MINISTRY OF ECONOMY
DEPARTMENT OF STATISTICS MALAYSIA

SESSION 5:
OPENDOSM: BUILDING A CITIZEN DATA CENTRIC CULTURE

By:
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Doha Data Forum for Inclusive Data Ecosystems and Effective Decision Making, State of Qatar

Presentation Outline

01 Introduction

02 Data-Driven Culture

03 Data-Driven in Zakat and Waqf Management

04 Towards a Citizen Data-Centric Culture

05 Bridging the Gap: Communicating Statistics for Everyone

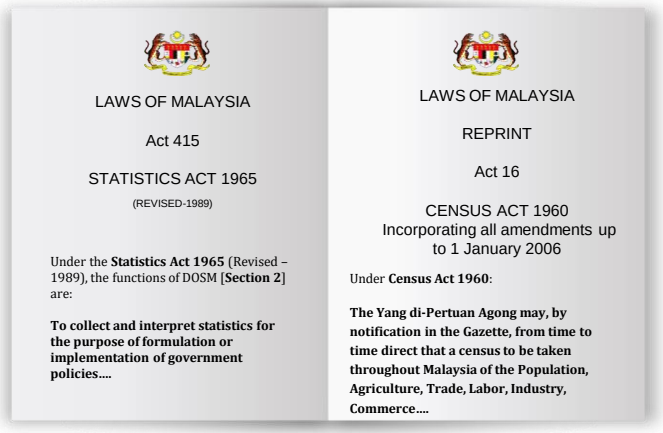
06 Innovate, Collaborate, Transform: The Journey of Open Data in Malaysia

07 What's Next?

Introduction

Department of Statistics, Malaysia (DOSM) as the National Statistics Provider

- DOSM was established in 1949 and produces statistics on the external trade and estate agriculture.
- **Role**: to provide quality, user-oriented and timely information for policy making and national development.
- **Function**: to collect, interpret and disseminate statistics under the Statistics Act 1965 (Revised 1989) and Census Act 1960 (Revised-1969) to various stakeholders.



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....

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....

Strengthening the National Statistical System

Strengthening the National Statistical System is crucial for informed decision-making and effective policy implementation. DOSM has outline strategies to strengthen the National Statistical System in Malaysia, among others are:

- Establishment of National Statistics and Data Council (NSDC)
- Appointment of Chief Data Officer (CDO)
- Amendments of Statistics Act 1965 (Revised 1989)
- Establishment of National Big Data Analytic Centre (NBDAC)
- Establishment of Change Management Office (CMO)

Towards a Citizen Data-Centric Culture

While data-centric culture varies across countries worldwide and becoming increasingly important in many organizations. Based on guide towards data driven culture and Data-Driven Maturity Model, there are five (5) stages in this area which each stage criteria are as follows:

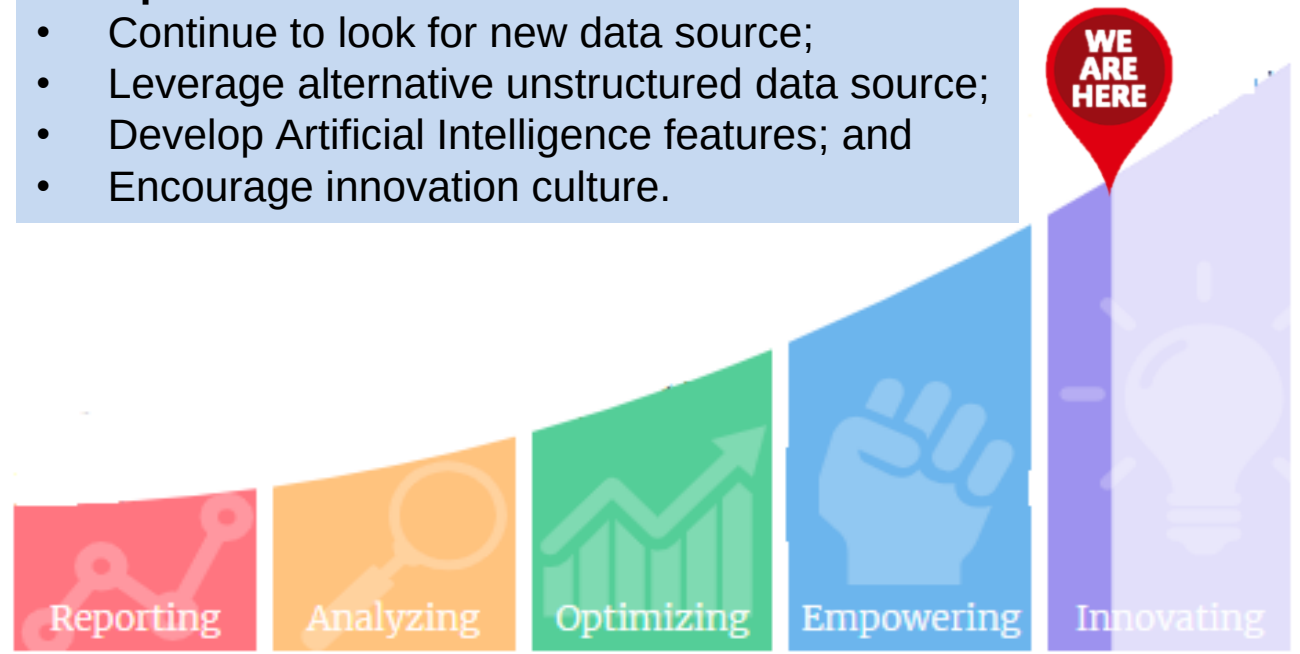
- **Reporting:** Visualise existing data and create the foundation analytical future;
- **Analysing**: Drive deeper into the data to achieve insight into why things happened;
- **Optimizing**: Optimize business processes by integrating analytical insight;
- **Empowering**: Empower employee and products with data and analytical capabilities: and
- **Innovating**: Use data and experiment to innovate in products and transform the organisation.

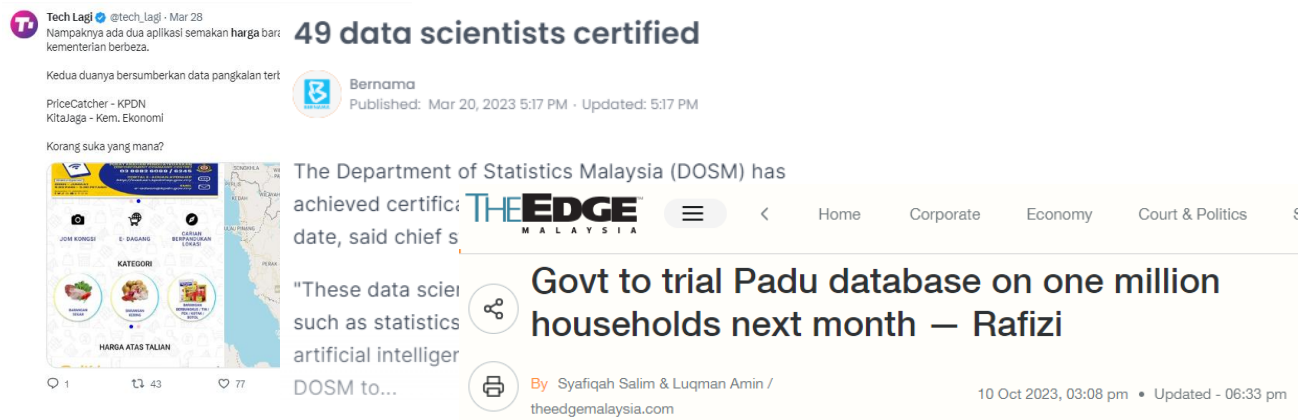
sources: 10 Steps to Creating a Data-Driven Culture (hbr.org)
https://data-driven.rubenbuitelaar.com/model

Introduction

Next plan for DOSM:

- Continue to look for new data source;
- Leverage alternative unstructured data source;
- Develop Artificial Intelligence features; and
- Encourage innovation culture.





No.	Phase	Focus and DOSM's Achievement
1.	Reporting	**Focus**: To make data available for analysing and do basic report. **DOSM**: eStatistics, OpenDOSM, StatsDW, Publication at granular level (Publication of Subnational Statistics of Parliament, State Legislative Assembly and My Local Stats).
2.	Analysing	**Focus**: To look deeper into the data to find insight. The analytical models can be created. **DOSM**: Nowcasting Malaysia's GDP with Machine Learning, Price Intelligence
3.	Optimizing	**Focus**: To develop and operationalizing prescriptive analytics. **DOSM**: Job Market Insight, Public Maturity Assessment On Official Statistics
4.	Empowering	**Focus**: Empowering employee with tools and knowledge to improve organization's role and function. **DOSM**: 49 SAS Certified Data Scientist
5.	Innovating	**Focus**: Continuous improvement towards organization's innovative products and services **DOSM**: National Central Database (PADU)

Data-Driven Culture

Data Driven Decision Making

1

Qualitative
Analysis is based on observation rather than measurement.

2

Quantitative
Analysis focuses on numbers and statistics.

Advantage of Data Driven Culture

1. Gain Data Insights
2. Measure Performance & Efficiency
3. Measure Satisfaction
4. Recognise Error
5. Understanding User Desires & Needs
6. Identify Trends & Future Opportunities

The Importance of Data Driven Decision Making

01 Knowledge and Innovation

02 New Business Opportunities

03 Better Communication

04 Unrivalled Adaptability

05 Continual Growth

Data-Driven in Zakat and Waqf Management

No Asnaf Is Left Behind

1 Household Profile

Creating Comprehensive Muslim Household Profiles

2 Robust Business Register

Maintaining a Robust Business Register Owned By Muslims

Effective Data Management

3 Geospatial Technology

Utilizing Geospatial Technology to Identify Areas Requiring Assistance

4 Employing Data Science And Analytics

Employing Data Science And Analytics to Develop Profiles of Zakat and Waqf Payers and Receivers.

Data Science in Enhancing the Capabilities of Religious Institutions Responsible for Zakat And Waqf

1. To Involve in Strategic Activity
2. Enhancing Zakat and Waqf Collection Methods
3. Ensuring a More Equitable Distribution of Social Assistance
4. Preventing Assistance Duplication
5. Tailoring Social Aid Based on Individual Needs
6. Conducting Precise Analyses of Zakat and Waqf Management
7. Integrating Them Into a Unified National Social Protection Single Reference System.
8. Data Governance and Data Management of Zakat and Waqf Through Data Collaboration and Partnership

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DEPARTMENT OF STATISTICS MALAYSIA

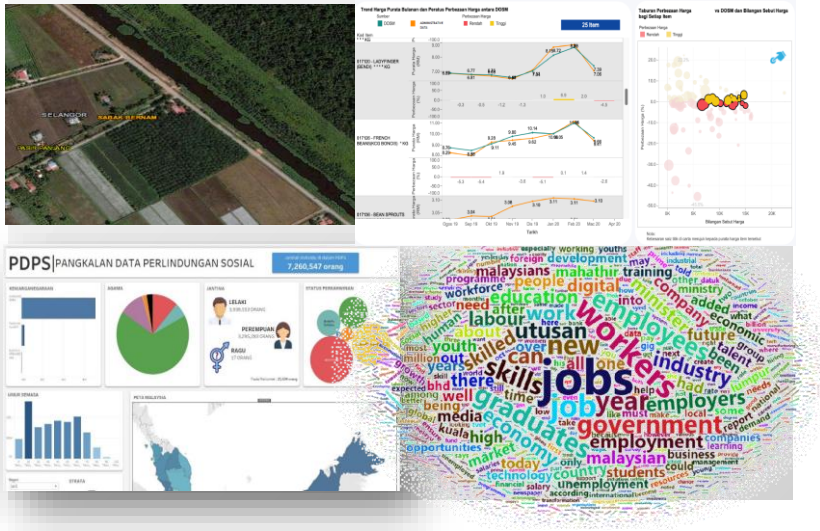
Towards a Citizen Data-Centric Culture

StatsMalaysia
www.DOSM.gov.my

Initiative on Big Data for Official Statistics: Unlocking the full potential of Big Data

DOSM is moving towards Big Data Analytics (BDA) in producing more reliable and timeliness official statistics. Thus, DOSM has initiated the implementation of BDA with the project of STATSBDA which is in line with DOSM's Transformation Plan 2015-2020. The objectives of the implementation of STATSBDA are to:

- Modernise the data collection;
- Allow high accuracy;
- Reduce respondents' burden;
- Use as supplements for existing data in production of certain statistics; and
- Produce new statistical indicators.



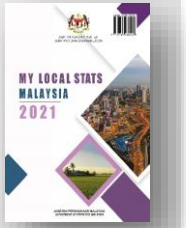
Small Area Statistics: Supports Evidence-Based Decision

Publication of Subnational Statistics of Parliament & State Legislative Assembly (DUN)

822 PUBLICATIONS

222 for Parliament, 600 for State legislative Assembly (DUN) levels

Publication of My Local Stats



173 PUBLICATIONS

1 for Malaysia, 16 for state levels and 156 for administrative district levels

Mobile Apps

My Local Stats Mobile Apps can be downloaded through the Apps Store (IOS) or Play Store (Android) with the search term DOSM

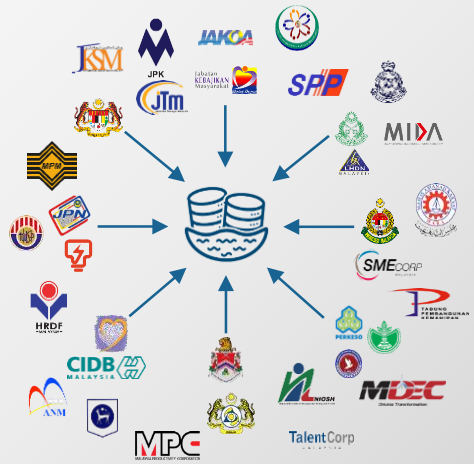
Web version

My Local Stats Interactive Visual is provided in the DOSM portal version accessible via the link:
https://tinyurl.com/dashboardmylocalstats

National Central Database (PADU): Data-Centric Government

The implementation of PADU started with phase 1 in June 2023 and is expected to be completed in January 2024. PADU will create individual profiles of Malaysians that contain comprehensive household information with objectives to:

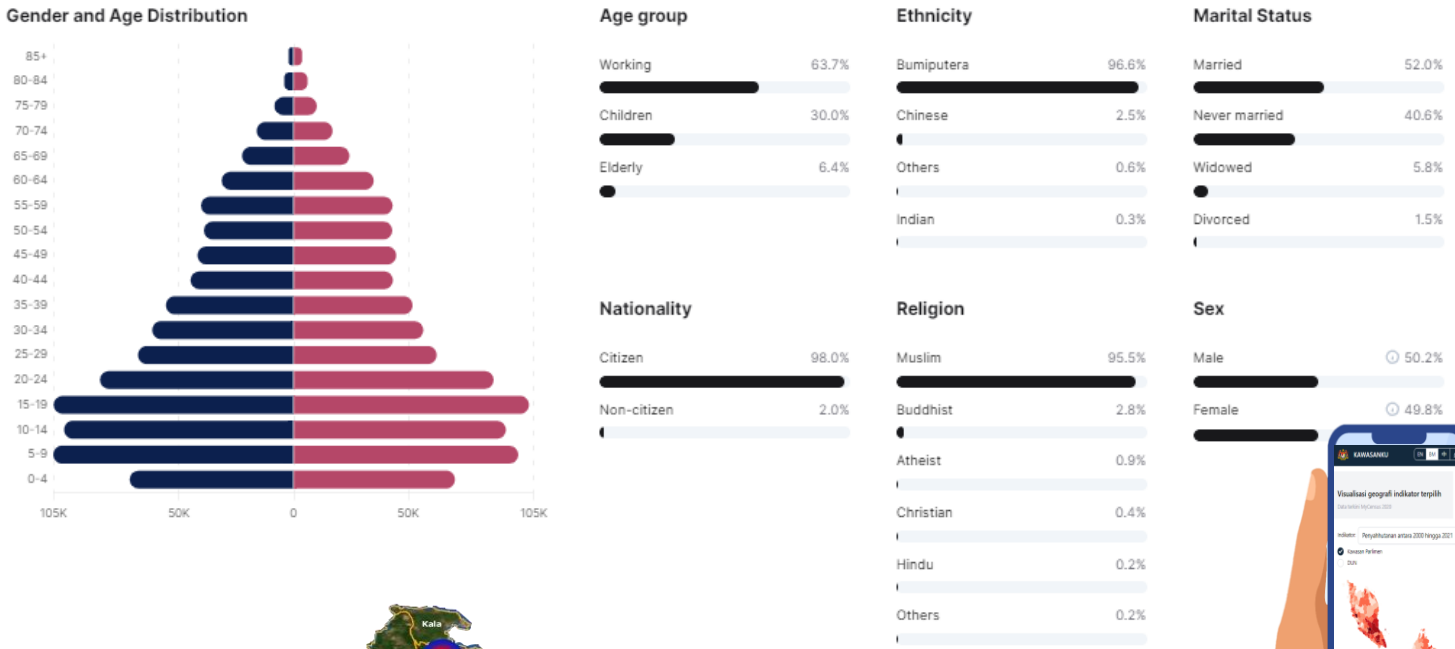
- Strengthening the fiscal position through targeted policy implementation;
- Production of periodically analytics (frequency based) for the purpose of policy formulation; and
- Digitalisation without leakage and waste.

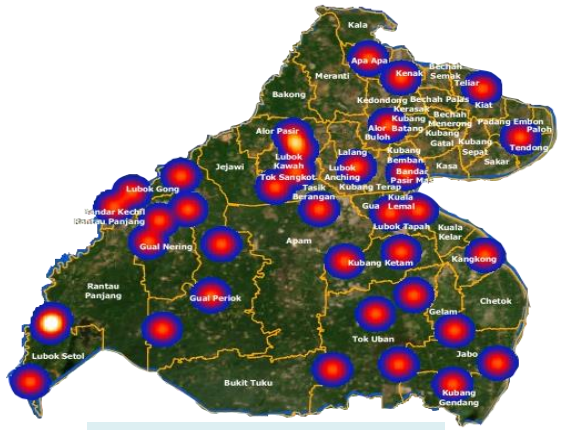


Towards a Citizen Data-Centric Culture *(cont'd)*

Kelantan has a population of 1,792,501 people. What does this population look like?

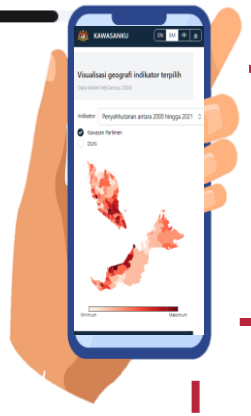
Data as of MyCensus 2020





Area Affected By Flood

Use Case: Data For Disaster Management



MONTHLY GROSS HOUSEHOLD INCOME, 2019

	MEAN (RM)	MEDIAN (RM)
T20	11,597	10,883
M40	4,446	4,256
B40	2,217	2,296
TOTAL	**4,745**	**3,341**

HEALTH

1 GOVERNMENT HOSPITAL

29 GOVERNMENT CLINIC

SAFETY

16 POLICE STATION

2 FIRE STATION

EDUCATION

56 PRIMARY SCHOOL

25 SECONDARY SCHOOL

Source : My Local Stats 2021, Pasir Mas, Kelantan

Bridging the Gap: Communicating Statistics for Everyone

Data literacy through engagement sessions curated for everyone

DOSM believe in making the data accessible to everyone, host engagement sessions for diverse audiences, including students and the community is a must. These sessions serve as interactive platforms for sharing knowledge, fostering discussions, and building awareness about the importance of data literacy.

Through these curated engagement, DOSM aim to empower citizen with the skills and understanding the needs to navigate the data-driven world effectively for ensuring that no one is left behind in this era of information.

Engagement: Community

Engagement: Students

Engagement: Parliament Representative

Malaysia Data Innovation Talent X DOSM Datathon

Bridging the Gap: Communicating Statistics for Everyone (cont'd)

Strategic collaboration with various stakeholders

DOSM successfully implement and sustain the MOU with 6 Government/Agency, 15 Public Universities, 1 International Organisation, 9 Private Universities and 5 Private Companies to collaborate in data analysis, research sharing and new findings.

Current collaboration were DOSM- MAIWP (Islamic Religious Council of Federal Territory) with the studies on Utilising Data To Automate The Process Of Determining The Assistance Amount Using Machine Learning.

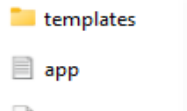
Developing web calculator using python based application

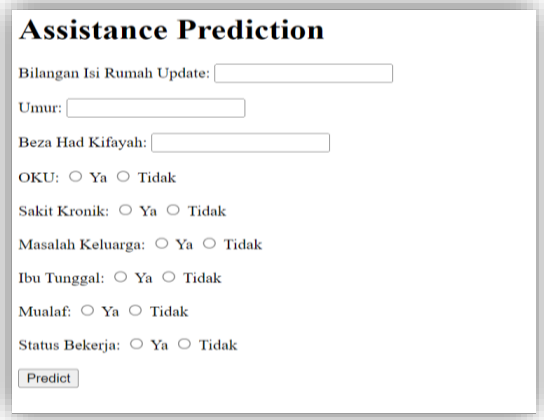
```
from flask import Flask, request, render_template
import pickle

app = Flask(__name__)

# Load the Decision Tree model from the pickle file
with open('pickle_tree.pkl', 'rb') as file:
    model = pickle.load(file)

@app.route('/', methods=['GET', 'POST'])
def index():
    if request.method == 'POST':
        # Get user input from the form
        Bil_Tanggungan = int(request.form['Bil_Tanggungan'])
        Umur = int(request.form['Umur'])
        Beza_Had_Kifayah_negative_positive =
float(request.form['Beza_Had_Kifayah_negative_positive'])
        OKU = int(request.form['OKU'])
        Sakit_Kronik = int(request.form['Sakit_Kronik'])
        Family_Prob = int(request.form['Family_Prob'])
        Ibu_Tunggal = int(request.form['Ibu_Tunggal'])
        Mualaf = int(request.form['Mualaf'])
        Status_bekerja = int(request.form['Status_bekerja'])
```



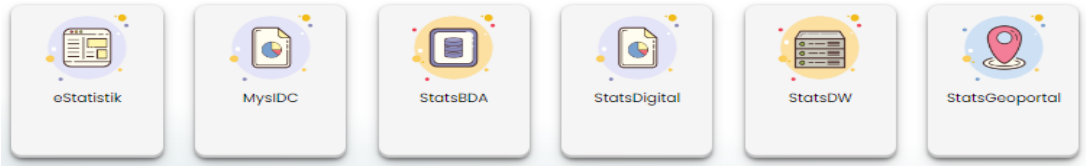


Bridging the Gap: Communicating Statistics for Everyone *(cont'd)*

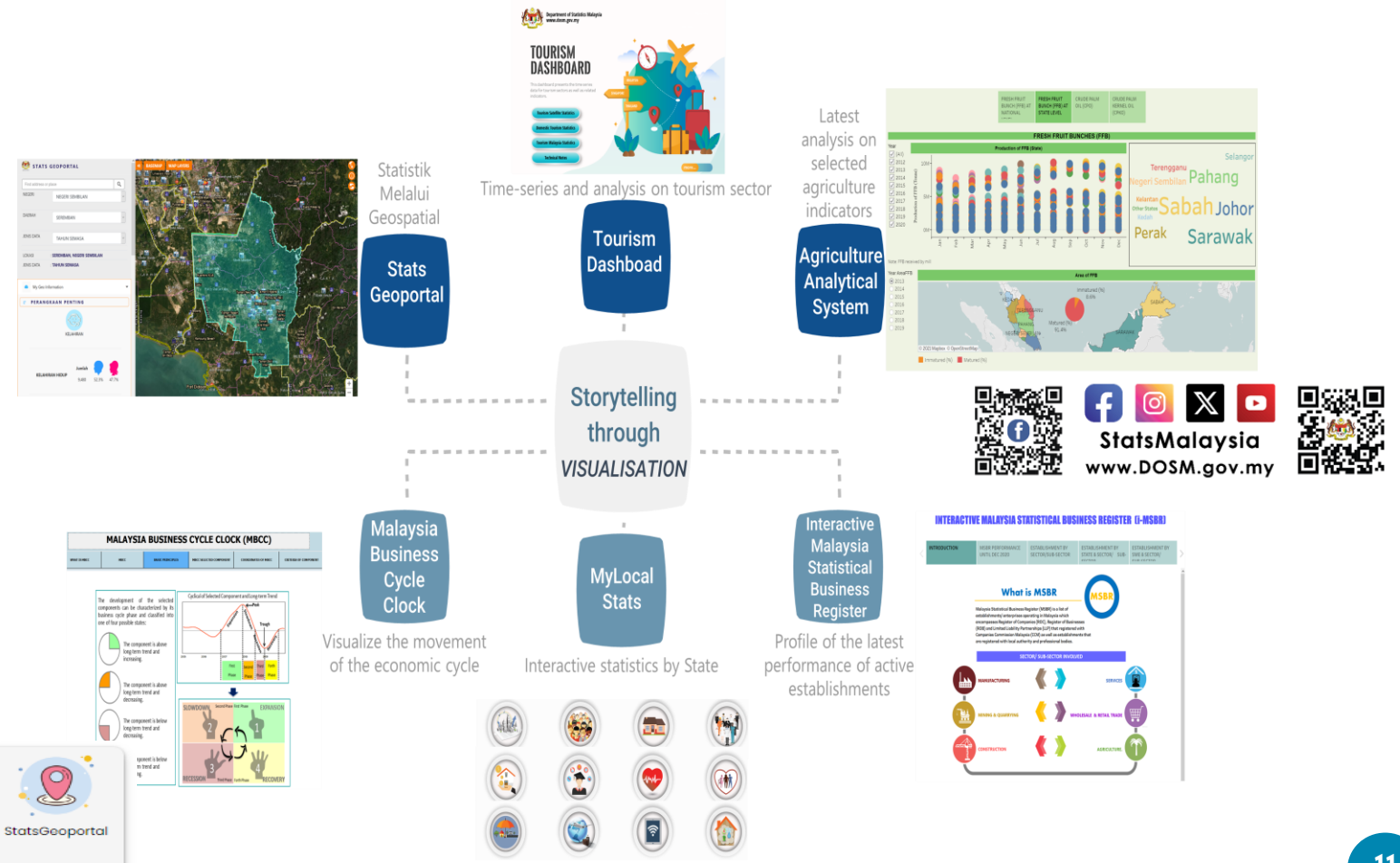
Statistics communication through visualisation & social media

DOSM has traditionally presented its data in many ways: in articles, press releases, tables, databank, maps, bar charts, pie charts, and line graphs.

New interactive visualisation techniques were first introduced in 2015, with the Industrial Production Index and the Population Pyramid as the best known examples. These visualisations give a clearer insight into how important data on a specific area interact and this storytelling give a lasting impact to the user/reader.



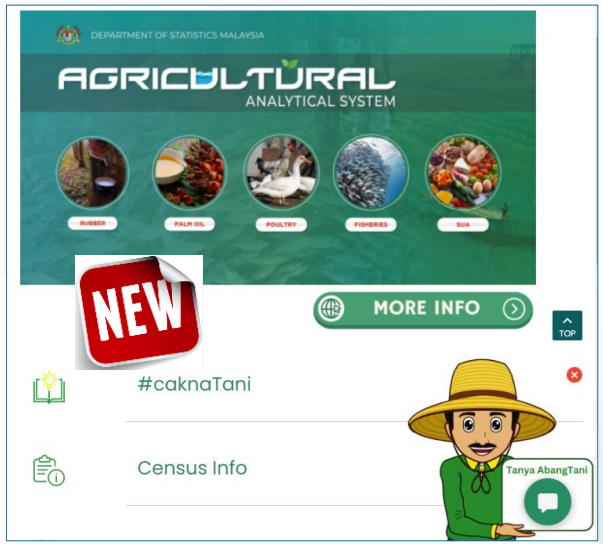
DOSM's online services includes 14 dashboards, 6 data portal and 15 interactive visualizations covering various themes .



Bridging the Gap: Communicating Statistics for Everyone *(cont'd)*

DOSM's Online Services

- Agricultural Analytical
- Job Market Insights
- Kawasanku
- MER Dashboard
- My Job Profile
- MyCenDash
- MyDemography
- MyIOT
- MyLMID
- MyPrice Dashboard
- SDG Dashboard
- Tourism Dashboard
- National Occupational Accident & Disease Statistics
- OpenDOSM



- CPI Capsule
- CPI Inflation Calculator
- Interactive Distributive Trade (i-DT)
- Interactive Malaysia Statistical Business Register (i-MSBR)
- Malaysia Business Cycle Clock
- MalaysiaInfo
- METS Online
- Mobile Apps DOSM
- Phillips Curve
- Population Clock
- Population Quick Info
- SEEA Capsule

- eStatistik
- MysIDC
- StatsBDA
- StatsDigital
- StatsDW
- StatsGeoportal
- International Merchandise Trade Malaysia & ASEAN
- Life Expectancy System
- MyLocal Stats

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Innovate, Collaborate, Transform: The Journey of Open Data in Malaysia

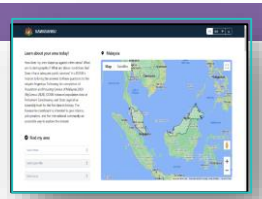
StatsMalaysia
www.DOSM.gov.my

DOSM Open Data initiative started way back in 2012 through *Malaysia Informative Data Centre* (MysIDC).

MysIDC 2012

2022 OpenDOSM GitHub

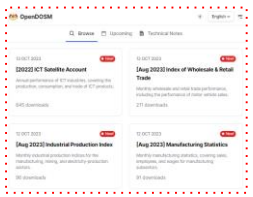
Kawasanku 2022



OpenDOSM NextGen: Offers a modern platform to open data access.

OpenDOSM NextGen

2023



Launched: 12 Jan 2023

New Facelift: 21 Sep 2023

The Motivation

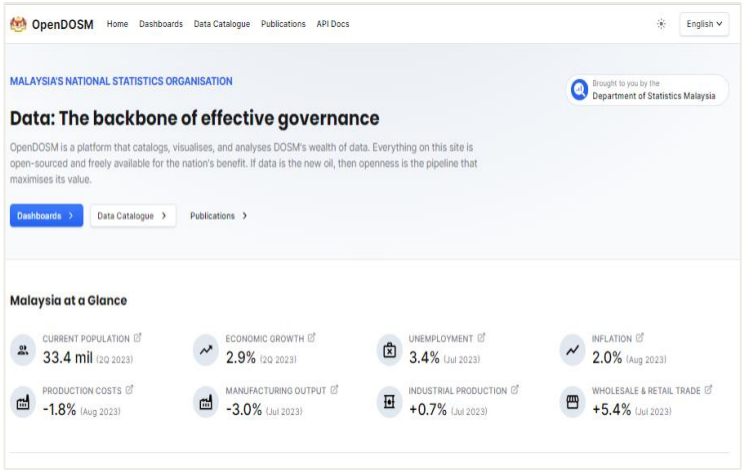
DOSM embraces a dual approach, guided by the principles of **FAIR** and **CARE** to provide open data through **OpenDOSM**, a **modern platform for easy access to open data.**

FAIR ensures data is:
- ★ **F**indable
- ★ **A**ccessible
- ★ **I**nteroperable
- ★ **R**eusable

CARE principles emphasize:
- ✓ **C**ollective Benefit
- ✓ **A**uthority to Control
- ✓ **R**esponsibility
- ✓ **E**thics

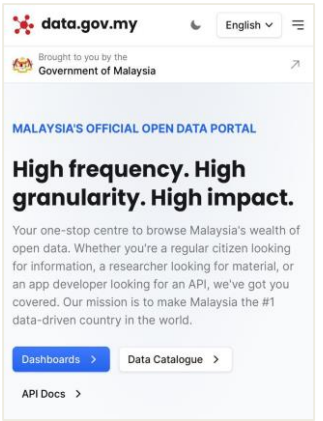
The Output

OpenDOSM

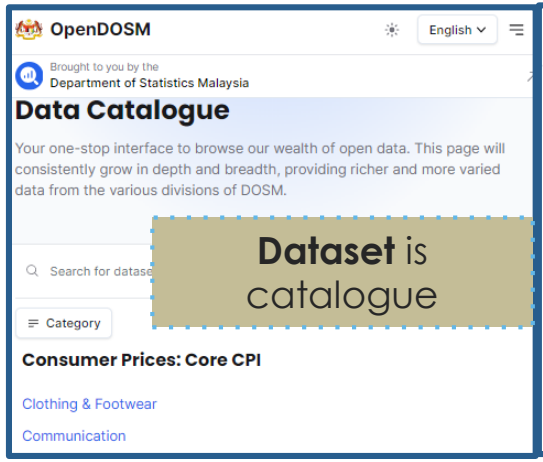


The Outcome

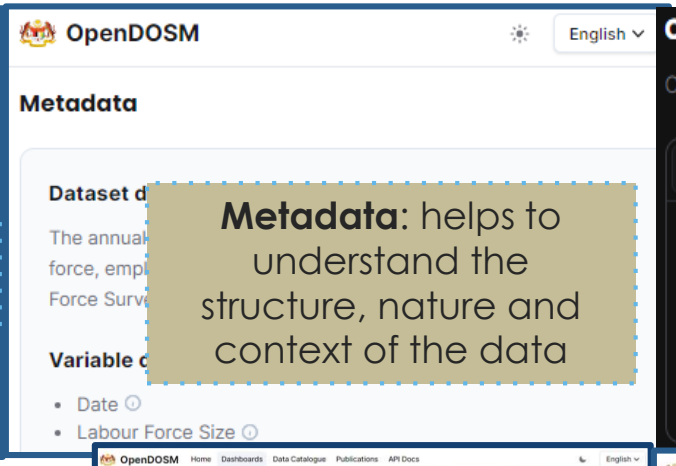
OpenDOSM led to a successful collaborative effort and value creations.



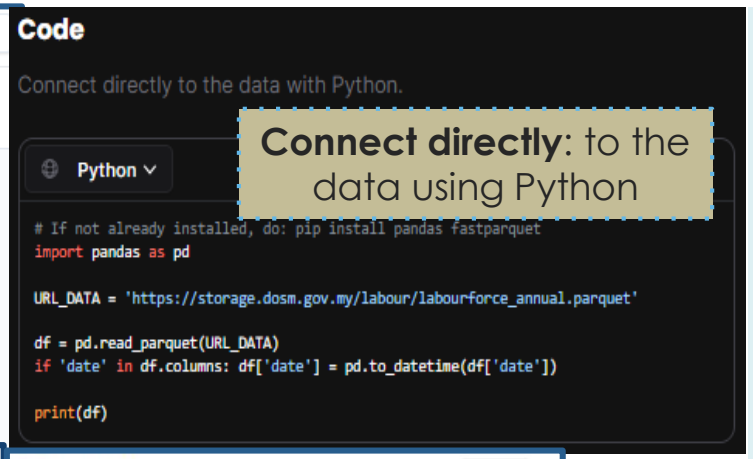
Innovate, Collaborate, Transform: The Journey of Open Data in Malaysia *(cont'd)*



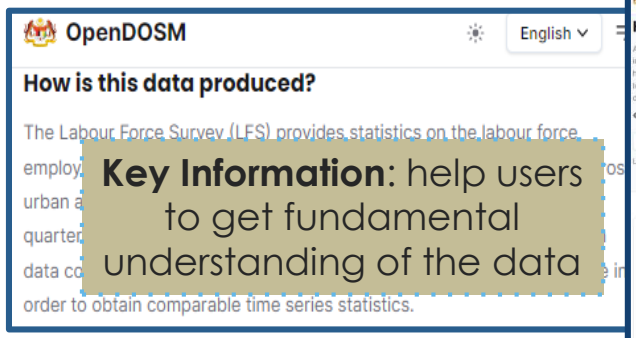
Dataset is catalogue



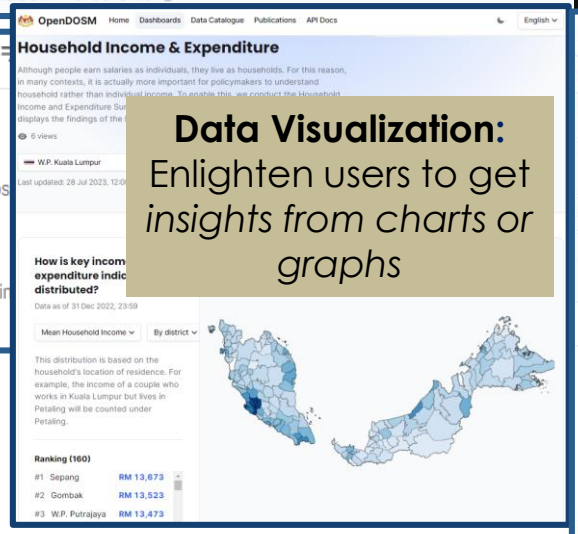
Metadata: helps to understand the structure, nature and context of the data



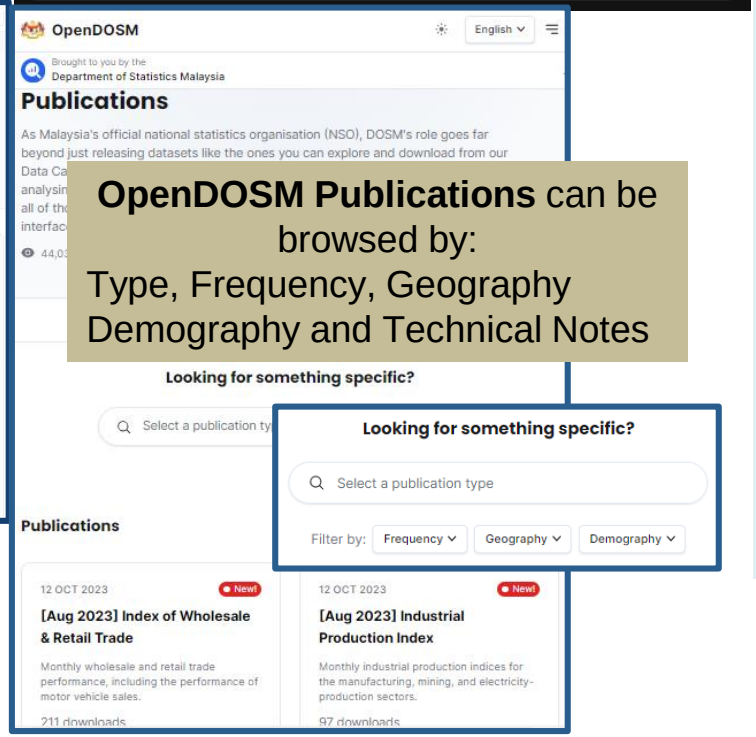
Connect directly: to the data using Python



Key Information: help users to get fundamental understanding of the data



Data Visualization: Enlighten users to get *insights from charts or graphs*



OpenDOSM Publications can be browsed by:
Type, Frequency, Geography
Demography and Technical Notes

OpenDOSM

https://open.dosm.gov.my/

21 Dashboard

i. Balance of Payments
ii. Consumer Prices
iii. Construction Statistics
iv. Composite Indices
v. Exchange Rates
vi. External Trade Statistics
vii. Formal Sector Wages
viii. Gross Domestic Product
ix. Household Income & Expenditure
x. Industrial Production
xi. International Investment Position
xii. Kawasanku (MyArea) @OpenDOSM
xiii. Labour Markets
xiv. Labour Productivity
xv. Life Expectancy
xvi. Manufacturing Statistics
xvii. Producer Prices
xviii. Population of Malaysia
xix. Services Statistics
xx. Services Produces Prices
xxi. Wholesale & Retail Trade

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Innovate, Collaborate, Transform: The Journey of Open Data in Malaysia *(cont'd)*

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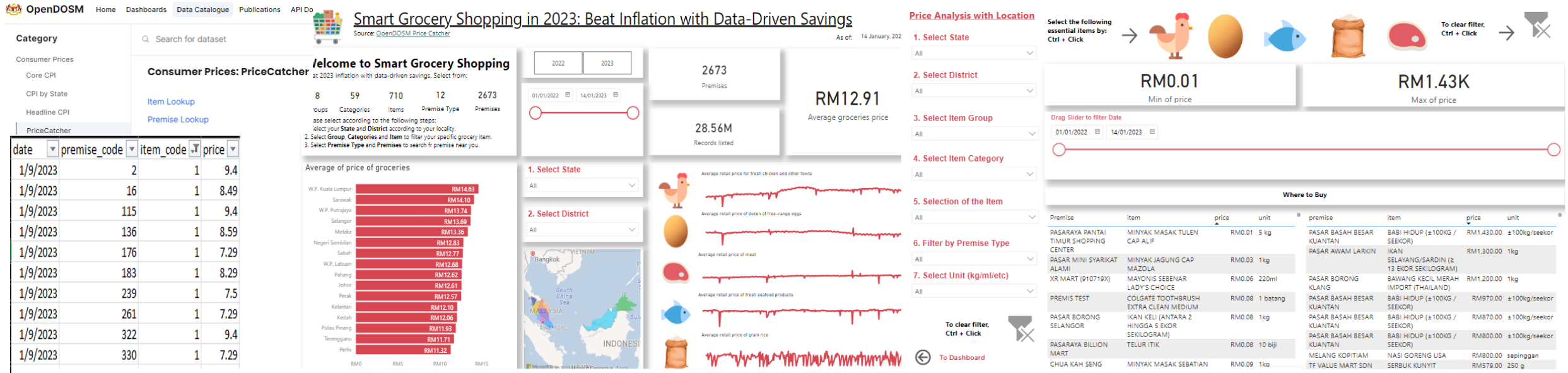


date	premise_code	item_code	price
1/9/2023	2	1	9.4
1/9/2023	16	1	8.49
1/9/2023	115	1	9.4
1/9/2023	136	1	8.59
1/9/2023	176	1	7.29
1/9/2023	183	1	8.29
1/9/2023	239	1	7.5
1/9/2023	261	1	7.29
1/9/2023	322	1	9.4
1/9/2023	330	1	7.29

kitajaga.co | kitajaga.eth
@kitajagaMY · Follow

Alhamdulillah, kami masih ada dan kami masih ingin membantu

Kini Kitajaga.co berkolaborasi bersama dengan Kementerian Ekonomi dalam membangunkan aplikasi Cek Harga agar rakyat semakin peka dan mudah untuk menyemak dan membandingkan harga barangan.

3:24 PM · Mar 27, 2023

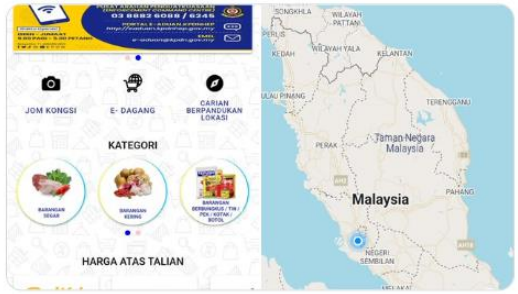
Tech Lagi @tech_lagi · Mar 28

Nampaknya ada dua aplikasi semakan **harga** barang dilancarkan oleh dua kementerian berbeza.

Kedua duanya bersumberkan data pangkalan terbuka oleh **OpenDOSM**.

PriceCatcher - KPDN
KitaJaga - Kem. Ekonomi

Korang suka yang mana?



1 · 43 · 77 · 10.9K

Syarmine Shah
@SyarmineS · Follow

Kudos! OpenDOSM is really a game changing for Malaysian. Your dashboard inspired me to test this via @PowerBI. #OpenDOSM relatively easier to be queried. It's like a Pandora Box, making us closer to become data-driven society.

kassim babe @haze_yii · May 22
Replying to @irwanfahmiid and @KPDN_HQ

Entah la saya selalu pakai **OpenDOSM** nak check **harga**. Mungkin kawasan saya tu je la kot yang ok. And tbf, saya selalu beli borong. Dan disebabkan supply and demand, saya pilih mana yang murah untuk saya.

Kinda bias from my position tbh.

117

OpenDOSM implementation led to a successful collaborative effort and value creation

What's Next?

Way Forward

01 Leverage **alternative unstructured data sources** that is valuable source of information for AI models.

02 Continue to look for **new data sources** as new data sources can offer different perspectives towards more informed decisions.

03 **Develop Artificial Intelligence features** that support and create new products and services, and improve the efficiency and effectiveness of existing ones.

04 Enhance the OpenDOSM by providing more **comprehensive data** at granular level and higher frequency.

Conclusion

01 While progress has been made cultivating a data-centric culture in Malaysia, **continuous improvement** towards organization's innovative products and services is needed.

02 The success of a citizen data centric culture in Malaysia depends on the **effective statistics communication.**

03 The Malaysian government has made **significant progress** in promoting open data initiatives in recent years to drive and formulate more evidence-based policy making.

04 Open data through OpenDOSM plays a crucial role in **promoting transparency, accountability and innovation** in Malaysia.

The Power and Impact of Data: Unveiling the Story Within…

What people said….

"There were 5 exabytes of information created between the dawn of civilization through 2003, but that much information is now created every two days."
- Eric Schmidt, Executive Chairman at Google

"Without big data analytics, companies are blind and deaf, wandering out onto the web like deer on a freeway."
- Geoffrey Moore, Management Consultant and Author Of Crossing The Chasm

"Not everything that can be counted counts and not everything that counts can be counted."
- Albert Einstein

"Data are just summaries of thousands of stories tell a few of those stories to help make the data meaningful."
- Dan Heath, Bestselling Author

"No data is clean, but most is useful."
- Dean Abbott, Co-founder and Chief Data Scientist at SmarterHQ

"Where there is data smoke, there is business fire."
- **Thomas Redman, aka "The Data Doc"**

"STATISTICS BLOOM IN HARMONY"

Doesn't matter far or near
Strength in numbers
we don't live in fear

Birds of feather flock together
Statistics our form of adour
We, will always live it up

So let us live in solidarity
And in the world arena we'll succeed
It is statistics that will come to be
The reason we will bloom in harmony

Everybody undivided
Data's where our hearts reside in
There will always be a bind

Just like fire that ignites
That's how brightly lit our dreams are
We'll reach higher than the stars

Sending love to one another
Leaving no one in a slumber
We will stand with unity

Mustering our courage while
Embracing our disparities
We'll achieve our victory

One dream with unity
One love with harmony

" STATISTICS BLOOM IN HARMONY" VIDEO

https://bit.ly/StatisticsBloomInHarmony

THANK YOU

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