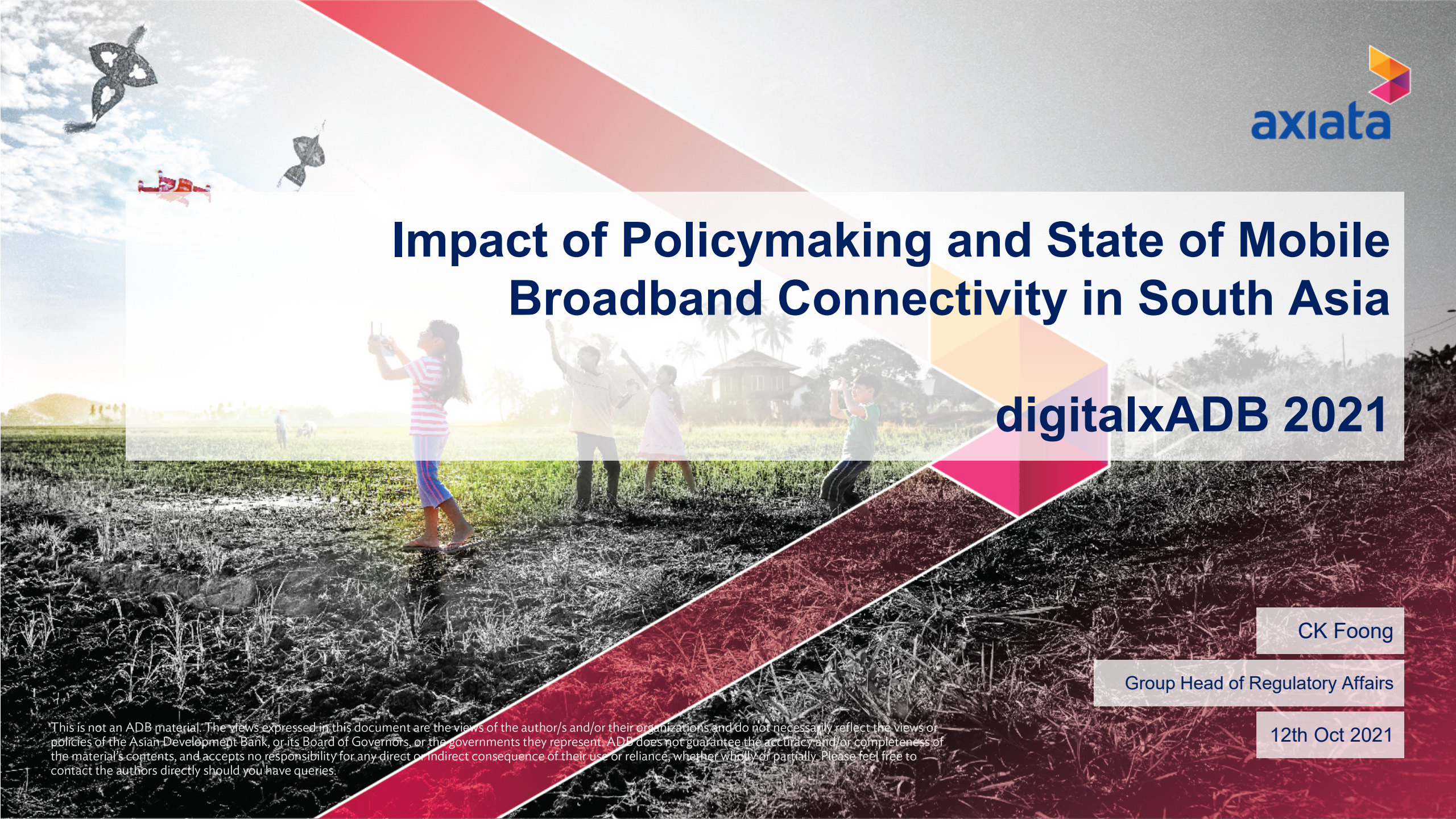

Impact of Policymaking and State of Mobile Broadband Connectivity in South Asia

digitalxADB 2021

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One of the largest telco groups in ASEAN & South Asia

Digital Telco	celcom MALAYSIA	XL axiata INDONESIA	robi BANGLADESH
	Smart CAMBODIA	Ncell NEPAL	Dialog SRI LANKA
Digital Businesses	Boost	ada	apigate
Infrastructure	edco	MALAYSIA CAMBODIA THAILAND LAOS PHILLIPINES MYANMAR	BANGLADESH SRI LANKA PAKISTAN

2020 RESULTS

REVENUE	**MYR 24.2 B**
PAT	**MYR 0.6 B**
CUSTOMERS	**Over 155 M**
EMPLOYEES	**Over 12,000**
MARKET CAP*	**MYR 34.3 B**
COUNTRIES*	**11**

** As at 31 Dec 2020*

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Recently, we commissioned a benchmark study to answer the following key questions

State of Mobile Broadband Connectivity in selected South Asian countries

1. Generally, countries with higher levels of broadband adoption tend to fare better: clear productivity gains, economic competitiveness, entry-point into a digital economy, etc
2. All the more important as pandemic lockdowns forces digitization of business, education, commerce, social interactions
3. Generally, the inputs to building mobile broadband connectivity are similar (towers, equipment, spectrum); the outputs are also homogenous (Gigabytes, Gbps) and mass consumer usage patters are generally similar
4. We wanted to find out why certain countries seem to be doing better in mobile broadband connectivity, whereas other countries seem to lag behind
5. Specifically, we wanted to understand if there are certain supply drivers including policy levers that play an **outsized impact** to demand drivers (as measured in adoption, etc)

- Source: Arthur D. Little (2021)

Telecoms regulatory benchmarking index covers 2 pillars, 9 constructs, 26 indicators and 44 metrics

Summary of pillars, constructs, indicators and metrics

Pillars[1]		Constructs[1]	Indicators	Metrics
1. Demand drivers	1	Mobile broadband penetration	4	4
	2	Data consumption and speed	2	2
	3	Cost of mobile data & 4G smartphones	2	2
	4	Industry adoption	2	6
2. Supply drivers	5	Competitive intensity	1	1
	6	National regulatory best practices	5	16
	7	Investment policy and returns	3	4
	8	Spectrum policy	3	5
	9	Country risk	4	4
2 pillars		9 constructs	26 indicators	44 metrics

- 1) Pillars and constructs will be equally weighted
- Source: Arthur D. Little analysis

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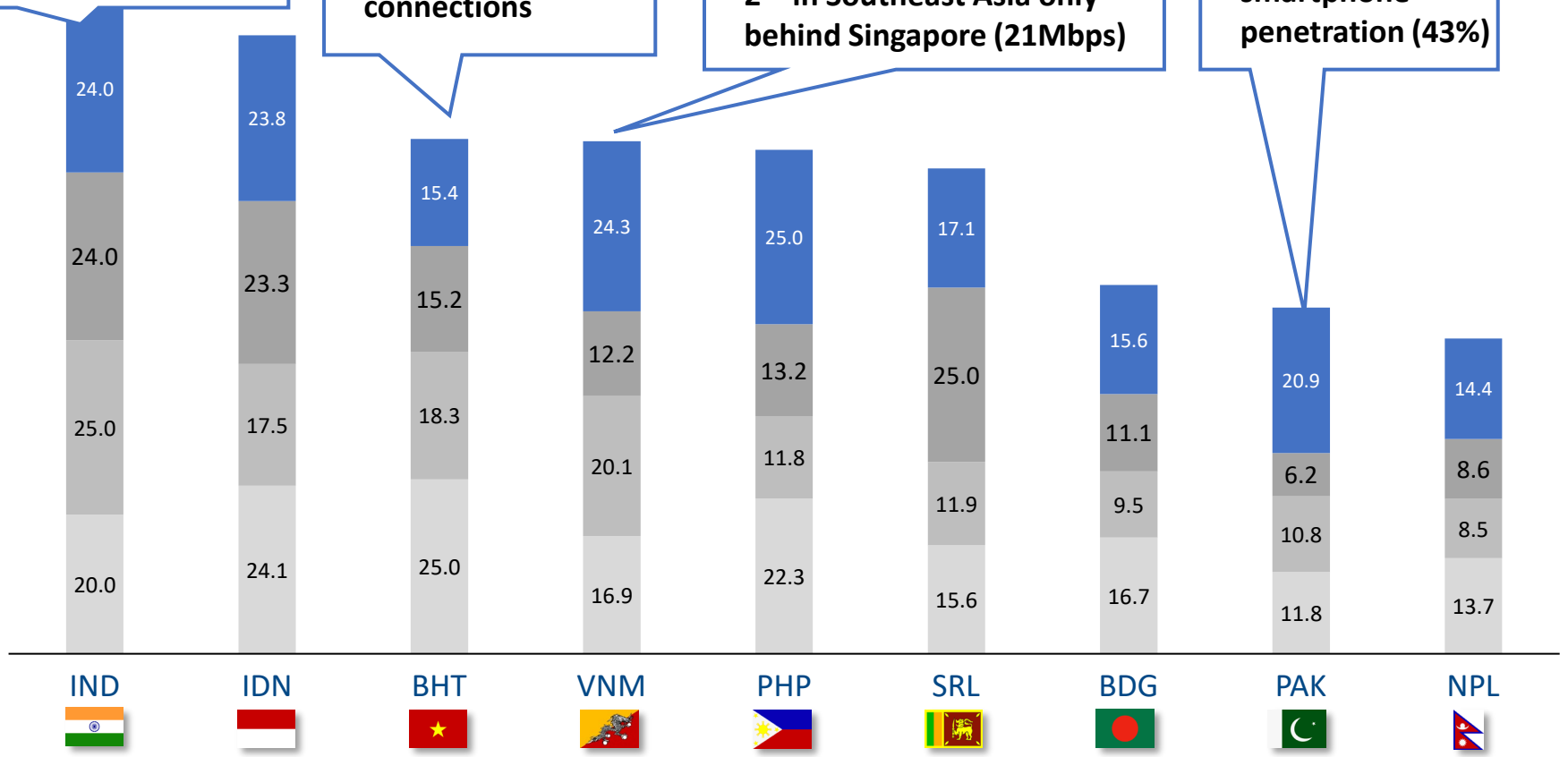
Demand-side Driver Scores

- High competition in recent years has driven down the prices on per-GB basis
- Recent boost in 4G penetration
- 3G + 4G accounts for over 95% of connections
- SMEs represent over 95% of employment in Vietnam (one of the highest)
- Highest mobile data speed 2nd in Southeast Asia only behind Singapore (21Mbps)
- Low data consumption primarily due to limited smartphone penetration (43%)



- **4. Industry adoption**
  - SME and enterprise adoption
  - Government adoption
- **3. Cost of mobile data & 4G smartphones**
  - Affordability of mobile data compared to GDP/Capita (ppp)
  - Affordability of 4G smartphones compared to GDP/Capita (ppp)
- **2. Data usage and speed**
  - Avg. data usage
  - Avg. data speed
- **1. Mobile broadband penetration**
  - 3G penetration
  - 4G penetration
  - 5G readiness
  - Smartphone penetration

- Source: Arthur D. Little analysis
- Note: Score reflected are relative and majority of data are as of end 2020 for comparability

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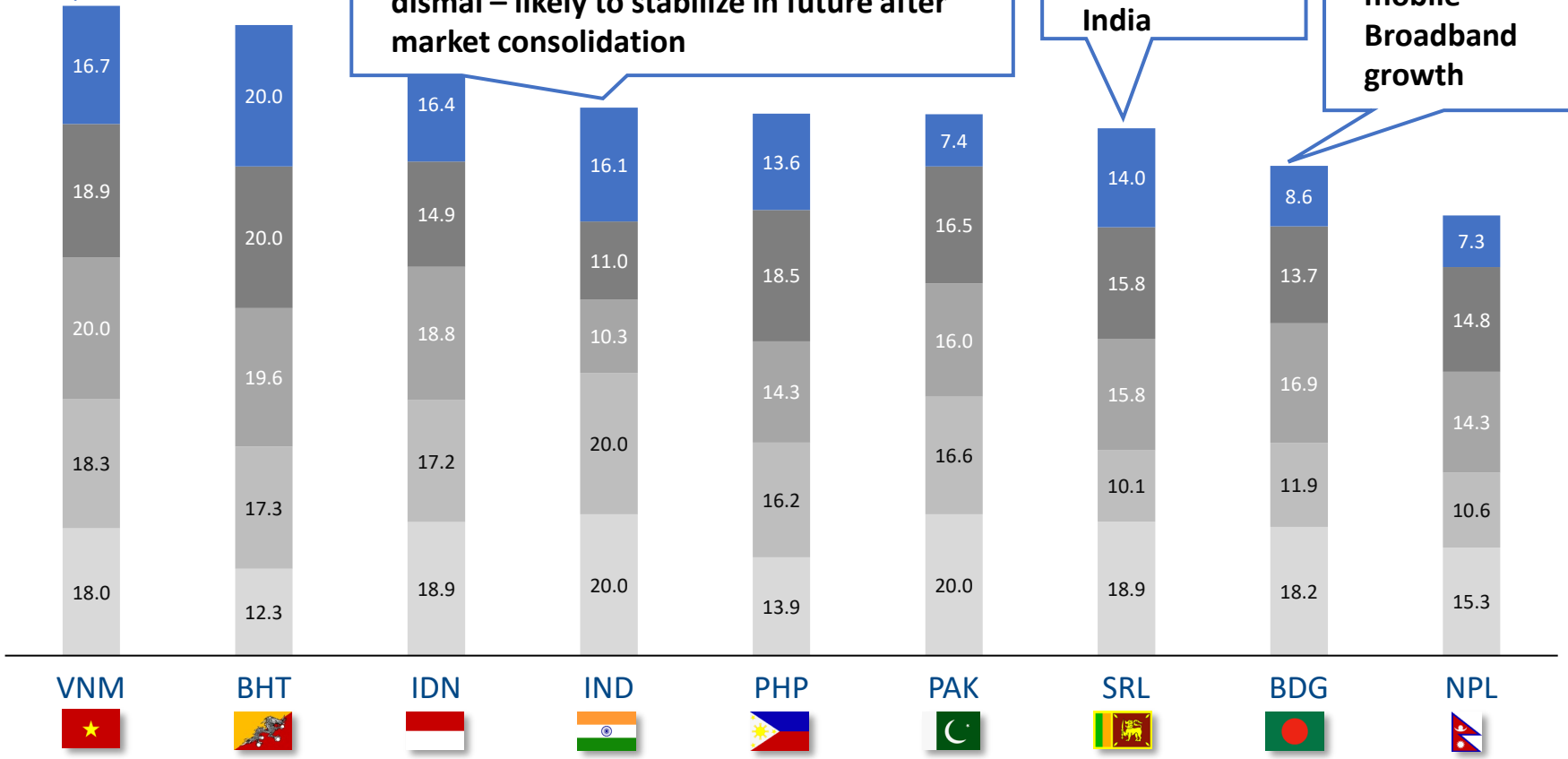
Supply-side Driver Scores

- One of the highest with respect to amount of spectrum granted to MNOs
- Relaxed guidelines for telco players with limited requirements for market entry
- Due to recent market disruption, the investment returns for MNOs have been dismal – likely to stabilize in future after market consolidation
- Operators in Sri Lanka has 2nd lowest EBITDA margin, beating only India
- High spectrum fees and limited spectrum allocation hinder mobile Broadband growth



- Source: Arthur D. Little analysis
- Note: Score reflected are relative and majority of data are as of end 2020 for comparability

9. Country risk index
- Government effectiveness
- Control of corruption
- Political stability
- Cyber security

8. Policy spectrum
- Mobile spectrum pricing
- Mobile spectrum assignment
- Spectrum mgmt. best practices

7. Investment policy and returns
- FDI policy & openness
- Investment returns for Telcos Remittance policy

6. National regulatory best practices
- Reg. structure
- Level playing field & discrimination
- Taxation policy
- Robustness of policymaking
- Enabling reg. framework and practices

5. Competitive Intensity

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Cross Metric Analysis:

Lower corporate and consumer tax rates promotes consumption and enables operators to re-invest earnings to boost mobile broadband penetration

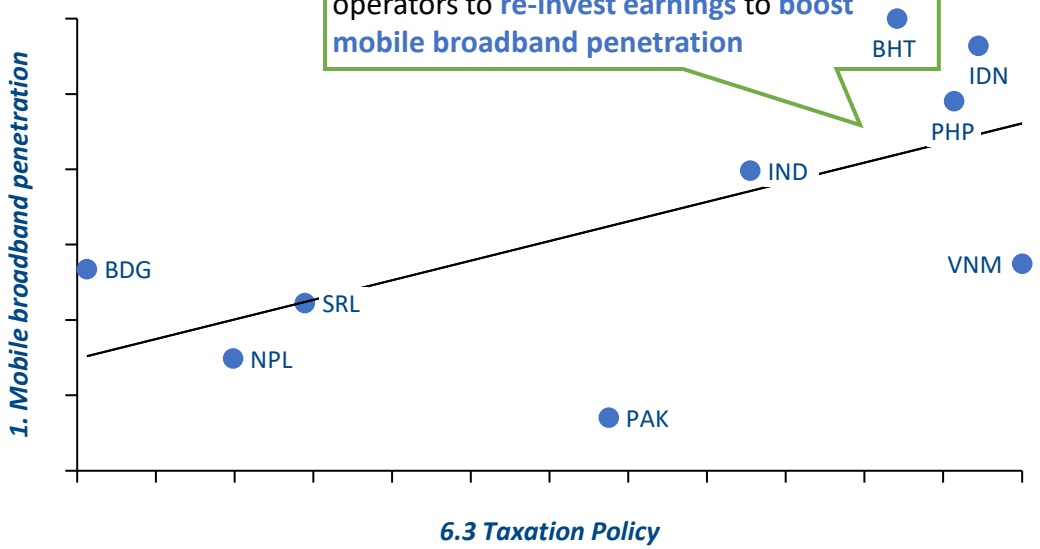
Some preliminary findings on correlations, not causality

Strong correlation

Weak correlation

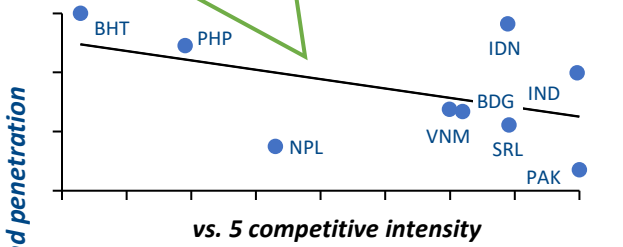
Mobile broadband penetration[1] vs. Taxation policy[2]

Lower corporate and consumer tax rates **promotes consumption** and enables operators to **re-invest earnings** to **boost mobile broadband penetration**

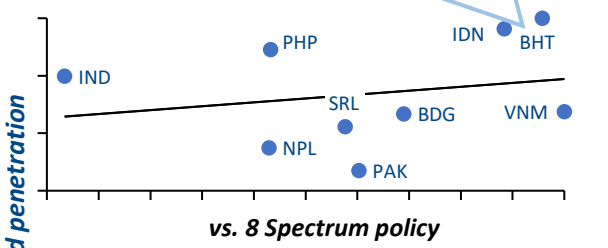


Other metrics

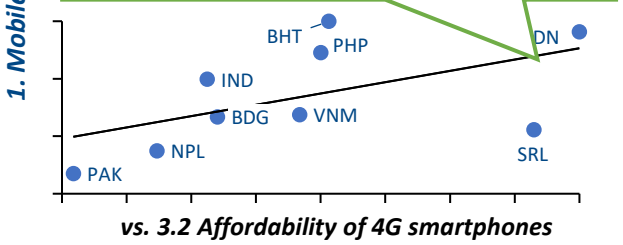
Competition is sub-optimal for mobile broadband penetration as operators have less margin to continually improve technology



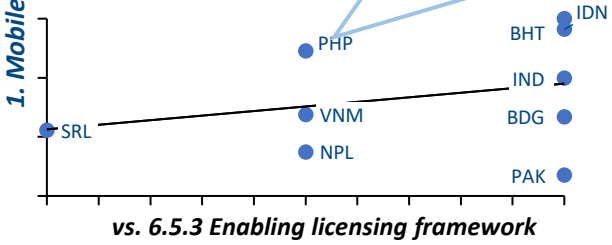
Spectrum policy (allocation + price + best practice) has little influence with mobile broadband penetration



Higher affordability of 4G smartphones enable higher 4G penetration rates boosting mobile broadband penetration scores



Enabling licensing framework has limited correlation with mobile broadband penetration



Improving tax regime is the strongest driver for mobile broadband penetration; increased affordability of smartphones boosts penetration rates while intense competition can hinder mobile broadband penetration

Note: All scores in cross metric analysis are indexed and relative
Source: Arthur D. Little analysis
1) MBB penetration measured with 3G, 4G penetration, 5G readiness, and smartphone penetration, 2) Taxation policy is measured with consumer mobile ownership and corporate tax where higher score denotes lower tax

Cross Metric Analysis:

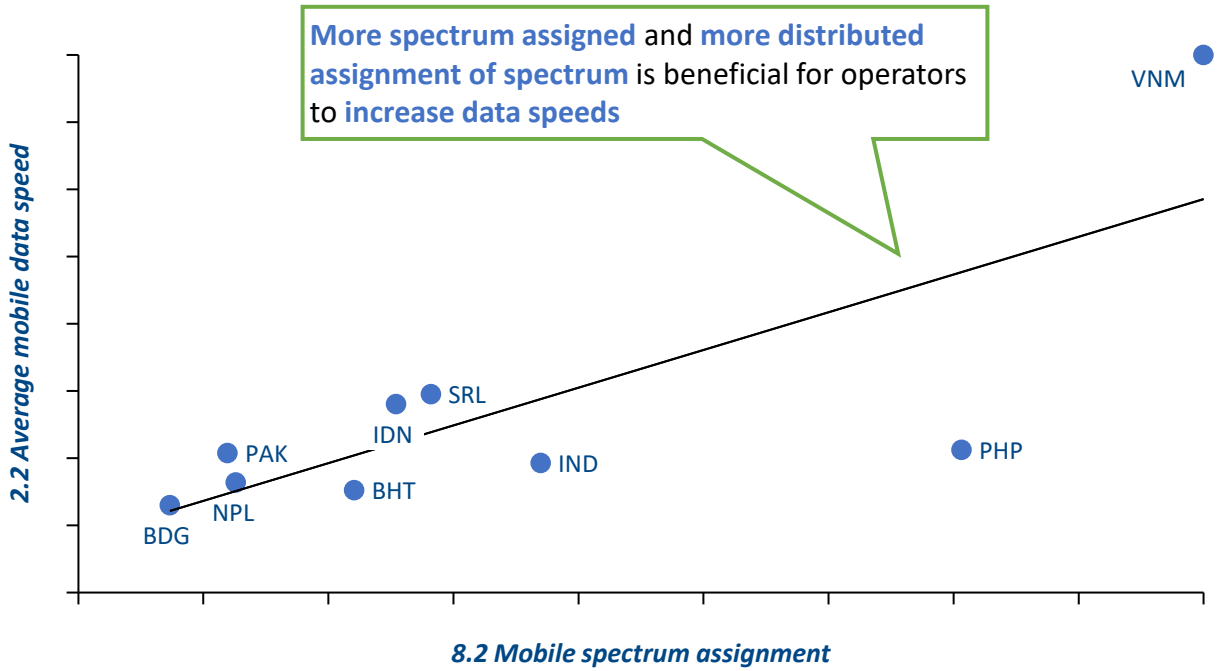
More spectrum assigned and more distributed assignment of spectrum and more open FDI policy facilitates increased data speeds for operators

Some preliminary findings on correlations, not causality

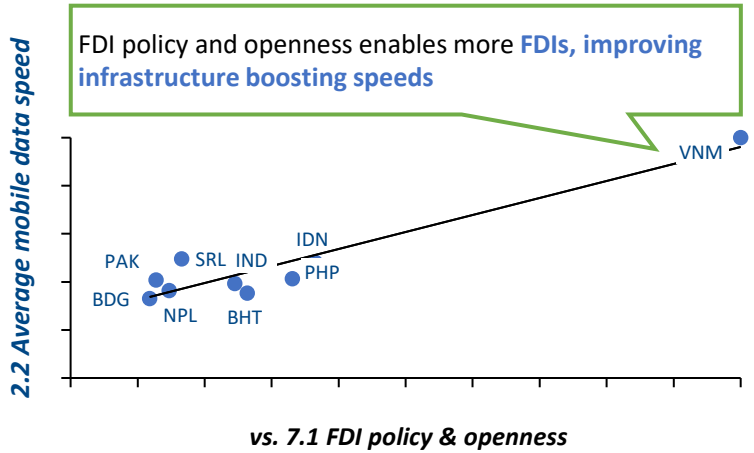
Strong correlation

Weak correlation

Avg. mobile data speed[1] vs. Mobile spectrum assignment[2]



Other metrics



More spectrum assigned, distributed assignment of spectrum and more attractive investment landscape is highly beneficial to increase data speed

- Note: All scores in cross metric analysis are indexed
- Source: Arthur D. Little analysis
- 1) Avg. mobile data speeds is measured using avg. mobile download speed, 2) Mobile spectrum assignment measures both amount of spectrum assigned and distribution of spectrum across operators

Cross Metric Analysis:

Lower country risk improves investment returns while higher competitive intensity hinders operator's margins

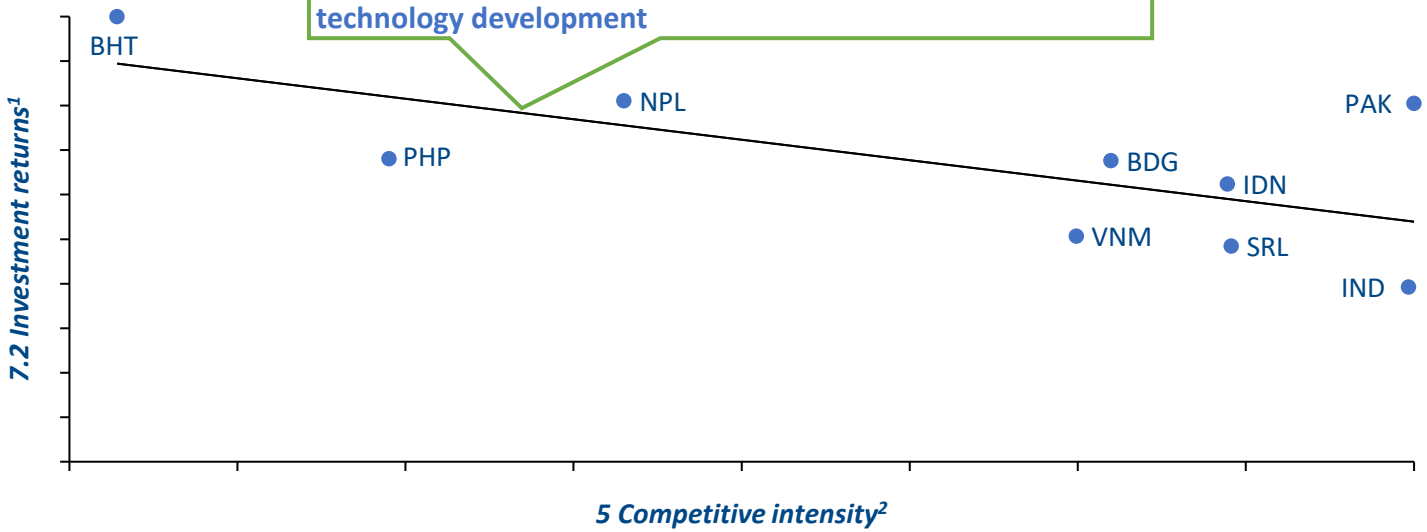
Some preliminary findings on correlations, not causality

Strong correlation

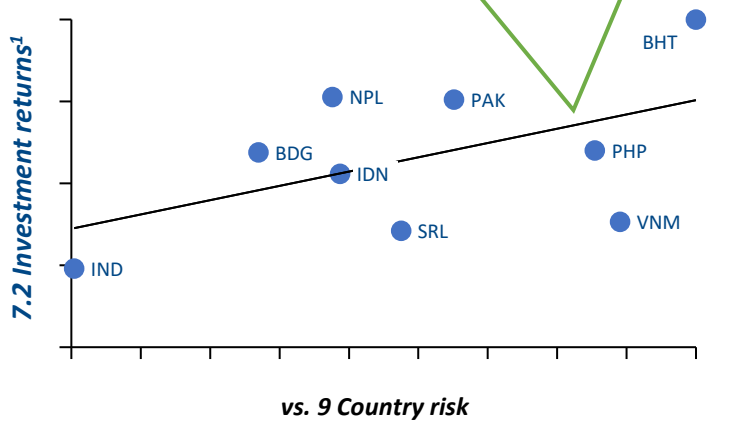
Weak correlation

Investment returns[1] vs. Potential drivers

Higher competitive intensity applies **pressure on operators' margins** potentially being **sub-optimal for long term technology development**



Lower country risk (higher score) improves operator investment returns due to more conducive business environment



Enabling regulatory framework and practices us key in improving investment returns for operators

- Note: All scores in cross metric analysis are indexed
- Source: Arthur D. Little analysis
- 1) Investment returns is measured by EBITDA margin of various operators, 2) Enabling reg. frameworks measures existence of retrospective policies/taxes, market based open policies and enabling licensing frameworks

Some key takeaways:

Non Sector-specific Enablers

- **Rationalizing Taxation Policies**
  - Research suggests that low tax burden is the best enabler of increased mobile penetration
  - High corporate tax rate in comparison to other countries and other domestic sectors
  - Some countries have multi-tier taxes, e.g. VAT on top of levies
  - Other countries have taxes which are counter-intuitive to investments e.g. Tax on Towers
- **Resolving Regulatory uncertainties**
  - Retrospective taxation shakes investor confidence
- **FDI policies**
  - Countries in South Asia are in a competition to attract FDI
  - Where country risk is high, need stronger protection and regulatory clarity for foreign investors to counter the risks;
  - Misalignment between investment promotion agencies and other organs of govt
- **Remittance**
  - Despite the low remittance tax rate, strict restrictions in remittance policy has made it difficult for some companies to remit their earnings back home

Sector-specific Enablers

- **Spectrum management best practices**
  - The more spectrum is allocated, the higher the avg data speeds
  - Some countries yet to switch to spectrum neutral regime, spectrum re-farming process takes time and is not automatic for operators
- **Regulatory best practices**
  - Further reforms, transparency and consultations to enable continued investments and minimize shocks to operators
  - Further reforms in regulations and following of best practices from countries such as Singapore can help drive growth in CAPEX needed for the sector
- **Licensing rules reform**
  - Comparatively short license duration is short (10 years only) compared to international best practice benchmark (15-20 years), affecting investor confidence
  - No clear direction in terms of license renewal; licenses have been renewed in the past with 2-3 years delay that creates uncertainty

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THANK YOU

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