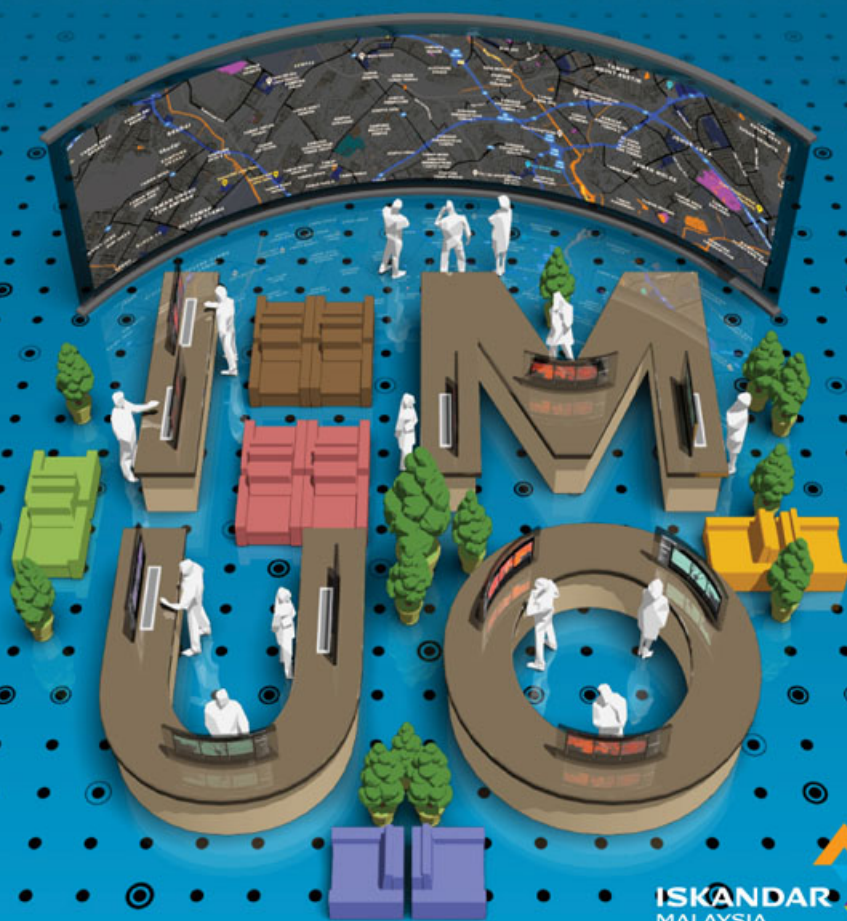




ISKANDAR MALAYSIA
URBAN OBSERVATORY

DATA LANDSCAPE REVIEW

• Data For Decision •



ISKANDAR
MALAYSIA



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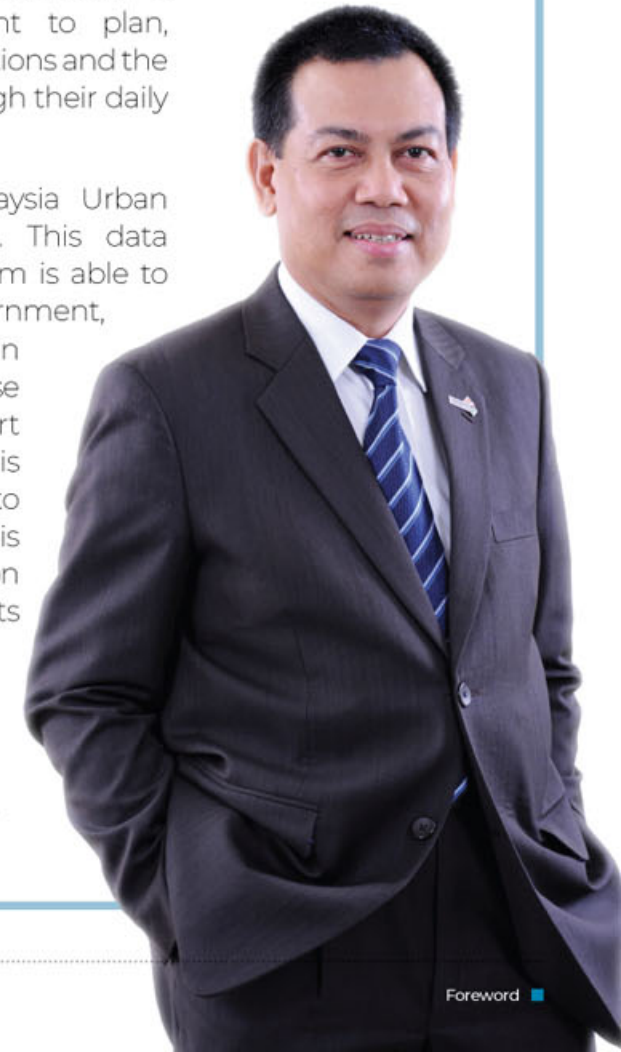
01 FOREWORD

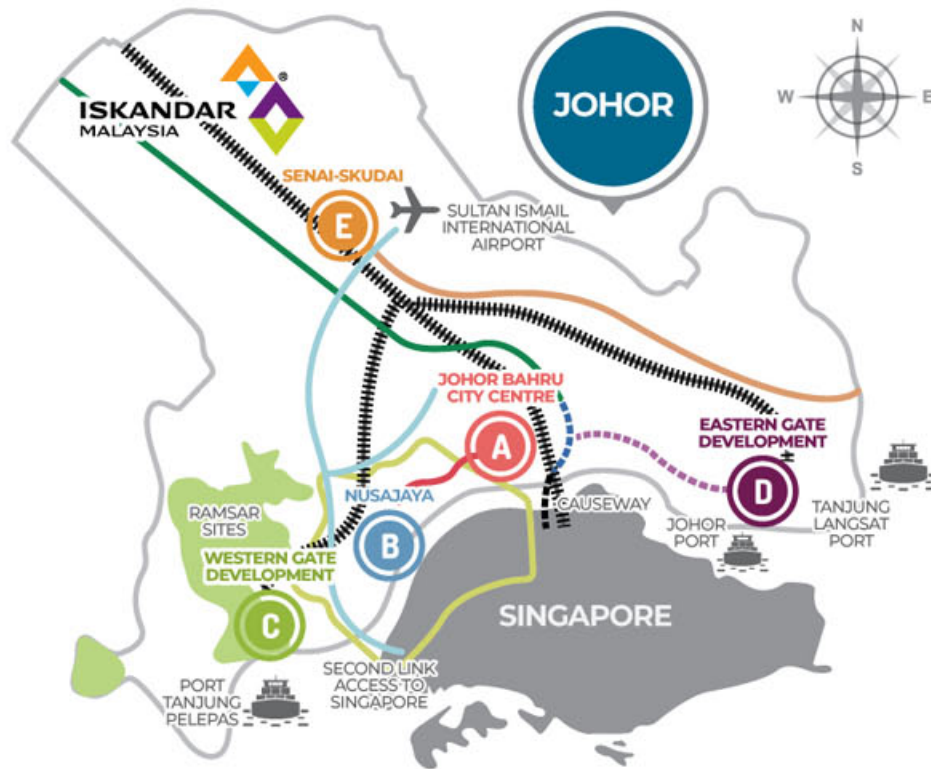
"The development of Iskandar Malaysia embraces the Smart City Iskandar Malaysia framework and its 6 dimensions - Smart Economy, Smart Governance, Smart People, Smart Mobility, Smart Living and Smart Environment. As a smart city, sufficient data and accurate information is vital in helping government to plan, businesses to drive their operations and the community to navigate through their daily activities in the city.

This is where Iskandar Malaysia Urban Observatory takes the lead. This data collection and analytic platform is able to support the needs of the government, businesses and community in Iskandar Malaysia. We recognise and appreciate the support given by our partners as this platform requires partners to share their data and when this happens, various information can be analysed and reports used for stakeholders to make the right decision with the information provided."

DATUK ISMAIL BIN IBRAHIM

Chief Executive of Iskandar Regional Development Authority





Iskandar Malaysia is also developed to be a Smart City which encompasses the 6 dimensions of Smart Economy, Smart Governance, Smart Environment, Smart Mobility, Smart People and Smart Living, and is proud of its achievement in the creation of this pilot program for Smart cities across Malaysia and the region. The development of Iskandar Malaysia is planned, promoted and facilitated by Iskandar Regional Development Authority (IRDA).

Iskandar Malaysia was formed in 2006 under Government Act 664, which also established the Iskandar Regional Development Authority (IRDA), the organization mandated to plan, promote and facilitate development of the region. IRDA is governed by a Board of Directors with Malaysia's Prime Minister as Chairman, and State of Johor Chief Minister as Co-chairman. There are five cities governed by local authorities within Iskandar Malaysia and the IRDA works with the respective authorities to ensure Iskandar Malaysia's vision of becoming a sustainable, inclusive and smart regional corridor in Malaysia, and a 'Metropolis of International Standing' by 2025.

Iskandar Malaysia, an economic region located within Malaysia's state of Johor, has been rapidly growing since its inception in 2006 and is primed to become the preferred international metropolis to invest, work, live and play. Iskandar Malaysia's development is guided by the Comprehensive Development Plan (CDP) and the Circle of Sustainability, ensuring that the region grows holistically into a prosperous economy with a high-quality living ecosystem and a resilient environment.

Iskandar Malaysia's generous land area, strategic location and abundant ready infrastructure boosted its 9 promoted sectors which are Electrical & Electronics, Petrochemical and Oleo-Chemical, Food & Argo-Processing, Logistics, Tourism, Creative, Healthcare and Financial.

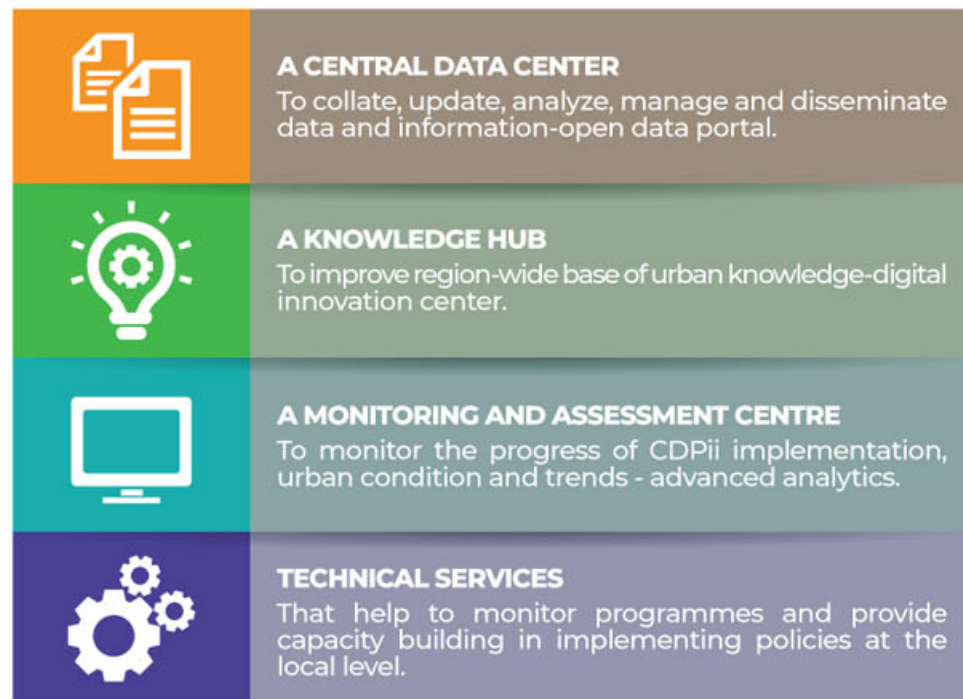
The CDP not only looks to align to the 11th Malaysia Plan, but is also focused on regional growth and enhanced inclusion according to the Sustainable Development Goals (SDGs) framework.

The CDP includes the proposal to develop the Iskandar Malaysia Urban Observatory (IMUO) as the core platform to establish baseline data, to support development planning, and to ensure balanced regional development within Malaysia. Beyond supporting immediate IRDA needs, the CDP sets the more ambitious goal for the IMUO of benchmarking Iskandar Malaysia to regional and global standards. The CDP also stresses the strategic value of developing shared performance targets with state and local governments in Iskandar to enhance IRDA's growing role in streamlining and coordinating planning at different levels of subnational government.

03 WHAT IS IMUO?

The IMUO project is a four-year collaboration between the Iskandar Regional Development Authority (IRDA), the United Nations Development Programme (UNDP) and the Malaysian Administrative Modernization and Management Planning Unit (MAMPU) aimed at developing strategic and targeted outputs to support a larger, ongoing initiative established at the national level. The IMUO will entail development of a centralized data center and an advanced regional analytics platform to collate, update, analyze, manage and disseminate data and information in Iskandar Malaysia. It will also act as a knowledge hub to improve the region-wide base of urban knowledge on Iskandar Malaysia.

Guided by IM's Comprehensive Development Plan and the Sustainable Development Goals (SDG) framework, the IMUO project will be an essential tool in transforming Iskandar into a sustainable smart region through evidence-based spatial planning and policy making. The outputs from this project will serve as building blocks to empower IRDA to better plan and implement subnational programs that are tailored to the needs of the region.



Iskandar Malaysia Urban Observatory (IMUO) is a data center to harvest, update, analyze, manage and disseminate data and information on Iskandar Malaysia. The IMUO acts as a knowledge center to enhance the knowledge of cities of the whole Iskandar Malaysia. A monitoring and assessment center were established to monitor the progress of Iskandar Malaysia in implementing the second Comprehensive Development Plan (CDPII) as well as the conditions and trends of its cities. The IMUO also provides technical services that helps stakeholders to monitor programs and targets and provides the capacity building in implementing policies at local level.

The IMUO objectives as follows :

- 01** To be developed as an effective and sustainable Urban Observatory development model.
- 02** To enhance collaboration and information sharing among agencies through 'shared performance target'.
- 03** To transform government agencies to make 'informed decision' using big data analytics on 'authoritative data'.
- 04** To utilise Sustainable Development Goals (SDGs) and Iskandar Malaysia Region monitoring indicators which have been identified as effective and principled.

4 priority areas of strategic value and function of Iskandar Malaysia Urban Observatory (IMUO) are :

- 01** Regional planning and development.
- 02** Shared performance targets with state and local governments that constitute part of the IMUO.
- 03** Achieve international benchmarking standard.
- 04** Drive the digital economy.

04 IMUO VISION AND MISSION

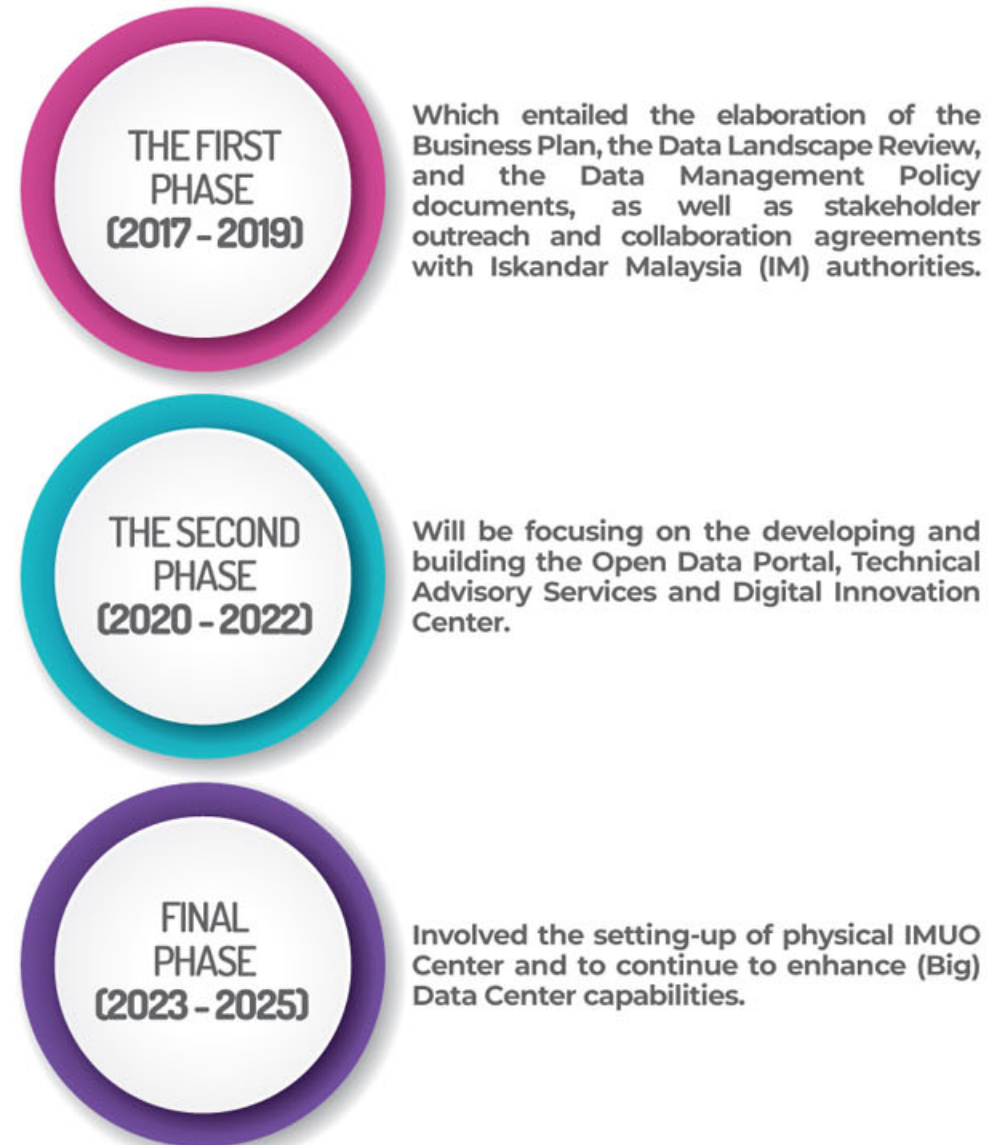
IMUO vision and mission is set in accordance to the vision and mission for Iskandar Malaysia.



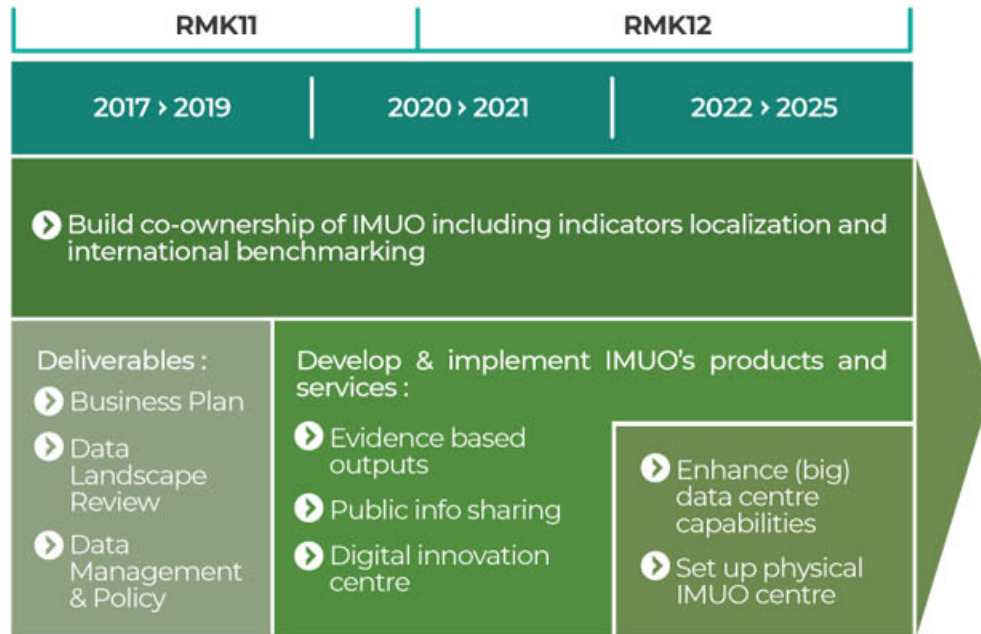
Using the "Data for Decision" theme, the IMUO enables Iskandar Malaysia to monitor and assess the CDPII strategies and programme. The IMUO will enable various outputs and 'deliverables' that will contribute to the Iskandar Malaysia vision towards becoming an international status metropolis and ready for the post-sustainability phase through information sharing between the federal, state, local governments, private sector and community towards an "informed society".

05 IMUO DEVELOPMENT TIMELINE

The IMUO will be implemented in phases which are inter-related and involve various stakeholders in the process, from now until 2025.



Broad timeline of IMUO Implementation :



06 BENEFITS OF IMUO



GOVERNMENT

- 1 Evidence-based decision making platform
- 1 Transparency, accountability in policy making
- 1 Efficient resource allocation, less reliance on external consultants
- 1 Upskilling government staff on analytics
- 1 Monitoring policies implementation and impact



BUSINESS | ACADEMIA

- 1 Enhance investment and business strategies, decisions, business opportunities, innovation and research
- 1 Create and attract data science professional for Iskandar Malaysia



COMMUNITY | CSO

- 1 Better informed personal choices & decisions e.g. in relation to recreation, housing, education, collaboration on initiatives and projects
- 1 Public sensing and participation

07 IMUO DATA LANDSCAPE REVIEW

IMUO Data Landscape Review was developed to review the data landscape for Iskandar Malaysia. This document comprises of five (5) main assessments grouped into Dataset Assessment, GIS Assessment, Laws & Standards, Data Management Challenges and Technology. Each assessment is broken down into sub-criteria to increase the accuracy of assessment in gap analysis.

Assessments and sub criteria are derived and localised based on scope of review and questionnaires developed by the UNDP project team prior to the stakeholder engagement. Findings from this document will provide input into the development of IMUO Data Management and Policy, which will then serve as operational guidelines for IMUO.

01

A standard and best practice before embarking on design and implementation of any project which is to analyse and understand the current situation.

02

A gap analysis between current state and desired state of IMUO that relates to data and its related subjects.

03

An analysis of current situation in IM about data availability and its related subjects such as system, technologies, laws, standards, talent and challenges.

04

A set of recommendations on moving forward to the next stage.

08 KEY SUCCESS FACTOR



Data sharing between IMUO and its stakeholders is crucial in developing a robust data-sharing platform that leverages on data from all parties.



In IMUO, data of high granularity is filtered and collected to assist in producing precise evidence-based urban planning, scenario simulations and real time smart city management.

09 SCOPE OF REVIEW



2nd Data

Identify relevant secondary data available at Johor / Iskandar Malaysia scale



Primary Data

Identify primary data collection needs



Identify GIS digitisation needs



Understand relevant law and standards



Conduct gap analysis



Opportunity

Identify landscape opportunity



IMUO data offerings



Integrate gender perspective into statistics

10 REVIEW METHODOLOGY

The Stakeholder Engagement Plan (SEP) and Data Landscape Assessment (DLA) are used as the guidance in the engagement of stakeholders and conducting a gap analysis. All identified gaps from collected data and information are analysed by comparing the current state and desired state benchmarked to IMUO's proposed product and services.



11 STAKEHOLDER ENGAGEMENT PLAN

Stakeholder engagement ensures that IMUO builds solid partnerships while giving them the opportunity to participate in decision-making. IMUO's stakeholder engagement plan comprise of short-, mid-, and long-term collaborative strategies with the stakeholders.

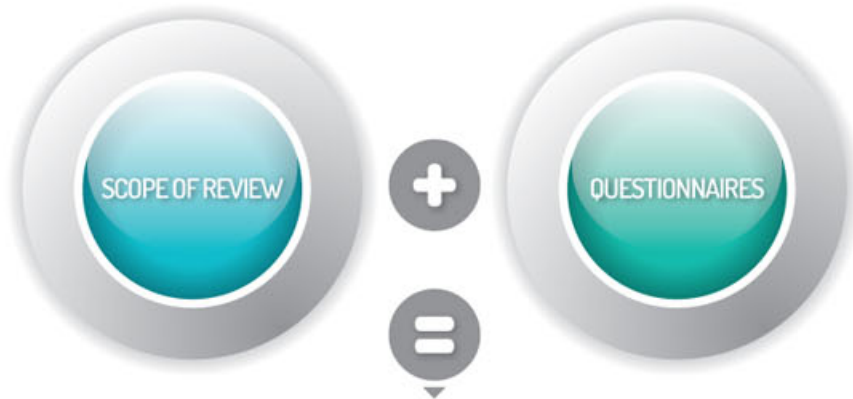
Proposed Engagements

- | | | |
|------------------------------------|--|---------------------------------|
| 01 Meeting / Joint Planning | 03 Analytics / Pilots | 05 Regulation & Policies |
| 02 Collaboration Agreements | 04 Capacity / Knowledge Sharing | |



12 DATA LANDSCAPE ASSESSMENT

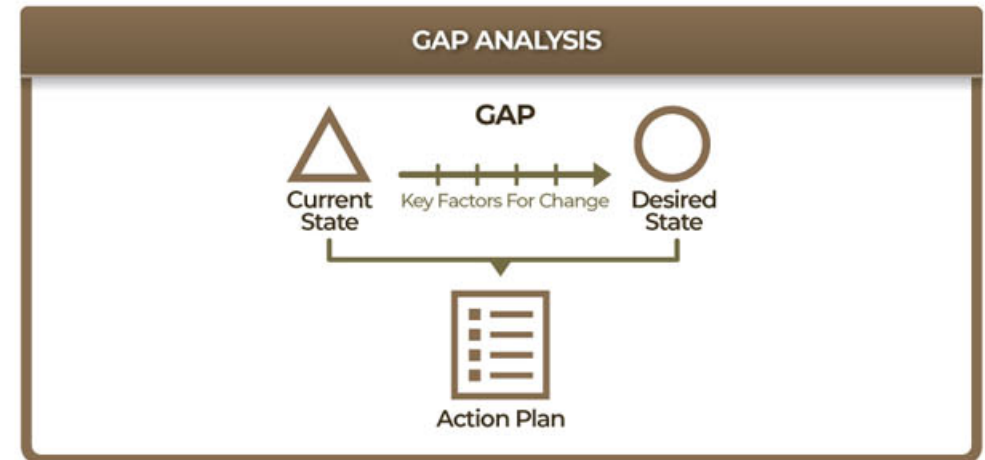
The Data Landscape Assessment (DLA) covers five assessments groups of which each group encompasses five critical criteria to enhance the accuracy of the gap analysis. This criteria are derived from the scope of review and questionnaires prepared by the IMUO project team.



No	Assessments	Criteria				
		1	2	3	4	5
1	Dataset Assessment	Metadata Management	Non-spatial Data	Spatial Data	Sharing Method	Data at IM Level, Gender and B40
2	GIS Assessment	Base Maps	Base Maps	Layers	Data Format	System Coordinates
3	Laws and Standards	By-Laws and Acts	Data Standards and Policy	Data Management Policy	Service Level Agreements	Security and Privacy Policy
4	Data Management Challenges	Availability and Accessibility	Quantity and Quality	Sharing and Policy	Infrastructure and Support	Talent Management
5	Technology Platform Being Used	Data Management	Data Analytics	Data Storage	Data Sensors (IoT)	Data Network

13 GAP ANALYSIS

Gap analysis will be performed to understand the current state of Iskandar Malaysia's data landscape compared with the desired state of IMUO's products and services. The analysis will provide input in the development of IMUO action plans and strategies.



1 Summary of Findings on Selected Data Providers

Findings from each data provider are summarised according to the five key criteria of each assessment category. However, the desired state of data providers will not be discussed as this is beyond the scope of this review.

2 Current State and Desired State for IMUO

The overall state of data providers is compared with the desired state for IMUO. It is centred around five key criteria that guide the moving forward plans to achieve the desired state.

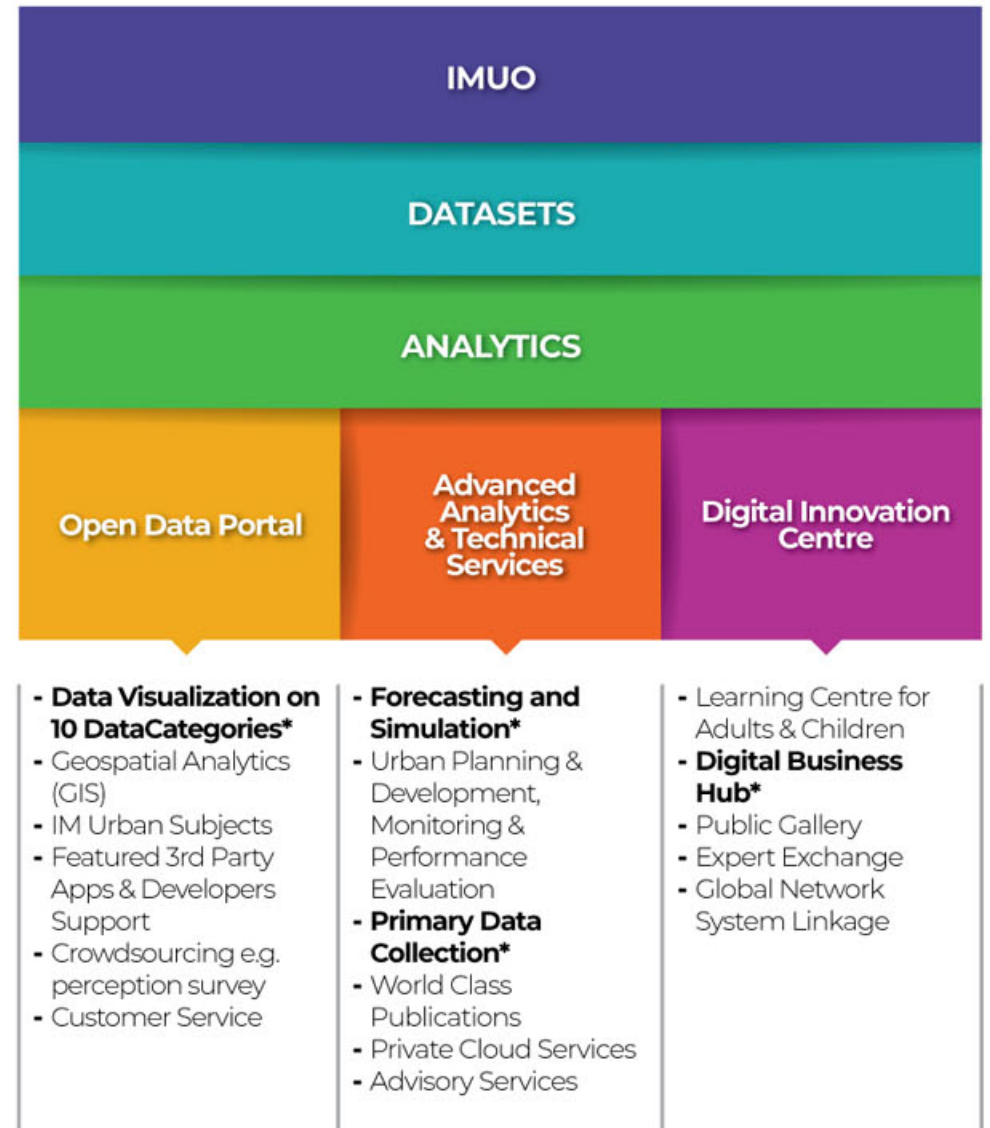
3 Action Plan for IMUO and Challenges

An action plan will be drawn to identify the gaps between the current state and desired state, and the anticipated challenges defined according to the five applicable criteria.

14 DESIRED STATE FOR IMUO LANDSCAPE



15 DESIRED STATE FOR IMUO PRODUCTS AND SERVICES



* Deemed the most useful products by business

16 RECOMMENDATIONS

01 ADVOCATE IMUO COLLABORATION

▶ Capacity Building For IMUO Data Professionals

Building capacity for IMUO data professionals in Iskandar Malaysia and state of Johor

- ▶ Collaboration with ADAX and UTM to develop talent to support IMUO's data platform.

DATA PROFESSIONALS

20 BY 2020

200 BY 2025

▶ Collaboration With Private And Public Sectors At National And Global Levels

▶ Sharing of human resources and facilities via smart collaboration with partners.

▶ Buying / Selling Data



- ▶ Data shall be made available at no charge.
- ▶ A revenue model to be developed to cover agency operating expenses.

▶ Shared KPIs With Other Agencies



- ▶ How many new datasets provided per month?
- ▶ How many datasets updated per month?
- ▶ How many views of each dataset per month?
- ▶ How many downloads of each dataset per month?

▶ Dataset Quality And Standards



- ▶ High quality datasets to meet criteria relating to metadata, variety, granularity and timeliness.

02 IMPROVE DATA SHARING GOVERNANCE

▶ Forming The Data Coordination Committee

DATA COORDINATION COMMITTEE

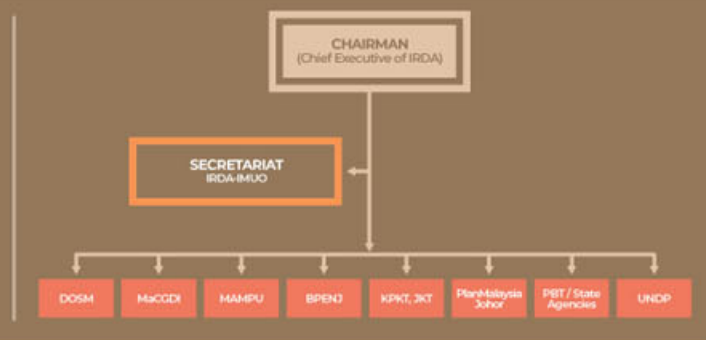
- Strategy & Plan
- Dataset Approval
- Monitor Data Usage
- Policy Compliance & Target Achievement

Strategy & Plan

- ▶ Coordinate, negotiate and formulate data sharing guidelines and policies.
- ▶ Design and prepare agreements with stakeholders.
- ▶ Attend to any issue related to data sharing between agencies.

▶ Structure of Data Governance Committee

- ▶ Setting up the structure of IMUO's Data Governance Committee for a clearer roles and responsibilities.



▶ Development of Data Sharing Policy



- ▶ Development of Data Sharing Policy to set clear and common objectives for data sharing.

▶ Agreements / Service Level Agreements (SLAs)



Agreements / Service Level Agreements (SLAs) to define:

- ▶ Shared type of data.
- ▶ Terms of use.
- ▶ Data standards.
- ▶ Guidelines for data sharing.

▶ Systems Architecture



- ▶ To build a modular, scalable and stable system that is open to interface or integration.



03

DEVELOP A FLEXIBLE DATA PLATFORM

▶ Hardware



- ▶ Hosting IMUO data platform at an existing cloud service provider and progressively develop up its intended products and services.

Located in Malaysia	High Speed Broadband
Third Tier Data Center	Support Big Data
On Demand Scalability	Disaster Recovery

04

PROMOTE IMUO AWARENESS & BENEFITS

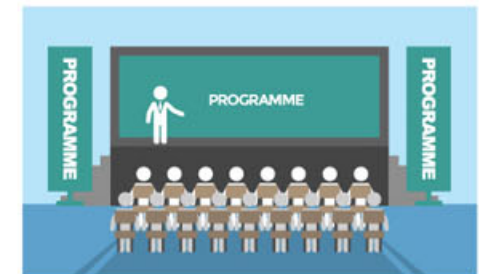
▶ Engage State And Local Agencies



Promoting IMUO to State and Local Agencies.

- ▶ Continuous promotion on IMUO to State and Local Agencies to inculcate data sharing, data quality enhancement and acceptance of co-ownership of IMUO.

▶ Engage Academia, Business, And Communities



Public programmes for Academia, Businesses and Communities to define the benefits of IMUO through:

- ▶ Research and Innovation.
- ▶ Creation of Innovative Product and Services.
- ▶ Engaging CSO's and citizens to encourage transparency and accountability.

▶ Producing World Class Reports



- ▶ Develop Report with World Class Consulting Firm.
- ▶ Report Distribution to Cities Around The World.

05

CATALYZE INNOVATION

▶ Hackathons



- ▶ Organise hackathons to build applications or making rigorous analysis to produce insights by leveraging the data available in the IMUO system.

▶ Open Data



- ▶ Inculcate a culture of sharing data among public and private agencies.
- ▶ All government data shall be open and be made available without any charges unless stated otherwise.

▶ Linkage With Other Observatories



- ▶ Sharing of data with other countries for the purpose of mutual comparison and shared learning experiences.

▶ Encourage Planning Using IMUO Data And Analytics



- ▶ To strengthen method of planning using analytics to provide a good quality of life through careful, meticulous planning and sustainable development.

A PROJECT OF :



IN PARTNERSHIP WITH :



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