Digital Connectivity

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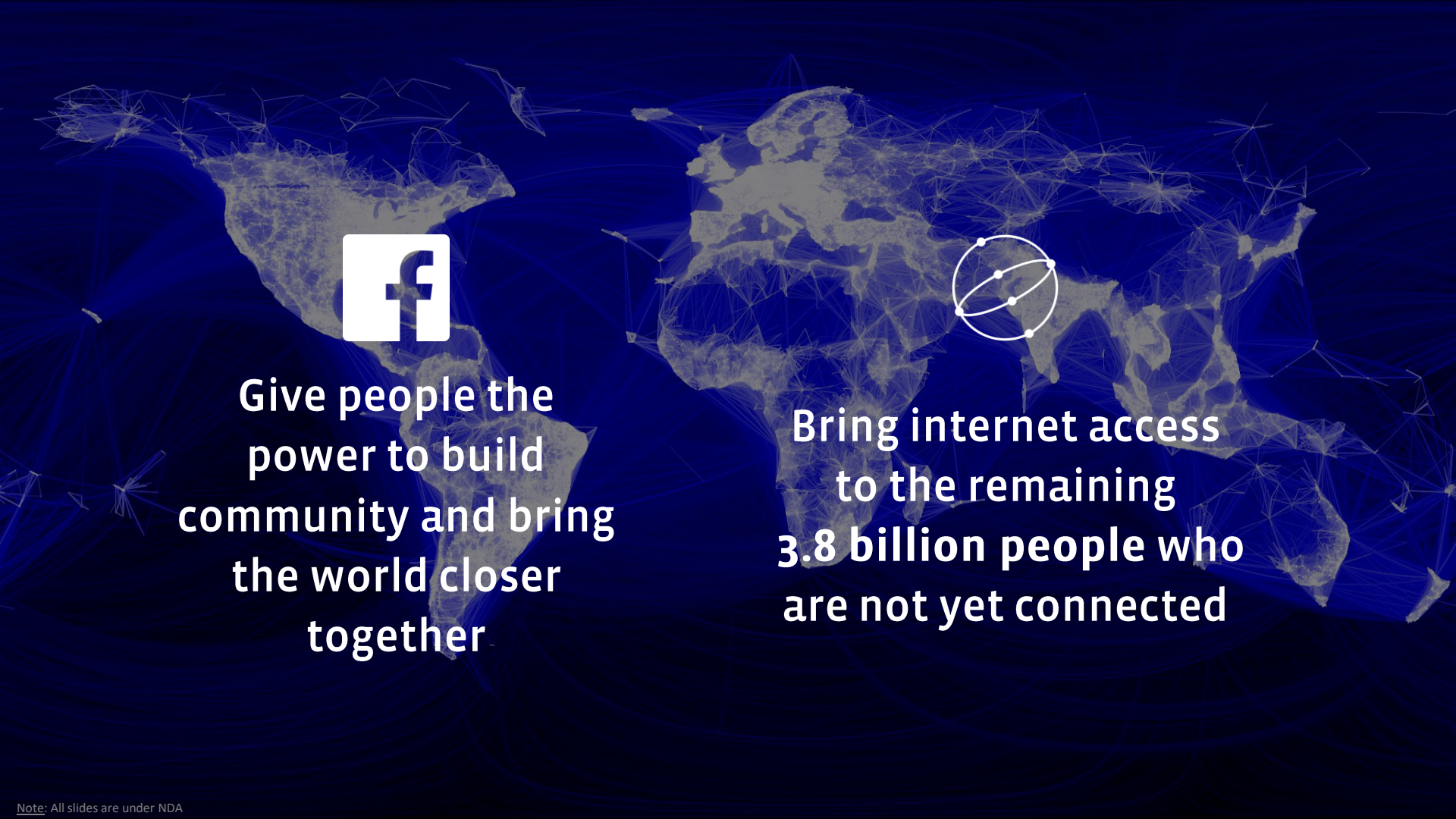
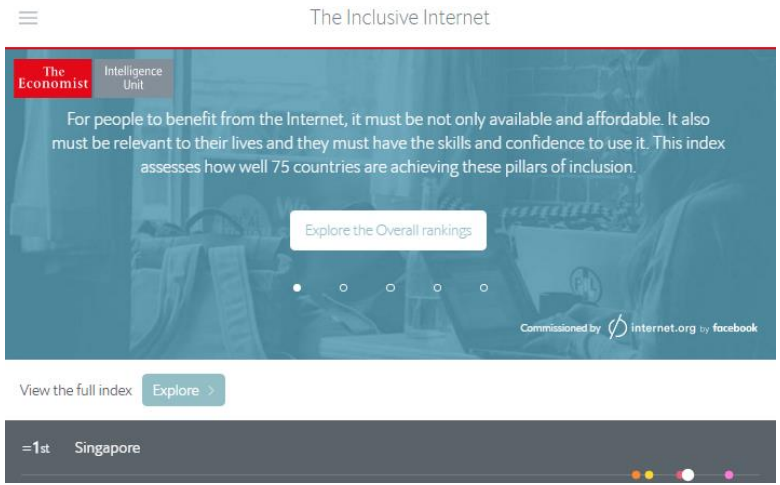
Tenzin Norbhu



Note: All slides are under NDA

The Inclusive Internet Index (3i)

In-depth look at the global state of Internet connectivity and inclusiveness. This is the second year of the index, designed to build a time series of important data.



https://theinclusiveinternet.eiu.com/

Key Objectives of 3i

Give policymakers and other stakeholders understanding of factors that contribute to widespread and sustainable Internet inclusiveness

- Provide cross-country comparison of the enabling environment for adoption and productive use of the Internet
- Identify country strengths, weaknesses and best practices and highlight areas of action & policy needs
- Provide road map for fostering relevant SDGs
- Encourage sharing of reliable, timely, and globally accessible data
- Measure progress year-over-year
- Make data available for independent analysis

57 3i Indicators For Each Country In 2018

Availability

- Internet users
- Fixed & mobile subscribers
- Gender gap in access
- Fixed & mobile speed, latency metrics
- Bandwidth capacity
- Network coverage (2G, 3G, 4G)
- Wi-fi initiatives
- Internet Exchange Points (IXPs)
- Electricity access

Affordability

- Handset cost
- Mobile phone cost (prepaid)
- Mobile phone cost (postpaid)
- Monthly fixed broadband cost
- Average revenue per user (ARPU)
- Wireless operators' market share
- Broadband operators' market share

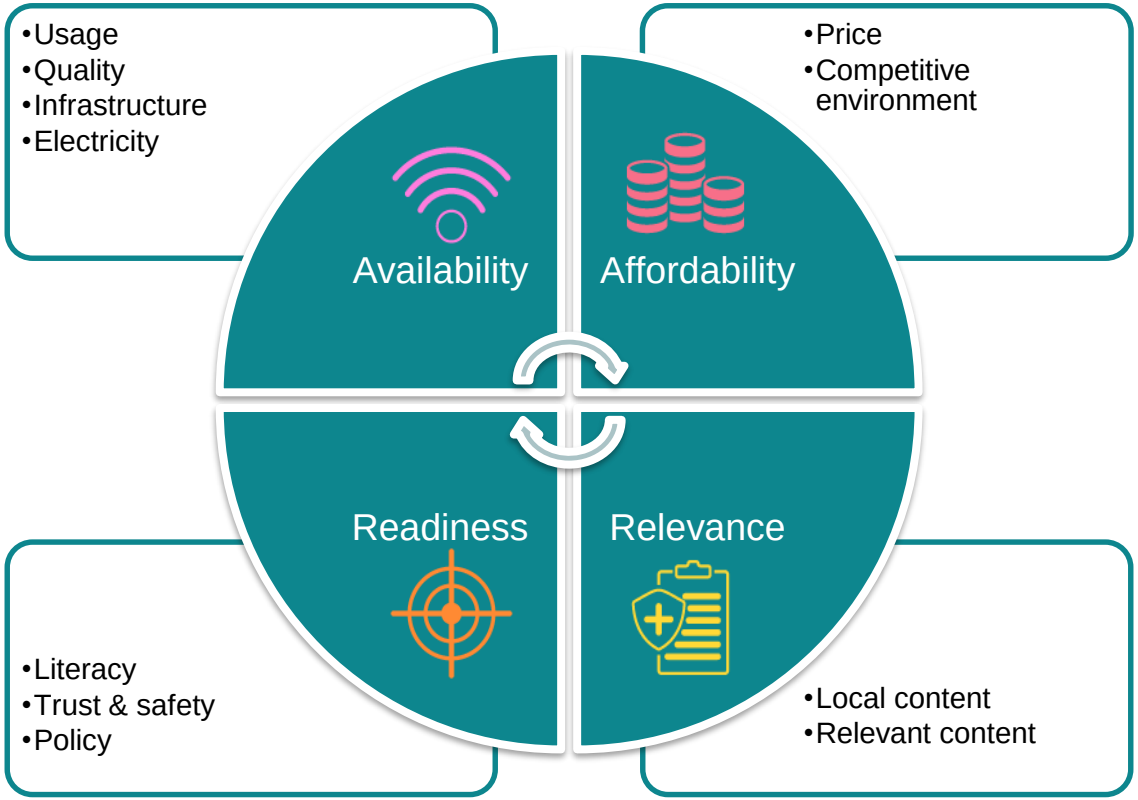
Relevance

- Basic information in local language
- Concentration of websites using ccTLD
- Local language device keyboard
- Local language e-gov services
- e-content: Finance, Health, Entertainment and e-Commerce
- Value of the Internet for e-content

Readiness

- Literacy level
- Educational attainment
- Digital literacy support
- Web accessibility
- Privacy regulations
- Trust: online privacy, gov't sites, non-gov't sites and social media
- e-Commerce safety
- Female e-inclusion
- Underserved e-inclusion policy
- National broadband strategy
- Broadband buildout funding
- Spectrum policy
- Digital ID system

3i Category Groupings

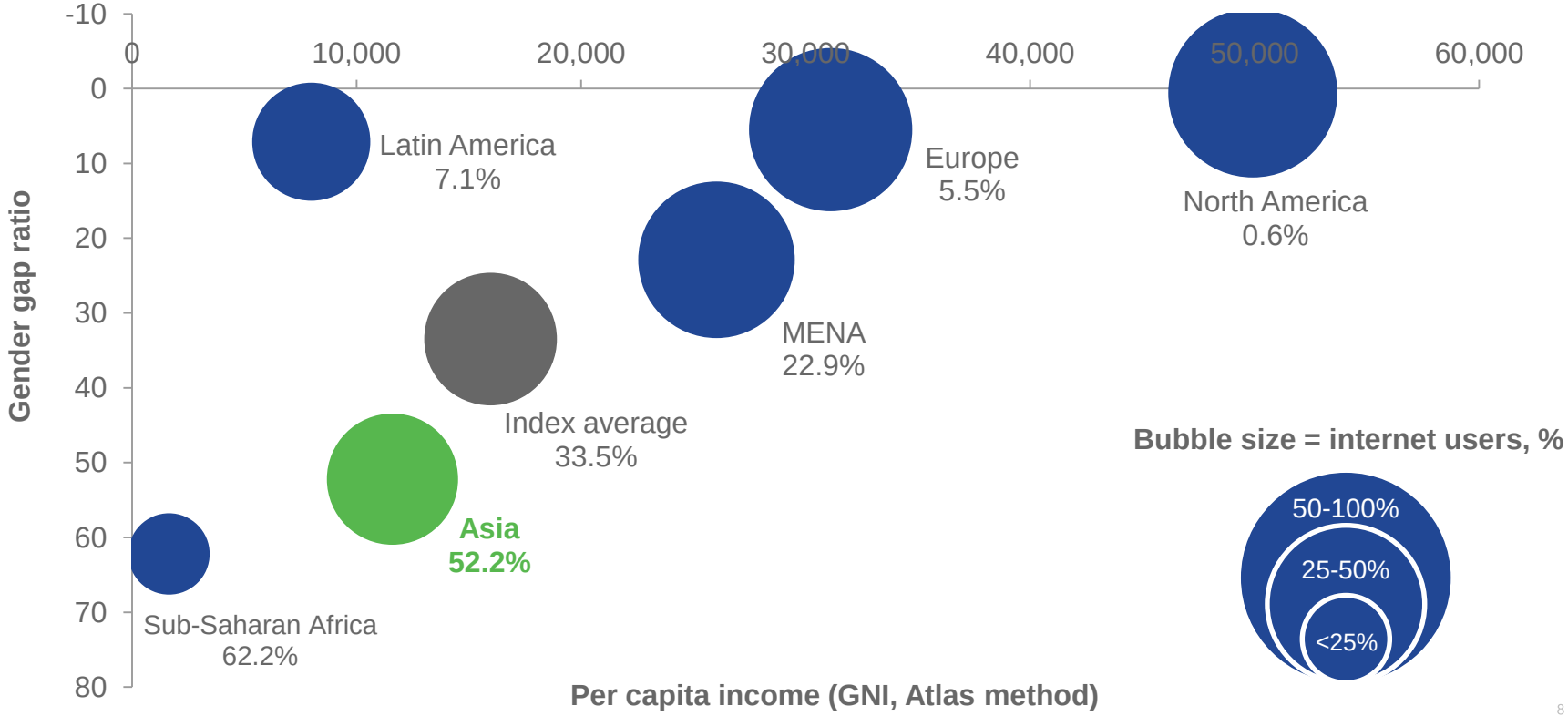


Key Global Findings: 2018

- Internet connectivity grew 8.3% over the last year, with a 65.1% increase in low-income countries
- The 2G-4G “under-connected” gap is narrowing spurred by rapid 4G adoption in low-income countries
- Mobile broadband data is more affordable on average, but just over half the countries in the Index have had price increases
- There is a gender gap in Internet access in 80% of Index countries
- The UK, Namibia and Ireland are enabling female e-inclusion
- Internet use is empowering, especially to citizens in Asia, the Middle East and Africa

Gender Gap in Asia

New indicators in 2018 index examine difference between male and female internet access



Regional and Philippines's Metrics

Indicator	Global	SSA	MENA	Asia	Philippines	Europe	Latin America	North America
Internet users (% of households)	53.4	20.0	74.4	52.3	**34.0**	80.9	42.3	86.6
Mobile subscribers (per 100 inhabitants; %)	107.9	81.9	125.2	111.8	**109.2**	119.4	114.7	105.6
Average mobile download speed (Kbps)	15,949	6,414	13,648	16,949	**7,712**	25,914	9,470	36,556
Average mobile upload speed (Kbps)	7,559	3,045	8,119	8,617	**4,980**	10,835	5,644	14,081
Average mobile latency (ms)	69.4	123.8	50.8	56.9	**56.0**	40.5	65.2	54.5
Network coverage (min. 2G) (% of population)	95.0	86.1	99.6	97.0	**99.0**	99.2	95.0	99.6
Network coverage (min. 3G) (% of population)	85.0	61.2	93.6	88.0	**93.0**	97.4	90.4	99.6
Network coverage (min. 4G) (% of population)	60.8	27.9	67.9	60.2	**80.0**	88.7	56.9	98.6
Gender gap in internet access (% difference between male & female)	33.5	62.2	22.9	52.2	**-14.3**	5.5	7.1	0.6

Value of the Internet Survey: Highlights

Question	Global	SSA	MENA	Asia	Europe	Latin America	North America
Internet use frequency (% who use 'several times a day')	**81%**	79%	80%	**80%**	85%	79%	94%
Mobile preference (% mobile is primary device for internet)	**38%**	43%	45%	**39%**	28%	41%	35%
Internet use frequency (work) (% who use 'several times a day' for work)	**39%**	37%	39%	**42%**	36%	40%	41%
Job prospects (% who agree prospects have improved from internet use)	**72%**	77%	74%	**73%**	62%	73%	72%
Entertainment (% who use internet for entertainment every day)	**72%**	67%	75%	**75%**	73%	72%	74%
Shopping (% who use internet for shopping at least once a month)	**48%**	40%	40%	**54%**	52%	46%	54%
Independence (% who say internet has made them more independent)	**53%**	60%	60%	**59%**	42%	55%	42%
Privacy concerns (% who say privacy concerns have limited internet use)	**85%**	85%	84%	**85%**	84%	91%	84%
Security concerns (% who say security concerns have limited internet use)	**46%**	48%	49%	**51%**	42%	41%	44%
Internet has improved life in my country (% who agree)	**64%**	69%	66%	**69%**	53%	67%	55%
Internet access should be a human right (% who agree)	**67%**	71%	70%	**68%**	66%	60%	58%

Value of the Internet Survey: Asia

Question	Asia	Males	Females	Millennials	Gen X	Baby Boomers	Low income	High income
Internet use frequency (% who use 'several times a day')	**80%**	80%	79%	81%	82%	75%	79%	79%
Mobile preference (% mobile is primary device for internet)	**39%**	33%	44%	47%	39%	26%	42%	38%
Internet use frequency (work) (% who use 'several times a day' for work)	**42%**	45%	39%	45%	48%	32%	37%	51%
Job prospects (% who agree prospects have improved from internet use)	**73%**	75%	71%	78%	72%	67%	73%	77%
Entertainment (% who use internet for entertainment every day)	**75%**	76%	74%	82%	77%	65%	76%	79%
Shopping (% who use internet for shopping at least once a month)	**54%**	53%	55%	54%	57%	51%	49%	69%
Independence (% who say internet has made them more independent)	**59%**	61%	58%	63%	60%	53%	59%	71%
Privacy concerns (% who say privacy concerns have limited internet use)	**85%**	84%	86%	84%	85%	84%	84%	88%
Security concerns (% who say security concerns have limited internet use)	**51%**	49%	53%	52%	49%	51%	52%	50%
Internet has improved life in my country (% who agree)	**69%**	73%	65%	70%	70%	67%	66%	80%
Internet access should be a human right (% who agree)	**68%**	69%	67%	65%	71%	68%	67%	72%

Inclusive Internet Index: Philippines

Overall rank/86		Availability rank/86		Affordability rank/86		Relevance rank/86		Readiness rank/86	
Singapore	2	Singapore	1	Mongolia	10	South Korea	4	Malaysia	1
South Korea	5	South Korea	6	South Korea	12	Taiwan	12	Singapore	12
Japan	11	Japan	7	Japan	14	Vietnam	13	China	14
Taiwan	=19	Australia	12	Thailand	27	Malaysia	16	Kazakhstan	22
Australia	25	Taiwan	16	Australia	28	Japan	18	India	=23
Malaysia	28	Thailand	26	Singapore	30	Singapore	23	Thailand	26
Thailand	31	Kazakhstan	31	Taiwan	34	China	31	Australia	=28
China	36	Malaysia	34	Malaysia	36	Iran	33	South Korea	30
Mongolia	42	China	38	India	39	Australia	36	Japan	31
Vietnam	43	**Philippines**	**46**	Vietnam	40	India	37	Taiwan	32
Kazakhstan	46	Iran	47	Indonesia	41	Mongolia	=38	Iran	=35
India	47	Maldives	48	Sri Lanka	42	Myanmar	=45	Indonesia	38
Indonesia	49	Indonesia	49	Pakistan	43	Thailand	49	Vietnam	=39
Iran	50	Mongolia	50	China	45	Sri Lanka	50	**Philippines**	**43**
Sri Lanka	52	Vietnam	52	Kazakhstan	47	Uzbekistan	52	Bangladesh	47
Philippines	**54**	Sri Lanka	57	Bangladesh	=57	**Philippines**	**54**	Nepal	48
Uzbekistan	58	Uzbekistan	58	Maldives	=62	Indonesia	62	Uzbekistan	57
Bangladesh	62	India	62	Uzbekistan	67	Bangladesh	67	Sri Lanka	62
Maldives	64	Bangladesh	63	Cambodia	68	Pakistan	70	Pakistan	68
Myanmar	65	Cambodia	65	Myanmar	69	Kazakhstan	73	Myanmar	69
Pakistan	68	Nepal	67	Iran	=71	Nepal	74	Mongolia	72
Nepal	70	Myanmar	70	**Philippines**	**=71**	Maldives	80	Cambodia	81
Cambodia	=72	Pakistan	77	Nepal	80	Cambodia	84	Maldives	=83

Country briefing: Philippines

Philippines index performance

Category	Global rank/86	Asia rank/23
Overall	54	16
(1) Availability	46	10
(2) Affordability	=71	=21
(3) Relevance	54	16
(4) Readiness	43	14

Philippines: Largest YoY changes

Indicator	% change
Average fixed broadband upload speed	+191.7%
Network coverage (min. 4G)	+105.1%
Average fixed broadband download speed	+65.7%

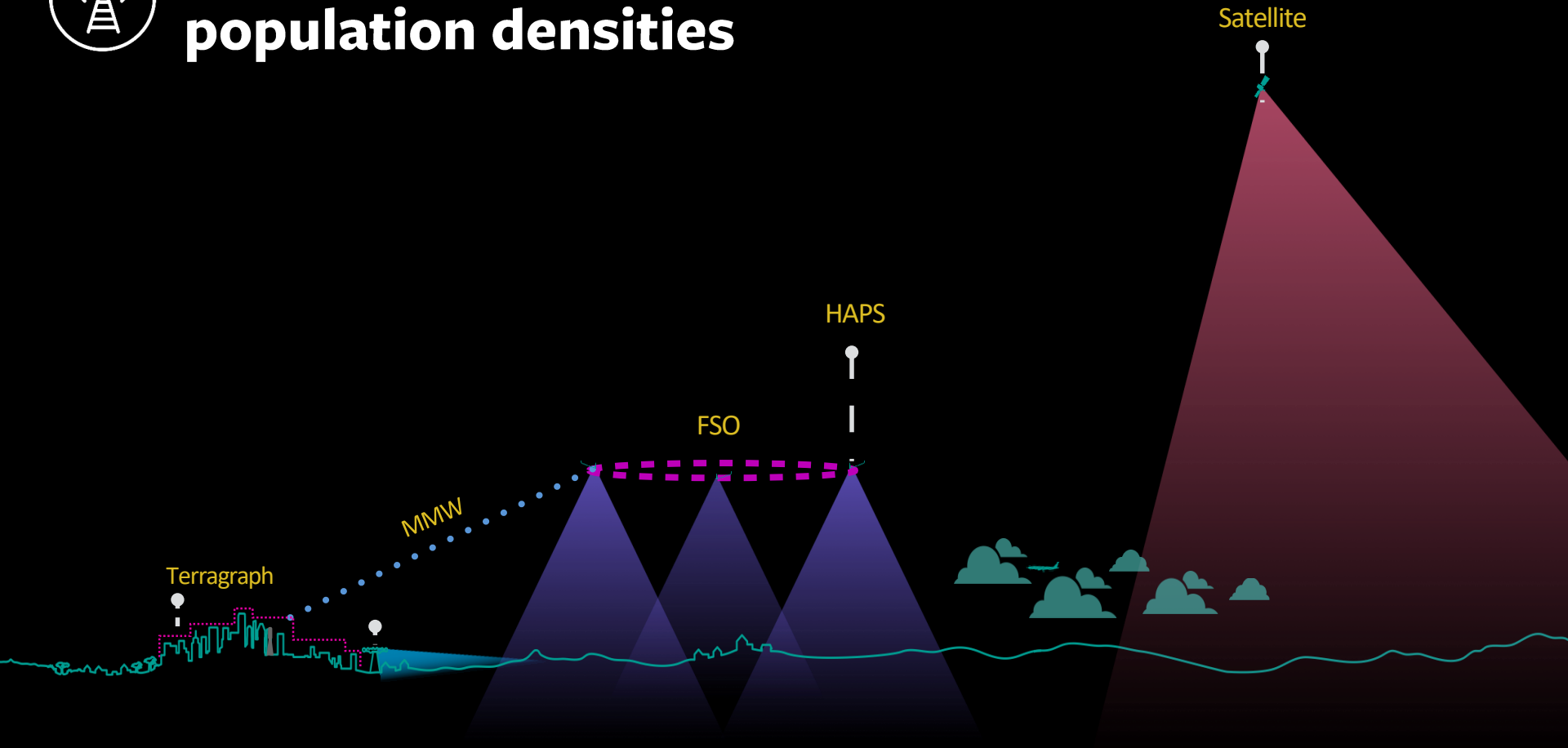
Philippines: strengths

Sub-category	Global rank/86	Asia rank/23
(4.2) Trust & Safety	=16	7
(1.3) Infrastructure	37	7
(4.1) Literacy	38	11

Philippines: areas for improvement

Sub-category	Global rank/86	Asia rank/23
(2.2) Competitive Environment	81	23
(3.1) Local Content	=62	20
(4.3) Policy	=60	18

Connectivity platforms to serve different population densities



www.connectivity.fb.com

- Analytics
- Free Basics
- High-Altitude Connectivity
- Open Cellular
- Rural Access
- Shared Backhaul Infrastructure
- Telecom Infra Project
- Terragraph
- Wi-Fi

Free Basics

Even in areas where internet access is available, the benefits of connectivity may not be obvious.

The Free Basics program addresses this barrier by partnering with mobile operators to provide people with useful online services — such as news, health information, local jobs, communications tools, education resources, and local government information – without data charges.

By allowing people to experience the relevance and value of being online, Free Basics provides an onramp to the broader internet.

Open Cellular

As an open-source wireless access platform, OpenCellular is focused on developing new and affordable mobile base station technology that can help expand network capacity and coverage, making it more cost-effective for operators to deploy networks in rural places where coverage is scarce.

OpenCellular can be deployed to support a range of access and backhaul options, from a mobile network-in-a-box to an access point supporting everything from 2G to Wi-Fi to LTE.

Shared Backhaul

As the highway to connectivity, reliable fiber and wireless backhaul allows multiple operators to benefit from the infrastructure we're putting in place with our partners. In addition to expanding capacity, we expect that our backhaul investments will help reduce network costs and improve performance.

As an early step forward, working with our partners, we've completed a 770km fiber build in northwest Uganda, that will cover more than 3 million people and enable future cross-border connectivity to neighbouring countries.

Thank you!

tnorbhu@fb.com