UN Global Platform

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#UNGlobalPlatform
@mcraddock
@UNBigData
Vision: A global collaboration to harness the power of data for better lives
Global Platform

◎ Trusted Data
◎ Trusted Methods
◎ Trusted Learning
◎ Trusted Partners
◎ AI/ML Ready

#UNGlobalPlatform
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

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UN GWG (Big) Data Organisational Structure
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

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
Data Collaborative
Using the Platform

Become a trusted partner

Access the new platform

Discover new data and methods

Share data

Set-up project based collaboration

Learn from best practice

modernize statistics and analysis
AI/ML Ready
AI/ML Ready

◎ Earth Observation Service
  ◎ Train Machine Learning Models
  ◎ Analyse Satellite Imagery

◎ Methods Service
  ◎ Deploy and manage machine learning models
  ◎ API enable machine learning models
AI/ML Ready

◎ Location Analytics Service
  ◎ ML / Pattern of Life
Online Community
Online Community

◎ Sharing / Collaboration
◎ 230+ people in 14 timezones
◎ 4,000+ messages over last 30 days
◎ Algorithms, Data, Services, Methods, AIS, ADS-B, Cloud Vendors, Privacy Task Team, Task Teams

Working Practices
Working Practices

◎ Work in the open
  ◎ Transparent, sharing, collaborating

◎ Working Online
  ◎ Online document sharing, online communications channels, online kanban/activity tracking, online training
Working Practices

◎ Delivery first
  ◎ Agile practices, prototype/demo, publish early working functionality, reuse-recycle, iterate, user and customer focus, empowered teams and individuals
Global Standards
Global Standards

- Incident Management
- Portability
- Principles
- Platform Security
- Service Management
Security
Security

◎ DDOS/DNS
  ◎ CloudFlare
  ◎ The DDoS That Almost Broke the Internet
  ◎ Multi user administration / access
  ◎ Audit logs

◎ Content Delivery Network (CDN)
  ◎ CloudFlare
Security

◎ CloudFlare - Project Galileo
- If you are an organization working on behalf of the arts, human rights, civil society, or democracy, you can apply for Project Galileo to get Cloudflare’s highest level of protection, for free.
Strategy
Strategy

- Encourage innovation via direct action, collaboration and self-service
- New capabilities created on commoditized components
- Reducing cost of development, enables creation of new capabilities in the ecosystem
- Use ecosystem to identify future patterns and user needs

Ecosystem

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Global Billing
Global Billing

Task Team A

Task Team B

Hub

Project Y

Hub

Hub

Task Team Y

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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
Technology Strategy Handbook

◎ Mapping the Technology Landscape
  ◎ Anchor, Position & Movement

◎ Strategy Cycle
  ◎ Why of Purpose, Landscape, Climate, Doctrine, Leadership
  ◎ Observe. Orient and Decide, Why of Movement. Why should we be taking this action over that action.
Technology Strategy Handbook

◎ Mapping the Landscape
  ◇ Cloud
  ◇ Machine Learning
  ◇ Big Data
  ◇ Serverless
  ◇ IoT
  ◇ Privacy Preserving Techniques
Strategy Cycle

Decide
Act

Leadership
The “game”

Purpose

Orient

Doctrine

why of purpose

why of movement

Landscape

Climate

Observe

The Strategy Cycle
Sun Tzu’s five factors
John Boyd’s OODA loop
The two types of why
Technology Strategy Handbook

 Doctrine

- Know your users (e.g. customers, shareholders, regulators, staff)
- Focus on user needs
- Focus on high situational awareness (understand what is being considered)
Technology Strategy Handbook

Doctrine
- Use a common language (necessary for collaboration)
- Be transparent (a bias towards open)
- Challenge assumptions (speak up and question)
- Use a systematic mechanism of learning (a bias towards data)
Technology Strategy Handbook

Doctrine

- Remove bias and duplication
- Think small (as in know the details)
- Use appropriate methods (e.g. agile vs lean vs six sigma)
- Move fast (an imperfect plan executed today is better than a perfect plan executed tomorrow)
Technology Strategy Handbook

◎ Doctrine
- Be pragmatic (it doesn’t matter if the cat is black or white as long as it catches mice)
- Manage inertia (e.g. existing practice, political capital, previous investment)
- Effectiveness over efficiency
- Leave no-one behind
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
Platform Business Model

◎ A means of connection
◎ Orchestrates an ecosystem
◎ Utilises the network effect
◎ Aggregates supply and demand
◎ Remove frictions
◎ Can have more than one type of value exchange going on
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

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Global Support Model

- **24/7 ‘follow the sun’ global support model**
Hub/Partner Framework

◎ Policies
◎ Principles
◎ Data Ethics
◎ Data Policy Framework
◎ Technical Standards
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Gavin Phillips

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Global Datasets
3 Global Big Datasets

100,000,000,000+ ADS-B Records

40,000,000+ AIS Records / Day

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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

Online Community

Developers Service

AIS

ADS-B

Global Billing

AI / ML Ready

Trusted Methods Service

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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
UN Global Platform – Update

◎ Jupyter Service
  ◦ https://jupyter.officialstatistics.org

◎ Operations Service
  ◦ https://operations.officialstatistics.org

◎ Helpdesk Service
  ◦ support@officialstatistics.zendesk.com
Operations Service

Web Performance

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Marketplace
Marketplace

◎ Alpha Marketplace Live
◎ One place to search for trusted data, applications, partners, methods, algorithms and services
◎ Self Manage Listings (Task Teams, Partners, NSIs)
Demo Time
Location Analytics Service

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

◎ AIS Data Source 1
  ◦ 6GB / Day Ingest
  ◦ 1.23TB
  ◦ From Oct ‘18

◎ AIS Data Source 2
  ◦ 29GB / Day Ingest
  ◦ 1.41TB
  ◦ From April ‘19

*15th May 2019
Location Analytics Service

◎ ASDB Data Source
  ◦ 13GB / Day Ingest
  ◦ 4.49TB*
  ◦ From Oct ‘18

*15th May 2019
Location Analytics Service
Demo Time
Methods
Service
Method Service

◎ Methods and algorithms must be easy to share and reuse
◎ Methods must be documented and of known quality
◎ Methods must not place too many technology dependencies on users
Methods Service

◎ Provides a library for trusted methods and algorithms that:
  ◎ Member countries can collaboratively populate, manage and use
  ◎ Allows easy sharing and development of new algorithms
  ◎ Does not require specialist knowledge or equipment
Methods Service

◎ The library needs to:
  ◎ Scale
  ◎ Integrate with the rest of the UN Global Platform technology stack
  ◎ Be extensible to new use cases
Method Service

◎ Code, documentation and execution
◎ Deploy without software engineers
◎ Scalable workers & GPUs
◎ Organisations: code collaboration, inheritance & governance
◎ Standard APIs to call all algorithms
◎ Use for production and prospective purposes
Demo Time
Earth Observation Service

◎ Analyse Satellite Imagery
◎ Common Satellite Data
◎ Commercial Satellite Data
◎ Common Algorithms (NDVI, NDWI)
◎ Machine Learning
Earth Observation Service

Roles Based Access Controls
- Users
- Teams
- Organisations
- Share/Publish
- Collaboration
Earth Observation Service
Historical AVHRR satellite images
Historical AVHRR satellite images
Demo Time
Roadmap

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Roadmap – March ‘20

◎ Alpha
  ◦ Data Service
  ◦ Developers Jupyter Service

◎ Beta
  ◦ Global Billing
  ◦ Marketplace
  ◦ Earth Observation Service
  ◦ Geospatial Analytics Service
  ◦ Methods Library/Service
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
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Faster. Quality. Statistics

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Thanks!

Any questions?

You can find me at @mcraddock & contactus@officialstatistics.org

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Additional Information
Future Events

◎ 62nd ISI World Statistics Congress