



UN Global Platform

Mark Craddock

#UNGlobalPlatform

@mcraddock

@UNBigData



Seminar Sessions

- © **Mon, 09:00** - What is the UN Global Platform and how does it work? (Mark, Gavin & Joe)
- © **Mon, 13:30** - Mapping the Urban Forest on the Global Platform (Joe)
- © **Mon, 15:30** - AIS Demo (Gavin)
- © **Thur, 11:00** - High-Level Panel discussion on Working Together: the UN Global Platform (Mark)

The logo for the Big Data UN Global Working Group. It features a cluster of colorful dots in shades of blue, green, yellow, and orange, arranged in a roughly circular pattern. Below the dots, the text "BigData" is written in a bold, sans-serif font, with "Big" in green and "Data" in black. Underneath "BigData", the text "UN Global Working Group" is written in a smaller, blue, sans-serif font.

BigData
UN Global Working Group



Vision: A global
collaboration to harness
the power of data for
better lives





Global Platform

- © Trusted **Data**
- © Trusted **Methods**
- © Trusted **Learning**
- © Trusted **Partners**

- © AI Ready

Drivers of innovation and modernisation

Data revolution

Digital transformation

New data sources

Competition among data providers

New metrics

Globalisation

Sustainable development

Geo-referencing

Cost of statistics

Quality vs. resources

Reduced budgets

Reducing response burden

Emerging demands

Differentiation of users

Integrated monitoring

Timeliness



UNITED NATIONS
SUSTAINABLE
DEVELOPMENT
SUMMIT 2015
25 - 27 SEPTEMBER

SUSTAINABLE DEVELOPMENT GOALS

Agenda 2030

Transforming Our World:
the 2030 Agenda for
Sustainable Development



Accessible Data

open data, accountability and data literacy

Sustainable Development Goals

measuring progress on new indicators and for all groups

Data Landscape

addressing systemic challenges

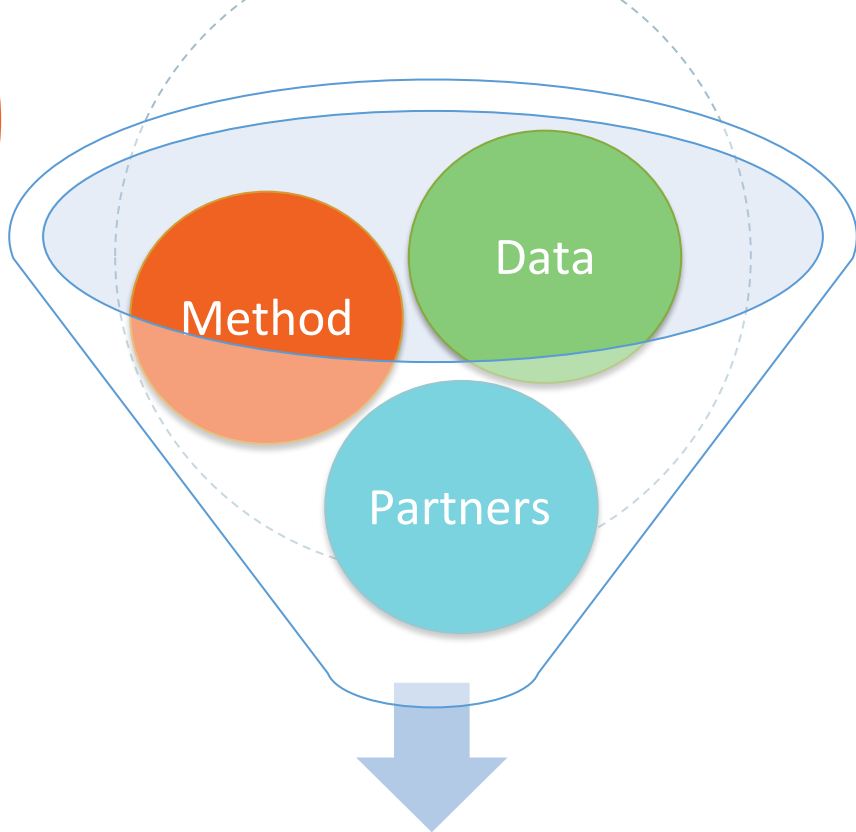
Data Innovation

big data and new technologies

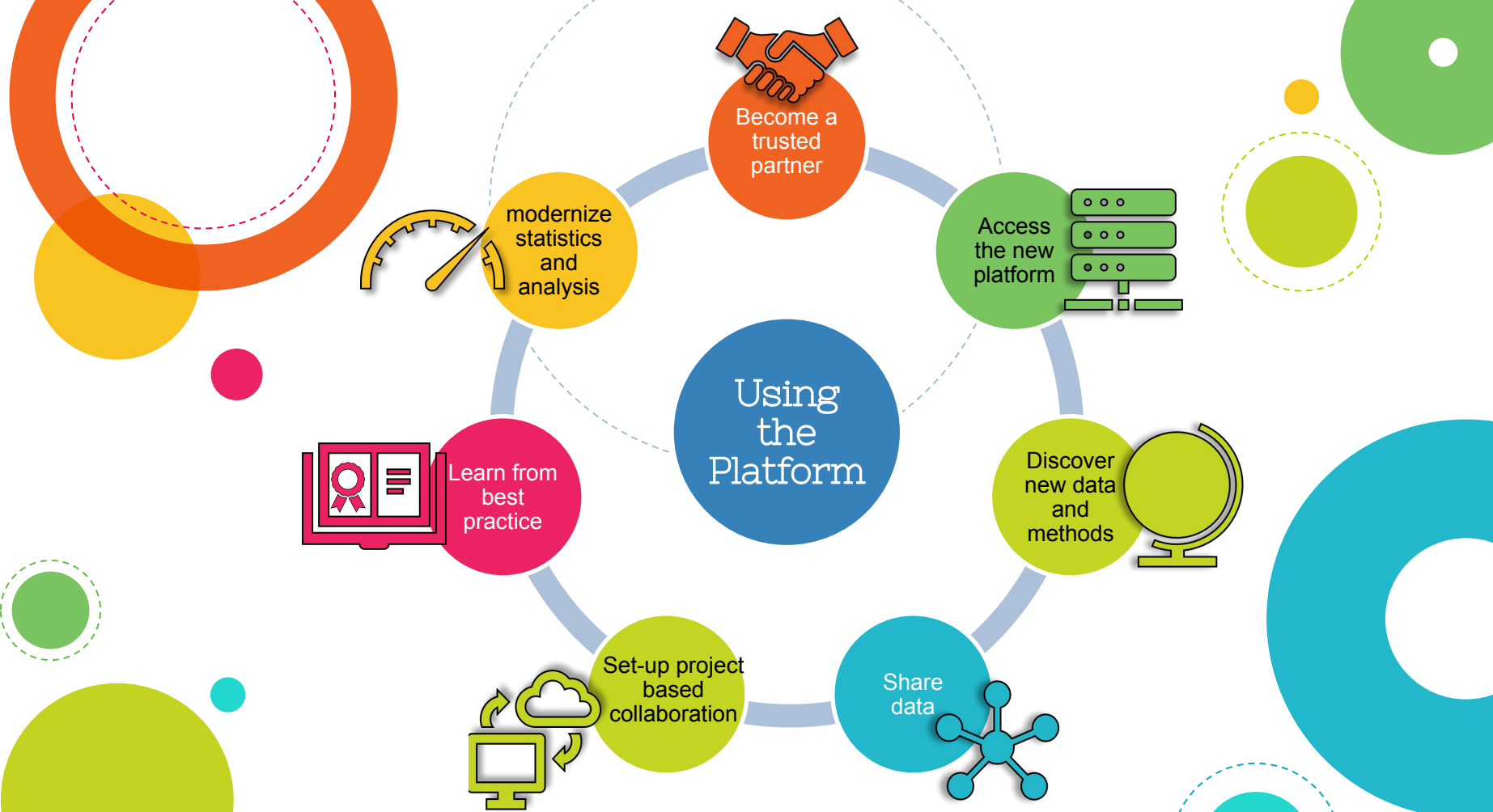
UN GWG (Big) Data Membership

Australia; Bangladesh; Brazil;
Cameroon; **Canada**; China;
Colombia; **Denmark**; Egypt;
Germany; Indonesia; Ireland; Italy;
Mexico; Morocco; **Poland**;
Netherlands; Oman; Pakistan;
Philippines; Republic of Korea;
Saudi Arabia; Switzerland; **United
Arab Emirates**; **United Kingdom**;
United Republic of Tanzania;
United States of America

United Nations Statistics Division,
United Nations Economic Commission
for Africa , Nations Economic and
Social Commission for Asia and the
Pacific, United Nations Economic
Commission for Europe, United
Nations Statistical Institute for Asia
and the Pacific, United Nations Global
Pulse, International
Telecommunication Union, Universal
Postal Union, African Development
Bank; CARICOM, GCCSTAT,
Eurostat/European Commission,
International Monetary Fund, OECD,
World Bank



Data Collaborative



AI/ML Ready

AI/ML Ready

- ◎ Earth Observation Service (Joe)
 - ◎ Train Machine Learning Models
 - ◎ Analyse Satellite Imagery
- ◎ Methods Service (Joe/Joni)
 - ◎ Deploy and manage machine learning models
 - ◎ API enable machine learning models



AI/ML Ready

- ◎ Location Analytics Service (Mark, Gavin)
 - ◎ ML / Pattern of Life

Online Community



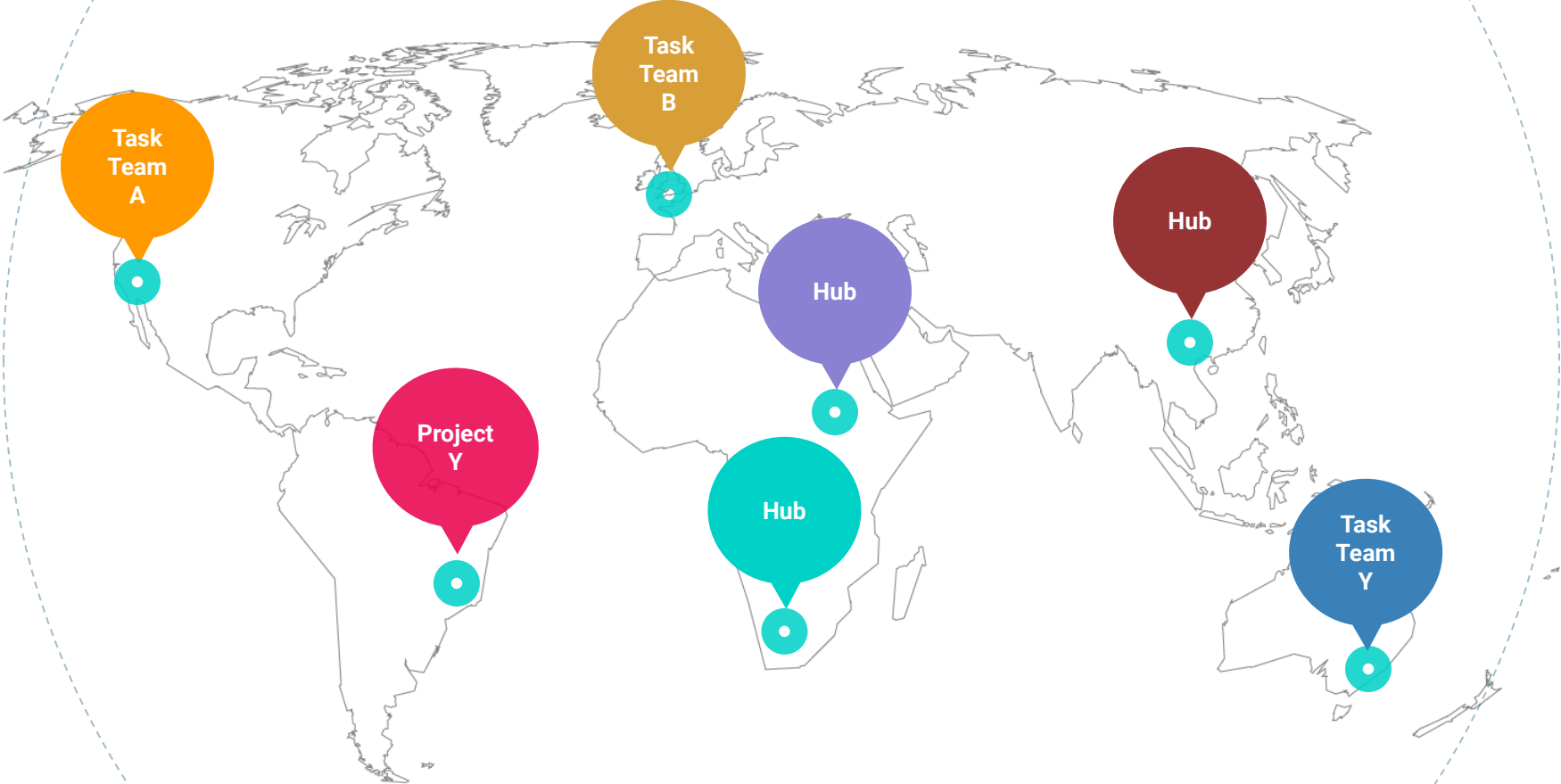
Online Community

- ◎ Sharing / Collaboration
- ◎ 215+ people in 14 timezones
- ◎ 4,235 messages over the last 30 days
- ◎ Algorithms, Data, Services, Methods, AIS, ADS-B, Cloud Vendors, Privacy Task Team, Task Teams
- ◎ Join (<http://bit.ly/join-ungp-slack>)



Global Billing

Global Billing



Global Billing

- ◎ Consolidate Billing Globally
 - ◎ Alibaba, Amazon, Azure, Microsoft, Service Partners
- ◎ Leverage Discounts
- ◎ Manage Credits
- ◎ Allocate Budgets
 - ◎ Per Task Team
 - ◎ Per Partner
 - ◎ Per Program



Technology Strategy Handbook



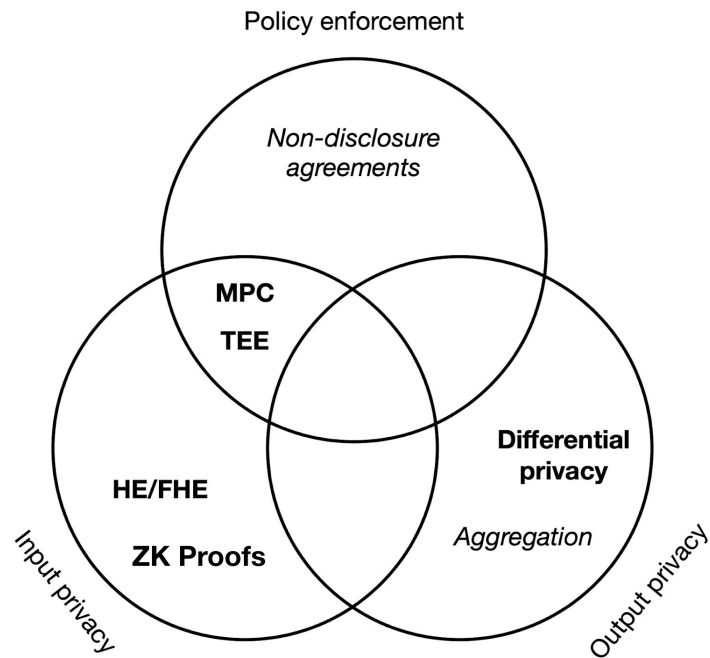
Technology Strategy Handbook

- ◎ Mapping the Technology Landscape
 - ◎ Cloud
 - ◎ Machine Learning
 - ◎ Big Data
 - ◎ Serverless
 - ◎ IoT
 - ◎ Privacy Preserving Techniques

Privacy Preserving Techniques Handbook

Cryptographic Techniques

- ◎ Multi-party Computation
- ◎ Fully Homomorphic Encryption
- ◎ Zero Knowledge Proofs
- ◎ Trusted Execution Environments
- ◎ Differential Privacy





Cryptographic Techniques

- ◎ [UN Privacy Preserving Techniques Handbook](#)
- ◎ Proof of Concepts for 62nd ISI World Statistics Congress
 - ◎ Health Statistics
 - ◎ Trade Statistics
 - ◎ Synthetic Data



Business Case/Model




Business Case/Model

- ◎ Business Model
- ◎ Business Case
- ◎ Funding Model
- ◎ Operations Model
- ◎ Programs & Partnerships



Programs & Partnerships



Platform Partners

- ◎ Provide Core Platform Services
- ◎ Provide Services within the Platform
- ◎ Joint Marketing
- ◎ Conferences

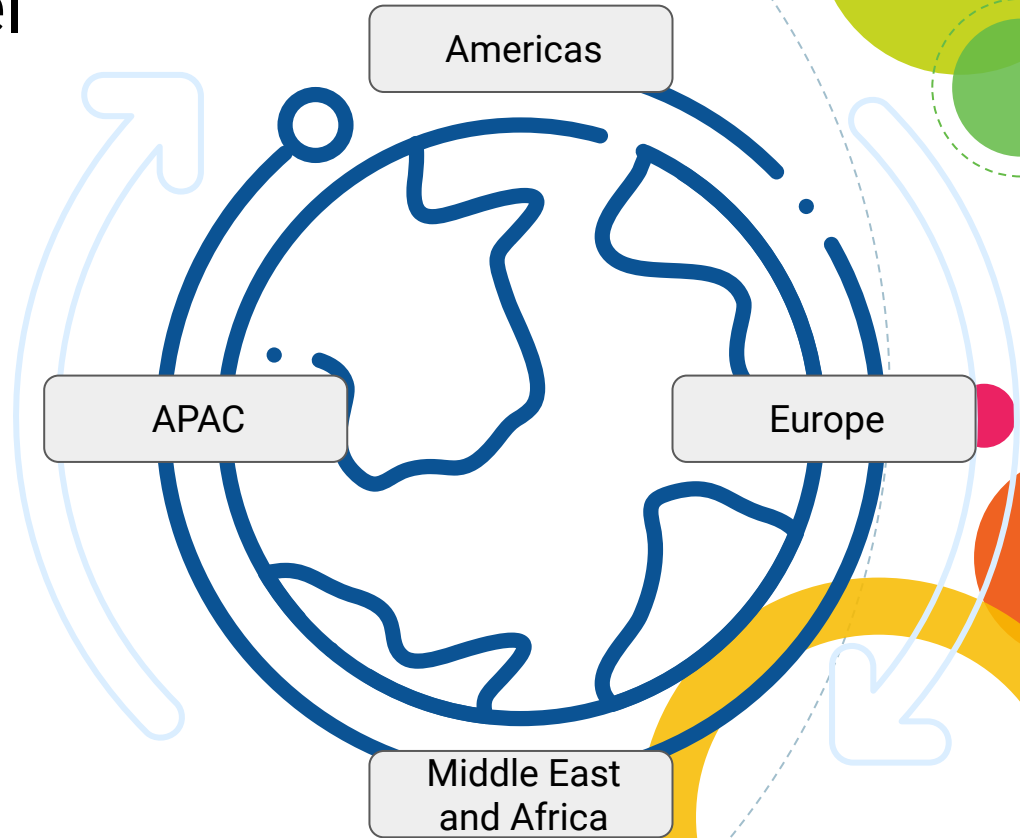


Hubs

- ◎ Official Partners
- ◎ Research
- ◎ Global Support
- ◎ Program Based
- ◎ Specialists
 - ◎ AI / ML
 - ◎ Environment
 - ◎ Mobile

Global Support Model

- **24/7** 'follow the sun' global support model





Hub/Partner Framework

- ◎ Policies
- ◎ Principles
- ◎ Data Ethics
- ◎ Data Policy Framework
- ◎ Technical Standards



UN Global Platform

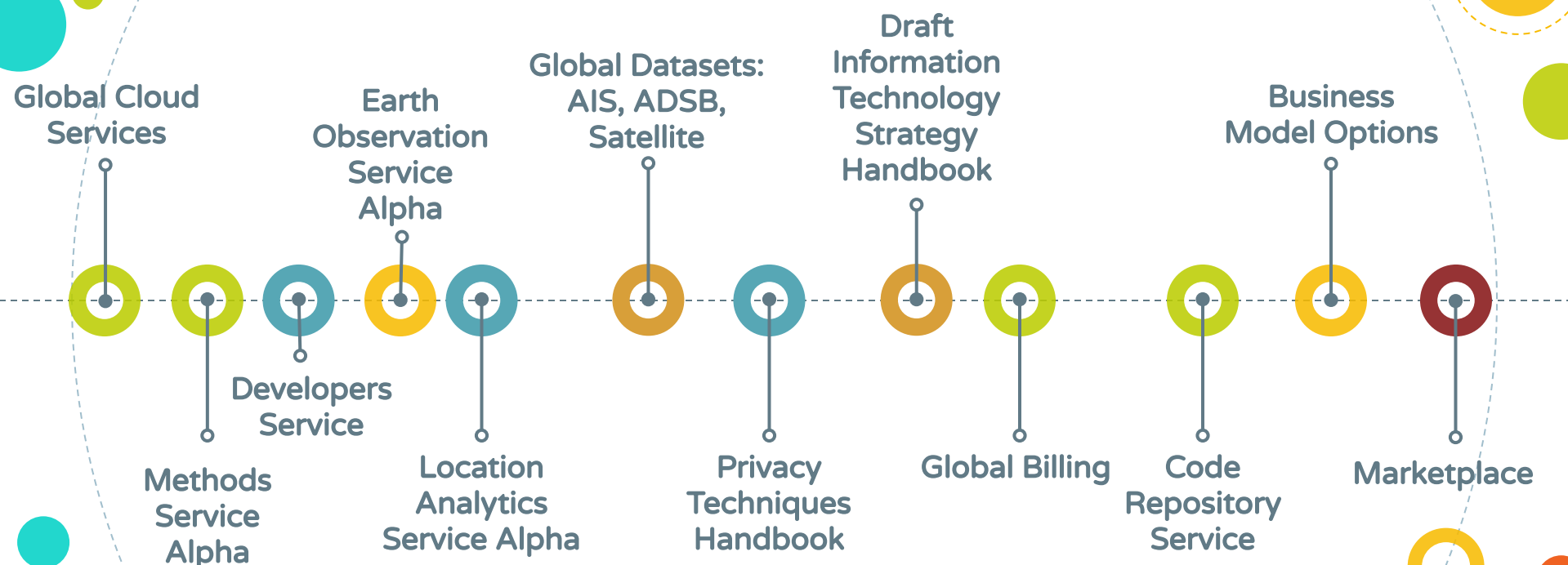
Gavin Phillips

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Achievements – March '19



Global Datasets



3

Global Big Datasets

100,000,000,000+

ADS-B Records

40,000,000+

AIS Records / Day

Automatic Identification System (AIS)

- ◎ 40 Million Records / Day
- ◎ Ship Position / Movement
- ◎ 3 Months Trial
- ◎ Analysis via
 - ◎ Methods Service
 - ◎ Location (Stealth) Service
 - ◎ Jupyter Notebooks
 - ◎ APIs

Automatic Dependent Surveillance (ADS-B)

- ◎ 3 Million Records / Second
- ◎ Aircraft Position / Movement
- ◎ 100 Billion Records
- ◎ Analysis via
 - ◎ Methods Service
 - ◎ Location (Stealth) Service
 - ◎ Jupyter Notebooks
 - ◎ APIs



Satellite Imagery

- ◎ Open Data
 - ◎ Landsat
 - ◎ Sentinel
- ◎ Commercial
 - ◎ Planet (Trial)
 - ◎ AirBus (Trial)
 - 1.5m Resolution
 - 0.5m Cities



UN Global Platform Services

Marketplace

**Earth
Observation
Service**

**Satellite
Imagery**

**Location
Analytics
Service**

**Global
Billing**

ADS-B

**Trusted
Methods
Service**

**Online
Community**

**Developers
Service**

AIS

AI Ready

UN Global Platform – Update

- © Trusted Methods Library/Service
 - <https://methods.officialstatistics.org>
- © Earth Observation Service
 - <https://eo.officialstatistics.org>
- © Location Analytics Service
 - <https://location.officialstatistics.org>
- © Marketplace
 - <https://marketplace.officialstatistics.org/>

UN Global Platform – Update

© Jupyter Service

- <https://jupyter.officialstatistics.org>

© Operations Service

- <https://operations.officialstatistics.org>

© Helpdesk Service

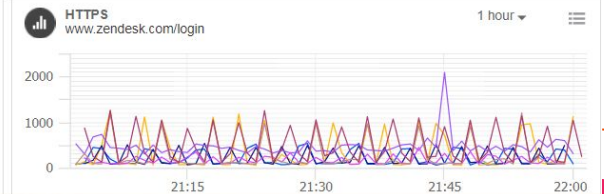
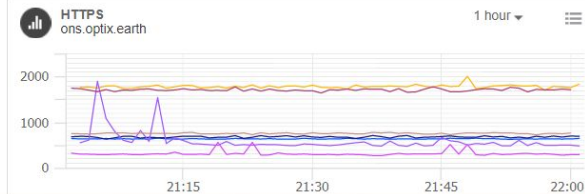
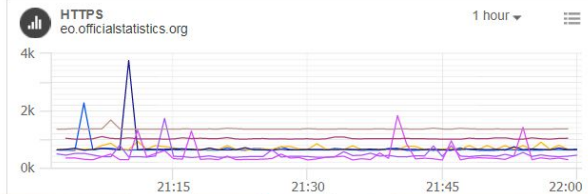
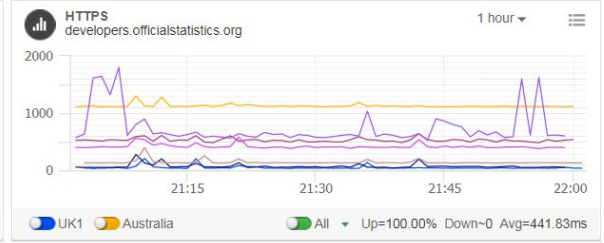
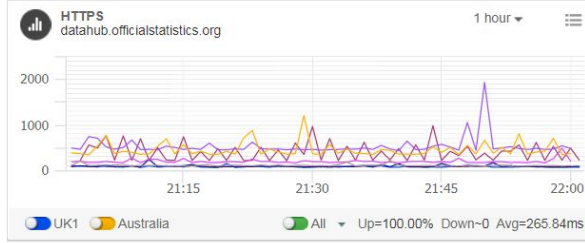
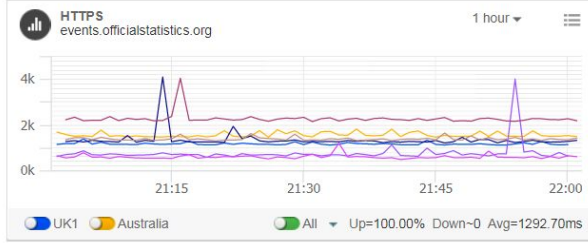
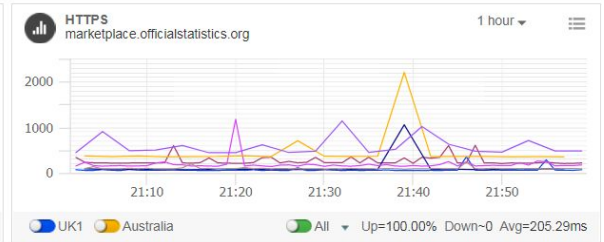
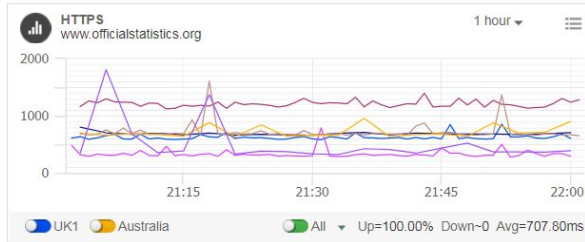
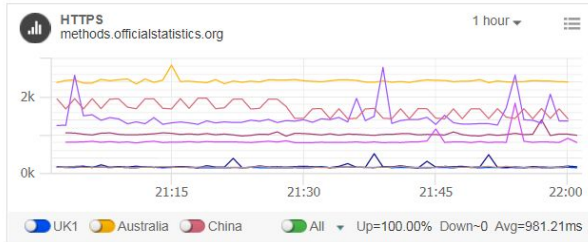
- support@officialstatistics.zendesk.com

Operations Service

BigData UN Global Working Group

Powered by  monitis

Web Performance



#UNGlobalPlatform

Marketplace

- Alpha Marketplace live
- One place to search for trusted data, applications, partners, methods & algorithms and services



marketplace.officialstatistics.org

The screenshot shows the homepage of the Big Data UN Global Working Group Marketplace Alpha. The header includes a navigation menu with links for 'Collaboratives', 'Datasets', 'Methods', 'Learnings', 'Services', and 'Partners'. A search bar is prominently displayed with the text 'Search our data' and a sub-header stating 'The United Nations Statistics Division is committed to the advancement of the global statistical system.' Below the search bar, there are four icons representing different categories: Collaboratives (hands holding a globe), Datasets (atom symbol), Methods (document with checklist), and Learnings (book with magnifying glass). The main content area is divided into three sections: 'Earth Observation' (featuring a satellite image of Earth), 'Datasets' (featuring a green abstract background), and 'Join our community' (featuring a night view of Earth from space).



<https://marketplace.officialstatistics.org/>

Urban Forests on the UN Global Platform Methods Service

Over the past six weeks the UN Global Platform has been collaborating with the UK's Data Science Campus to develop an implementation of the Urban Forest project onto the cloud-based platform. The Urban Forests project aims to create an index of vegetation through taking Google Street view images around the road network and classifying the amount of vegetation in each image. High level information on the project is available [here](#), and a full report can be read [here](#).

Largely, the process of implementing this on the platform has involved development of a series of algorithms in the methods service which is supplied by Algorithmia. The methods service allows for methods to be written in a range of languages (R, Python, Java) which can then be called from a wide range of languages. This allows for a combination of languages to easily be used in a single pipeline. Each part of the pipeline is contained within it's own algorithm, allowing them to be called independently of one another. This post will walk through the creation of a number of these algorithms, how these have been combined to form a pipeline and how this could be reused.

Sampling the road network

One component of the pipeline is to sample a requested geographical area. This might be a borough, or an entire city. The original Urban Forests project downloaded the open data for a requested number of roads. In the implementation on the platform, we have a number of algorithms that allow a query to generate evenly spaced points along all highways

Urban Forests on the UN Global Platform Methods Service

Nov 13, 2018 - Joe Peckitt

Overview

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HighwayScraper

The algorithm is used to scrape way_ids that OSM recognises as highways with a name. The algorithm takes the size along for each way, calculates the length of each line and places evenly spaced points along the line. The spacing is dependent on the interval selected (in metres). The direction of each of these points is also given, calculated by the bearing of the previous point and following point.

Note that where way_ids coincide, there may be points closer than the defined interval.

This method makes use of `osmnx` R package.

Applicable Scenarios and Problems

Originally this was developed as a method for sampling an area for the Urban Forest project.

Limitations

This package makes use of the OpenStreetMap overpass API please be considerate if you're planning on scraping large areas.

Usage



<https://methods.officialstatistics.org/>

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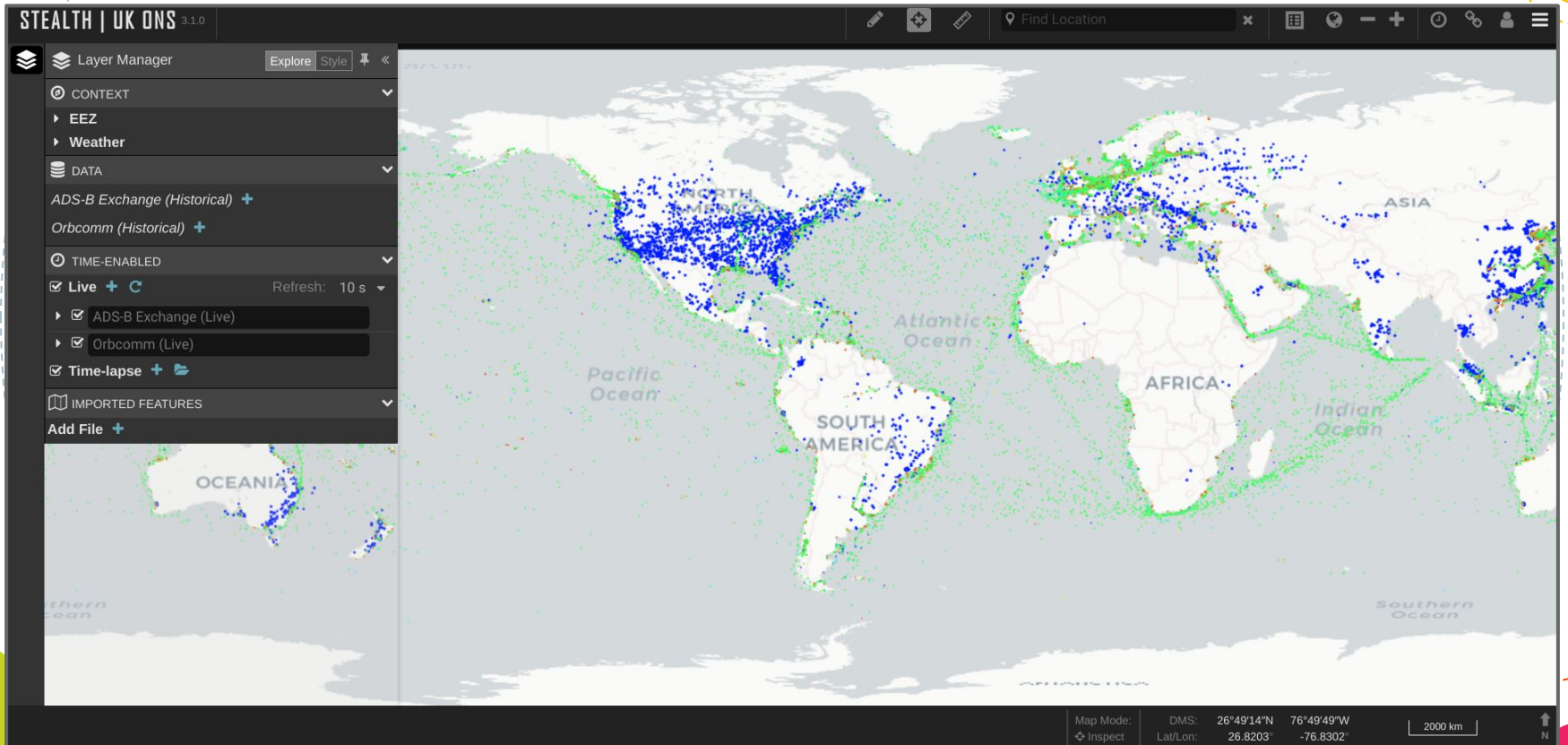
Demo Time



Location Analytics Service

- ◎ Visualise and Analyse Geospatial Data
- ◎ Visualise and Analyse Location Data
 - ◎ AIS
 - ◎ ADS-B
 - ◎ Mobile Phone
 - ◎ “Anything that moves”
- ◎ Real time data feeds

Location Analytics Service





Demo Time

Methods as a Service

Platform



methods.officialstatistics.org

Training available – contact:



methods@officialstatistics.org

• Outcomes

- Publish & reuse documented methods

The screenshot shows a web browser window with the URL <https://methods.officialstatistics.org/algorithms>. The page features a search bar at the top with the text "Search the AI Marketplace" and a magnifying glass icon. Below the search bar, there are four main categories: "Machine Learning & AI" (Teach your app to teach itself), "Utilities" (Ready to use microservices), "Survey Methodology" (Survey sampling methods), and "Statistical Methods" (Statistical methods for). Underneath these categories, there are "Popular Tags" including nlp, text analysis, time series, web, computational mathematics, scrape, geographic, and image processing. At the bottom, there is a section titled "Browse all algorithms:" with three filters: "★ Top Rated" (selected), "Ⓞ Most Called", and "Ⓞ Recently Added". A single algorithm, "Arithmetic Mean", is listed under the "Top Rated" filter.



Demo Time



Earth Observation Service

- ◎ Analyse Satellite Imagery
- ◎ Common Satellite Data
- ◎ Commercial Satellite Data
- ◎ Common Algorithms (NDVI, NDWI)
- ◎ Machine Learning



Earth Observation Service

- ◎ Users
- ◎ Teams
- ◎ Organisations
- ◎ Share/Publish
- ◎ Collaboration



Demo Time



Roadmap

Roadmap - March '20

5th
International
Conference
on
Big Data for
Official
Statistics

Privacy
Techniques
PoCs

Privacy
Task Team
Legal
Sub-Group

Privacy Legal
Sub-Group

Final
Business
Case/Model

March '20
51st UNSC



Release
Strategy
Handbook

Global
Authentication
Service

Alpha
Data as a
Service

62nd ISI
Conference

How Can You Get Involved?



How Can You Get Involved?

- ◎ Task Teams
- ◎ Administration Tasks
- ◎ Technical Specialists
- ◎ Cloud Specialist Group
- ◎ Machine Learning Models

- ◎ Covered by an MOU

UN Global Platform



Faster. Quality. Statistics

#UNGlobalPlatform



Thanks!



Any questions?

You can find me at [@mcraddock](https://twitter.com/mcraddock) & contactus@officialstatistics.org

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Additional Information



Booth

- ◎ Mon, During Breaks - (Gavin, Joe)
- ◎ Tue, During Breaks - (Gavin, Joe)
- ◎ Wed, During Breaks - (Gavin, Joe)
- ◎ Thur, During Breaks - (Gavin, Joe)
- ◎ Fri, During Breaks - (Gavin, Joe)



Future Events

- ◎ 62nd ISI World Statistics Congress
 - ◎ UN Statistics Division (UNSD)
Symposium on Data Science and Official Statistics jointly organized with UNESCAP and UN Global Working Group on Big Data for Official Statistics, 15 - 17 August 2019