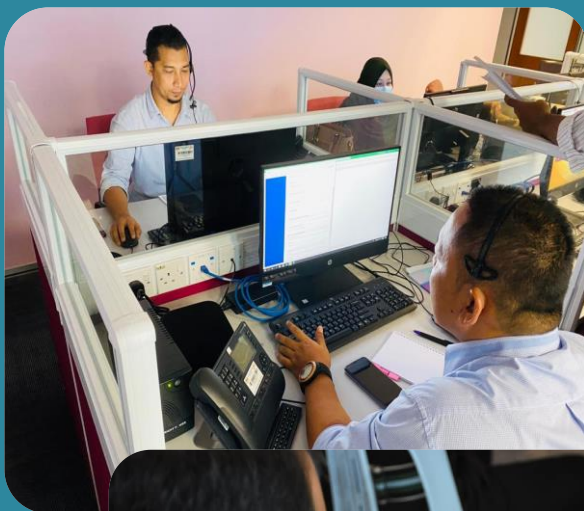




PRIME MINISTER'S DEPARTMENT
DEPARTMENT OF STATISTICS MALAYSIA

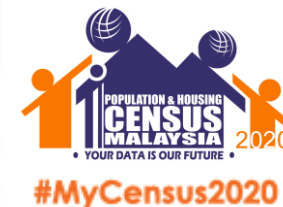


SESRIC WEBINAR SERIES ON STATISTICAL EXPERIENCE SHARING
6 JULY 2021

REMOTE DATA COLLECTION METHODS TO OVERCOME THE CHALLENGES FACED BY THE NSOs DURING THE COVID-19 PANDEMIC

PRESENTED BY:
MADAM MARLINI SAHUL HAMID
POPULATION AND DEMOGRAPHIC STATISTICS DIVISION
DEPARTMENT OF STATISTICS MALAYSIA

**BANDI
MALAYSIA**



Make Sure You're
COUNTED



**MYSTATS
DAY**

20 OCT



2016 - 2030



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@MyCensus2020



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01

OBJECTIVES

02

BACKGROUND OF DOSM AND INTRODUCTION

03

POPULATION AND HOUSING CENSUSES 2020

04

MODERNIZATION ON DOSM SURVEYS

05

PRICE INTELLIGENCE & EARTH OBSERVATION

06

ECONOMIC SURVEYS

07

SOCIAL SURVEYS

08

WAY FORWARD

1. OBJECTIVES



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1. To share **Malaysia's** experiences in using remote data collection methods during the COVID-19 pandemic; and
2. Implementing remote data collection in Survey and Census methods to bridge the data gaps created by the pandemic such as:
 - Online Surveys;
 - Price Intelligence & Earth Observation; and
 - Administrative data.

2. INTRODUCTION



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BACKGROUND OF DEPARTMENT OF STATISTICS MALAYSIA (DOSM)



LEGISLATION

In 1965, the Bureau
of Statistics
changed its name to
the Department of
Statistics Malaysia
(under Prime
Minister's
Department)

On 10 March 2020, the
Department of
Statistics Malaysia is
under the purview of
Prime Minister's
Department
(Economy)

1949

1965

2018

2020

Established in
1949 under the
Statistics Act
1949 known as
the Bureau of
Statistics

Department Of
Statistics
Malaysia under
the Ministry of
Economic
Affairs



LAWS OF MALAYSIA

Act 415

STATISTICS ACT 1965

(REVISED-1989)

Under the **Statistics Act 1965** (Revised
- 1989), the functions of DOSM
[Section 2] are:

To collect and interpret statistics for
the purpose of formulation or
implementation of government
policies....

Statistics Act 1965
(Revised-1989)



LAWS OF MALAYSIA

REPRINT

Act 16

CENSUS ACT 1960

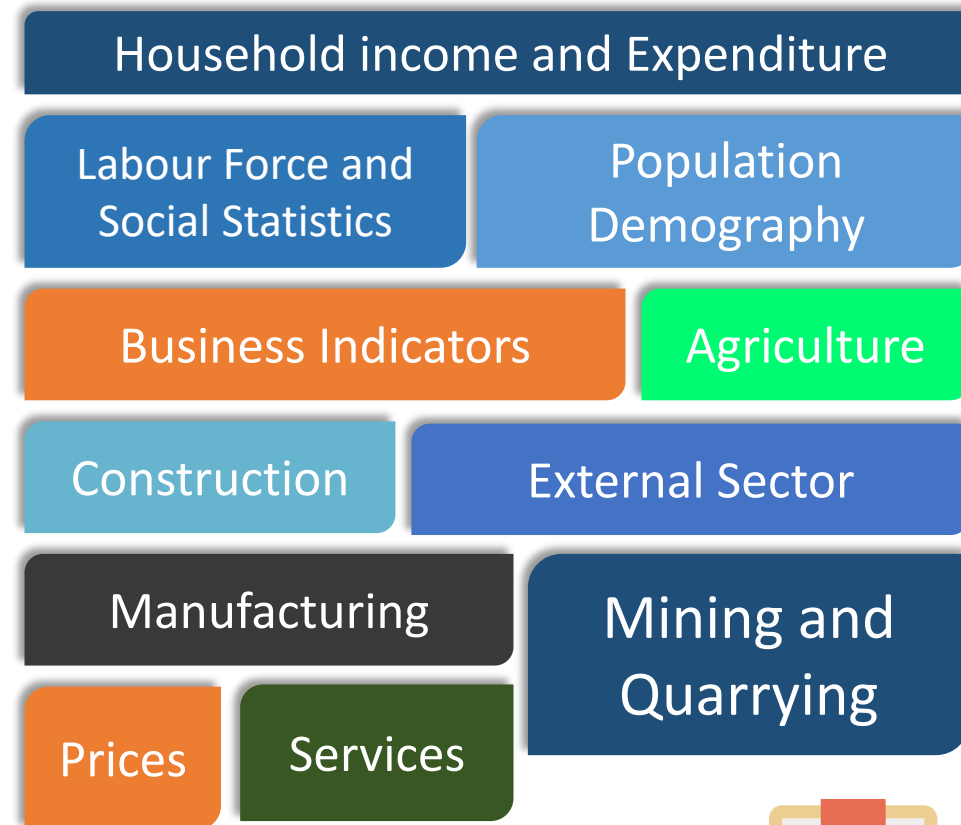
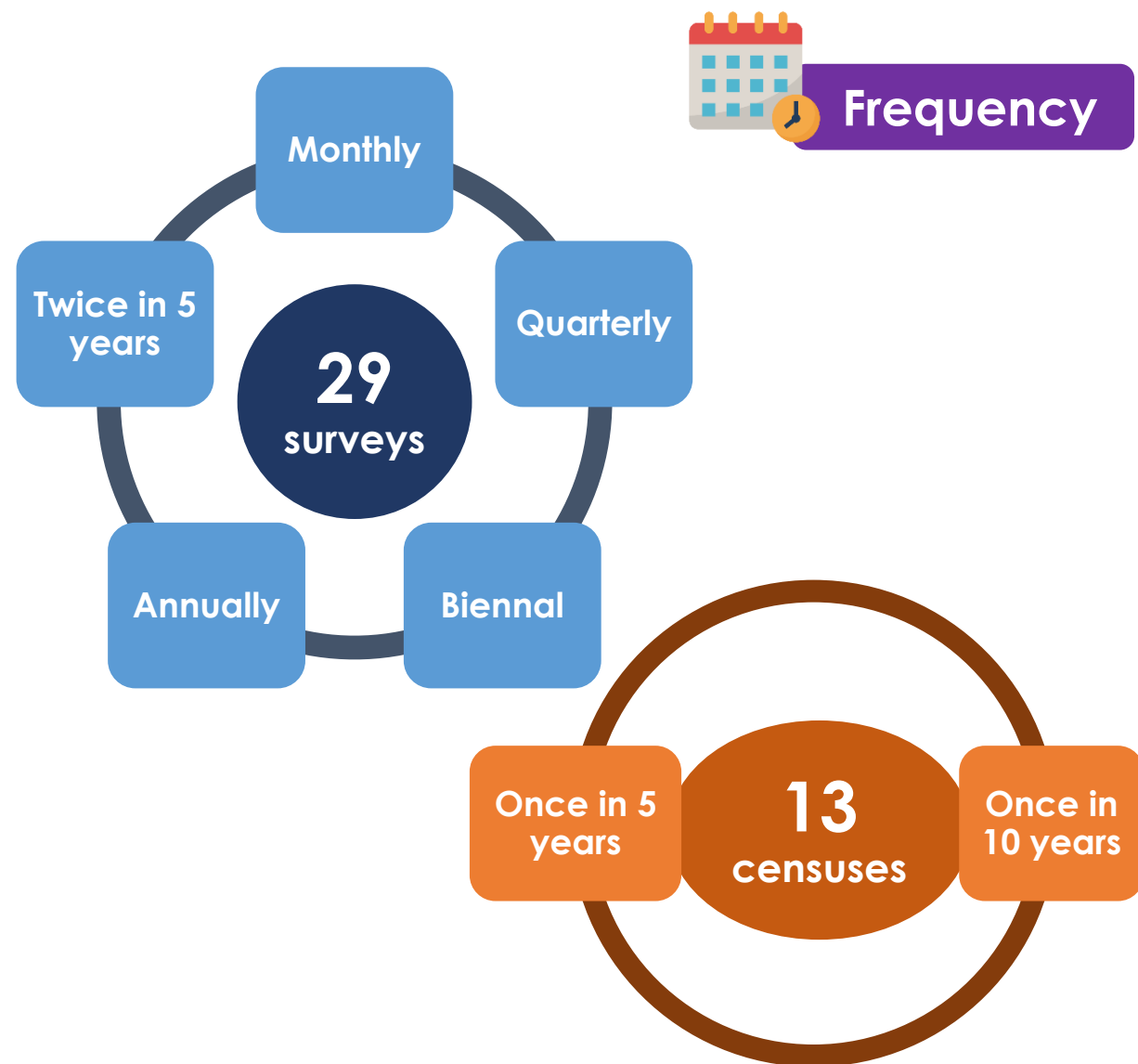
Incorporating all amendments up to 1
January 2006

Under Census Act 1960:

The Yang di-Pertuan Agong may, by
notification in the Gazette, from time
to time direct that a census to be taken
throughout Malaysia of the Population,
Agriculture, Trade, Labor, Industry,
Commerce....

Census Act 1960
(Revised-1969)

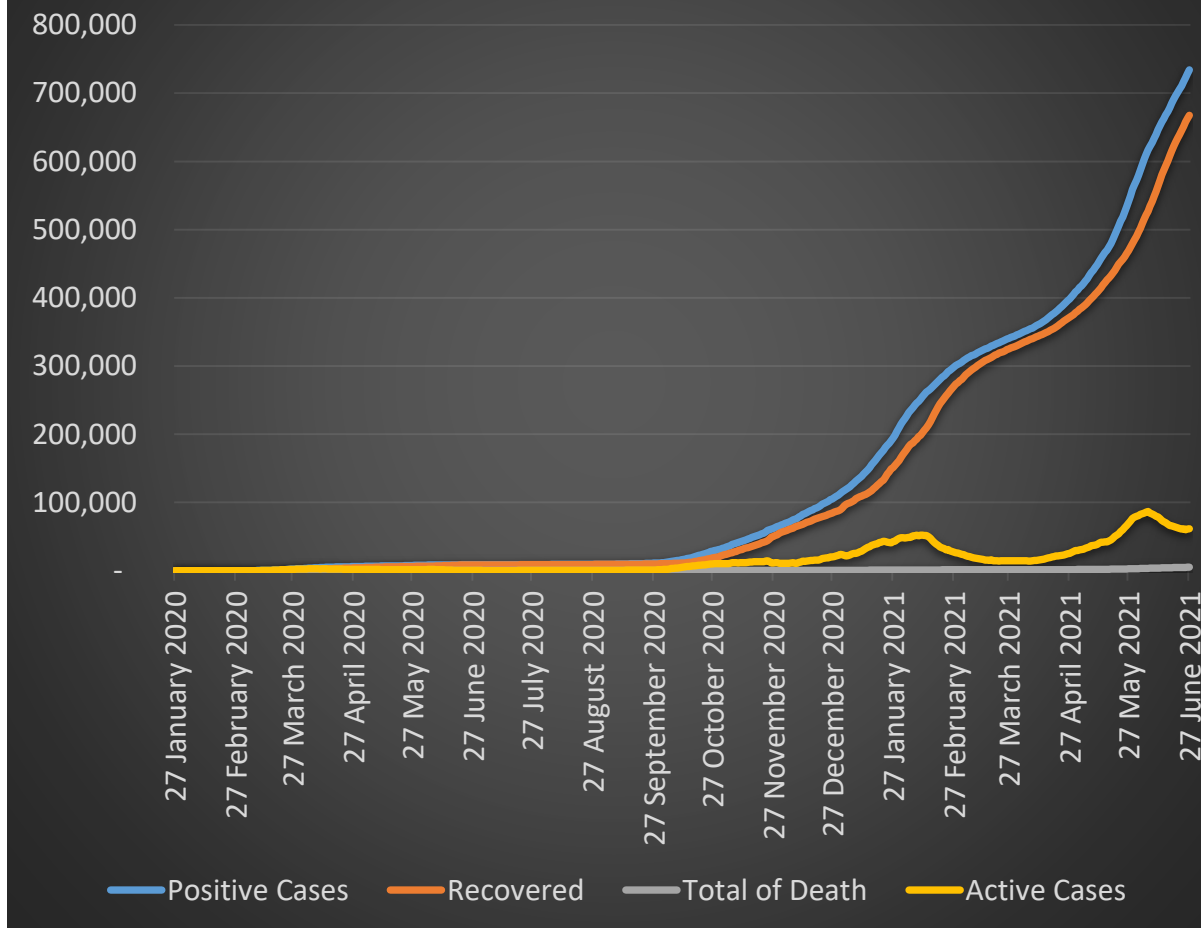
SURVEY AND CENSUS IN DOSM



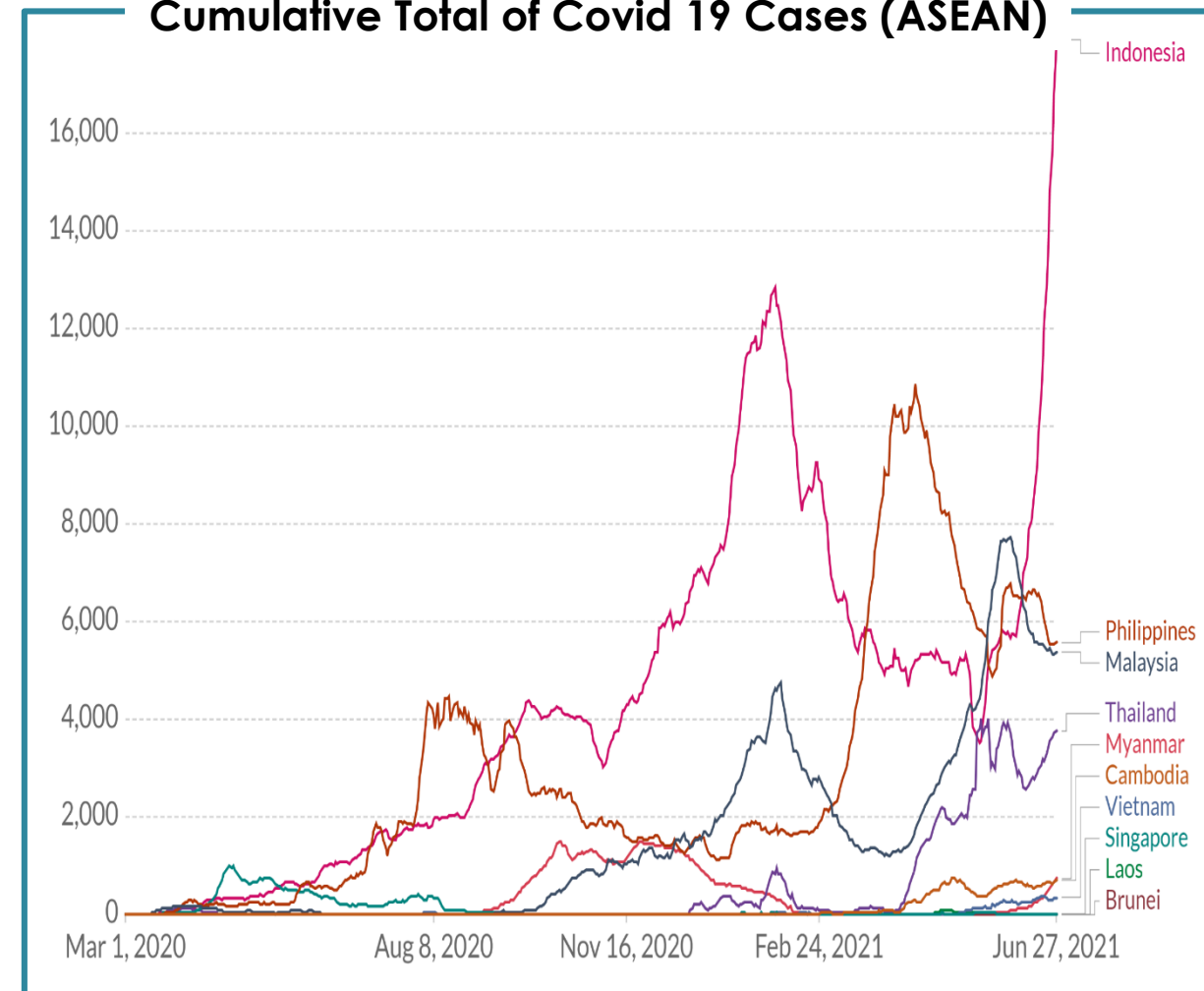


CUMULATIVE TOTAL OF COVID 19 CASES BY CATEGORY IN MALAYSIA AND ASEAN

Cumulative Total of COVID 19 Cases by Category in Malaysia

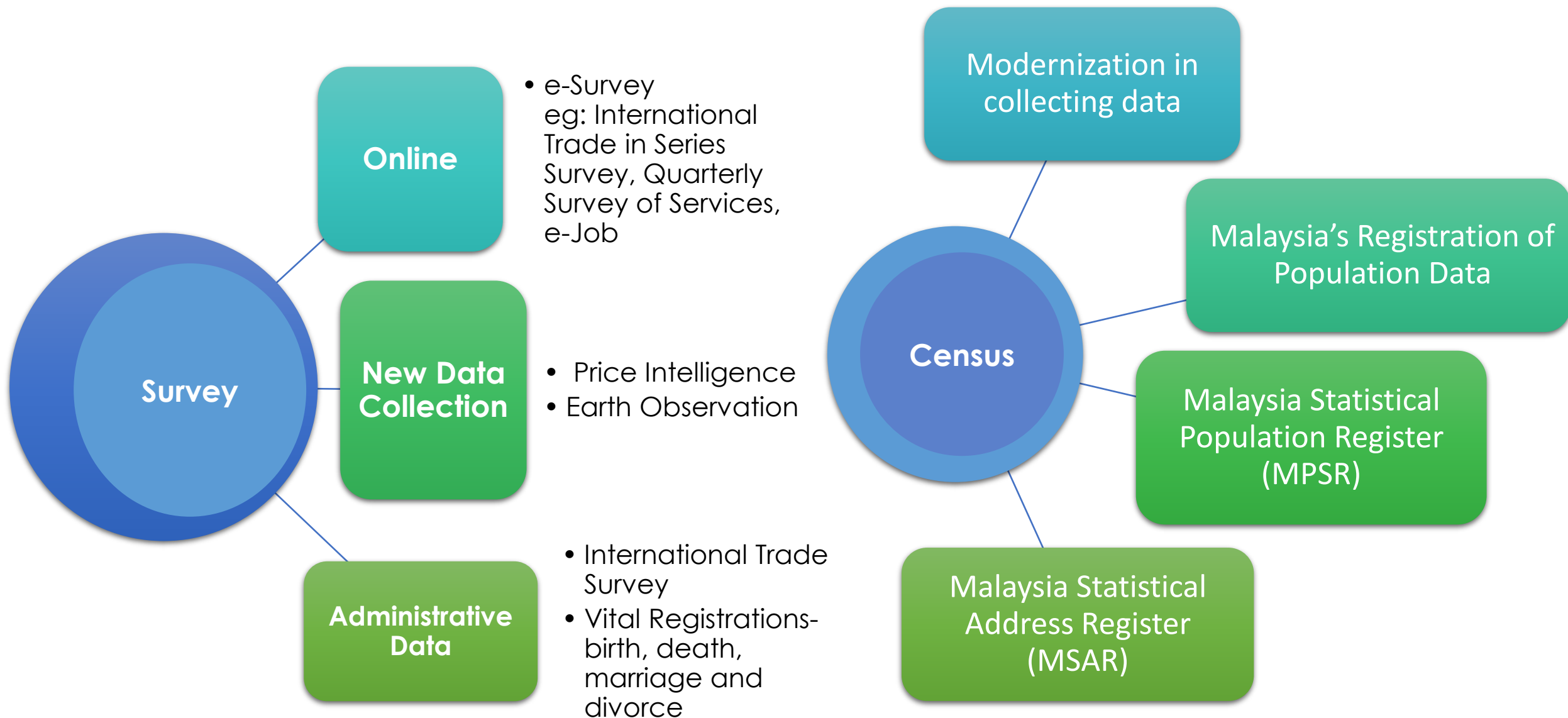


Cumulative Total of Covid 19 Cases (ASEAN)



Source: Johns Hopkin University CSSE COVID-19 Data

REMOTE DATA COLLECTION



3. POPULATION AND HOUSING CENSUSES 2020



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OBJECTIVES & MYCENSUS 2020 IN FIGURES

OBJECTIVES OF CENSUS

01

Collecting stocks & profiles of the country's population and housing

02

Input for national development planning including the distribution of per capita grants

03

As a basis for the Estimation and Projection of the Population and Living Quarters

04

As an input for new benchmark in the development or socio-economic indicators

MYCENSUS 2020

**32.7
million**
Populations

9.0 million
Living
Quarters

8.2 million
Households

160
Administrative
District

4.0 persons
Avg.
Household
size

1,107
Census District

99,356
Enumeration
Block

MAIN OUTCOME OF MYCENSUS 2020

NATIONAL AGENDA

INPUT FOR EVIDENCE-BASED DECISION MAKING

- **Population Policy**
National Older Persons Policy
- **Housing Policy**
National Housing Policy
- **Education Policy**
National Education Policy
- **Security Policy**
National Social Policy
- **Health Policy**
National Adolescent Health Policy
- **Financial Policy**
- **Fiscal Policy**
- **Budget Policy**

INPUT

- **Determination of Per Capita Grant**
- **Fundamental for the Constitutional Democracy Process**
- **Balance & Sustainability of Urban and Rural Development**

BENCHMARK

- **Measurement of Sustainable Development Goals (SDGs)**
 - 11 from 17 goals
 - 110 from 169 targets
- **Latest Benchmark & Achievement Assessment**
 - National Level
 - International level
- **Key Statistical Benchmark**
 - Poverty rate
 - Enrolment rate
 - Labour force participation rate
 - Unemployment rate
 - GDP per capita
 - Demographic indicators

NATIONAL STATISTICAL SYSTEM

- **Malaysia Statistical Address Register**
Scientific and efficient household sampling method
- **Malaysia Statistical Population Register** Census of population through updating of population information from time to time
- **Strengthening Information Technology Infrastructure and Computing**
Investment on Infrastructure and system modernization to enhance the production of national statistics
- As a database for implementation of the Agricultural Census

REVISION IN MYCENSUS 2020 SCHEDULE

12 July 2017

**Census Day
7 July 2020**

**e-Census
20 June - 9 July 2020**

**Face-to-face
7 - 24 July 2020**

4 June 2020

Rescheduling of MyCensus
2020 in two phases:

**First Phase
7 July - 30 Sept. 2020**

**Second Phase
(Face-to-face)
7 - 24 October 2020
(e-Census)**

5 October 2020

Rescheduling of the
MyCensus 2020:

**First Phase (e-Census)
7 July - 21 Dec. 2020**

**Second Phase
(Face-to-face)
20 Jan. - 6 Feb. 2021**

11 January 2021

Rescheduling of the
MyCensus 2020:

**First Phase (e-Census)
7 July 2020 - 30 June
2021**

**Face-to-face interview
Until 30 June 2021**

01

COVID-19 Pandemic

**Movement Control
Order (MCO)
effective from 18
March - 12 May 2020**

02

**Upsurge of COVID-19
cases**

Conditional MCO was
implemented in
selected states from 27
October to 6
December 2020

03

COVID-19 Pandemic

**Movement Control
Order (MCO) 2.0
effective from
11 Jan. - 14 April
2021**

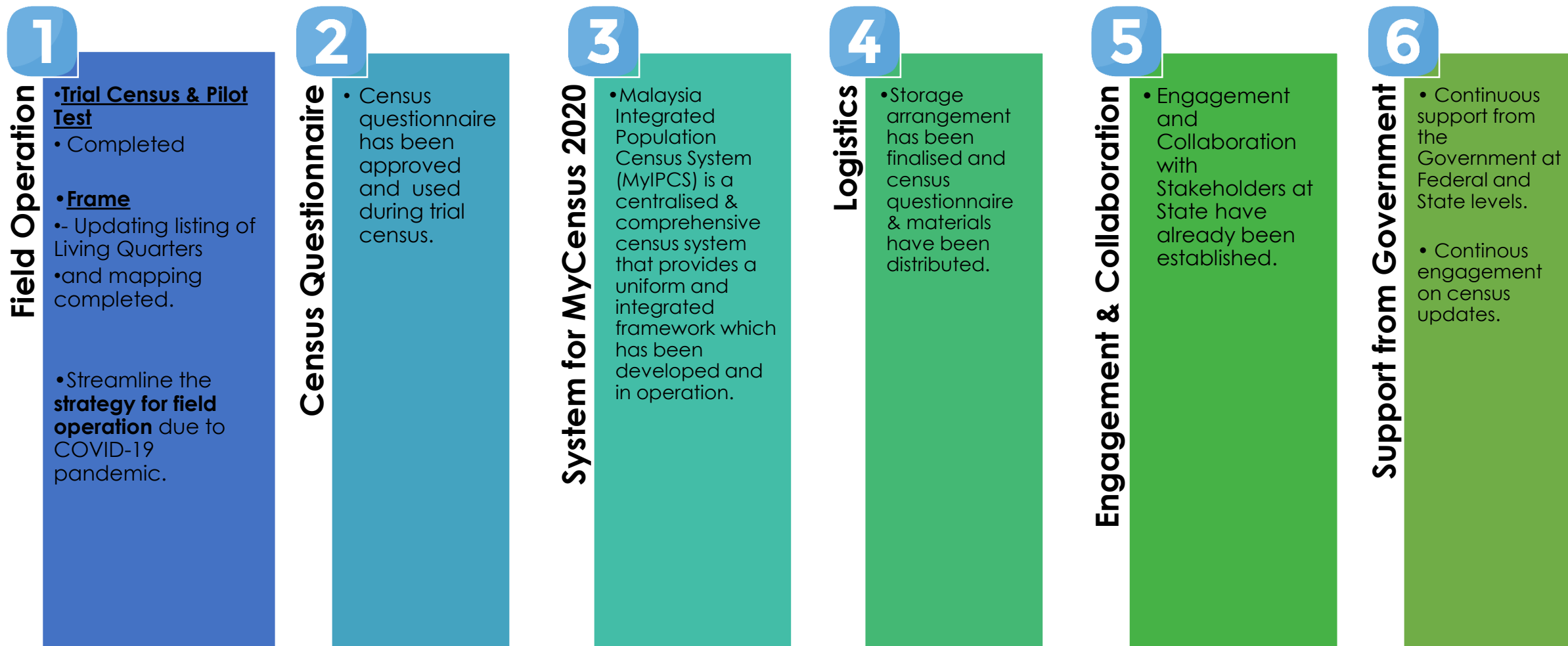
04

COVID-19 Pandemic

**MCO
12 Mei - 31 Mei 2021**

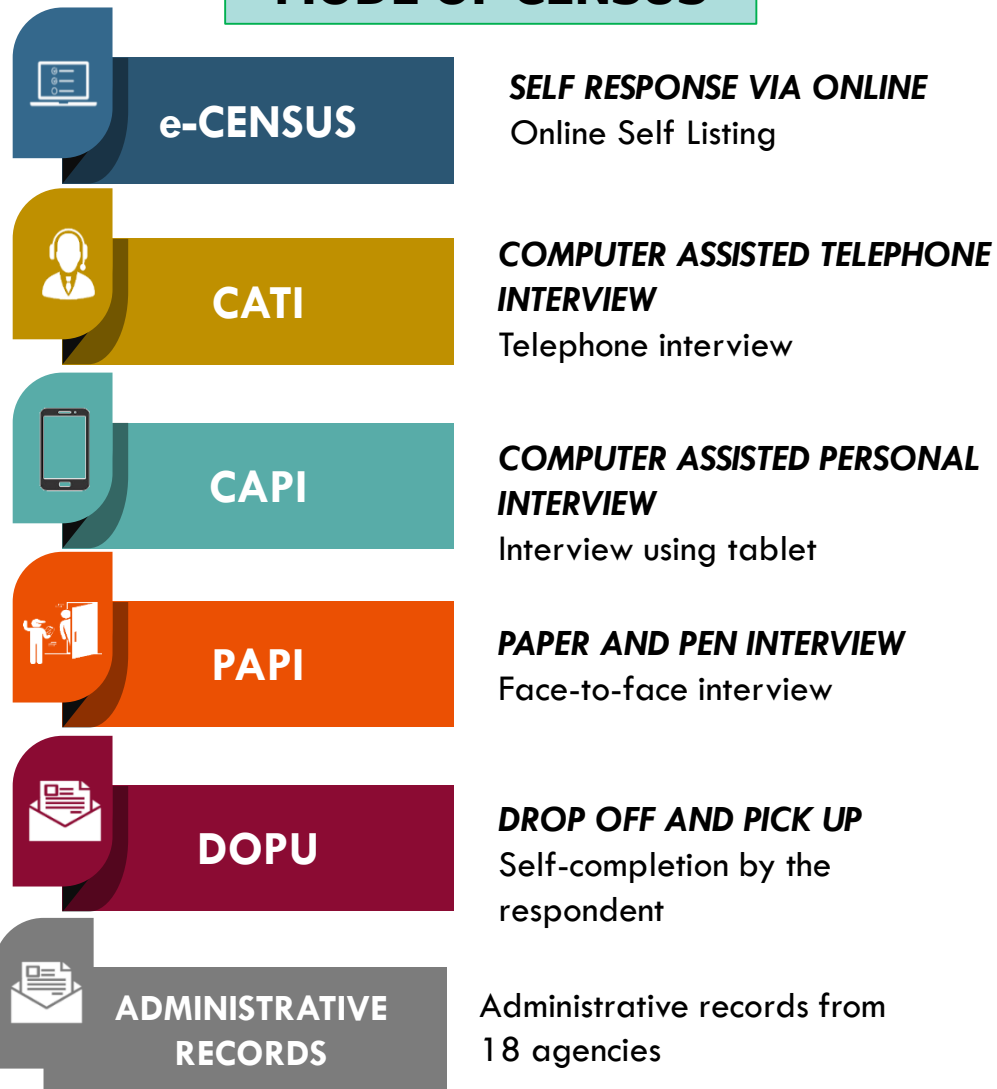
**Total Movement Control Order
(MCO) 3.0 effective from
1 Jun - 28 Jun 2021**

WHY MALAYSIA PROCEEDS WITH MyCENSUS 2020?

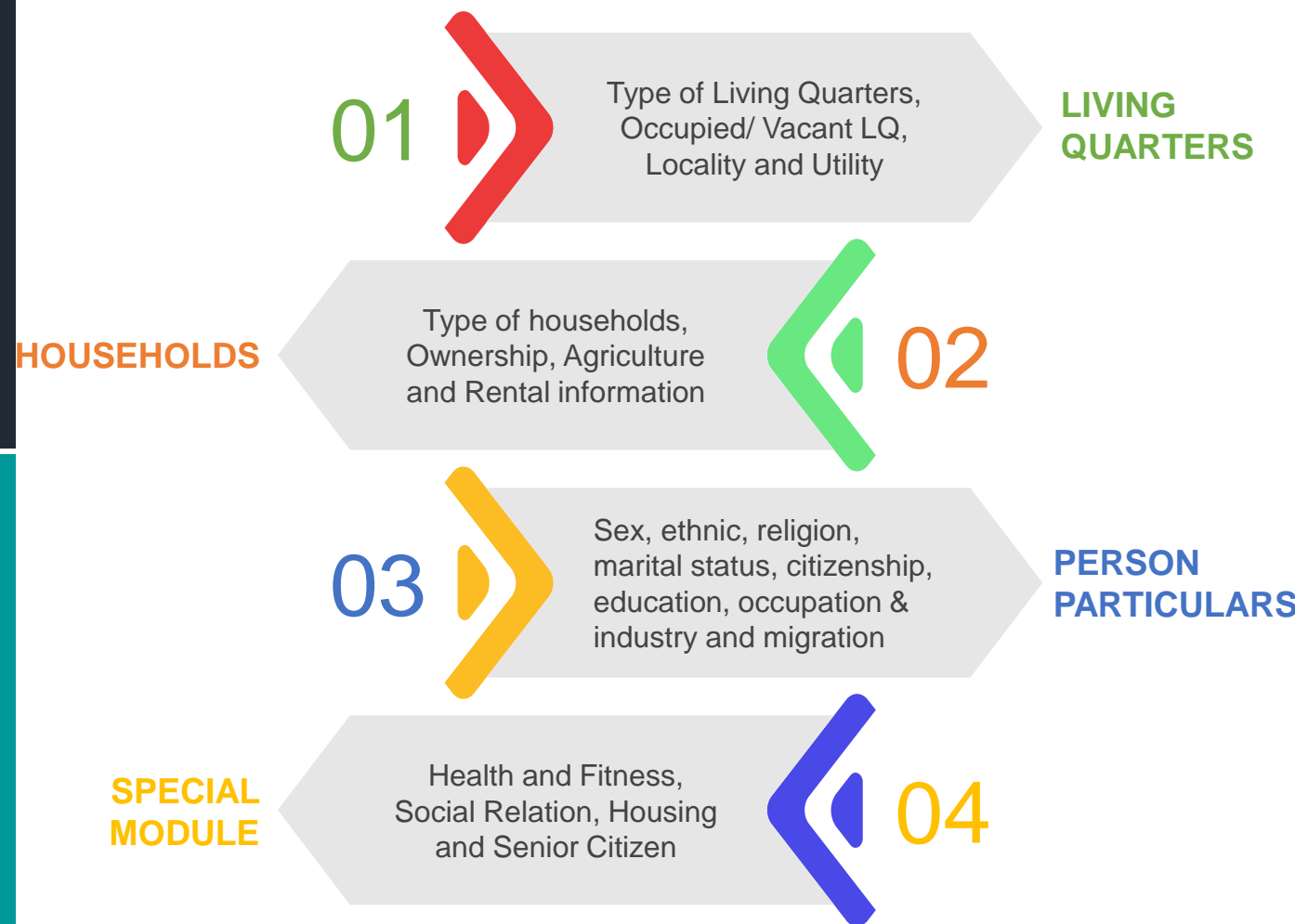


MODE OF CENSUS AND MAIN PARAMETERS

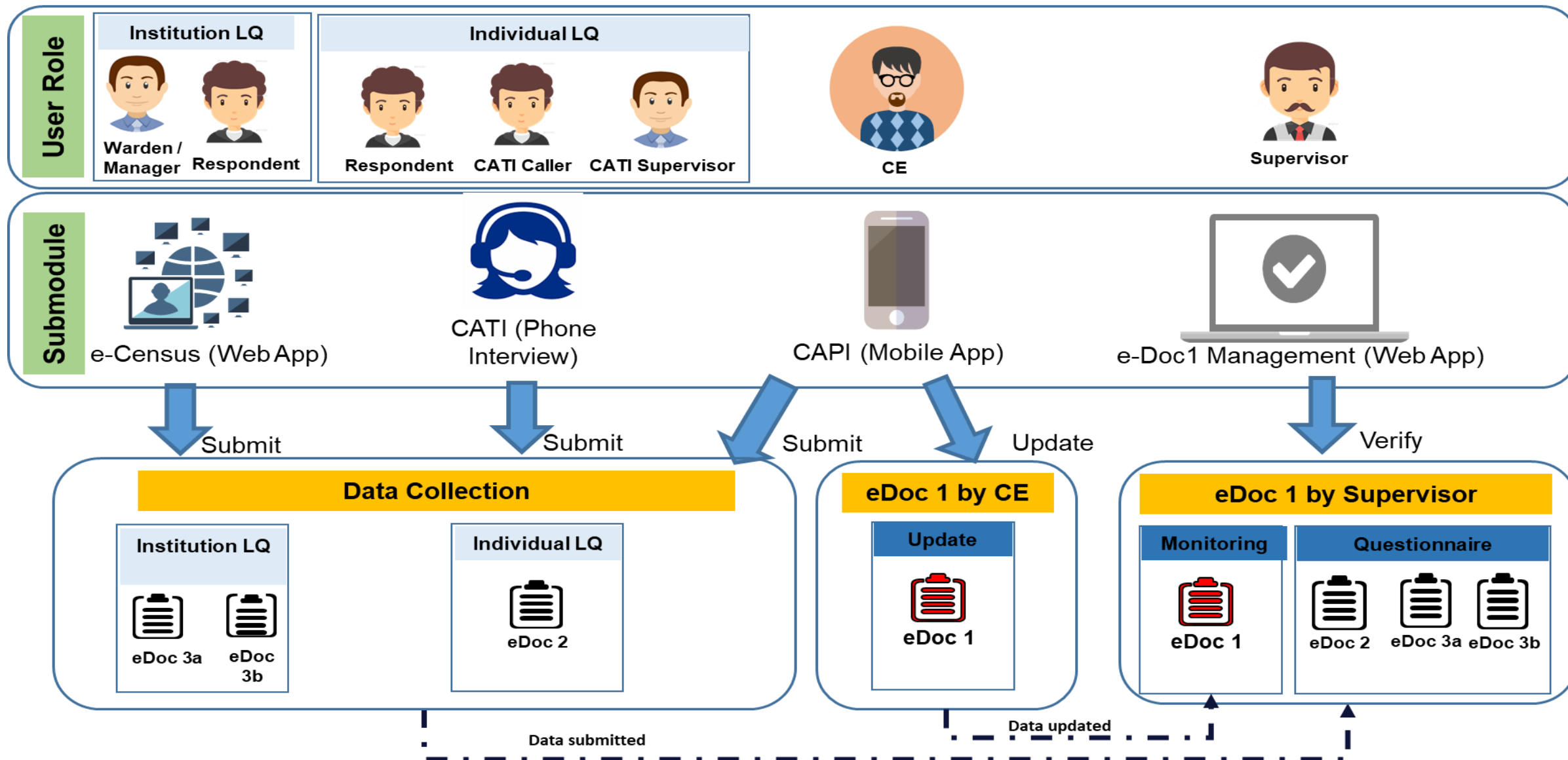
MODE OF CENSUS



MAIN PARAMETERS FROM CENSUS QUESTIONS



SYSTEM OVERVIEW

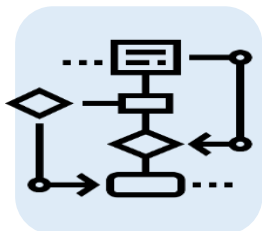


STRATEGY TO INCREASE RESPONSE RATE OF e-CENSUS DURING COVID-19 PANDEMIC

- ❖ Targeting the correct group of people. By selecting the right audience, census will get a higher response rate
- ❖ Encourage two-way conversation to build productive relationships with respondents.-Helpdesk and e-Census Clinic.
- ❖ Incentive or reward
- ❖ To make sure online survey is mobile-optimized so that your respondents won't get confused with the details and will be able answer the question
- ❖ Maximize social media



CRITICAL SUCCESS FACTOR -ONLINE SURVEY



Fully functional system



Information provided
are true and accurate



Good communication



e-Census completion
according to the
right process

Collaboration of e-Census filling by Civil Servants:

A total of 6.4 million (20%) of Malaysia's population data will be collected through the involvement of 1.6 million civil servants in filling out the e-Census

* Note: The average 1 HS has 4 HS

STRATEGY TO INCREASE RESPONSE RATE OF CATI DURING COVID-19 PANDEMIC

- ❖ Good frame
- ❖ Target living quarters and selected area
- ❖ Follow up with respondents
- ❖ Trained interviewer
- ❖ Maximize social media





MEDIA AND PUBLICATION



PRIME MINISTER'S DEPARTMENT
DEPARTMENT OF STATISTICS MALAYSIA

About **338**
news of Malaysia
Census 2020 have
been written by
various news
media

media
various news
been written by
Census 2020 have
news of Malaysia
about **338**



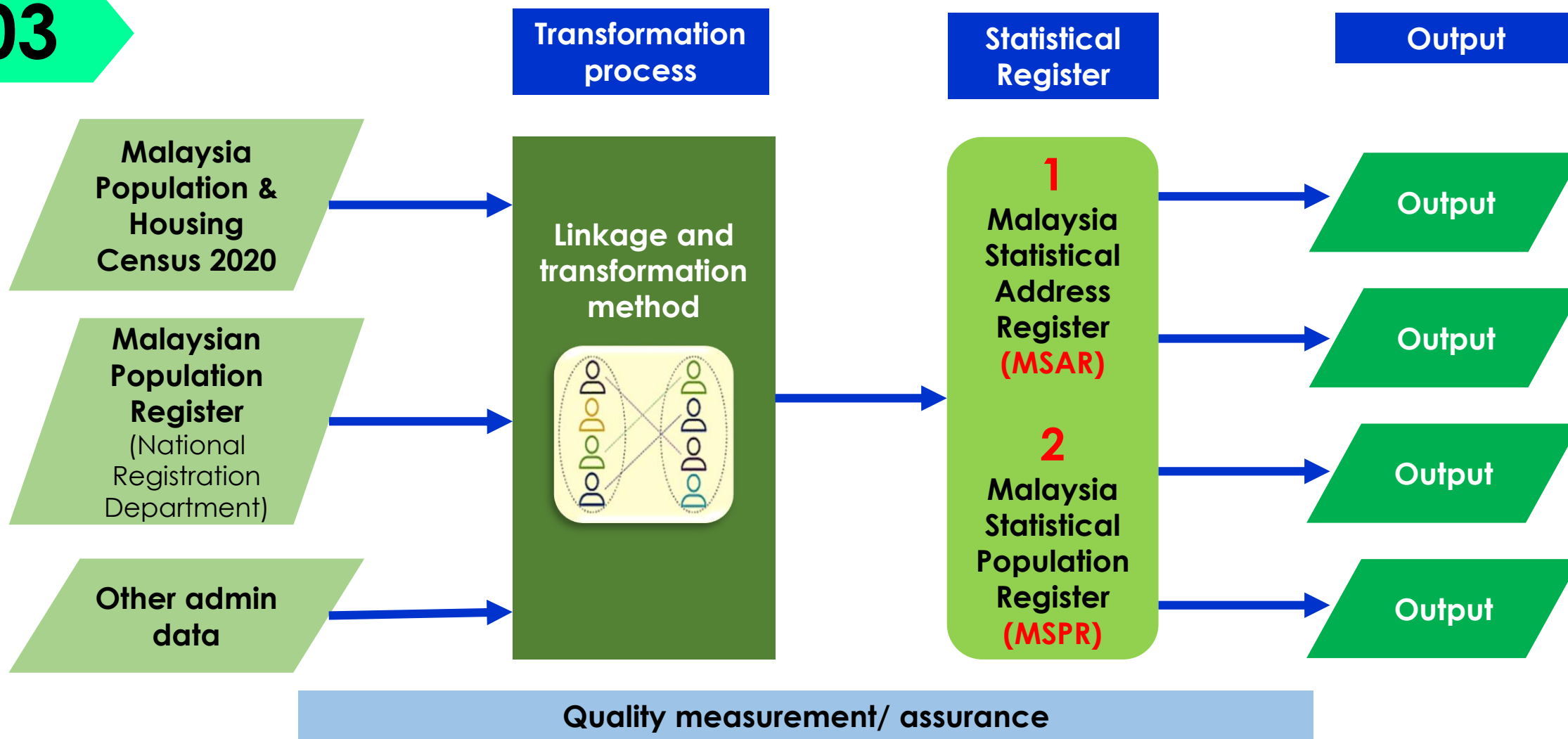
21 census
videos that
have been
published



Interview Session

USE OF ADMINISTRATIVE REGISTERS FOR POPULATION & HOUSING CENSUS

03





TOTAL ADMINISTRATIVE DATA



18

Total Agencies



73,921,295

Total Records



NRD



INDIGENOUS



HOMELESS



EC



RISDA



ICU



HRMIS



PRISONER



IRBM



TM



REMAND



JIM



DISABLED



NADA

MFA



INSITUTE OF PUBLIC
STUDIES



MOH

KPM



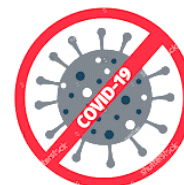
KEMENTERIAN PENDIDIKAN MALAYSIA



MYCENSUS 2020 CHALLENGES



Re-adjustment of Census schedule



COVID-19 pandemic



Adjustment in Enumeration Mode

Optimising the usage of e-Census and telephone interview (CATI) as the main mode of response



Challenges in recruitment of census enumerators

Possible COVID-19 infection among census enumerators



Community reluctance & fear

Non-cooperation of the public due to fear of COVID-19

Entertainment

TV/Radio or Social Media



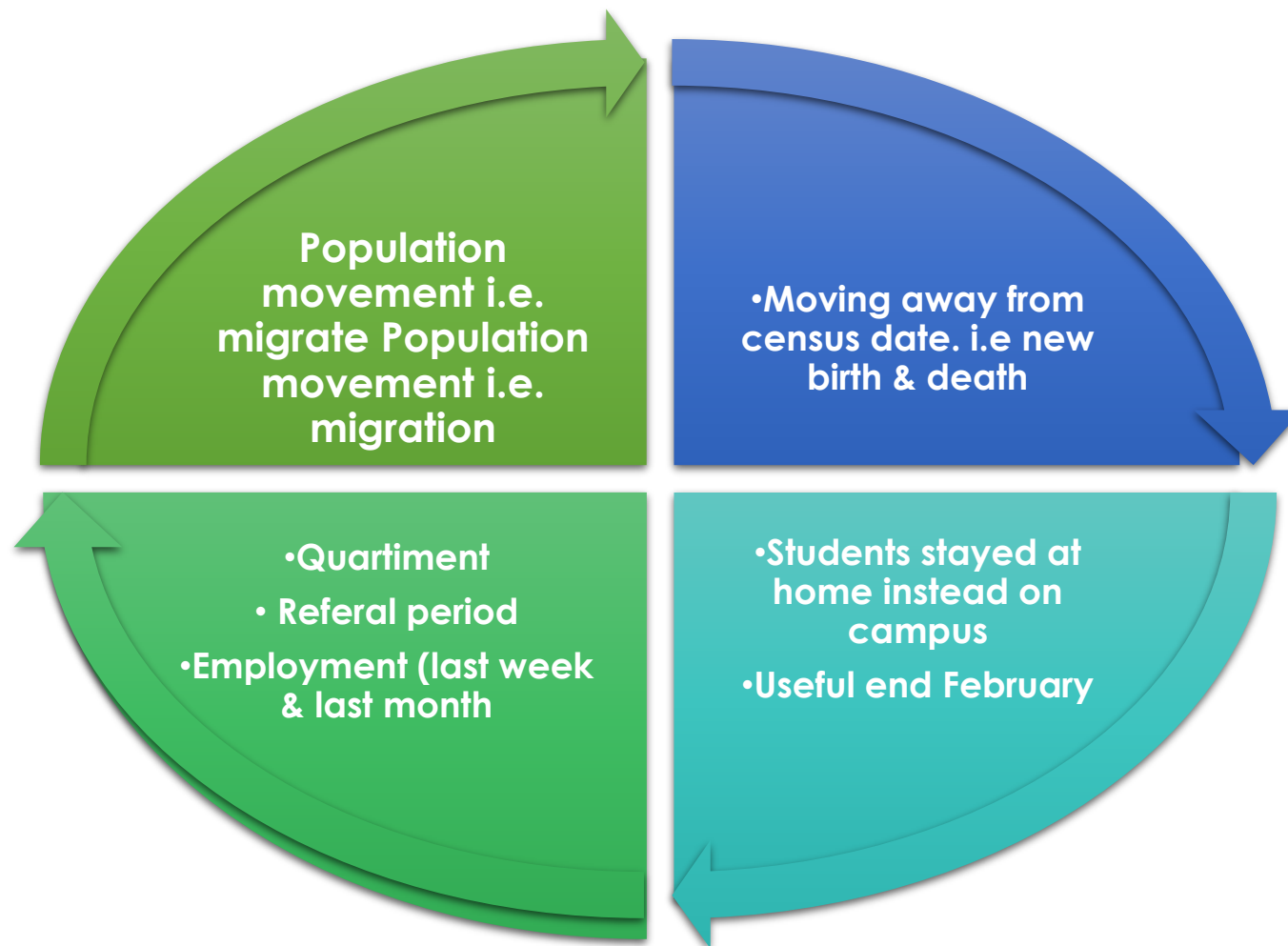
Assuring the safety of the staff and public as top priority

- Additional procurement (mask)
- Adding procedure



MYCENSUS 2020 CHALLENGES

Challenges in Data Quality





MITIGATING MEASURES AMIDST COVID-19 PANDEMIC



- **Coordination among various agencies** at the national and state levels:
 - ✓ Federal Government
 - ✓ State Government
 - ✓ Local Authorities
 - ✓ Government Link Corporations
 - ✓ Private corporations
- Realignment of **census budget** for COVID-19 emergency procurement such as face masks and hand sanitiser
- Extend and adjust the **recruitment process** and timeline in most affected areas
- **Leveraging technology** for training and Post Enumeration Survey (PES) by using online, system (MySUL) and telephone
- Work closely with **National Security Council and Ministry of Health** in relation to updates and necessary actions to be taken
- Produce special **Standard Operating Procedure** on conducting field operations

Leveraging Administrative Data and Analytics Technology

- Staggered workflow with multiple phases and hybrid approach in census operations
- e-Census and CATI reduced the impact of scaled down field operations
- Use of Administrative data
 - ✓ Basic data on population compiled from administrative records
 - ✓ Data Quality control: Consistency checks with available information
- Use of Analytics Technology
 - ✓ Google Maps: Data tapping to complement existing data collection
 - ✓ Train model for machine learning
- Multi-platform publicity on MyCensus 2020 with digital platforms and conventional methods
- Enhancing co-operation with public and private agencies in ensuring the success of MyCensus 2020

4. MODERNIZATION ON DOSM SURVEY



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A. PRICE INTELLIGENCE & EARTH OBSERVATION



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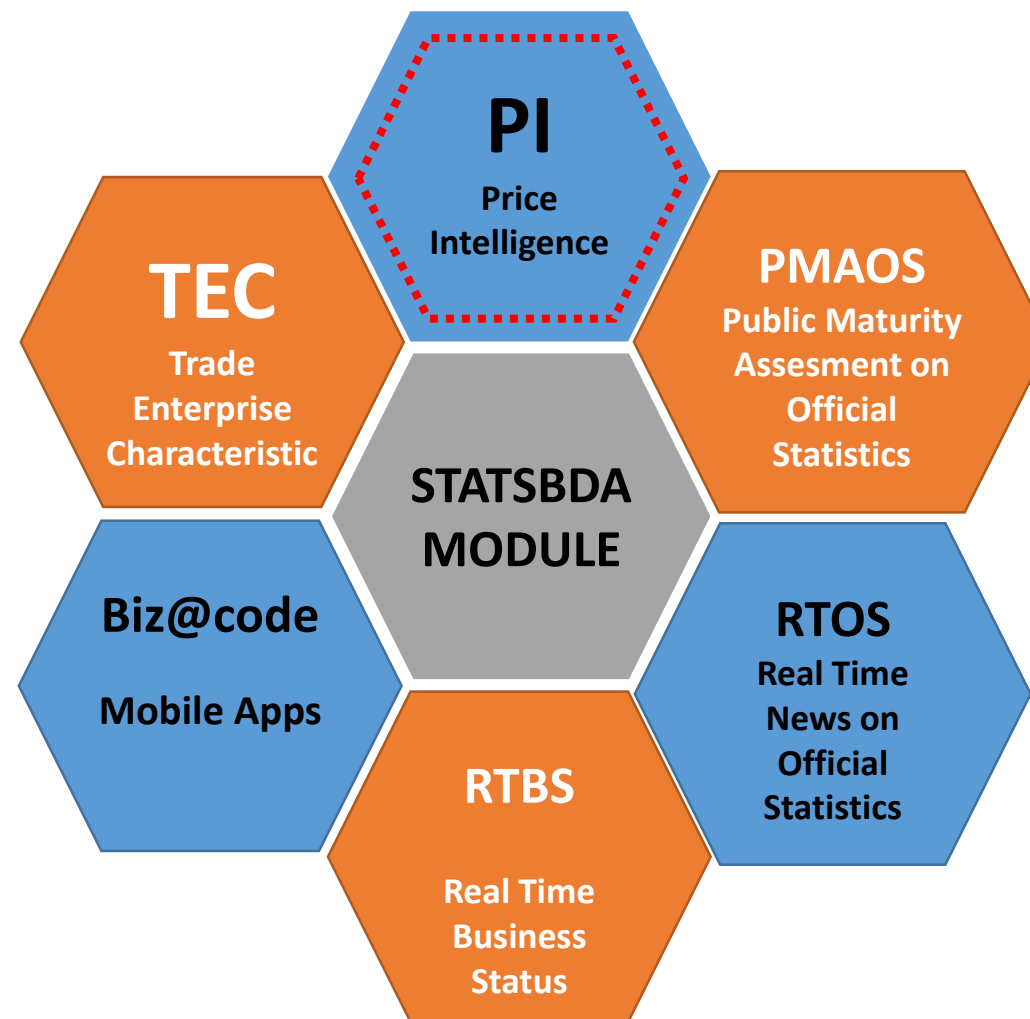


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STATISTICS BIG DATA ANALITICS (STATSBDA)

The Department of Statistics Malaysia (DOSM) has initiated the implementation of BDA under the project of Statistics Big Data Analytics (STATSBDA).



STATSBDA OBJECTIVE



PRICE INTELLIGENCE

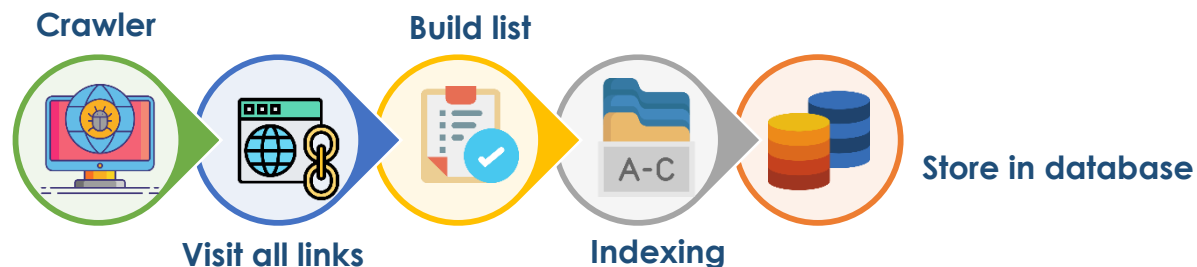
PRICE INTELLIGENCE

- Leveraging the capability of Big Data in collecting large data from various sources and transform them into better structure
- Different prices of the same good can be obtained through various websites, providing a modernized price data collection
- Transform from unstructured data into structured data to perform analysis



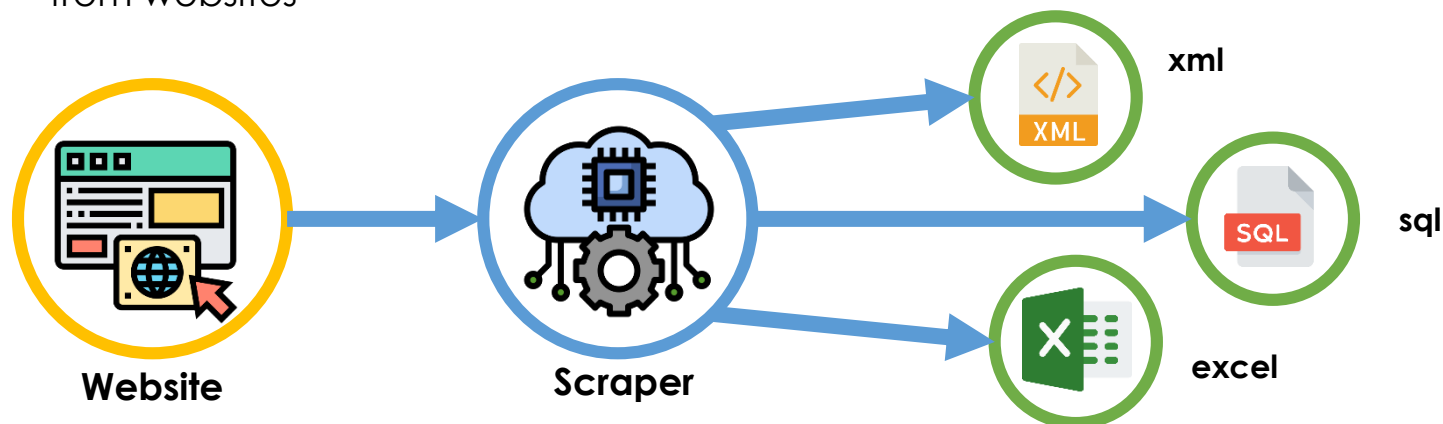
What is Web Crawler?

- Process of repetitively finding and fetching hyperlinks starting from a list of starting URLs.



What is Web Scraping?

- Web-scraping is automatically retrieving and processing information from websites



OBJECTIVE PRICE INTELLIGENCE

Objective

01

to give better insight in consumer price analysis and monitoring

02

to establish new price basket analysis which will be used as value added to the current Consumer Price Index



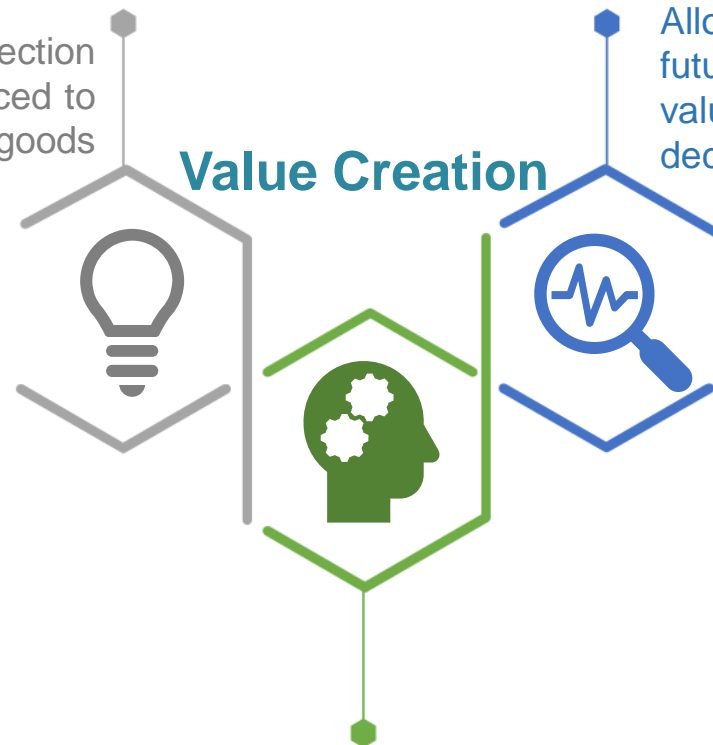
PI Visualization

Data Management

New Data Collection Methodology

New data collection process introduced to cover price of goods selling online

Value Creation



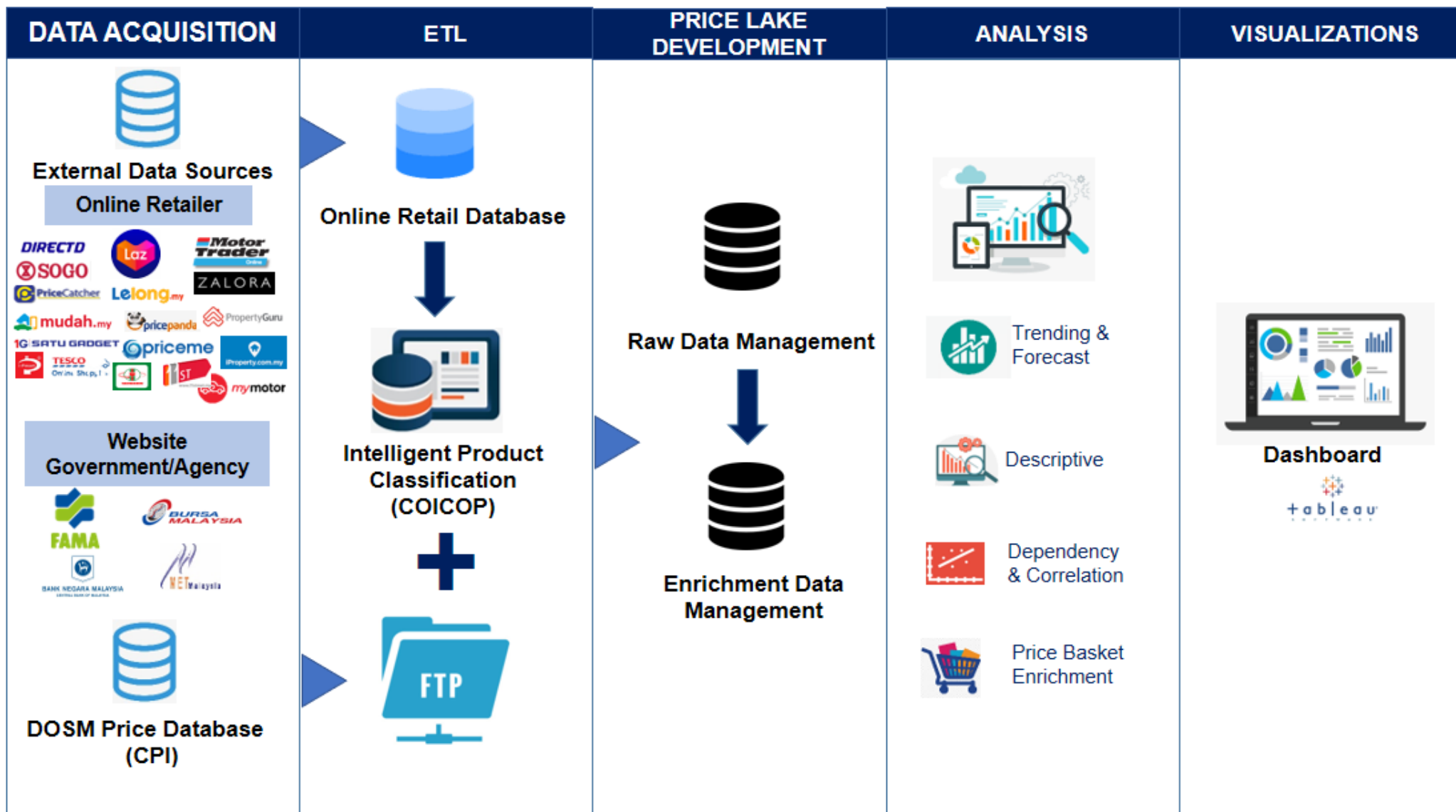
Holistic View in Online and Offline Price

Allow monitoring and forecast future price trend and as valuable input for price control decisions by government

Transform of Business Process


New data collected enable to create holistic landscape of CPI monitoring process

PRICE INTELLIGENCE ARCHITECTURE



EXAMPLE : GROCERIES / FRESH FISH

Offer



**Gula Prai Caster Sugar
500g**

**Now RM2.25, Before RM2.39,
Save RM0.14**
Promotion valid until
19/05/2021

RM 2.25 RM2.25/each

1 **Add**



Mabong (Indian mackerel)

[Rest of category >](#)

☐ Quantity ☒ Weight

RM 3.81 RM17.99/kg

1.06kg **Add**

- Dates
- price_ori
- link_ori
- nlp_category
- unit
- price_actual
- item_category_detail
- title
- item_category
- description

APPLICATIONS OF PRICE INTELLIGENCE DURING PANDEMIC COVID-19

During the pandemic Covid-19, data set from airline has been used in the compilation of the CPI.

Item specification (Route)

- Kedah to Kuala Lumpur
- Johor Bahru to Kuala Lumpur
- Kuantan to Kuala Lumpur
- Penang to Kuala Lumpur
- Kuala Terengganu to Kuala Lumpur



Implications of the Movement Control Order (MCO), all the price data collection at the outlet has been suspended. Data crawling has been done during the MCO for 20 main product CPI as below:

- CAP RAMBUTAN HIJAU SST RICE 5% 10KG (RICE)
- JATI BERAS SUPER SPESIAL 10KG (RICE)
- JASMINE RICE SUPER SPECIAL 5% 10KG (RICE)
- JASMINE RICE SUPER SPECIAL TEMPATAN 5KG (RICE)
- AYAM BERSIH (PELBAGAI BAHAGIAN) (CHICKEN)
- IKAN BAWAL HITAM (FISH)
- IKAN CENCARU (FISH)
- IKAN KEMBUNG (FISH)
- KUETIAU BASAH (FLAT RICE NOODLES)
- MEE KUNING BASAH (NOODLES)
- UBI KENTANG (POTATO)
- BAWANG BESAR (ONION)
- CILI KERING KERINTING (DRIED CHILLI)
- KACANG BUNCIS (FRENCH BEAN)
- KUBIS BULAT (TEMPATAN) (CABBAGE)
- LOBAK MERAH (CARROT)
- TOMATO
- SANTAN KELAPA (FRESH COCONUT MILK)
- TELUR AYAM GRED B (HEN'S EGGS GRADE B)
- *MINYAK MASAK (PELBAGAI JENAMA) (COOKING OIL)



EARTH OBSERVATION - Chronology

Department of Statistics Malaysia started to use GIS technology since 1991 census and widely use it during pre enumeration for 2010 census.

Over time, the use of GIS has improved, in modernization in 2020 Census, DOSM Smart Listing, and DOSM Smart Map & MSAR.

In line with the experience and modernization of the use of GIS, DOSM has begun to take steps using satellite images to improve the quality of official statistics.

The advantages of using EO data:

- Images from satellites **to produce and support official statistics to complement traditional sources** of socio-economic and environmental data.
- Satellite imagery may be perhaps the only **cost-effective technology** able to provide data at a global scale especially during this pandemic time

EO PILOT PROJECT

Pilot Project on Estimating Malaysia Rubber Plantation Area dan Productivity Using Satellite Imagery and Machine Learning

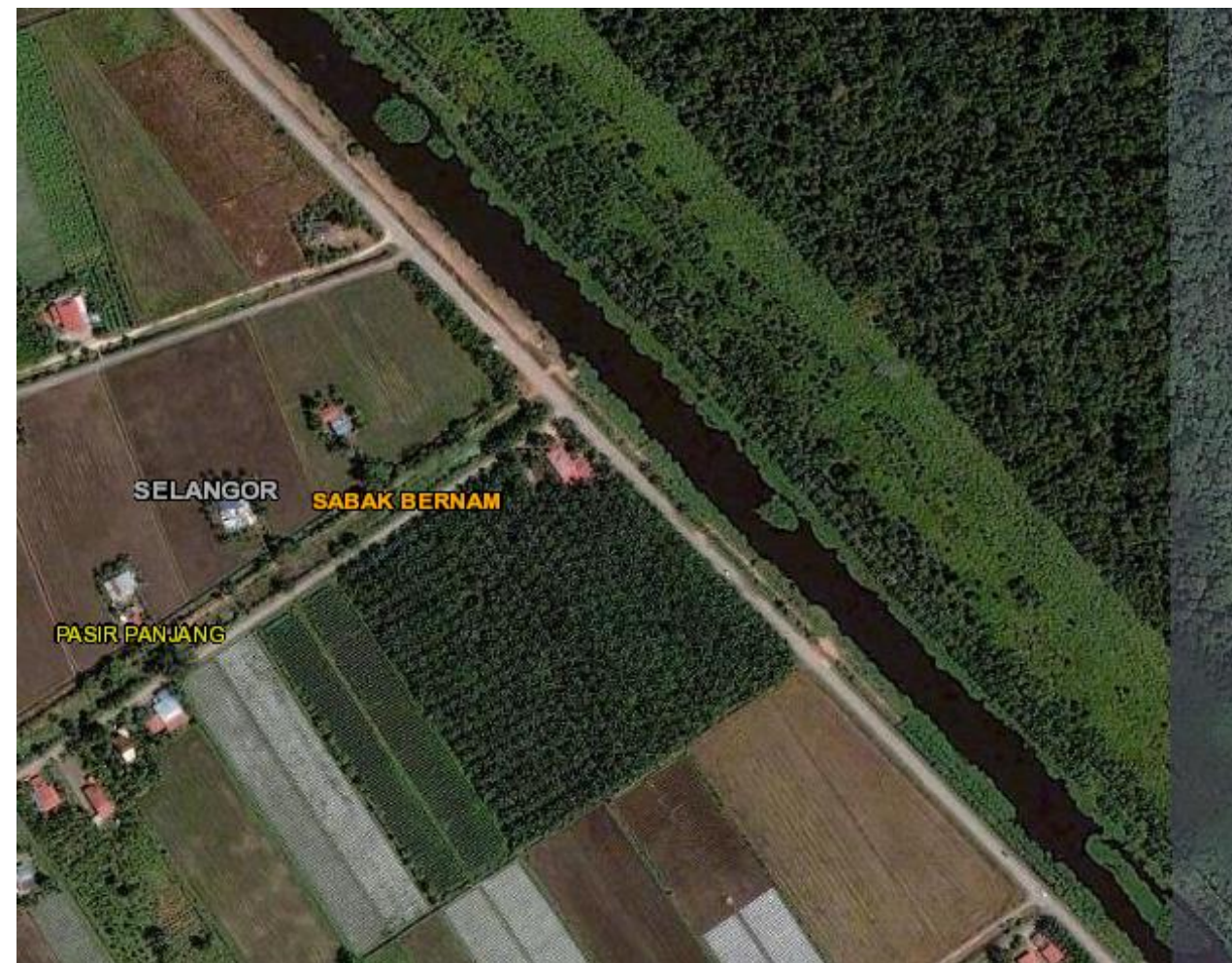
INTRODUCTION

This **pilot project** was proposed to **estimate Malaysia Rubber Plantation Area dan Productivity Using Satellite Imagery and Machine Learning**

Collaborations between DOSM with Malaysia Space Agency (MySA) and Malaysian Rubber Board for research on rubber using satellite imagery

OBJECTIVE

To **identify new and potential approach to complement and/or replace the traditional data collection method** that is presently applicable in rubber production monitoring and estimation.



EO PILOT PROJECT (con't)

GIS

Machine Learning (ML)

Satellite Imagery

Estimate Rubber Production

ADVANTAGE

Invoke an involuntary call for promotion of sustainable agriculture

POTENTIAL OUTPUT

Analyze on land use, change and potential monitoring on rubber production

METHOD

Geospatial and Earth Observations (EO) with Machine Learning approach

B.INTERNATIONAL TRADE IN SERVICES SURVEY



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DATA SOURCES OF THE BALANCE PAYMENTS STATISTICS AND FINANCIAL AND CAPITAL ACCOUNT

CURRENT ACCOUNT

- External trade statistics
- International Trade in Services Survey
- International Transaction Reporting System
- Administrative Data
- Other economic indicators

FINANCIAL AND CAPITAL ACCOUNT

- Joint-survey IIP - DOSM & BNM
- International Transaction Reporting System
- Administrative Data
- Other economic indicators



INTERNATIONAL TRADE IN SERVICES SURVEY

10 out of 12 services components are covered under ITS, while Travel and Government goods & services n.i.e. are compiled based on administrative data from other agencies.

FRAME

- 1500 companies
- Canvas main players of exports & imports of services

OBJECTIVES AND DATA COLLECTION METHOD

- To measure Malaysia's international trade in services transactions
- E-survey & softcopy (email)

CHALLENGES

- To obtain detailed information from respondent on time due to limited resources
- To gather information on actual country of transaction
- To contact person in charge via telephone due to work from home

TREATMENT/COMPILATION

- Administrative data (BNM) as backup for quarterly ITS survey
- Other economic indicators



OBJECTIVE & DATA COLLECTION METHOD

- To measure International Investment Position (IIP) data consisting of Financial account, investment income and IIP
- Joint effort between DOSM and BNM
- **e-survey** through External Sector Statistics (ESS) System - STATsmart



SURVEY FRAME

- More than 3,600 reporting entities
- end-investors, Custodians, Individual counterparties, ISIN
- Will published by DOSM (BOP & IIP) and BNM (EDS, CPIS)



CHALLENGES

- To contact Person in charge via telephone due to work from home
- No mobile phone number provided and the current PIC is not updated
- To obtain detail information during data quality assessment to ensure the accuracy and consistency of data
- To achieve submission target of 90%
- PIC stranded at their home country and cannot access ESS system (e.g; China)



HOW TO OVERCOME

- Only use data from ESS system (no estimates)
- Cross-check against internal and external sources (eg: ITRS data from BNM)
- Inter-agency technical discussion
- Focusing more on major players and companies with huge transactions

C. QUARTERLY SURVEY OF SERVICES SECTOR(QSS)



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Stats Malaysia



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QUARTERLY SURVEY OF SERVICES SECTOR(QSS) BACKGROUND

QSS

- Objective: To provide **short term indicators of Services sector**, input and information for compilation of Quarterly Index of Services and Quarterly Gross Domestic Product.
- Frequency: every quarter since **2012**
- Coverage: **12** subsectors
- Sample: **23,464** establishments

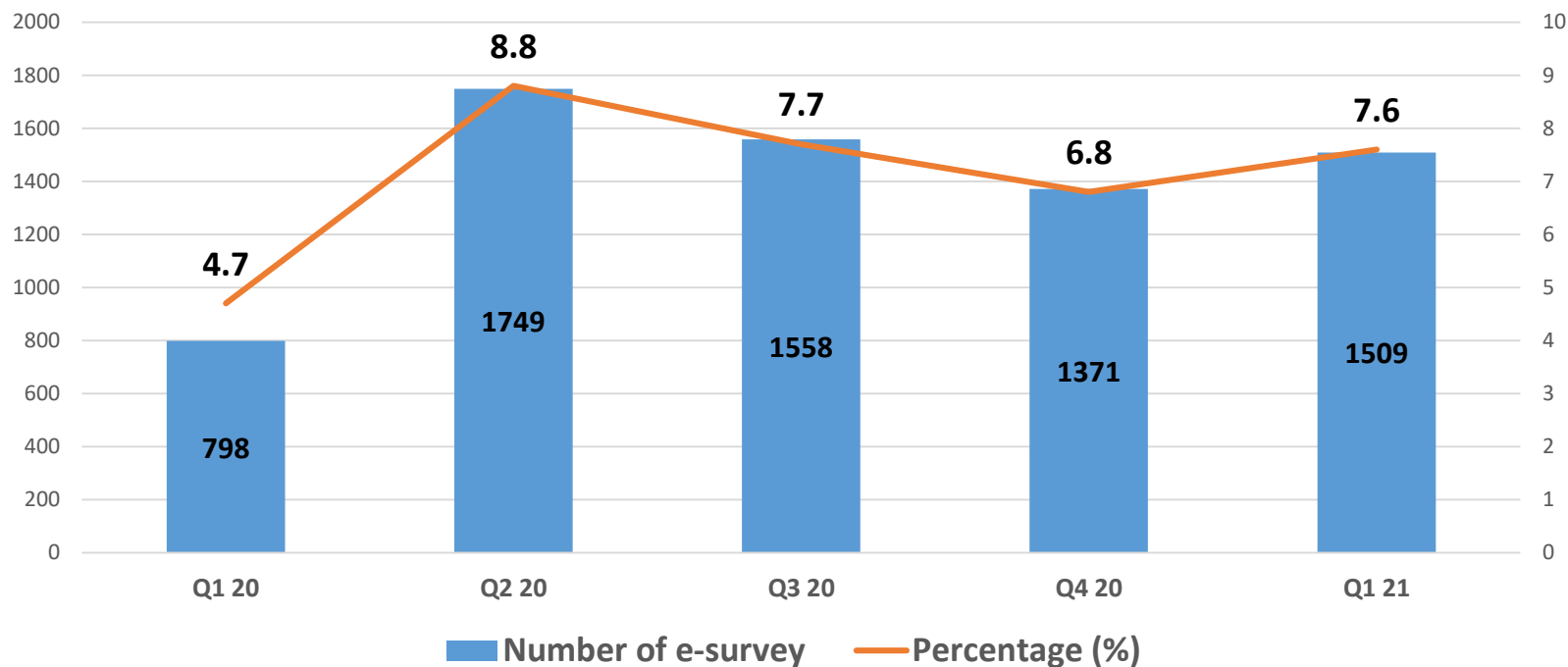
e-QSS

- e-QSS is **an electronic platform** for respondents to complete and submit QSS questionnaires.
- Implemented since **2013**
- Targeted response rate: 10%



- General Instructions;
- Establishment profile;
- Survey Form;
- Previous Records;
- Password

Number of e-Survey Respondents and Percentage Q1 2020-Q1 2021



The target for using e-survey platform is 10% from the total response rate.

ADVANTAGES AND CHALLENGES

Advantages

- Easy and fast data collection and analysis
- Good Database storage
- Time series data comparison
- Easy database arrangement/editable

Challenges

- ID and password reset if PIC changes
- Complicated process for data editing after submission
- Longer time for system adjustments, re-sampling and questions updating
- Low response rate. Respondents need to be educated to create awareness.

D. EJOB SYSTEM OF QUARTERLY EMPLOYMENT/ SALARIES & WAGES SURVEY



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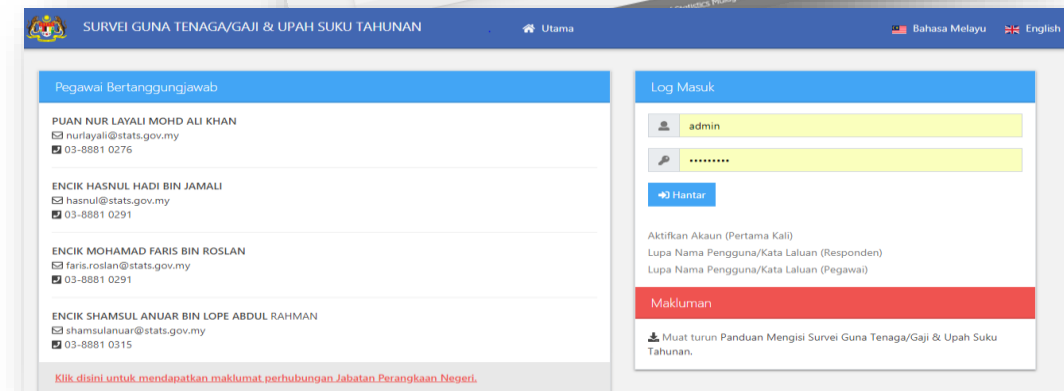


INTRODUCTION

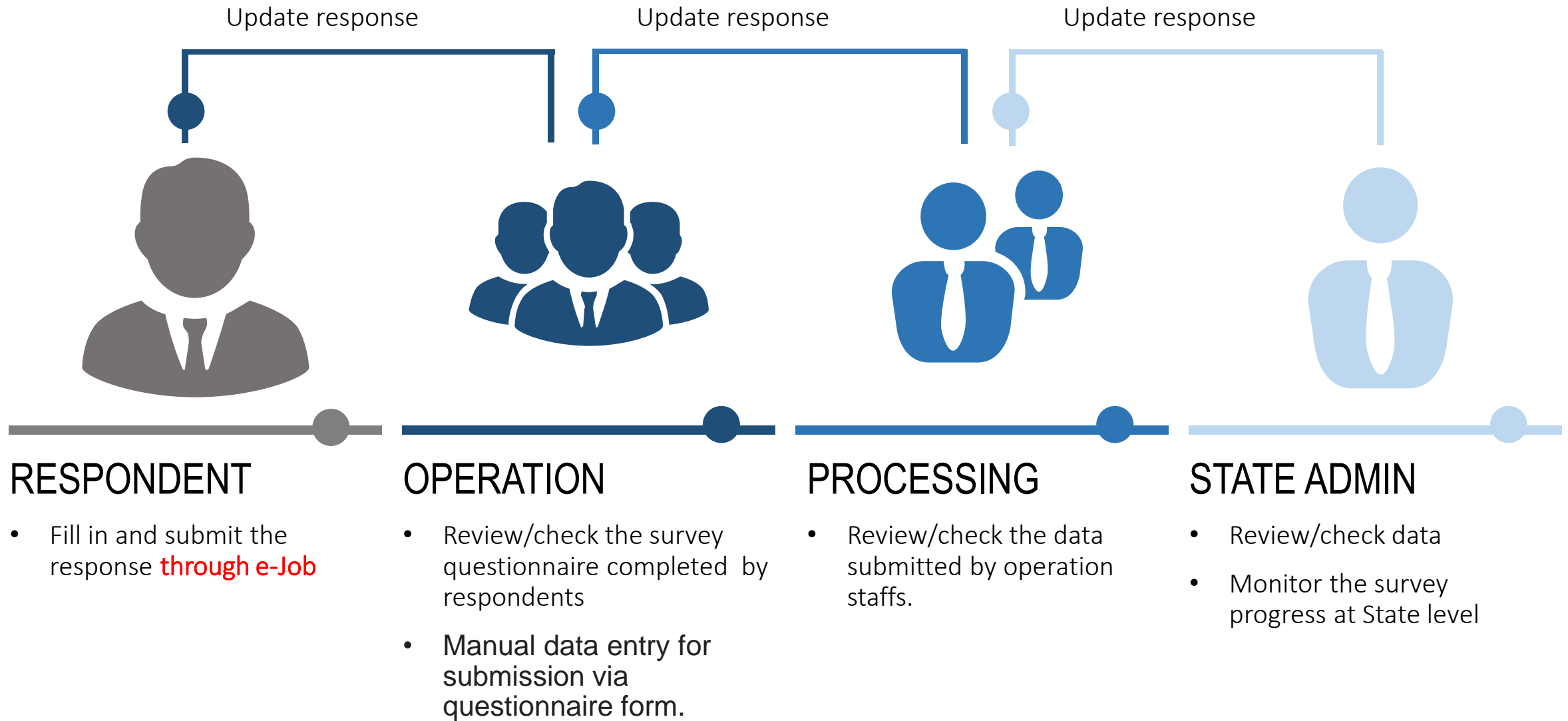
e-Job system is an e-survey system that allows selected businesses (respondents) to respond to the Quarterly Employment Survey.

The system which had been established since 2013 had undergone several improvement up to this year, 2021.

In 2018, the system had undergone major changes as the structure of the questionnaire was re-organized as well as significant database changes.



PROCESS FLOW (e-SURVEY MODE)



5. WAY FORWARD



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WAY FORWARD: MSAR AND MSPR



Malaysia Statistical Address Register (MSAR)

BUILDING UNIT ADDRESS

Information on the address
of the Building Unit
including Business
Organisations, Residences,
Buildings / Public Facilities
and landmarks



Malaysia Statistical Population Register (MSPR)

INDIVIDUAL INFORMATION

Gather information on the
Malaysian population
covering demographic,
educational, economic,
social and individual
characteristics

Importance of MSPR

- Next census can be carried out on a small scale
- To update MSPR information frequently using administrative data
- Information in MSPR can be used for:
 - ✓ Distribution of Aid
 - ✓ Local population information for the development of public facilities

THANK YOU

BANCI MALAYSIA

POPULATION & HOUSING
CENSUS 2020
MALAYSIA

YOUR DATA IS OUR FUTURE



#MyCensus2020
7.7.2020

**Make Sure You're
COUNTED**

For More Info : www.dosm.gov.my
www.mycensus.gov.my



20 OCT



2016-2030

