

Digital Connectivity:

Required Blended Finance Arrangements and Proactive Policy
Adoption for Affordable Connectivity Expansion

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G20 ARGENTINA:

Digital Economy Ministerial Declaration (August 24, 2018)

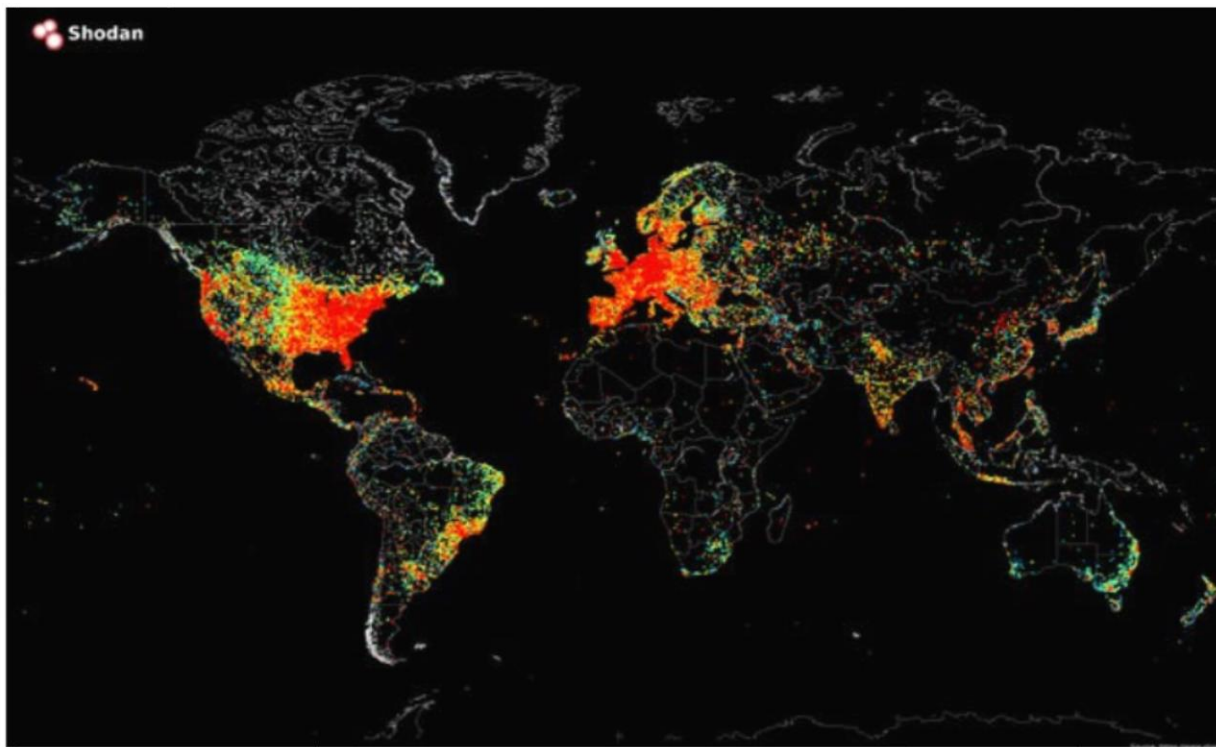
- Accelerating Digital Infrastructure for Development -

- ▶ “...we commit our efforts to prioritize connectivity of individuals, households, businesses, industries and the public sector, taking into particular consideration remote areas and vulnerable groups. The Argentine Presidency introduced Annex 4 “Accelerating Digital Infrastructure for Development” as a compilation of references to assist G20 members towards expanding digital infrastructure and extending coverage to underserved communities and individuals, through integrated strategies that align incentives, improve market competitiveness, stimulate investment, promote collaboration among public and private sectors and create trust in all stakeholders.”

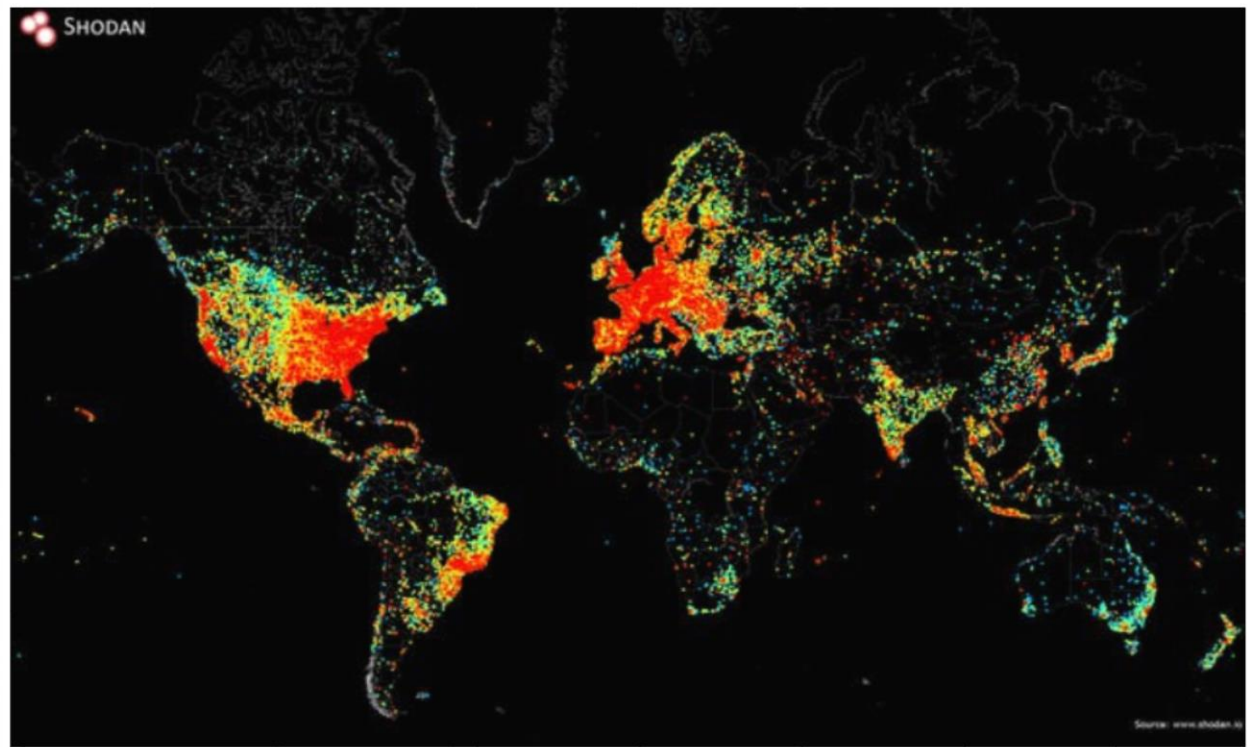
Internet: Lights and Shadows

3

August, 2014

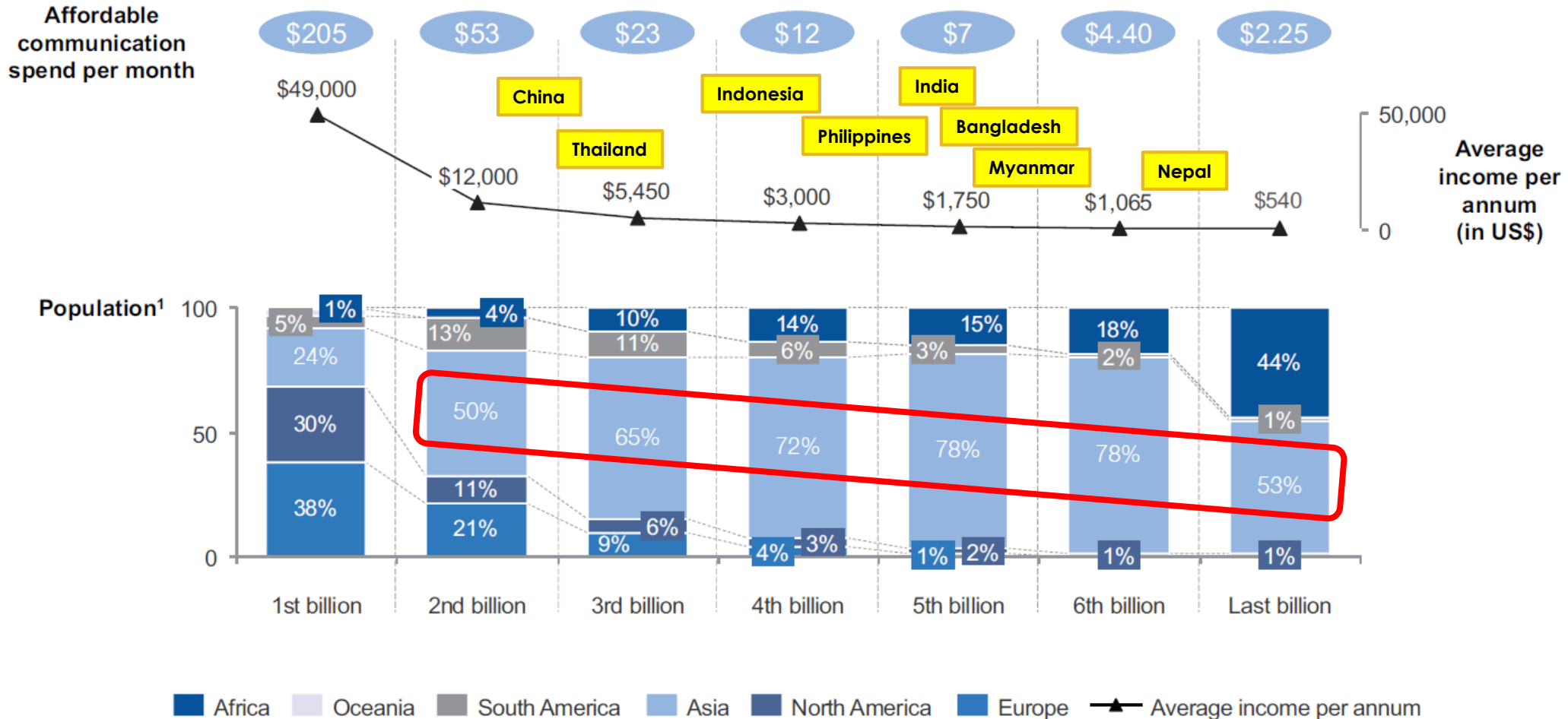


August, 2016



Source: www.inverse.com

Affordable Spend on Communications by Income Level

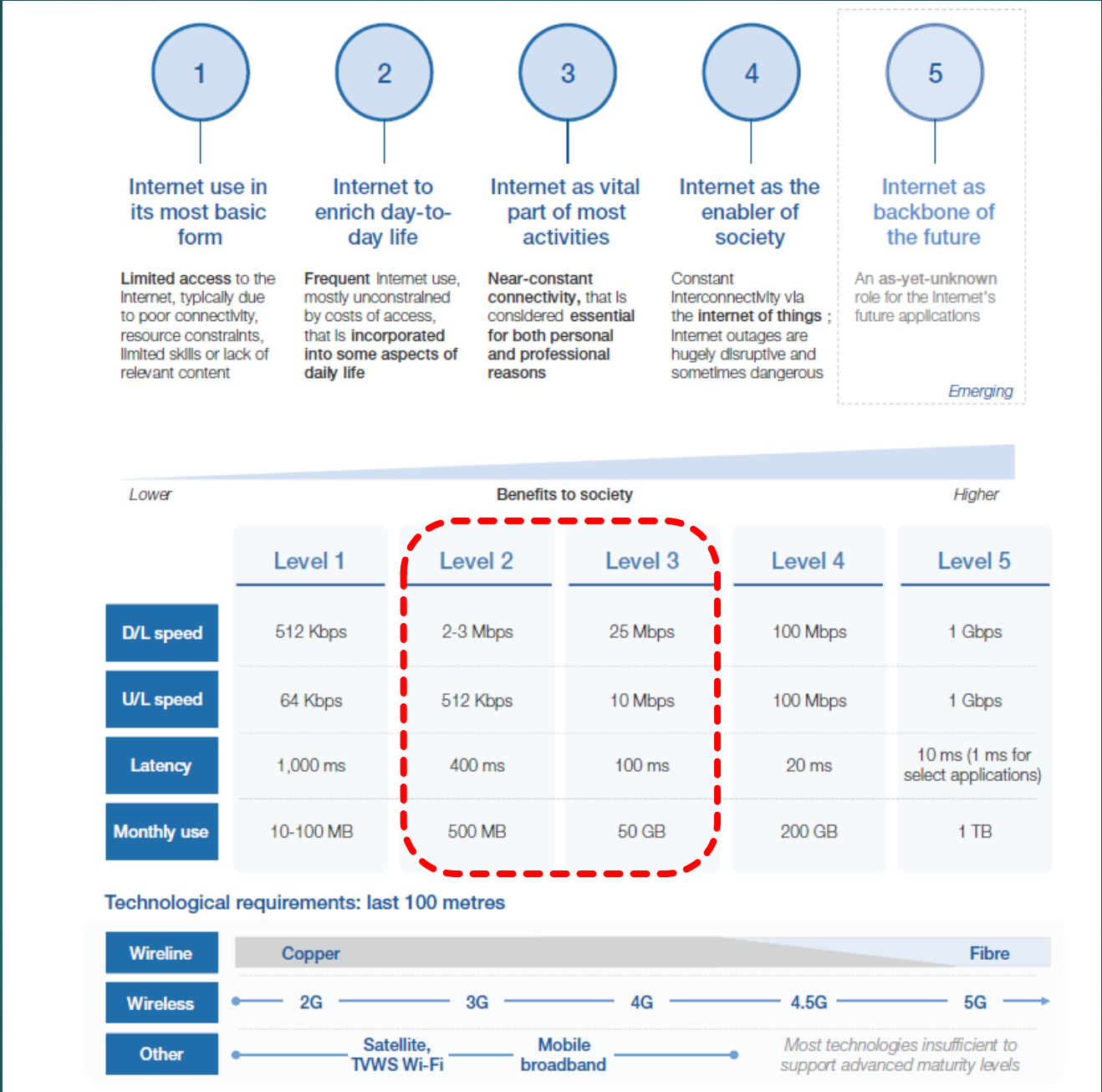


1. Normalized to 100% (equalling about 1 billion people)

Note: Methodology used by Richard Thanki: use of Gini index and GDP per capita (source: World Bank, CIA Factbook) for Lorenz curve, which was then used to slice the population of each country; affordable communication spend per month based on ITU data (5% of income)

Source: Thanki, 2015, *Measuring the local impact of TVWS broadband*; World Economic Forum; BCG analysis

Which maturity level we should look at for 'Unconnected' in Asia?



Note: D/L speed=download speed; U/L speed=upload speed; Gbps=gigabits per second; Kbps=kilobits per second; Mbps=megabits per second; ms=millisecond; MB=megabyte; GB=gigabyte; TB=terabyte; TWWS=TV white space
Source: The Boston Consulting Group estimates

Differences by ICT Infrastructure Funding Actors

6

A wide variety of funding sources currently operate within the ICT infrastructure funding space, underscoring a baseline interest in funding connectivity and, broadly, a general availability of funds. However, the **vast majority of ICT connectivity infrastructure funding has traditionally come from private-sector ICT companies.**

	Actors	Examples	Notes	Objectives	Risk appetite
Private sector	Industry	MNOs/ISPs/Tower companies	<ul style="list-style-type: none"> Vast majority of funding & “front line” of profitable investment 	<ul style="list-style-type: none"> Provide connectivity for profit 	Low
	Financial sector	Investment & commercial banks	<ul style="list-style-type: none"> Willingness to invest is often complicated by concerns over competing infrastructure networks, uncertainty around technological developments, and the belief that investment is the responsibility of MNOs and ISPs 	<ul style="list-style-type: none"> Provide financing and capital for profit 	Low
		Private investment firms (pensions, VC, PE, etc.)		<ul style="list-style-type: none"> Grow capital for profitability Diversify portfolio 	Low
	Other private sector	Technology firms Other sectorial firms		<ul style="list-style-type: none"> Expand customer base Invest for business sustainability 	Low-Medium
Public sector	Non-profit	Foundation/NGOs	<ul style="list-style-type: none"> Longer-term investment horizons, enabling investment in lower-IRR projects that do not meet objectives of other investors 	<ul style="list-style-type: none"> Develop philanthropy by addressing inequalities 	Medium-High
	Multilateral	Multilateral development bank/Fund	<ul style="list-style-type: none"> Investment usually motivated by national interest, with social and development outcomes prioritized alongside (or above) economic profitability Funds can be combined with private-sector money to mitigate some kinds of investment risk and improve investment climate 	<ul style="list-style-type: none"> Provide financing to foster long-term economic development 	High
		Sovereign wealth fund		<ul style="list-style-type: none"> Create long-term value for investors by driving sustained economic development 	Medium
	Public sector	USFs		<ul style="list-style-type: none"> Expand connectivity in underserved areas through subsidies and fees 	High
		National development bank/Fund		<ul style="list-style-type: none"> Provide financing to foster national long-term economic development 	High

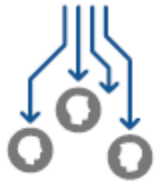
Note: MNO=mobile network operator; ISP=internet service provider; VC=venture capital; PE=private equity; NGO=non-governmental organization; USF=universal service fund; IRR=internal rate of return.
Source: The Boston Consulting Group trend analysis

Source: WEF - Internet for All (2018)

Six Factors Constraining the Flow of Capital Towards Infrastructure Projects

7

Source: The Boston Consulting Group analysis



Market factors

Elements of **competition** from operators and infrastructure providers, as well as concerns over **consumer adoption and willingness to pay**



Risk mitigation factors

Concerns that existing means of **mitigation are inadequate and complex**, and are often derived from a lack of available market and investment research



Partnership factors

Perception that partnership models of infrastructure finance are **overly complex and of limited financial benefit**



Project factors

Inadequate project preparation, small project size and lack of comfort with alternative technologies



Regulatory factors

Areas of **spectrum policies, pricing barriers and regulatory uncertainty**



Sourcing factors

Project obscurity and the lack of a conventional pipeline for surfacing ICT infrastructure projects

Public-Private Blended Finance Arrangements

8

Source: The Boston Consulting Group analysis

Public-sector tools to improve overall investment environment

- **Implementing “dig once” policies** to reduce overall costs per connection and allow funders to bundle investments across different types of infrastructure
- **Reworking tax policies** to incentivize investment and reduce financial burdens for those willing to invest
- **Providing anchor tenancies** to infrastructure expansion to help incentivize infrastructure investment and improve the business case for private investors
- **Releasing new spectrum in a timely and affordable manner** to significantly reduce costs and barriers to entry for mobile network operators
- **Incentivizing small cell deployment** by providing access to site locations to speed bureaucratic approvals and allow sharing agreements
- **Promoting the establishment of IXPs** to reduce latency and costs

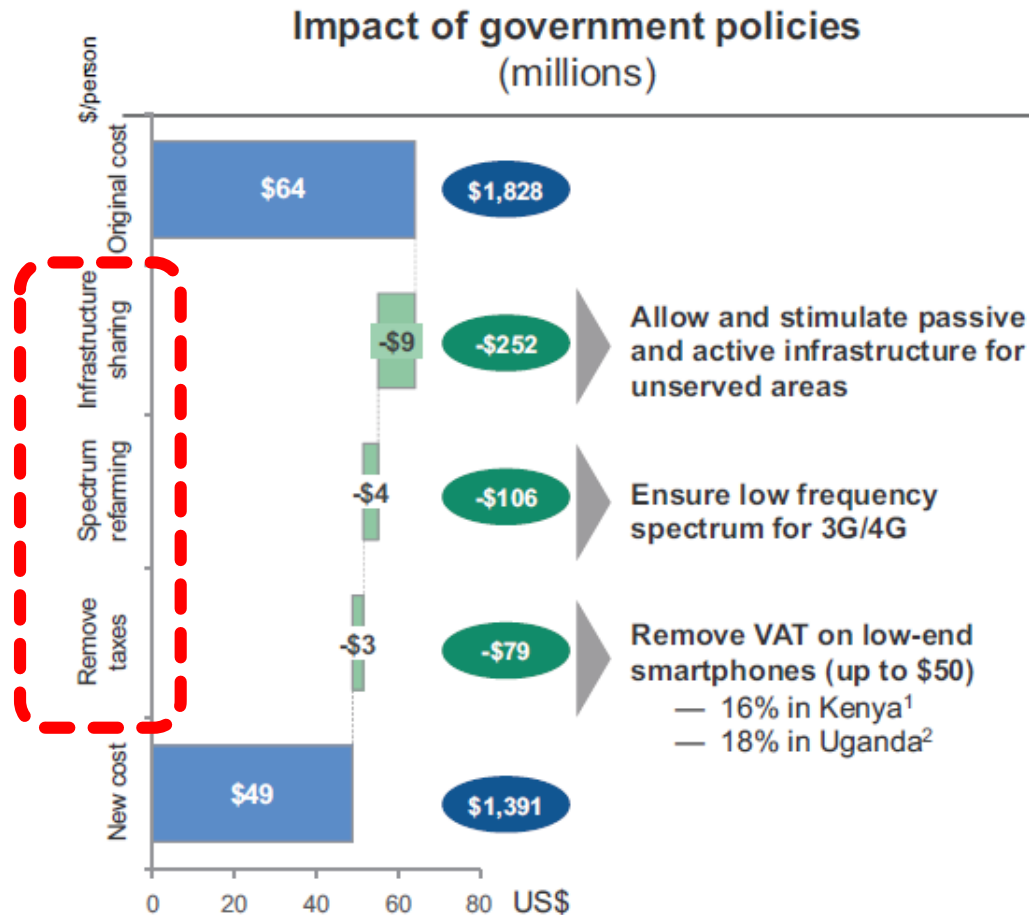


Private, multilateral and multi-sectoral tools to unlock additional funding options

- **Bundling mechanisms or infrastructure funds** to combine ICT infrastructure projects across geographies, technologies and populations
- **Securitization mechanisms** to have a similar effect on risk mitigation to bundling mechanisms, and to benefit from special tax treatment
- **Multistakeholder funds** to attract capital from multiple sectors to address development needs
- **Co-investment vehicles** to allow MNOs to solicit additional funds from other players when expanding and upgrading infrastructure
- **Risk guarantees** to isolate individual risk elements in projects and improve business cases for investors
- **Increased effectiveness of project preparation facilities** to address many risks associated with smaller projects that have limited resources to support investor due diligence
- **Development of infrastructure marketplaces** to bring together infrastructure project owners, investors, public-sector actors and other stakeholders to share information, discuss potential investments and arrive at blended financing arrangements

[Case Study: Eastern Africa Northern Corridor]
Targeted Government Policy Levers Can Reduce This Cost by 23% to \$49/Person
with Savings of about \$440 million...

1. Media articles. 2. GSMA and Deloitte, Digital Inclusion and Mobile Sector Taxation, 2015.
Source: World Economic Forum; BCG analysis



Outcomes

Specific government policy can reduce required investment by \$400 million or 23%

Business case for private sector is financially sustainable in all countries

Smartphone cost reduced 17% to a more manageable cost for consumers

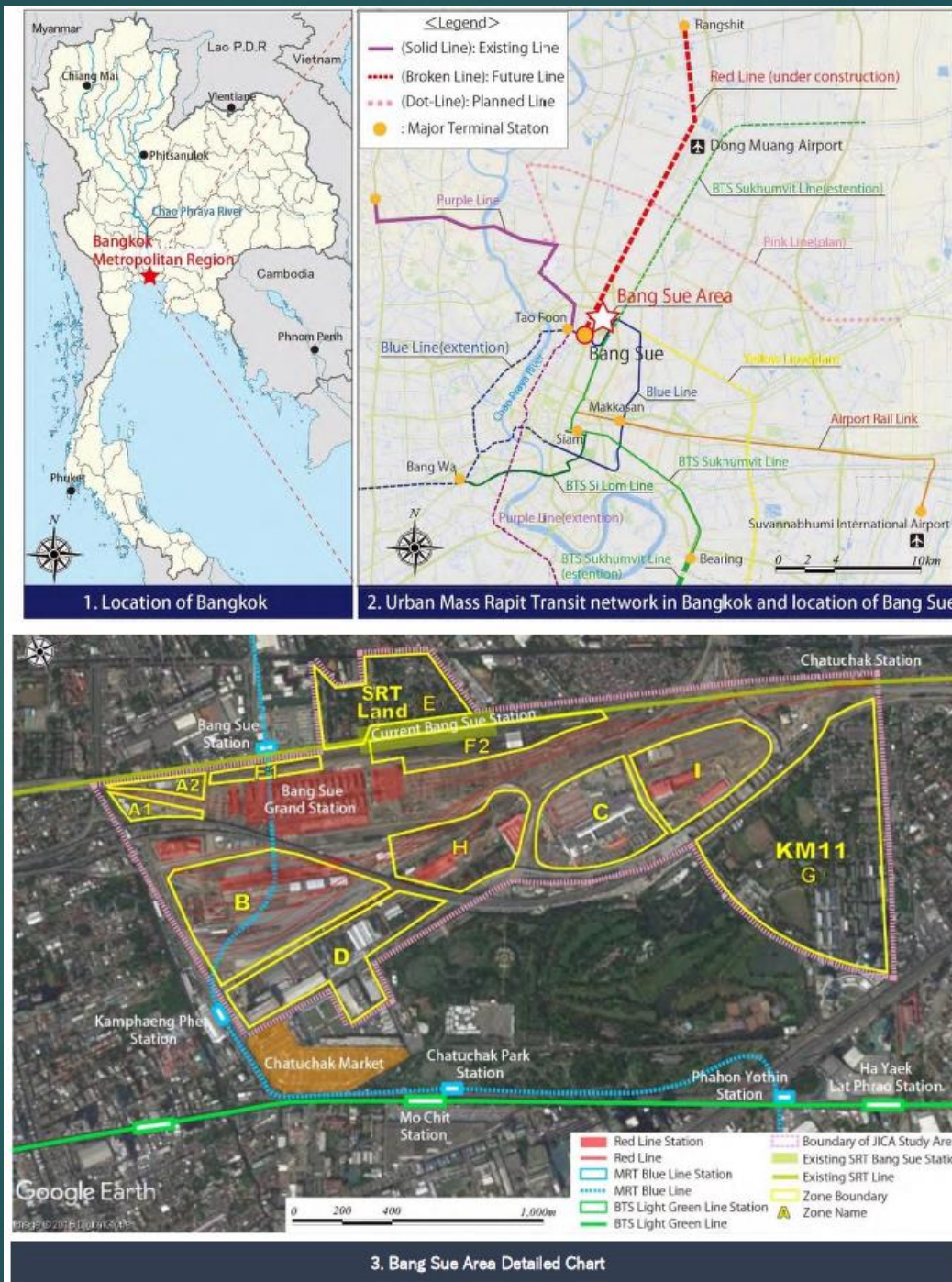
Note: Potential disadvantage of infrastructure sharing to be highlighted

Policies Still Can Play Huge Roles to Expand Connectivity...

10

- ▶ Spectrum access policies have considerable impact on infrastructure and investment more broadly.
- ▶ In particular, regulatory policy and decisions affect infrastructure investment with regard to both scarce mobile spectrum and fixed-line networks.
- ▶ Removing entry barriers and facilitating competition puts downward pressure on prices.
- ▶ Wi-Fi for last-mile connectivity and various technologies (including possibly TV White Space) for backhaul
- ▶ Mobile network operator partnerships (either revenue sharing or wholesaler)
- ▶ Public Wi-Fi (subsidized or free)
- ▶ Publicly sponsored wholesale fibre networks

Proposed 5G Smart City in Bang Sue, Bangkok



Source: JICA

ICT and Development



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<https://www.youtube.com/jicaictanddevelopment>