ITU-NBTC Asia-Pacific Regulators' Roundtable

Digital Connectivity in Indonesia

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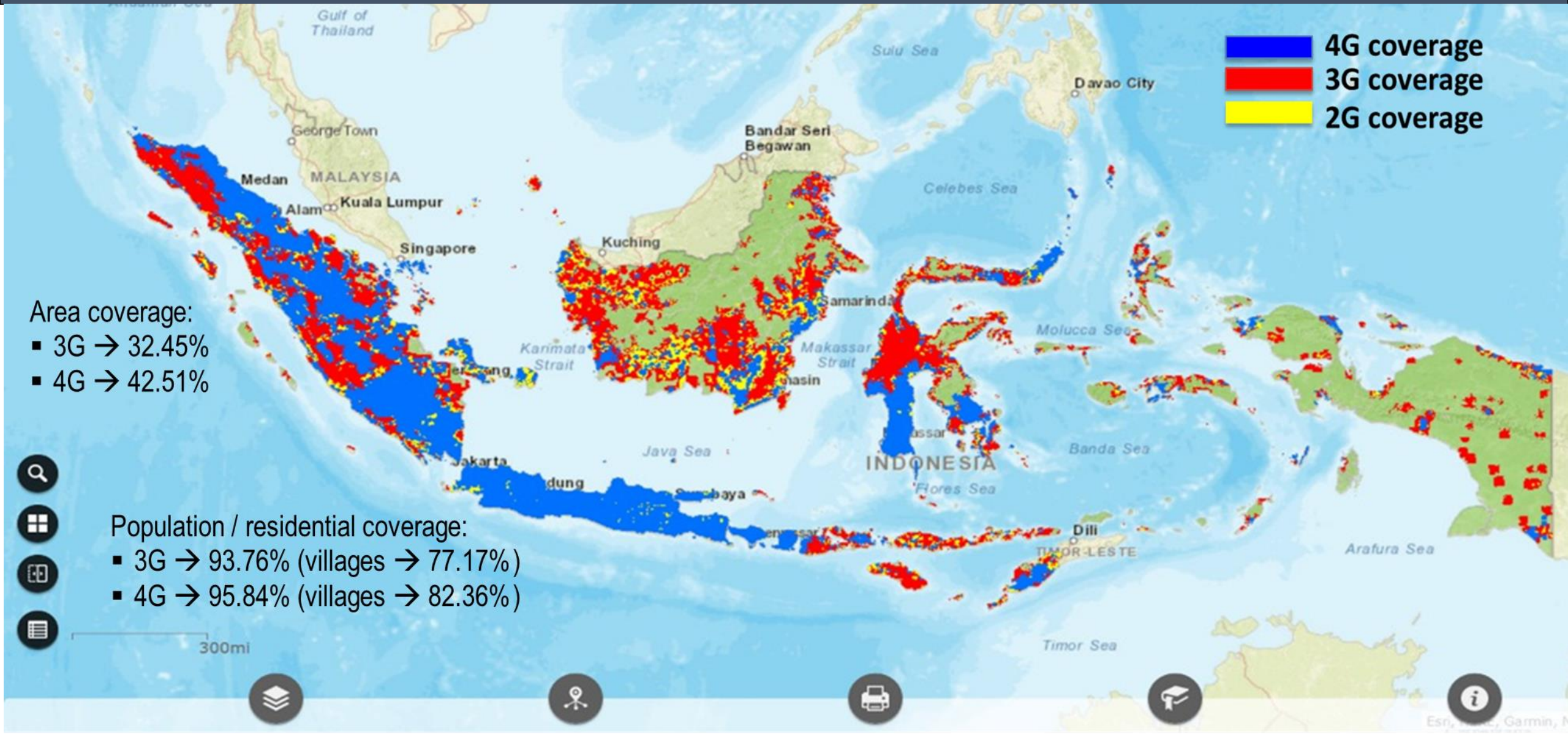
National Broadband Plan 2014-2019

Target		Achievement (2018)	
Mobile Broadband	**Urban** → 100 % population @1 Mbps	**Residential coverage:** ▪ 2G → 98.06% (villages → 88.60%) ▪ 3G → 93.76% (villages → 77.17%) ▪ **4G → 95.84% (villages → 82.36%)** **Average Speed (May 2019):** ▪ Download → 11.7 Mbps ▪ Upload → 9.18 Mbps	**Area coverage** ▪ 2G → 58.55% ▪ 3G → 32.45% ▪ **4G → 42.51%** **Density** → 120,92 %
	Rural → 52 % population @1 Mbps		
Fixed Broadband	**Urban** → 71 % residential, 30% population @20 Mbps	**Residential penetration** → 10.34 % **Population penetration** → 2.65 % **Average Speed (May 2019):** ▪ Download → 17.06 Mbps ▪ Upload → 9.93 Mbps	
	Rural → 49 % residential, 6% population @10 Mbps		
Price	Max 5% of per-capita income	Mobile broadband → 1.3 % (Rp. 60.000 for 2 GB data package)	Fixed broadband → 7.02 % (Rp. 330.000 unlimited triple-play package up-to 10Mbps)

Mobile Broadband Coverage



The areas covered by 4G are also covered by 2G / 3G

ICT Development Index 2017

Indonesia

Population: **258,552,717**
Population density: **134.7**
GNI per capita: **3,400**
Region: **Asia & Pacific, Developing**

IDI 2017 Rank	IDI 2016 Rank
111	114

IDI 2017 Value	IDI 2016 Value
4.33	3.85

Regional IDI 2016 Rank	19

IDI ACCESS SUB-INDEX

4.85

Fixed-telephone subscriptions per 100 inhabitants
4.01

Mobile-cellular telephone subscriptions per 100 inhabitants
149.13

International internet bandwidth per Internet user (Bit/s)
24946.89

Percentage of households with computer
19.14

Percentage of households with Internet access
47.22

IDI USE SUB-INDEX

3.19

Percentage of individuals using the Internet
25.37

Fixed (wired)-broadband subscriptions per 100 inhabitants
1.89

Active mobile-broadband subscriptions per 100 inhabitants
67.30

IDI SKILLS SUB-INDEX

5.54

Mean years of schooling
7.90

Secondary gross enrolment ratio
82.47

Tertiary gross enrolment ratio
31.10

Indonesia Digital Landscape

1

268,2 Million

Total Population

URBANISATION :

56%

2

355,5 Million

Mobile Subscriptions

vs. POPULATION :

133%

3

150,0 Million

Internet Users

PENETRATION :

56%

4

150,0 Million

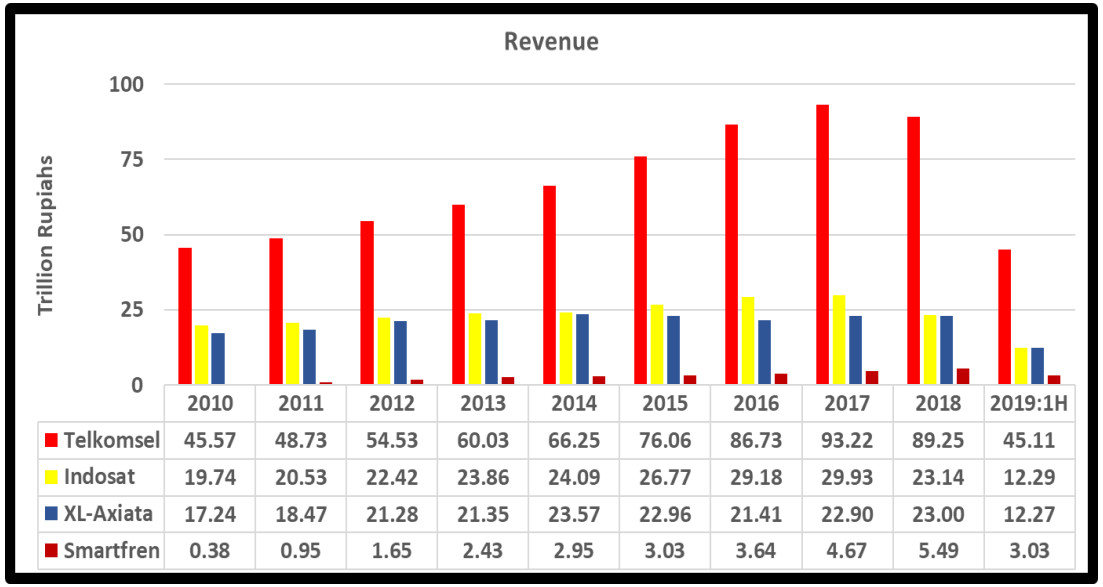
Active Social Media Users

PENETRATION :

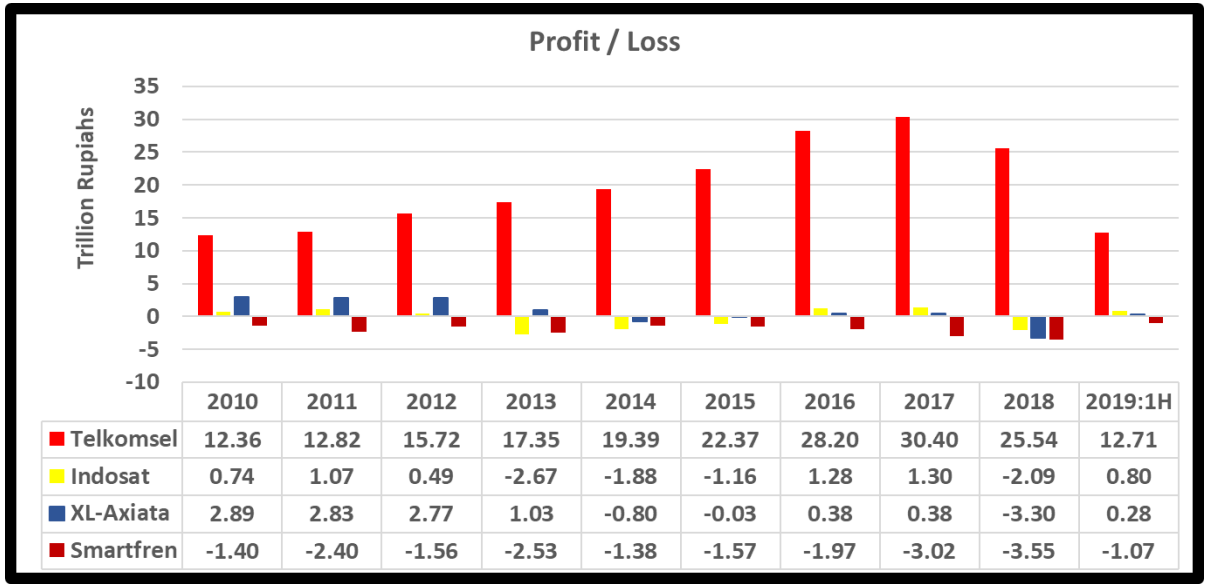
56%

Source: Hootsuite, January 2019

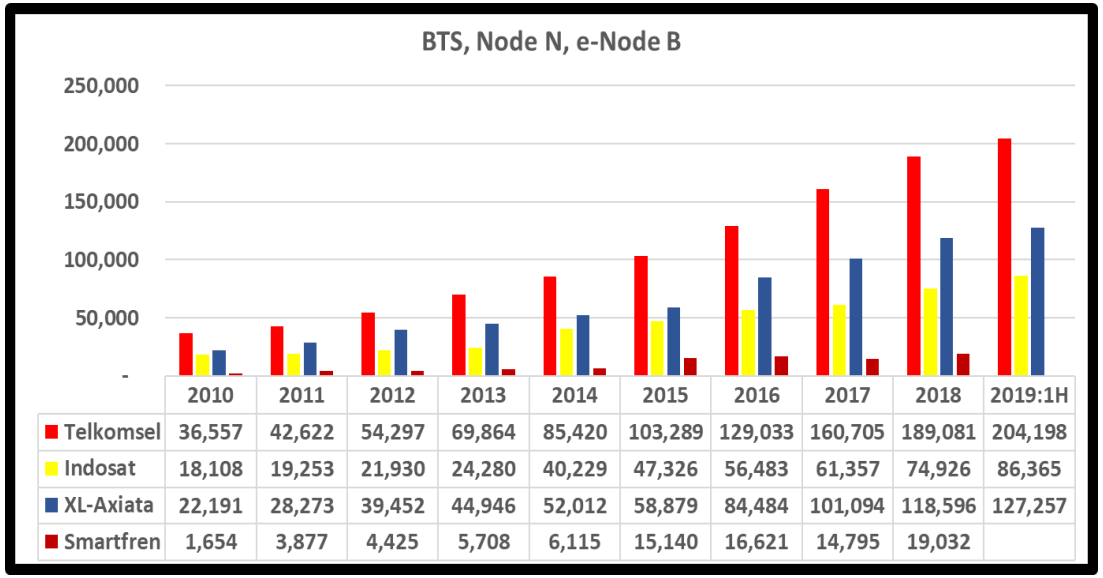
Performance of Mobile Cellular Operators



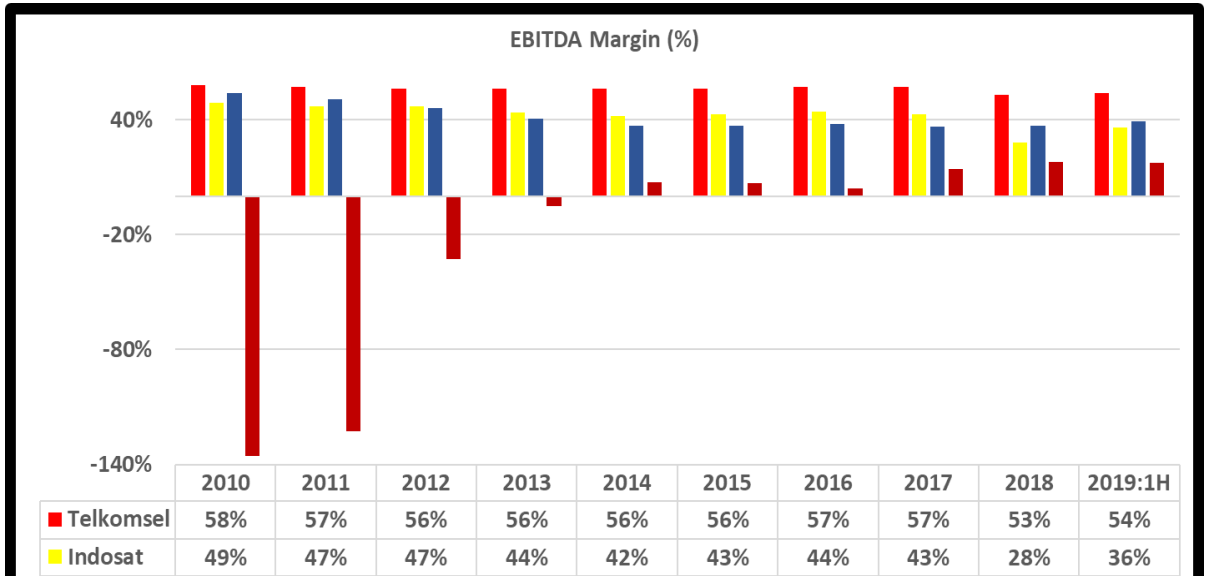
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019:1H
Telkomsel	45.57	48.73	54.53	60.03	66.25	76.06	86.73	93.22	89.25	45.11
Indosat	19.74	20.53	22.42	23.86	24.09	26.77	29.18	29.93	23.14	12.29
XL-Axiata	17.24	18.47	21.28	21.35	23.57	22.96	21.41	22.90	23.00	12.27
Smartfren	0.38	0.95	1.65	2.43	2.95	3.03	3.64	4.67	5.49	3.03



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019:1H
Telkomsel	12.36	12.82	15.72	17.35	19.39	22.37	28.20	30.40	25.54	12.71
Indosat	0.74	1.07	0.49	-2.67	-1.88	-1.16	1.28	1.30	-2.09	0.80
XL-Axiata	2.89	2.83	2.77	1.03	-0.80	-0.03	0.38	0.38	-3.30	0.28
Smartfren	-1.40	-2.40	-1.56	-2.53	-1.38	-1.57	-1.97	-3.02	-3.55	-1.07



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019:1H
Telkomsel	36,557	42,622	54,297	69,864	85,420	103,289	129,033	160,705	189,081	204,198
Indosat	18,108	19,253	21,930	24,280	40,229	47,326	56,483	61,357	74,926	86,365
XL-Axiata	22,191	28,273	39,452	44,946	52,012	58,879	84,484	101,094	118,596	127,257
Smartfren	1,654	3,877	4,425	5,708	6,115	15,140	16,621	14,795	19,032	



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019:1H
Telkomsel	58%	57%	56%	56%	56%	56%	57%	57%	53%	54%
Indosat	49%	47%	47%	44%	42%	43%	44%	43%	28%	36%
XL-Axiata	54%	51%	46%	41%	37%	37%	38%	36%	37%	39%
Smartfren	-136%	-123%	-33%	-5%	8%	7%	4%	14%	18%	18%

Source: Annual Reports & Info Memo of the Operators

Challenges

Fixed Broadband

- High Investment Cost (70-80% of the investment in fixed broadband is in passive infrastructure such as ducts, poles, rights of way and civil works) → need to avoid duplication of investment
- Local government regulation on passive infrastructure deployment (aesthetical & technical issues, fees etc) → uncertainty
- Passive infrastructure sharing → discriminatory & exploitative conduct by right of ways' (essential facilities) owners
- Low utilization / subscription (26.02% → 7,4 million homeconnect over 28,7 million *home pass)*
- Affordability → relatively high price for residential users

Mobile Broadband

- Limited availability of frequency spectrums
- Low competition intensity and limited options to consumers in some areas → limited operators and services offered
- Network (active) sharing (MORAN, MOCAN, Frequency pooling & sharing, domestic roaming, MVNO) → regulatory barrier
- Discrimination of backbone and backhaul provision → anticompetition issues
- Lack of financial performance making hard to raise fund for expansion (investment) → price war, threat from the OTT, technology life cycle
- Regulatory charges and burdens

Accelerate Broadband Penetration

In order to accelarate broadband penetration in rural areas, Indonesia continuously doing comprehensive evaluations to enhance some policies that can promote healthier MNOs and leveraging the easiness of rolling out access networks & transmission links:

MNO Consolidation

Currently Indonesia have 7 MNOs, ideally only need 3 or 4 MNOs

Infrastructure Sharing

Existing Fiber Optic network needs to be shared to strengthen the national backbone

Rationalize Spectrum Fee

Need to rebalance between incentive policies and target for the state income

Digital Dividend 700 MHz

The best Coverage Band that Indonesia not yet acquired. We are planning to conduct PPDR trial in 700 MHz band to promote the social benefit of Digital Dividend

Spectrum Bands

Super Data Layer

26/28*/39 GHz

*) *Still under consideration*

Acquire new high band to provide new tech. (5G) in a timely manner

Capacity Layer

1.8/2.1/2.3/2.6*/3.5/4.5 GHz

*) *Need to Reallocate BSS*

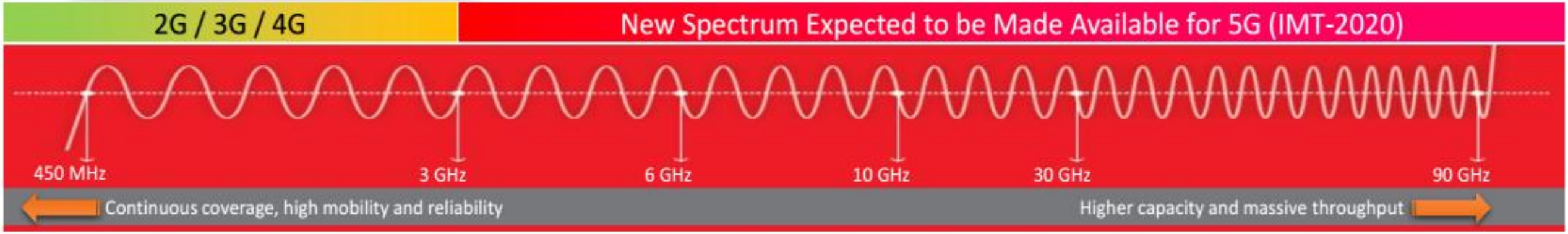
Abundant middle band frequency for capacity to fulfill the needs for Mobile Broadband data rate

Coverage Layer

2G/3G/4G : 700*/800/900 MHz

*) *Await for the New Broadcasting Act*

Release Digital Dividend APT700 to enhance deep coverage of Mobile Broadband, especially to acquire optimum benefit in the rural areas



The Way Forward

Regulatory Reform on connectivity & services

- Network Sharing (access network & backbone/backhaul) for better efficiency and wider network expansion
- MVNO & IP Interconnection to provide more service options to costumers
- Competition policy issues → discrimination, access foreclosure to essential facility, tying-in, abuse of dominant position
- Preparation for 5G deployment
- Additional Frequency spectrum (700 Mhz & 2.6 GHz ?)

Building Awareness of the Stakeholders

- Collaboration with local government to promote friendly regulation (especially on passive infrastructure) for broadband deployment in order to accelerate local economic and governmental activities
- Conducting regular study about the impact of broadband on national and local economy (using computable general equilibrium / CGE method?)
- Improving utilization of available broadband connectivity (public literacy program?)
- Formulating effective and efficient subsidy program for targeted community

The Shifts of Government's Roles

Less of a REGULATOR,
more of a FACILITATOR,
even more of an ACCELERATOR

REGULATOR

- **Relaxation** and **simplification** of regulation
- Electronic System Providers only need **registration**
- **Simplification** of licensing for heavy regulated industries
  - Telecommunication
  - Broadcasting
  - Postal

FACILITATOR

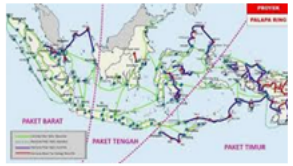
- **Affirmative ICT Policy**
  - Early roll out of 4G
  - Redesign of Telecom USO Projects
    - Palapa Ring
    - Last mile mobile and internet access
    - High Throughput Satellite
- Digital Entrepreneurship: **1000 Digital Startup**
- Digital Talents: **20.000 digital skilled scholarships**, partnership with 20 biggest universities in Indonesia and Global Tech Companies

ACCELERATOR

- Accelerating new unicorns: To give birth of **Next Indonesia Unicorn/Nexticorn**
- Accelerating other sectors
  - **8 Million National MSMEs** (UMKM) Go Online
  - Farmers and Fishermen go digital
  - G20 Idea Hub

Preparing The Digital Ecosystem For Indonesia 2045

NETWORK



DEVICES

APPLICATIONS

TALENTS

CHALLENGES

Connecting public service points :
- 93.900 Education institutions
- 47.900 Local government offices
- 3.900 Defense and security offices
- 3.700 Health care units

- Keeping up with the latest technologies
- Support readiness for Industrial Revolution 4.0
- Maintain the affordability of devices

- Promoting the growth of applications with solutions on real world problems
- Adding the portfolio of Indonesian Unicorns

- Enhancing digital literacy
- Digitalization of workforces
- Streaming supply of highly skilled digital talents

CURRENT POLICIES

- Palapa Ring
- High Throughput Satellite
- Trials on latest technology: 5G, IoT

- Simplification of device certification
- Facilitate presence of R&D offices in Indonesia

- 1000 Digital Startups
- Next Indonesian Unicorns

- Digital Talent Scholarships
- COCLASS for government officials and leaders of private sectors

USO Main Program

PALAPA RING

Backbone Project with distance **12.148 Km** connecting **90 Districts/ Cities** in Indonesia with Fiber Optic infrastructure.

Progress (13 July, 2019):
WEST : 100%
CENTRAL : 100%
EAST : 98.86%

BTS

Provide cellular telecommunication basic services in remote/ rural areas

1068 Sites

INTERNET ACCESS

Provide internet services for schools, health centers, village offices etc.

4.500 Locations

BROADCASTING

Provide infrastructure for Public Broadcasting in frontier and USO areas

50 Locations

MULTIFUNCTION SATELLITE

Satellite Project to provide high speed Internet Access at **149.400 locations** unreachable by terrestrial networks using the latest **High Throughput Satellite (HTS) technology**

PPP Contract Signed

Palapa Ring Project

PALAPA RING – June 29th 2019

WEST

Length	: 2,275 Km
Contractor	: PT Palapa Ring Barat
Cities without i/c with other operators	: 5
Cities with i/c with Other operators	: 7

100%

CENTRAL

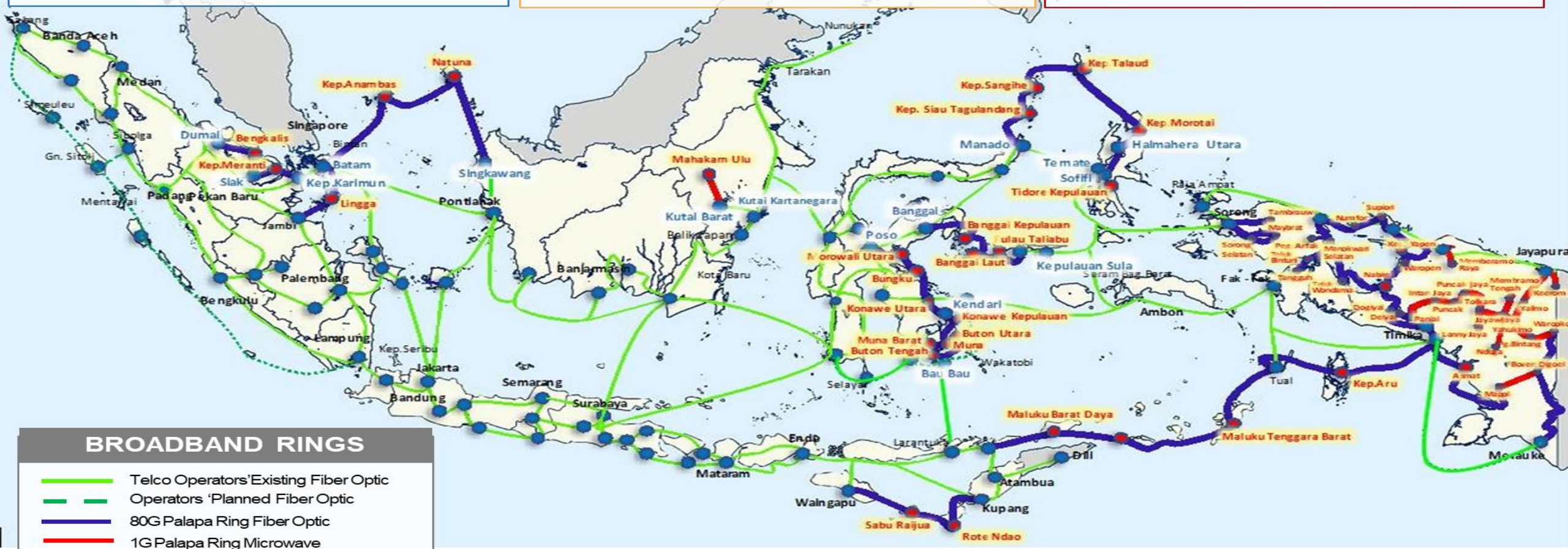
Length	: 2,995 Km
Contractor	: PT LEN Telekomunikasi Indonesia
Cities without i/c with other operators	: 17
Cities with i/c with Other operators	: 10

100%

EAST

Length	: 6,878 Km
Contractor	: PT Palapa Timur Telematika
Cities without i/c with other operators	: 35
Cities with i/c with Other operators	: 16

98,50%



BROADBAND RINGS

- Telco Operators'Existing Fiber Optic
- Operators 'Planned Fiber Optic
- 80G Palapa Ring Fiber Optic
- 1G Palapa Ring Microwave

Digital Transformation Mainstreaming and SDGs (draft)

1. No Poverty
- Increasing access to information about prices and weather
- Improving education through e-learning
- Improving learning towards e-commerce
- Increasing access to financing through ICTs

2. Zero Hunger
- Increasing food production through precision and smart agriculture
- Increasing nutritional content with smart food produced by the latest biotechnology

3. Good Health and Well-Being
Developing an early warning system for the prevention of infectious diseases by combining various types of monitoring data

4. Quality Education
Making high quality education affordable for all with e-learning systems that utilize advanced technology

5. Gender Equality
- Empowering women with access to education and information through the internet
- Giving women the opportunity to start by utilizing ICT

7. Affordable and Clean Energy
Managing electricity supply and demand on an ongoing basis by building a smart grid system

8. Decent Work and Economic Growth
Implementing Industrial Revolution 4.0 policies

11. Sustainable Cities and Communities
Developing sustainable Smart Cities

9. Industry, Innovation and Infrastructure
Building resilient infrastructure and promoting sustainable industrialization by using i-construction

Source: Draft of Medium Term National Development Plan 2020-2024

Thank You