



# SPURRING NATION'S ECONOMY THROUGH SmartKADASTER

SR MOHAMAD KAMALI BIN ADIMIN  
DIVISION DIRECTOR (CADASTRE)  
DEPARTMENT OF SURVEY AND MAPPING MALAYSIA

# OVERVIEW

- 📍 THE NEED TO TRANSFORM
- 📍 TRANSFORMATION AGENDA
- 📍 EMPOWERING ECONOMY THROUGH GEOSPATIAL
- 📍 SmartKADASTER
- 📍 FUNDAMENTALS OF SmartKADASTER
- 📍 SKiP
- 📍 NBOS VIA SmartKADASTER
- 📍 CONCLUSION

# THE NEED TO TRANSFORM



Current State  Future State

- Towards the aim to achieve **developed nation status by 2020**, Government of Malaysia has initiated a dynamic plan of transformation.
- The transformation plan has taken into account **various aspects to be revamped**.
- And one of its many aspirations is to strengthen and **drive nations' current economic landscape**.



# TRANSFORMATION AGENDA



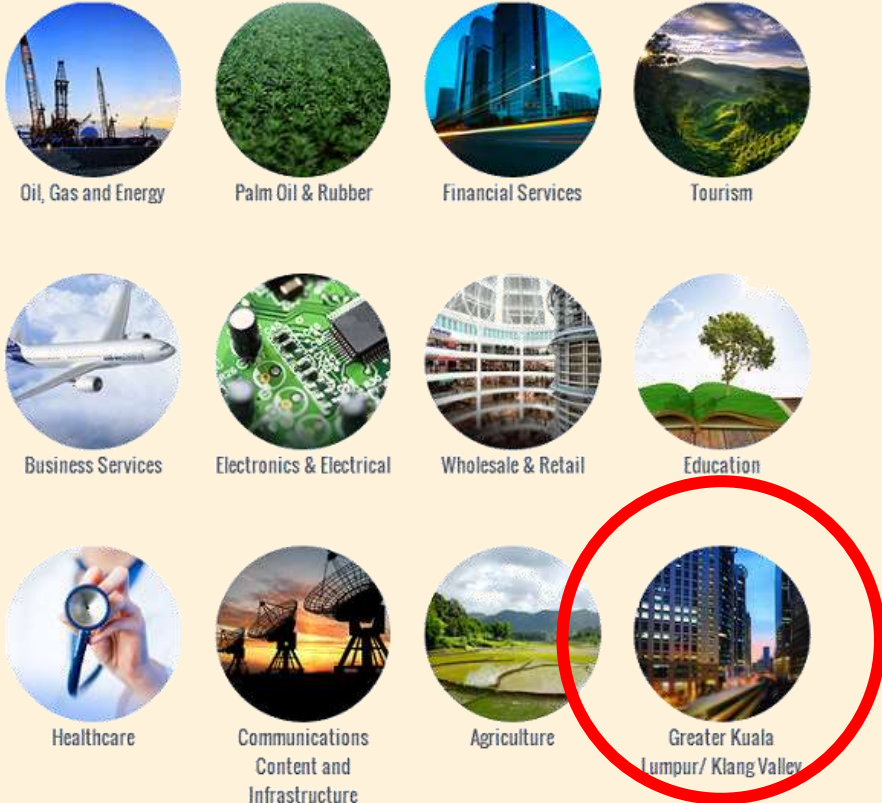
Source: MIDA Malaysia

- Economic Transformation Programme (ETP) is formulated as part of Vision 2020 and Malaysia's National Transformation Programme.
- The implementation of ETP applied new economic model with the hopes to develop a high income, inclusive and sustainable nation.

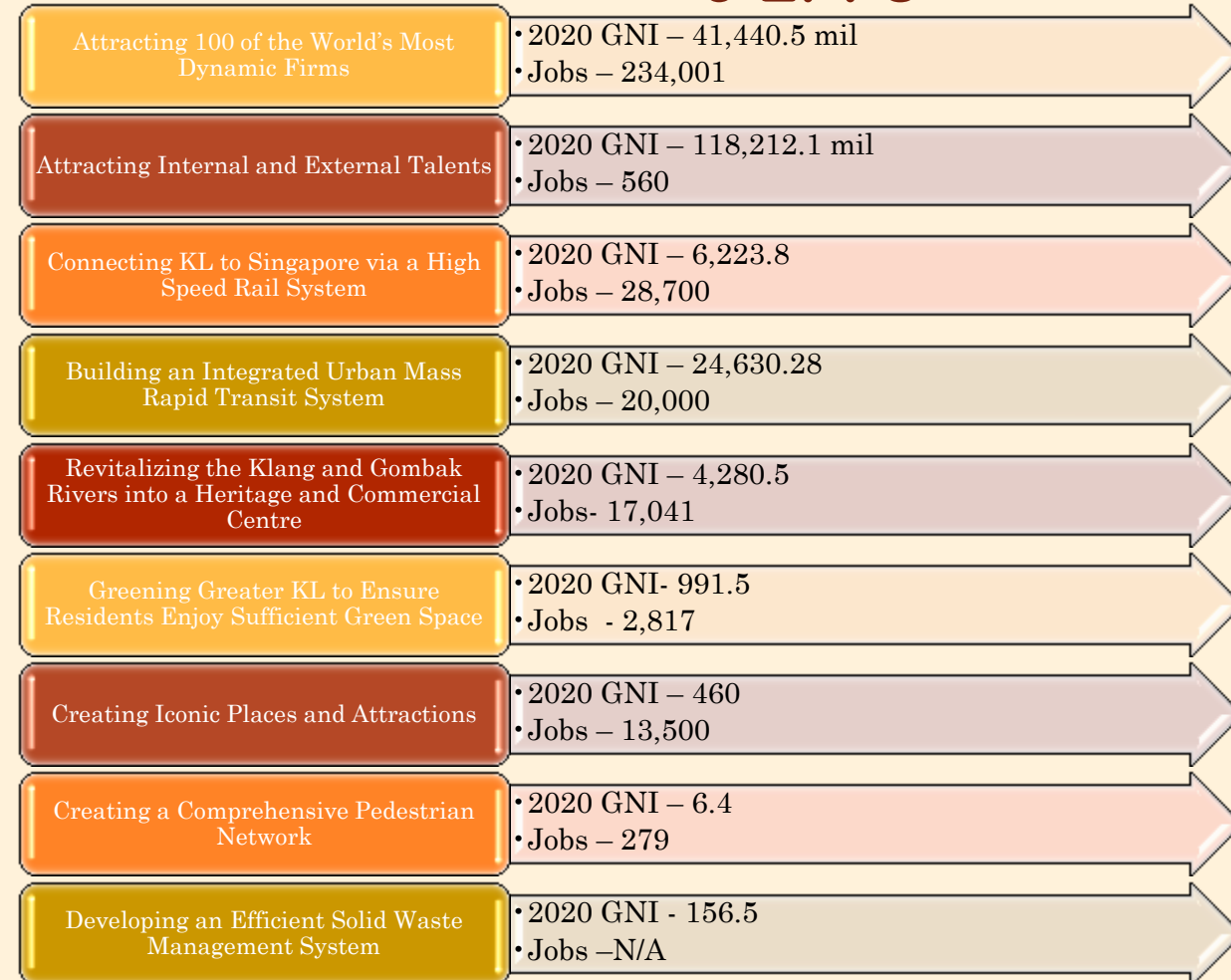
# TRANSFORMATION AGENDA

9 EPPs

## 12 NKEAs



Source: PEMANDU



✦ ETP is segmented into 12 potential sectors.

✦ It is known as 12 National Key Economic Areas (NKEAs). Each of these NKEAs has its own Entry Point Projects (EPPs) with the intention to explore new growth areas, and business opportunities which enable the related sectors to move further up the value chain.

# TRANSFORMATION AGENDA

## TN50

2021-2050

TRANSFORMASI NASIONAL 2050

*"To become a top 20 nation in economic development, social advancement and innovation"*

Shaped by citizens' aspirations. Guided by clear targets.

### TRENDS

SOCIETY

ENVIRONMENT

ECONOMY

TECHNOLOGY & CONNECTIVITY

GOVERNANCE

Source: mytn50.com

### POTENTIAL FUTURE

Virtual and augmented reality increasingly used in our interactions. Consumption of services via digital platforms such as education, healthcare and virtual tourism become pervasive.

All buildings, transport vehicles and city assets are 'smart' and interconnected to the 'smart grid'. Potential privacy issues e.g. crime surveillance, predictive policing.

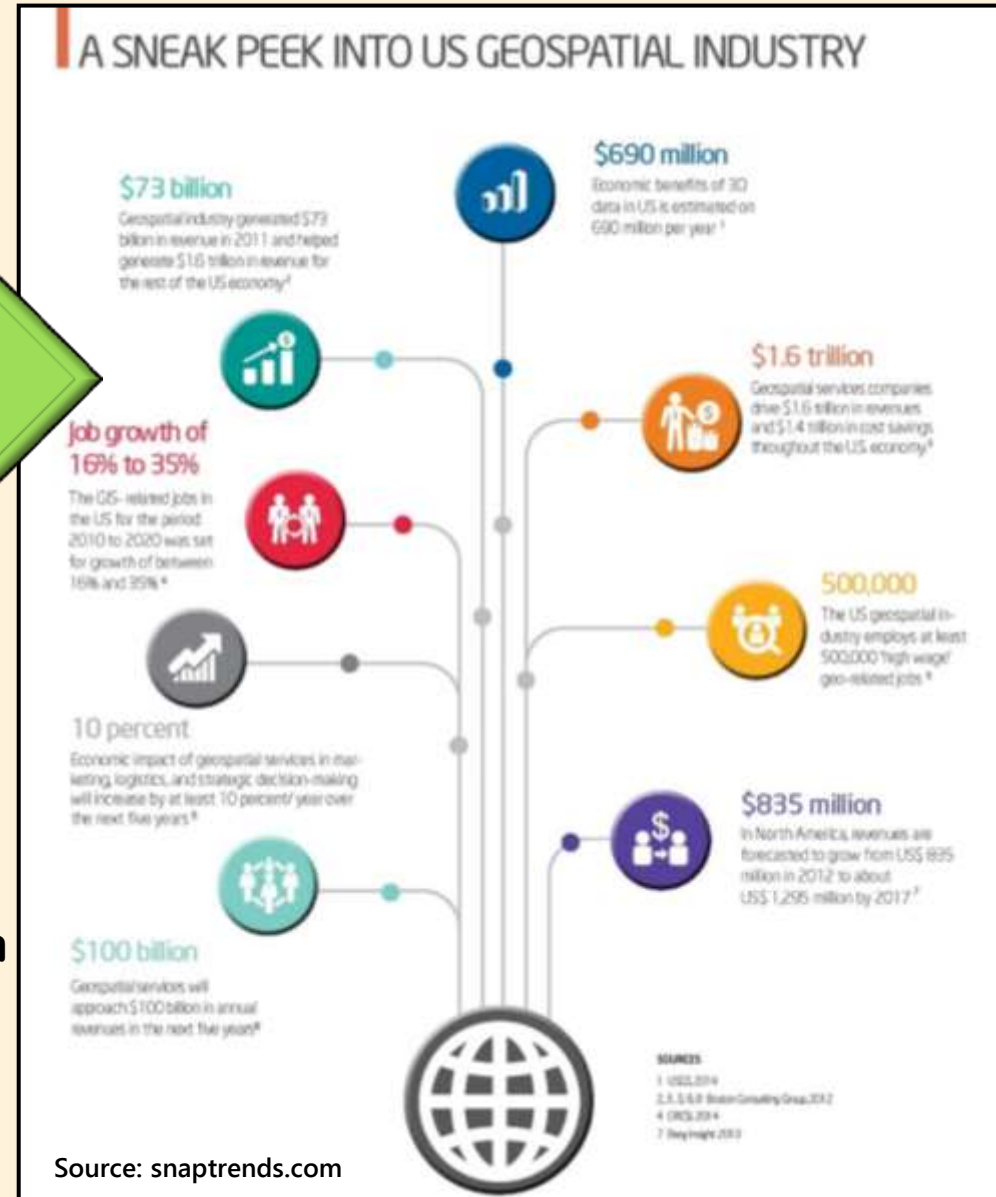
Death of the office. People no longer commute, working mostly from pods at home.

✦ TN5050 focusing on 5 Trends

✦ Technology & Connectivity – Government has realised the importance of Geospatial Technology and heading to Smart City enablement in Malaysia.

Source: PEMANDU

# EMPOWERING ECONOMY THROUGH GEOSPATIAL



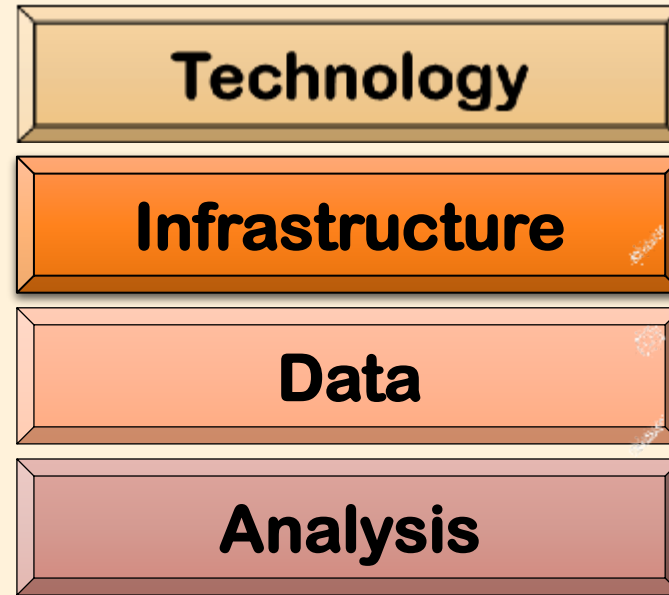
○ Innovative geospatial technologies derived from rapid advancement of technology.

○ Decision making has become more informed and scientific and 'Geospatial Technology' has emerged as a leading application in various undertakings.

○ It also helps to heighten economy value in diverse sectors. US economic landscape: **Geospatial Industry generated \$73 billion in revenue in 2011.**

# SmartKADASTER

*Geospatial Component*



=

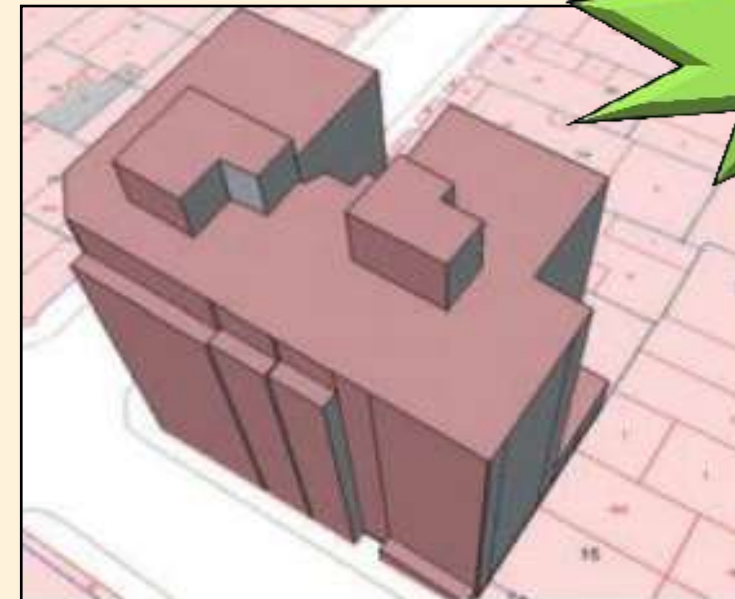
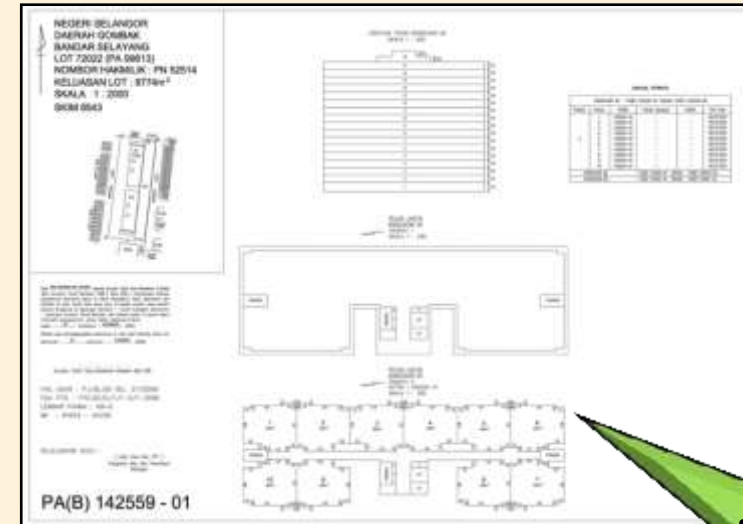
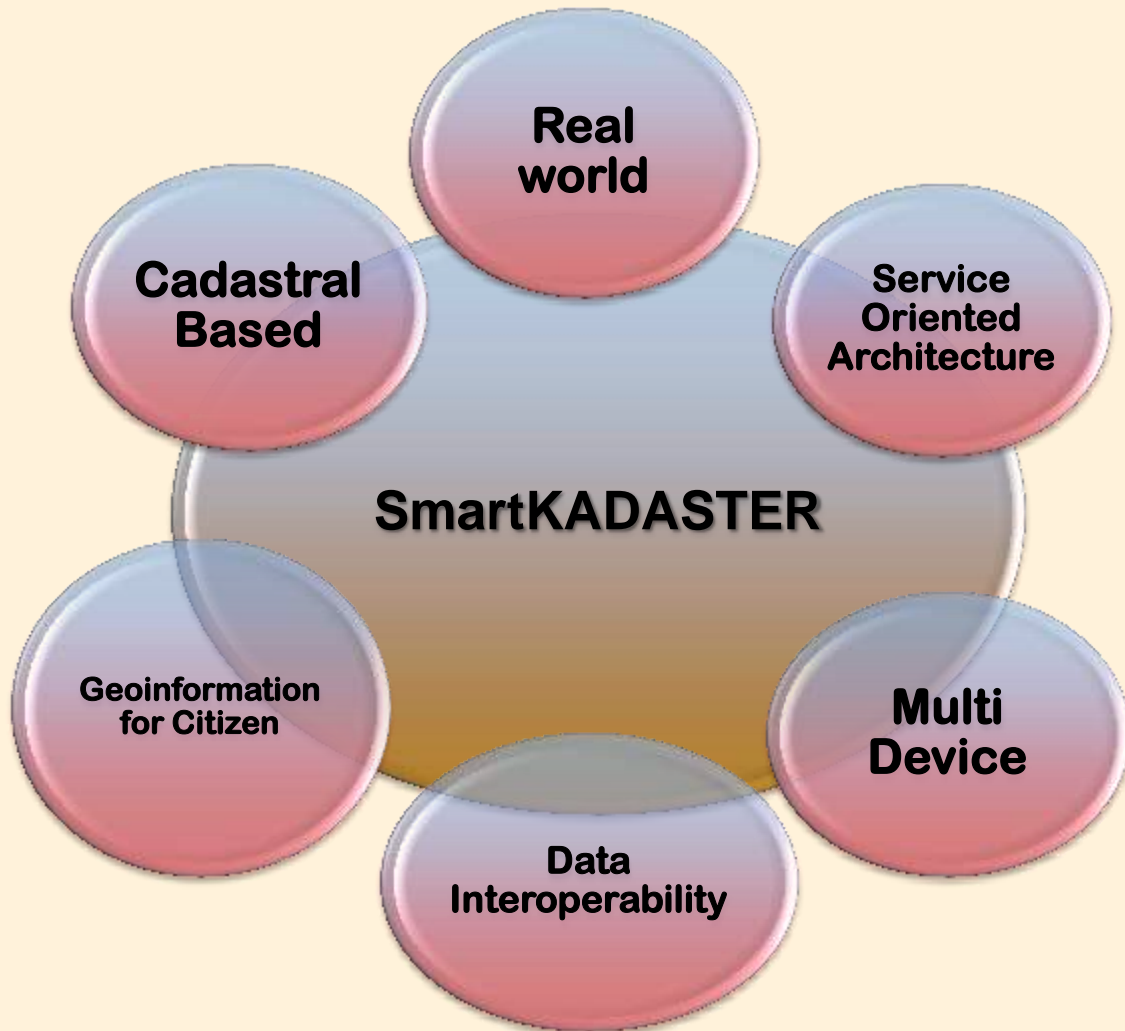
*3D City Model & multi-  
purpose cadastral based  
spatial analysis platform*



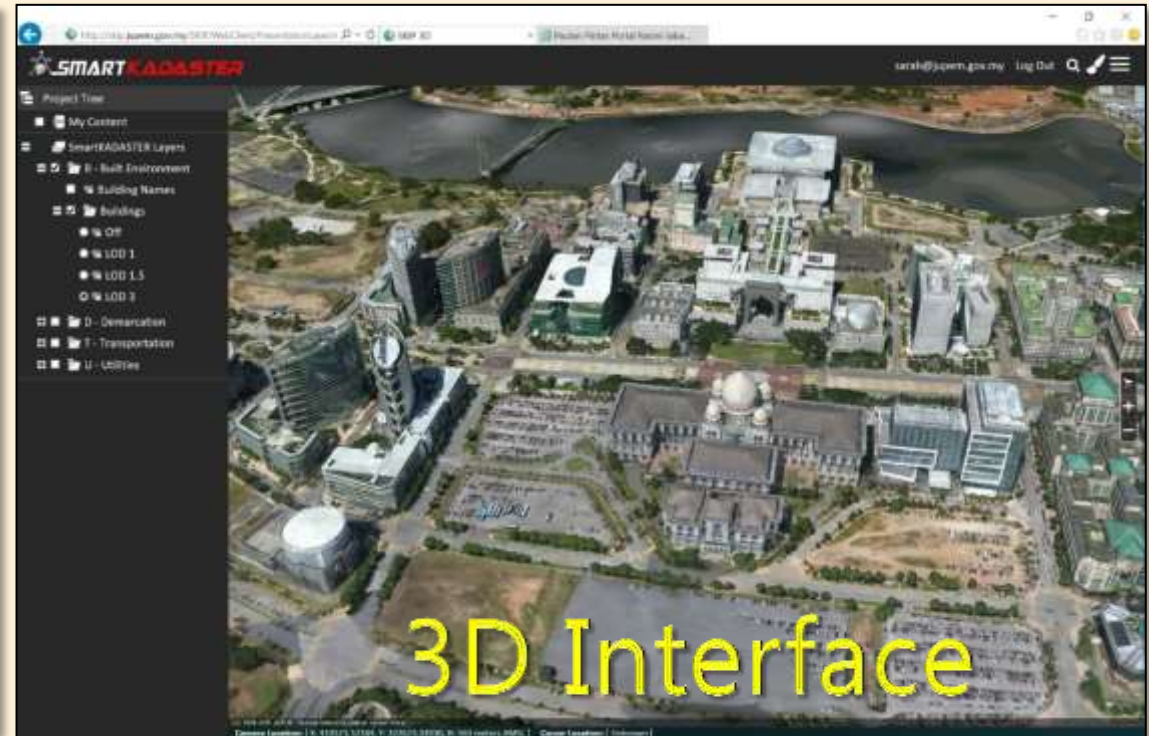
- SmartKADASTER adopts FIG's vision of Cadastre 2.0 drawn from the Web 2.0.
  - ✓ open map culture using mobile technologies through collaboration and citizen engagement (Manohar and Sharma, 2016).
- The main purpose of the project is to establish a multi-purpose cadastral based spatial analysis platform. The spatial analysis can be performed in 2D and/or 3D interface; according to user's preference.
- Established based on 6 fundamentals that has the similarity with the attribute of Cadastre 2.0 concept and enhanced by JUPEM to accommodate local requirements.



# FUNDAMENTALS OF SmartKADASTER



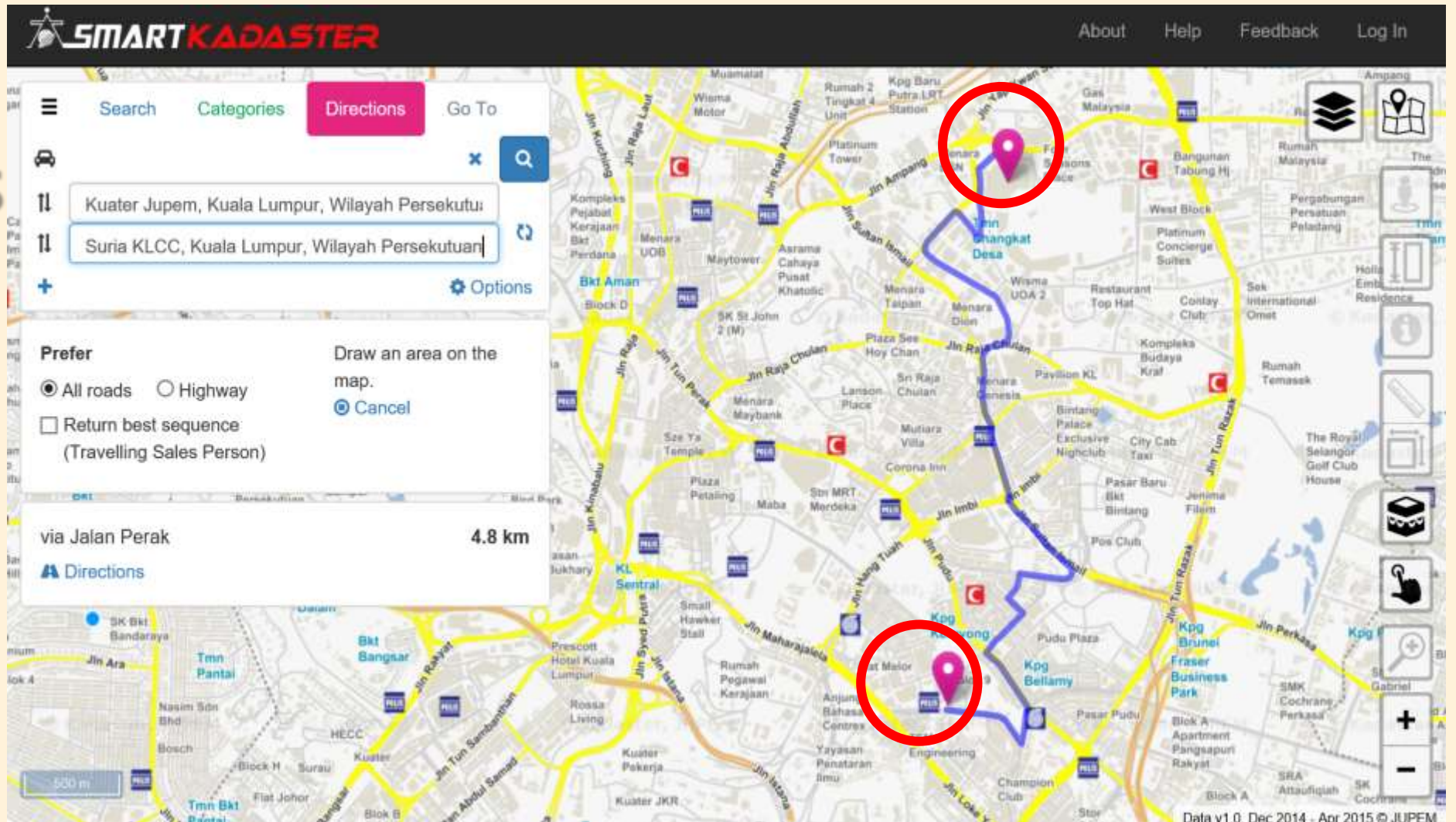
# SKiP – AOI, Technology & Deliverable



- **AOI: FT of Kuala Lumpur and Putrajaya.**
- **Technology involved: LiDAR, MVO, MLS, 3D TLS & 360- Degree Panoramic Street view.**
- **Main deliverable: SmartKADASTER Interactive Portal (SKiP).**

# SKiP Services- 2D Analysis Tools

## Directions



# SKiP Services- 2D Analysis Tools

## 2D Analysis Tools



## 360 Street View Image



## Measure Height

A screenshot of a 'Measure Height' tool interface. The interface displays a table of coordinates and height data for a specific location. The table is as follows:

Coordinates	
WGS 84 (EPSG:4326)	
Latitude	3.155045 3° 9' 21"
Longitude	101.711877 101° 42' 43.1"
GDM2000 Peninsular RSO (EPSG:3375)	
Northing (m)	349298
Easting (m)	412805
GDM2000 Cassini KL / Selangor	
Northing (m)	-57060
Easting (m)	22805
Height	
DTM Height (m)	41
OSM Height (m)	67

The interface also shows a map with a green location pin and a blue 'H' icon.

# SKiP Services- 2D Analysis Tools

## 2D Analysis Tools



### Info Tools

**POI**  
Name: Pos Malaysia  
Keramat Jaya,  
54000 Kuala Lumpur,  
Wilayah Persekutuan.

**POI**  
Name: Jabatan Ukur Dan Pemetaan Malaysia (JUPEM)  
Keramat Jaya,  
54000 Kuala Lumpur,  
Wilayah Persekutuan.

**Building**  
Name: Wisma JUPEM

**NDCDBLOT**

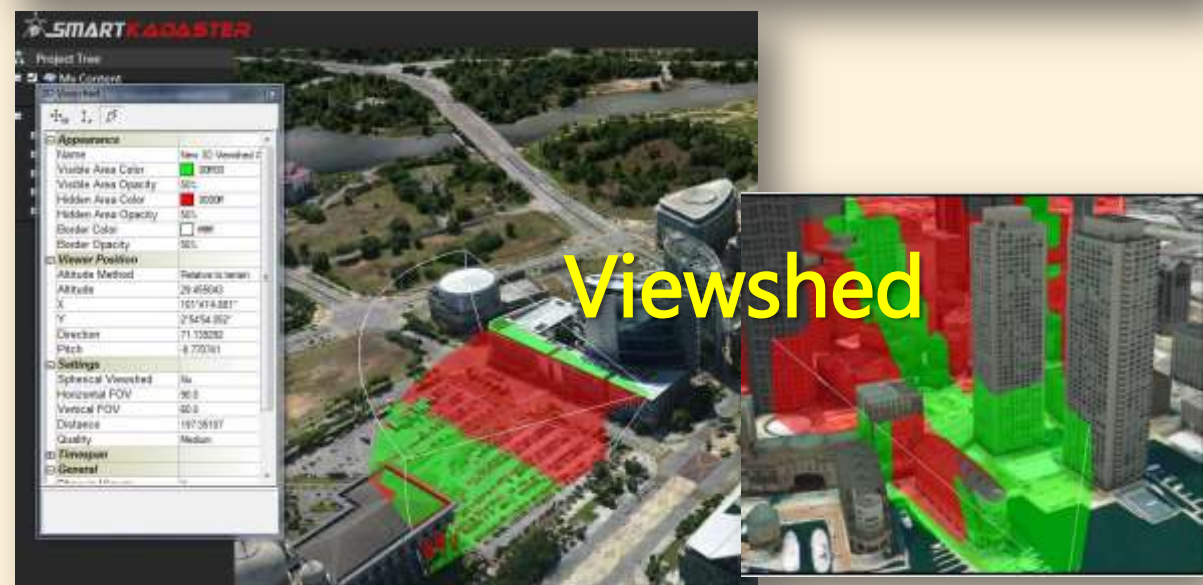
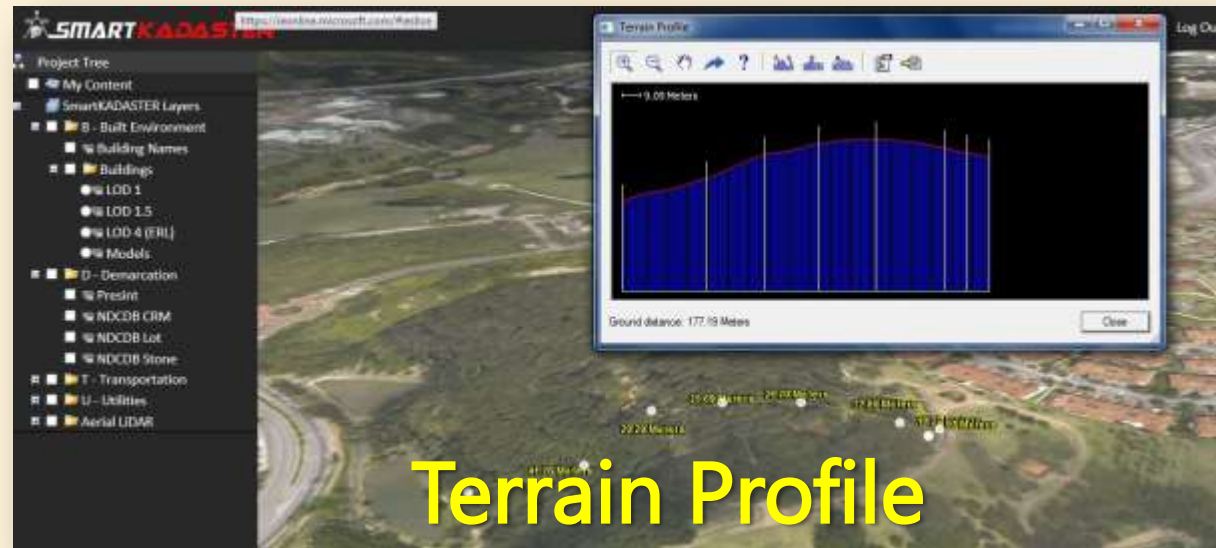
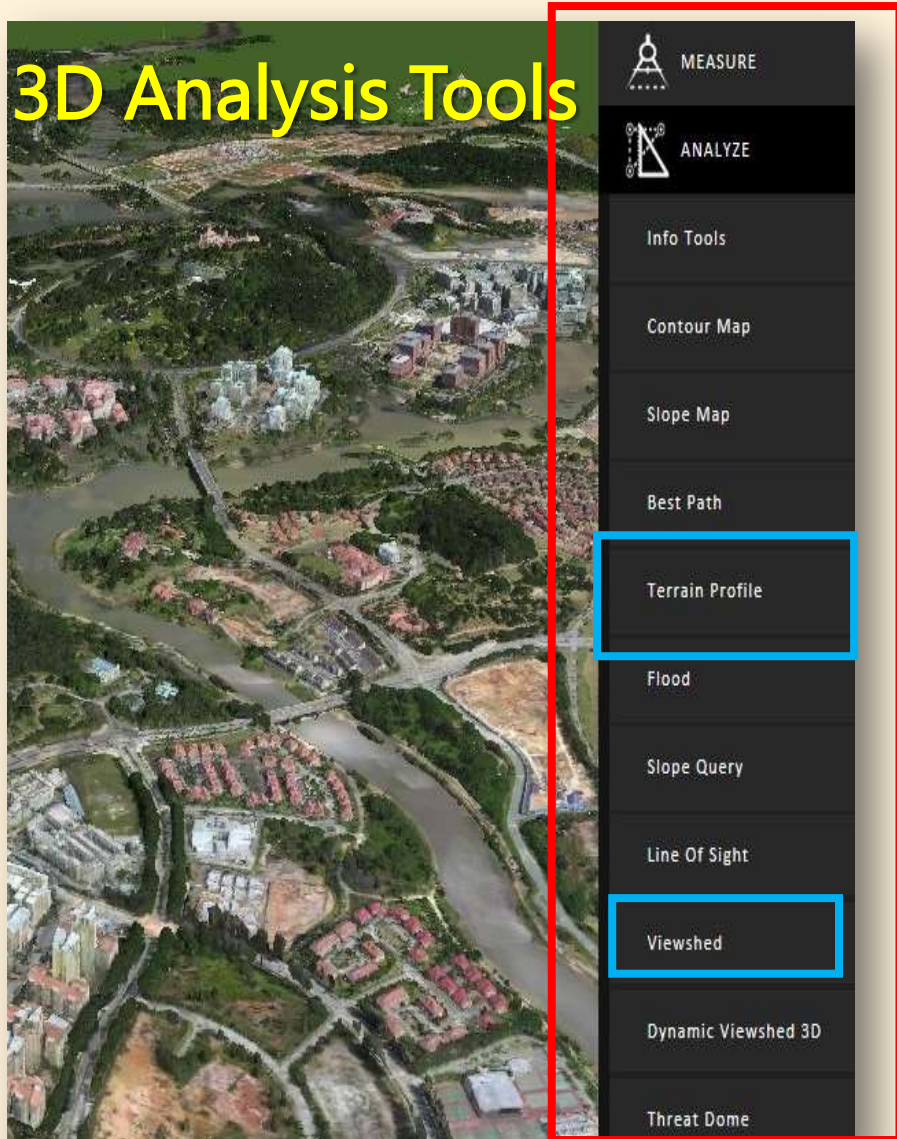
Negeri	14
Daerah	00
Mukim	07
Seksyen	000
Lot	14263
Keluasan (m <sup>2</sup> )	Refer to JUPEM
Tarikh Kemaskini	2015-10-16

**Mukim**  
Name: Mukim Setapak



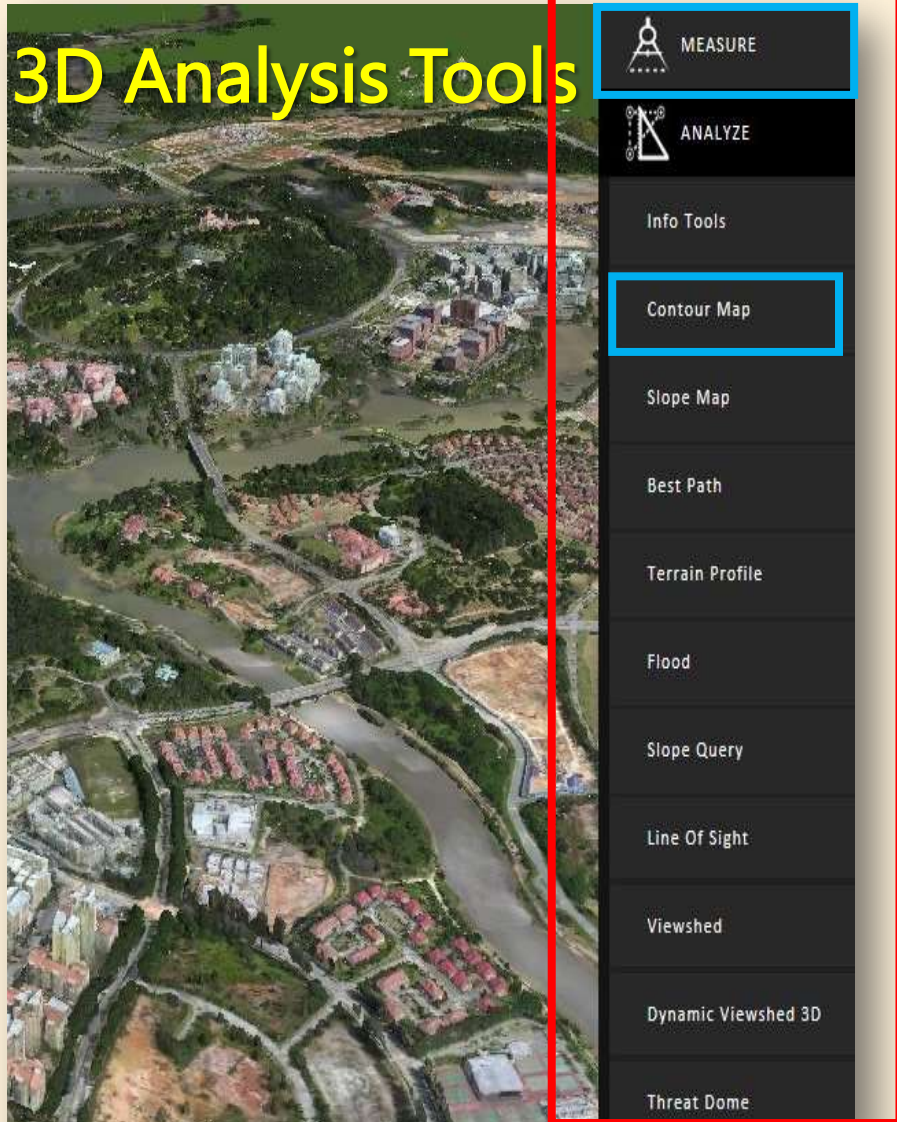
# SKiP Services- 3D Analysis Tools

## 3D Analysis Tools

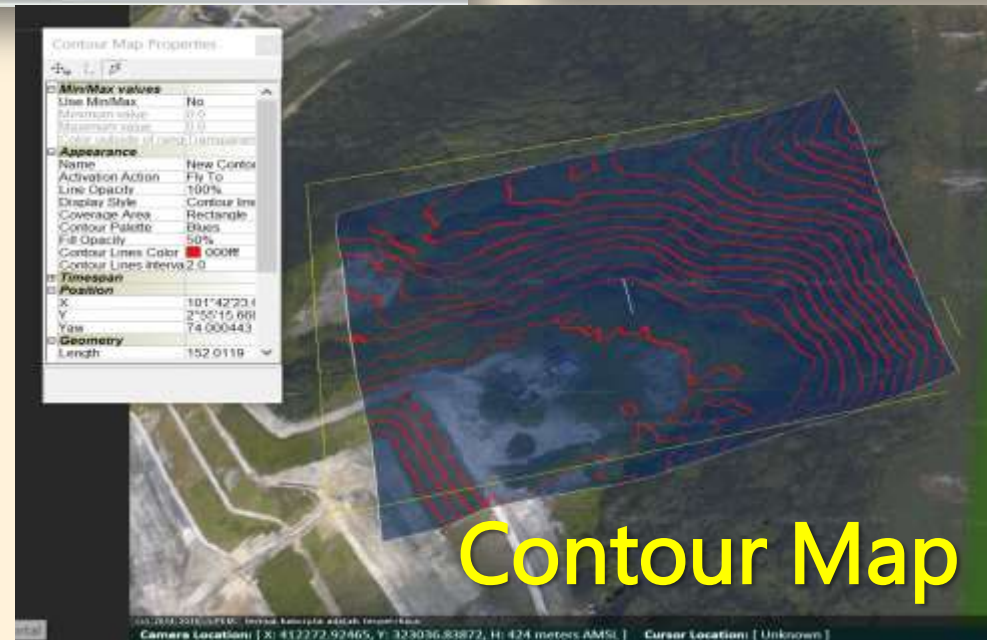
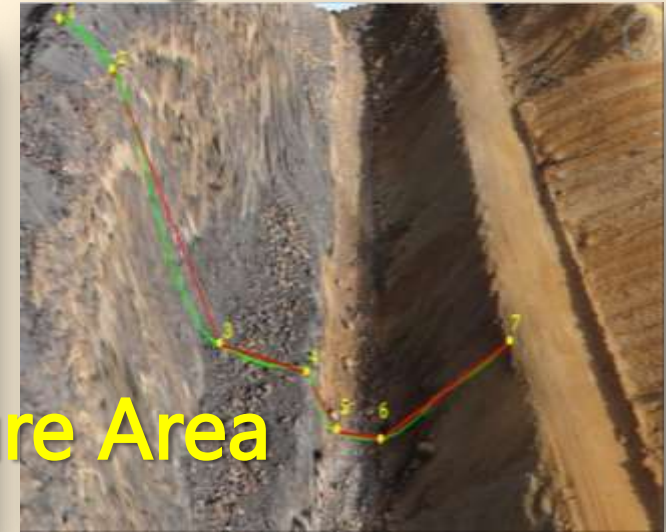


# SKiP Services- 3D Analysis Tools

## 3D Analysis Tools

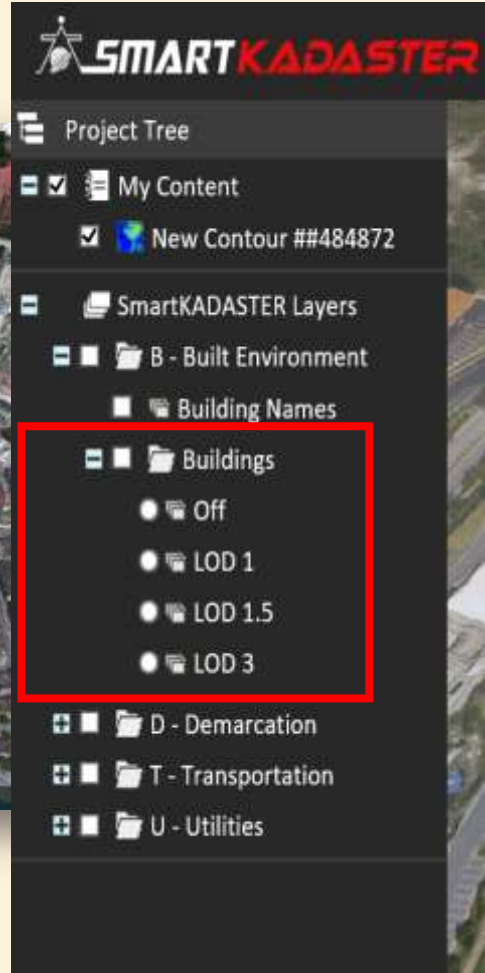


## Measure Area



## Contour Map

# SKiP Services- LOD 1, 1.5 & 3







# SKiP Services- LOD 4, Putrajaya Sentral

## Benefits:

- **Building Maintenance - reduce cost**
- **Property Marketing – allow visualization**
- **BIM Cycle Compliance – up to demolition and refurbishment**



# SKiP Services- 3D Analysis Tools

**SMARTKADASTER** sarah@jupem.gov.my Log Out

Project Tree

- My Content
  - New Contour ##484872
- SmartKADASTER Layers
  - B - Built Environment
  - D - Demarcation
  - T - Transportation

Commercial Terrain Area overlay with NDCDB Lot

KLCC Putra LRT Station, Kuala Lumpur, Wilayah Persekutuan

Persiaran KLCC, 50450 Kuala Lumpur, Wilayah Persekutuan

Suria KLCC, Kuala Lumpur, Wilayah Persekutuan

Jalan Dalam KLCC, 50450 Kuala Lumpur, Wilayah Persekutuan

Persiaran KLCC, Desa Kudalari, 50450 Kuala Lumpur, Wilayah Persekutuan

Jalan KLCC CC, 50450 Kuala Lumpur, Wilayah Persekutuan

© 2014-2016 JUPEM. Semua hakcipta adalah terpelihara.

Camera Location: [ X: 412950.24659, Y: 348768.04859, H: 837 meters AMSL ] Cursor Location: [ Unknown ]

# SKiP Services- 3D Analysis Tools



Commercial Terrain Area overlay with  
1. NDCDB Lot  
2. 3D Model and  
Crowd Sourcing

**Benefits:**  
**New Infrastructure Development for Public Transport (Rail/Highway)**



**Shortest Route**

**Benefits:**  
**Geoinformation for Citizen**  
• PRIMA/PPA1M/MAWIP

# SKiP Services- Catalogue

**SMARTKADASTER** Catalogue's Home SARAH BT SHAHARUDDIN

**Keywords**

- Basemap
- ERL Putrajaya
- Presint
- Fire Hydrant
- Junction
- Toll Plaza
- MEX
- CAM3
- Highway
- Compound Area
- Desain Ukur
- Presint
- Basemap
- Wisma JUPEM
- Raw Data

**Filter By**

Type ▾

Category ▾

Raw data 3D laser scanning for ERL Putrajaya 2014 Version 1

Raw data 3D laser scanning for Compound Area 2014 Version 1

Services truviev for GAMS building 2014 Version 1

Data 3D parametric model Wisma Jupem 2014 version 0

Search Catalogues... **Go!**

Show by: **Most Recent** | Most Viewed | Alphabet (A-z) | Alphabet (Z-a) Total published catalogue(s): 104 | Page 1 of 9

**BA0010 WMS POINT DATA PUTR ...**  
Residential Building layer in point form for Putrajaya area. The output was provided in GDB format. The data was updated using ...

**Presint Polygon DATA PUTRAJAYA**  
Presint layer in polygon form for Putrajaya area.

**Mukim Polygon DATA KL**  
Mukim layer in polygon form for Kuala Lumpur area.

**BA0010 WFS POINT DATA KL 2015**  
Residential Building layer in point form for Kuala Lumpur area. The output was provided in GDB format. The data was updated us ...

<http://skip.jupem.gov.my/MapPortal>

- Catalogue offers complete metadata of the acquired data in SmartKADASTER.
- Applying Service Oriented Architecture (SOA) concept.
- Consequently, accessing, sharing and using geospatial information can be simplified with ample provision of geospatial infrastructure.

# SKiP Services- User's Review

## Beneficial to PR1MA

- Initial evaluation, suitability and terrain assessment for development projects without having to go on site.
- Initial site planning , produce land assessment report using analysis in SKiP – Provide Land Information, Produce Contour Map and Terrain Profile Analysis

From: [Redacted]  
Sent: Thursday, 1 December, 2016 3:43 PM  
To: SMARTKadaster  
Subject: Re: Comment, Suggestion, Feedback (506500-5023111336)

Tuan,

Terlebih dahulu saya ingin mengucapkan terima kasih kerana meluluskan permohonan ID akaun serta membenarkan saya menggunakan perisian smartkadaster ini. Untuk pengetahuan tuan, PR1MA adalah satu agensi dibawah Jabatan Perana Menteri yang ditubuhkan dibawah Akta Perumahan Rakyat 1Malaysia 2012 dan mula beroperasi pada tahun 2013. Tujuan penubuhan PR1MA adalah untuk membina perumahan mampu milik di kawasan Bandar dan pinggir Bandar.

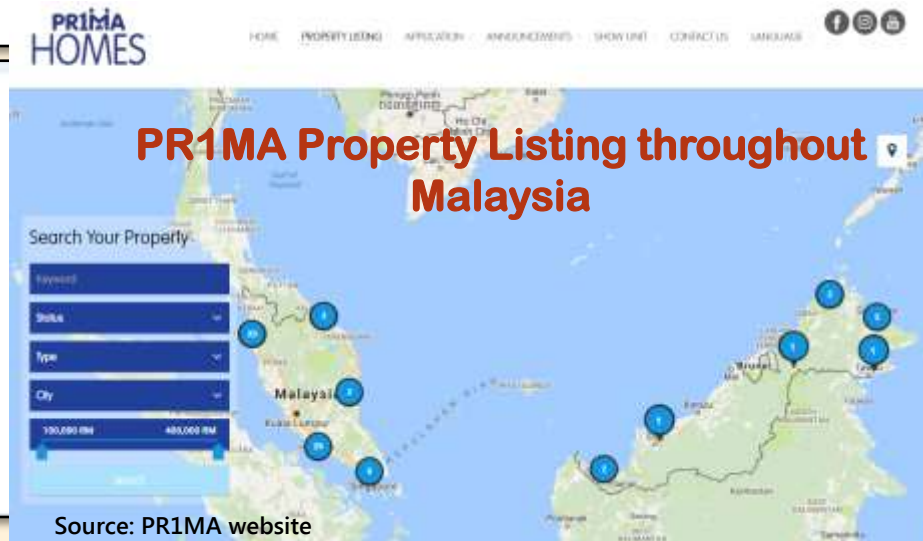
Untuk memastikan PR1MA membina lokasi perumahan tersebut dikawasan yang bersesuaian, PR1MA telah cuba untuk menggunakan perisian Smartkadaster untuk membuat penilaian dan analisa awal terhadap kesesuaian lokasi dan bentuk muka bumi kawasan yang dicadangkan. Untuk pengetahuan, sebelum ini, PR1MA hanya menggunakan perisian sedia ada seperti google map, wikimapia dan lain-lain perisian. Selapas PR1MA mendaftar sebagai pengguna smartkadaster, PR1MA telah menggunakan perisian tersebut dan berpandangan bahawa perisian yang dibangunkan sangat sesuai digunakan untuk membuat perancangan serta analisa awal terhadap lokasi serta bentuk muka bumi terhadap sesuatu pembangunan fizikal. Kemudahan yang disediakan oleh smartkadaster seperti analisa contour, keratan rentas dan lain-lain perkhidmatan dapat membantu dalam penyediaan laporan kesesuaian Tanah yang sebelum ini diperolehi daripada google map yang mana kemudahan tersebut tidak disediakan dan sangat terhad. Walaubagaimanapun, masih terdapat banyak yang boleh diperbaiki dan dimasukkan nilai tambah supaya perisian ini benar-benar membantu pengguna dengan lebih berkesan seperti penambahan kemudahan analisa cerun, contour dan maklumat berkaitan lot. Disamping itu, PR1MA juga berharap supaya kawasan lingkungan system ini boleh diluaskan keseluruhan semenanjung Malaysia terutama Bandar-Bandar utama. Disertakan bersama ini contoh laporan penilaian awalan Tanah yang menggunakan maklumat daripada smartkadaster. Untuk makluman tuan, laporan ini adalah Rahsia PR1MA dan diharap tidak didedahkan kemana-mana pihak. Jika ingin digunakan, sila padamkan nama-nama serta syarikat yang dipaparkan.

Sekian, terima kasih

[Redacted]

Title	Sr
Full Name	[Redacted]
Email	[Redacted]
Mobile Phone	[Redacted]
Position	Senior Associate
Department	PR1MA
Ministry	Jabatan Perdana Menteri
Address	Oasis Square, Ara Damansara

Create user in Central Authenticator  
Note: You can only go to this link from within JUPEM network.



Source: PR1MA website

Perbadanan PR1MA Malaysia was established under the PR1MA Act 2012 to **plan, develop, construct and maintain high-quality housing** with lifestyle concepts for middle-income households in **key urban centres**.

Source: PR1MA website

# SKiP Services- User's Review

Maklumbalas, Komen, Cadangan

172960-4630081738 [Subscribe](#) [Mark as Spam](#) [Delete](#) [Options](#)

Saya berpuas hati dengan pencapaian Smartkadaster yang ... 01/12/2016 12:23 1 [Options](#)

Assalamualaikum...

Saya berpuas hati dengan pencapaian Smartkadaster yang telah dilaksanakan oleh Jupem.

Selaku pekerja di Perbadanan Putrajaya yang merupakan PBT yang menjaga serta mengawasi pembangunan di Putrajaya, saya mohon jasa baik tuan/puan agar mempertimbangkan kami supaya dapat mengakses ke data 4D (Contoh : Putrajaya Sentral) melalui akses ID yang telah didaftarkan. Ianya dapat membantu kami dalam membuat keputusan segera jika terdapat sebarang ubahsuaian dalam bangunan.

Sekian, terima kasih.

Title	
Full Name	
Email	
Mobile Phone	
Position	PENOLONG JURUUKUR
Department	JABATAN PERANCANGAN BANDAR
Ministry	Kementerian Wilayah Persekutuan Malaysia
Address	PERBADANAN PUTRAJAYA , KOMPLEKS PERBADANAN PUTRAJAYA , 24 PERSIARAN PERDANA , 62675 PRESINT 3 , W.P.PUTRAJAYA

[Create user in Central Authentication](#)  
Note: You can only go to this link from within JUPEM network.

## Beneficial to Putrajaya Corporation

- LOD 4 information aids PPJ in building renovation and maintenance
- Utilizing LiDAR Orthophoto, 360 Street View Image from SmartKADASTER for planning purposes

Perbadanan Putrajaya / Putrajaya Corporation (PPJ) was established under the Perbadanan Putrajaya 1995 (Act 536) for the purpose of **managing and administering the Federal Territory of Putrajaya**. Perbadanan Putrajaya is also entrusted with the functions of a **local authority and local planning authority** by various orders and notifications,.

Source: Putrajaya Corporation website

# NBOS via SmartKADASTER



- Implementation of National Blue Ocean Strategy (NBOS) by the Government is fully observed by JUPEM as various Government Department are sharing data and services from SmartKADASTER
- To strengthen and widen the use of SmartKADASTER JUPEM has established an MOU with Putrajaya Corporation.

# CONCLUSION

- SmartKADASTER is in compliance with Cadastre 2.0 concept envisioned by FIG.
- SmartKADASTER tools and functionality are enablers to:
  - ✓ Increase efficiency
  - ✓ Decision making (minimize cost and time in pre-planning & designing)
  - ✓ Improved productivity (time/labour/cost)
  - ✓ Integrate and visualize spatial information
- It is in line with Government role to facilitate, coordinate, track and monitor the successful implementation of ETP (NKEAs).
- In addition, more integrated knowledge system and smarter solutions related to geospatial technology is in need for Government's future transformation plan.

