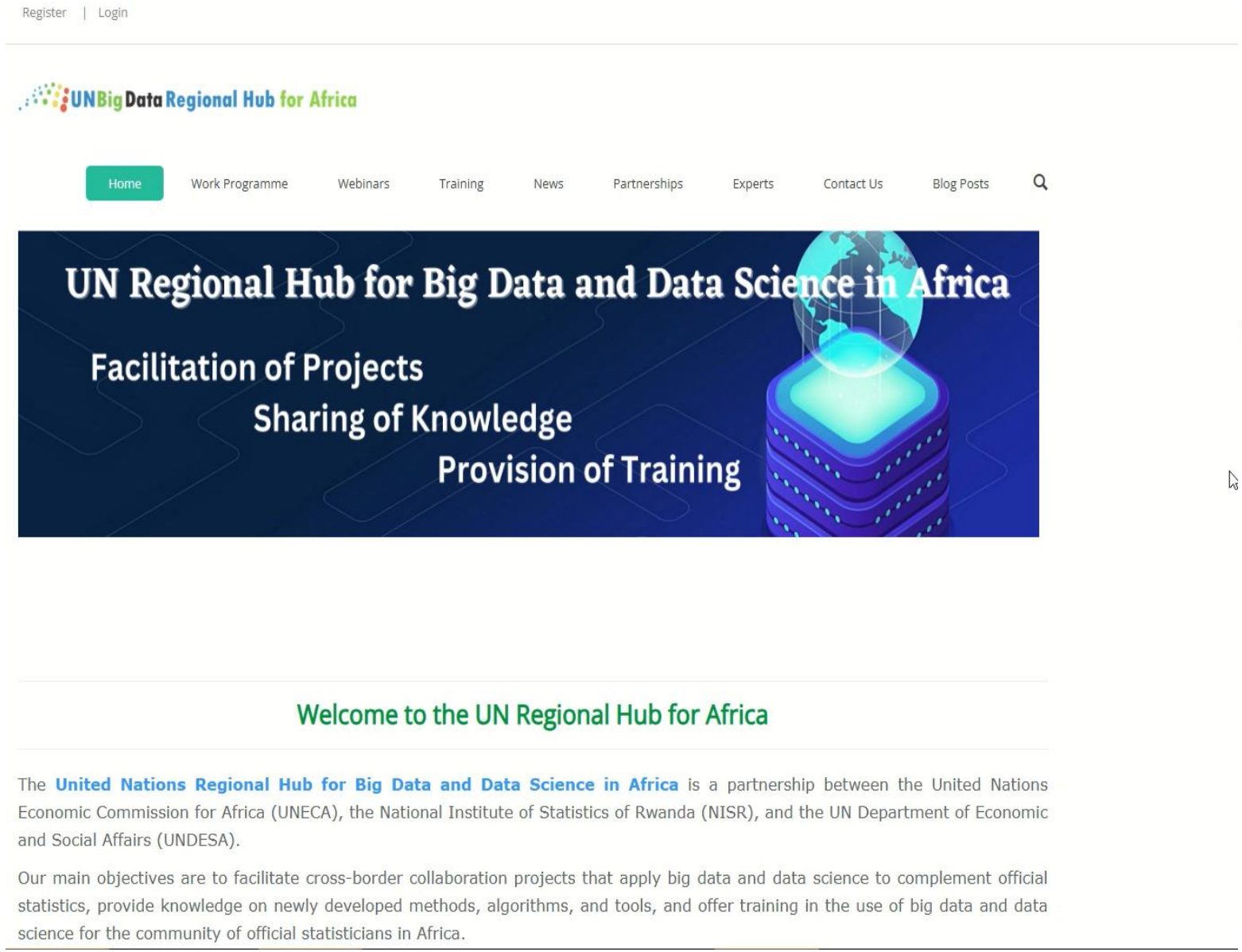
Regional Hub for Big Data and Data Science for Africa

- 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.

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)



Why novel data sources matters

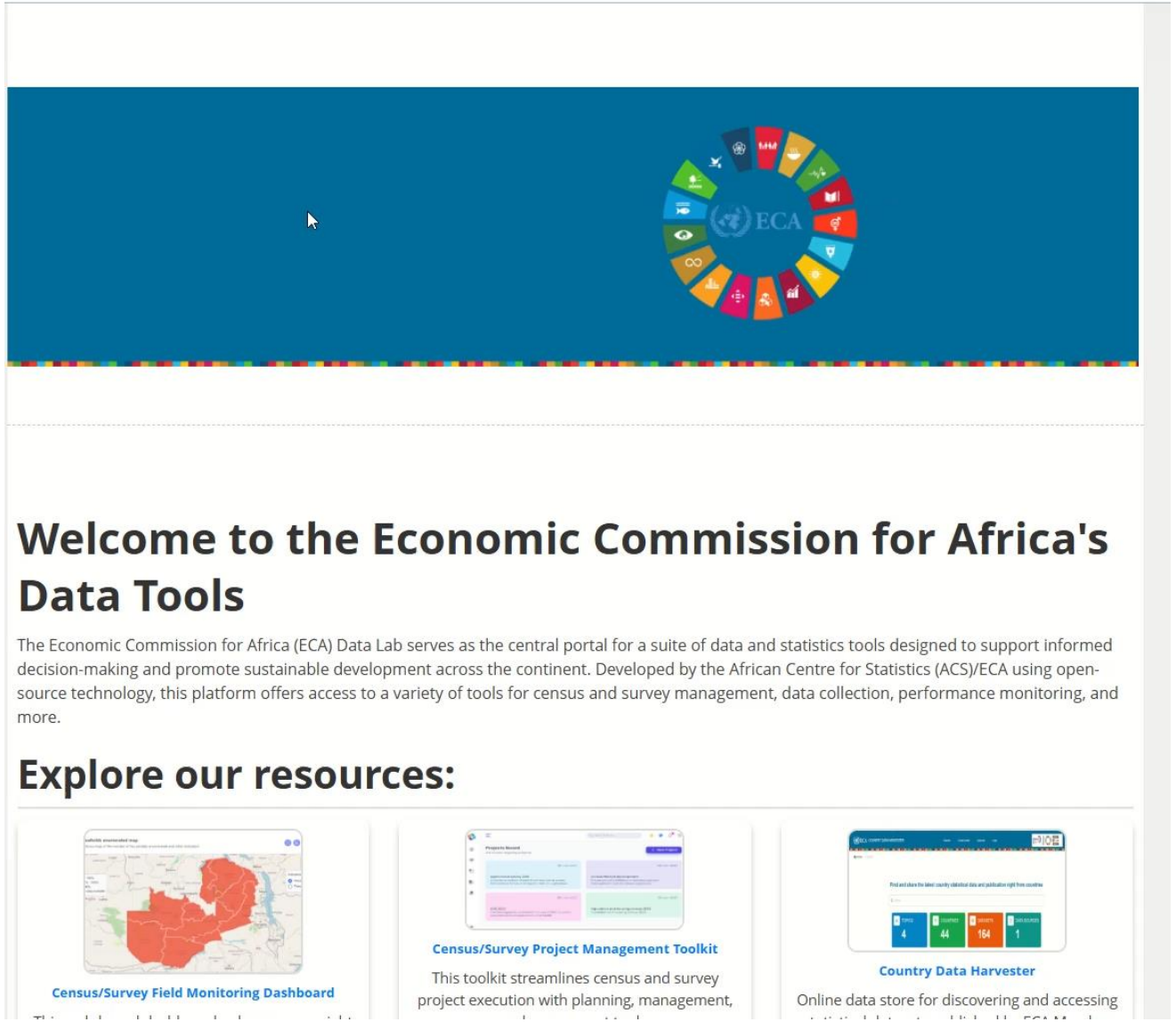
- Timeliness
  - Traditional surveys lag behind rapid demographic shifts
  - Social media, sensor and administrative feeds deliver near-real-time insights
- Granularity
  - Official data collection is often infrequent or costly in hard-to-reach areas
  - Geospatial and mobile-usage data support localized, 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

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.

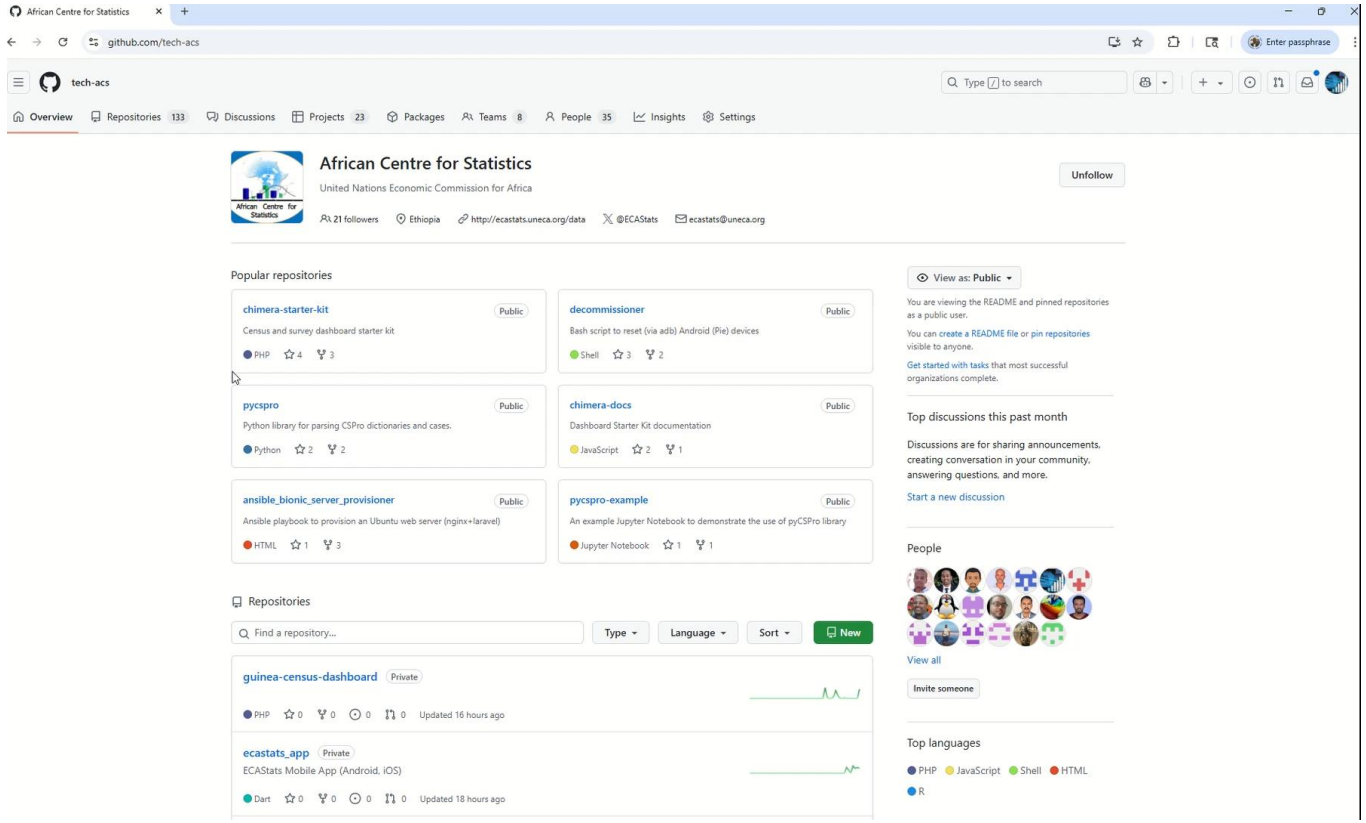
ECA home-grown solutions

- ECAStats 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



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



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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