



Implementation of Data Science at BPS Business Process Pipeline: case studies

The International Symposium on AI and Data
Science for Economic Statistics

How Digital Evolution Impacts Economic Decision-Making

Dubai, 20-22 January 2025



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Setia Pramana

Regional Hub on Big Data and Data Science
for Asia and The Pacific








Big Data Utilization in BPS Statistics Indonesia



Regional Hub
On Big Data and
Data Science
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Officials Statistics

1. MPD (Mobile Positioning Data)

- Domestic Tourism 
- Outbound Tourism *(*combined with Immigration data)* 
- Inbound Tourism *(*combined with Immigration data)* 

 Automation process applied

Studies or Complementary Data

1. MPD (Mobile Positioning Data)

- People Migration
- Commuter
- Transportation Mode
- Event Analysis


2. Satellite Imagery

- Poverty Mapping
- Mix Method for Agricultural Data

3. AIS (Automatic Identification System)

- Vessel Movement Analysis

4. Web Scraping

- Price Statistics (online marketplace) 
- Phenomenon (online news)

Automation of Tourism Statistics data processing

Immigration Data

Director General of
Immigration Database



private webservice (api)

BPS Statistics
Database



Monthly Report



Dashboard

Data Cleaning
and Preprocessing



Mobile Positioning Data

MNOs' Internal Environment



Google
Big Query



Monthly Report



Dashboard

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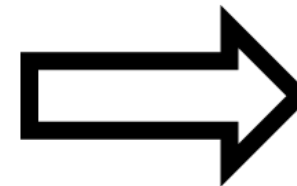


Automation of Web Scraping data acquisition

Web Scraping Data



BPS Statistics
Database



Complementary Data

Automation Advantages

1. Increased Efficiency

- Automated Data Collection
- Scheduled Automation

2. Data Consistency and Accuracy

- Automated Data Cleansing
- Error Reduction

3. Secure Data Handling

- Confidentiality Management
- Controlled Access

4. Scalability and Flexibility

- Adaptability to New Data Sources
- Adjustable Frequencies

5. Reduced Manual Effort

- Minimizes Human Intervention
- Prevent Human Error
- Time Saving



Challenges

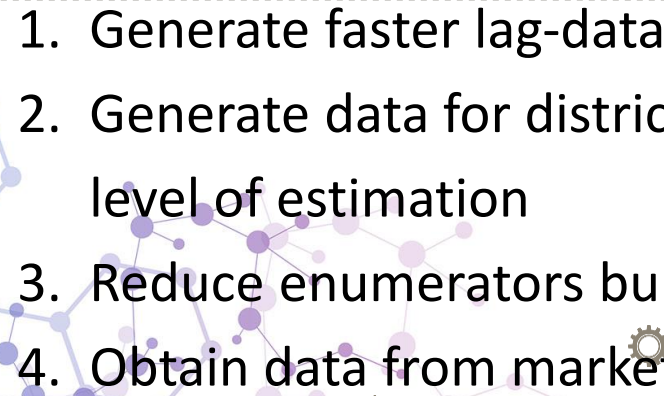
- **Learning Curve and Skill Requirements**
- **Complex Setup and Configuration**
- **Security and Privacy Concerns**
- **Maintenance and Monitoring**



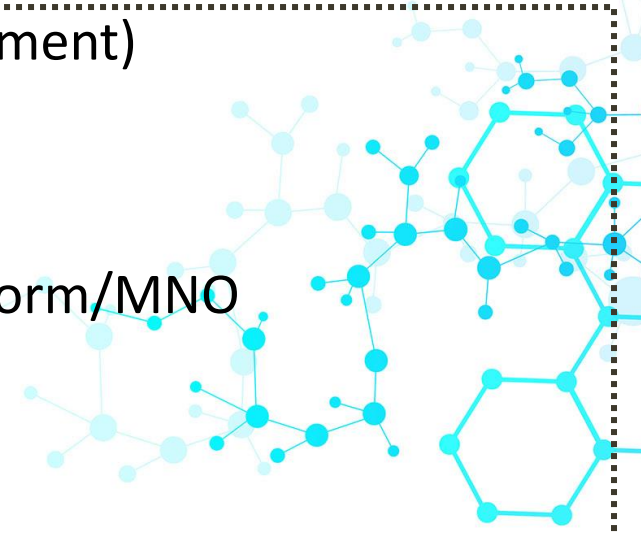


Big Data Utilization in BPS Statistics Indonesia

Advantages

- 
1. Generate faster lag-data
 2. Generate data for district/ municipalities level of estimation
 3. Reduce enumerators burden
 4. Obtain data from marketplace

Challenges

- 
1. Data Access (Procurement)
 2. Dependency
 3. Data Quality
 4. Coverage of the platform/MNO
 5. Legal Aspects

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thank you



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