

Enhancing Access to Submarine Cables in the Pacific

31 July – 3 August, 2017



Australian Government

Department of Communications and the Arts





Aim of this workshop.....

- Conduct a stock take of the international fibre-optic access situation in the Pacific, the key challenges and requirements,
- Build skills to enhance access to submarine cable for Pacific Islands Countries including the costing and pricing aspects, and
- Enhance partnerships, and facilitate information exchange in the area of international fibre-optic connectivity in the Pacific.



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ASIA-PACIFIC REGIONAL INITIATIVES

2015-17

Initiative #1

Special consideration for least LDCs, SIDs including Pacific island countries and LLDCs

Initiative #2

Emergency Telecommunications

Initiative #3

Harnessing the benefits of new technologies

Initiative #4

Development of broadband access and adoption of broadband

Initiative #5

Policy & Regulation

2018-21

RPM-ASP (Mar 2017 Bali, Indonesia) proposed five RIs for ASP focused on the following areas and priorities:

Addressing special needs of LDCs, SIDs including Pacific island countries and LLDCs

Harnessing telecommunications/ICTs to support the digital economy and an inclusive digital society

Fostering development of infrastructure to enhance digital connectivity

Enabling policy and regulatory environments

Contributing to secure and resilient environment



! RPM-ASP decided to continue its work through the APT preparatory process for submission to WTDC-17





ASP RI1: Special consideration for least developed countries, small island developing states, including Pacific island countries, and landlocked developing countries.....

Objective: To provide special assistance to least developed countries (LDCs), small island developing states (SIDS), including Pacific island countries, and landlocked developing countries (LLDCs) in order to meet their priority ICT requirements.

Expected results

- 1) Improved infrastructure and enhanced access to affordable ICT services
- 2) Improved enabling environment to facilitate ICT development
- 3) Appropriate national, subregional and regional frameworks for cybersecurity
- 4) Enhanced skills of relevant human resources
- 5) Addressing specific issues and challenges in the Pacific island countries



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WCIT Resolution 1: Special measures for landlocked developing countries and small island developing states for access to international optical fibre networks

.....resolves to instruct the Director of the Telecommunication Development Bureau

1 to study the special situation of telecommunication/ICT services in LLDCs and SIDS, taking into account the importance of access to international fibre-optic networks at reasonable cost;

2 to report to the ITU Council on measures taken with respect to the assistance provided to LLDCs and SIDS under *resolves to instruct 1* above;

3 to assist LLDCs and SIDS to develop their required plans containing practical guidelines and criteria to govern and promote sustainable regional, subregional, multilateral and bilateral projects affording them greater access to international fibre-optic networks,



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Goals for a Sustainable Future : The SDGs





Emergency



Education



Health



Agriculture

ICTs have become even more multi-sectoral and can be leveraged to achieve SDGs



Investment



Applications



Policy & Regulation



Governance



Capacity Building



Transport



IoT, Sensor Networks



Universal Broadband



Green ICT & E-Waste



Measurements



Electricity



SMART SOCIETY



Infrastructure Security



Privacy & Security



Water



Digital Inclusion



Spectrum Management



Standards, Conformity & Interoperability

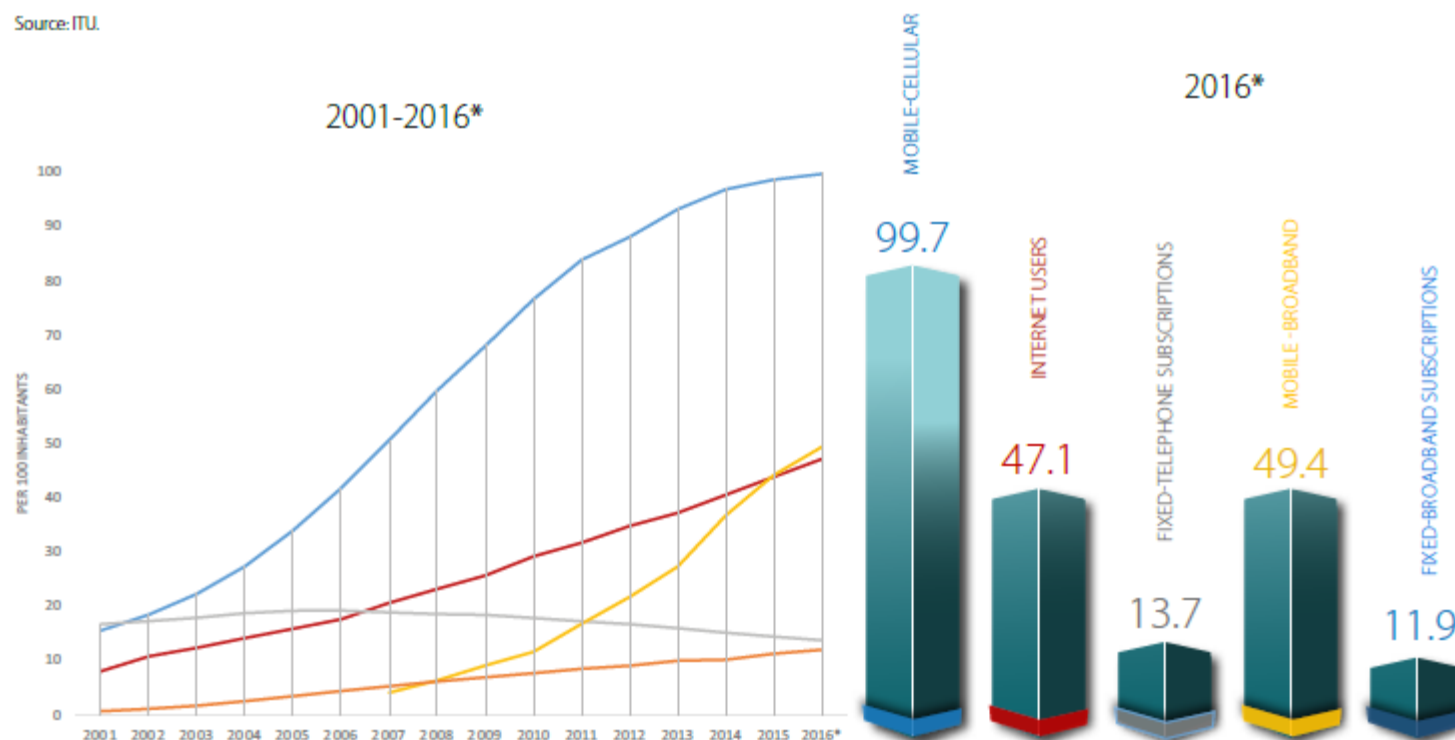


Finance

GLOBAL ICT DEVELOPMENTS WORLDWIDE, PER 100 CAPITA, 2001-2016 AND 2016

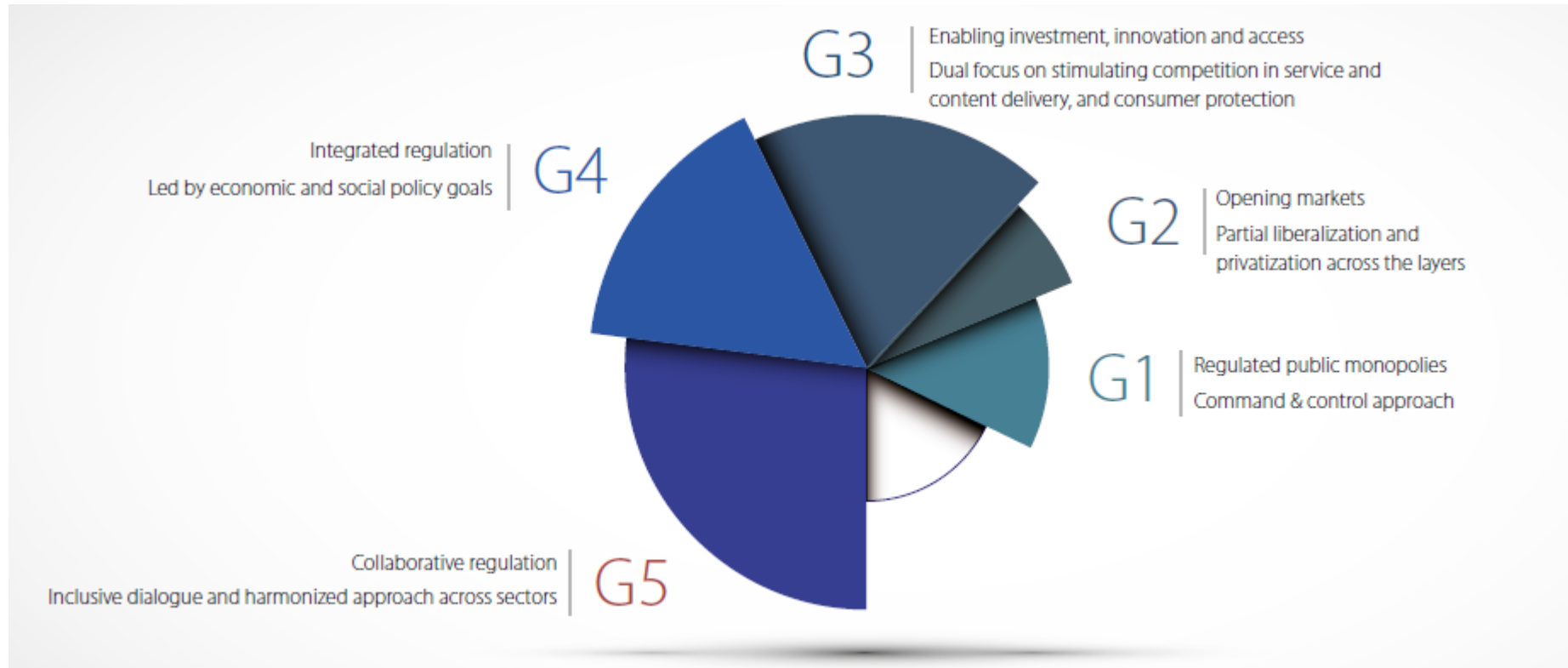
Note: *Estimates.

Source: ITU.



Source: ITU

Evolution of ICT Regulation



Source: ITU

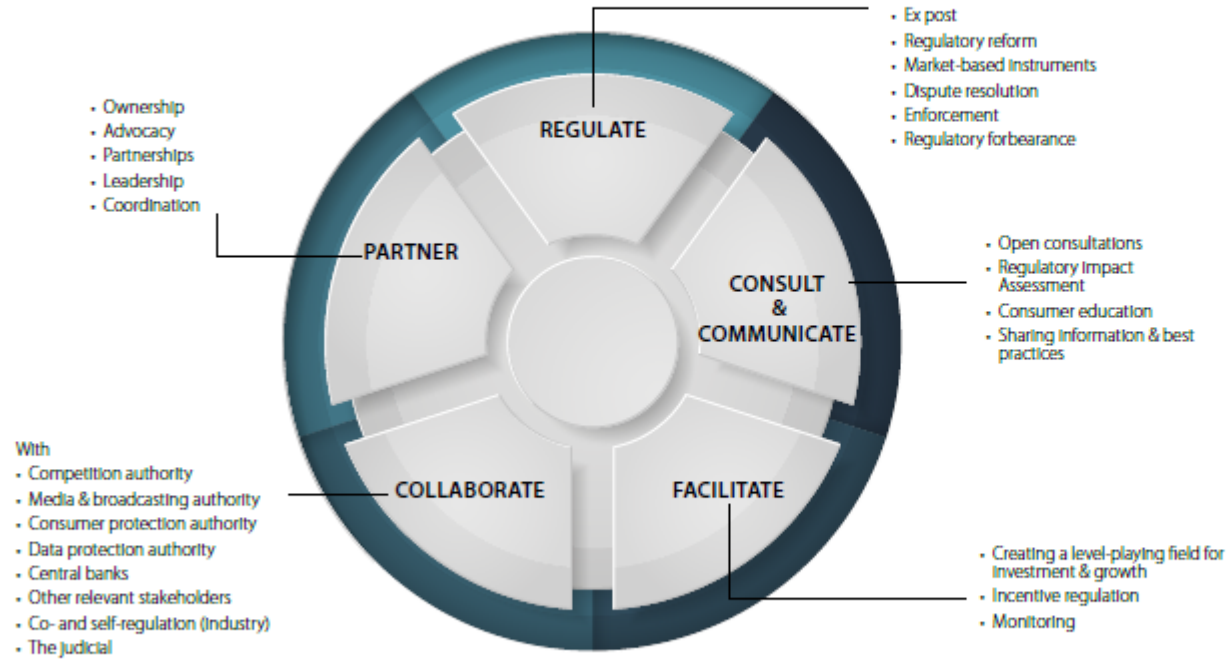


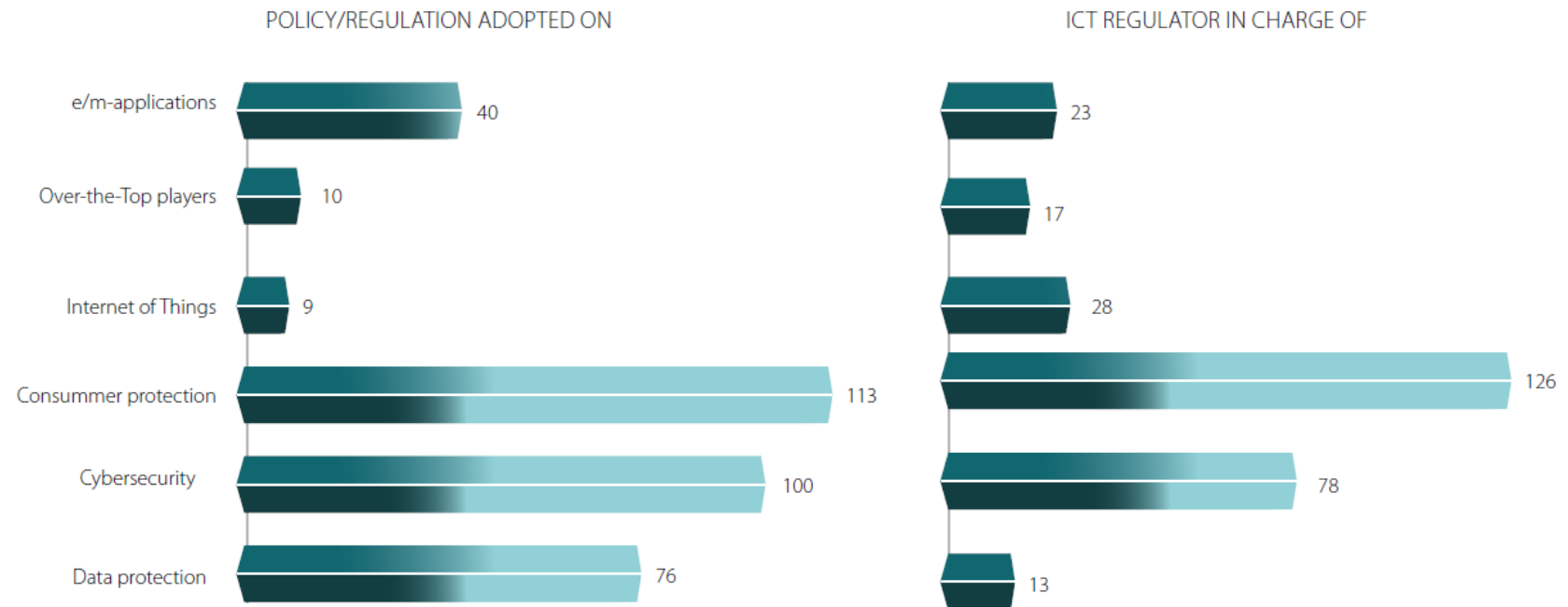
Figure 43:
**THE WHEEL OF
COLLABORATIVE REGULATION**

Source: ITU.

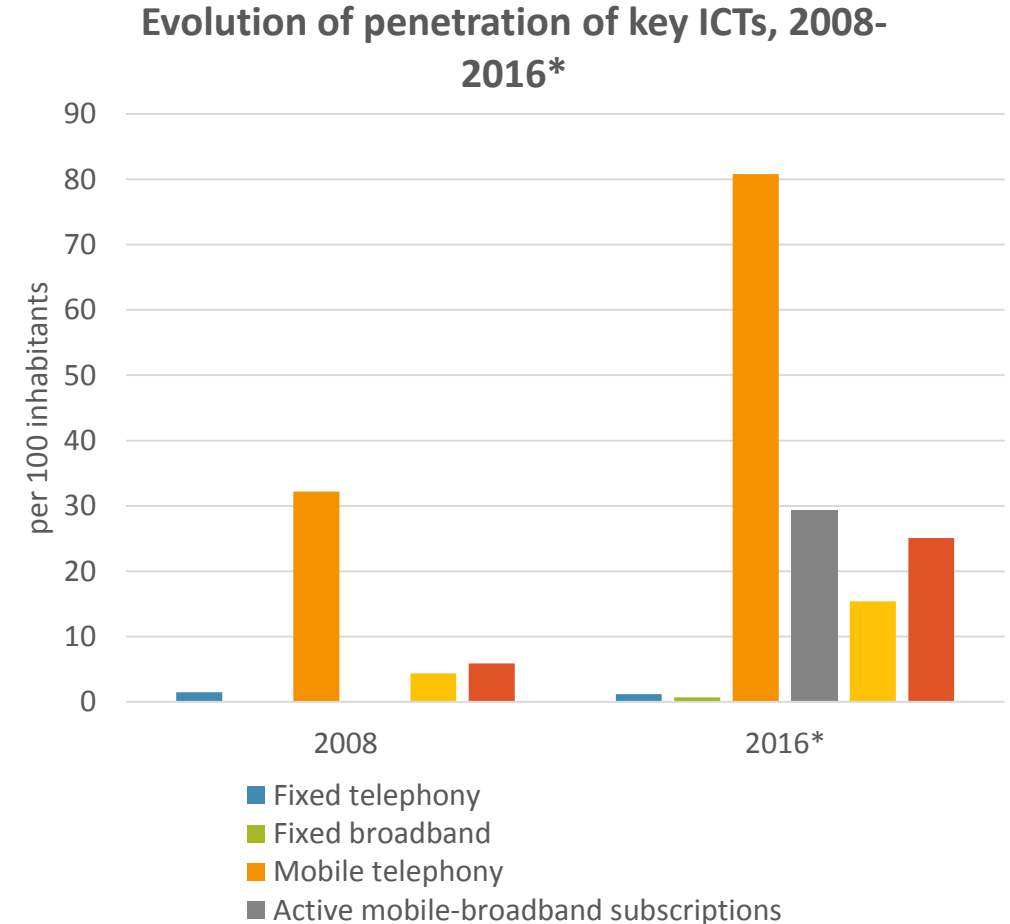
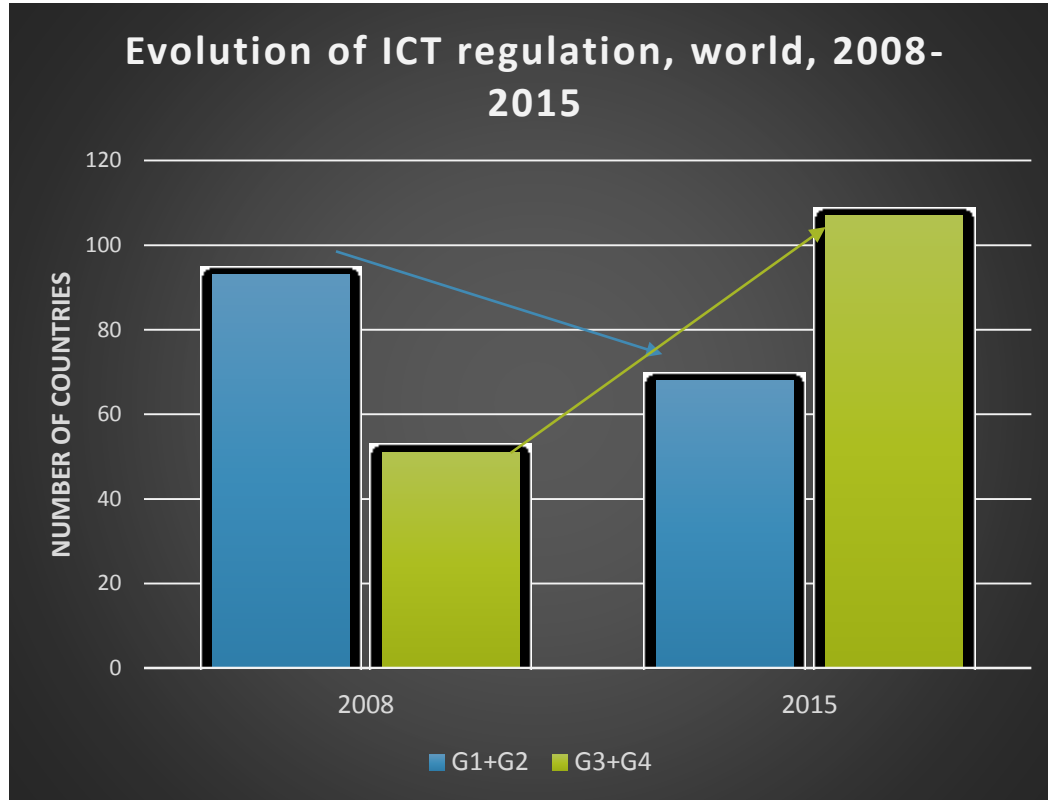
Source: ITU

NEW AREAS OF REGULATION AND THE ROLE OF THE ICT REGULATOR, WORLDWIDE, 2015

Source: ITU.



Source: ITU



Generation of Regulation

- G1: Regulated public monopolies** without an independent regulator
- G2: Basic reform**, separate regulatory bodies, partial liberalization and privatization
- G3: Regulation for enabling investment**, innovation and access, stimulating competition
- G4: Integrated regulation**, the regulator as a partner for development and social inclusion
- G5: Collaborative regulation**, define the foundation, platforms and mechanisms for working with other sector regulators



Winning formulas for broadband



Regulatory measures

- Competition in mobile broadband
 - Competition in international gateways
 - Mobile number portability enabled
 - Band migration allowed
 - Infrastructure sharing for mobile (either allowed or mandated), including MVNOs
 - National broadband plan adopted
- Competition in DSL/cable
 - Fixed number portability enabled
 - Infrastructure sharing for fixed either allowed or mandated
 - Converged licensing framework in place
 - National broadband plan adopted



DEGREES OF CONNECTIVITY, MOBILE CELLULAR AND MOBILE BROADBAND, WORLDWIDE, 2016*

Note: *Estimates

Source: ITU, based on data from ITU, Broadband Commission for Sustainable Development and GSMA.



Subscriptions:
99.7%

People covered:
95%

Unique subscribers:
65%

Source: ITU



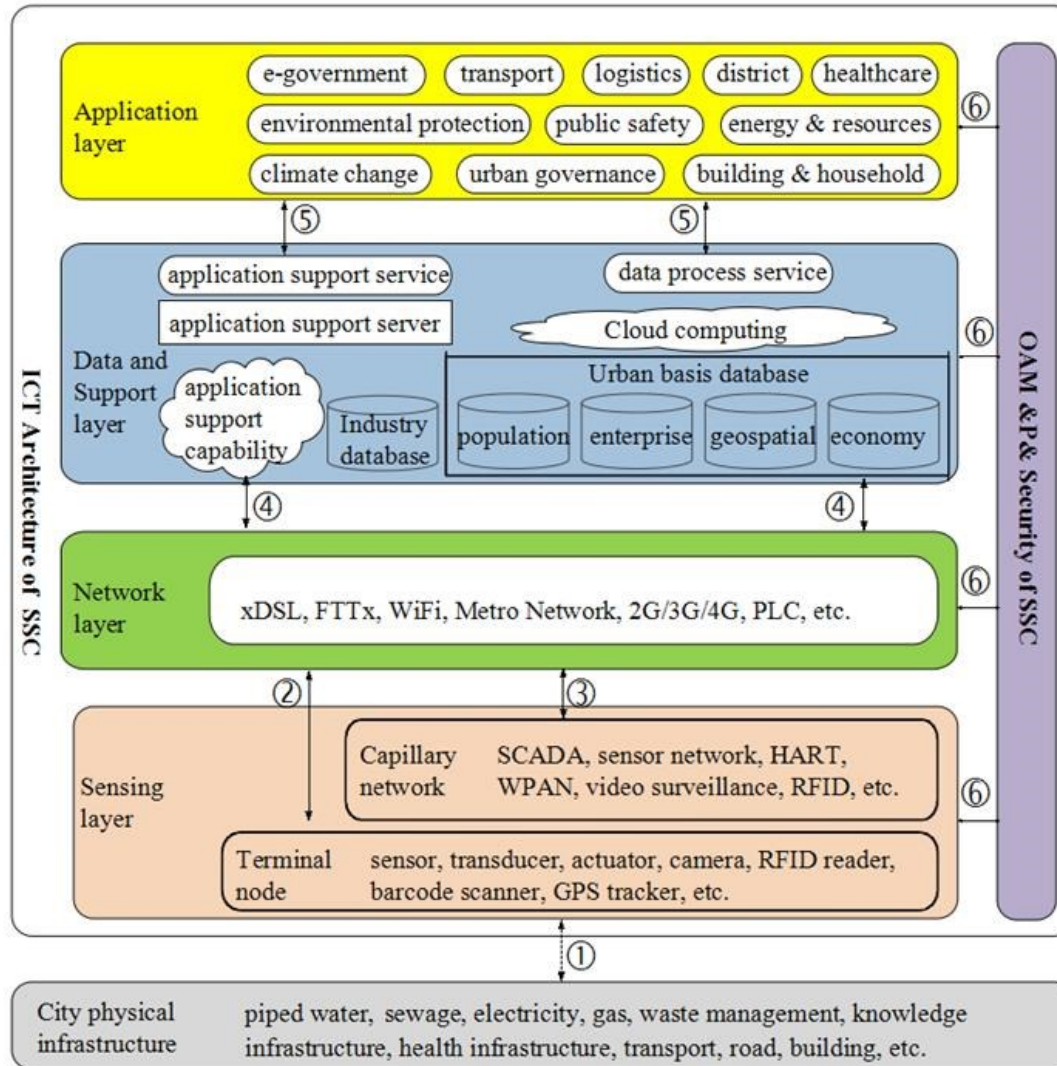
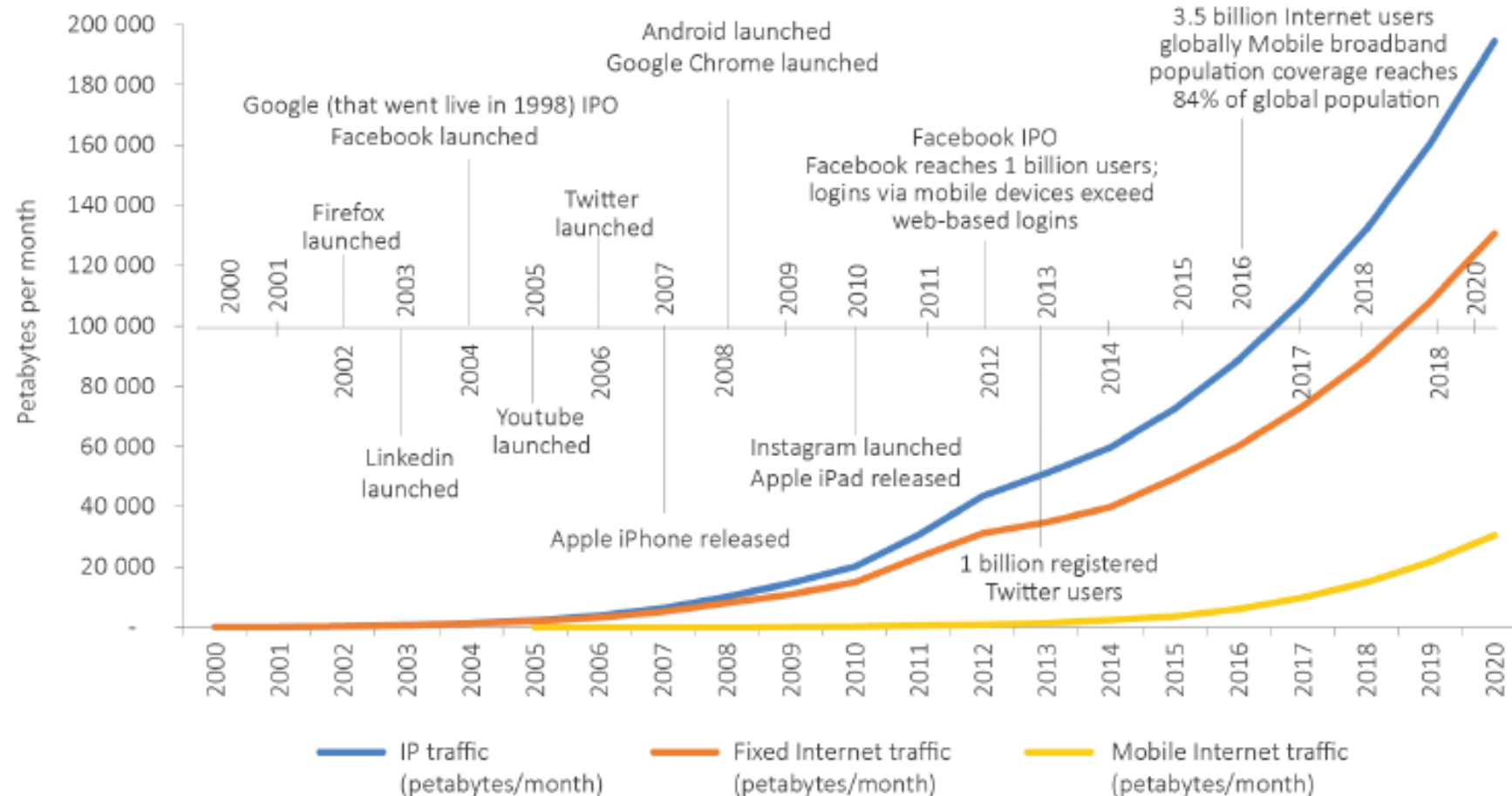


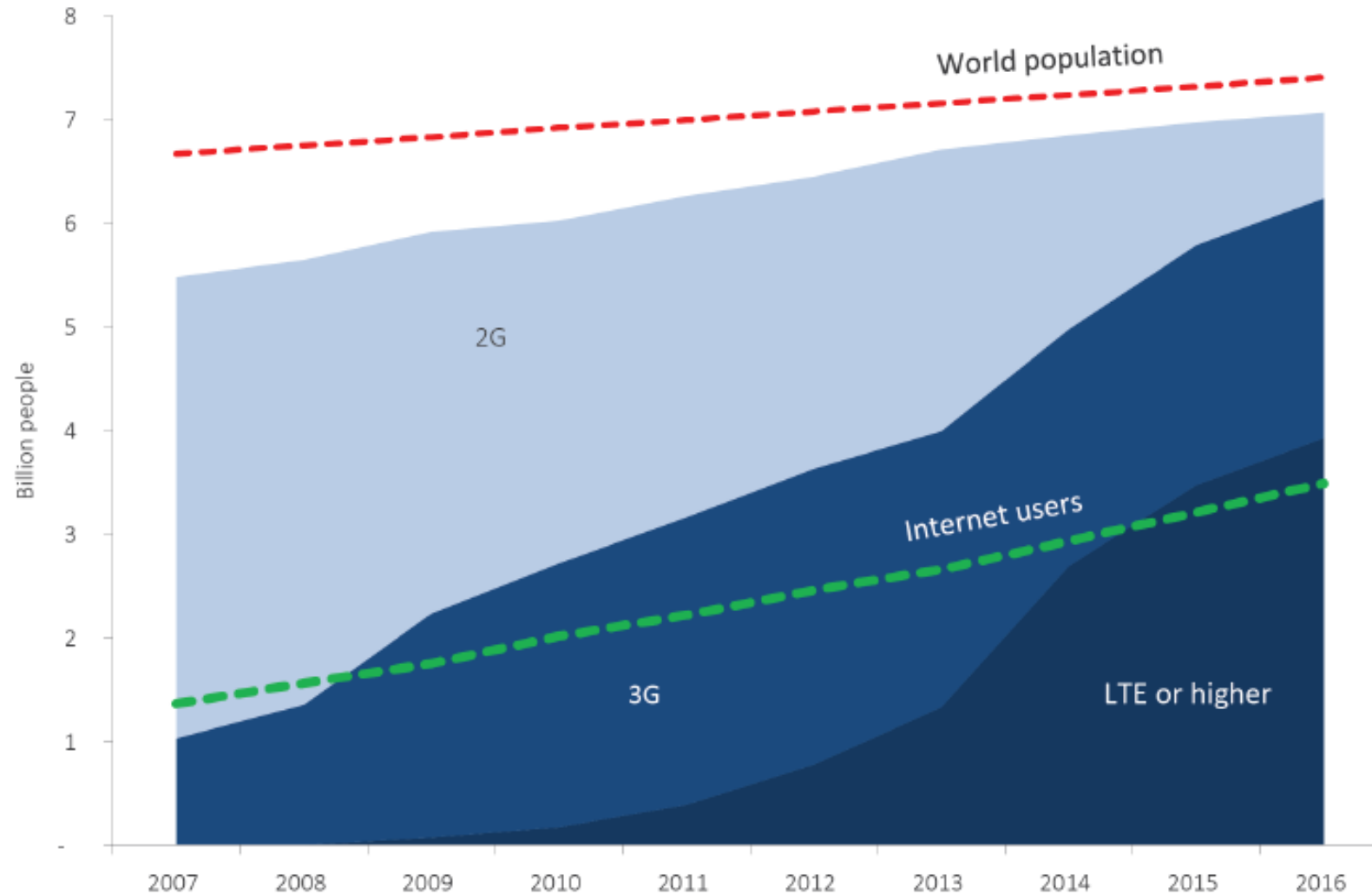
Figure source: ITU-T Focus Group on Smart Sustainable Cities: *Overview of smart sustainable cities infrastructure*
A multi-tier SSC (smart sustainable city) ICT architecture from communication view (physical perspective)



Note: Fixed Internet traffic refers to traffic through fixed network providers on different platforms. Mobile Internet traffic refers to traffic through mobile-cellular networks. IP traffic refers to the sum of fixed and mobile Internet traffic (denoting all IP traffic crossing an Internet backbone) as well as non-Internet IP traffic (e.g. IP WAN, IP transport of TV and video-on-demand).

Source: ITU based on Cisco and company reports.

Coverage of mobile-cellular networks in relation to world population and the number of Internet users (2007-2016)



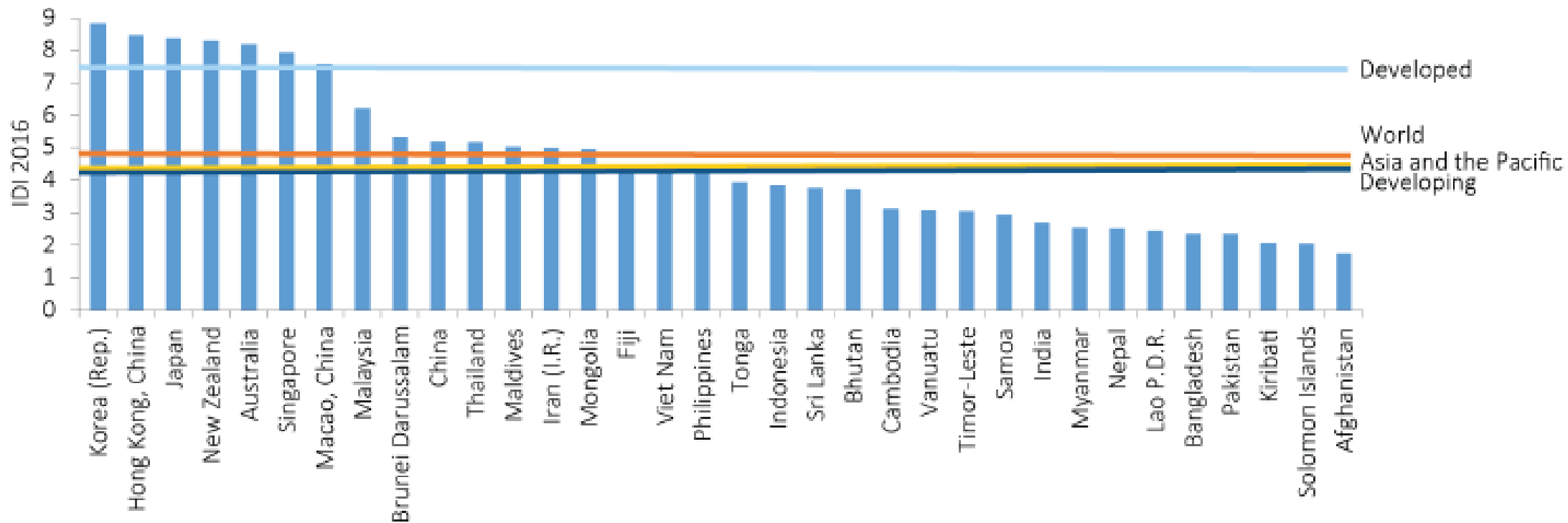
Source: ITU.



ICT Developments in Asia-Pacific



IDI values, Asia and Pacific region, 2016

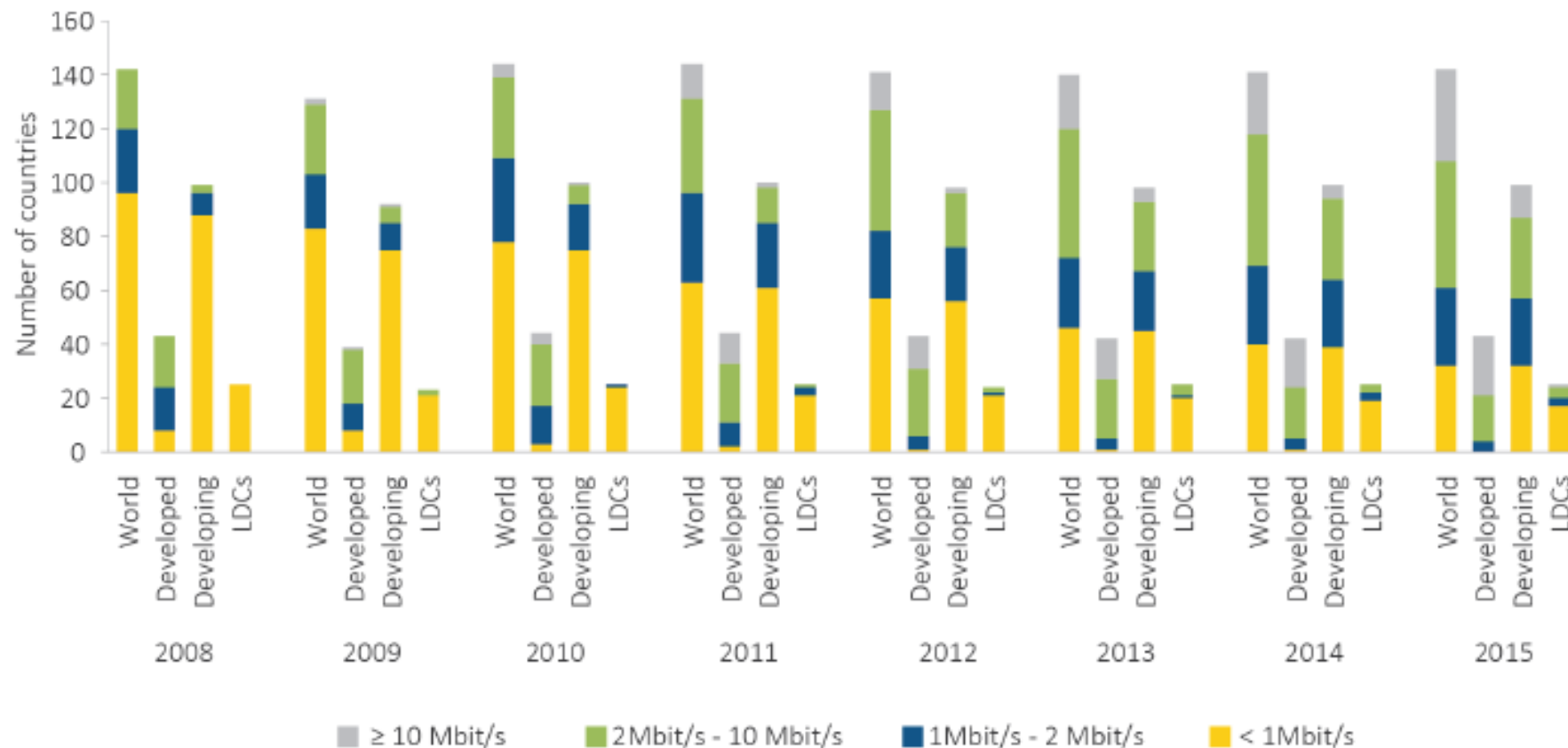


Source: ITU.



Need for speed.....

Most common entry-level fixed-broadband speed, globally and by level of development



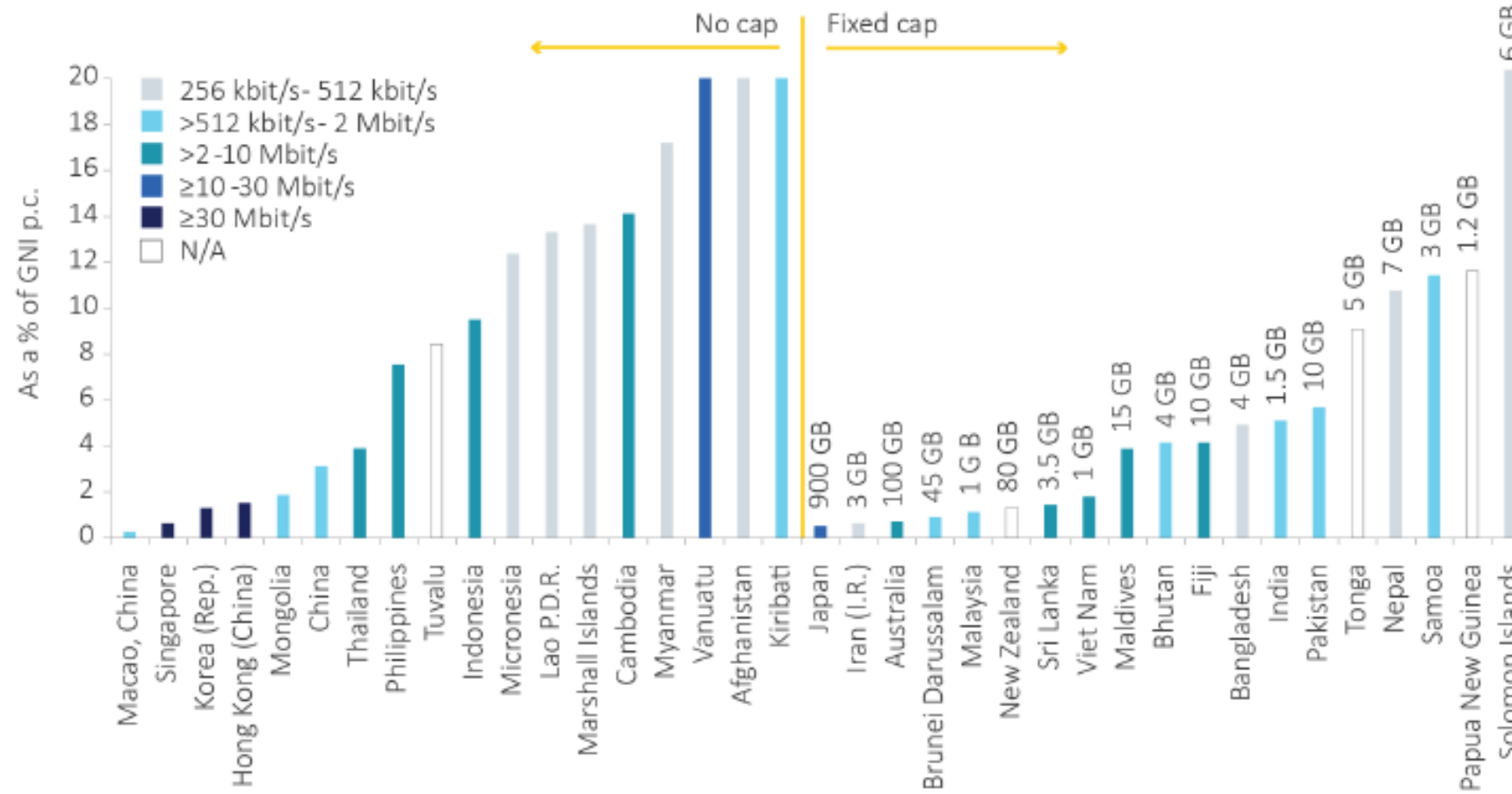
Note: Based on 144 economies for which 2008-2015 data on fixed-broadband prices were available.

Source: ITU.

Source: ITU. GNI p.c. and PPP\$ values are based on World Bank data.

Affordable access to broadband is critical

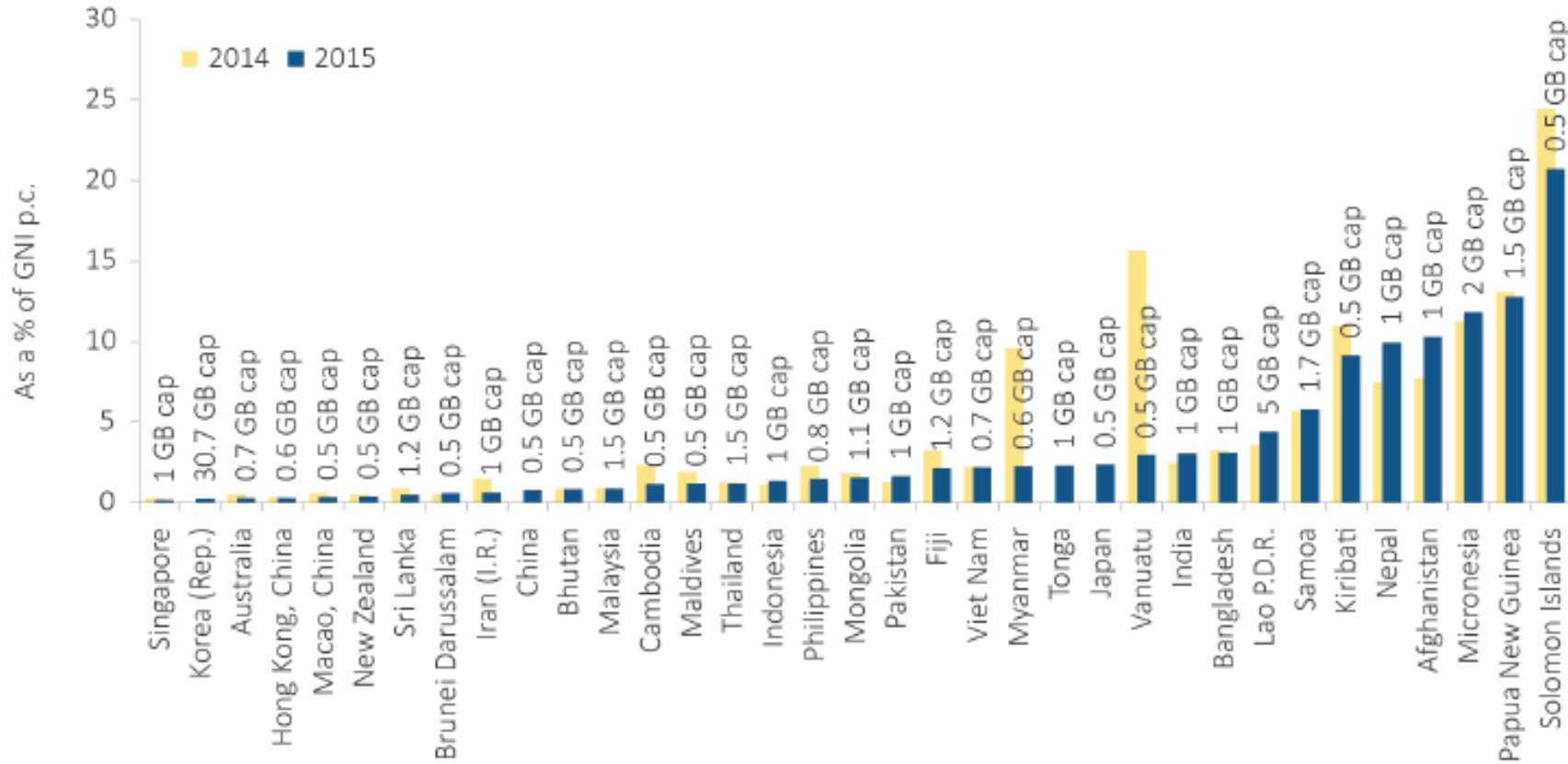
Fixed-broadband prices as a percentage of GNI p.c., speeds and caps, Asia and the Pacific, 2015



Note: Broadband speeds and caps/month refer to the advertised speeds and the amount of data included in the entry-level fixed-broadband subscription.
 Source: ITU. GNI p.c. values are based on World Bank data.

Affordable access to broadband is critical

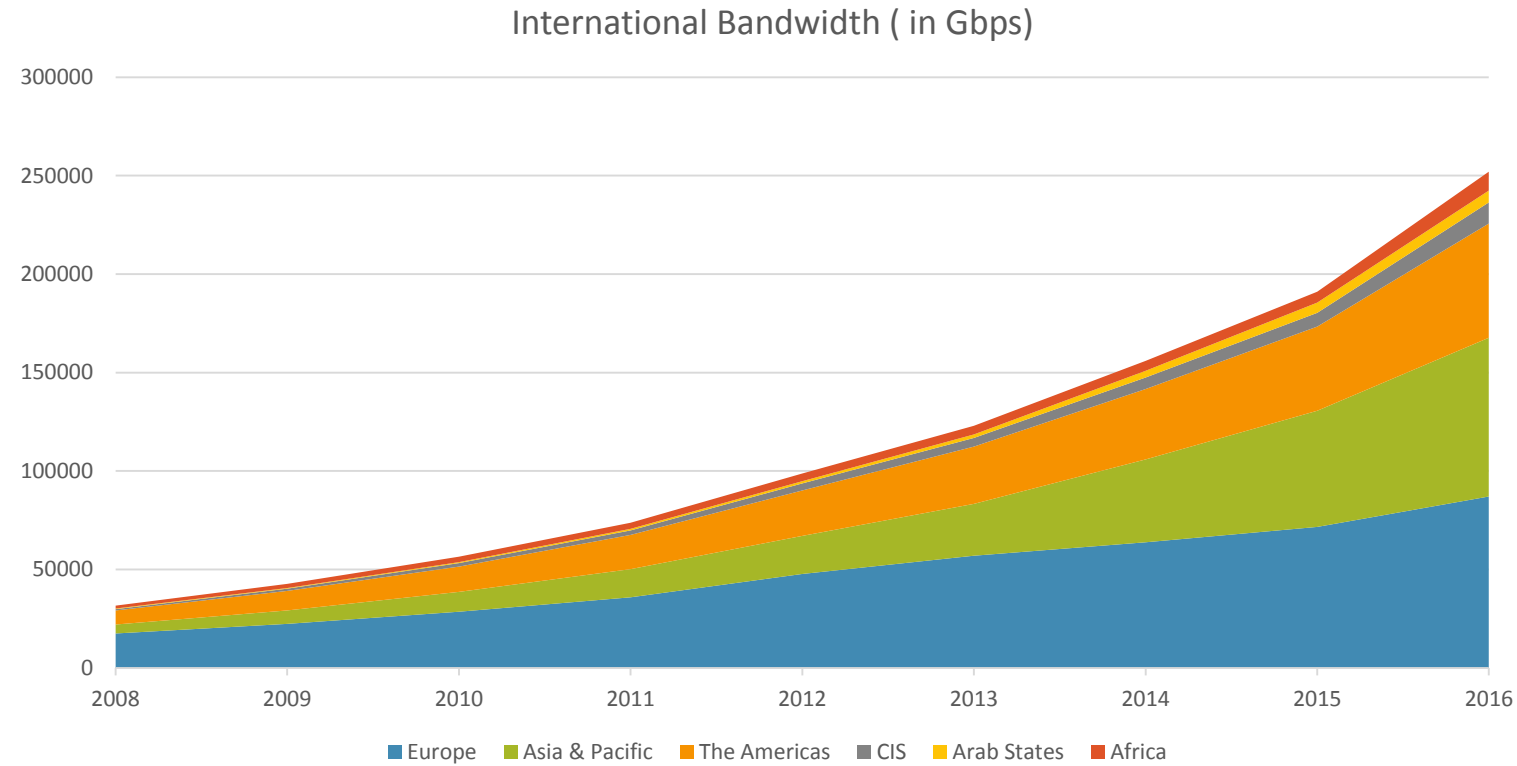
Prepaid handset-based mobile-broadband prices (500 MB per month) as a percentage of GNI p.c. and data volume (cap) included, in the Asia-Pacific region, 2015 and 2014



Note: The caps indicated refer to the 2015 prices.
 Source: ITU. GNI p.c. values based on World Bank data.



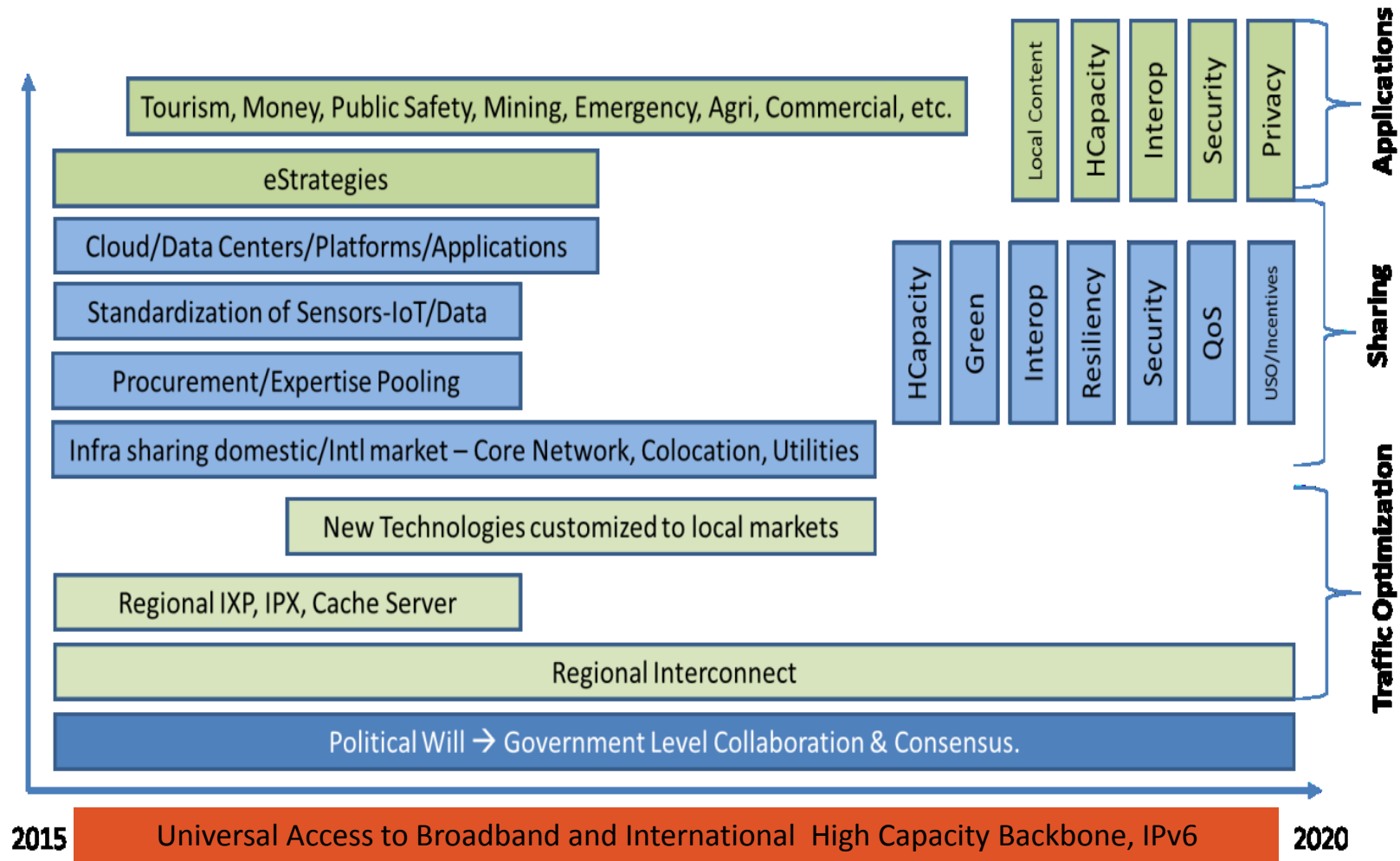
International Bandwidth



Source: ITU Estimates



RECAP WORKSHOP: TELECOM IN THE PACIFIC- NEXT 5 YEARS ROADMAP





Key issues for telecom sector in the Pacific

- Fostering applications ecosystem**
- Promoting sharing of resources**
- Optimizing regional traffic**
- Universal access to broadband and international high capacity backbone**
- Collaborative G5 Regulation**



RECAP WORKSHOP: Industry Focus



- Deployment of broadband in backbone and access (domestic and international)
- Move from 3G to 4G
- Network resilience
- Facilitating regional interconnect (e.g. direct connectivity, internet exchange, cache servers)
- Adoption of IPv6
- Cooperation on sharing of bandwidth, platforms, apps and infrastructure
- Pooling of resources and expertise
- Collaboration on Pacific Islands Cloud strategy
- Collaboration on Pacific Islands Data sharing strategy
- Privacy and security
- Adopting green standards
- Greater focus on regional standards and interoperability
- Quality of service to accommodate mission critical services
- Enhanced focus on developing digital services nationally and regionally





RECAP WORKSHOP: Policy and Regulatory Support - I



- Harmonizing the policy, legal and regulatory environment
- Universal affordable broadband access
- Updated information management (ICT statistics) in the region
- Facilitating regional interconnect
- International cable regulatory framework to improve affordability
- Cooperation on sharing of bandwidth, platforms, apps and infrastructure
- Facilitating competition via MVNOs (regional and national)
- Collaboration on Pacific Islands Cloud strategy
- Collaboration on Pacific Islands Data Sharing strategy





RECAP WORKSHOP: POLICY AND REGULATORY SUPPORT II



- Cooperation on security of telecommunication/ICT services (number hijacking prevention, fraud management, cybersecurity, CERT cooperation)
- Regional voice and data roaming cooperation
- Public Safety and Emergency management
- Benchmarking: QoS, Performance of networks, response times
- Framework for Digital Services and Net Neutrality
- Pooling of resources – physical and human
- Regional and national cross-sectoral (e.g. health, agriculture, governance) policy and regulatory cooperation
- Data Privacy
- Spectrum availability and management
- Enhanced focus on standardization
- Skilled and employable human resources

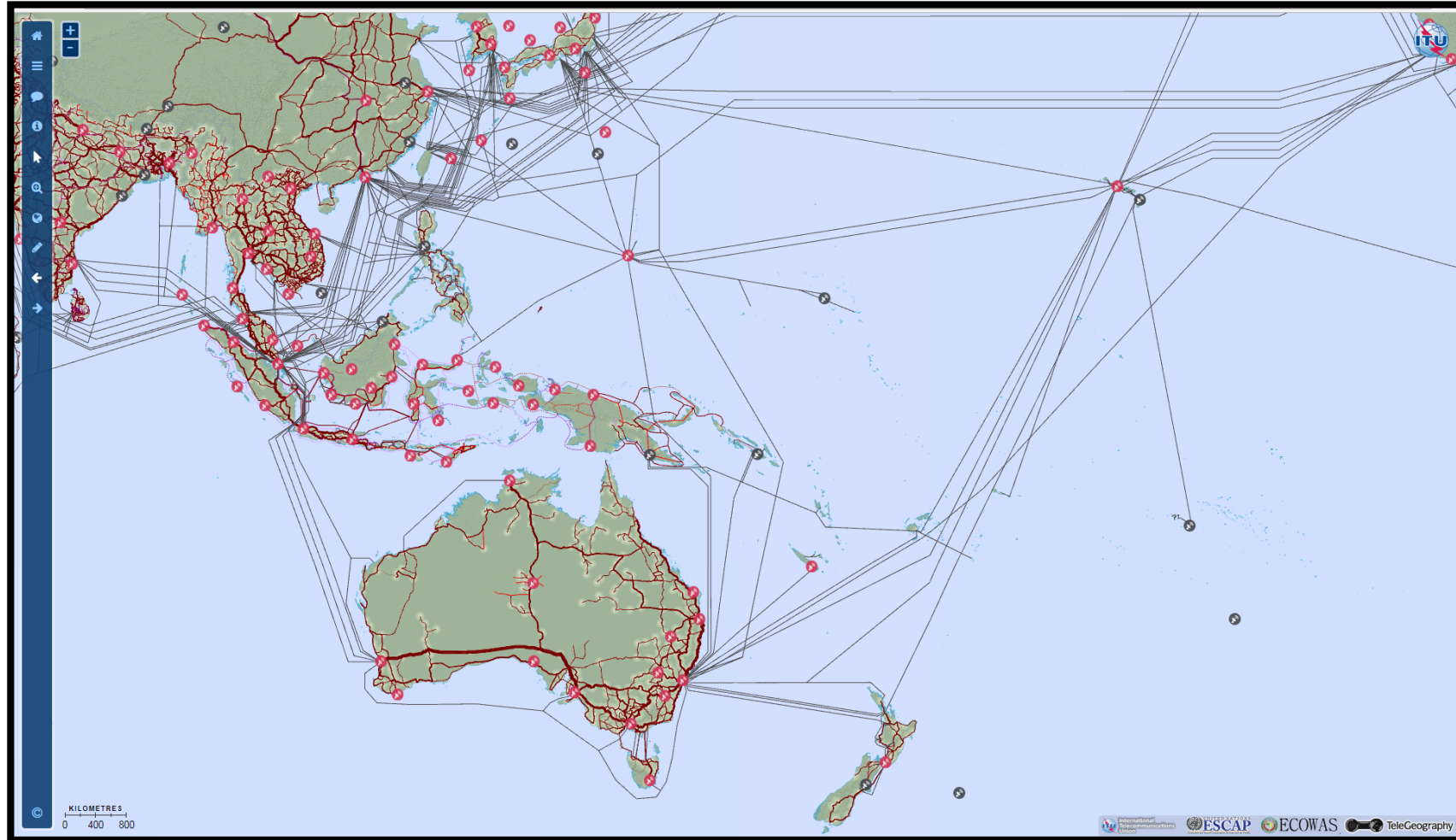


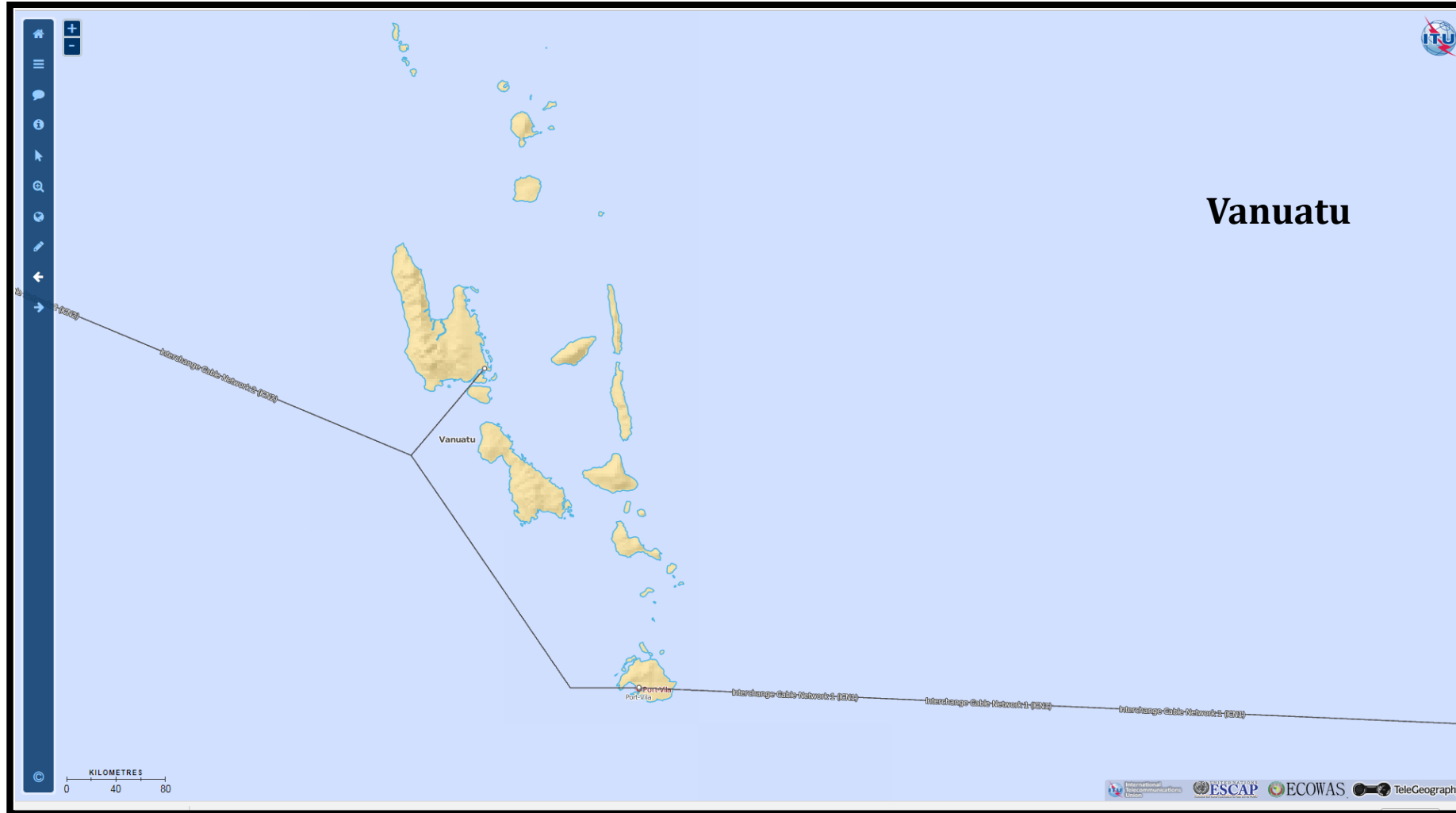


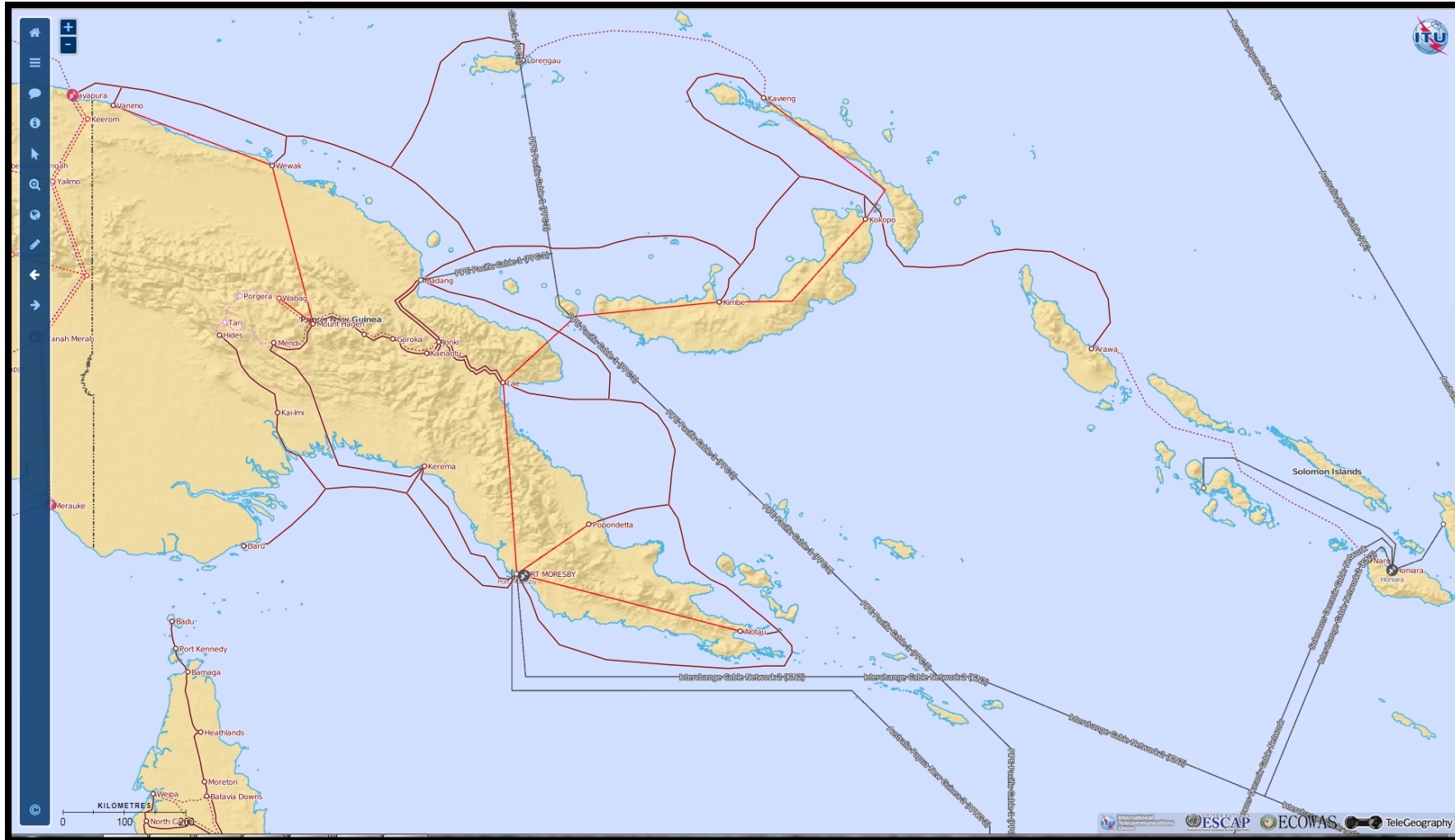
Submarine cable and the Pacific



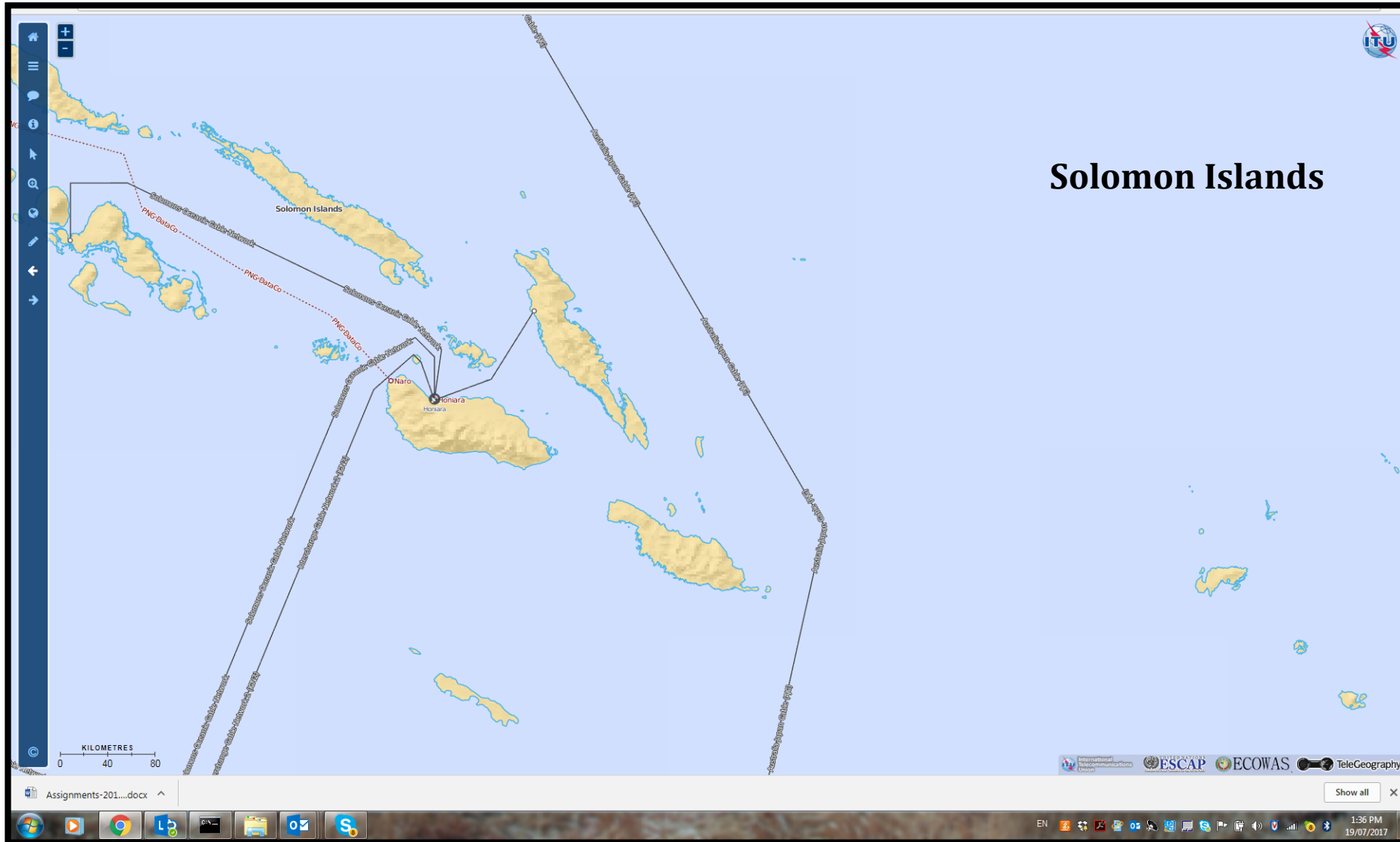
Submarine Cable in the Pacific

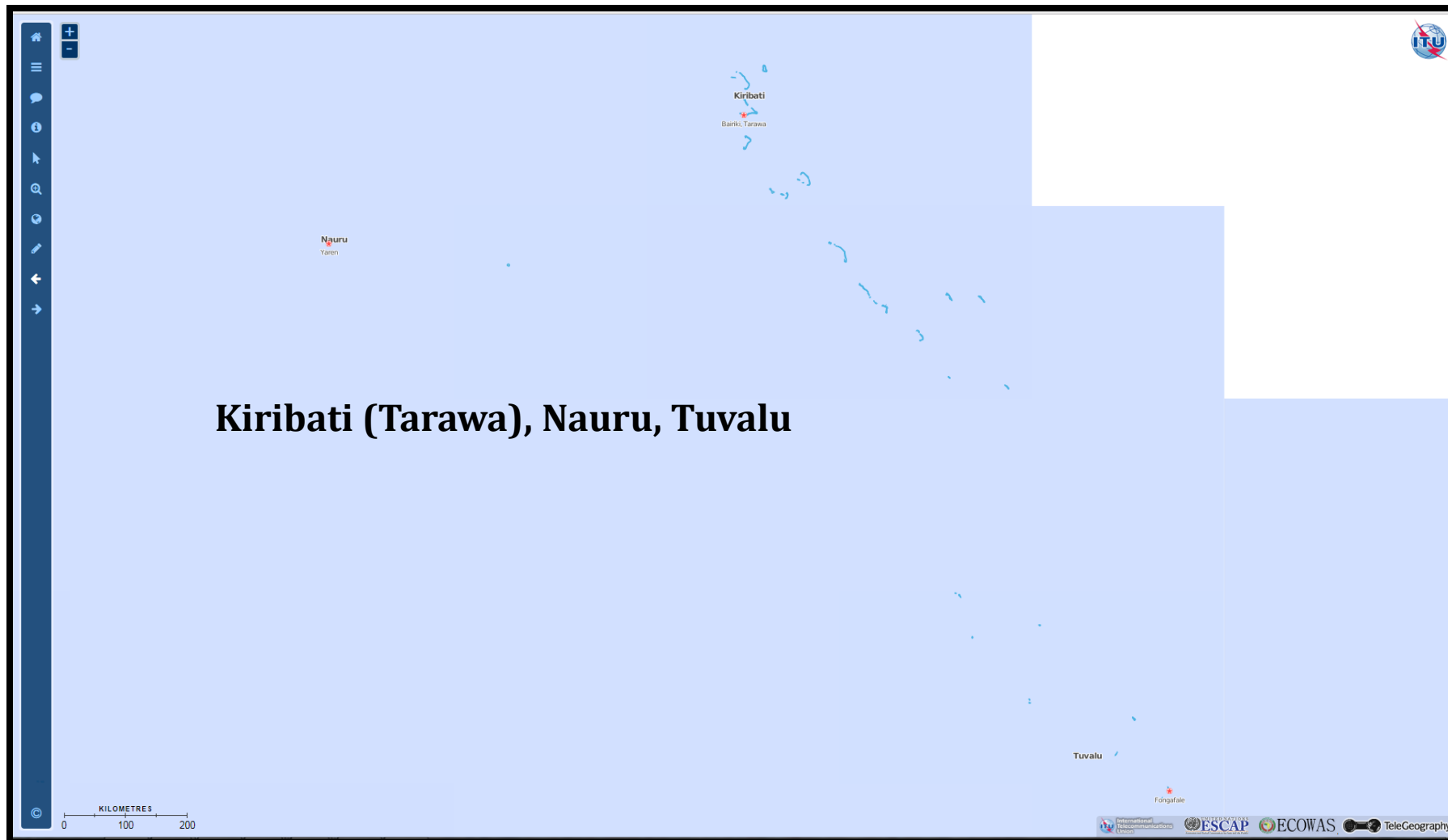




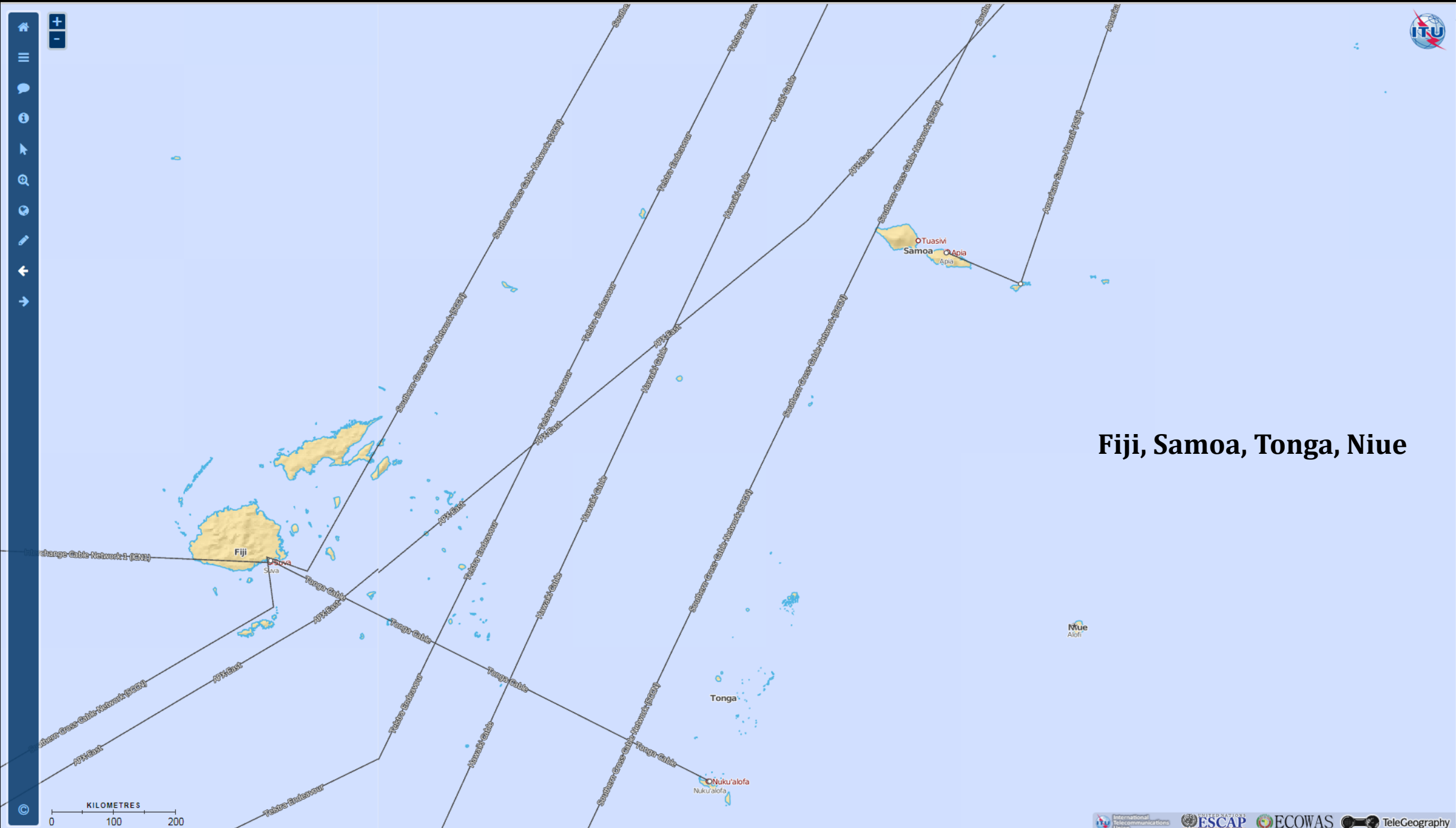


Papua New Guinea and Solomon Islands





Map navigation controls including zoom in (+), zoom out (-), home, layers, search, and other interactive icons.

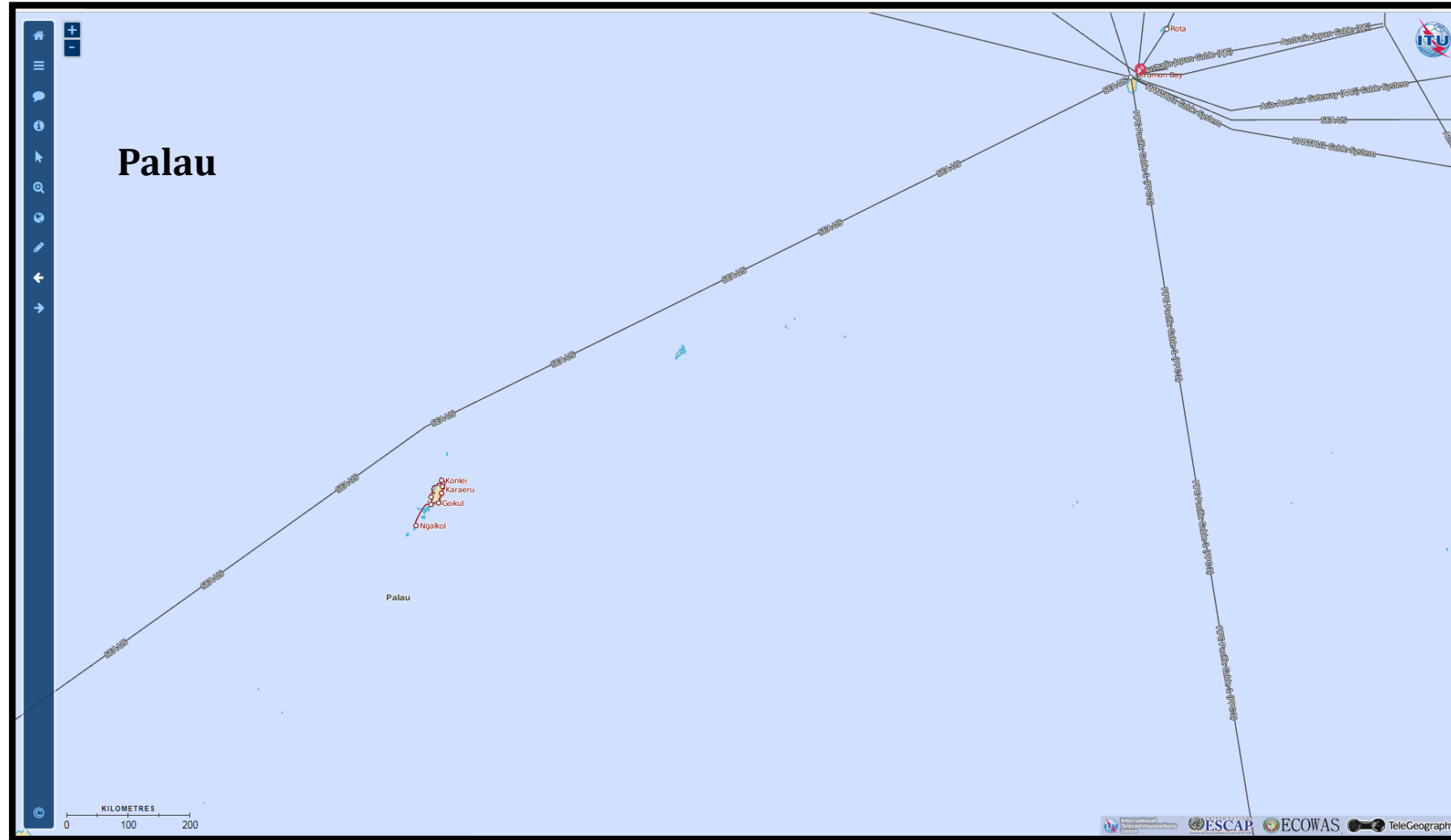


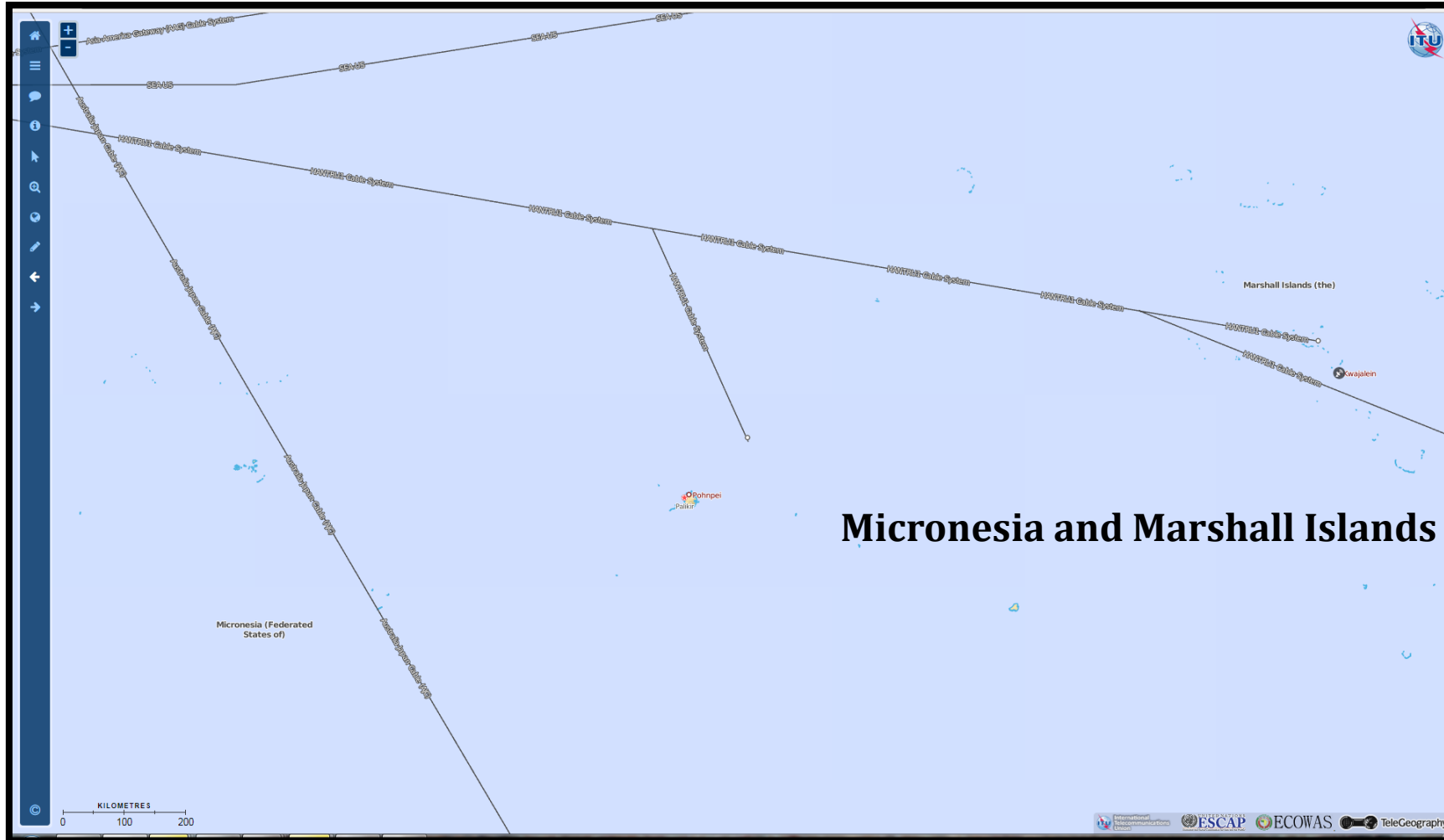
Fiji, Samoa, Tonga, Niue

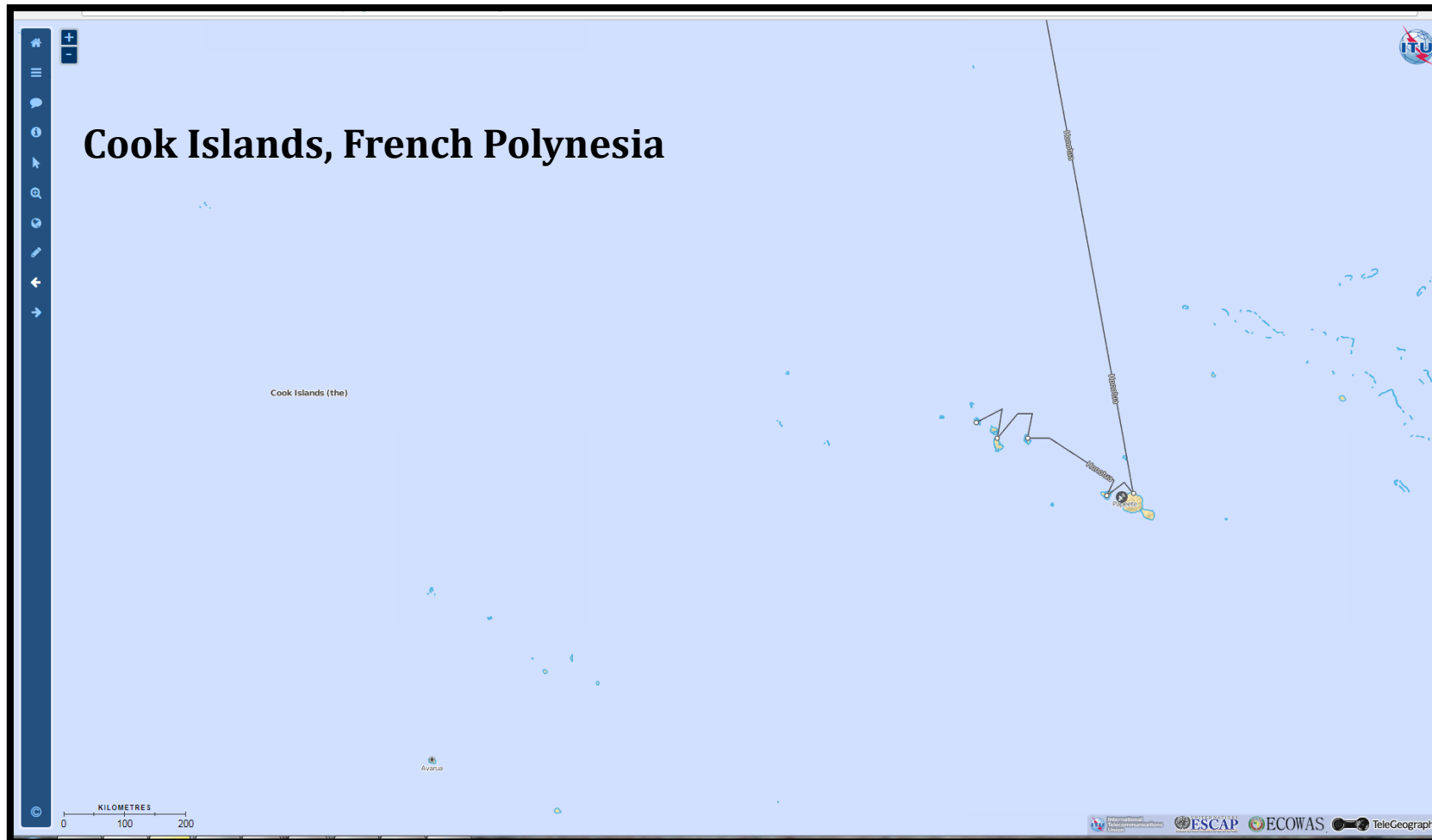
Niue Alofi

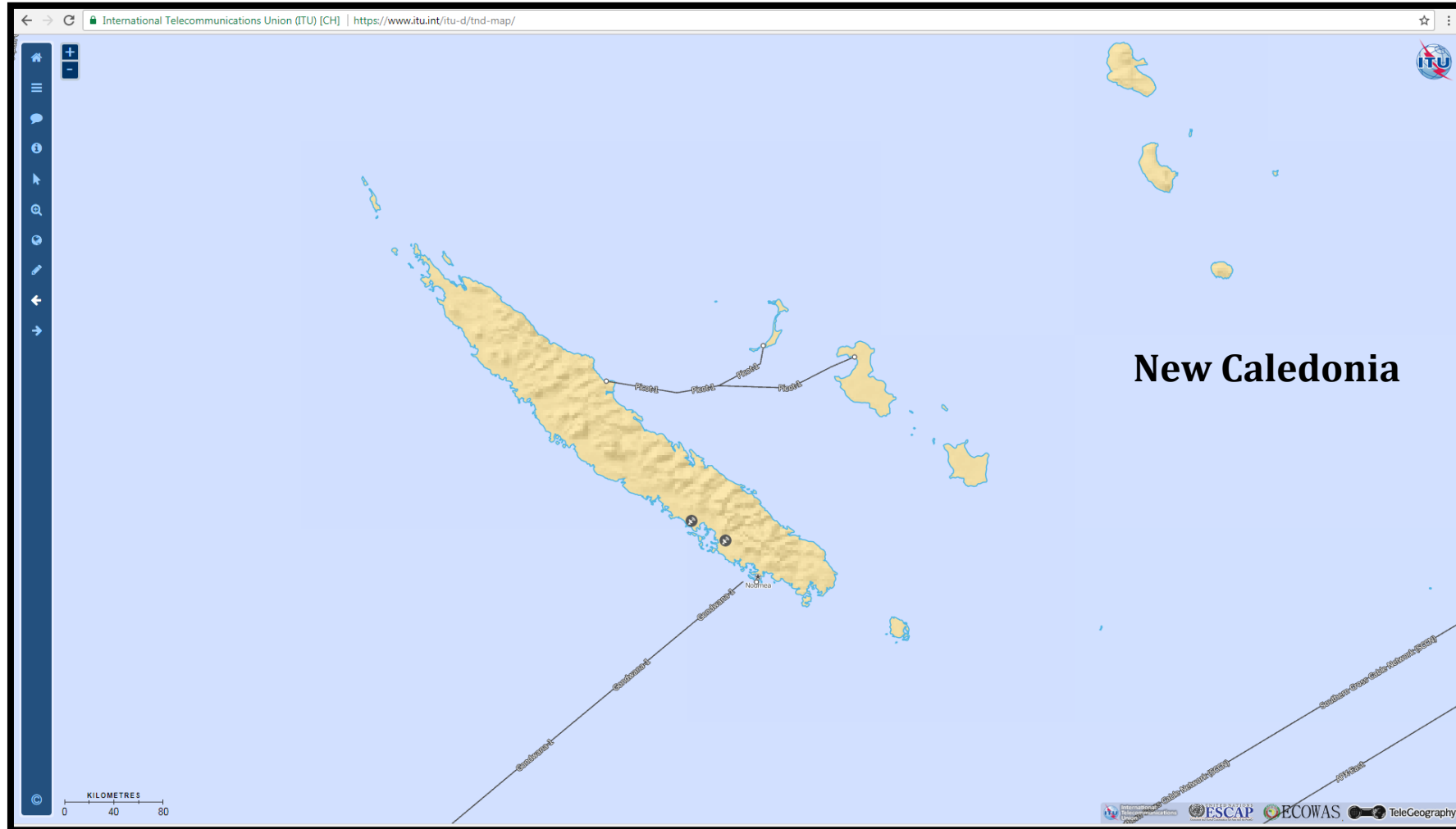


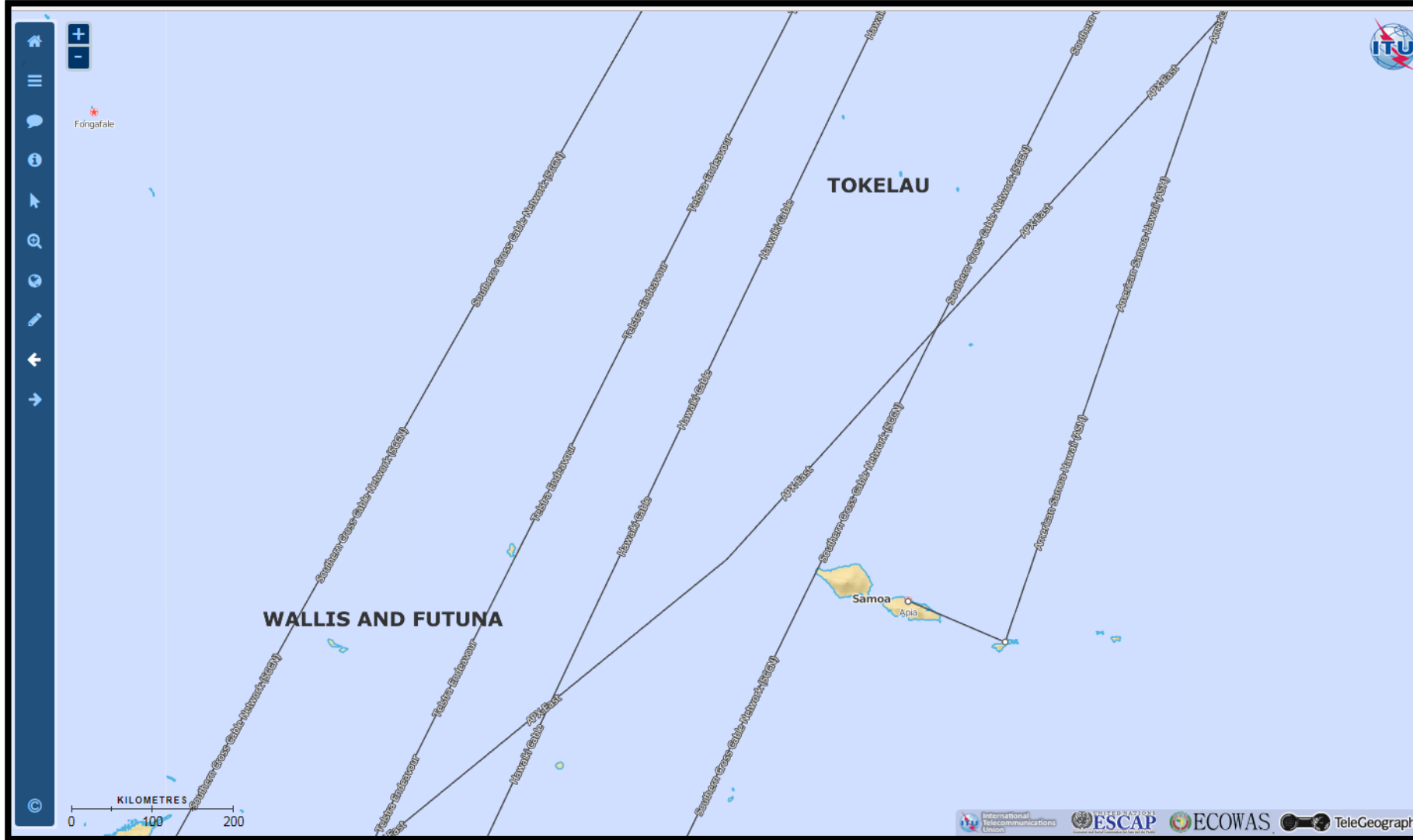
Cook Islands, Niue, Samoa, Tonga

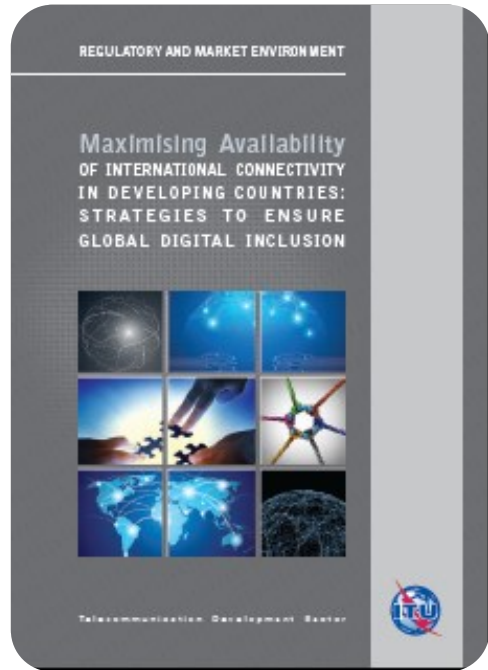












- **Distance and remoteness:**
- **Size:**
- **Scale and scope:**
- **High cost of submarine cables and satellites:**
- **Lack of inter-island sharing: Facilities and services competition:**
- **Information and knowledge:**



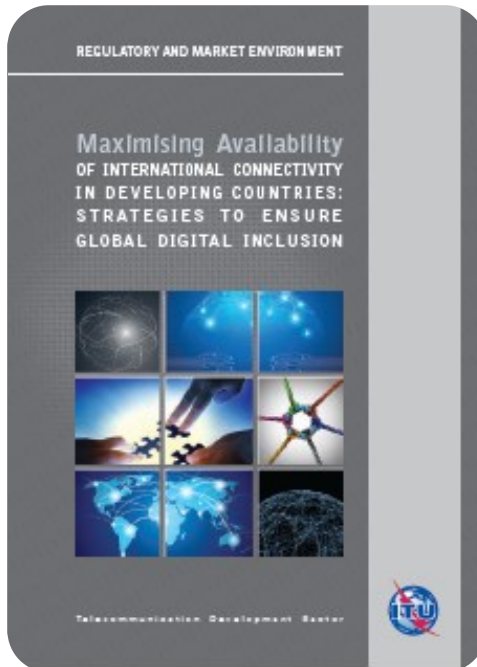
Terrestrial



Satellite



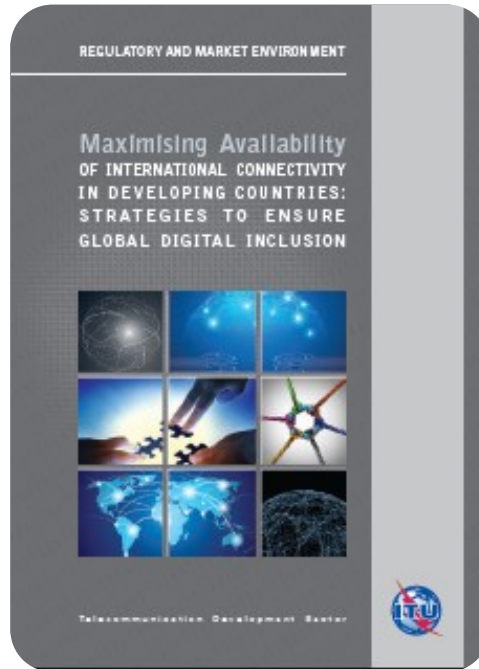
Submarine Cable



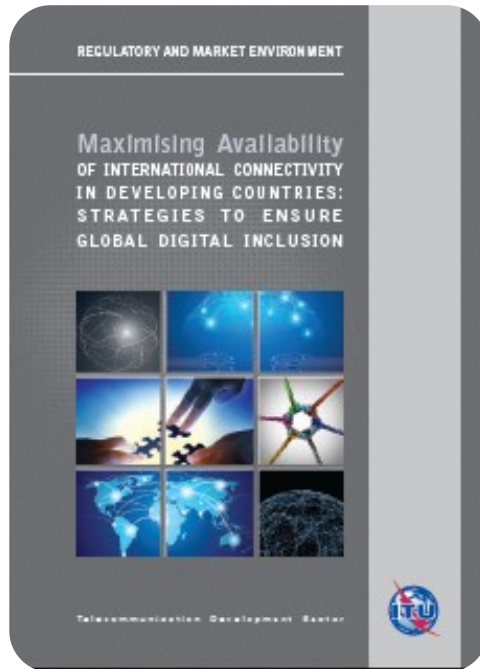
- The uptake of broadband and telephony among the local population:
- The role of the country in providing international capacity to neighbouring states :
- The availability of local applications and content :
- The level of interconnection between local networks:
- The degree of language isolation of the country
- The level of international content blocking



Barriers to connectivity



- **International connectivity projects can be subject to delays :**
- **High cost of cross connects:**
- **Challenges to open access/equal access models:**
- **Landing station fees and local ownership requirements:**



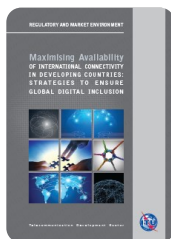
- Easing access to rights of way:
- Addressing land crossing requirements:
- Regional mechanisms to ensure equal access by all network operators:
- Political projects:
- The island-hopping approach
- Regional connectivity initiatives
- Domestic infrastructure and demand building
- Capacity building and innovation
- Special arrangements for landlocked countries
- Ensuring strong regulation to address market dominance



Connectivity Strategy – Building Blocks



Availability of basic infrastructure and openness of markets





Connectivity Strategy – Building Blocks



Institutional
Governance

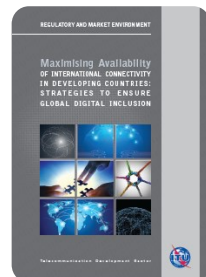
Operational
Support

Information
Sharing and
Capacity Building

Data Gathering

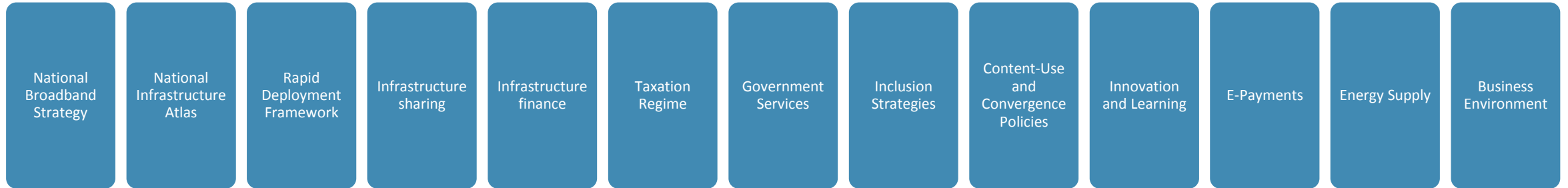
Decision Making

Strength of policy making and regulatory institutions

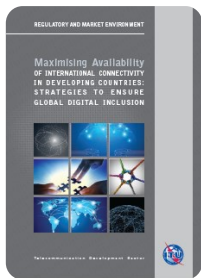




Connectivity Strategy – Building Blocks



Enabling Strategies and Incentive Schemes





Development of Satellite Communications Capacity and Emergency Communications Solutions for Small Islands Developing States of the Pacific



Focus Areas

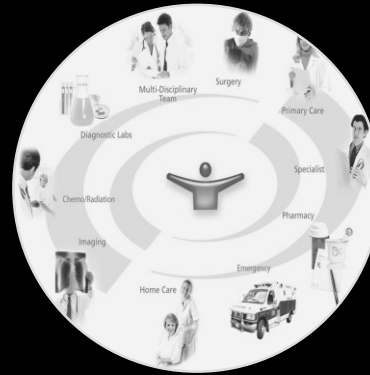
----- *communications* -----



Climate
Information



Early Warning
and Disaster
Response



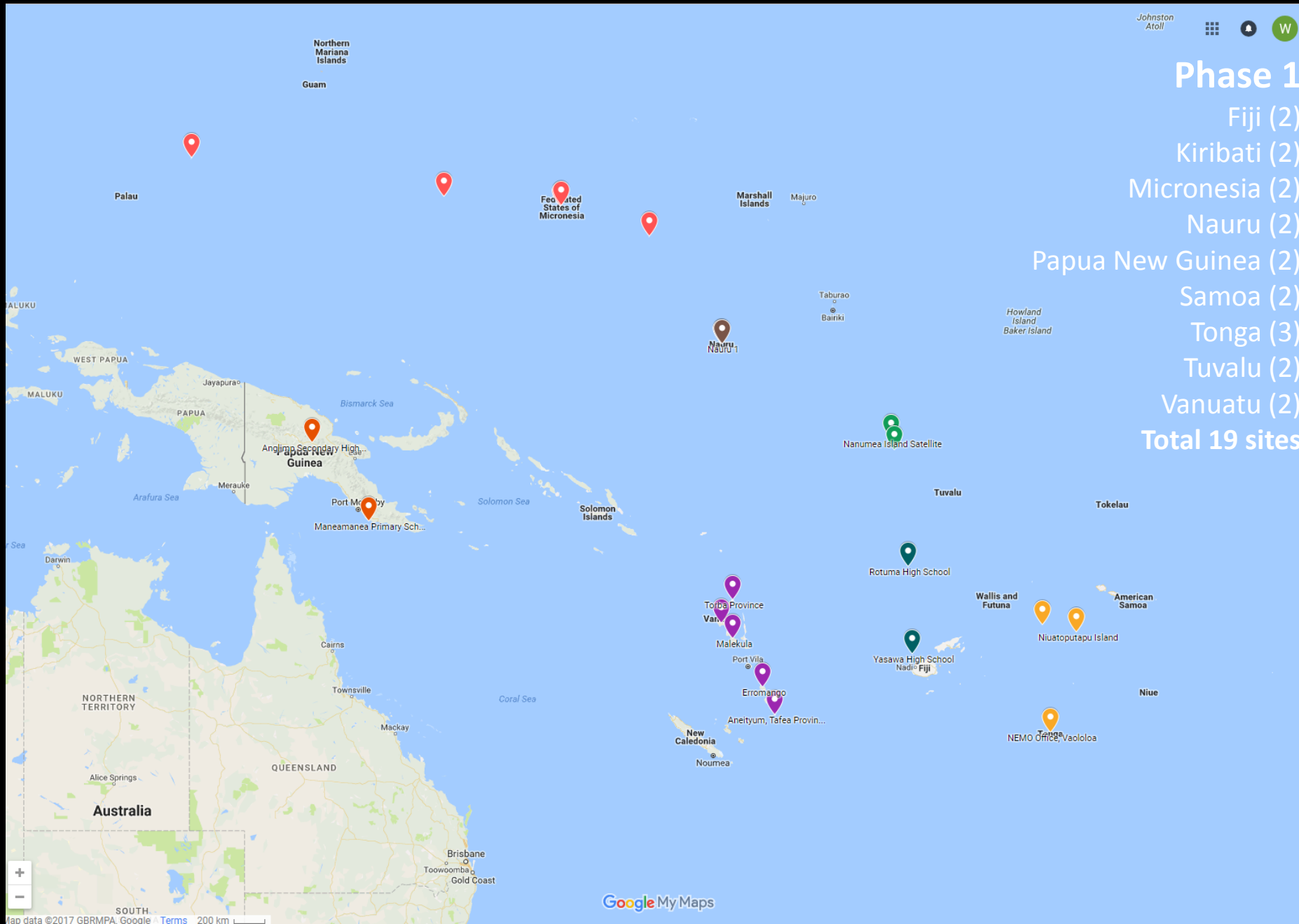
Health
Information



Education

----- *capacity building* -----

.... more



iDirect Evolution X5



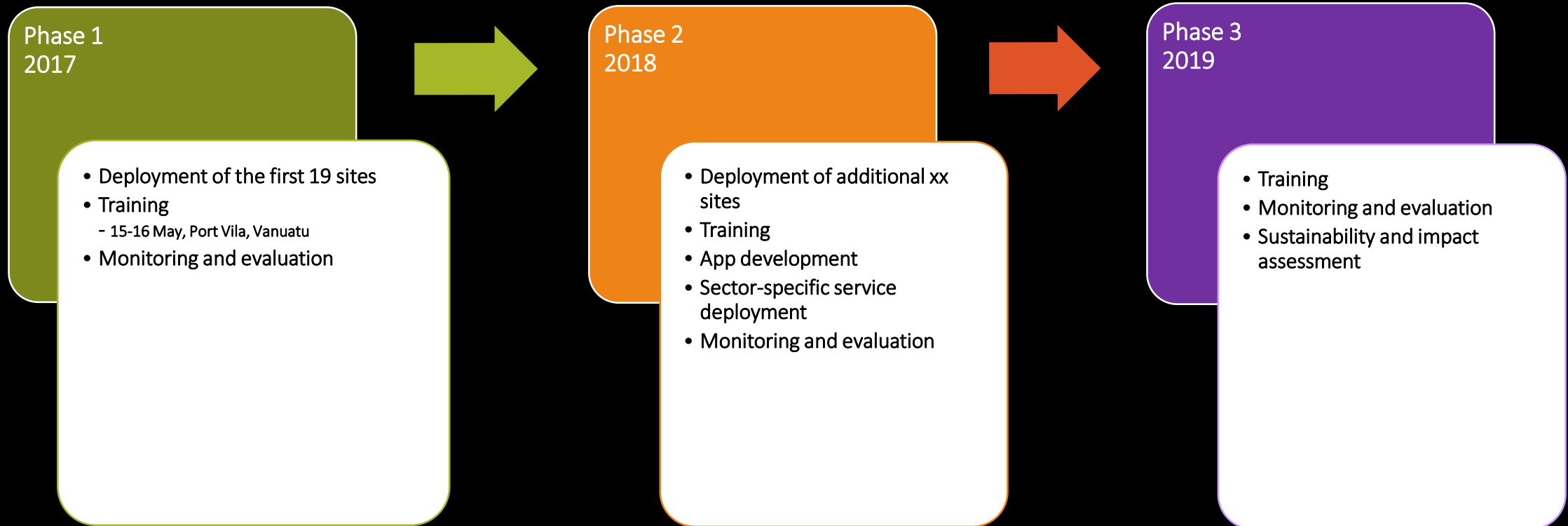
2.4m C-band antenna





ITU's Contribution

- ❑ Upfront seed fund worth US\$ 500,000
- ❑ Project management, knowledge resource, partnership and promotion





Thank You

