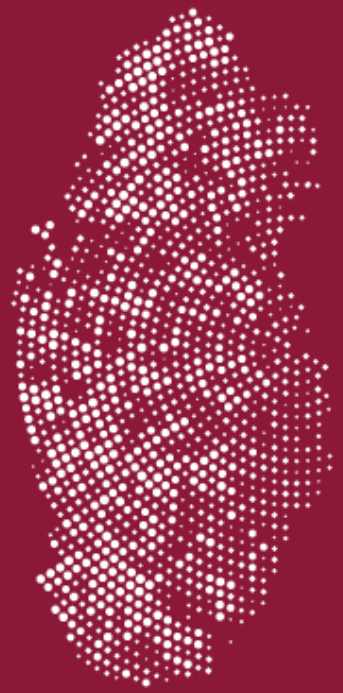


منتدى الدوحة للبيانات

من أجـــل الابتكـــار في التنميـــة المستدامـــة

22-23 أكتوبر 2024

DOHA DATA FORUM

FOR INNOVATION IN SUSTAINABLE DEVELOPMENT

October 22-23, 2024

MINISTRY OF ECONOMY
DEPARTMENT OF STATISTICS MALAYSIA

Advancing Data Governance & Integration: The Role of DOSM in Modernizing National Statistical System

22ND October 2024

Presented By:
Dr. Mohd Uzir Mahidin
Chief Statistician
Department of Statistics Malaysia

منتدى الدوحة للبيانات
من أجل الابتكار في التنمية المستدامة
DOHA DATA FORUM
FOR INNOVATION IN SUSTAINABLE DEVELOPMENT

BANCI 2024 PERTANIAN
KUNCI KEMAJUAN PERTANIAN

MALAYSIA MADANI

1949-2024 DOSM 75

Ulang Tahun Jubli Intan
JABATAN PERANGKAAN MALAYSIA
STATISTIK NADI KEHIDUPAN

20 OKTOBER

2016-2030

ثروة وطن
FAMILY IS THE TREASURE OF A NATION
International Year of the Family • Qatar 2024

الأسرة

المجلس الوطني للتخطيط
National Planning Council
State of Qatar • دولة قطر

Presentation Structure

1 INTRODUCTION: MODERNIZATION OF NATIONAL STATISTICAL SYSTEM

2 NEW DATA ECOSYSTEM : ROLES OF NSO's

3 DOSM AGENDA IN DATA GOVERNANCE & INTEGRATION

4 RECENT INITIATIVE

1. INTRODUCTION: MODERNIZATION OF NATIONAL STATISTICAL SYSTEM

منتدى الدوحة للبيانات
من أجل الابتكار في التنمية المستدامة
DOHA DATA FORUM
FOR INNOVATION IN SUSTAINABLE DEVELOPMENT

ثروة وطن
FAMILY IS THE TREASURE OF A NATION
الأسرة
المجلس الوطني للتخطيط
National Planning Council
State of Qatar • دولة قطر

INTRODUCTION

Modernisation of National Statistical System

- Adapting to public data agenda
- Integrated data system as pillar of data ecosystem
- Data governance & data strategy
- National data infrastructure

NSO's Digital Evolution

- Landscape of digitalization evolving brings significant change in roles and responsibilities.
- Task on collection, analysis and dissemination of statistical data, beyond conventional boundaries

Transforming Statistical Insights

- Big data, administrative data and advanced analytics technologies presents opportunities
- Improve the depth and accuracy of statistical insights.

Data Governance Evolution

- Key integration of various datasets
- safeguarding privacy and confidentiality of individual information
- Ensuring ethical and secure data practices
- Define and implement data governance

منتدى الدوحة للبيانات
من أجل الابتكار في التنمية المستدامة
DOHA DATA FORUM
FOR INNOVATION IN SUSTAINABLE DEVELOPMENT

THE ROLE OF NSOs IN DIGITAL ERA

Leveraging Big Data and Administrative Data

Big Data

NSOs are increasingly tapping into big data sources, including social media, mobile data, and satellite imagery, to enhance their statistical outputs. This integration allows for real-time analytics and more dynamic insights into economic, social, and environmental trends.

Administrative Data

Utilizing administrative data collected by other government agencies (OGA) can improve the accuracy and granularity of official statistics. For instance, ***Employees Provident Fund, Company Registration and Business Licensing information, Birth & Death Registration Information*** data can provide deeper insights and complement traditional survey data.

Generating New Value

Enhanced Decision-Making

By integrating various data sources, NSOs can provide more comprehensive and timely information to policymakers, aiding in more informed decision-making processes.

Public Services

Improved statistical data can enhance the delivery of public services. For example, better data on population demographics and health can lead to more targeted and efficient public health interventions.

Technological Advancements

Advanced Analytics

Utilizing advanced analytics, including machine learning and artificial intelligence, can enhance the ability of NSOs to process and analyze large volumes of data efficiently and accurately.

Open Data Platforms

Implementing open data platforms, such as the **OpenDOSM** system, enhances accessibility and transparency. Through **OpenDOSM**, researchers, businesses, and the public can access and utilize official statistics, promoting innovation and enabling informed decision-making.

2. NEW DATA ECOSYSTEM: ROLES OF NSO's

منتدى الدوحة للبيانات
من أجل الابتكار في التنمية المستدامة
DOHA DATA FORUM
FOR INNOVATION IN SUSTAINABLE DEVELOPMENT

ثروة وطن
FAMILY IS THE TREASURE OF A NATION
الأسرة
المجلس الوطني للتخطيط
National Planning Council
State of Qatar • دولة قطر

NEW DATA ECOSYSTEM: ROLE OF NSOs (1)

Data Ecosystem Management Principles

01

Data as a service

Data and integrated products can be supplied to users on demand, equipped with Answers as a Service and Information as a Service

02

Continuous Data Aggregation

The ecosystem is constantly evolving with the influx of new data sets, and old data sets will be phased out gradually

03

From Data Utility to Knowledge Hub

Modern ecosystem manifestations include knowledge generation and transfer through AI models, analytical platforms, and machine learning algorithms.

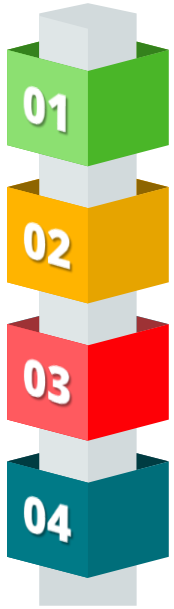
04

Decentralized Access through Secured Exchange

Ecosystems exist regardless of distance or organizational boundaries in Service-Oriented Architecture (SOA)

- A data ecosystem that evolves through diverse data flows, the presence of multiple platforms, and creates value from integrated data usage.
- Data curation is needed to create, organize, and maintain datasets, generating value through data transformation.

Statistical agency needs to address four (4) gaps identified to strengthen the data ecosystem:



Data Sourcing Gap

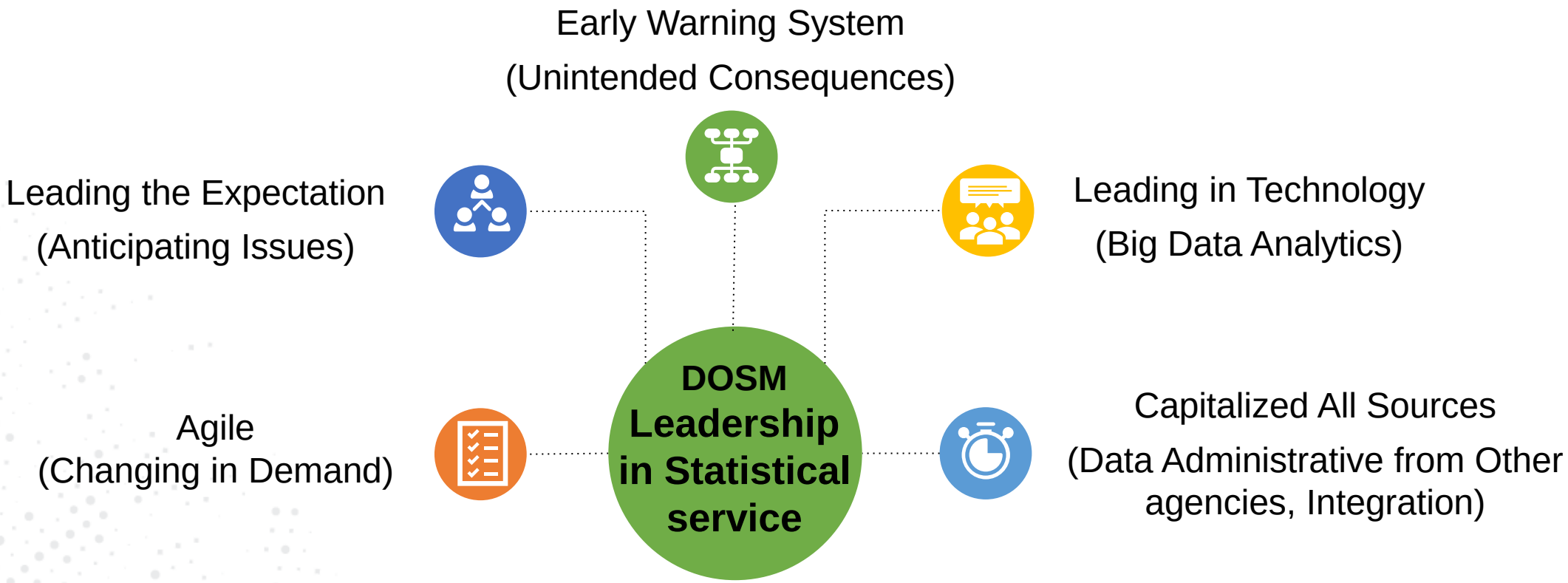
Data Platform Gap

Analytics Gap

Mandate Gap

NEW DATA ECOSYSTEM: ROLE OF NSOs (2)

What DOSM do as National Statistical Agencies



منتدى الدوحة للبيانات
من أجل الابتكار في التنمية المستدامة
DOHA DATA FORUM
FOR INNOVATION IN SUSTAINABLE DEVELOPMENT

ISSUES NEED TO BE CONCERNED....

ISSUES/ PROBLEM STATEMENTS	ANALYTICAL PROCESSES
a) How to ensure price stability? b) How to detect economic recession? c) How to reduce income inequality? ▪ By location/ ethnicity/ income group d) How to attract potential investors?	➢ CPI by district and specific items; ➢ Detailed balance of payments statistics; ➢ FDI and DDI by sector and by country; ➢ Detailed information on households income.
e) How to increase productivity to support sustainable growth? f) How poor environmental quality and its effect on public health? g) How to reach decent wellbeing conditions?	➢ Labour productivity per hour worked; ➢ Labour productivity per employment; ➢ Causal analysis to determine the link between environmental factors and public health outcomes. ➢ Develop methodology to measure wellbeing;
h) How to ensure food security reduce food waste and food loss? ▪ Availability of sufficient food for the population; ▪ Affordability of food prices; ▪ Food quality and safety for consumers; ▪ Dependency on imported foods; ▪ Supply chain issues disrupted by climate change, natural disasters, pandemics or trade barriers. ▪ Reduction in agricultural land.	➢ Assessment of food security index; ➢ Food waste rate calculation; ➢ Study on supply chain efficiency; ➢ Data from agricultural census; ➢ Data integration with all agencies related to agriculture; ➢ Import export equality;

3. DOSM AGENDA IN DATA GOVERNANCE & INTEGRATION

منتدى الدوحة للبيانات
من أجل الابتكار في التنمية المستدامة
DOHA DATA FORUM
FOR INNOVATION IN SUSTAINABLE DEVELOPMENT

ثروة وطن
FAMILY IS THE TREASURE OF A NATION
الأسرة
المجلس الوطني للتخطيط
National Planning Council
State of Qatar • دولة قطر

DOSM TOWARDS MODERNIZATION

How can Statistical Agencies **implement** modernization to remain relevant?

What are the new **roles** that Statistical Agencies need to play in the changing data environment?

How to implement effective **leadership** in the context of modernizing the national statistical system?

Essence of changes in the data environment

- ❑ The Emergence of Public Data Roadmap. Data is considered a valuable asset.
- ❑ Innovative data governance framework and national data architecture.
- ❑ New opportunities and challenges among Statistical Agencies.

The primary concern

- **How** should the Statistics Agency respond?
- **What** is the new role of the Statistics Agency?
- **How** to implement leadership?
- **What** value creation can be generated?

Global Initiative:

- UN Working Group on Data Stewardship
- UNECE Task Force on Data Stewardship
- UNESCAP Expert Group Meeting
- Data Integration Community of Practice (DI-CoP), UNESCAP

Three Key Aspects of Modernization:

Roles and Governance

Strengthening data governance through various initiatives based on:

a) **Governance agenda**
b) **Stewardship agenda**

Range of Output

Extensive area of statistical product:

- **Comprehensive publication combining multiple economics indicators**
- **New emerging area on economics and social outlooks**
- **Multiple data source**

Deep Technology

Expending the technology and resources:

- **Data analytics**
- **StatsDW**
  An interactive platform through eDataBank, Data Visualization and Mobile Discovery, allowing users to freely explore and utilize the data.
- **StatsDigital**
  Focuses on the digitalization of statistical processes and services. It aims to enhance the accessibility, efficiency and delivery of official statistics through digital platform
- **Data scientist**

DOSM INITIATIVES IN DATA GOVERNANCE

Encouraging government bodies to review and improve the quality of their administrative data.

Initiating discussions within Ministries/Agencies on their involvement in developing national data strategies, either in advisory or leadership roles.

Promoting dialogue within Ministries/Agencies to establish legal frameworks for data usage.

Enhancing analytical capabilities, particularly in data literacy, data science, and data engineering, for effective data management.

Collaborating with the international community to share experiences in data governance.

DOSM's roles in **Data Governance** and **Data Stewardship**

Strengthening Data Governance through these initiatives

Governance agenda

1. Policies, Standards and Guidelines
- Statistics Act 1965 (revised 1989)
- Census Act 1960
- DOSM Strategic Plan
- General Statistical Business Process Model (GSBPM)
- Generic Activity Model for Statistical Organisations (GAMSO)
- Statistical Business Architecture (SBA)
- Micro Data Dissemination Policy

2. Data Quality
- Generic National Quality Assurance Framework (g-NQAF)
- Sound Methodology

3. Data Protection & Privacy; Ethics; Security
- Public Sector Data Sharing Policy (DPDSA)
- National Data Sharing Policy (NDSP)
- Personal Data Protection Act 2010 (PDPA)

Stewardship agenda

1. People and Culture
- Chief Data Officers (CDOs)
- Statistical Competencies Development Programme (SCDP)
- Data Scientists SAS
- Big Data Analytics Core Team
- Subject Matter Experts (SMEs)

2. Partnership
- MOU's for Data Sharing : 39 MOU's (2024)
- Collaboration with Agencies : 39 agencies

3. Technology
- National Enterprise-Wide Statistical System (NEWSS)
- Integrated Population Census System (MyIPCS)
- StatsBDA
- StatsDW
- Stats Geoportal
- OpenDOSM
- Dashboards

STRENGTHENING THE NATIONAL STATISTICAL SYSTEM - NSDC

NATIONAL STATISTICS AND DATA COUNCIL (NSDC)

Governance: National Statistics and Data Council

- The National Statistics and Data Council has been formed as the highest advisory body with regards to national data and analysis in the country that will provide guidelines to strengthen the management of the national statistics system.
- Chaired by the Prime Minister, members in the National Statistics and Data Council includes nine Cabinet members or their deputies, Chief Secretary to the Government, Chief Statistician as well as technocrats, academicians and representatives from the private sector.

Executive Committee (EC)

Executive Committee (EC) consist of 4 clusters:

- Economy, Agriculture and Industry Cluster;
- Infrastructure, Technology and Environment;
- Wellbeing, Security and Health Cluster;
- Education, Social and Population Cluster.

i. State Statistics and Data Council

- Established as the highest Council at the state level in planning and determining the direction to strengthen the coordination of state and district statistics.
- Chaired by the State Chief Minister, members in the State Statistics and Data Council includes heads of state governments.

ii. District Statistics and Data Council

- Reports district statistical activities to the State Secretary, who is part of the council overseeing strategy and data management for public and private sectors.
- Chaired by the District Officer, the council includes heads of government agencies in the district.

STRENGTHENING THE NATIONAL STATISTICAL SYSTEM - CDO

CHIEF DATA OFFICER (CDO)

OBJECTIVE

- Strengthening centralized data management governance practices for the use, protection, generation, and dissemination of data.
- Building/implementing the latest and relevant technology, tools, and methodologies to enhance technology capabilities to organization.
- Collaborating with stakeholders to expand the use of statistics through data sharing initiatives.
- Identifying and participating in programs for continuous improvement of technical skills and knowledge.
- Currently, in practice, DOSM has assigned a Chief Data Officer (CDO) to the Ministry of Agriculture and Food Security Malaysia to focus on the Agricultural Census 2024

"To enhance analytic expertise among civil service, DOSM has established preliminary Chief Data Officers (CDOs)"

Who are the CDOs?

The focal point for data alignment and designing data governance strategies at the ministry/ agency level.

DOSM STRATEGIC INTEGRATION

The Department of Statistics Malaysia (DOSM) has embraced **data integration via administrative data** as a cornerstone of its strategy to enhance statistical outputs. This approach involves **consolidating data from various government and administrative sources** to create a comprehensive, accurate, and timely dataset.

Integrating administrative data helps DOSM to **reduce redundancies, improve data quality, and provide a more holistic** view of socio-economic indicators. Below are several key **use cases** illustrating how **DOSM leverages administrative data for data integration**:

- **Central Database Hub (PADU)**
- **Malaysia Statistical Population Profile (MSPP)**
- **Birth and Death Data**
- **Marriage and Divorce Data (NCR)**
- **Labour Market Information Analytics Platform (LMIAP)**
- **Social Protection Database (PDPS)**
- **Informal Sector and Micro Industry Database (PDSIIM)**
- **Royal Malaysia Customs Department (JKDM)**

Malaysia Statistical Population Profile (MSPP)

Malaysia Statistical Population Profile (MSPP) as a Driver for Holistic Input Provision

Holistic statistics at the smallest geographical levels can be achieved through the **integration** of the 2020 Malaysian Census data and administrative data from various agencies

PRIMARY DATA

CENSUS DATA 2020

- Implemented on a large scale and encompassing the entire population, this initiative typically serves as the **foundation** for the development of holistic statistics
- Longer operation period for data collection.
- Collecting comprehensive information about each individual in the census area based on internationally recognized concepts and standards
- Involves a larger budget and human resources

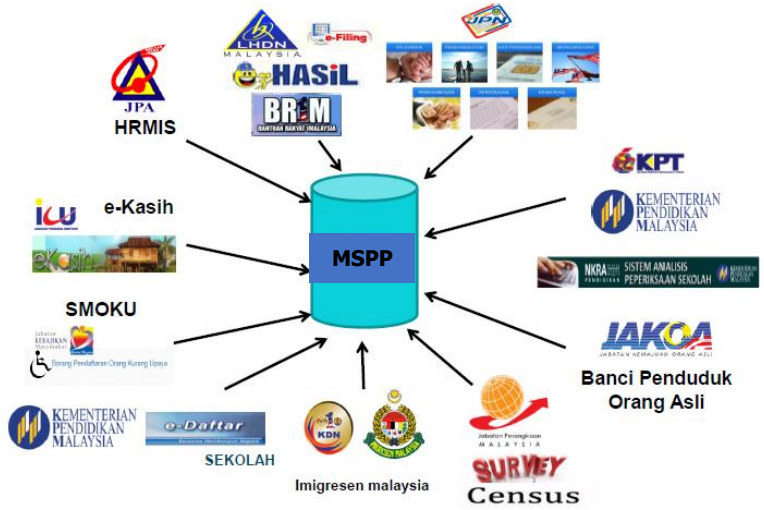
Holistic statistics

SECONDARY DATA

Administrative Data

- In the form of registration/reference records, either periodically or cumulatively
- Data is gathered and maintained by the agency in alignment with the objectives and purposes for which it was acquired
- Requires coordination regarding concepts, classification and frequency before integration with primary data
- Information can be updated, transferred, processed, stored and analyzed more easily and effectively

Census and **administrative data** serve as the foundation for the **development of the MSPP**, supporting a holistic profiling of the population at the district administration level.



- ✓ MSPP is one of the outcomes of the Census Data 2020
- ✓ The goal is to regularly update the MSPP and to implement future censuses at a smaller scale
- ✓ The MSPP relies heavily on the continuous sharing of administrative data
- ✓ During the Census Data 2020, administrative data played a crucial role in enhancing the quality of the census data

4. RECENT INITIATIVE : PEOPLE CENTRIC

RECENT INITIATIVE: MyAgeing Dashboard

MyAgeing Dashboard

Interactive platform
Visualizes data on population aging, life expectancy and demographics from 1970 to the present.

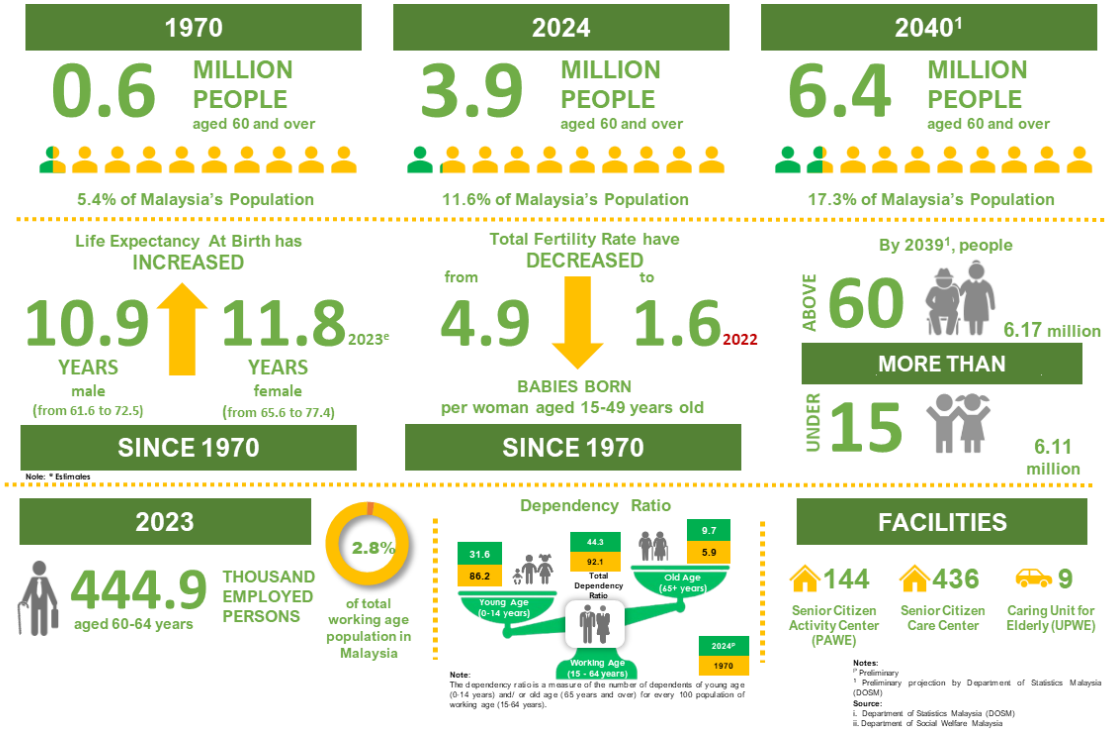
Key Features:
The dashboard includes three main segments, aging population, demographics, and life expectancy offering statistics categorized by gender, ethnicity, and critical indicators like fertility rates and average marriage age.

Data Integration:
MyAgeing Dashboard integrates various primary data sources from DOSM and administrative data from multiple government ministries and agencies, enhancing the depth and reliability of aging-related statistics.

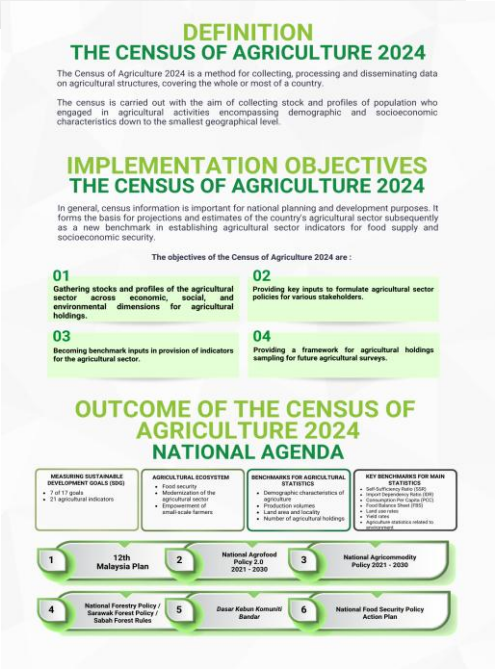
Societal Impact:
The dashboard serves as a vital tool for policy formation and monitoring, especially in addressing challenges related to an aging population in Malaysia.

Future Updates:
The information will be continually updated as new data becomes available, ensuring ongoing relevance and utility for policymakers and the public.

https://www.dosm.gov.my/MyAgeing



RECENT INITIATIVE: MyAgriCensus Portal



Comprehensive Access:

A one-stop platform providing up-to-date statistics on Malaysia's agricultural sector.

Key Features:

Users can explore data on agricultural commodities, crop yields, livestock, Forestry & Logging and fisheries, enhancing informed decision-making in the sector.

User-Friendly:

The portal offers interactive data visualizations and downloadable datasets for stakeholders, researchers, and the public.

Empowering Agriculture:

Contributing to data-driven policy formulation and the advancement of the agricultural industry.

RECENT INITIATIVE: PADU (CENTRAL DATABASE HUB)

Central Database Hub

The government's latest initiative to create a database that serves as a single source of truth to strengthen the implementation of programs and optimize the use of national financial resources for the wellbeing of the rakyat.

Streamlined Data Integration

Leading to faster processing and fewer errors.

Automated Workflows

Automation of repetitive tasks to minimizes the risk of human error

Advanced Analytics

Data can be analyzed quickly and comprehensively

Data Quality Management

Helps in identifying and correcting errors in the data

Collaboration Environment

Easily share projects, results, and workflows among team members

RECENT INITIATIVE: PADU (CENTRAL DATABASE HUB) - (cont'd)

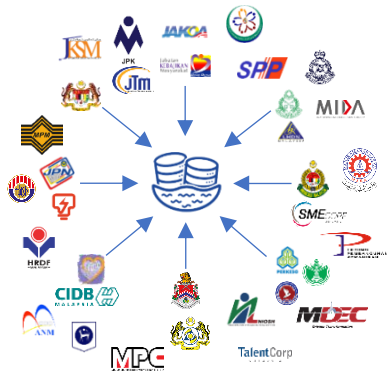
The Department of Statistics Malaysia (DOSM) has embraced **data integration via administrative data** as a cornerstone of its strategy to enhance statistical outputs. This approach involves **consolidating data from various government and administrative sources** to create a comprehensive, accurate, and timely dataset.

Objective

- The provision of a secure, comprehensive, and near real-time national primary database for digitalization and periodic analytical output.
- Policy formulation and decision-making processes based on data.
- Enabling targeted policy implementation to balance fiscal positions.

Central Database Hub (PADU)

The primary database contains microdata integrated from **various government agency** sources.



Individual Information ***Occupation*** ***Income*** ***Education*** ***Demographic*** ***Asset*** ***Utility*** ***Sosial Insurance***

Goal

- Enhancing the efficiency of government service delivery systems.
- Optimizing the utilization of limited resources.
- Empowering the social system through the improvement of economic well-being for the people.
- Narrowing the socioeconomic gap by balancing the needs of the people.

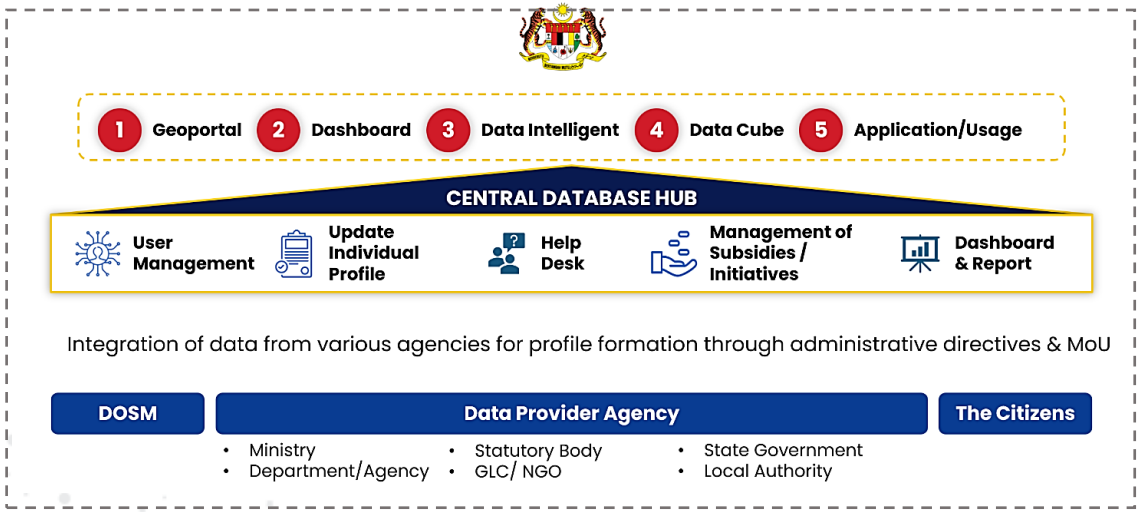
Integrating administrative data helps the Department of Statistics Malaysia (DOSM) reduce duplication, improve data quality and get a holistic picture of socio-economic indicators.

The **Central Database Hub (PADU)** shows how DOSM uses data integration. PADU is a database with profiles of individuals and households in Malaysia who are 18 years or older. These profiles are updated regularly using data from various sources. Citizens can directly check and update their information in the PADU system.

PADU was launched on **2nd January 2024**, by the Prime Minister of Malaysia.

منتدى الدوحة للبيانات
من أجل الابتكار في التنمية المستدامة
DOHA DATA FORUM
FOR INNOVATION IN SUSTAINABLE DEVELOPMENT

RECENT INITIATIVE: PADU (CENTRAL DATABASE HUB) - (cont'd)



Collaborate with Other Government Agency

- Integration and consolidation of data from various agencies to create a single reference profile for the Malaysian population.
- Targeting the integration of administrative data sources

455 Agency of the Public Sector and various other agencies

- **70** Ministry/ Department/ Agency
- **134** State statutory bodies
- **13** State Government
- **155** Local Authorities
- **83** Federal statutory bodies

PADU System framework towards data as a strategic national asset

Generating comprehensive and near real-time integration of individual profile data to enable efficient service delivery to the citizens.

PADU Mechanism

AUTHORITY
Establishing clear authority crucial for fostering effective data sharing among government agencies.

GOVERNANCE
Comprehensive & integrated governance framework, including strategic direction, mapping program and expertise sharing

EXPERTISE MOBILIZATION
Establishment of teams that mobilize public sector expertise from various agencies

SYSTEM INTEGRITY
Dynamic, responsive, user-friendly system and optimal cybersecurity network.

ENGAGEMENT
Based on a people-centric, urban/rural inclusiveness and nation building.

STRATEGIC COLLABORATION

MiMPU BERSAMA-SAMA MELAKSANAKAN TRANSFORMASI
NACSA
CyberSecurity MALAYSIA
CGSO CHIEF GOVERNMENT SECURITY OFFICE

- The PADU system maintains and ensure the security of profile data shared
- All information or individual data within PADU is "CONFIDENTIAL"

RECENT INITIATIVE: PADU (CENTRAL DATABASE HUB) - (cont'd)

Responsibilities of the Citizens: To verify, update and provide accurate, precise and current information.

39 information need to be reviewed and updated for the following themes:

Basic Information
Personal Information, Disability Status, and Communication Information

Address
Permanent address, current address, and residence status

Education
Information on the highest level of education and field of study

Household
Information of Head of Household & Household Members

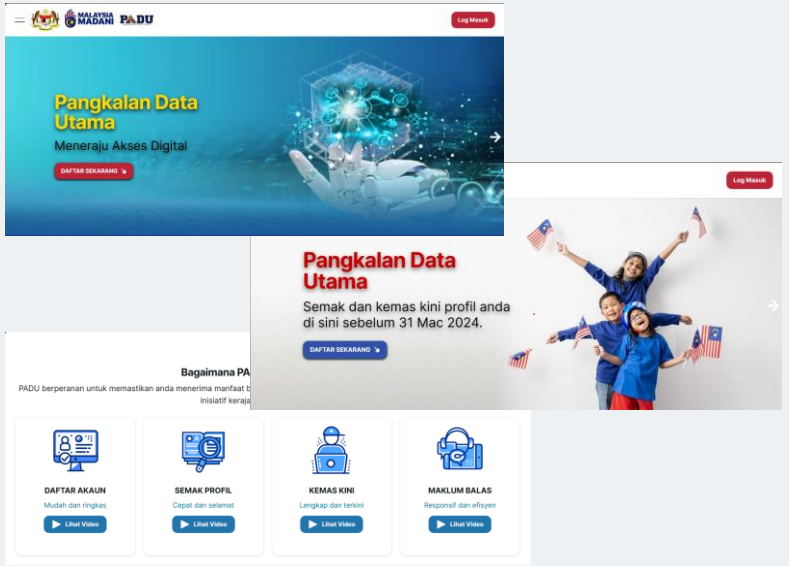
Employment
Current Employment & Business Information

Income
Income information & one-off

Commitment
Information on Responsibility Costs and Expenditures

Assistance
Information on Government Assistance Received

Declaration
Validation and Declaration of Data



Through PADU portal :

www.padu.gov.my

Every individual aged 18 years and above is responsible for..

Review and Update of Information
2 January till 31 March 2024

Ensuring that information is ACCURATE and TRUE

RECENT INITIATIVE: PADU (CENTRAL DATABASE HUB) - (cont'd)

Potentials Outcome

PADU
Central Database Hub

PADU serves as the government's single point of reference in formulating and implementing policies and programs aimed at enhancing the well-being of the people, including:

#1 Enhancing the management of assistance and subsidy distribution

#2 Strengthen disaster and crisis management frameworks

#3 Address the mismatch between employment and education

#4 Prepare the nation for the challenges of an aging population

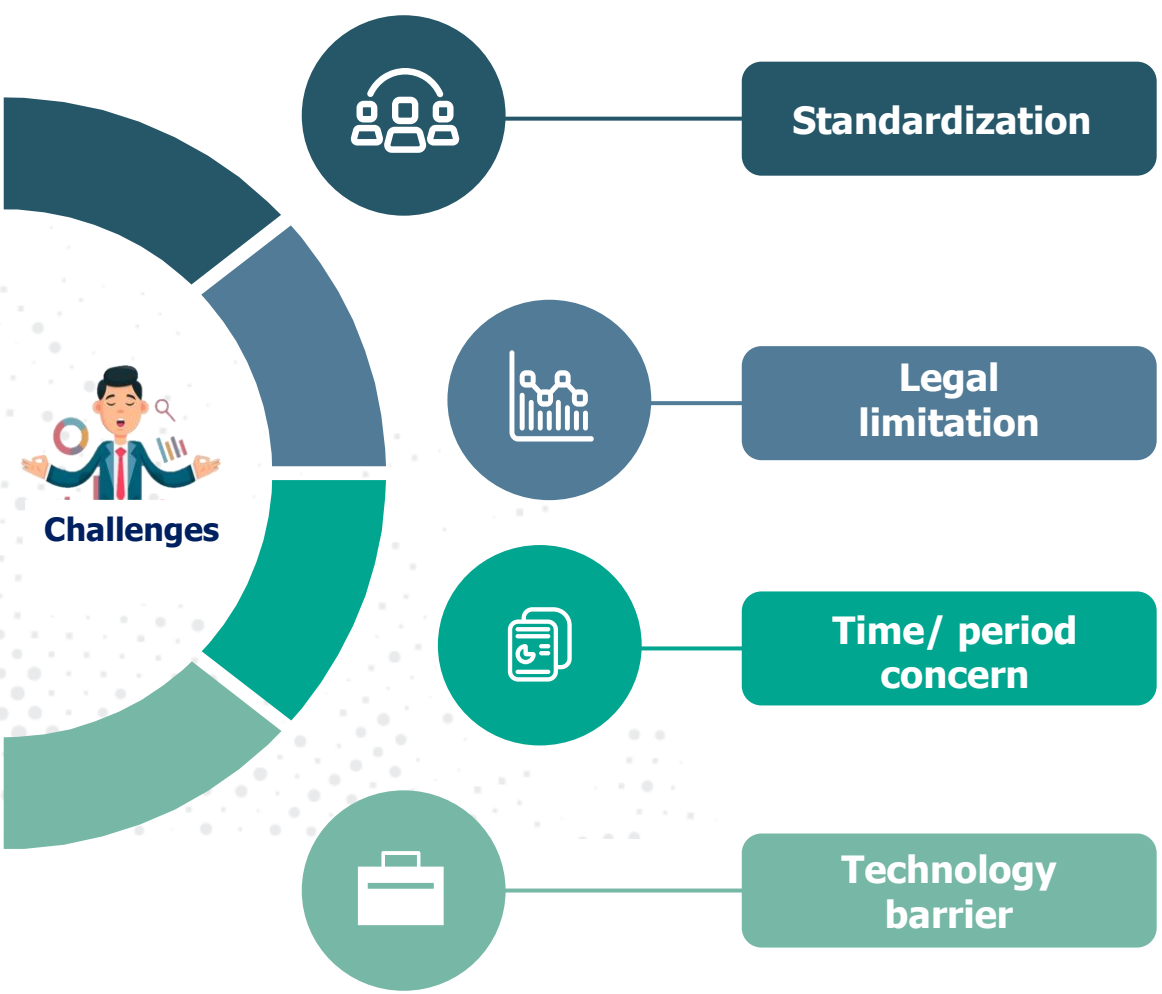
#5 Bridge gaps in social protection systems

#6 Enable more strategic national budget management

#7 PADU serves as an engine for the Digital Government transformation

RECENT INITIATIVE: PADU (CENTRAL DATABASE HUB) - (cont'd)

Data Integration Experiences



Standardization

- Data decentralized
- Variable used not uniform and incomplete
- Data aggregate for certain area/ topic
- Error in data from early registration process

Legal limitation

- Agencies limiting personal data information
- Subject to act/ legal terms
- Assurance and trust issues

Time/ period concern

- Difference reference periods in database
- Late registration vs real information
- Information not in real-time

Technology barrier

- Technology
- Only few data management expertise

KEY CHALLENGES

PADU

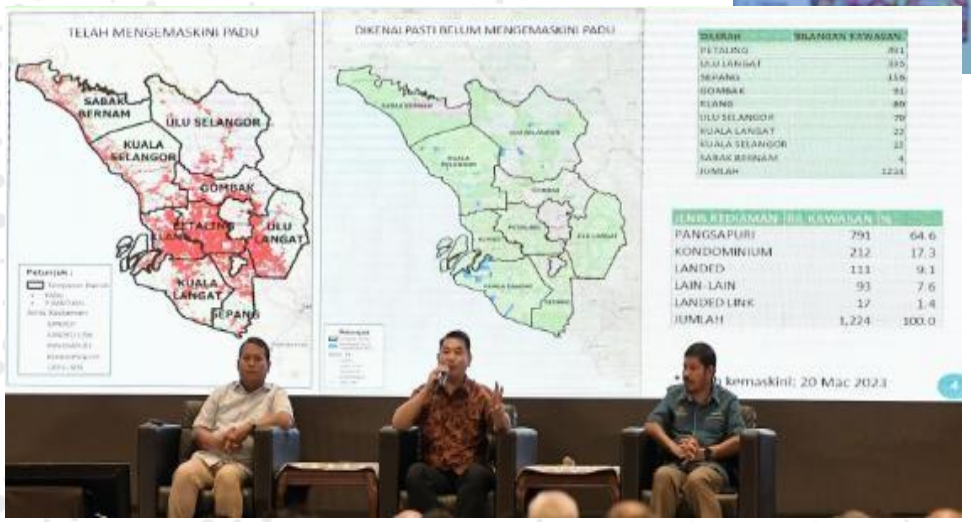
Central Database Hub

The **integration of administrative data** has allowed the Department of Statistics Malaysia (DOSM) to minimize redundancies, improve data quality, and provide a more thorough perspective on socio-economic indicators.

Despite encountering several **significant challenges** throughout this process, DOSM effectively managed these issues and achieved enhanced outcomes.

RECENT INITIATIVE: PADU (CENTRAL DATABASE HUB) - (cont'd)

Stakeholder Engagement



RECENT INITIATIVE: PADU (CENTRAL DATABASE HUB) - (cont'd)

Community Engagement

"Gemilang"

Di arus zaman berubah
moden dan penuh rintangan
tetap melangkah dan berevolusi
dan menuju matlamat jaya

Seiring dan seirama
bersama tekad di hati
misi dan visi berinovasi
Gah di mata dunia

Chorus

Gemilang, perangkaan jitu
data terpelihara
pelbagai anugerah
membuktikan kita juga berdaya
Gemilang, harumkan negara
di antarabangsa
berpadu tenaga, berganding bahu
dan kejayaan di rasa

Langkah strategi di yakini
kejayaan di kecapi
sejarah yang terukir
menjadi inspirasi

VIDEO "GEMILANG"
https://bit.ly/DOSMGemilang

منتدى الدوحة للبيانات
من أجل الابتكار في التنمية المستدامة
DOHA DATA FORUM
FOR INNOVATION IN SUSTAINABLE DEVELOPMENT

THANK YOU

BANCI 2024 PERTANIAN
KUNCI KEMAJUAN PERTANIAN

MALAYSIA MADANI

1949-2024 DOSM 75
Ulang Tahun Jubli Intan
JABATAN PERANGKAAN MALAYSIA
STATISTIK NADI KEHIDUPAN

20 OKTOBER

2016-2030

StatsMalaysia
www.DOSM.gov.my

ثروة وطن
FAMILY IS THE TREASURE OF A NATION
السنة الدولية للأسرة • قطر 2024
International Year of the Family • Qatar 2024

الأسرة

المجلس الوطني للتخطيط
National Planning Council
State of Qatar • دولة قطر