# Connectivity for Development

The World Bank

Transport and ICT Global Practice

Smart Connections for All

Innovative Strategies for Development Summit

Manila, June 10, 2016,

Natasha Beschorner

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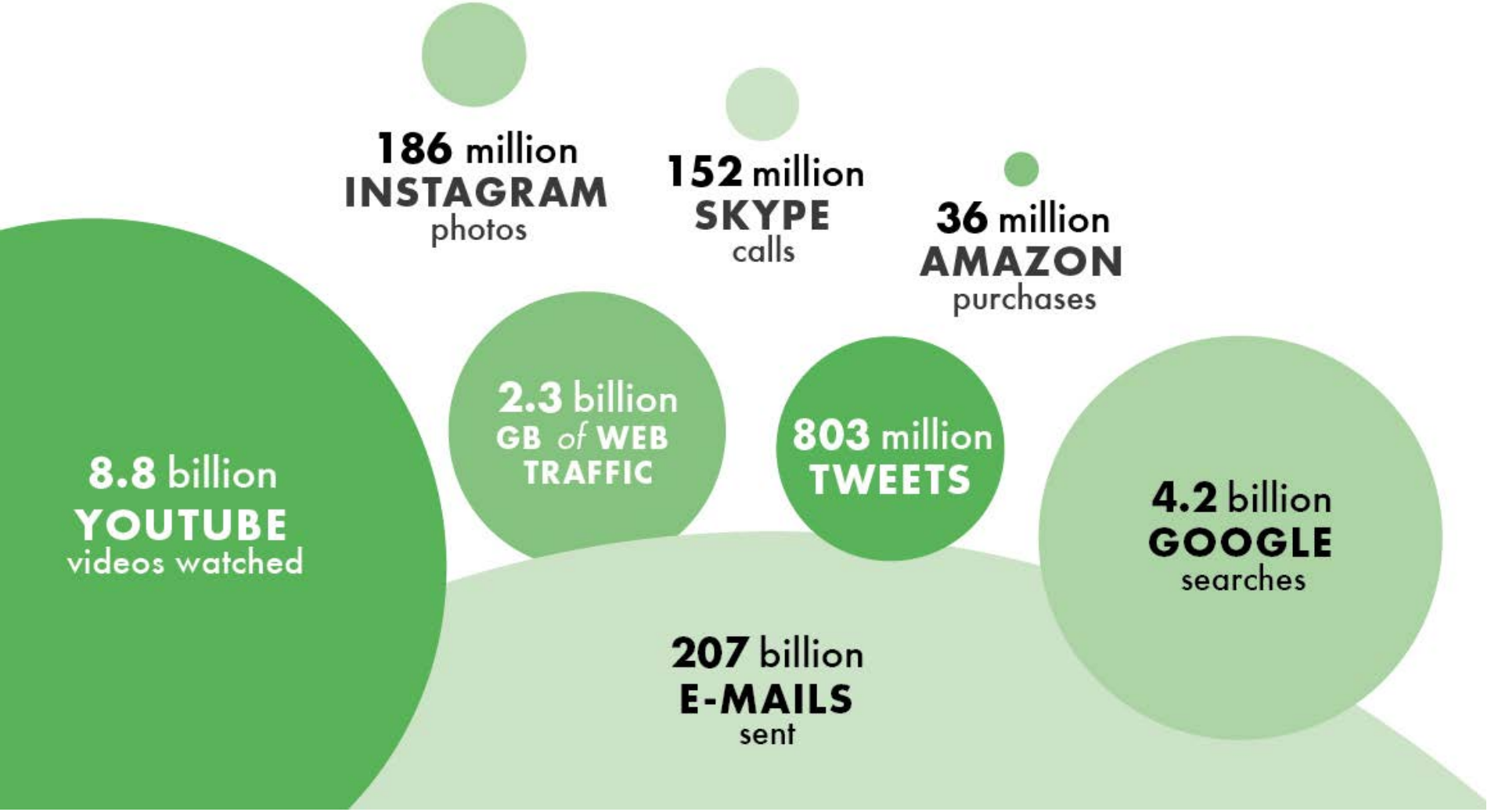
# Private benefits of improved connectivity

## A typical day in the life of the internet




SOURCE: *WDR 2016 team; http://www.internetlivestats.com/one-second/ (As compiled on May 29, 2015)*

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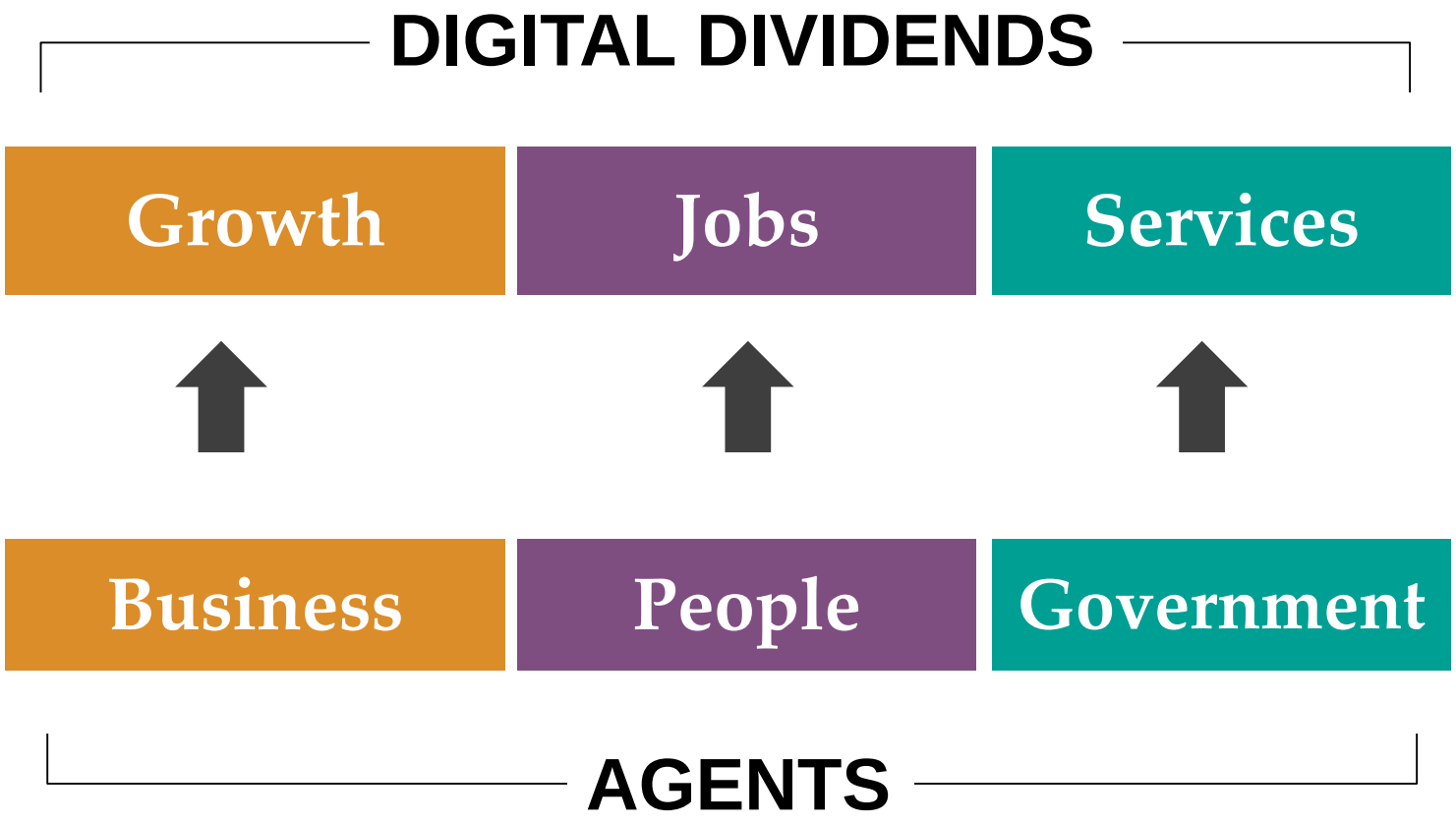
# But are countries reaping sizable "digital dividends"?




**Are the benefits reaching everyone, everywhere?**
**What are the challenges?**

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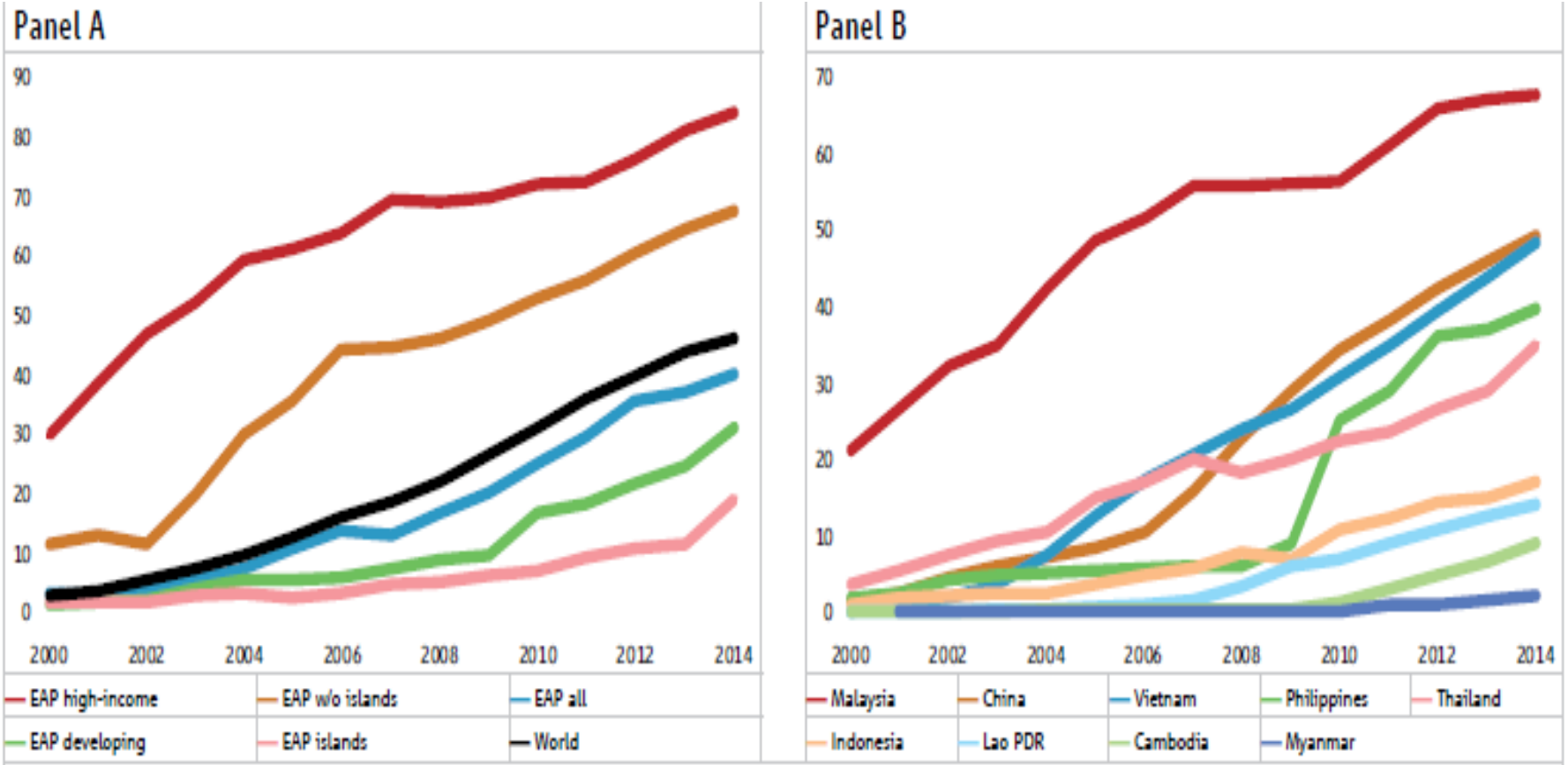
# Internet Users: East Asia & Pacific




*Sources:* ITU 2015; *World Development Report 2016*.

*Note:* The ITU estimates the number of internet users through official household surveys carried out by national statistical offices. In the absence of official household surveys, the ITU estimates the number (internet users as a percentage of total population) using various econometric techniques. For some countries, ITU numbers could be significantly different from those produced by national authorities, though it is one of the few sources that produce data comparable across countries. EAP countries for which internet data are available are grouped as follows: Islands (Papua New Guinea, Samoa, the Solomon Islands, Timor-Leste, Tonga, Tuvalu, and Vanuatu); High-income EAP (Australia; Brunei Darussalam; Hong Kong SAR, China; Japan; Republic of Korea; Macao SAR, China; New Zealand; Singapore; and Taiwan, China); and Developing EAP (Cambodia, China, Indonesia, Lao PDR, Malaysia, Mongolia, Myanmar, the Philippines, Thailand, and Vietnam).

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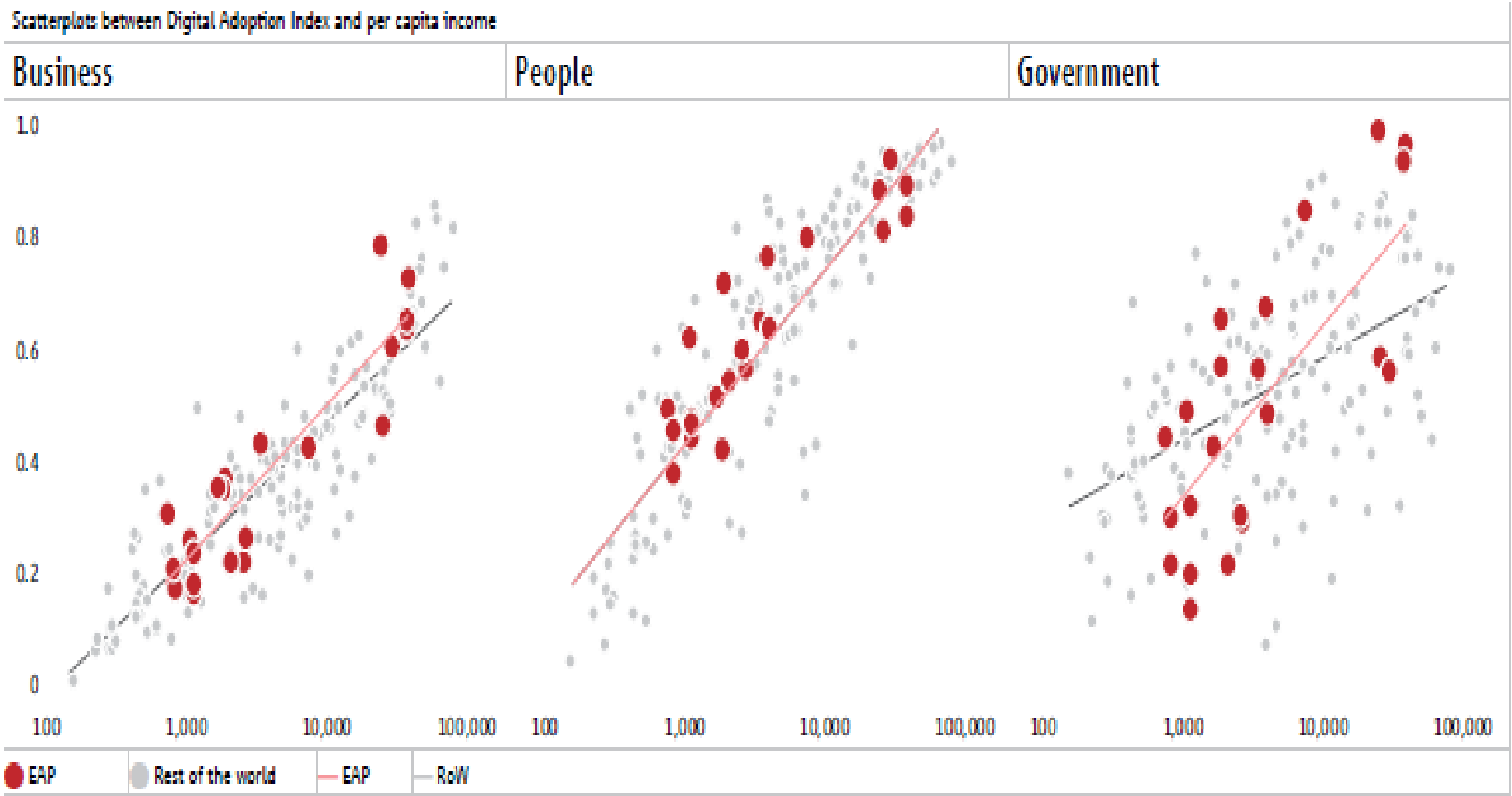
# Adoption of Digital Technologies: East Asia & Pacific




*Source: World Development Report 2016.*

*Note:* The figures show the diffusion of digital technologies across countries as measured by the Digital Adoption Index described in detail in *World Development Report 2016*. RoW = rest of the world.

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# ICT Financing Needs

- **ICT Infrastructure/connectivity: addressing the digital divide**
- **Innovation, skills development**
- **Government information architecture: digital platform**
- **Applications & Services using digital platforms, e.g.**
  - Health information systems
  - Intelligent transport systems
  - Disaster risk management and monitoring
  - Education monitoring systems; teaching and learning materials
  - Business licensing
  - Urban planning and management
  - Natural resources management
  - Digital ID

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# ICT Enabling Environment Needs

- **ICT policy and regulatory framework**
  - Telecommunications regulatory framework encouraging competitive market structure and behaviour
  - E-legislation, facilitating secure electronic transactions
- **Innovation, skills development**
  - Digital economy facilitation (financing, logistics, skills)
- **Government information architecture**
  - Government cloud (private/hybrid)
  - Enterprise architecture
  - Interoperability
  - Cybersecurity
  - Applications/portals

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# World Bank Group ICT Strategy

- Digital Connectivity: scale up affordable access to broadband Internet
- Digital Economy: support technology innovation for jobs and competitiveness across economies
- Digital Government: support the use of technology to improve service delivery, promote open and accountable development

The World Bank Group is supporting ICT for Development programs in more than 100 member countries, including:

- Catalytic project finance for network investments, e.g. fibre-optic cables, rural connectivity programs
- Technical assistance for telecoms policy and regulatory reforms
- Investments in Government information systems (various departments/ministries), cloud, databases, citizen-facing services
- Projects and components supporting applications e.g. ICT for jobs, farmer information services, health and education information systems, transport planning, disaster early warning, location-based services
- Advice and knowledge-sharing for governments on ICT4D topics
- International Finance Corporation (IFC) investment in private sector-led activities
- Multilateral Investment Guarantee Agency (MIGA) support

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# Supporting Improved Connectivity

- **Improving Access and connectivity**
  - Local access (fixed and mobile)
  - Broadband and backbone infrastructure development
  - Capacity pre-purchase
  - PPP mechanisms design and transaction support
  - Repurposing Universal Service Funds and new approaches to rural broadband
  - Regional /International connectivity programs
  - Fibre co-location (power, transport, pipelines)
  - Support for IXPs, NRENs
- **Policy and regulation (Telecom/Broadband & 2nd generation ICT)**
  - Sector reform, and national policy and strategic plans
  - Legal and regulatory frameworks (competition, spectrum management, licensing, infrastructure sharing, PPPs and Open Access)
  - Licensing and concession awards/tenders
  - Telecom Institutional Transformation

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# Supporting Digital Economies

- **Digital jobs and skills diagnostics**: ICT and 21st century skills for middle and high schools; Inclusive Rapid Skills Training (i.e. digital literacy, coding, online work)/ Certification
- **Using ICTs for competitiveness and diversification**
- **Financing/strengthening Tech Hubs and mLabs, IT parks and clusters**
- **ICT-enabled entrepreneurship:**
  - App challenges and other competitions, "hackathons"
  - Pre-acceleration and rapid capacity building
  - Digital fabrication labs and open innovation processes industry-entrepreneurs

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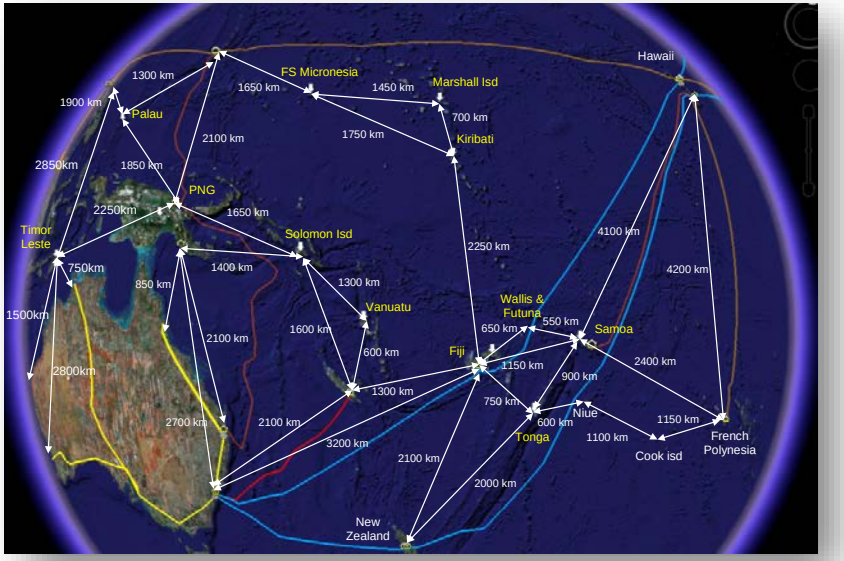
# Supporting Digital Government

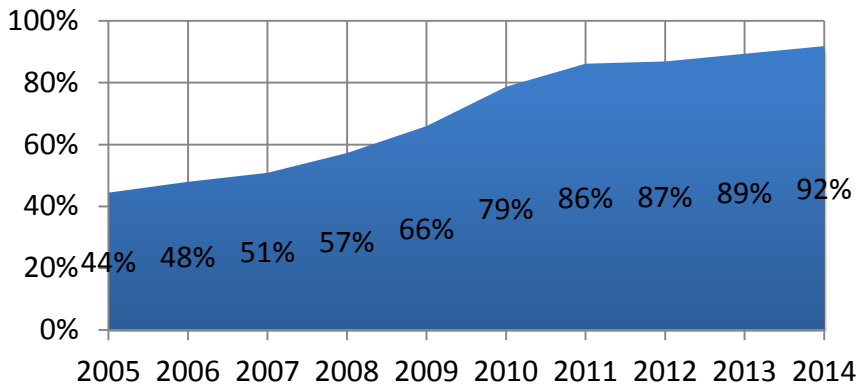
- **Shared Services**
- **Cloud computing**
- **Data centres**
- **Government portals**
- **Government networks**
- **Cybersecurity**
- **Digital ID**
- **Citizen engagement platforms**
- **Open data**
  - open collaboration models and digital commons,
  - testing laboratories for public services,
  - data-driven governance and with citizens as active users, including big data, open data and data analytics.

# Pacific Regional Connectivity -(1)

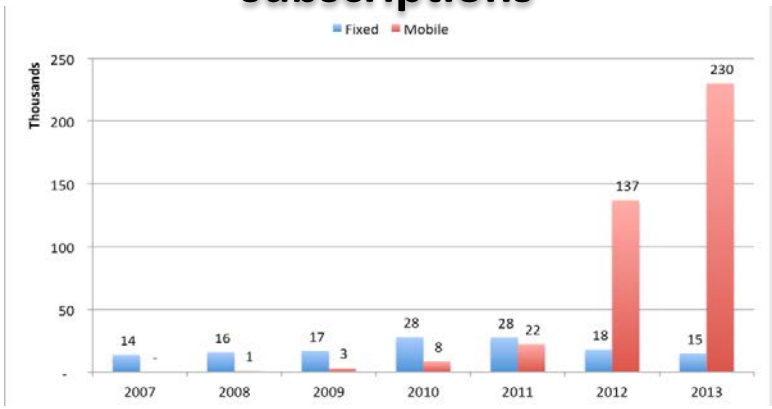



- Extreme isolation of region, high costs, small markets
- Successful telecoms liberalization in most countries, boosting mobile access, improving regulatory environment.
- Growing demand for bandwidth justifies investments
- Internet access the main challenge; constrained largely by high international bandwidth costs (US$2000-3600 Mbps/mo.)

## Population covered by 2G (GSM) mobile signal (%)




## Mobile and Fixed Broadband subscriptions



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# Pacific Regional Connectivity- (2)

- Tonga-Fiji Cable (August 2013): ADB, WB, Tonga Communications Corporation (TCC)
- Palau-FSM-Guam cables (planned 2016): ADB, WB
- Samoa-Fiji cable (planned 2016): ADB, WB, Samoa Submarine Cable Co (SSCC)
- Papua New Guinea: connectivity options under discussion with stakeholders
- Kiribati, Tuvalu: technologies and options under review
- Financing models & issues depending on country circumstances: public sector, PPP (where feasible), open access, regulatory support

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# Indonesia: Broadband Technical Assistance

- Multi-year program, 2011-2014. Counterparts: Ministries of Planning, ICT, Public Admin, Coordinating Ministries, Finance
- Options analysis for broadband expansion (investment, regulatory issues) particularly to Eastern Indonesia plus other unserved/under-served rural areas
- Advisory support/inputs for Indonesia broadband plan
- Global Partnership on Output-Based Aid: grant program supporting establishment and operations of 222 rural Internet cafes using PPP approach (completed Dec 2014)
- Technical assistance on spectrum (re)-allocation and management including medium-term roadmap (ongoing)
- Options analysis on ICT Private-Public-Partnerships, including ICT infrastructure, data centre and cloud services (ongoing)

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# Indonesia: E-Government Technical Assistance

- Technical assistance on key enablers for e-Government including Government network, ICT planning and budgeting, data centre, cloud computing (with support from Korean Trust Fund)
- Recommendations including “road map” for:
  - *secure high speed inter-ministerial communications network* to facilitate more efficient internal communications, and to provide a platform for high-priority applications
  - *secure government data center*(s) with disaster recovery capability and cloud computing capacity (enabling multiple institutions to share services and reduce their own costs)
  - *standards,* and a *common government enterprise architecture*, including information/cyber security

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# Myanmar: Telecommunications Sector Reform Project

- Objectives: (a) improve the enabling environment for the telecommunications sector and extend coverage in selected pilot locations in remote Myanmar; and (b) establish priority eGovernment technological foundations and institutional capacity for Government to embark on its public sector reform program.
- Implemented by Ministry of Communications and IT

| Project Components | | IDA Financing (US$m) |
|---|---|---|
| 1. Enabling connectivity | | 11.80 |
| 2. Extending connectivity to rural areas | | 10.65 |
| 3. Enabling eGovernment | | |
| 4. Project implementation support | | 5.00 |
| | | 2.05 |
| Total Project Costs | | 31.50 |

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# Mongolia: SMART Government Project

- Objective: to use information and communication technologies to improve accessibility, transparency, and efficiency of public service in Mongolia.
- Implemented by the Office of the Cabinet Secretariat

| Project Components | | IDA Financing (US$m) |
|---|---|---|
| 1. Enhance Civic Engagement and Citizen Feedback Mechanisms | | 0.4 |
| 2. Enabling Foundations for SMART Government | | 12.6 |
| 3. Emabling Open Data | | 4.6 |
| 4. Project Implementation Support | | 2.4 |
| Total IDA Financing : | | 20.0 |

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# Philippines: ICT Technical Assistance

- **Analytical work on universal access to broadband (2010-11)**
- **Analytical work and knowledge-sharing on multipurpose ID (2011-2012)**
- **Support for ICT in health sector management, including mobile phone-based data collection pilot (2012)**
- **Advisory assistance on Government ICT/E-Government as part of broader program on "Realizing the Vision for E-Transformation in the Philippines" (2013-2015)**
  - Interoperability of Government systems
  - Cloud computing
  - Data centres

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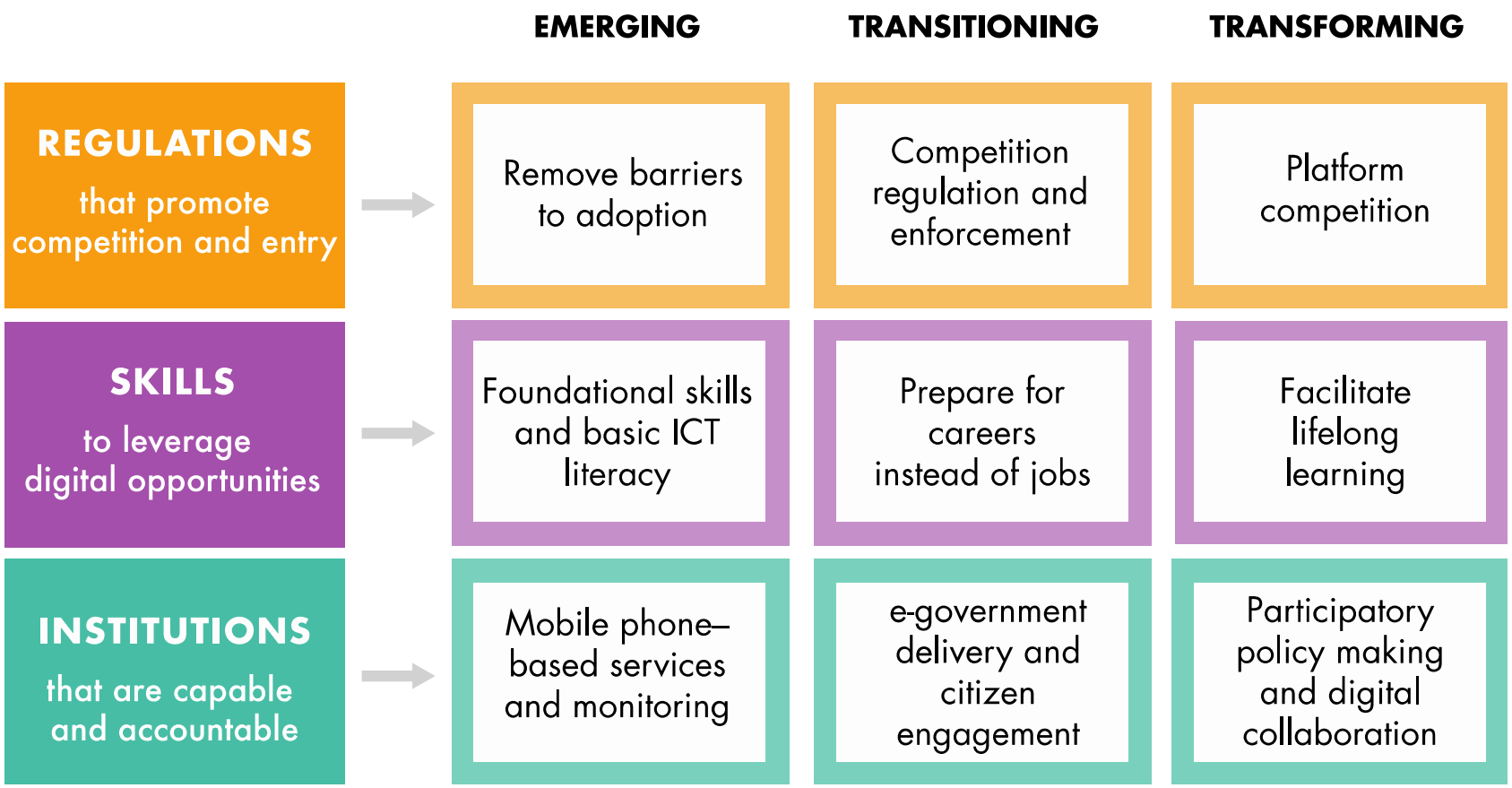
# Framework for achieving "digital dividends"

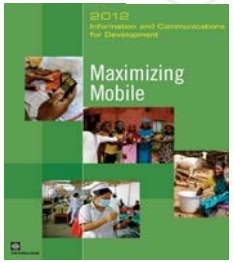



**SOURCE:** *WDR 2016 team.*

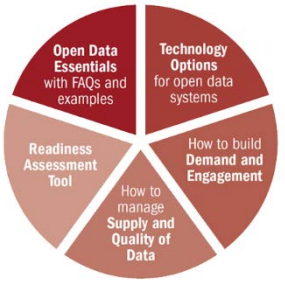
# Selected World Bank ICT Resources

- ICT Regulation Toolkit (www.ICTregulationtoolkit.org)
- IC4D 2012: Maximizing Mobile report (www.worldbank.org/ict/IC4D2012)
- Broadband Strategies Toolkit (www.broadbandtoolkit.org)
- Open Data Toolkit

(http://data.worldbank.org/open-government-data-toolkit)








- World Development Report on Digital Dividends-2016

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# Thank you

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