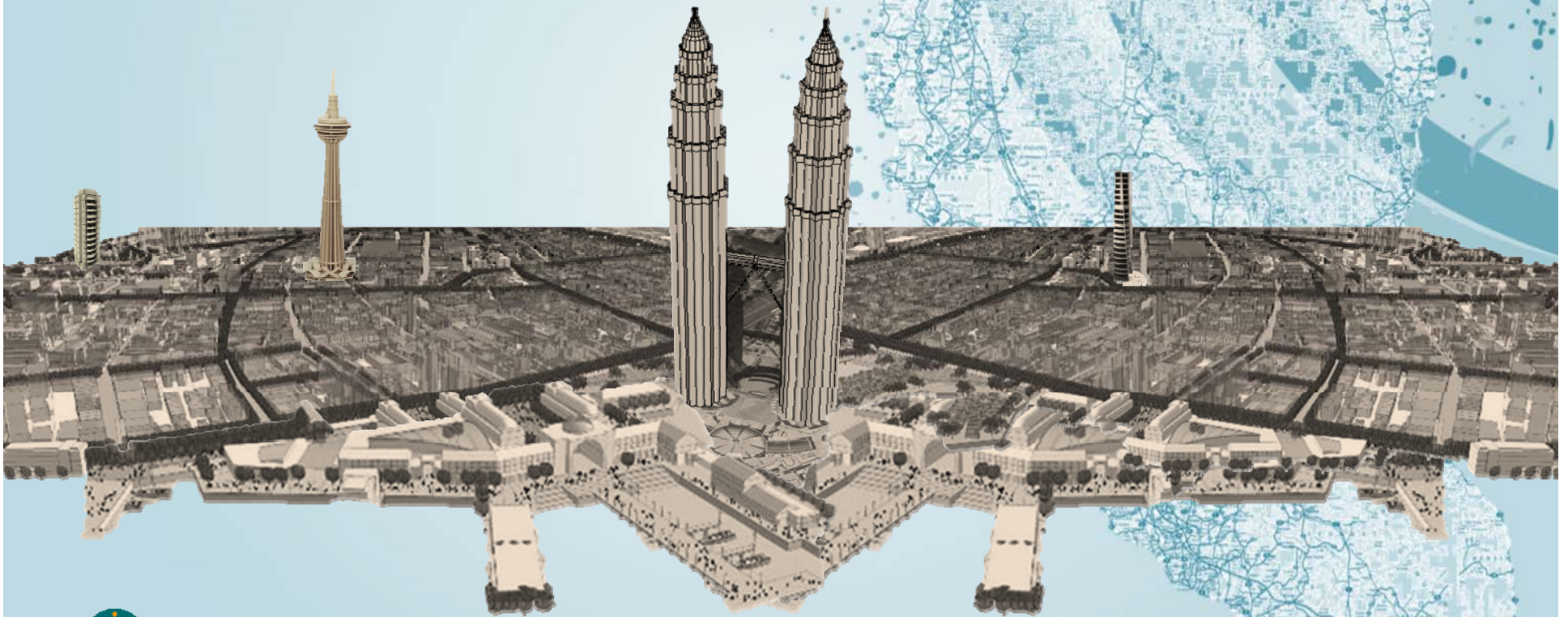


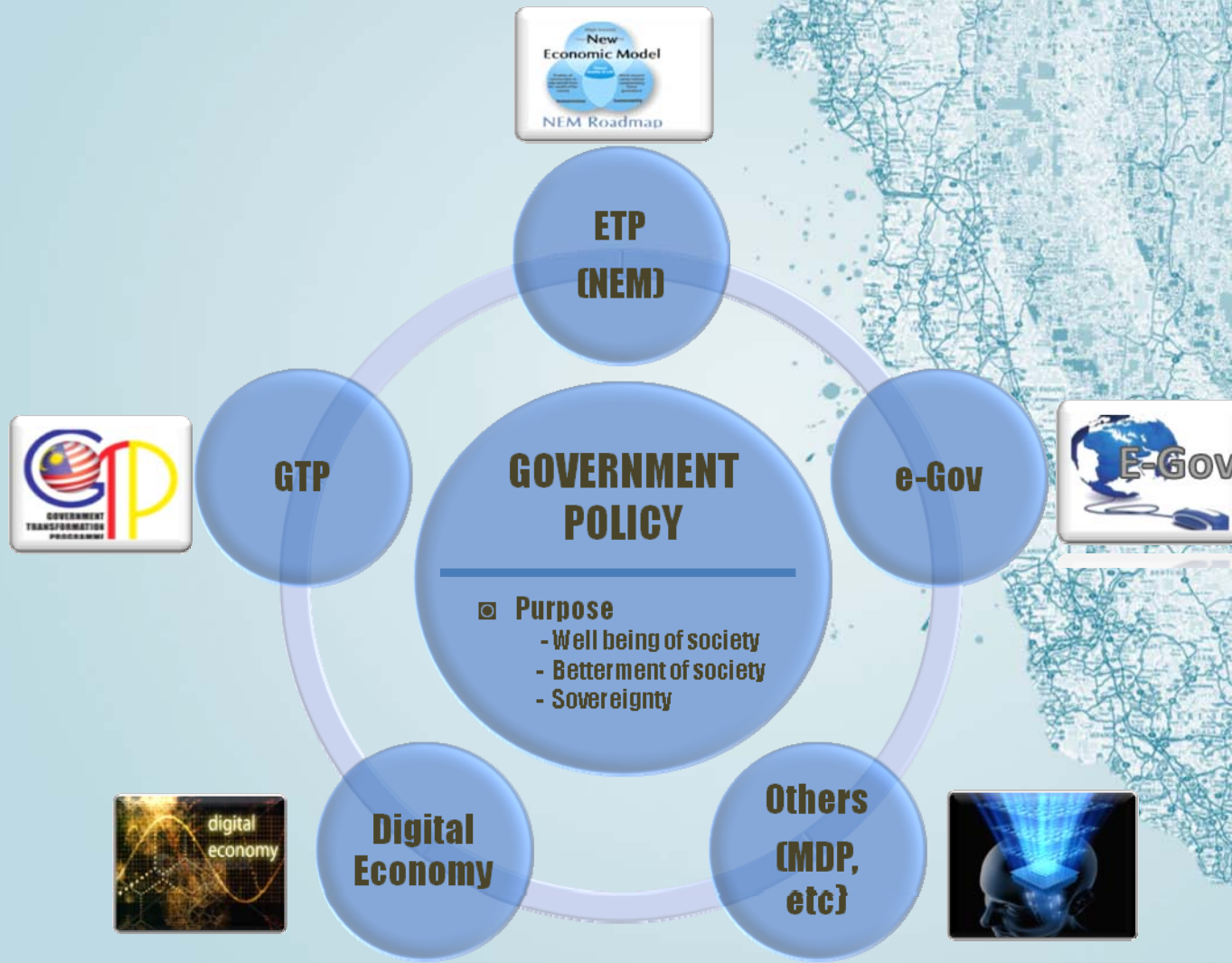
GEOSPATIAL ACTIVITIES, SDI & THE ECONOMY – THE MALAYSIAN CONTEXT



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Department of Survey and Mapping Malaysia (JUPEM)

GOVERNMENT POLICIES





❖ **Economic Transformation Programme (ETP) with reforms to drive the economy over the longer term**

The Malaysian Government has embarked on a series of reforms to improve the country's economic prospects.

To achieve an average economic growth of 6.0% a year over 2010 – 2020, driven by strategic reform initiatives, including:

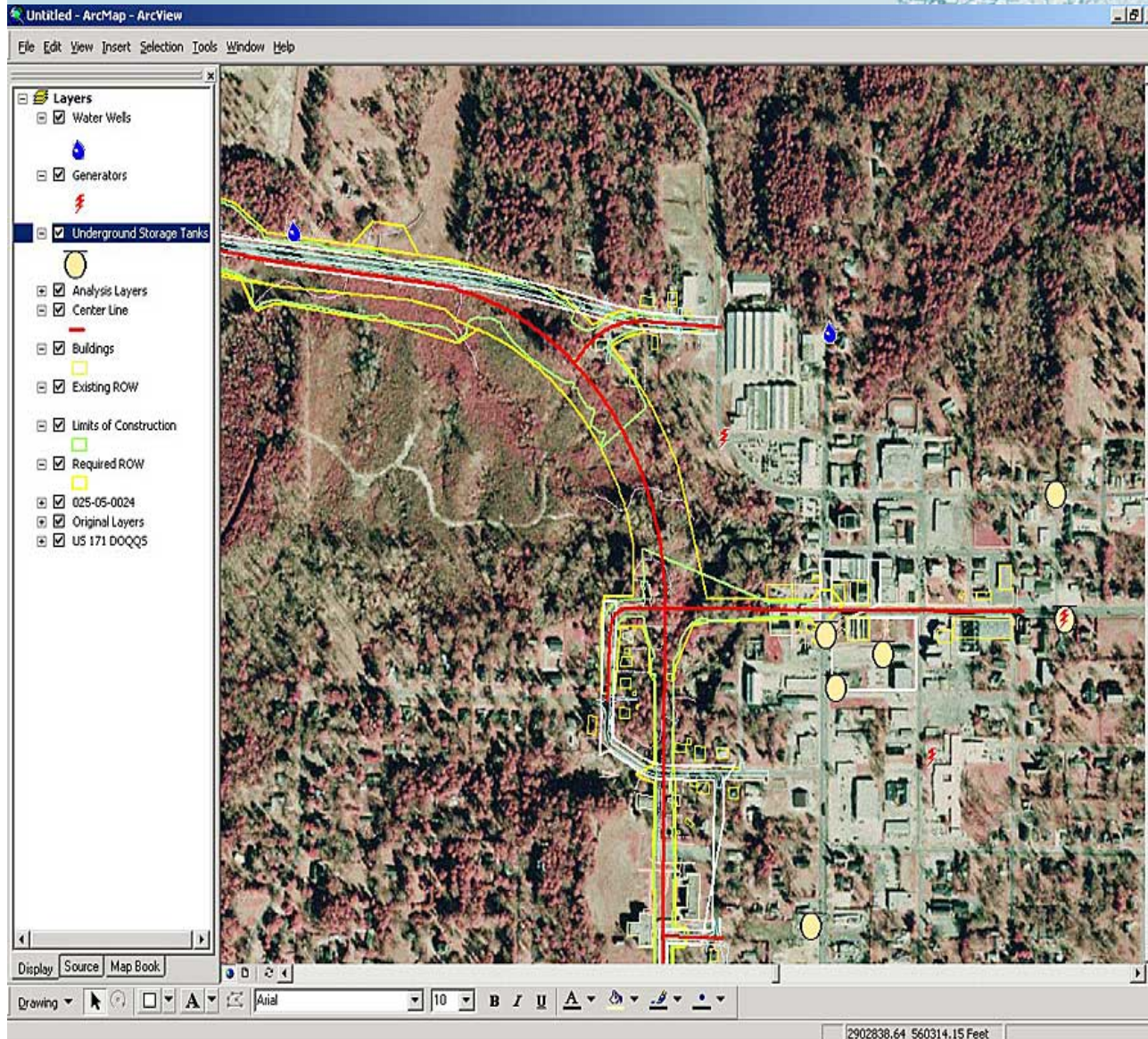
- Strengthening of the public sector;
- Building the knowledge base infrastructure;
- Enhancing the sources of growth; and
- Ensuring sustainability of growth.

❖ The ETP also highlighted national economic activities to be the engines of growth, including oil & gas, electronics, electrical, tourism, agriculture and financial services.

NATIONAL KEY ECONOMIC AREAS (NKEAs)



GI & Infrastructure Development



- Transportation planning & vehicle routing - planning new route or plan route change
- Infrastructure planning & management
- Travel demand analysis
- Routing and scheduling
- Service area analysis
- Transportation safety analysis
- Traffic monitoring & control
- Intelligent transportation systems
- Site selection
- Oversize vehicles permit routing

INFORMATION SYSTEMS & SDI



YEAR	COMPUTERISED INFORMATION SYSTEMS
1970	Sabah Land Data Bank
1973	Sarawak Land and Survey
1983	Quit Rent System Peninsular Malaysia
1985	Computer Assisted Land Survey System
1986	National Forestry Information System
1988	Computer Assisted Mapping System
1989	Property Assessment System
1991	Valuation Information System
1993	Land Use Information System
1993	Demographic Information System
1993	Coastal Erosion Monitoring System
1993	Forest Information System Sabah
1994	Penang GIS (PEGIS)
1994	Public Works System (SUTRA)
1995	Computerised Land Registration System
1999	Cadastral Data Management System (CDMS)
1999	National Property Information Centre (NAPIC)

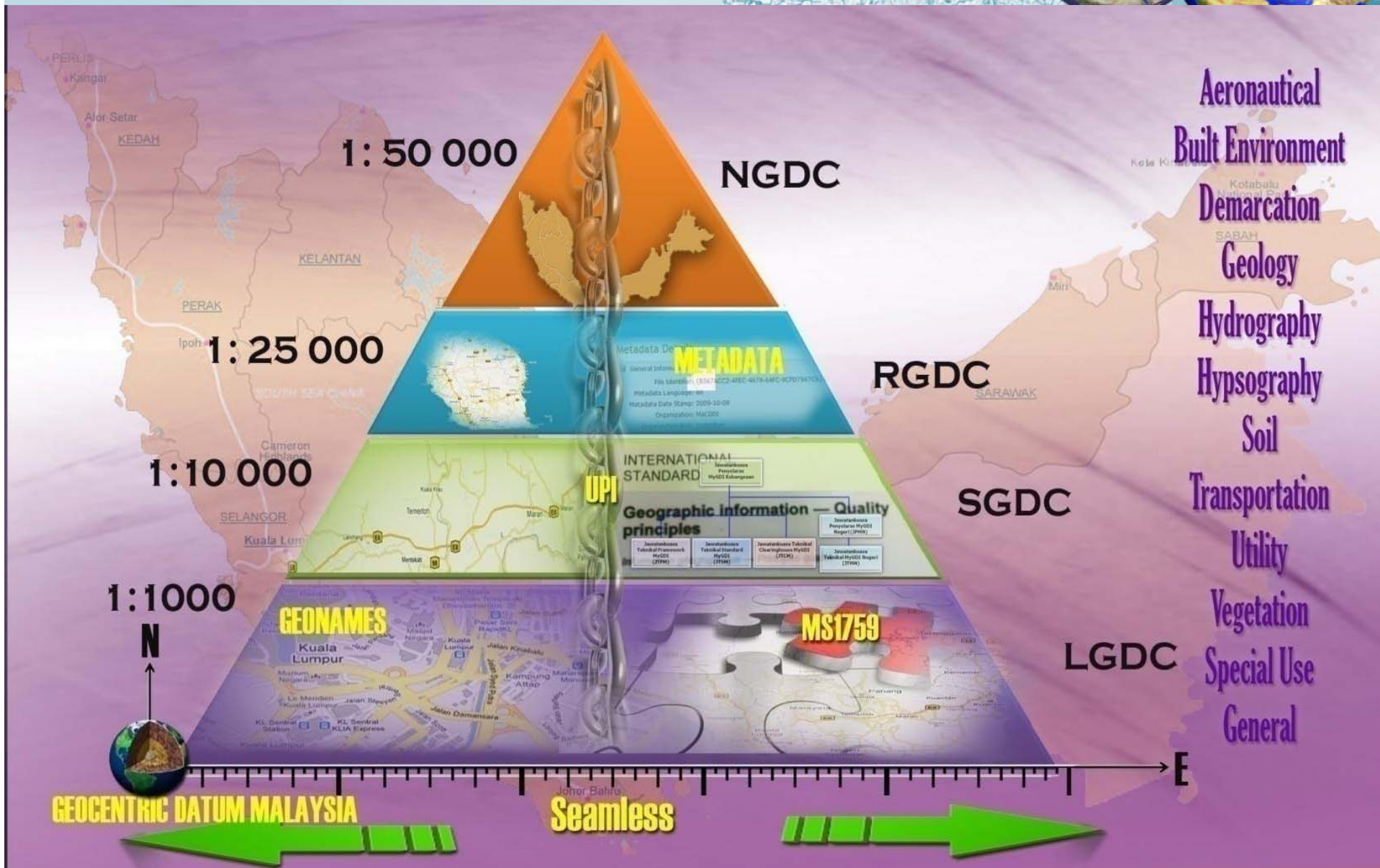
Establishment of Computerised Information Systems by some Government Agencies

MALAYSIAN SPATIAL DATA INFRASTRUCTURE (SDI)



- Formed in 1997, then known as NaLIS
- Purpose :
 - a) to promote and facilitate sharing, exchange, dissemination and use of geospatial information among Land Related Agencies (LRAs);
 - b) to avoid duplication of effort in collection and management of geospatial information; and
 - c) to ensure accuracy, timeliness, correctness and consistency of geospatial information.
- Undergone restructuring in 2002, subsequently named MyGDI

FRAMEWORK DATASETS





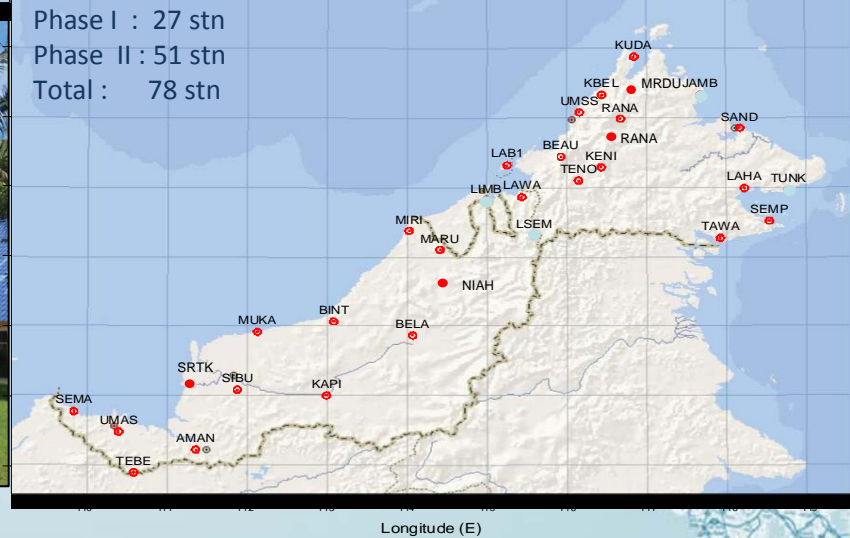
GEOSPATIAL & RELATED INITIATIVES

- **MyRTKNet**
- **e-Cadastre**
- **Multi-purpose Cadastre**
- **e-Mapping**
- **Height Modernisation**
- **Underground Utility Mapping**

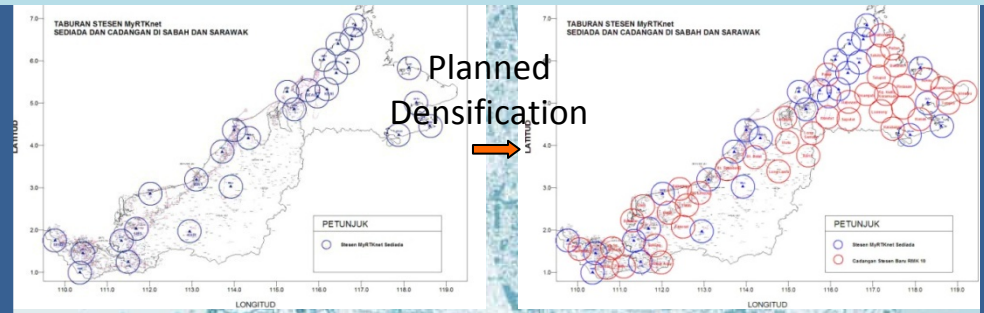
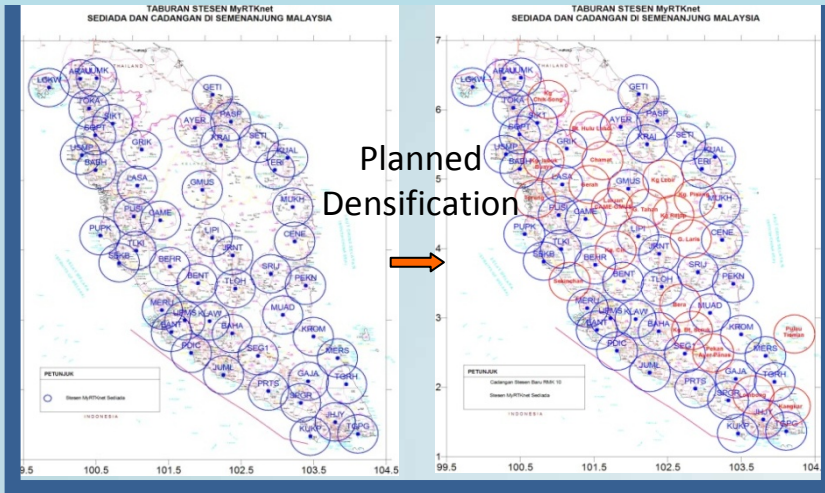
MALAYSIA REAL-TIME KINEMATIC GNSS NETWORK (MyRTKnet)



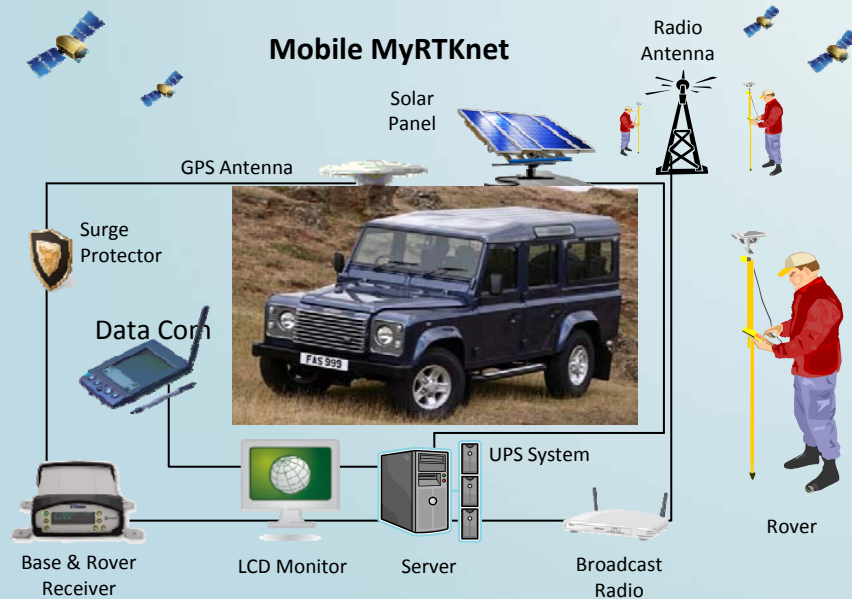
Phase I : 27 stn
Phase II : 51 stn
Total : 78 stn



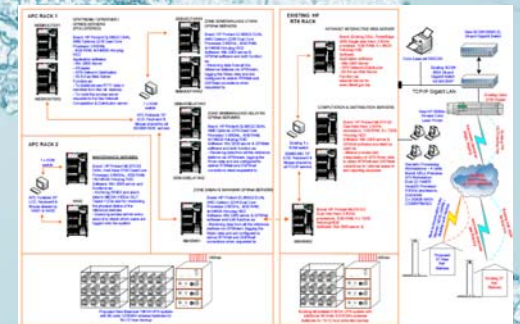
MALAYSIA REAL-TIME KINEMATIC GNSS NETWORK (MyRTKnet)



P. Malaysia – 30 stn
 Sabah – 20 stn
 Sarawak – 20 stn



Control Centre Upgrade

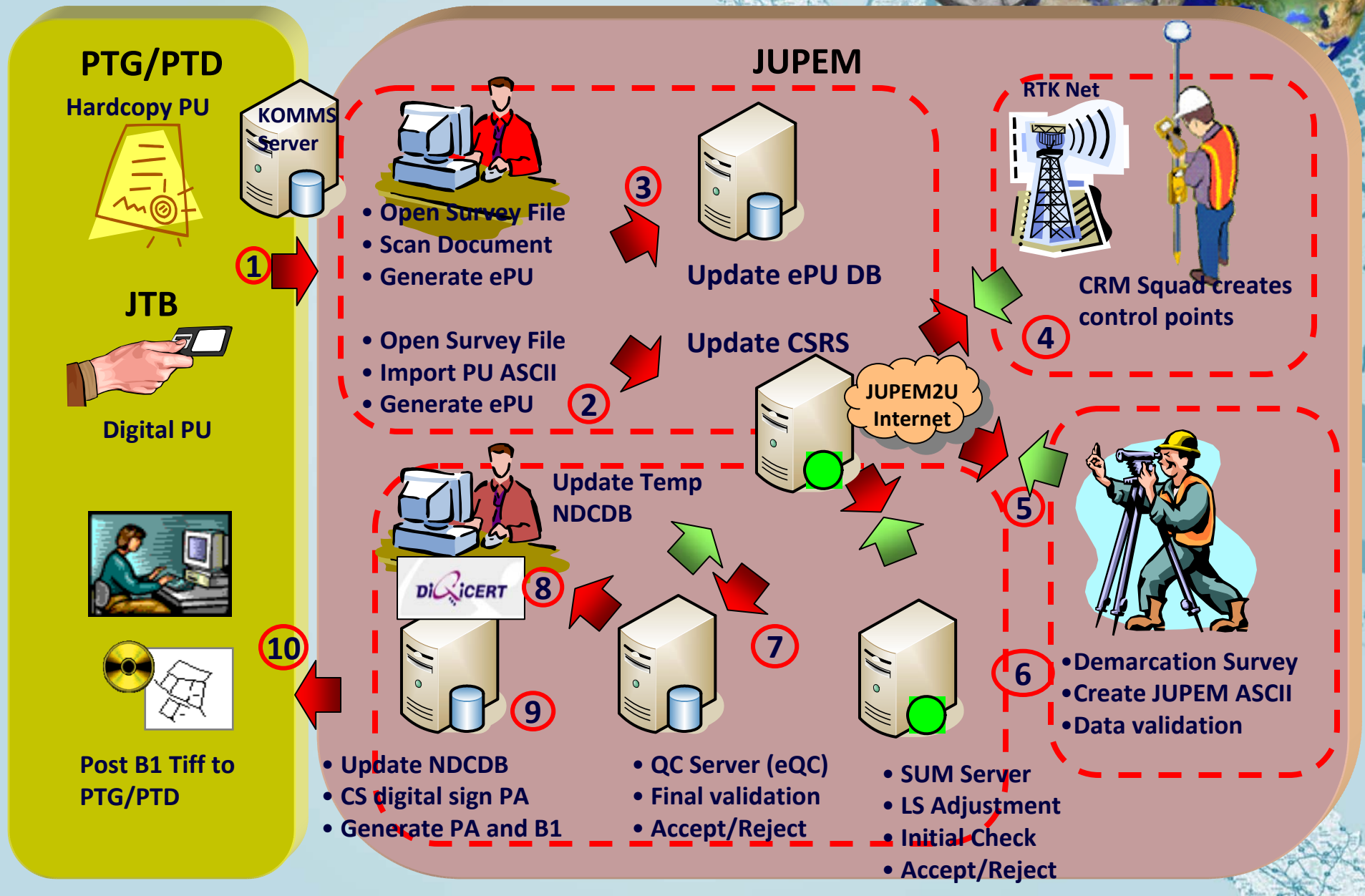


MyRTKnet Objectives

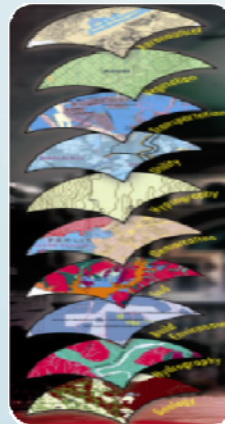
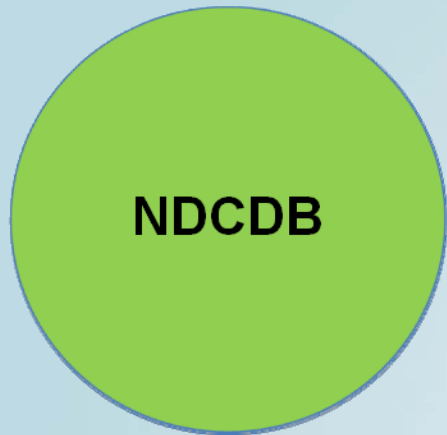
- To establish a network of permanently running GNSS base stations, at spacing from 30 to 100 km in Peninsular Malaysia, and from 30 to 200 km in Sabah and Sarawak, feeding GNSS data to a processing centre via a computer network
- To establish a central facility, that will model the spatial errors that limit GNSS accuracy through a network solution and generate corrections for roving receivers to be positioned anywhere inside the network with an accuracy better than a few centimeters (the whole of Peninsular Malaysia, Kuching, Sabah West Coast and East Coast), to a few decimeters (the rest of Sabah and Sarawak) in real time
- To establish a web site, that will make available near real time (0.5 – 2 hours) reference station data to the users for post-processing differential GPS throughout the coverage area



E-Cadastre



Multipurpose Cadastre



3-Dimensional City Model

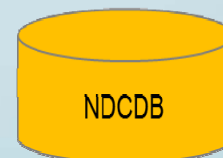
MTLS

Street Address

Building / facilities



Large Scale GIS Base Map



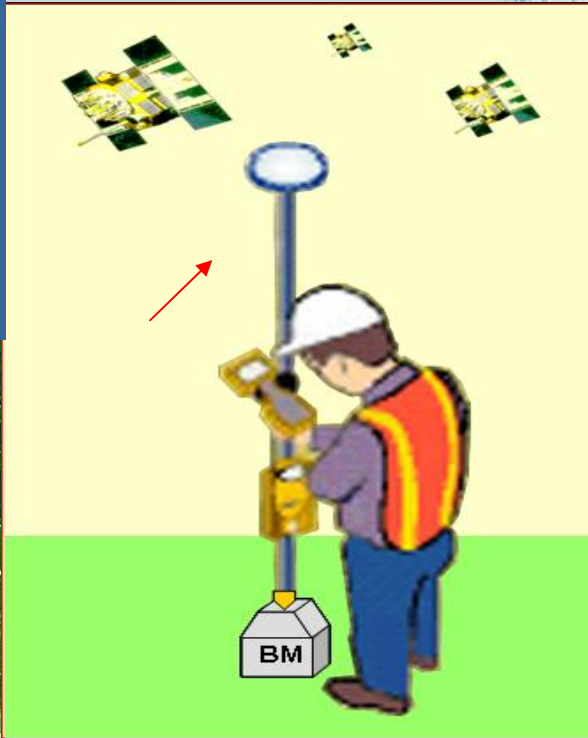
Survey Accurate NDCDB

PHASE	DETAILS
1. NDCDB	Refinement and enhancement of existing survey accurate NDCDB which is a fundamental layer in MPC.
2. Large Scale Geospatial Data Acquisition	MTLS is a main source of large-scale spatial data for features such building, road, utility, vegetation and others features during the survey.
3. Large Scale GIS Base Map	Local Geospatial Data Centre dataset that consists of large scale topographic map and other GIS layer.
4. MPC Module	Application modules for integration of multiple data sources, validation of MPC database and updating new spatial features.
5. 3D-SDI	Applying data fusion method to generate 3D city model and 3D SDI using available large scale MPC database.
6. MPC Database	MPC database will consists of various geospatial datasets with the following compliance: i)MS 1759:2004 Geographic Information/Geomatics - Features and Attribute Codes; ii) MS 2256:2009 Geographic Information /Geomatics - Guideline for the Determination of Geographical Names; iii) MS ISO 19115:2003 Geographic Information Metadata Referencing by Coordinates Unique Parcel Identifier (UPI); iv) GDM2000 - Geocentric Datum for Malaysia, v) Colour Code and Symbol (DSMM/MaCGDI).
7. Online Web Access	MPC OWA will provide a mechanism for access to spatial data as well as mapping and spatial analysis over the Internet.

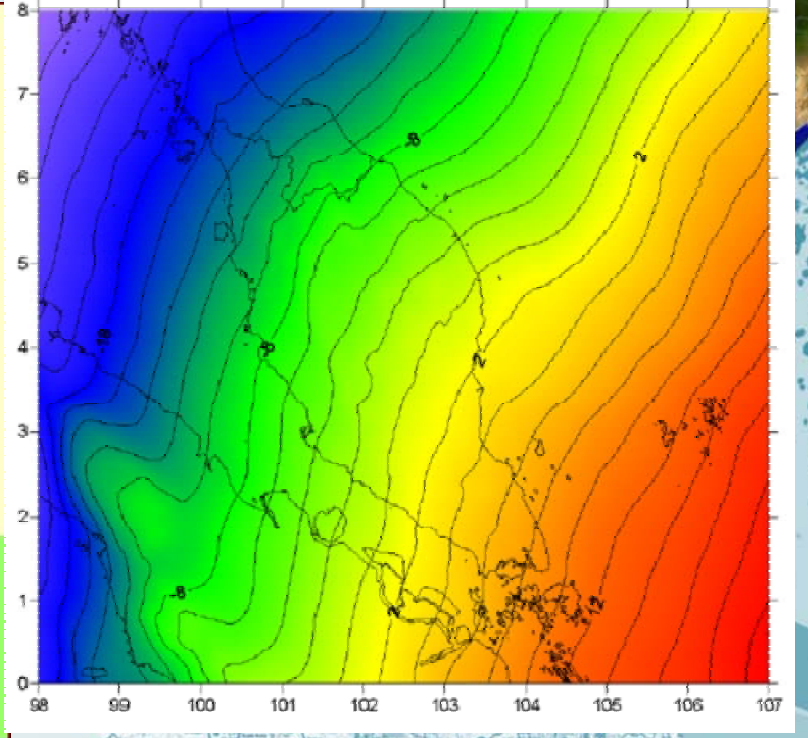
HEIGHT MODERNIZATION SYSTEM



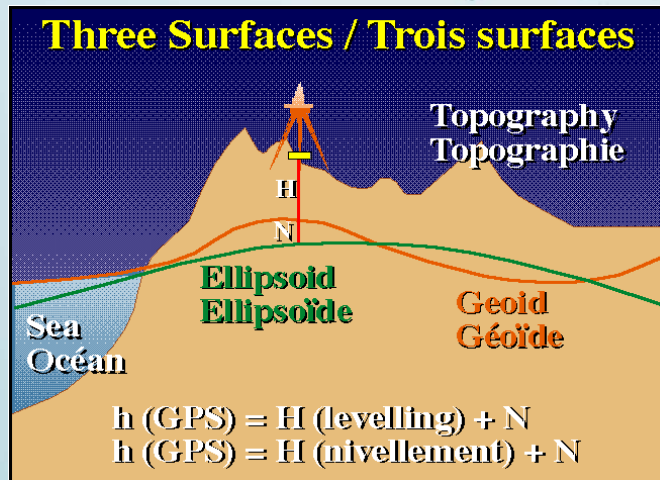
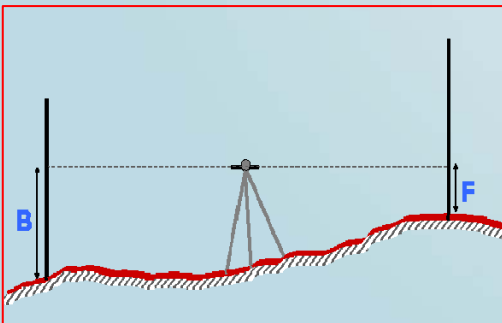
Digital Levelling



GPS Levelling



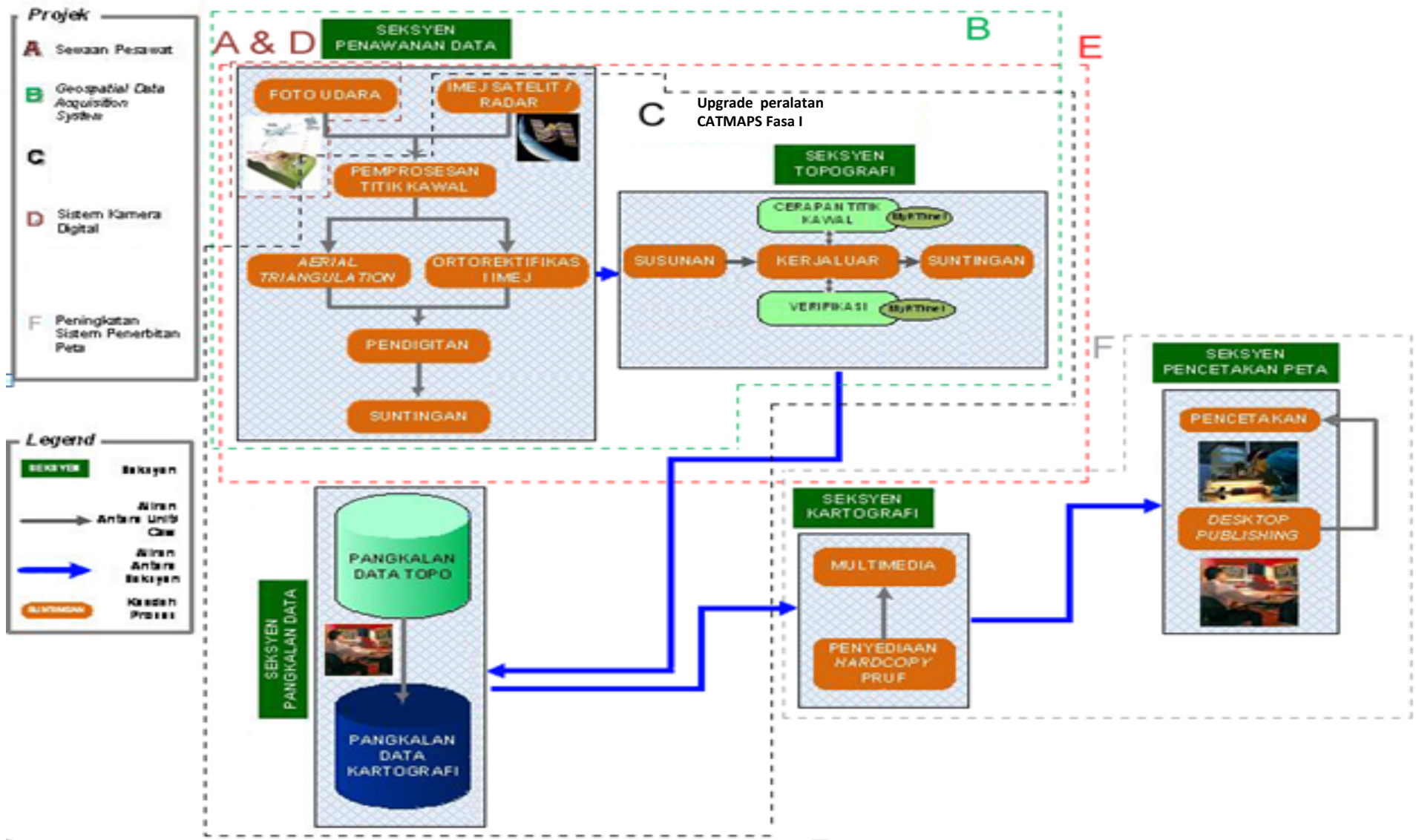
GEOID Model - 1 cm



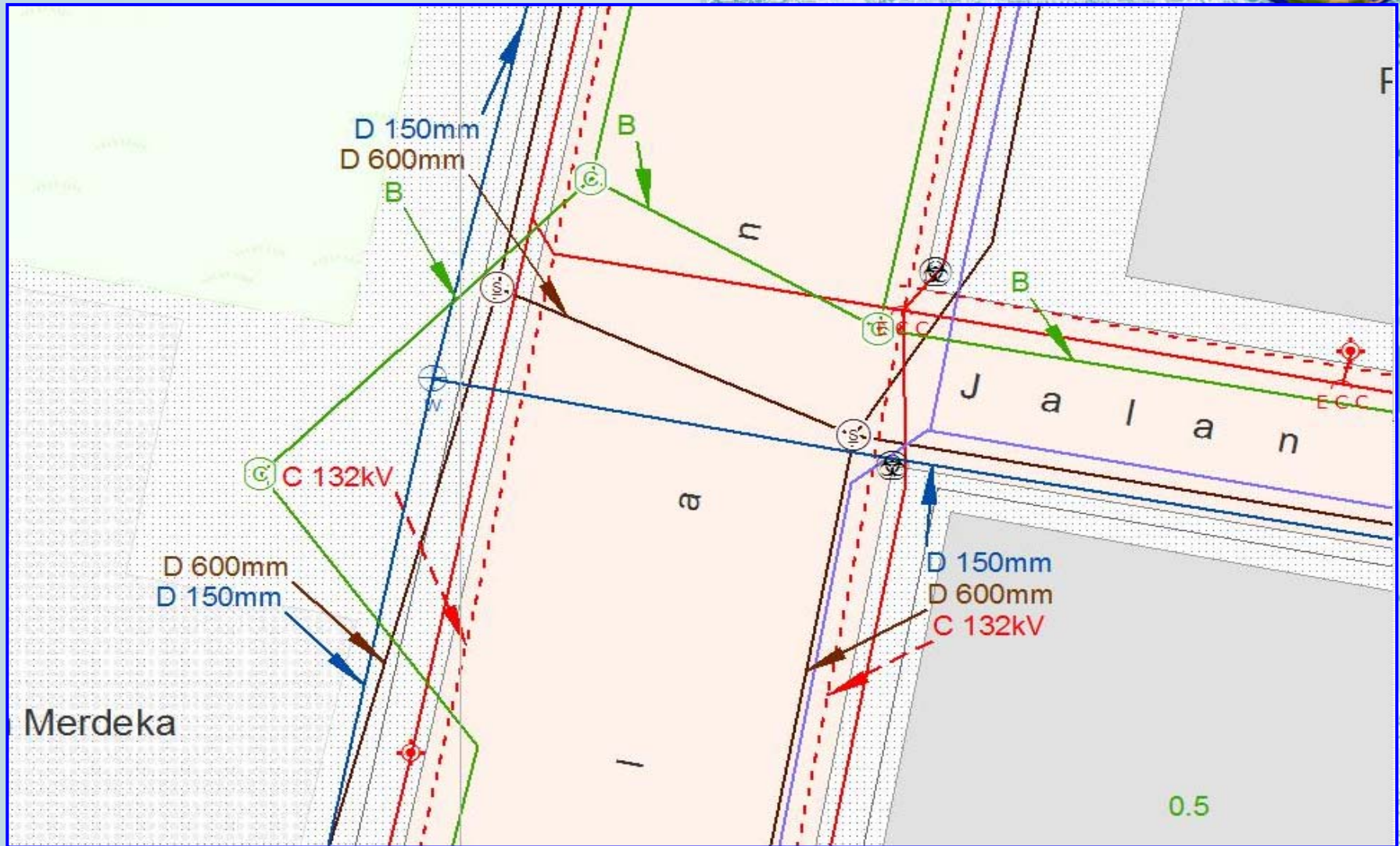


e-Mapping

E-Mapping Components



Underground Utility Mapping



FUTURE DIRECTIONS



Information Sharing Strategies & Enabling Platform

- Collaborative framework
- Institutional framework
- Legal framework
- Technical tools (for data sharing)



Extend Use of Cadastre to Multi-Purpose Cadastre



FUTURE DIRECTIONS



Develop More Holistic Data Models



Research & Development



Capacity Building




Funding



CONCLUSION

- The so-called Economic Transformation Program is an economic transformation plan to propel Malaysia's economy into a high income economy
- Various National Key Economic Areas (NKEAs) or sectors for development have been identified for the program. To support NKEAs, there is a clear need for GI, the provision of which would be facilitated by MyGDI
- Important role for JUPEM to provide the core datasets (cadastral and topographic), through MyGDI, apart from the geodetic infrastructure.
- GI not only would support government programs of spurring the economy, but GI produced and generated from geospatial initiatives would itself be able to generate other forms of economic activities - further contributing to the economic growth of Malaysia



The background features a light blue map of Malaysia with a network of roads and cities. In the top right corner, three globes are arranged horizontally, showing different views of Earth and the Moon. In the bottom left corner, a cluster of globes includes Earth, the Moon, and several smaller, colorful spheres in red, green, orange, purple, and blue. A large, light brown rectangular sign is positioned in the center-left, tilted slightly to the right.

Thank You

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Department Survey and Mapping Malaysia