WEBINAR

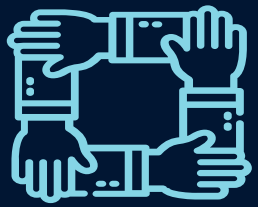
Introduction to the 2022
UN Big Data Hackathon (UNBDH)

The 2021 UN Youth Hackathon in numbers...

Theme: the impact on SDGs by the COVID-19 pandemic (focus on SDGs 1, 2, 3, 4, 5, 8)

3 days

33 countries



80 teams

300+ participants

In words...

INNOVATE...
to participate in the achievement of the SDGs

NETWORK...
with data-enthusiastic students and professionals

EXPOSE...
yourself to state of the art data analysis tools and methods

COMPETE...
with leading data scientists across the globe

LEARN...
from your peers and strengthen your teamwork

UNBDH Organizing Team

During this hackathon, the United Nations Statistics Division, Badan Pusat Statistik, UNCTAD, Major Group for Children and Youth, UN Global Pulse, UN Global Platform Regional Hubs for Big Data (UAE, Brazil, Africa and China), Office for National Statistics, Statistics Canada, Islamic Development Bank (IsDB) and Asian Development Bank (ADB) will be on the lookout for **disruptive** and **innovative** solutions that use data, machine learning and artificial intelligence to fast track progress towards the **UN Sustainable Development Goals (SDGs)**.

OPENING STATEMENT

Ronald Jansen

Assistant Director, Chief of Data Innovation and Capacity Branch
@ United Nations Statistics Division/United Nations Department of Economic and Social Affairs

INTERNATIONAL CONFERENCE ON BIG DATA

United Nations - UNSD, UN DESA, UN Global Pulse & UNCTAD

Ronald Jansen

Jiayue Zeng

Markie Muryawan

Clarence Lio

Karoly Kovacs

Bogdan Dragovic

Sean Lovell

Daniel Hopp

BPS Indonesia

Muchammad Romzi

Setia Pramana

Efliza

Maulana Faris

Choerul Afifanto

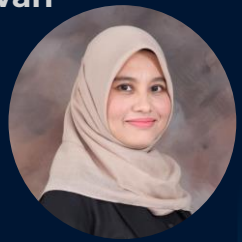
Ana Fitriyani

M. Yunus Hendrawan

Rifqi Aulan Nisa

Silvia Arini

Kiki Rizki Amalia



Nori Wilantika

Badan Pusat Statistik Indonesia

Muchammad Romzi

Director of Analysis and Statistics Development

@ Statistics Indonesia

INTERNATIONAL CONFERENCE ON BIG DATA

Big Data in BPS-Statistics Indonesia

Technology Adoption

BPS works to adapt to changes in technology and access to information by creating Big Data ecosystems

Official Statistics

Big Data

We utilize Big Data as effectively as possible as one of the potential sources of Official Statistics

Web Crawling/ Web Scrapping

Satellite Image/ Space Technology

Mobile Positioning Data and Other Index

Come and Join Us in Yogyakarta

About Event

UN Big Data Hackathon

8-11 November 2022

Students or young professionals

The winning teams will present their work at the UN World Data Forum in Hangzhou, China in 2023 and receive certificates and rewards.

FINAL EVENT

Indonesia, Yogyakarta

Seruni Beach

Prambanan Temple

Embung Tambakboyo

Big Data in BPS-Statistics Indonesia

Mobile Positioning Data (MPD)

- ✓ Tourism statistics
- ✓ Commute statistics
- ✓ Metropolitan Area Statistics

Satellite Image

- ✓ Poverty mapping
- ✓ Agricultural statistics
- ✓ Economy activity

Relative Index Facebook

- ✓ Economy activity
- ✓ Poverty mapping

Google and Facebook Mobility Index

- ✓ People mobility

WEB-CRAWLING

Resource	Result
Marketplace	E-commerce data
Flight tracker, transportation booking websites	Transportation data
Job search websites	Labour statistics
Hotel booking websites	Tourism statistics
Air quality websites	Environment and disaster statistics
Mobil123, rumah123	Housing and transportation statistics
Online news and social media	Phenomenon and population image
Google Map	Society activity and mobility
IDx	Financial report and shares

MGCY

Oumaima Makhlouk

Abhijith Mathew

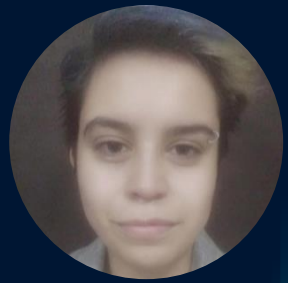
Camila Ramirez

Tori Lovins

Ona Ambrozaite

Rufai Balogun

Erica Eggleton



Alinne Olvera

Major Group for Children and Youth (MGCY)

Ona Ambrozaite

Ph.D. Candidate @ **John Hopkins University**
& Science-Policy Interface Co-Coordinator **@MGCY**

INTERNATIONAL CONFERENCE ON BIG DATA

UN Global Platform Regional Hubs for Big Data

Rene Wearing (UAE)

Ruaa Alshehhi (UAE)

Aisha Khalid (UAE)

Bryan Gao (China)

Patricia Tavares (Brazil)

Andrea Diniz da Silva (Brazil)

Therese Uwimana (Rwanda)

Samuel Nahimana (Rwanda)

UN Global Platform Regional Hub for Big Data **in the UAE**

Her Excellency Hanan Ahli

Acting Director

@ Federal Competitiveness & Statistics Authority

INTERNATIONAL CONFERENCE ON BIG DATA


Watch the video again here

UN Global Platform Regional Hub for Big Data **in China**

Bryan Gao

Staff of Division

@ UN Global Platform Regional Center Management Office in China

INTERNATIONAL CONFERENCE ON BIG DATA

UN Global Platform Regional Hub for Big Data **in Brazil**

Andrea Diniz da Silva

Professor

@ National School of Statistical Sciences – ENCE/IBGE

INTERNATIONAL CONFERENCE ON BIG DATA

UN Global Platform Regional Hub for Big Data **in Africa**

Therese Uwimana

Director of Data Revolution and Big Data

@ National Institute of Statistics of Rwanda

INTERNATIONAL CONFERENCE ON BIG DATA

ONS UK, Statistics Canada, ADB & IsDB

Eric Deeben
(ONS UK)

Alison Baily
(ONS UK)

Cherryl Chico

Eduardo Valdez

David Evans
(Stats Canada)

Stephanie Goetz
(Stats Canada)

Kathryn Stevenson
(Stats Canada)

The Office for National Statistics (ONS UK)

Eric Deeben

Technical International Programme Lead

@ ONS UK

INTERNATIONAL CONFERENCE ON BIG DATA

Statistics Canada

David Evans

Innovation Leader and Strategist

@ Statistics Canada

Objectives

The hackathon aims at:

- Providing a space for data-enthusiastic people to develop their data science skills by having direct access to relevant data sets and working collaboratively with their teams and partners of the event.
- Giving the participants an opportunity to scale up their solutions for action towards the SDGs.
- Collecting innovative solutions that may help the implementation of the 2030 agenda for sustainable development
- Supporting youth engagement in evidence-based decision making through the analysis of data.

23

What brings us here?

address
the global challenges of the 21st century

focus on
strategic decision-making

lead
the world towards a sustainable future

UNBDH Tracks

Big Data Experts Track

Refer to the 2020 AIS Hackathon

- Government officials, professionals, and researchers with a background in data science, statistics, economics, or social sciences
- **Requires the usage of data coming from the Automatic Identification System (AIS) in line with the theme**
- Requires familiarity with data processing using pyspark, geospatial indexing techniques, big data analytics and modeling or statistics
- Participants will form **20 teams of 3-5 people each team**. An ideal grouping of teams would include data scientists, statisticians, economists, and social scientists

Youth Track

Refer to the 2021 UN Youth Hackathon

- Data enthusiasts, young professionals, or students that are **32 years old or younger**
- **All levels in data science are welcome!**
- Participants will form ~100 teams of 3-5 people each team. An ideal grouping of teams would include participants from different professional and academic backgrounds.

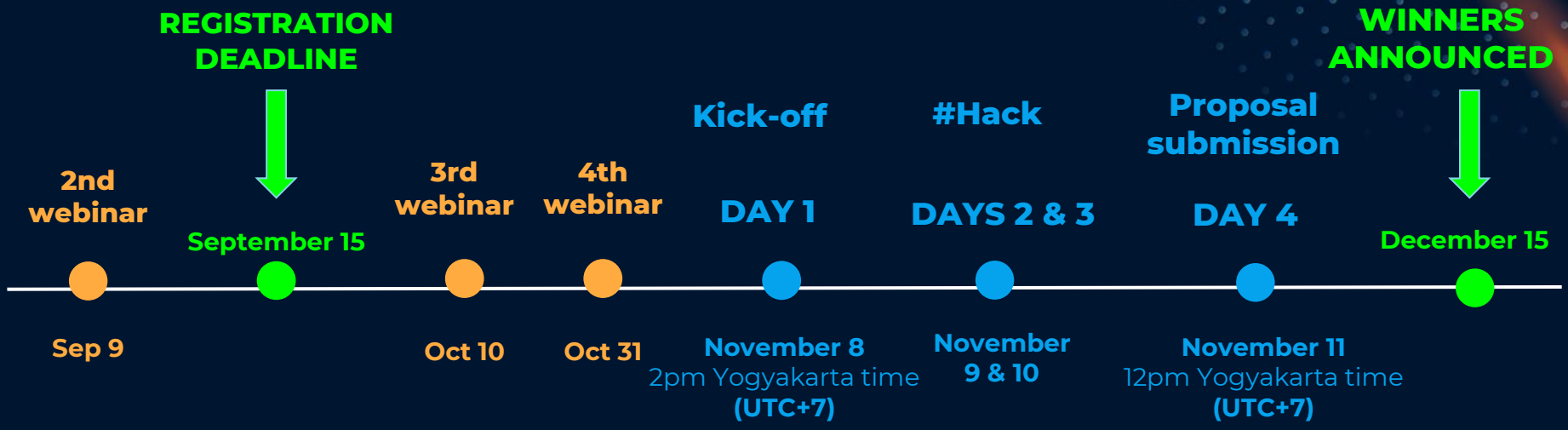
25

UNBDH Logistics

	Big Data Experts Track (20 teams)	Youth Track (100+ teams)
Logistics	On-site in Yogyakarta, Indonesia **OR** Virtually	Virtually **OR** Satellite locations (for now, Yogyakarta, Dubai and Rio de Janeiro) **if you live close by**
Technology	1. **Analytics tools:** Online Jupyter Hub (Python & R), locally-installed tools (Python, R, PowerBI, Tableau, SAS…) 2. **Code collaboration platform + submission of outputs:** GitHub 3. **Communication:** Slack & emails	
Datasets	AIS datasets Trade datasets Datasets specifically related to the theme	Datasets specifically related to the theme

UNBDH Timeline

Join the mailing list to be updated (webinars, deadlines, winners!)



- *Access to the databases will be granted starting from **November 8th at 2:00 PM Yogyakarta Time (UTC+7)**.*
- *Proposals must be submitted on **November 11th at 12:00 PM Yogyakarta Time (UTC+7)**.*

Expected outcomes

Teams will hack their way through **an innovative analytical solution** to address the Global challenges and help achieve the Sustainable Development Goals following a theme that will be revealed closer to the UNBDH.

For both tracks, teams must submit:

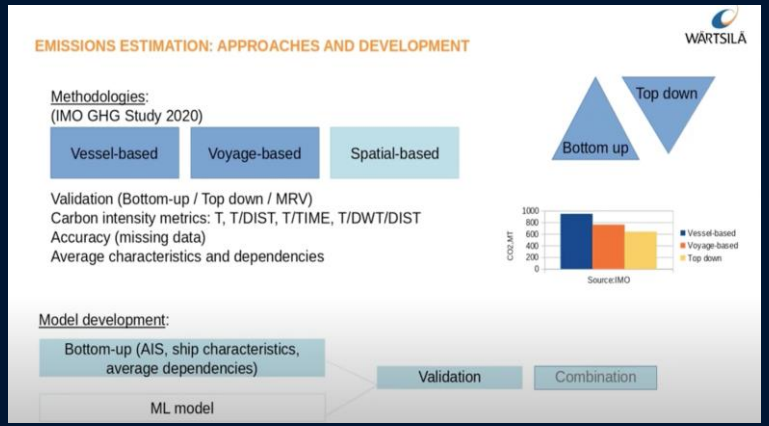
1. Presentation explaining their solution (free format)
2. Video with maximum length of 10 minutes = voice-over of the presentation
3. Coding scripts

Big Data Experts Track

Examples of outputs

Example 1: BlueCarbon, overall winning team of the 2020 AIS Hackathon

Using the AIS data provided by the UN Global Pulse platform, the team geographically distributed CO2 emissions from shipping based on individual vessel locations and activity using a Machine Learning Model. They subsequently developed an interactive dashboard to map these emission distributions for different time periods.



Reference: BlueCarbon's presentation video

https://www.youtube.com/watch?v=qmybyzV5R8A

29

Big Data Experts Track

Examples of outputs

Example 2: DogCat, student winning team of the 2020 AIS Hackathon

Using the AIS data provided by the UN Global Pulse platform, the team analyzed **the impact of COVID-19** on three major sectors: commodities, bulk carriers and trade countries

Topic : The difference in the impact of COVID-19 to container shipping

Motivation

Is there are any difference in the impact of COVID-19?

e.g.) Deployed vessels becomes smaller by the low demand

Objective

To measure the difference in the impact of COVID-19 to several factors

Target

Data : Arrival data on AIS data

Ship : Container ship

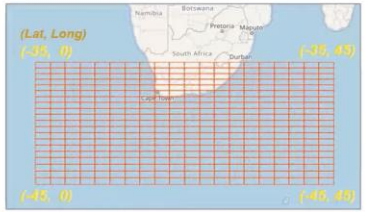
Port : Busan, Qingdao, Yantian, Shanghai, Xiamen, Hong Kong, Los Angeles

Term : 2019/01/08 - 04/23
2020/01/08 - 04/22

Factor : Shipping Alliance and Vessel size

Research Policy

① Set up a polygon area around the Cape of Good Hope and generate meshes in the area. (20 × 20 split)



② Extraction of speed and position data for each vessel in the area.

③ Using AIS data and other ship movement data, GHG emissions are calculated for each mesh and individual ship and the total values are tabulated.

Reference: DogCat's presentation video

https://www.youtube.com/watch?v=X_jmNy4qbjE

30

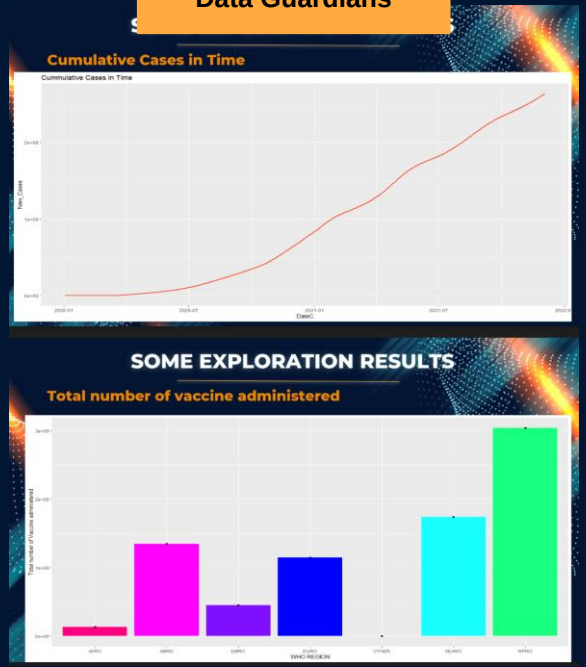
Youth Track

Examples of outputs

UN Youth Hackathon projects (sample):
https://drive.google.com/drive/folders/1MxLU0NvDnD224fVHPcZKUatx-s3OJ-T7

Example 1:
Reports providing detailed statistical analysis or data correlations between different datasets

Data Guardians



CAS-ZJSO

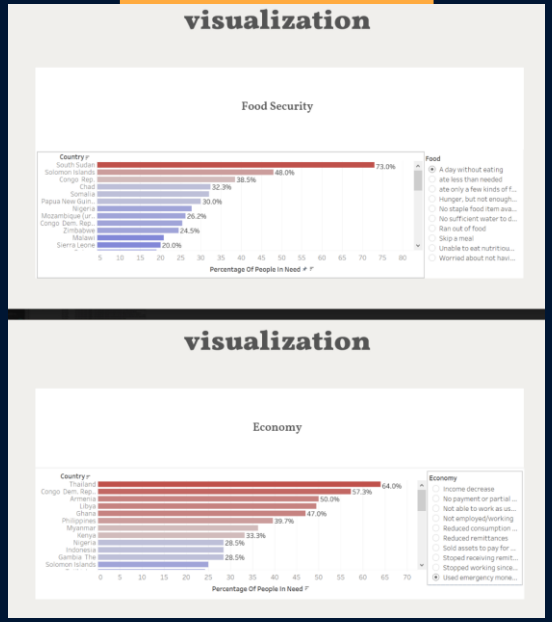
Youth Track

Examples of outputs

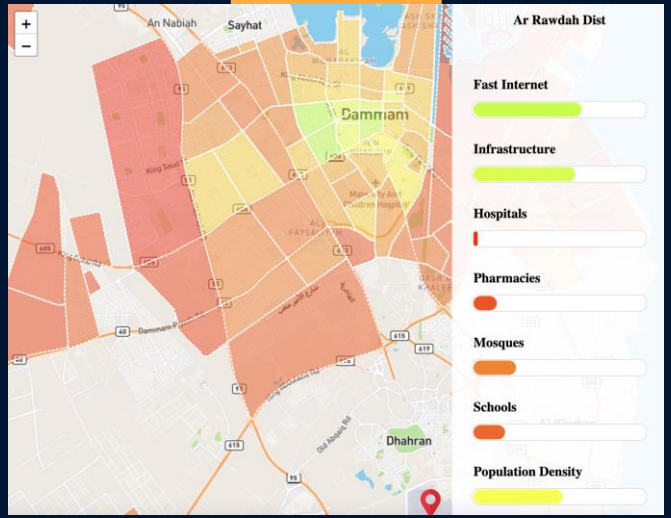
UN Youth Hackathon projects (sample):
https://drive.google.com/drive/folders/1MxLU0NvDnD224fVHPcZKUatx-s3OJ-T7

Example 2:
Interactive dashboard with enhanced analytical visuals

Team IdeaX



Doves



32

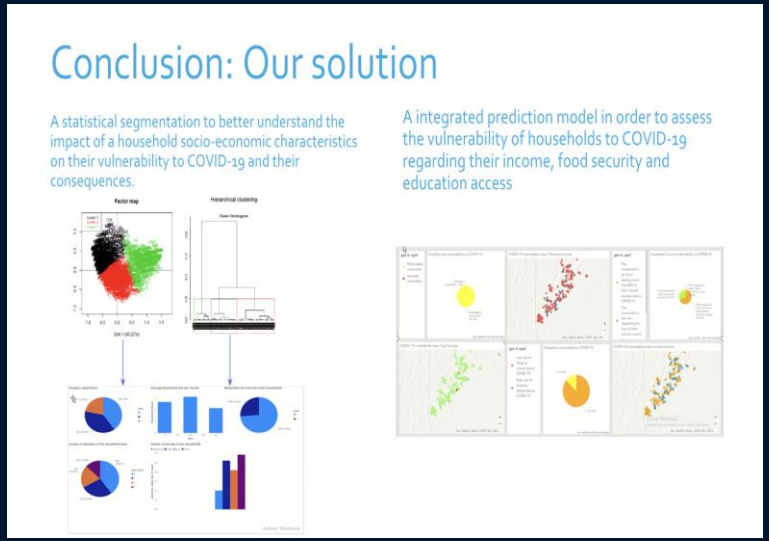
Youth Track

Examples of outputs

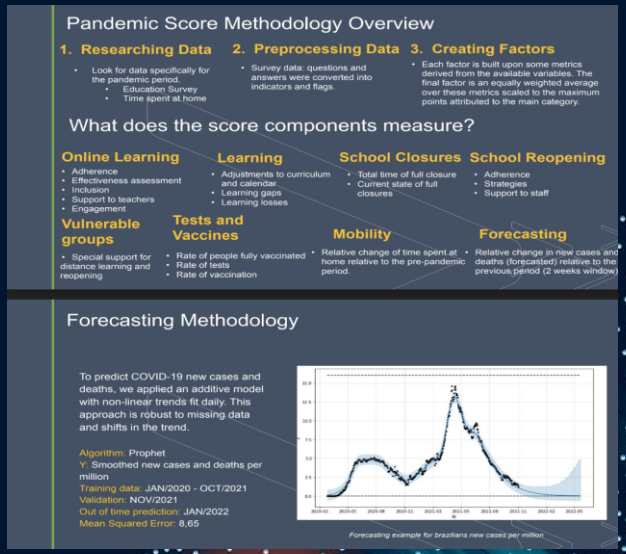
UN Youth Hackathon projects (sample):
https://drive.google.com/drive/folders/1MxLU0NvDnD224fVHPcZKUatx-s3OJ-T7

Example 3:
Advanced Machine Learning Models for predictions

Team Sustainability, overall winner



Data Rockstars



Rules of participation

- The use of private and/or copyrighted datasets is not allowed for any team.

- By submitting their proposal, contestants declare that the content submitted is their original work and creation and has not been presented previously in other events.

Special Prizes & Certificates
(more to come, stay tuned...)

In each track:

- **Outstanding team:** This prize would be granted to the overall best solution.
- **Best team of the region:** Best project from a region (Africa, Europe, North America, Latin America, MENA, Asia, Oceania)
- **Key contributor:** Most active team in the communication channels that provides help to other teams' questions and shares additional data sets or insights
- **Best visualization:** Outstanding presentation of data in a visually compelling format.
- **Best presentation:** Based on the presentation skills of the team.

Youth track only:

- **Most promising team:** Outstanding solution from beginners teams
- **All-student team:** Awarded to outstanding team consisting of all students.
- **Teen award:** Outstanding solution developed by teams consisting in majority of participants under 20.

All teams that submit the expected outcomes will receive a **certificate of participation.**

Prizes

Grand Prize:

- The Outstanding teams will present their work at the **UN World Data Forum in Hangzhou, China in 2023**. This will be give them the opportunity to present their project to obtain potential feedback from international experts.

Other Prizes

- Granting full access to the UNGP AIS platform for one year.
- Further training, mentoring, and assistance from UK Data Science Campus for a specific project in 3-6 months.

If you want to participate or receive all the updates:

1. **Register** for the hackathon with your team or individually: **https://input.un.org/EFM/se/3995D1A40525E4CE**

2. Read about **all the information** about the hackathon on the **website**: **https://unstats.un.org/bigdata/events/2022/hackathon/**

3. Join the **mailing list** to hear about the upcoming webinars, registration deadline & logistics: **https://input.un.org/EFM/se/3995D1A46342E490**

Q&A

Do you have additional questions?

un-big-data-hackathon@unmgcy.org

Follow us on:


@unbigdatahackathon


@unbigdatahack


@unbigdatahackathon