STATISTICS INDONESIA

Data Innovation for SDGs Monitoring in Indonesia

Setia Pramana
Associate Professor, Politeknik Statistika STIS, and
Directorate of Analysis and Statistical Development,
BPS-Statistics Indonesia

International Workshop on the Monitoring of the Sustainable Development Goals
UN Statistics Division

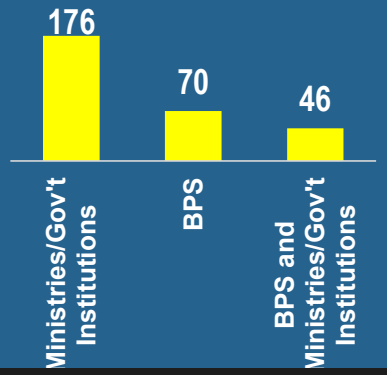
12-13 January 2022

Challenges in SDGs Data Provision for SDGs Monev

Data Sources for SDGs Monitoring in Indonesia (289 Indicators)

- **BPS Statistics Indonesia**
  - Survei/ Census
- **Ministries/Government Institutions**
  - Administrative data / lab measurement

292 indicators (global and proxy indicators) for Monitoring SDGs in Indonesia by Custodian



At national level, about 212 SDGs indicators are already available

Note:
BPS has been able to produce 50 SDGs global indicators, out of 99 global indicator should be produced based on Metadata (Second Edition)

Strategies for Filling Data Gap to Support SDGs Implementation

- Optimizing the available survey activities in BPS-Stistics Indonesia and looking for new data sources (e.g. **Big Data**)
- Implementing ***small area estimation (SAE)*** method to produce SDGs indicators at lower level of administrative area (to support the implementation of SDGs regional action plan)
- Strengthening the implementation of Indonesia One Data policy (**Satu Data Indonesia)** to push line ministries/government institution responsible for provuiding data for certain SDGs indicators according to agreed SDGs indicators metadata

Big Data Initiatives and Developments in BPS

Web-crawling

Marketplace	*E-commerce Data*
Flight Tracker, bus booking site	Transportation analytics
Job Vacancy Site	Labor analysis
Online booking site and review	Room occupancy rate, Number of tourists, et
Air Quality, weather reporting site	Enviromental and disaster statistics
Mobil123, rumah 123	Property and vehicles statistics
Online news and social media	Current fenomena, citizen sensing
Google Map	Infrastructures and people activities
IDx	Company financial report, Stock index

Google and Facebook mobility index

People mobility

Satelite Imagery

Economic activities, Agriculture statistics Poverty mapping

FB Relative Wealth Index

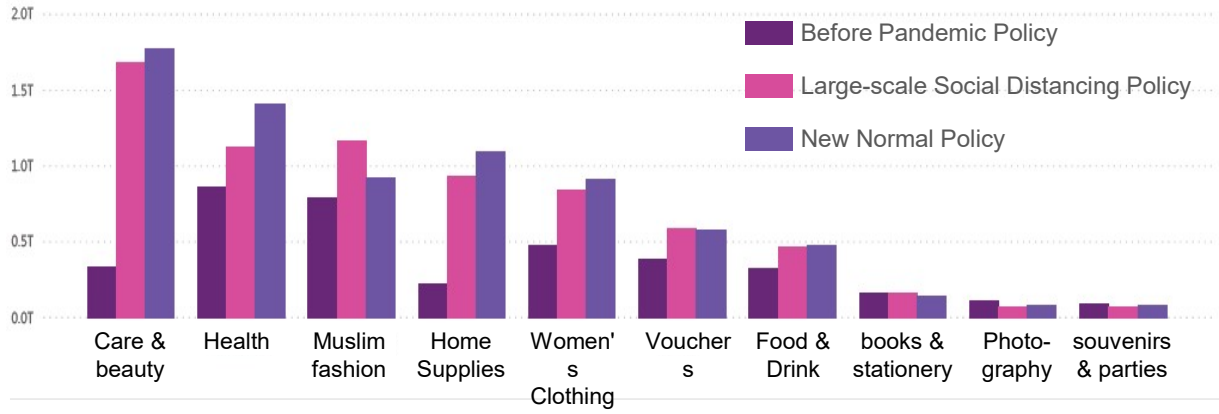
Economic activities
Poverty mapping

Mobile Positioning Data

Tourism statistics, Metropolitan Statistics Area

Digital Economy

Marketplace Data: Demand Shifting by Product Category in the Online Marketplace



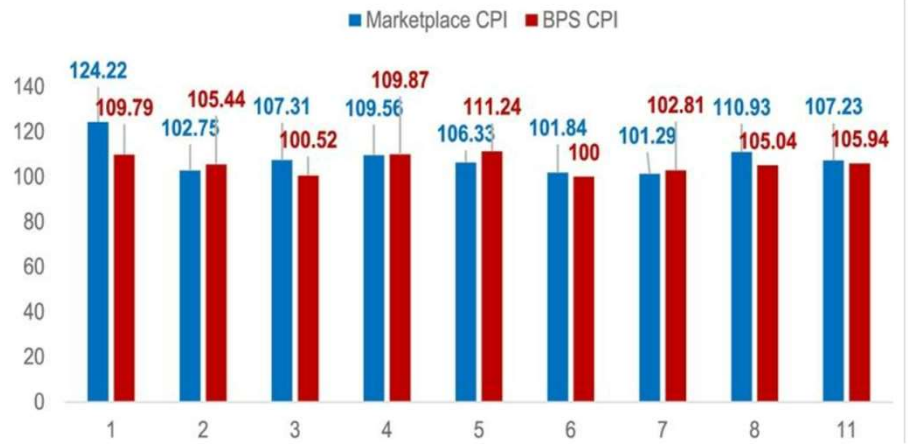
In general, there has been an increase in online shopping activities after large-scale social distancing policy implementation. The care and beauty product experienced the highest increase

Source: Marketplace Website in Indonesia
https://ieeexplore.ieee.org/abstract/document/9271717/

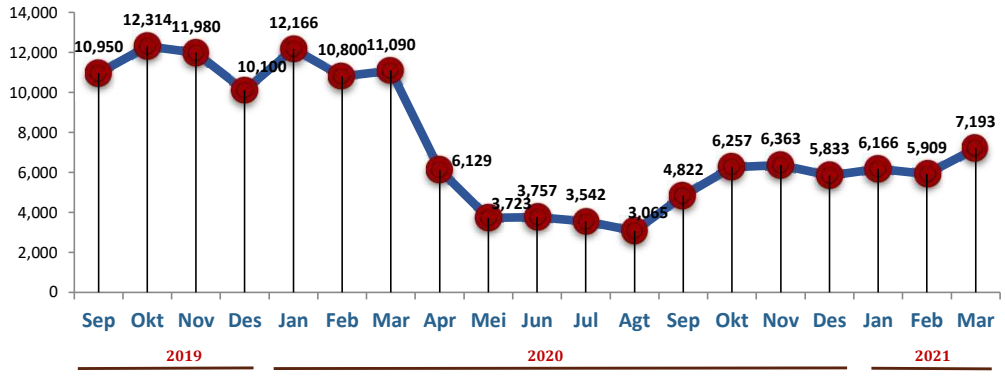
Consumer Price Index: Official and Marketplace Based CPI

The patterns of Consumer Price Index (CPI) from official statistics and marketplace based are similar

https://content.iospress.com/articles/data-science/ds210037

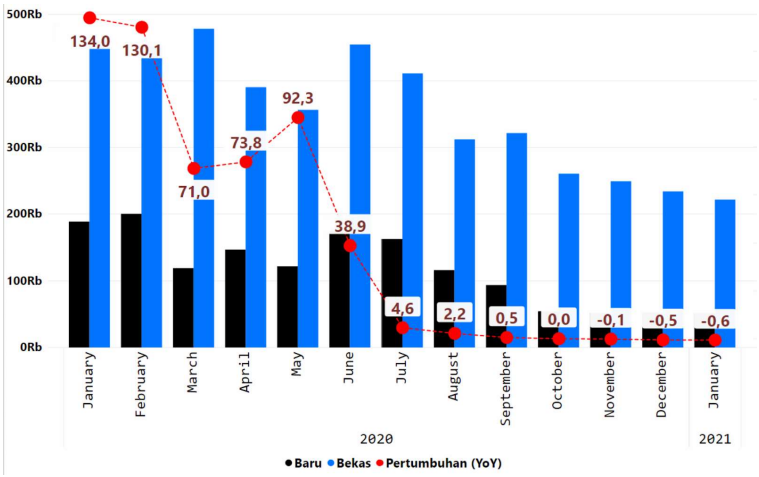


Job vacancy: Number of Job Vacancies, September 2019 - August 2020

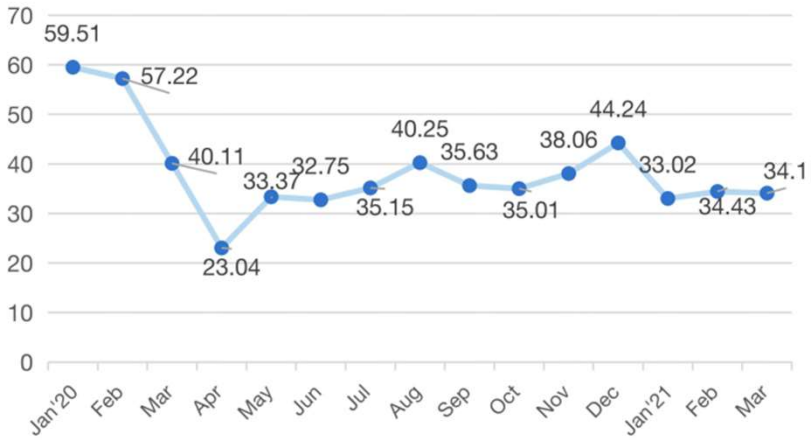


Source: Jobs Advertisement Website

Housing Statistics: Number of Properties sold

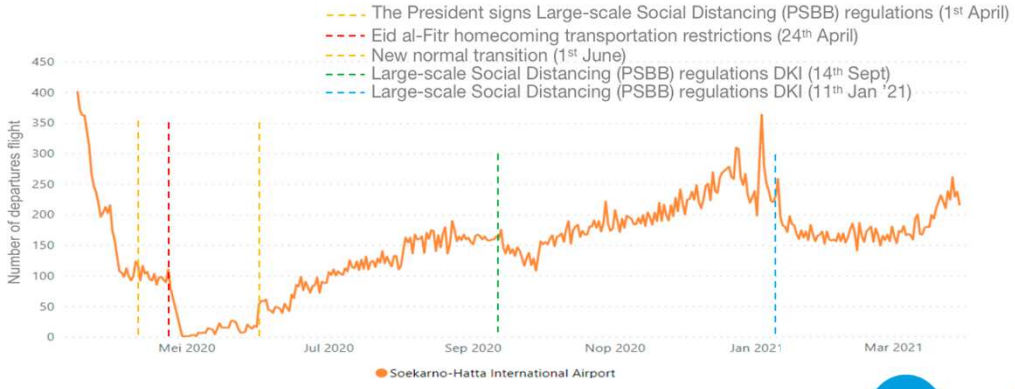


Online Booking: Room Occupancy Rate



Source : online booking site
http://informationr.net/ir/25-4/paper885.html

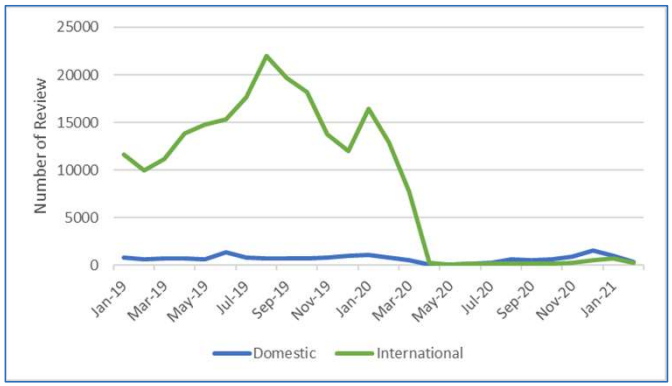
Flight Tracker: Number of Flights



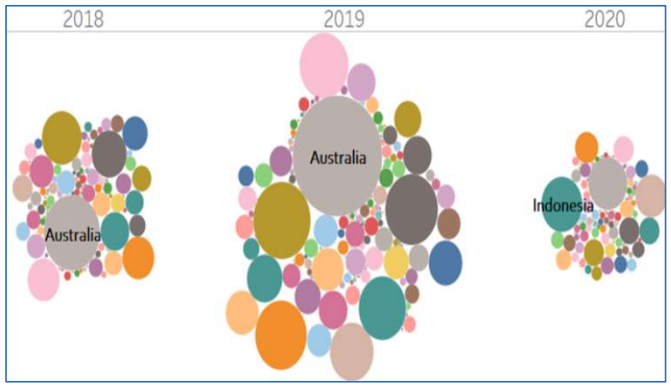
Source : flight tracker
https://iopscience.iop.org/article/10.1088/1742-6596/1863/1/012020/meta

Using Reviews of TripAdvisor and Booking.com to measure the impact of pandemic in Tourism Industries

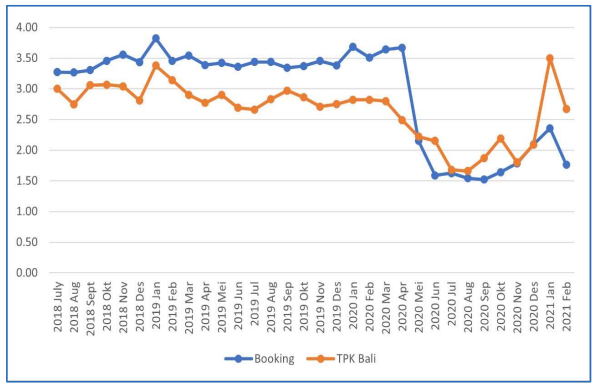
Number of Reviews on Bali



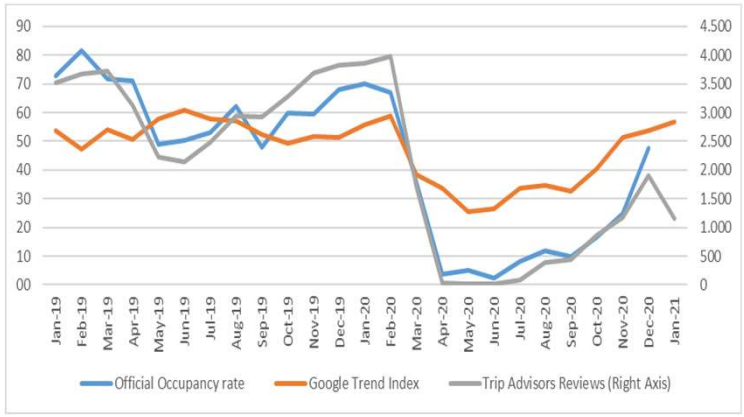
Origin of Reviewers in Bali



Length of stays in Bali



ROR, Google Trend, TripAdvisor Reviews in Bali



Number of Int'l tourist, official and booking.com

Pramana, et 2021, https://bit.ly/2YhwPRn

Mobile Positioning Data (MPD) Use in BPS-Statistics Indonesia

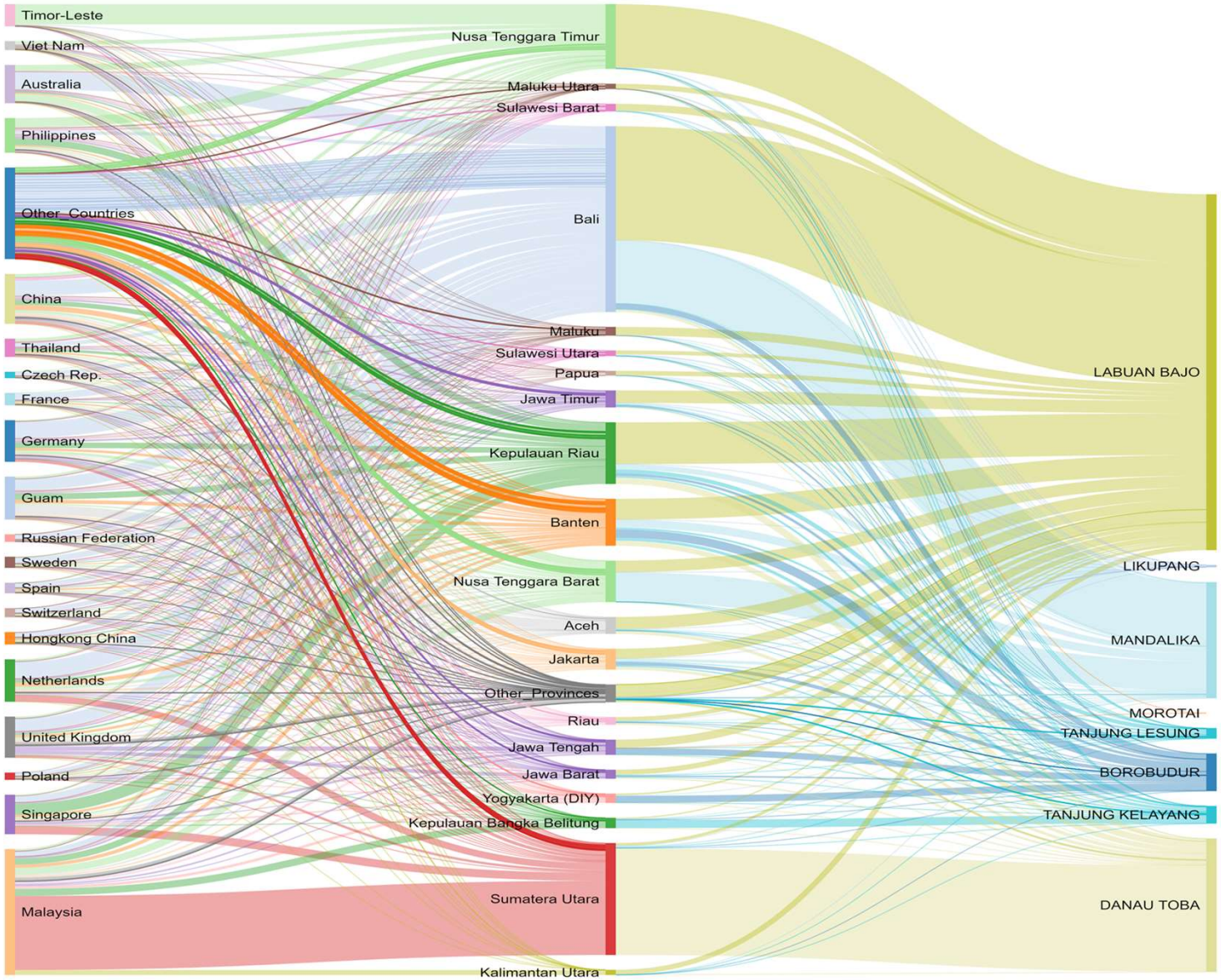
Since 2018 ***BPS has had MoU and Contract with MNO (Telkom)*** *regarding the use of Mobile Positioning Data for official statistics, e.g., Domestic & Outbound Tourism Statistics.*

At the beginning, the MPD processing have implemented a hashing procedure to ***guarantee the anonymity of the subscribers identification****.*

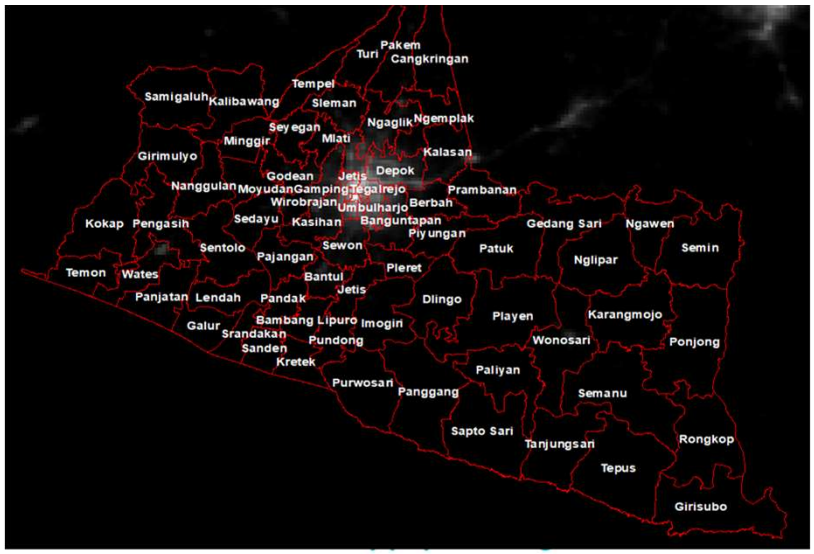
The data of MPD ***is only the BTS location*** *(longitude and latitude), time, and sources (signaling or CDR) which is not the actual location of every subscribers*

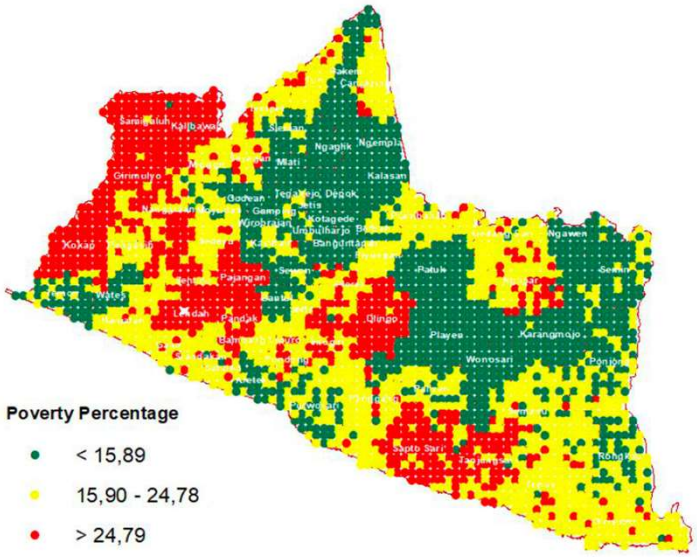
The applications of the MPD data are for the needs of ***International Visitors, Domestic Tourists, and Mobility between regions*** *statistics.*

Countries, Entry points, Destinations

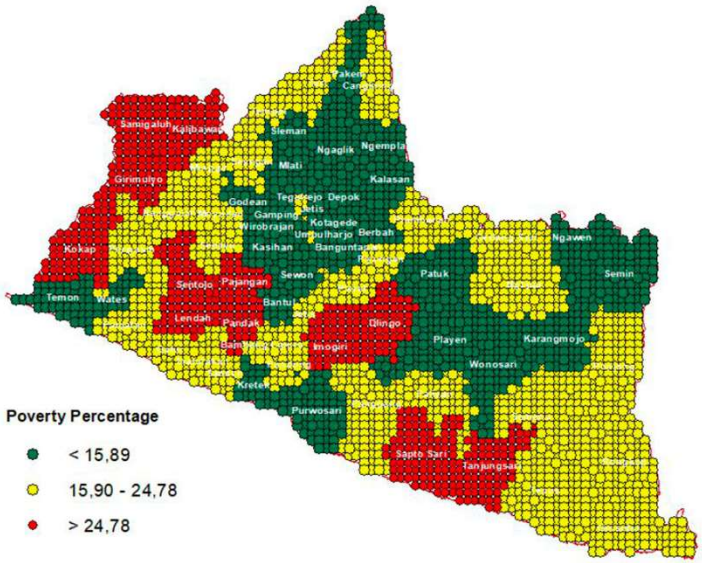


Nighttime Light for Poverty Mapping

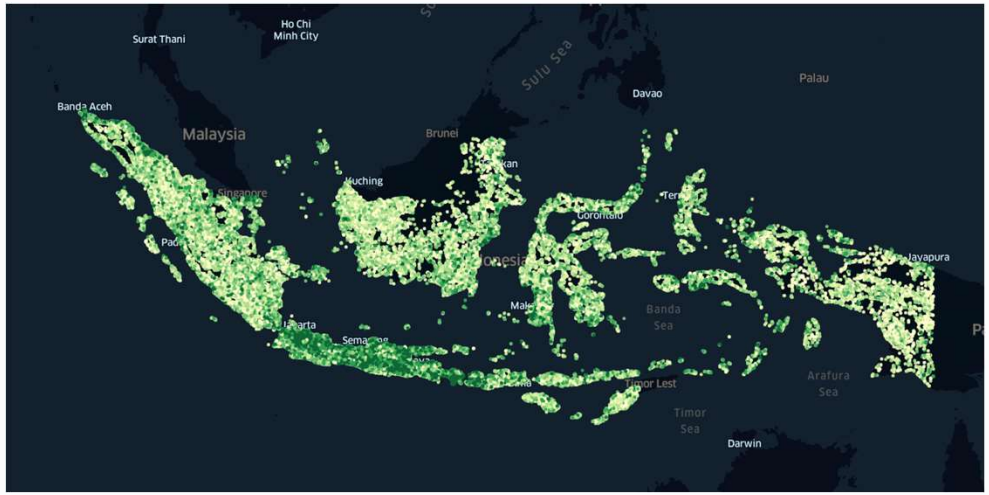


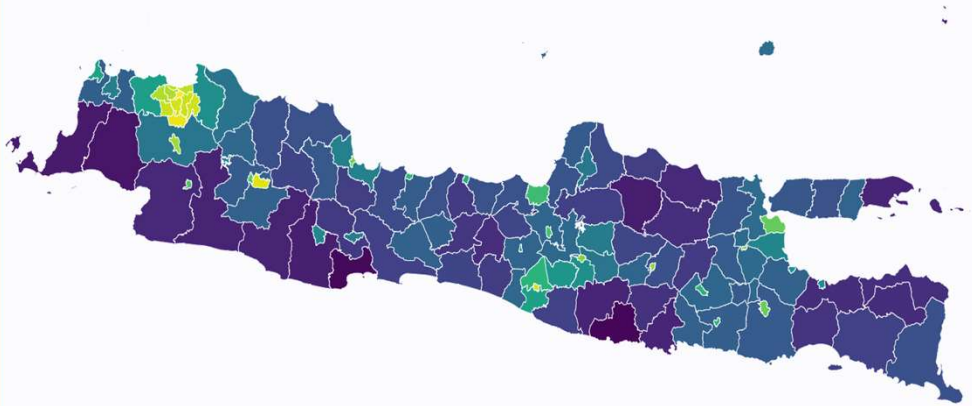


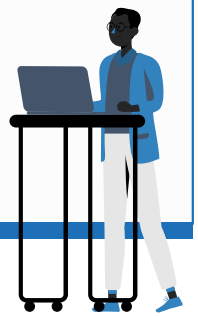
Distribution poverty percentage by PBDT 2015



Facebook Relative Wealth Index for Poverty Mapping in Indonesia







Area Sample Framework

Data inputs:
- Topographic map
- Administrative map
- PADDY FIELD MAP
- Land cover map

Stratification of the paddy field into four distinct categories: non-paddy, irrigated paddy, non-irrigted paddy, dryland

Construction of Grids/block and Sub Grids/segments: (6 km x 6 km) and (300 m x 300 m)

Construction of Sampling Model/sample segment extraction (Systematic Random Sampling)

Replication of the sampling model to all grids

Overlay stratification and replication results

Segment Selection

Assigning of Attribute: ID, admin, etc.

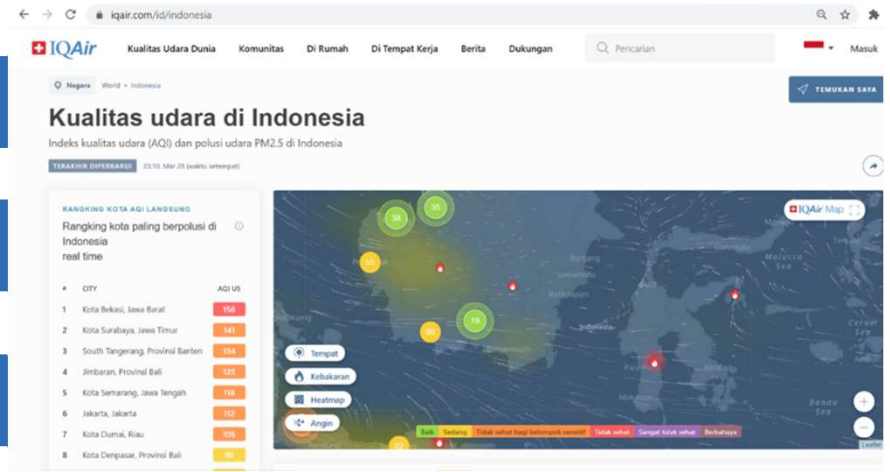
Selected Segment

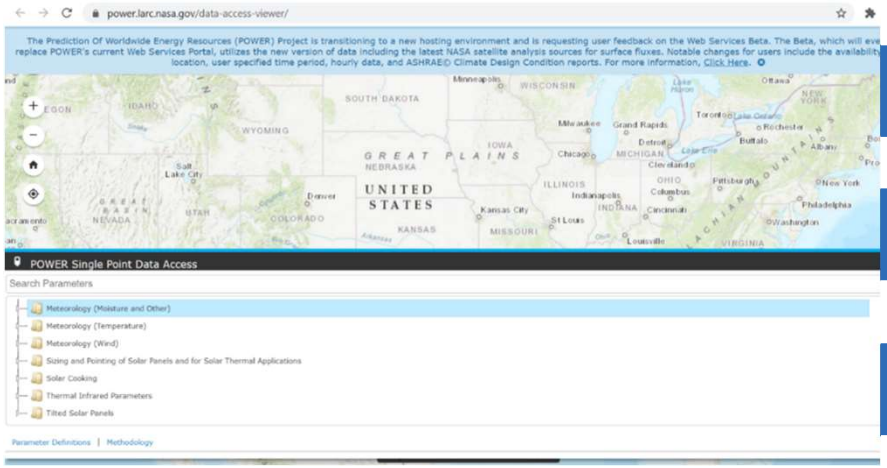
Segment location maps

Environmental Related Data

IQair.com

Variables : 1. Air Quality Index (AQI)
2. Air temperature
3. Air pressure
4. Wind speed
5. Humidity

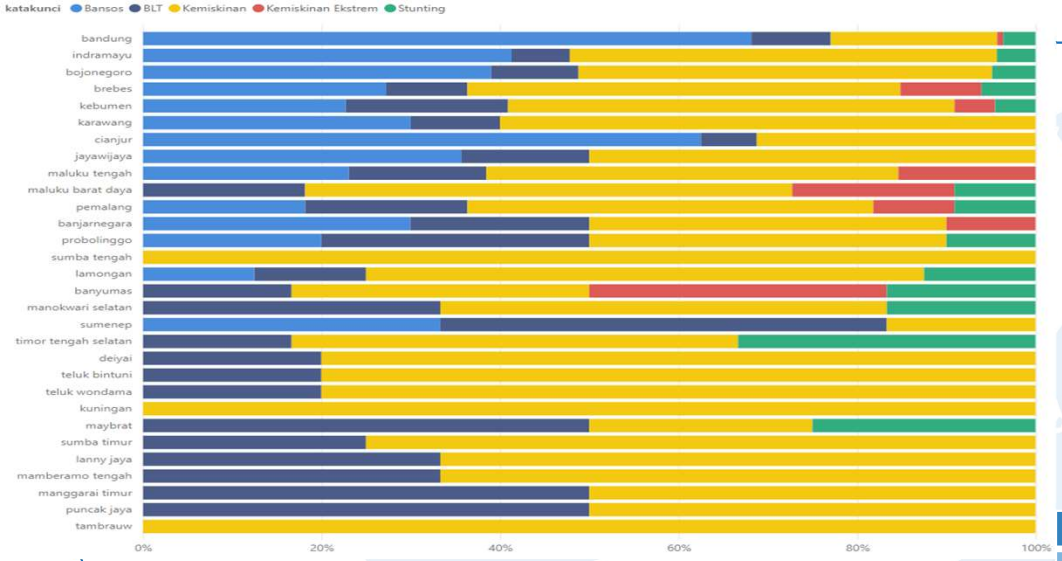




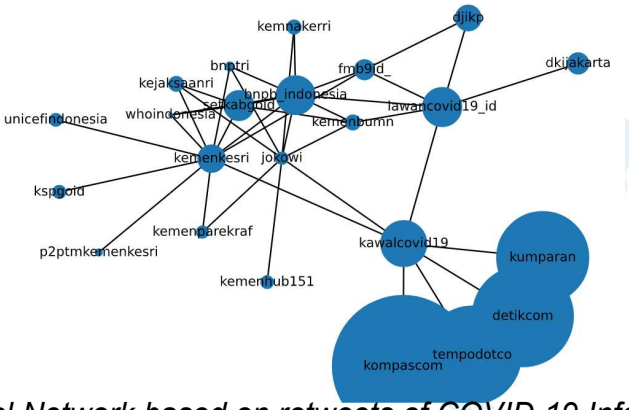
power.larc.nasa.gov

Variabel : 1. Rainfall
2. Temperature
3. Humidity
4. Wind speed
5. Surface pressure
6. The temperature of the earth's crust

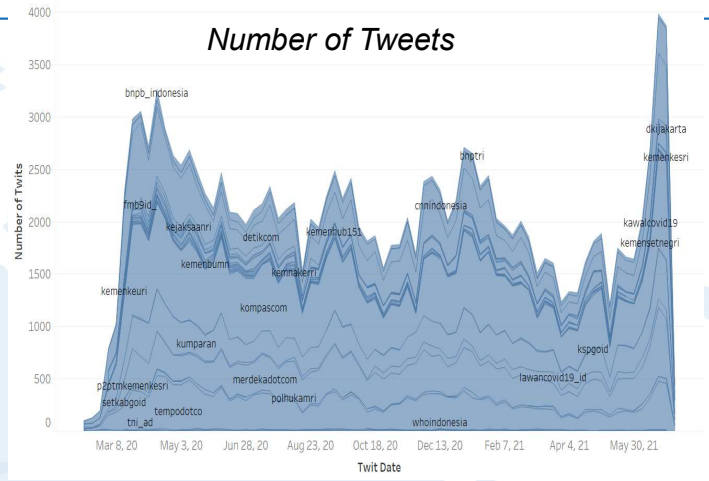
Social Media and Online News for Covid-19 Government Response



Discussion about government social aid, poverty and stunting



Social Network based on retweets of COVID-19 Information



Sinovac		Astra Zeneca		Moderna	
Word	**Total**	**Word**	**Total**	**Word**	**Total**
Sleepy	181	Fever	166	Fever	46
Sore	144	Sore	118	Pain	34
Hungry	106	Dizzy	67	Sore	33
Fever	66	Pain	53	Kipi	30
Dizzy	42	Feverish	47	Painful	26
Safe	36	Sleepy	43	Dizzy	18
Sick	34	Hungry	39	Steady	18
Heavy	34	Painful	39	Safe	18
Critical	27	Afraid	34	Thermal	15
Weak	27	Safe	28	Feverish	12

Vaccine Side effect based on Tweets

http://commdis.telkomuniversity.ac.id/jdsa/index.php/jdsa/article/view/73

CHALLENGES USING BIG DATA

DATA ACQUISITION

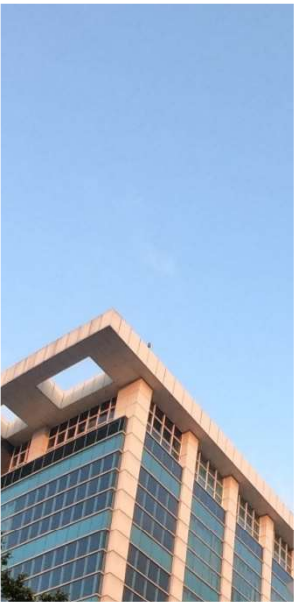
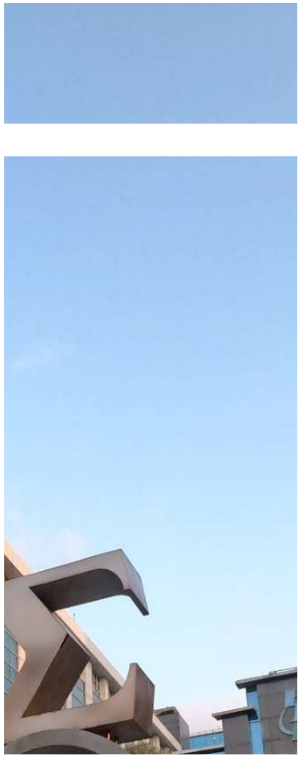
STATISTICAL METHODOLOGY

DATA SOURCE QUALITY

PRIVACY AND DATA PROTECTION

REGULATION ON NATIONAL STATISTICAL SYSTEM

STATISTICS INDONESIA

Thank You

Setia Pramana
Assoc. Professor Politeknik Statistika STIS,
Coordinator for Statistical Model Development
BPS-Statistics Indonesia
setia.pramana@stis.ac.id