BADAN INFORMASI GEOSPASIAL

Role of Integrated Geospatial Information Management for the Digital Economy and Smart Communities (Indonesian Case)

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Head

Geospatial Information Agency of Indonesia

INTERNATIONAL SEMINAR ON UNITED NATIONS GLOBAL GEOSPATIAL INFORMATION MANAGEMENT
”Integrated Geospatial Information Framework”
Kuala Lumpur Malaysia, 20 June 2019

Digital Economy

The DIGITAL ECONOMY is a term for all of those economic processes, transactions, interactions and activities that are based on digital technologies.

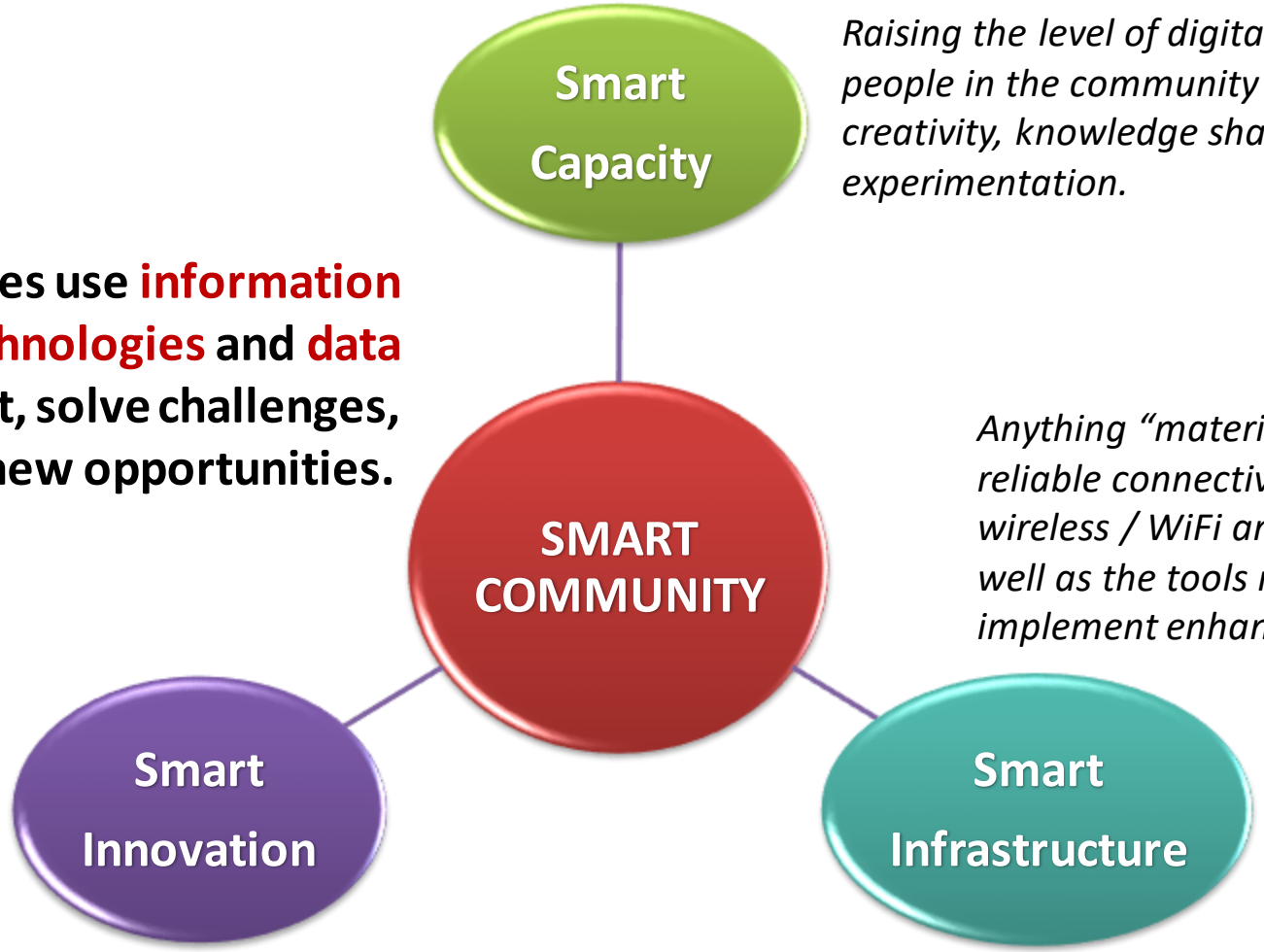
The digital economy is different from the INTERNET ECONOMY in that the internet economy is based on internet connectivity, whereas the digital economy is more broadly based on any of the many digital tools used in today's economic world.

https://www.techopedia.com/definition/32989/digital-economy

What is a smart community?

https://www.australiansmartcommunities.org.au/smart-communities

Smart communities use information communication technologies and data to be more efficient, solve challenges, and provide new opportunities.

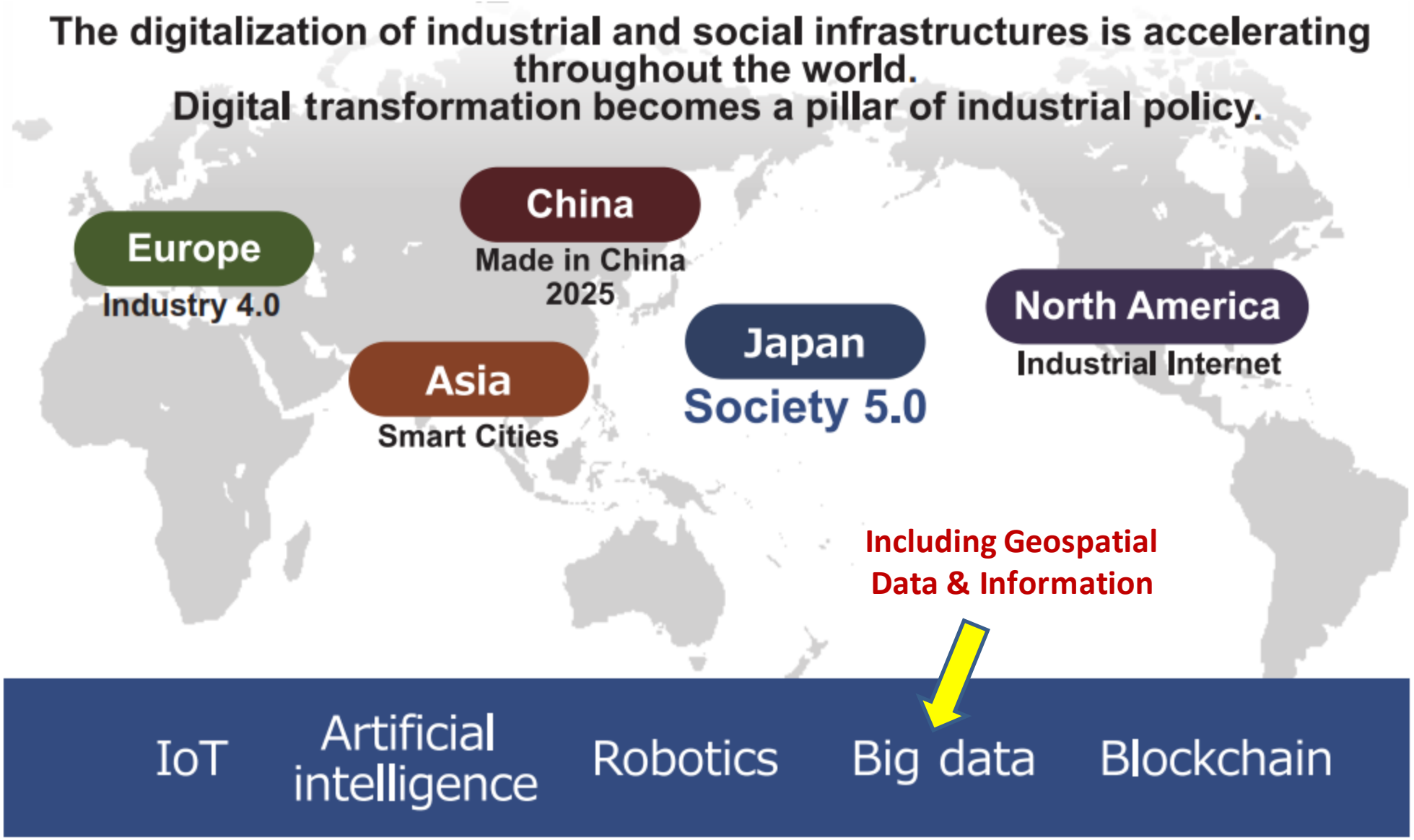


Raising the level of digital skills of the people in the community to boost creativity, knowledge sharing and experimentation.

Anything "material" that aids faster, more reliable connectivity, eg fixed line, mobile, wireless / WiFi and data centre services, as well as the tools required to plan and implement enhanced digital infrastructure.

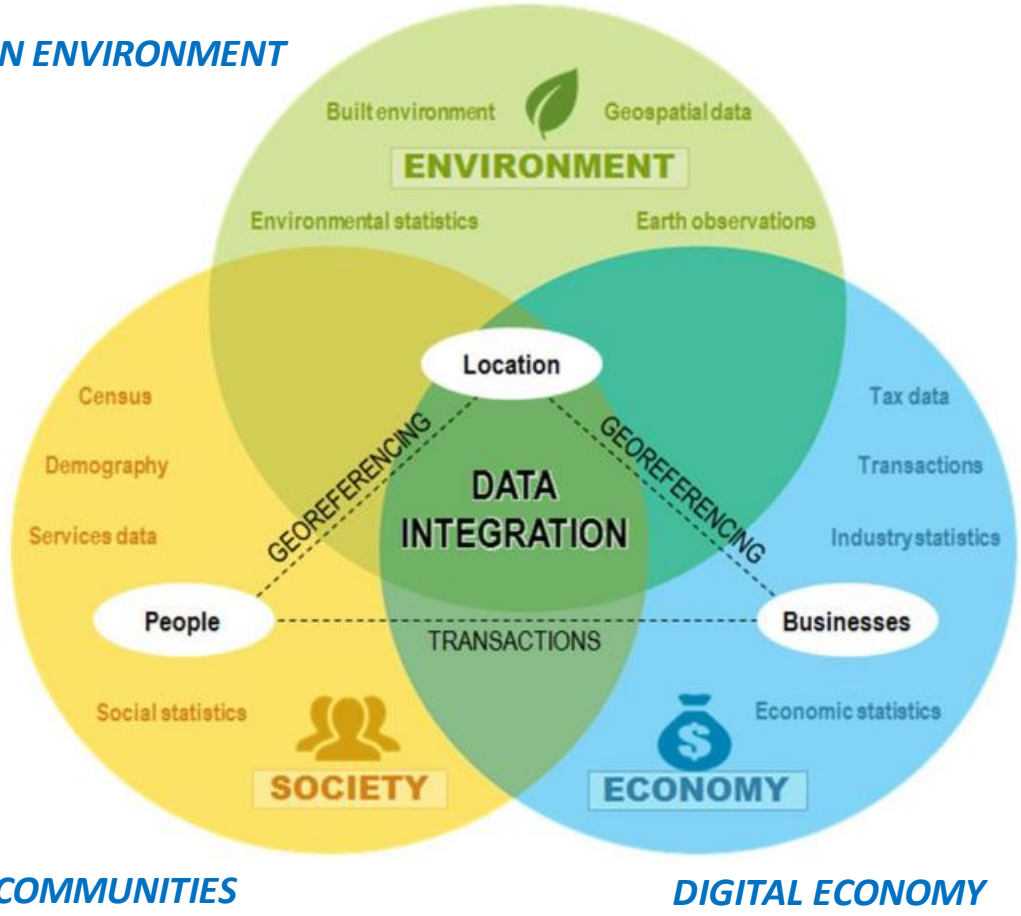
Driving the digital economy with new digital applications, services, community enterprise, job creation and economic growth.

Digital Transformation Era



Ref : Mayumi Fukuyama (2018)

Geospatial Information, Digital Economy & Smart Communities

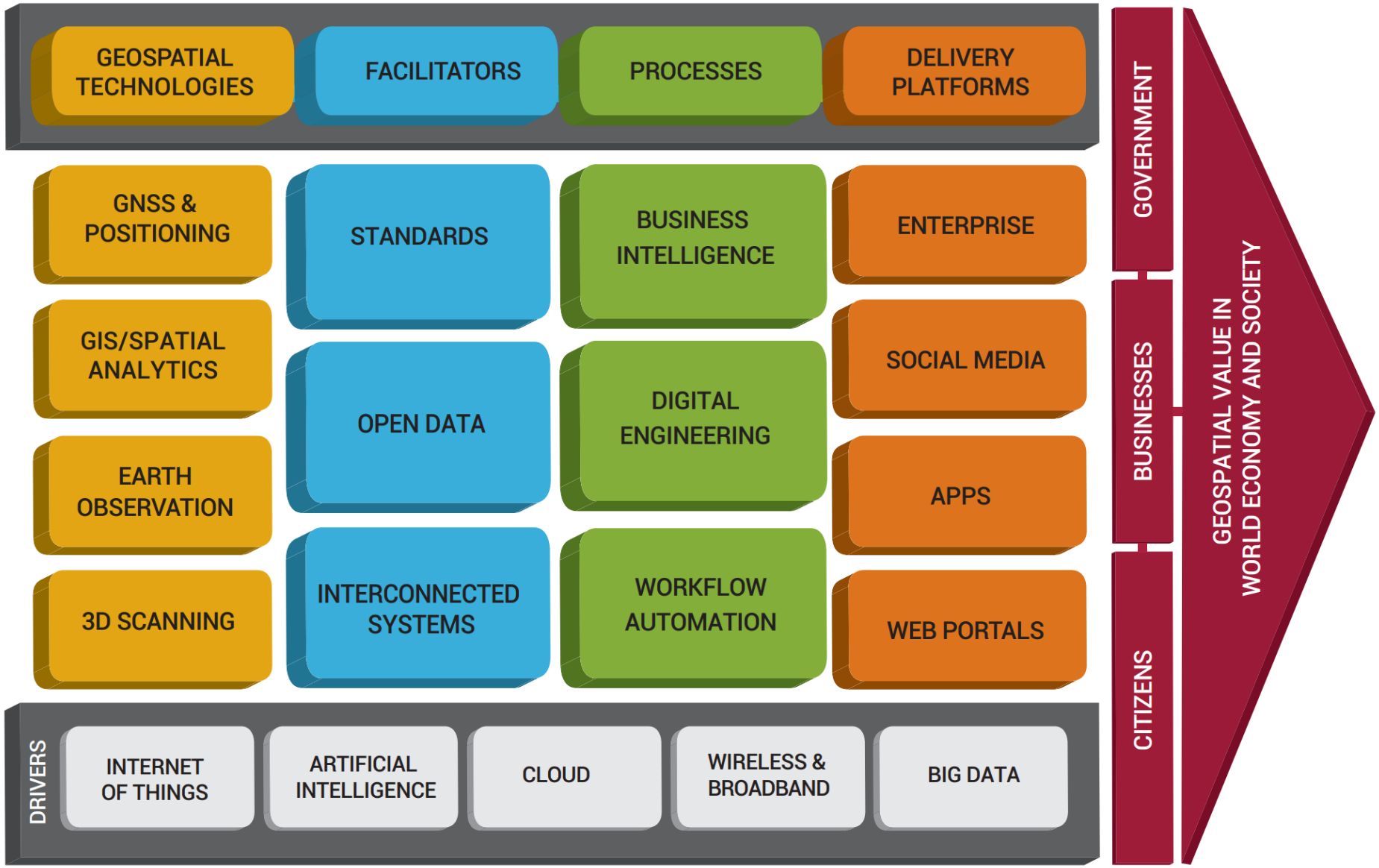


Location (Geospatial Information):
link between Society,
the Economy and the Environment
for achieving SDGs.

Ref: UN-GGIM (2018)

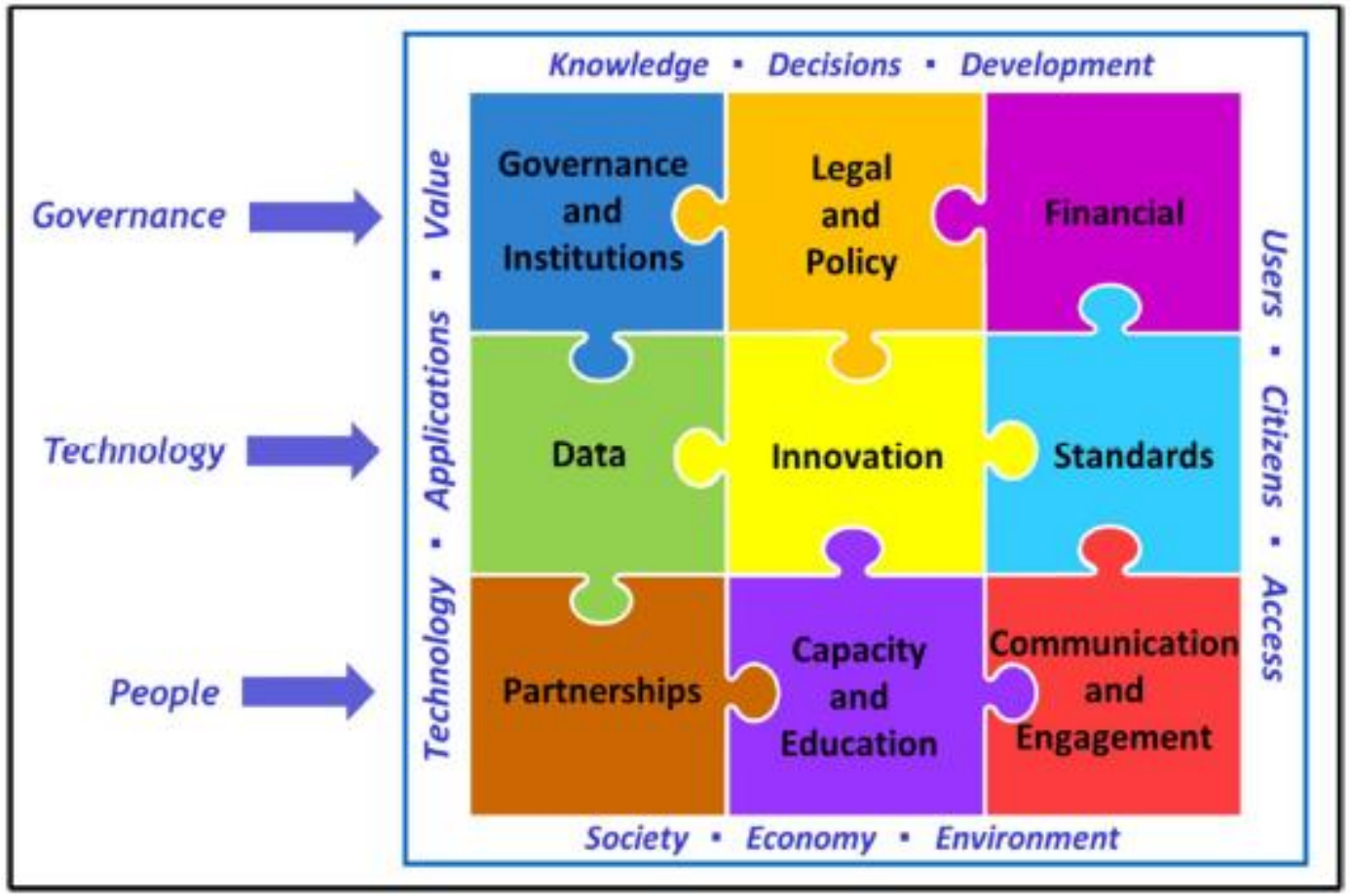
Geospatial Technologies for Digital Economy & Smart Communities

Geospatial (Data, Information and Technology) is the important fuel and locomotive for enablement of the **Digital Economy** and **Smart Communities**



Ref: Geospatial Media and Communications, 2018

Integrated Geospatial Information Framework



?

Digital Economy

Smart Communities

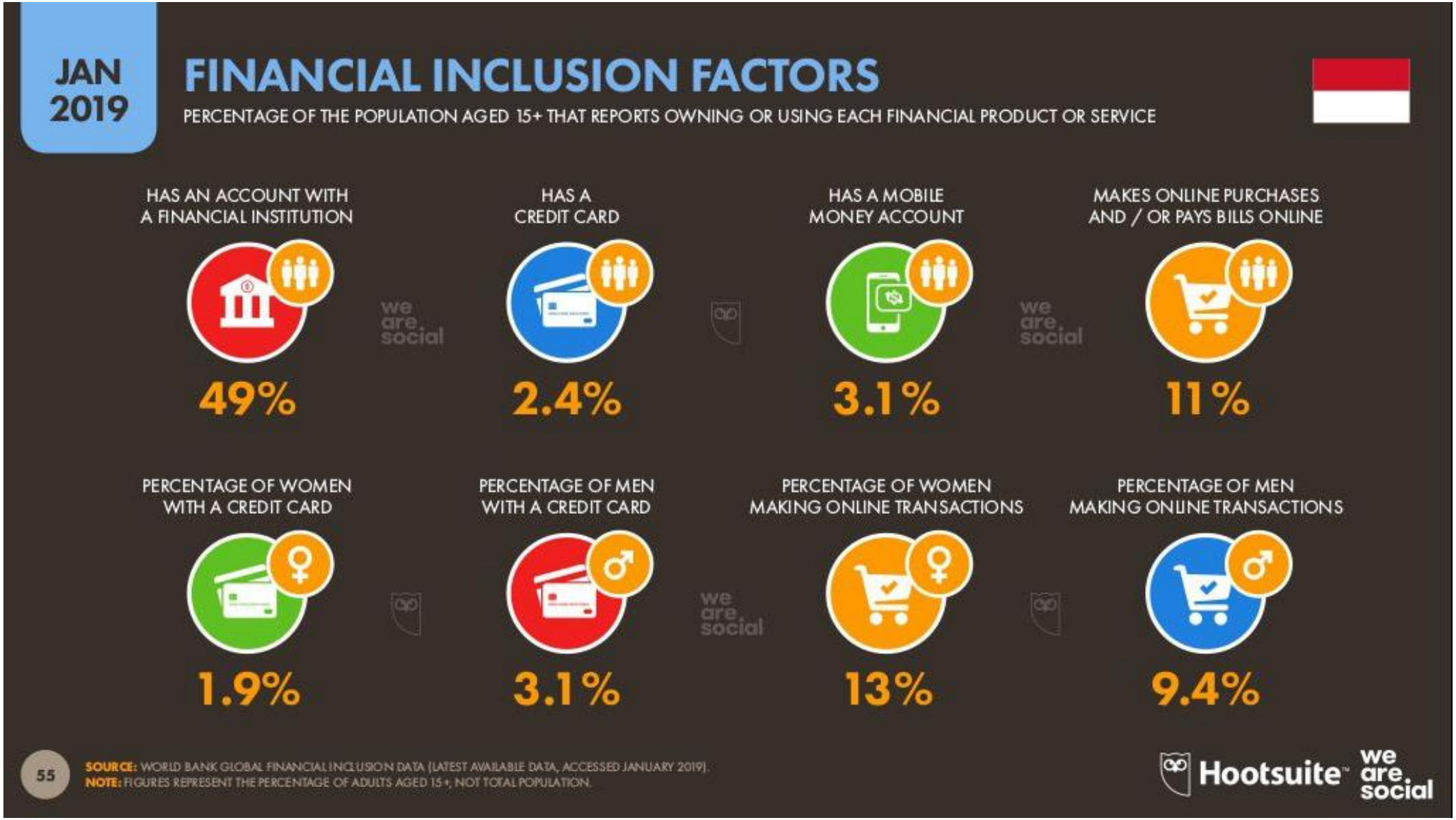
for case of Indonesia

The Framework is anchored by nine strategic pathways and three main areas of influence (UNGGIM, 2018)

Several Initiatives in Indonesia for Supporting Development of Digital Economy and Smart Communities

Digital Economy Prospect in Indonesia

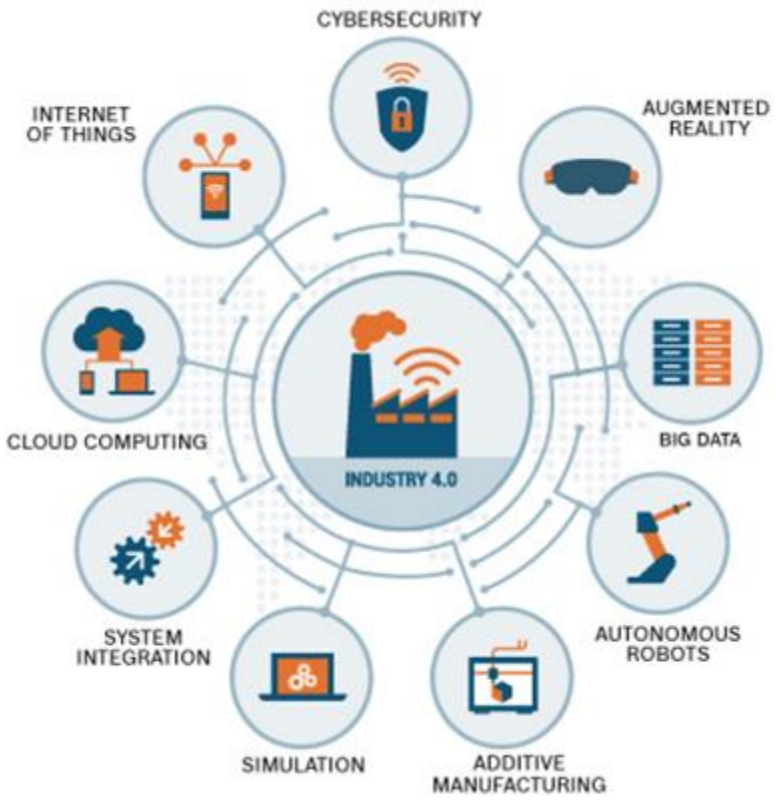
Digital Economy Prospect in Indonesia



Digital Economy Prospect in Indonesia

Opportunities and Issues in Digitalization and Industry 4.0 Era in Indonesia

INDUSTRY 4.0



OPPORTUNITIES

- Innovative, speedy and low cost
- Big data and data integration
- Increasing productivity and efficiency in the modern process
- Bringing new energy
- Bringing ease and convenience to costumer
- Increasing consumption

URGENT ISSUES

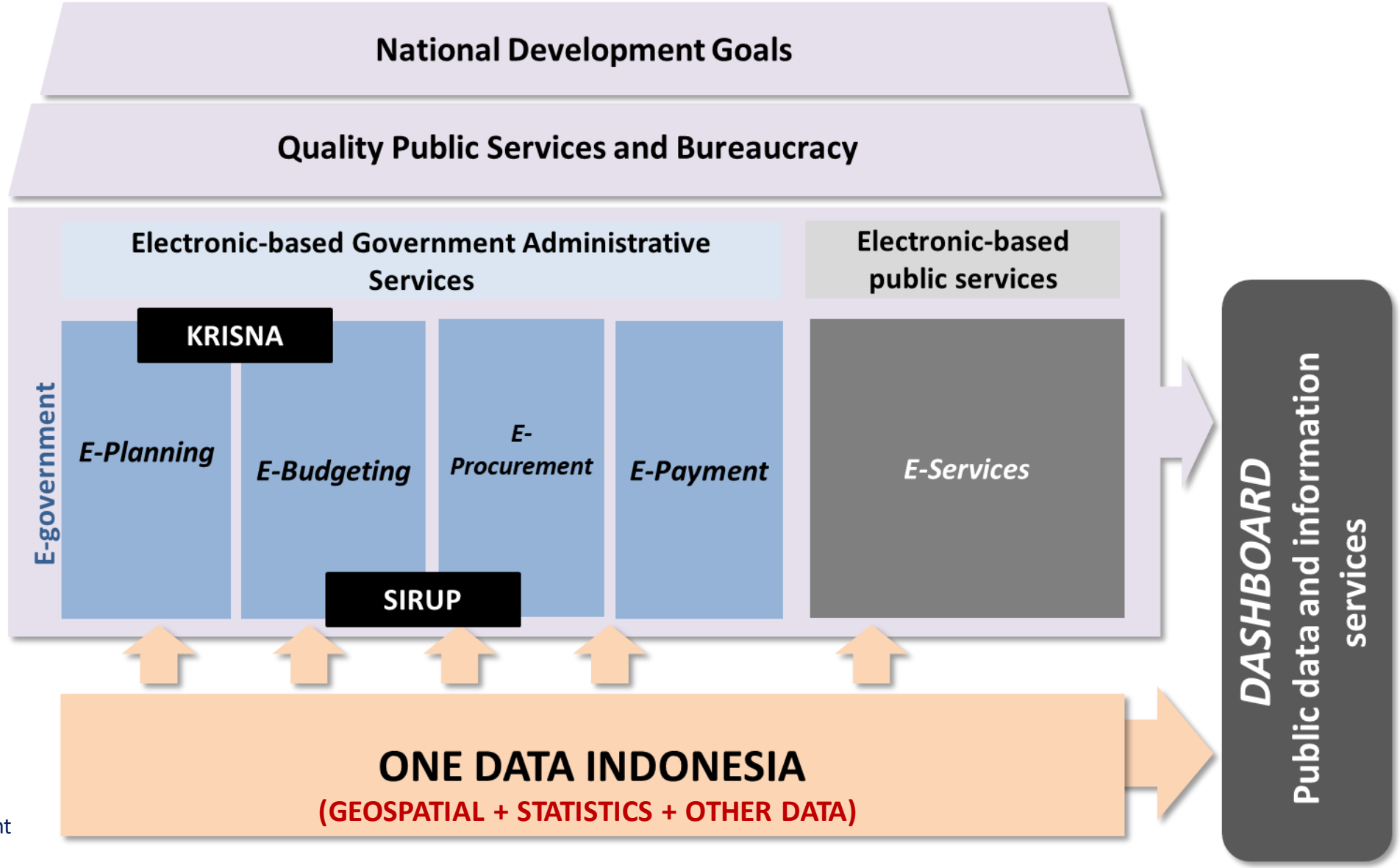
- Reduce reliance on human resources
- Loss of jobs? Especially for the unskilled labor?
- Increasing inequality? New type of marginalization?
- Getting education and degree becomes less relevant?
- Services not manufacture-led development?
- Increasing debt? Possible new type of economic crisis?

High innovation capability needed

Kementerian PPN/ Bappenas

Ref: Ministry of National Development Planning of Indonesia /National Development Planning Agency (2019)

Improve Public Sector Efficiency



Kementerian PPN/ Bappenas

Ref: Ministry of National Development Planning of Indonesia /National Development Planning Agency (2019)

Collective Efforts Needed to Create Inclusion, Efficiency and Innovation in Digital Era

Ref: Ministry of National Development Planning of Indonesia /National Development Planning Agency (2019)

a Comprehensive Approach to Benefit from Digitalization for Economic Growth, Social Wellbeing and Sustainable Environment

Internet of Things *Artificial Intelligence*
Augmented Reality *Simulation*
System Integration *Big Data* *Cloud Computing*
Additive Manufacturing *Autonomous Robotics*

DIGITAL TECNOLOGIES

Source: World Development Report (2016)

	INCLUSION	EFFICIENCY	INNOVATION
BUSINESSES	Trade	Capital Utilization	Competition
PEOPLE	Job Opportunities	Labor Productivity	Consumer Welfare
GOVERNMENT	Participation	Public Sector Capability	Voice

Modalities in Policy Environment

- UU No. 11/2008: Information and Electronic Transaction
- PP 82/2012: Electronic System and Transaction
- Perpres 74/2017: E-commerce Roadmap 2017-2019;
- Perpres 95/2018: e-government
- Various regulation related to e-commerce, online transportation and fintech.
- Indonesia's proposal to include the maximization of benefits from digitalization and emerging technologies for innovative growth and productivity was accepted in G20's HLM declaration in 2018.

Expand and Improve Broadband Networks in Indonesia

Ref: Ministry of National Development Planning of Indonesia /National Development Planning Agency (2019)

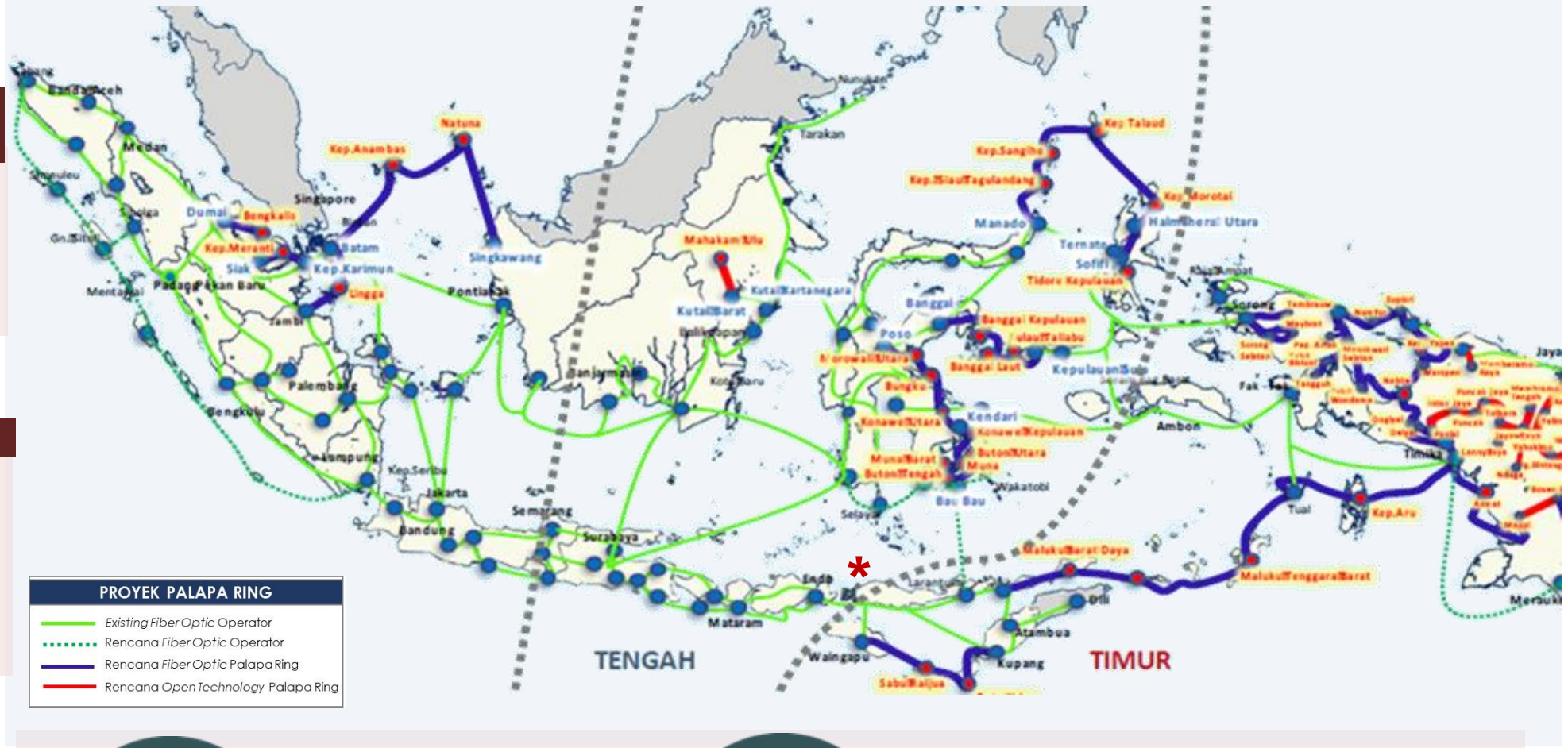
Kementerian PPN/ Bappenas

Coverage of fiber optic network

Cover **478** of 514 capital city of regency/municipality, supported by development of operator and Palapa Ring

Palapa Ring Progress

West	100% ; 2,275 km
Center	99% ; 2,995 km
East	85% ; 6,878 km



Wireless Broadband 4G/LTE Coverage

Source : Ministry of Communication and Information Technology, 2018

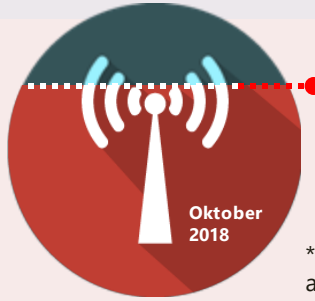
95.7% *

492 regency/municipality have been covered by 4G networks

97.1%

499 regency/municipality have been covered by 3G networks

* Based on BTS distribution



82.3% **

423 regency/municipality have been covered by 4G networks

88.5%

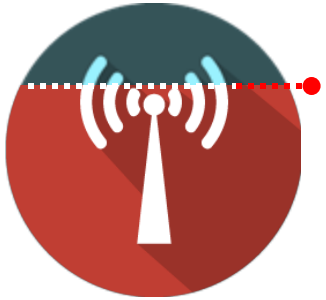
455 regency/municipality have been covered by 3G networks

** Based on administrative area, 100% signal coverage in the administrative area or more than 50% signal coverage in the settlement

Ref: Ministry of National Development Planning of Indonesia /National Development Planning Agency (2019)

Digital Infrastructure in Indonesia

Roll out of mobile broadband (4G) through spectrum refarming



82.3%
Coverage of 4G for city and municipal of Indonesia

Establish Palapa Ring Project to connect fiber optic backbone to every city and municipal

93 %
City and municipal connected

Provide infrastructure access for those in non commercial areas

1,086
Base Tranceiver Stations in border or disadvantaged areas

4,111
broadband internet access for schools, health facilities, town offices

Establish national satellite for internet access in remote areas

150 Gbps
High Throughput Satellite

140,000
Points of service across the country

Source: Ministry of Commucation and IT of Indonesia, 2019

Ref: Ministry of National Development Planning of Indonesia /National Development Planning Agency (2019)

Accelerate the Stakeholders

Micro, small and medium enterprises

Promote, encourage, giving assistance for offline MSMEs to become online

Next Indonesian Unicorn

Accelerate and facilitate middle-high start up to meet top tier global investor

Fishermen and Farmers

Help farmers and fishermen embracing digital technology, to increase productivity and expand selling

Stakeholders

e-Commerce

Implement the e-commerce roadmap with all relevant stakeholders

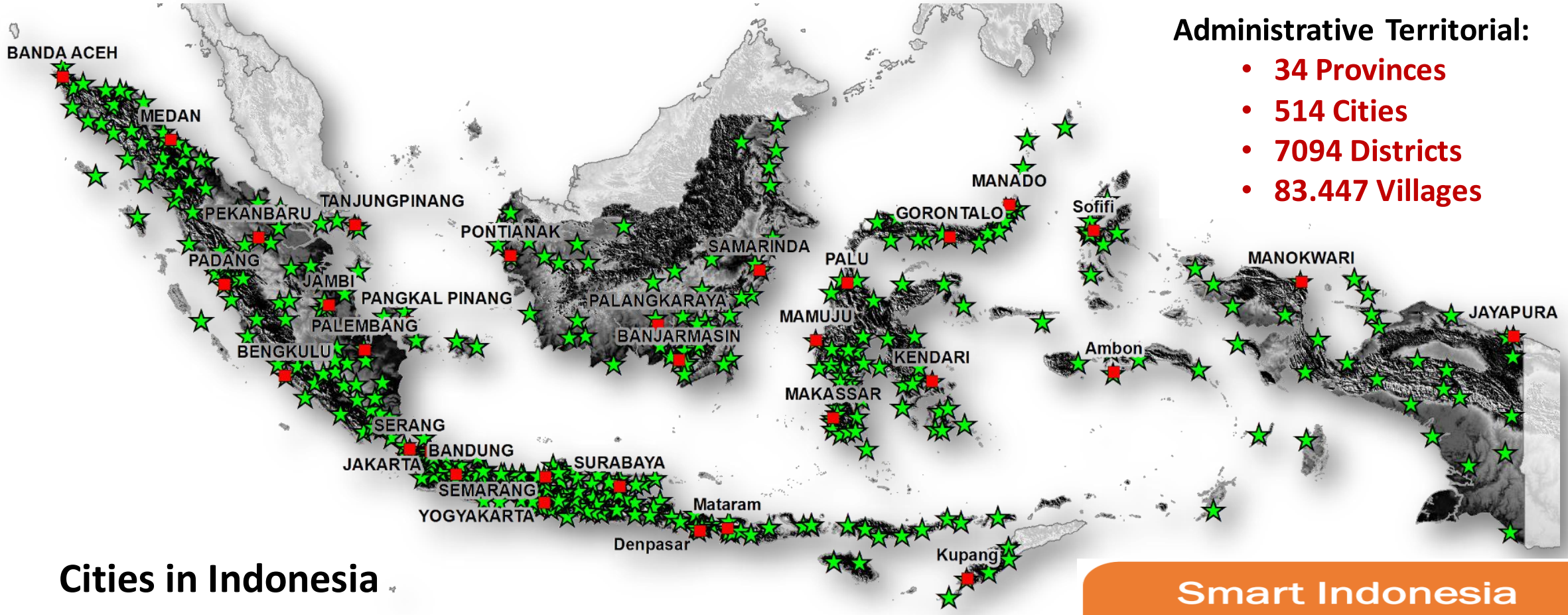
Source: Ministry of Commucation and IT of Indonesia, 2018

Some Regulatory Issues

Competition Landscape	Spectrum Availability
Licensing Model	Interoperability & Standard
QoS / QoE	Cross-sector Collaboration
Numbering / Adressing	Data Privacy
IoT Security	Cloud & Data Center
Local Content	Consumer Protection,...etc

The current domain of Directorate General of Resources Management and Postal and Information Technology Equipment are spectrum availability, standard, and local content

Smart Cities Program



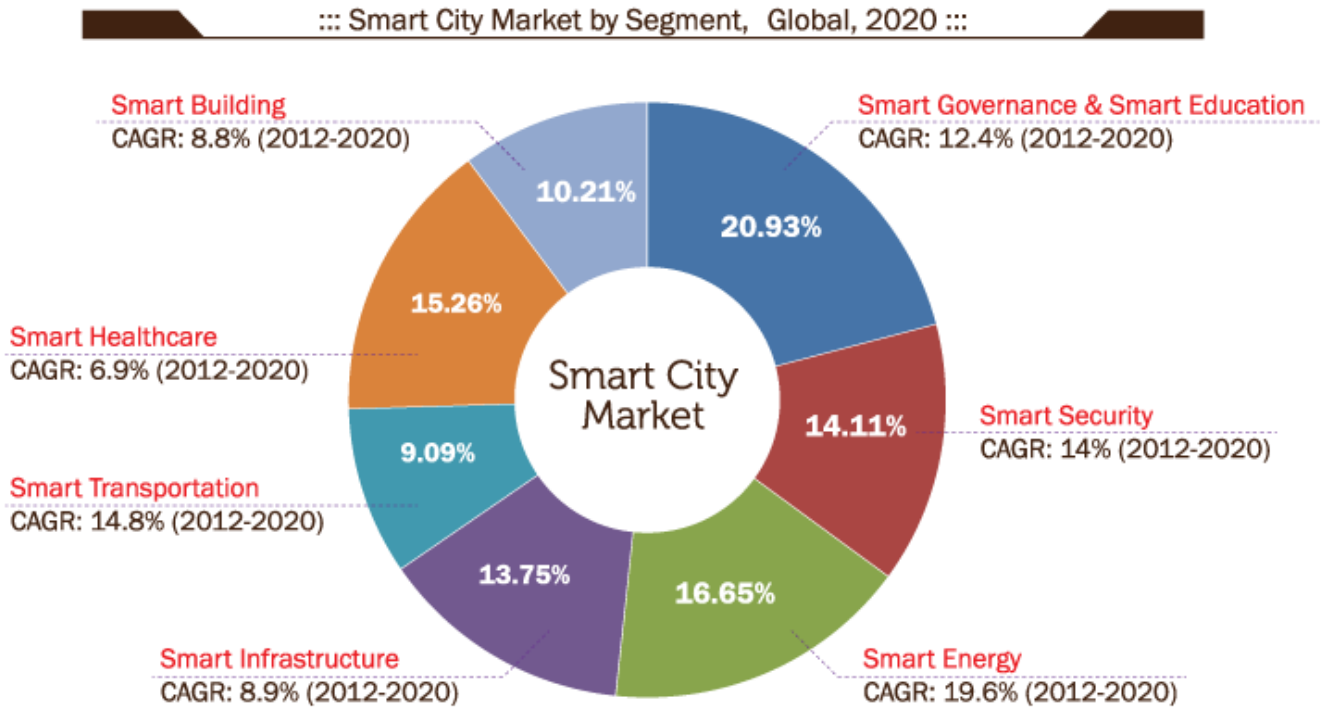
Administrative Territorial:

- 34 Provinces
- 514 Cities
- 7094 Districts
- 83.447 Villages

Cities in Indonesia

- Cities
- Provincial Capital

Market Opportunity of Smart City in Indonesia



US$ 400 Billions

Indonesia's Smart City Market Opportunity in 2017

Approximated by Citiasia Center for Smart Nation

Note: The graph represent the market share of each segment ih the smart city market. Ref: http://www.iismex.com/

53.3% (2015)

Percentage of Indonesia's population lives in urban areas/cities (Proyeksi Penduduk Indonesia 2010-2035 - BPS)

66.6% (2035)

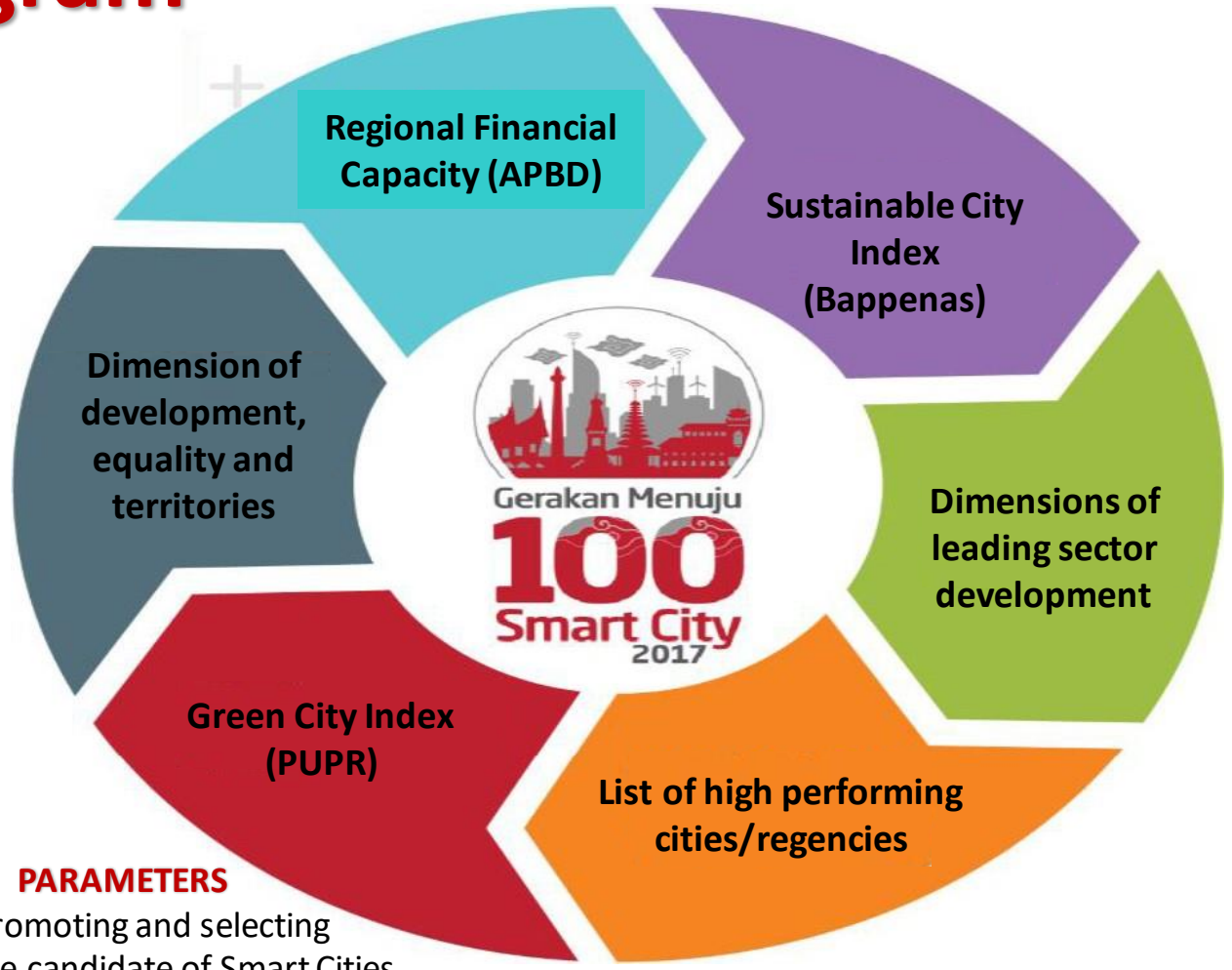
The 100 Smart Cities Program

Objective

Guiding 100 selected cities/regencies to plan smart city development in their respective regions by taking into account the challenges and potential in each region

Stakeholders

Ministry of Communication and Information, Ministry of Home Affairs, Ministry of Public Works, Ministry of Administrative Reform, Ministry of Economic Affairs, Ministry of Finance, Bappenas, Presidential Staff Office, APEKSI, regions with adequate KKD, technology and media providers.

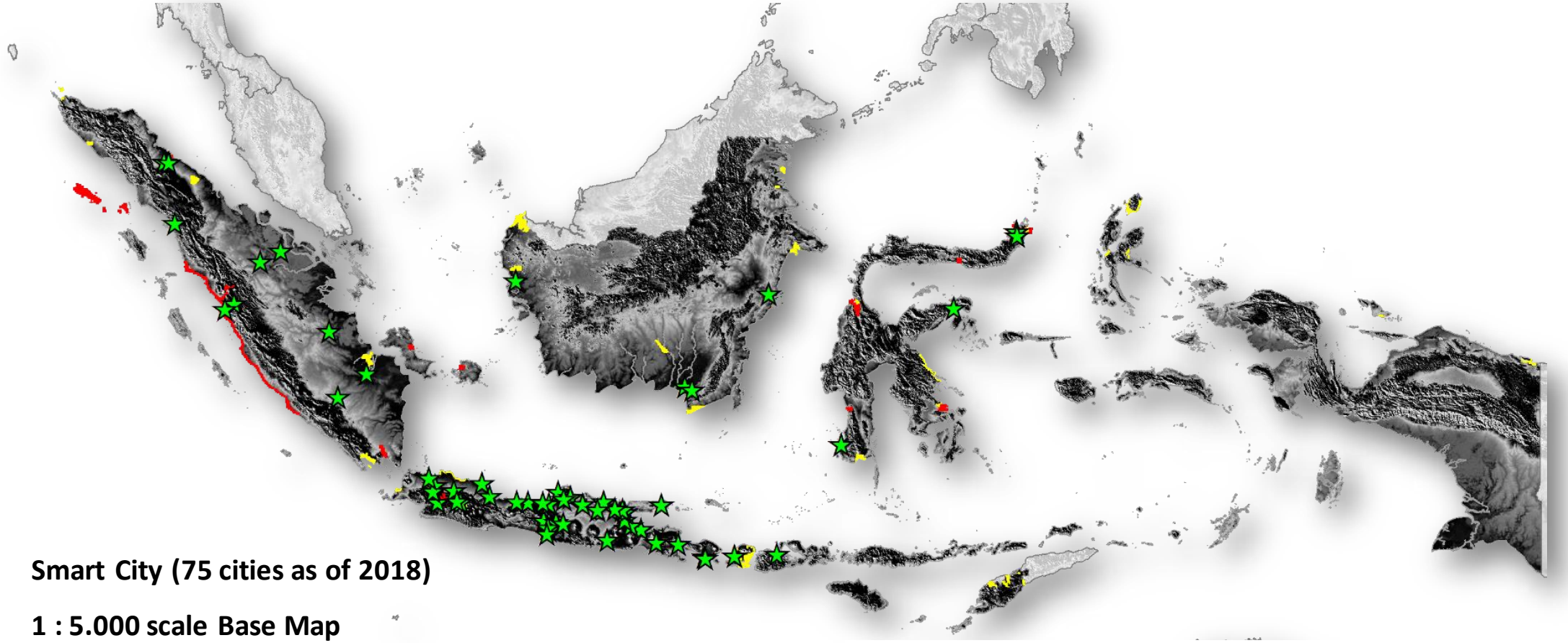


PARAMETERS
used in promoting and selecting the candidate of Smart Cities

Program Stages

2017 : 25 Cities
2018 : 50 Cities
2019 : 25 Cities

Distribution of Indonesian Smart Cities (2018)



Smart City (75 cities as of 2018)

1 : 5.000 scale Base Map
(Aerial photo, LiDAR, high-res optical satellite images)

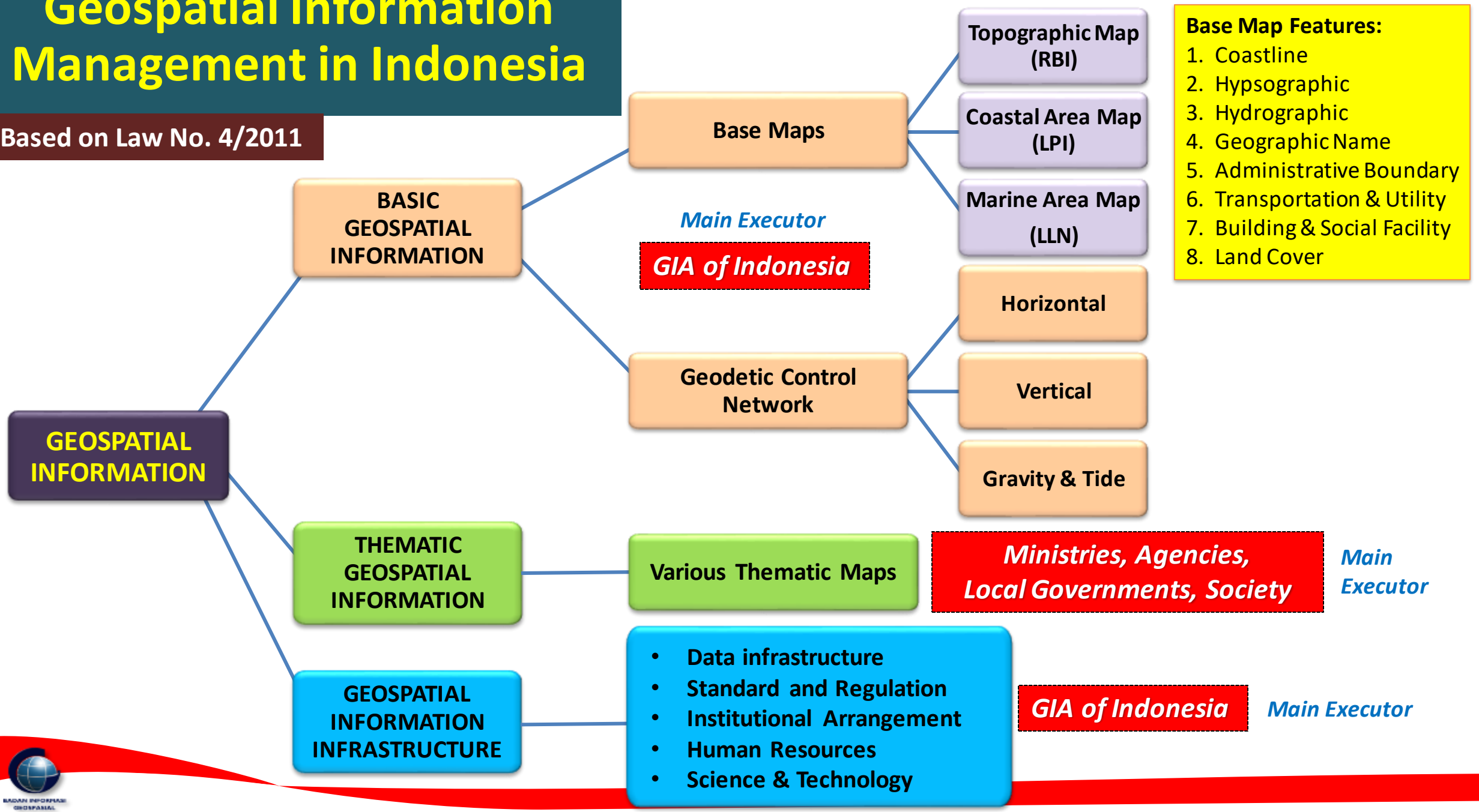
1 : 10.000 scale Base Map
(Aerial photo, IFSAR)

A few cities, e.g. Surabaya, Bandung and Medan already have 1 : 1.000 scale Base Map (Aerial photo)

GEOSPATIAL INFORMATION MANAGEMENT for Supporting Development of Digital Economy and Smart Communities

Geospatial Information Management in Indonesia

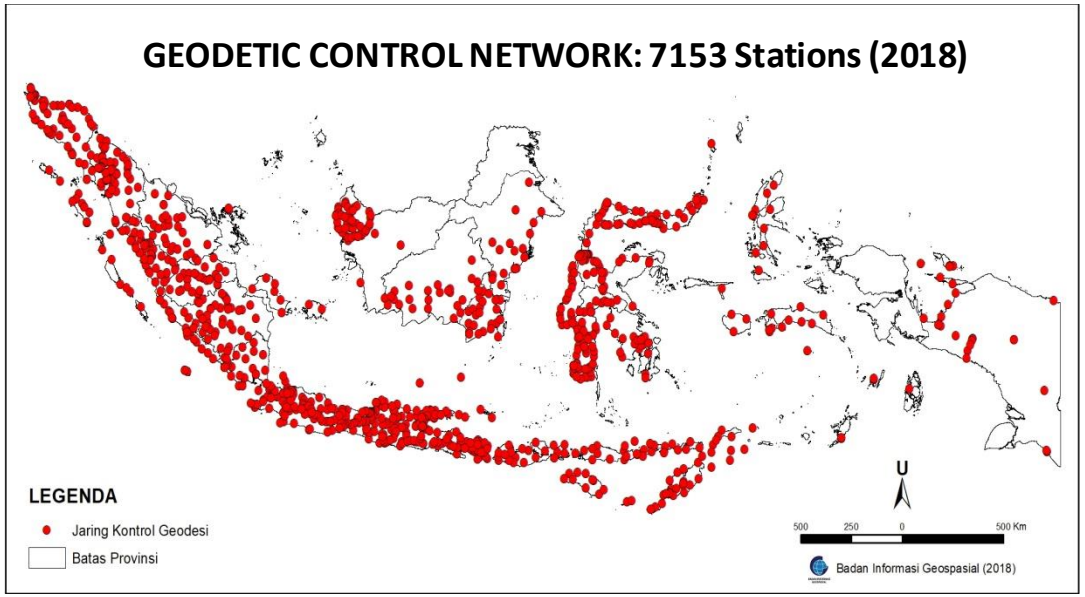
Based on Law No. 4/2011

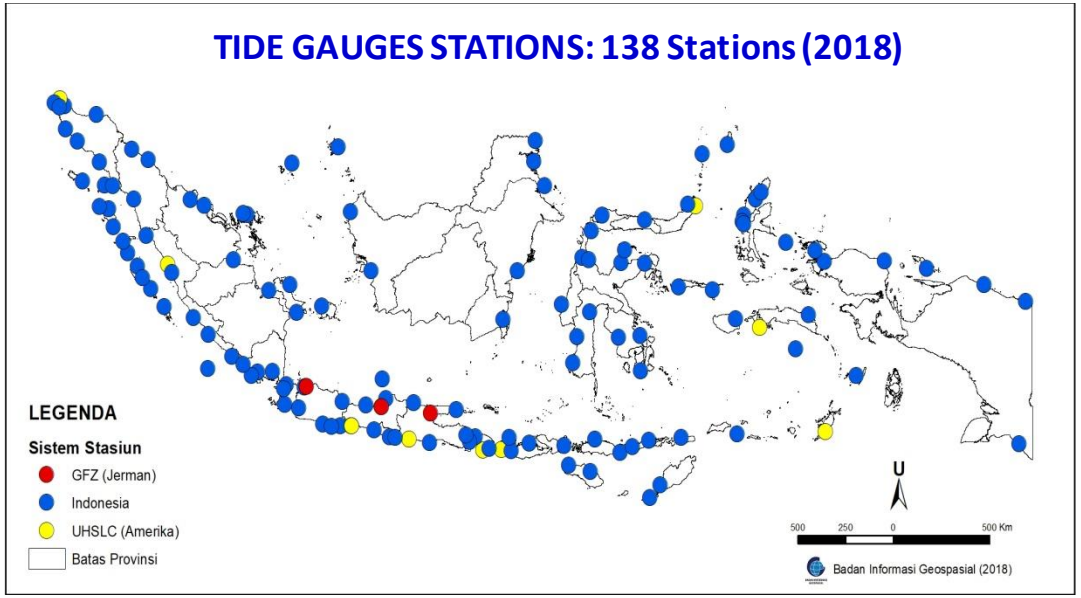


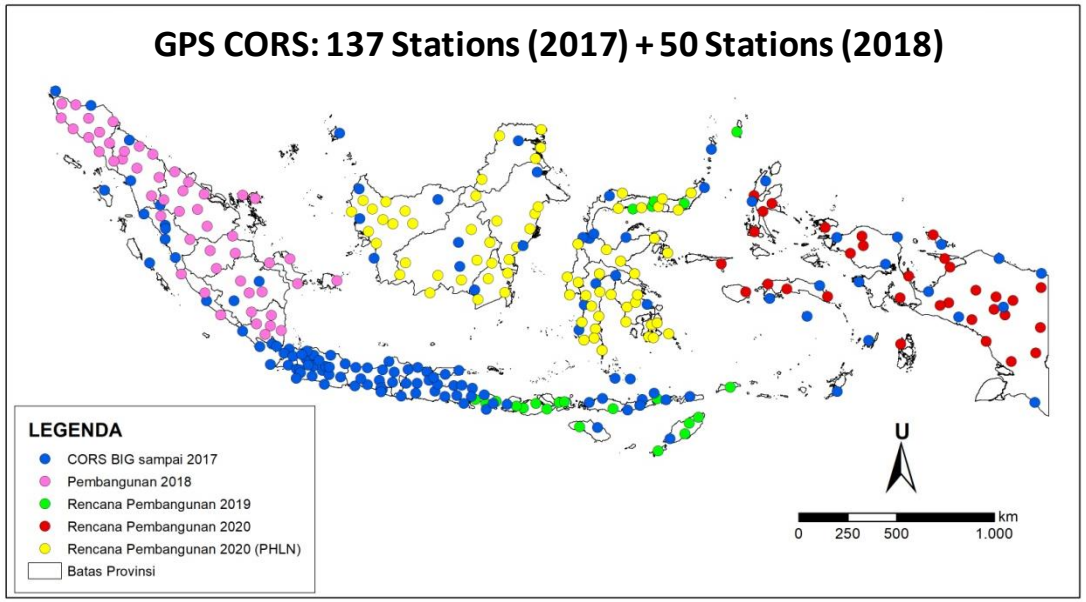
Ongoing & Incoming Geospatial Activities in Indonesia

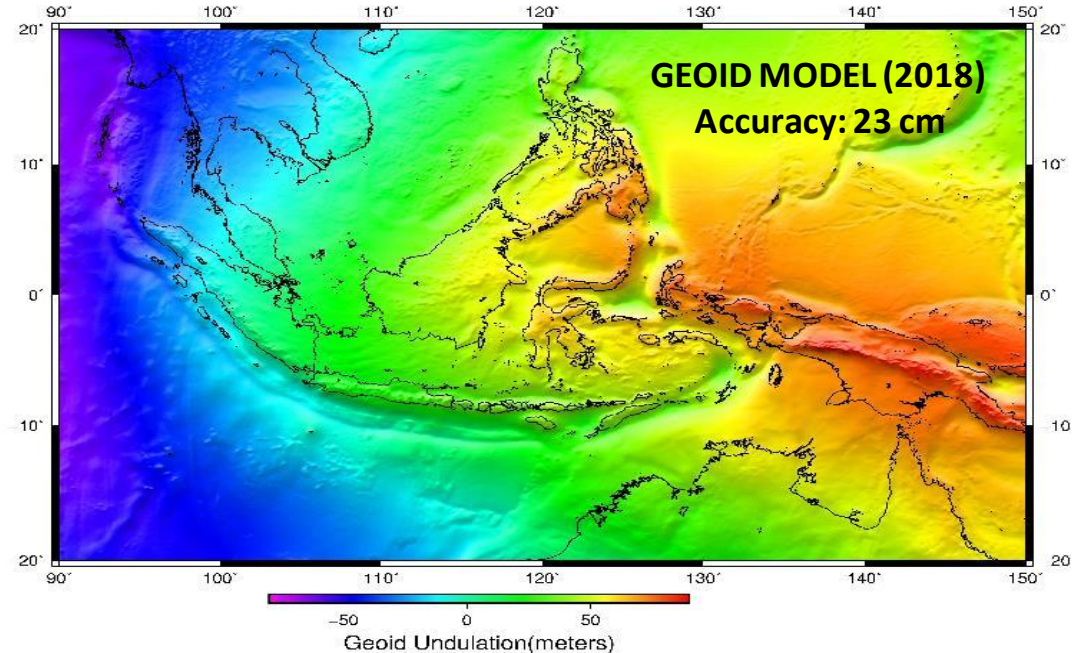
Geodetic Reference Frames	• Densification of GNSS CORS and Tide Gauge Stations. • Establishment of 5 cm National (Land and Marine) Geoid.
Basic Geospatial Information	• Acceleration of 1:5000 national topographic base map. • Establishment of 1:1000 base map for metropolitan areas.
One Map Policy	• Synchronization of overlapping thematic maps. • Inclusion of more thematic maps and map custodians. • Going from 1:50.000 to 1:5.000 scales.
National Geospatial Information Network	• Increasing quantity and quality of the information content. • Increasing the network connection nodes to ministries, agencies, local government, and universities.
Geospatial Human Resources	• Increasing quantity and quality of the human resources. • System for competence test, certification, and licensing.
Integration of Geospatial and Statistical Data	• Integration to support national development planning. • Integration for achieving the SDGs.

Geodetic Reference Frames of Indonesia

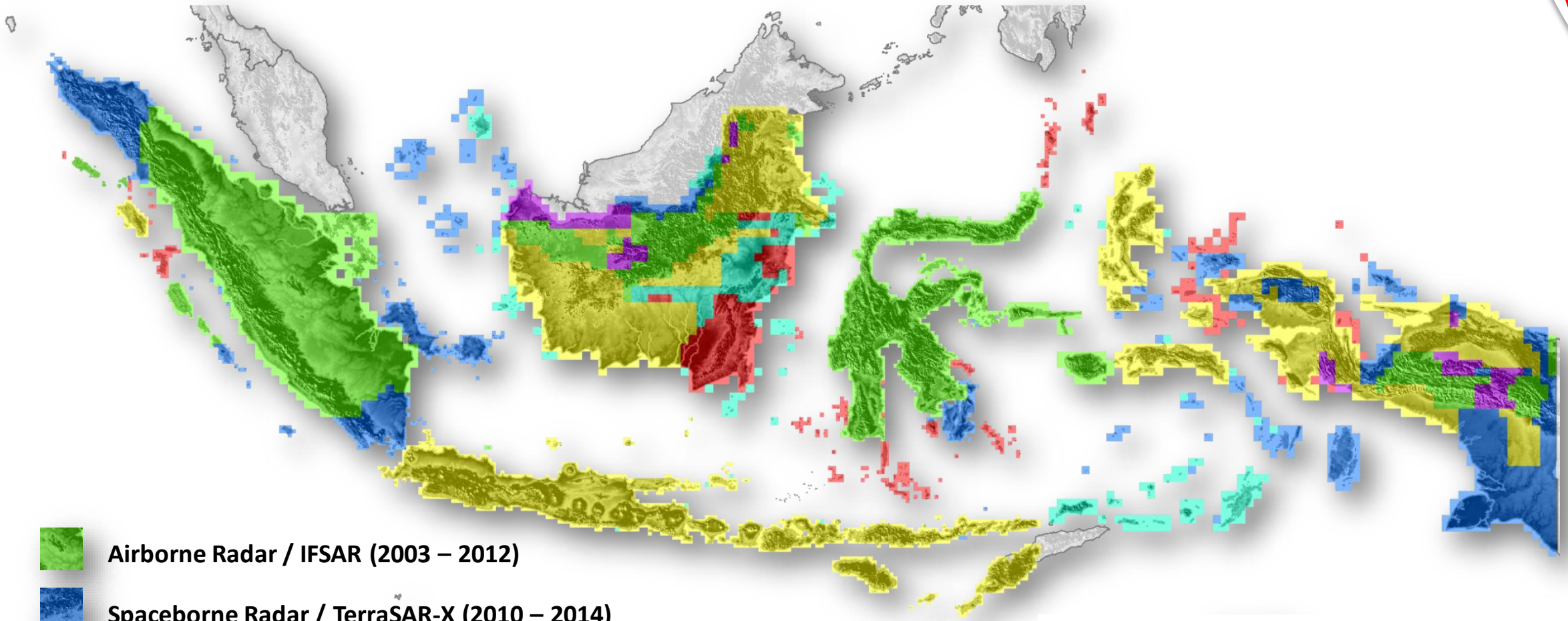








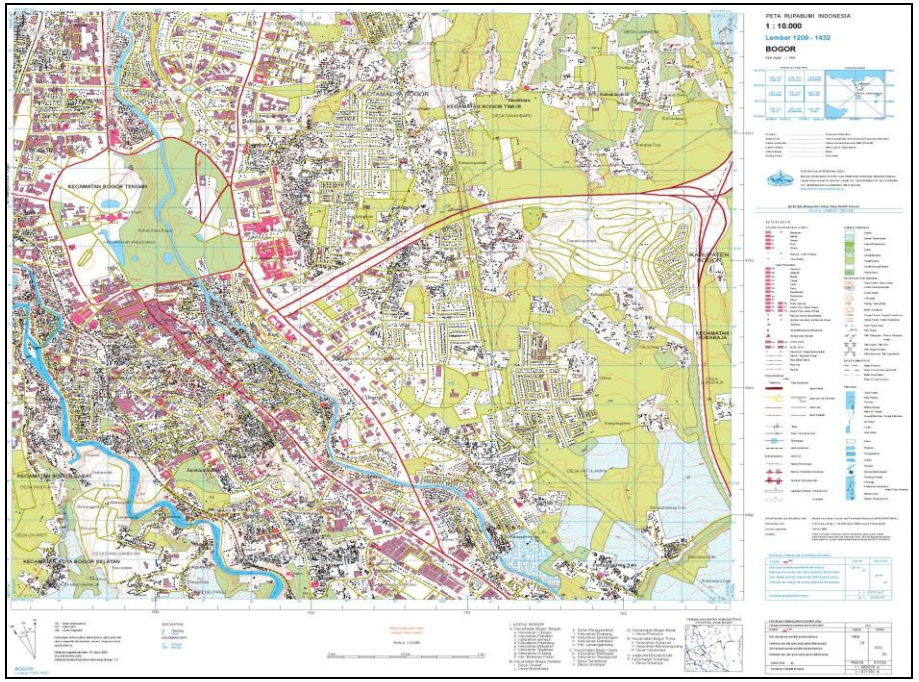
Digital Elevation Model (DEM) of Indonesia



Elevation accuracy around 1 – 4 m
Elevation point spacing around 8 m

Basemaps of Indonesia

- Topographic Map
- Coastal Area Map
- Marine Area Map



Topographic Map

Topographic layers:

1. Coastline
2. Hipsography
3. Hidrography
4. Topographic names
5. Administrative boundary
6. Transportation and utility
7. Building and public facility
8. Land cover

Coastal Area Map

Marine Area Map

ONE MAP POLICY of Indonesia

PRESIDENTIAL REGULATION
NO. 9 YEAR 2016

Regarding the acceleration of implementation of One Map Policy on 1:50.000 scale map accuracy

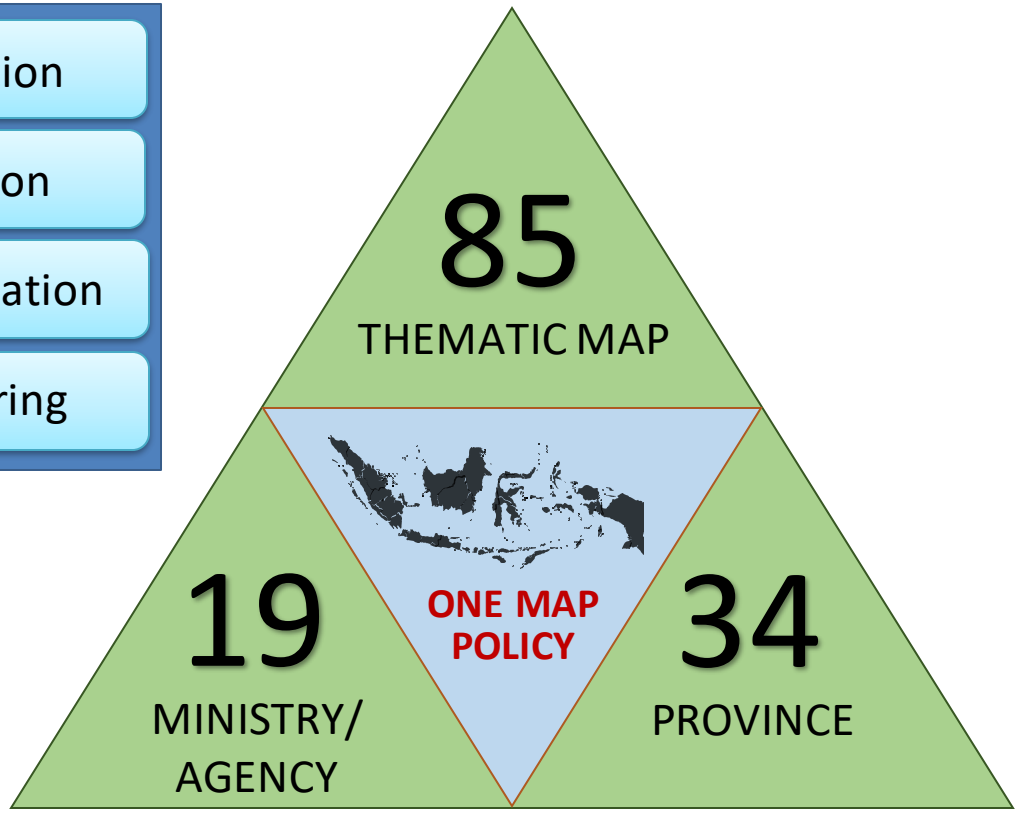
Issued on 4 February 2016

ONE MAP POLICY GOALS

1 GEOREFERENCE
STANDARD
DATA BASE
GEOPORTAL

ONE MAP POLICY MAIN PROGRAM

- Compilation
- Integration
- Synchronization
- Data Sharing

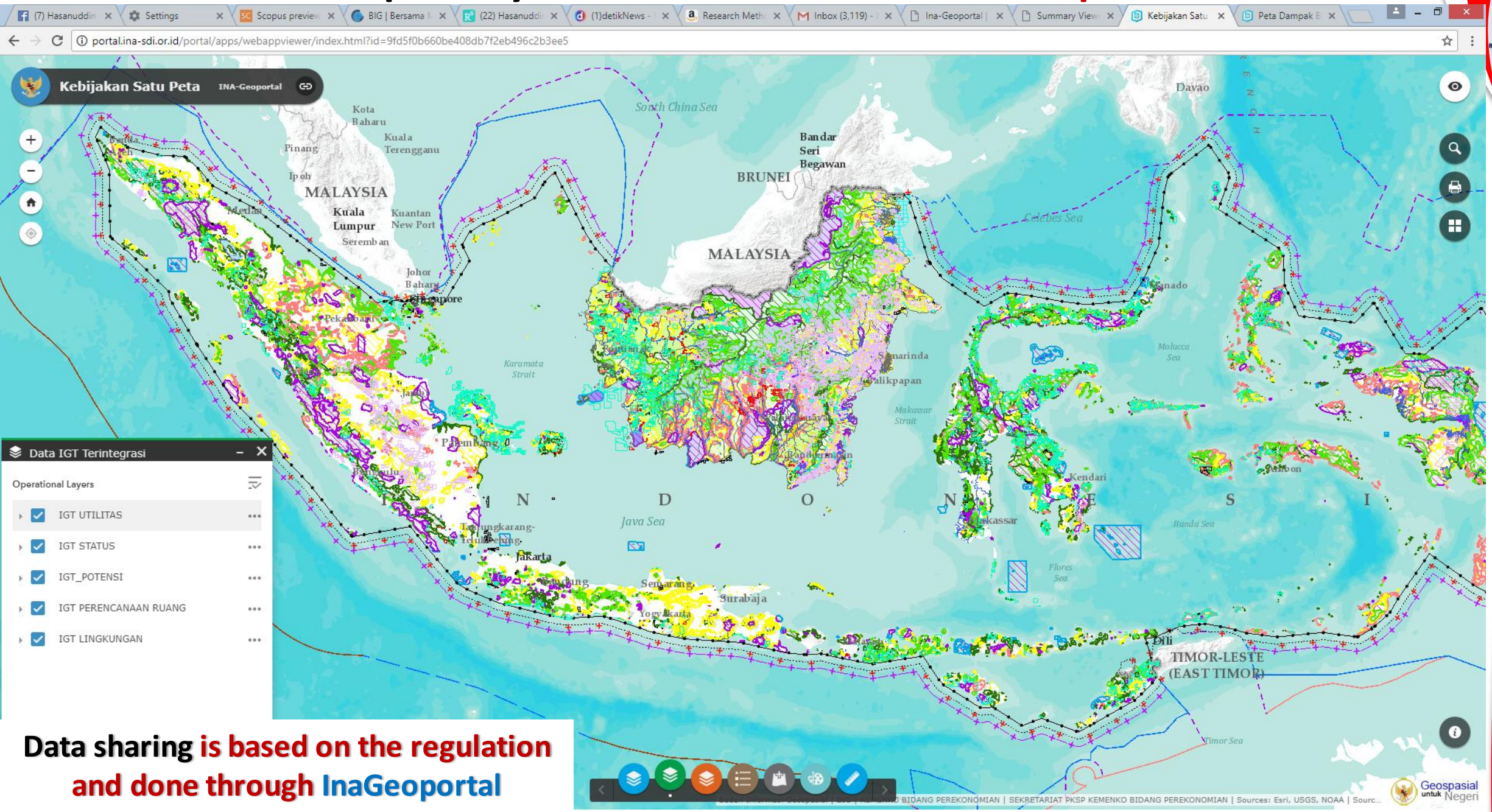


ONE MAP POLICY UTILITY

As Reference for Improving the quality of :

- Spatial Planning
- National Resources Management
- Sustainable Development
- Disaster Risk Reduction Management
- Policy and Decision Making
- Digital Economy Development

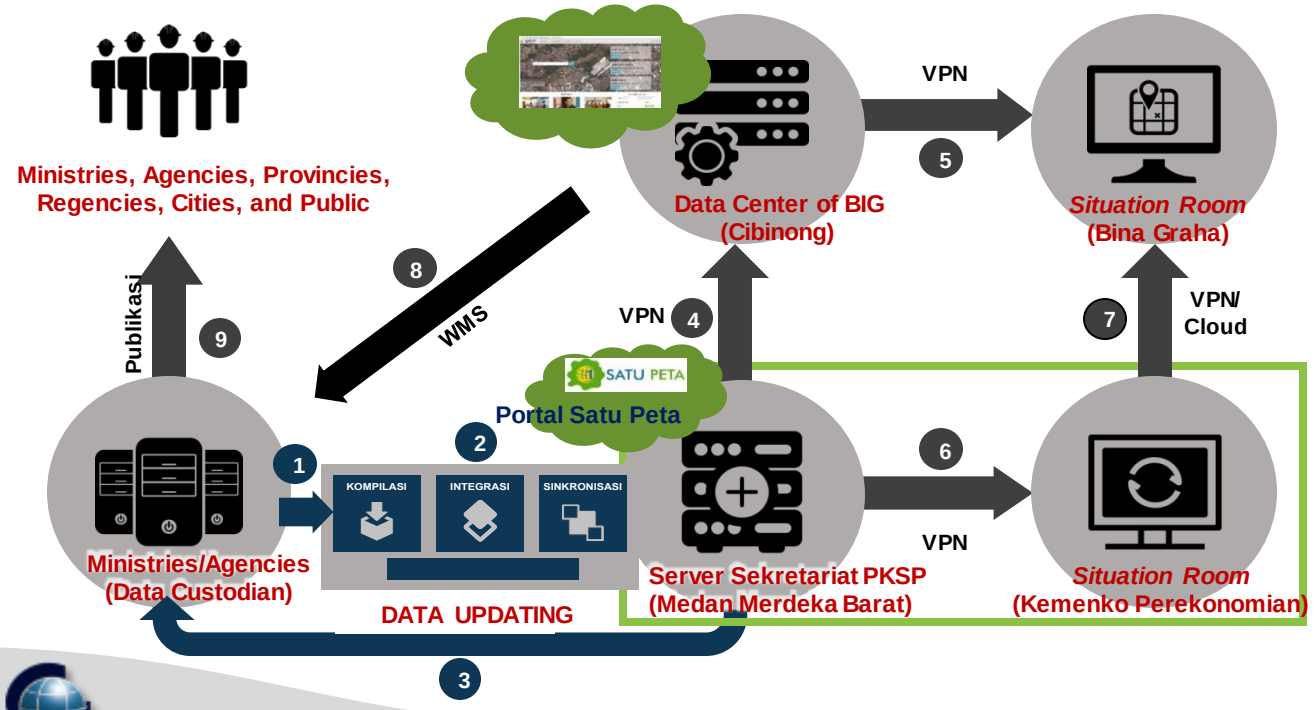
“One Map Policy” Results is housed in InaGeoportal BIG

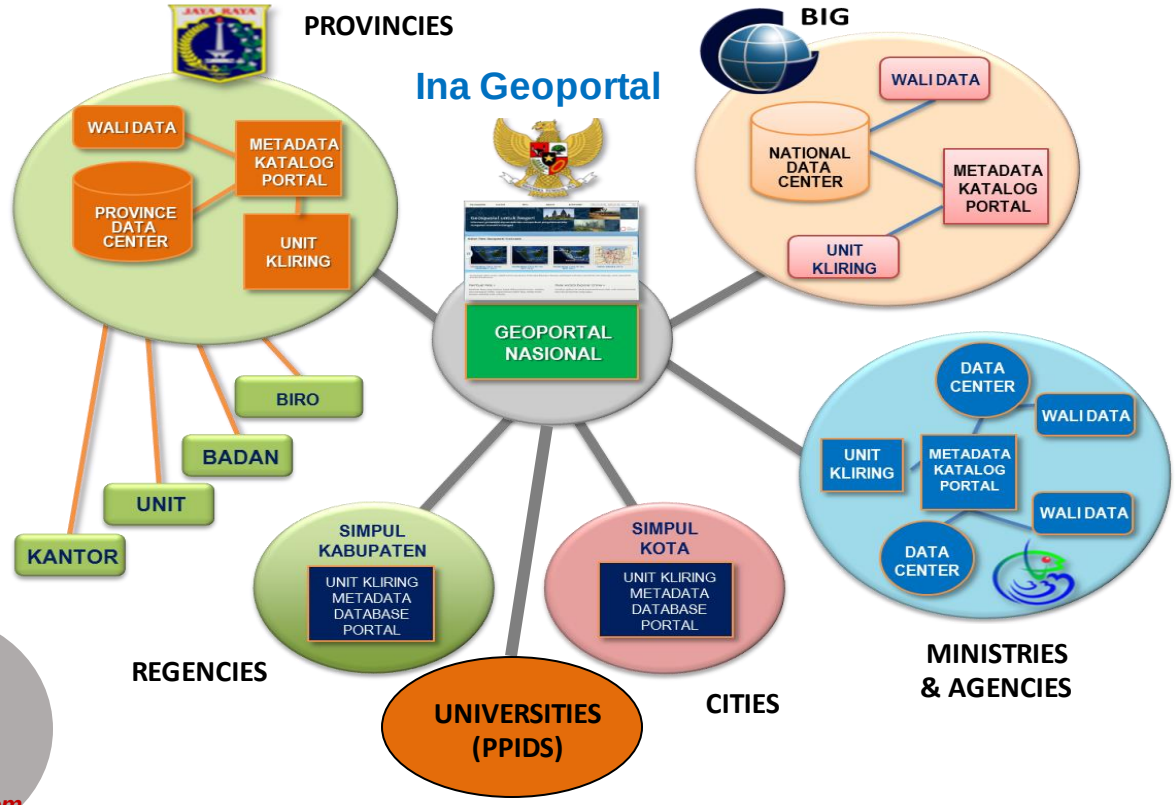


Data sharing is based on the regulation and done through InaGeoportal

Indonesian National Geospatial Information Network (NGIN)

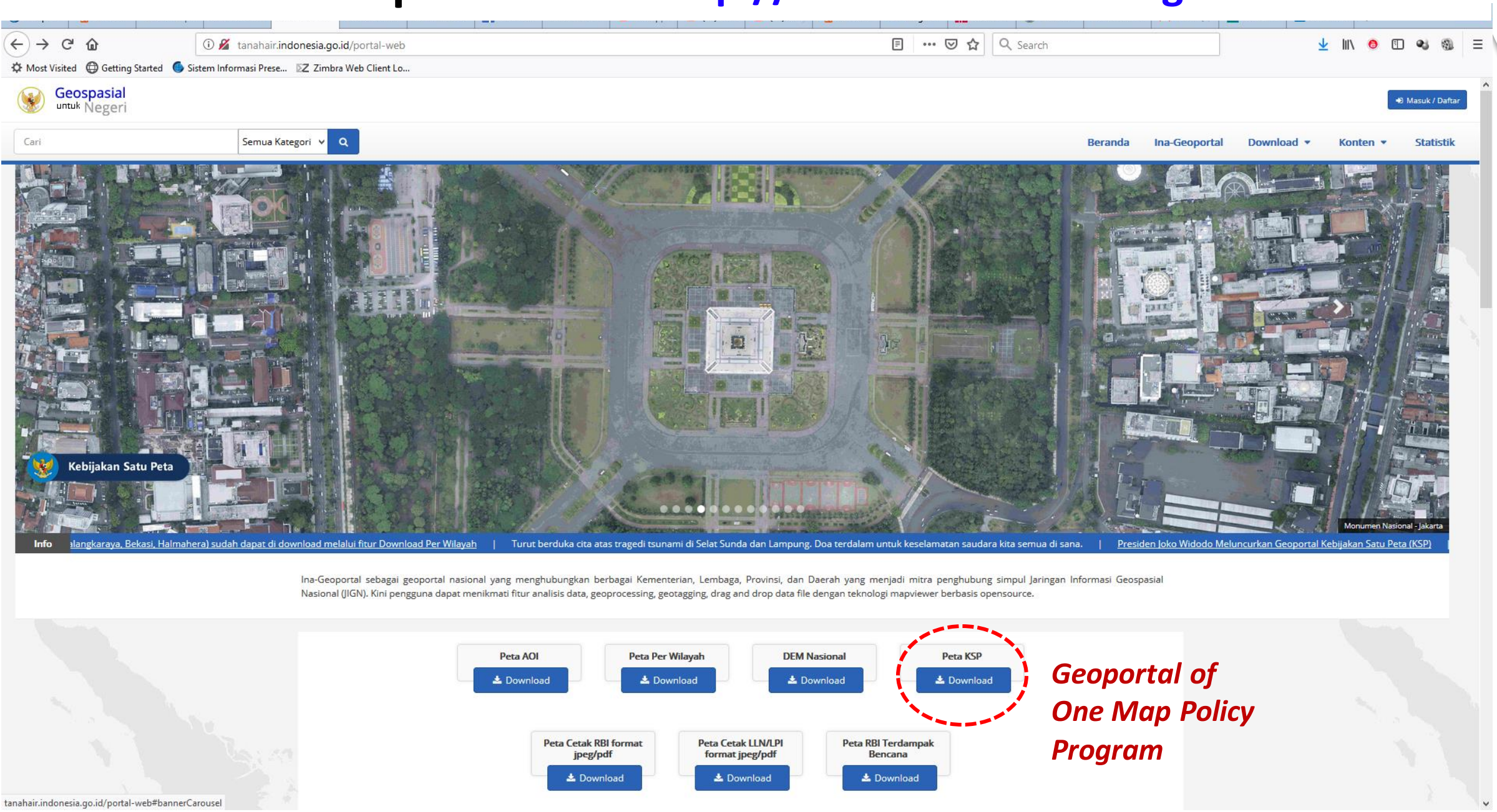
Ina Geoportal





Status of NGIN Nodes		
	TARGET	CONNECTED
Ministries/Agencies	57	23
Provinces	34	34
Regencies/Cities	514	22
Universities	34	19

InaGeoportal JIGN: http://tanahair.indonesia.go.id



Geoportal of One Map Policy Program

InaGeoportal
is connected to the network nodes of Ministries, Agencies, Provinces, Districts

Cari Simpul Jaringan

83 Simpul Jaringan

Simpul Jaringan	Status
Badan Pertanahan Nasional	Tersambung
Badan Pusat Statistik	Tersambung
Badan SAR Nasional	Gagal
Bali	Tersambung
Banten	Tersambung
Banyuwangi	Tersambung

* Terakhir kali update 2 jam yang lalu

Data Terbanyak | Data Terbaru

Aceh	Jambi	Sulawesi Selatan	Sulawesi Tengah
Metadata: 433	Metadata: 349	Metadata: 229	Metadata: 200

*Data yang di tampilkan menggunakan sistem CSW

Number of Geospatial Information Metadata

Ina-Geoportal Berita — Lihat Semua »

Atlas Mudik 2018

Rabu 30 Mei 2018, 10:50

Baca atlasnya, pilih jalurnya, sampailah kita ke kampung halaman tercinta....

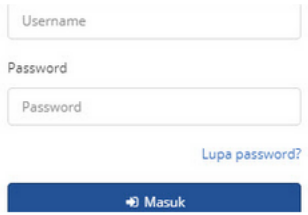
Selengkapnya...

Jokowi Resmikan Portal Kebijakan Satu Peta Agustus 2018

Kamis 22 Maret 2018, 09:10

Menteri Koordinator Bidang Perekonomian Darmin Nasution meminta kepada setiap Kementerian dan Lembaga (K/L) daerah maupun pusat untuk bisa secepatnya mengintegerasikan semua data dalam kebijakan satu peta pada pertengahan Juni 2018....

Selengkapnya...



Mengapa login tidak berhasil?

Rabu 31 Januari 2018, 05:39

Beberapa hari terakhir ini, e-mail yang masuk ke helpdesk menanyakan tentang kendala terkait login ke Aplikasi Ina-Geoportal...

Selengkapnya...

Sinergi untuk Meningkatkan Layanan pada Aplikasi Ina-Geoportal

Sabtu 27 Januari 2018, 17:15

Di awal tahun 2018, saat yang tepat untuk melakukan perubahan dan perbaikan ke arah yang lebih baik. Badan Informasi Geospasial dengan fungsinya PSJ berusaha untuk terus memberikan layanan terbaiknya....

Selengkapnya...

Kontak

Pusat Pengelolaan dan Penyebarluasan Informasi Geospasial
Badan Informasi Geospasial (BIG)
Jl. Raya Jakarta - Bogor KM. 46
Cibinong 16911, INDONESIA

021-8753155
021-87908988

Status of Network Nodes of Ministry/Agency of OMP Program

August 2018 Status

8 ALREADY OPERATIONAL

- Kementerian LHK
- Kemenko Perekonomian
- Kementerian ESDM
- Kementerian ATR/BPN
- Kementerian PUPR
- BIG
- Kementerian Pertanian
- BMKG

Already connected to NIGN and has supporting regulation

10 ALREADY OPERATIONAL BUT NOT YET OPTIMAL*

- Kementerian Kelautan dan Perikanan
- Kementerian Kominfo
- Kementerian Perhubungan
- Kementerian Dalam Negeri
- Kementerian Luar Negeri
- Kementerian Dikbud
- Kementerian Desa, PDT, dan Transmigrasi
- Kementerian Perindustrian
- BPS
- Kementerian PPN/ Bappenas

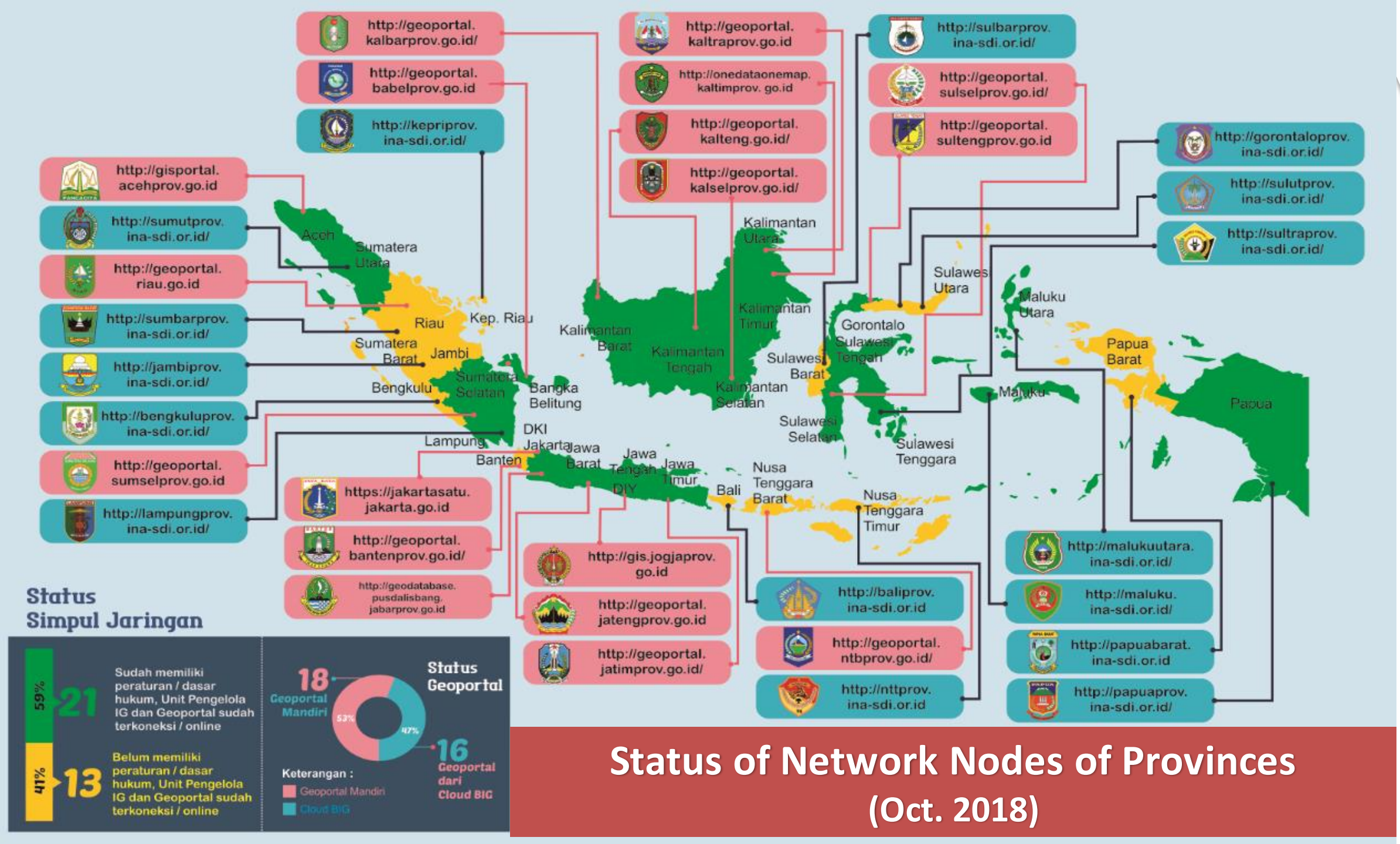
** Already connected to NIGN but no supporting regulation yet*

1 NOT YET OPERATIONAL **

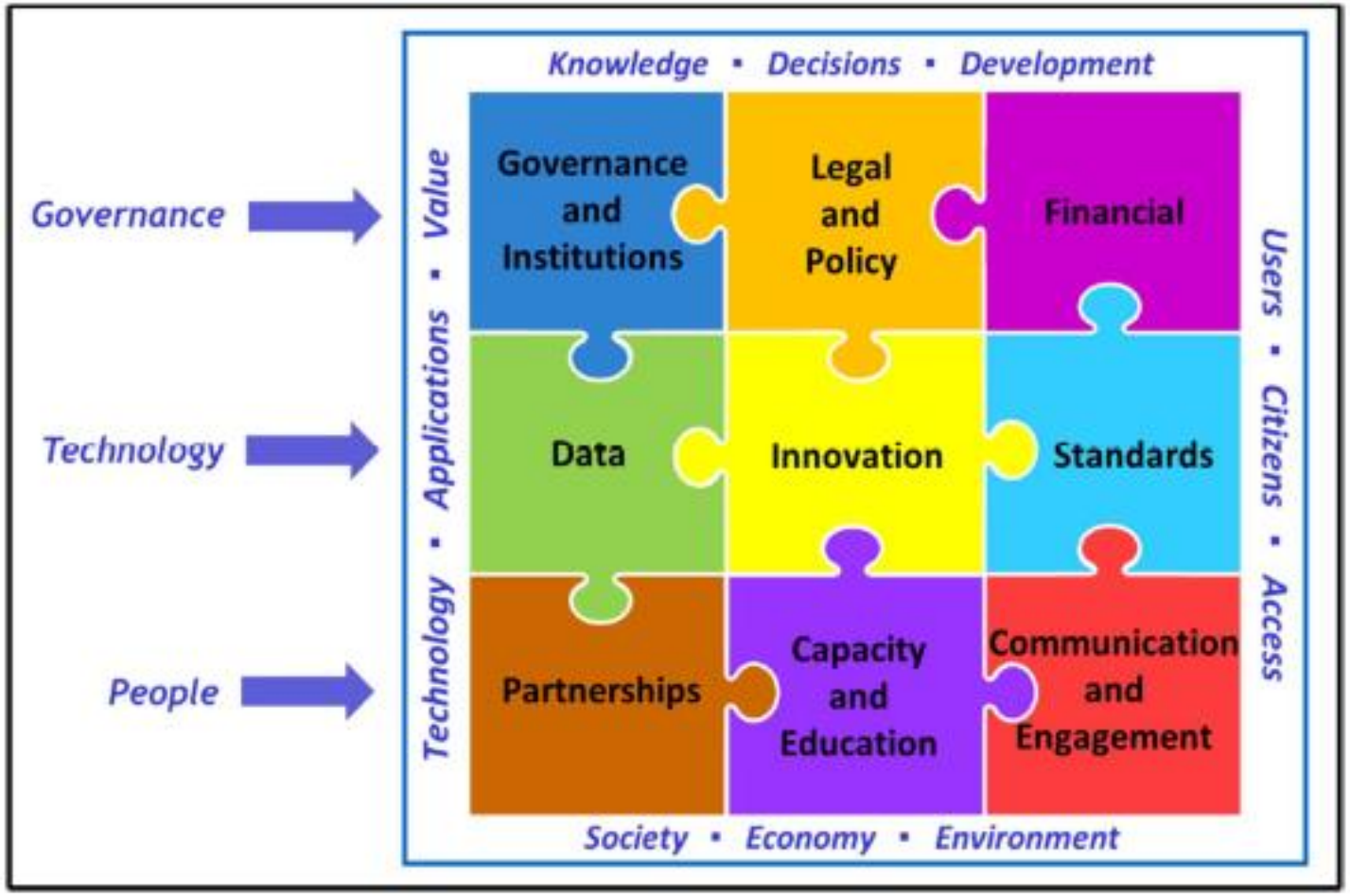
- Kementerian Pertahanan

*** Not yet connected to NIGN but has supporting regulation*

Ref. Kemenko Perekonomian (Agt. 2018)



Status of Network Nodes of Provinces (Oct. 2018)

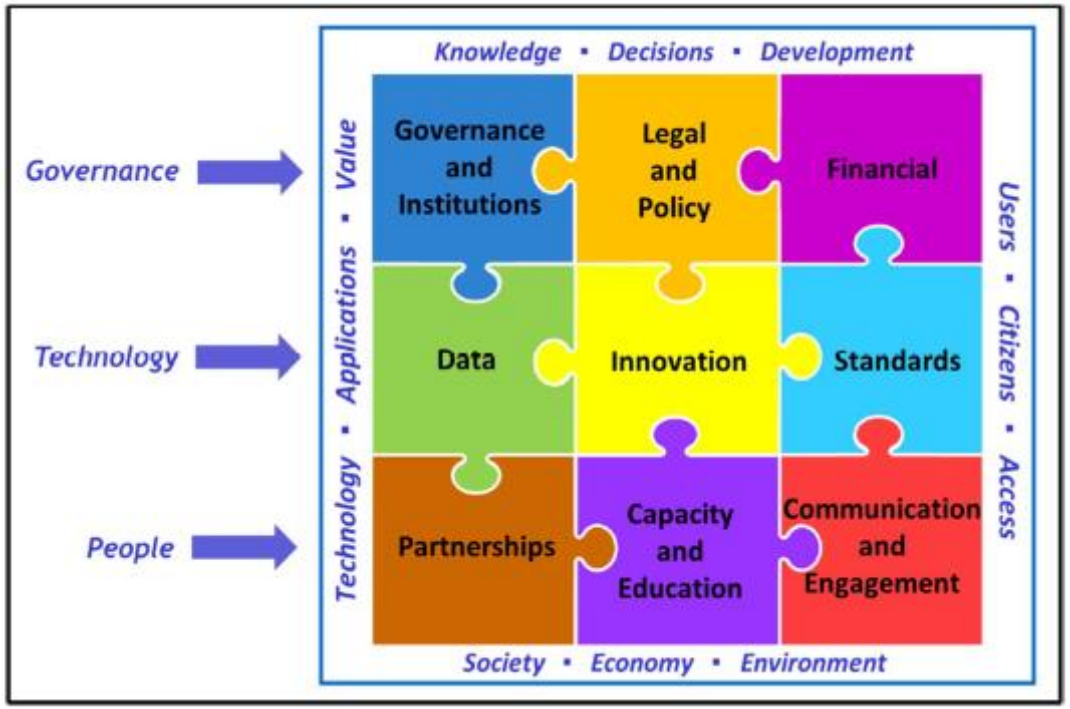


Closing Remarks

Geospatial Information Management for realization and implementation of Digital Economy and Smart Communities in Indonesia, still need to be improved.

National interests should be prioritized

Main things to be improved in Geospatial Information Management in Indonesia



Geospatial Information Management for Digital Economy and Smart Communities in Indonesia

- Cooperation and synergy among Ministries, Agencies, Local Governments and Society
- Human resources development (vocational, academic, and professional levels) in national and local levels
- Public participation and awareness in geospatial related matters
- Formation of solid knowledge foundation for geospatial technologies inside the country
- Laws, regulations and standards related to integrated geospatial information management

Indonesia 2045

(Sovereign, Developed, Just and Prosperous)

Kementerian PPN/ Bappenas

Indonesian people are excellent, cultured, and master science and technology

Developed and sustainable economy

Equitable and inclusive development

Democratic, strong and clean country

Equitable acceleration of education

Children stunting: **5%**

Labor reform

GDP in the world: **5th**

Increased role of new and renewable energy

Low carbon development

Gini ratio: **0,34** (2035)

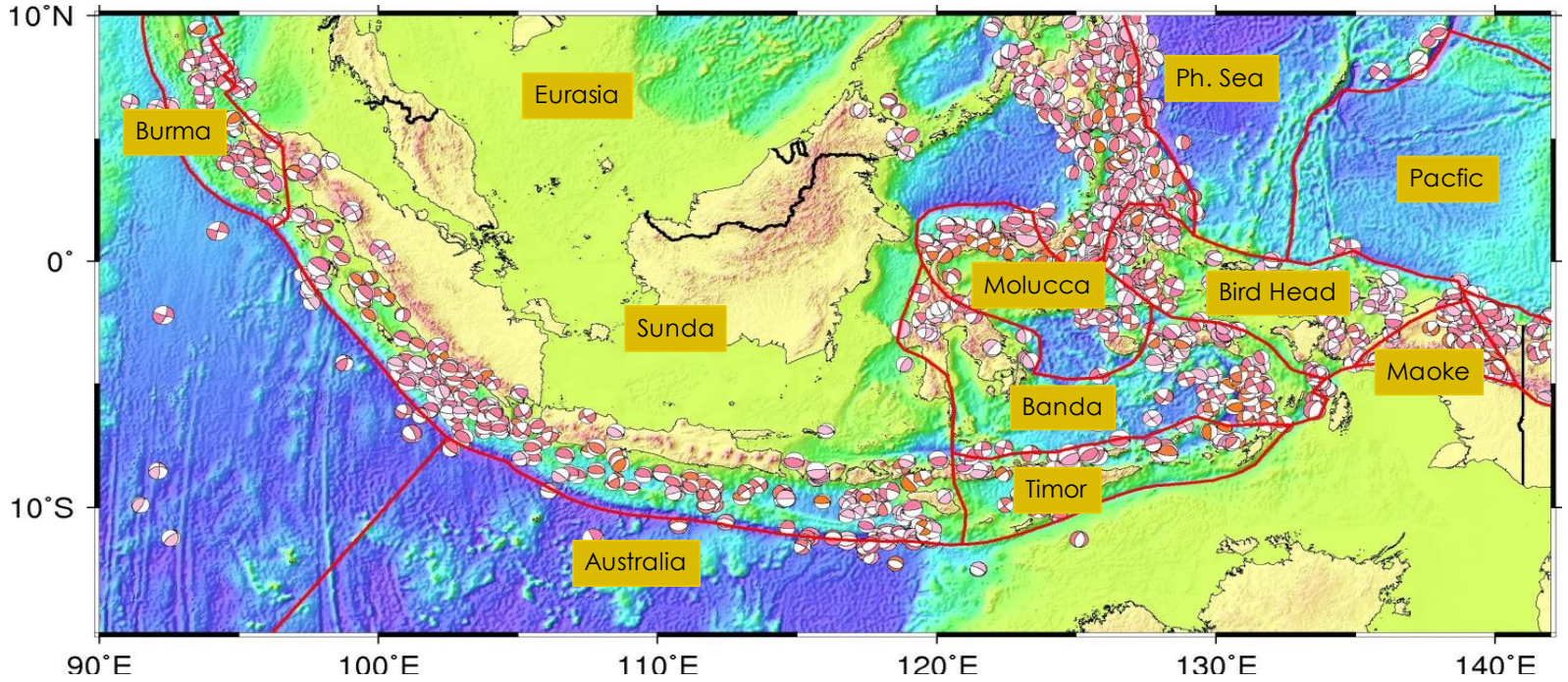
Increased development growth outside Java and Sumatra

Infrastructure is evenly distributed and integrated

Institutional and bureaucratic reform

Strengthening the national legal and anti-corruption system

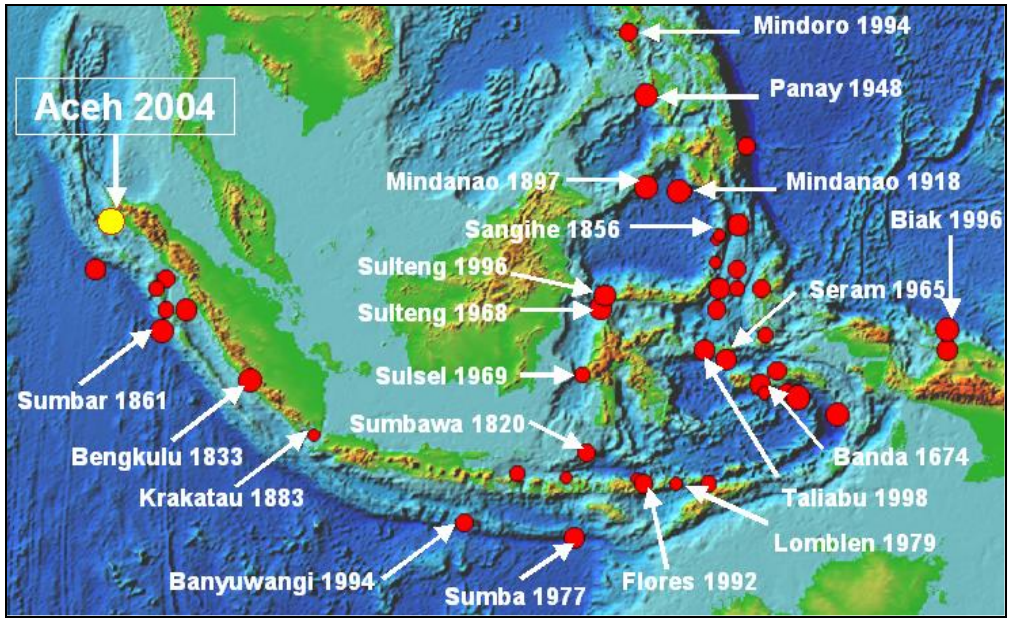
Strengthening national resilience and security



INDONESIA

is prone to many natural disasters

Digital Economy and Smart Communities should implement a smart disaster risk reduction system



- *Earthquake*
- *Tsunami*
- *Volcanic eruption*
- *Flood*
- *Landslide*
- *Land subsidence*
- *Drought*
- *Forest Fire*
- *Windstorm*

THANK YOU
6.490°S 106.849°E