
FTTH COUNCIL
ASIA PACIFIC | FIBER TO THE HOME APAC

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SMART CITIES Committee

ITU Meeting July 4-6th 2018
Than Hoa City

Chair : Stephen G. Foster

Best Practices for Fiber Design > Build > Operate

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Established in **March 2005**
Currently has 57 members
6 BoDs, 1 A. Manager and 4 working committees

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Committee Chair

Committees

- Smart Cities
- Membership
- Technology & Regulation
- Education & Training

Key Statistics

363.29 M
FTTH/B subscribers Year-end 2017

520.20 M
FTTH/B Homes Passed Year-end 2017

70.8 %
Avg. Take Up Rate

+22%
Subscriber Growth Rates Dec 2017

111
FTTx projects in Asia-Pacific

Source: IDATE for FTTH Council APAC

Common Smart City Expectations

Smart Cities Asia 2017

- **DEVELOPMENTS**
- **MOBILITY (Transport)**
- **IOT**
- **WATER**
- **ENERGY**
- **WASTE**
- **CITIZENS**

Fibre to The Home Council Asia Pacific has a strong belief

in

SMART CITIES

We have studied many definitions for Smart Cities from a number of other organisations, and after some debate we have Developed our own definition which is primarily based on **Optical Fibre Infrastructure** as a Utility for sharing.

FTTHCAP Definition of a Smart City is :

"A Smart City is an innovative urban area with sustainable economic development, it enables a high quality of life and is equipped with modern infrastructure. It shall contain a fiber rich network which provides a strong foundation to support many other city utilities and to empower the use of ICT for betterment and improvement of well-being for it's citizens."

What do we really mean with this Definition.

- A city must project a long life with a strong future which has the ability to grow
- Infrastructure development must include an optical fiber network as the Utility to enable other utilities to perform to their maximum **Fibre is a Utility to-day**
- This foundation of a fiber network shall support the ICT needs of the growing city.
- All stakeholders in the Smart City will enjoy enhanced sustainable lifestyles.
- Fiber Optic networks are the enabling technology to power the other utilities such as Water supply, Electrical power supply (fossil, nuclear, wind ,wave and Hydro),, Wastewater and sewerage management, security, communication (wireless and fixed).

- **Deep Fiber is the enabling Utility.**

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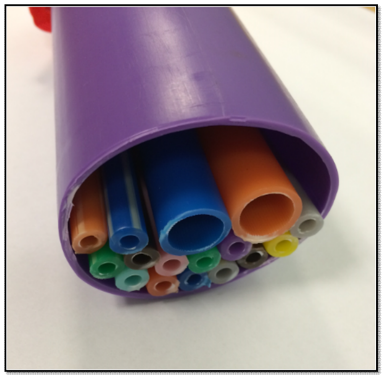
DUCT PROVISION IS A WAY FORWARD TO ENSURE THE INFRASTRUCTURE REQUIRED FOR A SMART CITY IS PROVIDED.

The provision of ducts coupled with innovative engineering /installation methods can produce an effective futureproof solution to help create a smart city, narrow trenching is such a technique

High Aspec ratio ducts
High F count per duct
Installed by Micro trenching



Flexible shape duct to give maximum duct size choice

IDC Smart City Awards 2017

SINGAPORE, Aug 04th, 2017 – IDC Asia/Pacific announced today the winners of the 2017 Smart City Asia Pacific Awards (SCAPA) with New Zealand and Singapore leading the way in the most number of smart city initiatives recognized at four and three, respectively. Other winners include

All smart cities, including those on this list on the **following slide** , are on the journey towards being smarter, but none of them have arrived. Asia Pacific is a region with unique challenges and opportunities in the smart cities arena.

China's cities are growing at an unprecedented pace stressing their infrastructure and creating significant congestion and air contamination challenges. This has lead the national government to support the creation of dozens of new purpose-built smart cities, 100 of which will have over 1 million people in a decade or so.

Seoul, Singapore, Tokyo, Hong Kong, Sydney&Melbourne, Osaka & Kobe, Perth Considered top 10 of Asia Pacific by IDC

Asia Pacific
Review of leading Smart Cities
AWARDS

In 2018/19 FTTHCAP will endeavour to produce a leading smart city list based on Deep fibre achievement. Awards will be aimed at the 2019 Conference in China and special reagional workshops during 2019

FTTH Council Asia-Pacific Activities

- Educate the industry and the general public on the opportunities and benefits of FTTH, FTTB, FTTC, FTTN, FTTA solutions
- Connect the dots between the telecom regulators and telecom industry
- Mission

  To accelerate the adoption of optical fiber access, by all consumers and organizations that provide and use broadband services, through factually based Education and Promotion, in order to enhance the sustainable quality of life.

- Events

FTTx: Fiber Deep

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- FTTH (Home) … to the home or condo unit, then **WiFi** or **G.hn**
- But, we also support
- FTTB (Building) … such as a condo, then copper with **VDSL/G.fast**
- FTTC (Curb) … with G.fast copper or **fixed wireless** 500 m 3.5 GHz
- FTTN (Node) … regional hub
- HFC … hybrid fiber coax with deeper fiber
- FTTA (Antenna)
  - With 3G typically 10 km to the smartphone
  - With 4G typically 2 km to the smartphone
  - With 5G typically 500 m to the smartphone

In all cases we move the fiber close to the user … Fiber Deep

APAC Ranking

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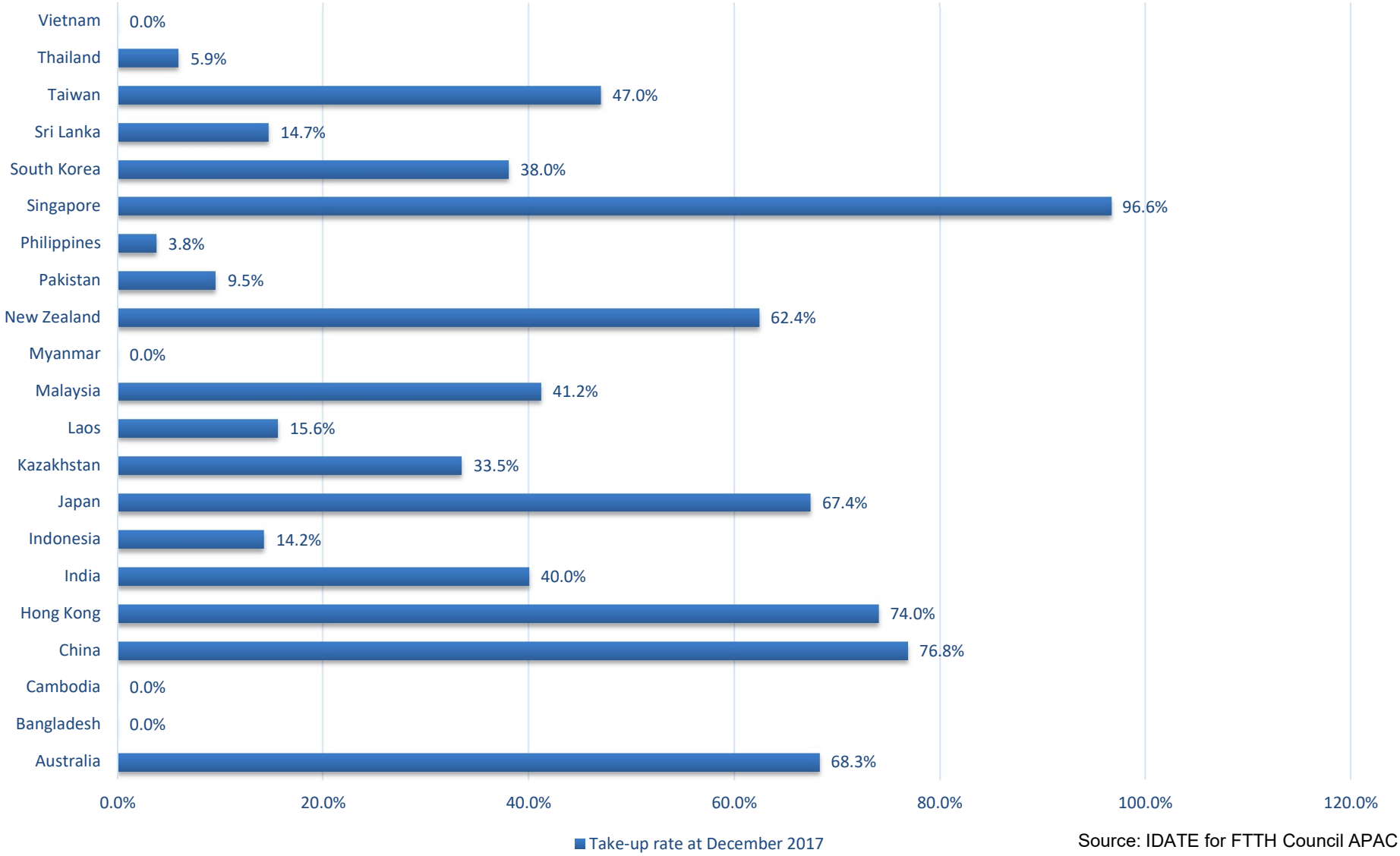
APAC Ranking of FTTH/B subs/homes passed at December 2017



Source: IDATE for FTTH Council APAC

APAC FTTH/B Rankings as of Dec 2017

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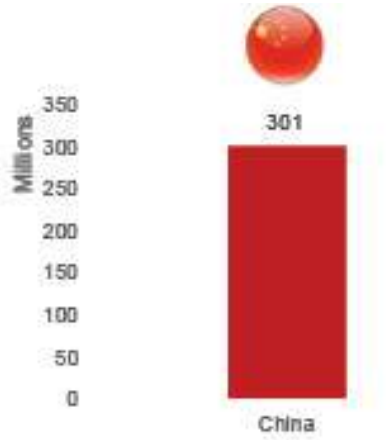
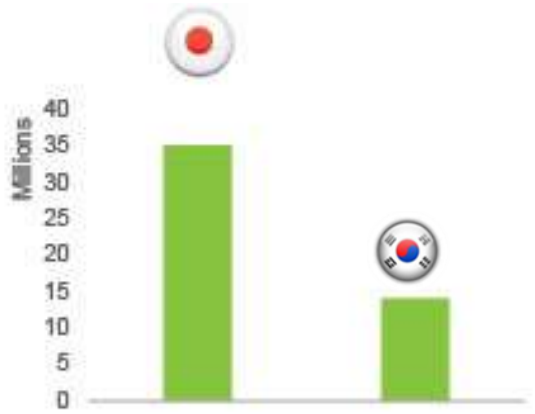
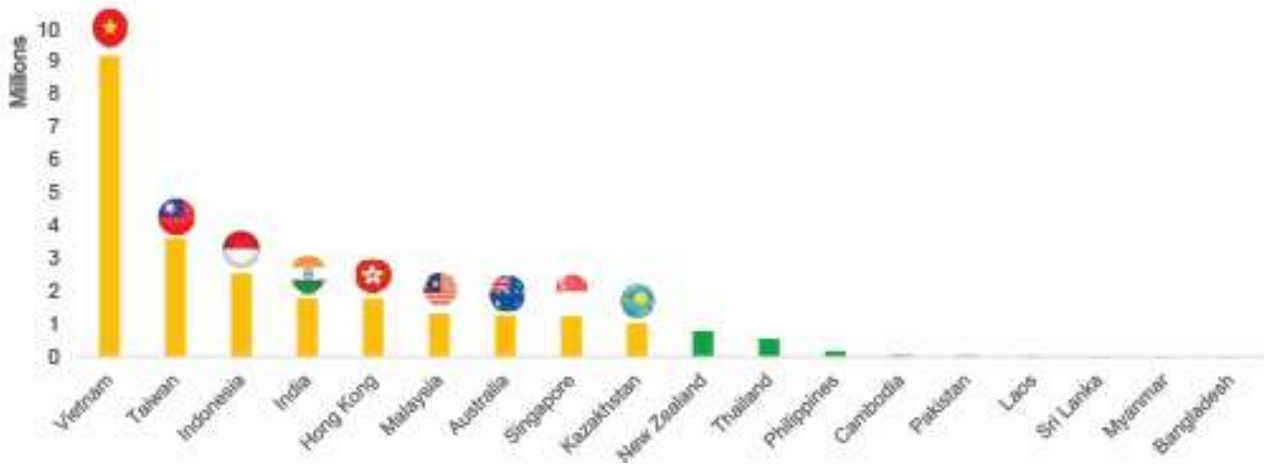
China is also the leader in terms of subscribers far way from other countries



Countries like Japan have more than 35 million subscribers and South Korea could reach more than 14 million subscribers taking into account FTTH and FTTx/LAN



and it can be observed 8 countries that already passed 1 million of FTTH/B subscribers



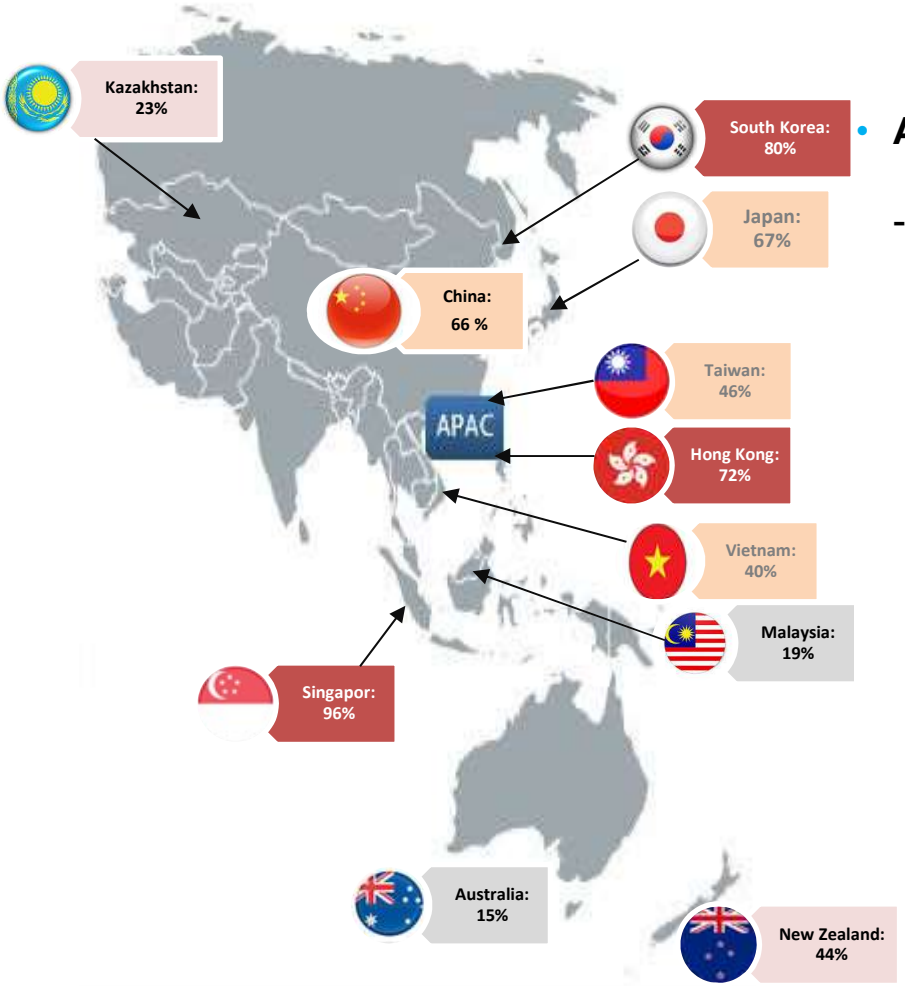
% FTTx Homes Passed of total Households

- **Number of Homes Passed not representative of effective coverage**
- **Here, the ratio represented is % of FTTH/B Homes Passed in total households**
  - 5 countries > 90%
  - 8 countries > 20%

Source: IDATE for FTTH Council APAC

(1) % of FTTH/B Homes Passed in total households

APAC Penetration Rates



Source: IDATE for FTTH Council APAC

(1) % of FTTH/B Homes Passed in total households

- **APAC has continued the trend to deploy FTTH/B**

- 13 countries among in the Global Ranking:

  - 3 countries with a penetration rate > 70%
  - 6 countries with a penetration rate between 20% and 70%
  - 2 countries with a penetration rate > 10%

FTTH/B Growth in end of 2016

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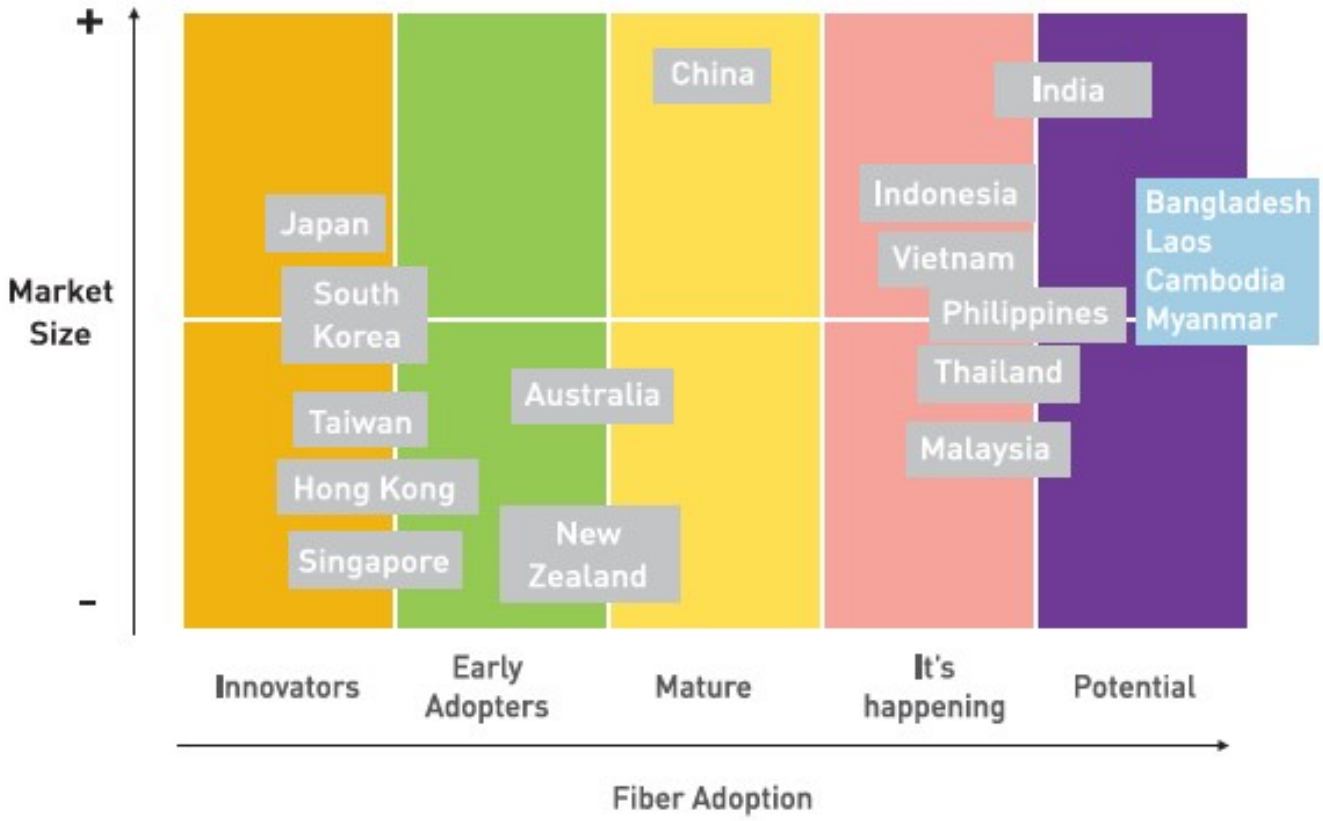
APAC Countries	December 2016	
	FTTH/B subscribers (*)	FTTH/B Homes/Buidings passed
Australia	1,522,928	3,082,760
Bangladesh	1,000	n.a
Cambodia	35,500	n.a.
China	229,800,000	320,000,000
Hong Kong	1,766,000	2,300,000
India	1,269,669	3,846,000
Indonesia	1,730,000	13,245,000
Japan	33,173,000	51,500,000
Kazakhstan	800,000	2,800,000
Laos	13,500	n.a.
Malaysia	1,110,000	2,280,000
Myanmar	7,500	n.a
New Zealand	327,864	1,062,433
Pakistan	29,995	na
Philippines	120,000	2,500,000
Singapore	1,149,200	1,210,000
South Korea	15,160,210	17,500,000
Sri Lanka	45,000	70,000
Taiwan	3,538,652	7,500,000
Thailand	342,750	7,602,000
Vietnam	5,980,000	n.a
TOTAL FTTH/B (*)	**297,922,768**	**436,498,193**

FTTH/B APAC Markets evolution



Source: IDATE for FTTH Council APAC

Market Trends

- Based on the size of the market, China is the main worldwide market in terms of number of subscribers
  - 3 players involved on this market,
  - By end 2016 China Telecom and China Unicom are the leaders with respectively 106 and 85 million subscribers
  - The market level is in line with the **Government's objectives** in terms of subscriptions, and higher in terms of coverage (300 M HP at end 2020)

- Japan and South Korea are the historical leaders
  - The markets are still growing but at a lower pace (Japan +22% and South Korea +6% subscribers in 2016)
  - Coverage is exhaustive in both countries and the growth is now supported by the switch of end users from one access technology to another

- Australia, New Zealand and Thailand with the highest growths in terms of subscribers
  - **National program** in Australia an New Zealand, with dedicated players involved in the rollout of the new infrastructure and in the commercialization of the new network
  - Thailand with fast evolution with its operator in the FTTH deployment and adoption

- Other significant markets:
  - Indonesia, Taiwan then India and Philippines progressing

Challenges and drivers for FTTH

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- Demography: a huge market potential
  - India and China are the most populated countries in the world
  - MDUs are dominating in large cities especially in China
  - A huge potential of 550 M population: Bangladesh, Philippines, Vietnam and Pakistan

- Low competition from other xDSL or Cable networks
  - The "**quality gap**" between copper and fibre networks is important: end users need fibre for higher bandwidth
  - **Cablecos** are less dominating the broadband market than in Europe or in the US … and it's not going to change for now (SARFT in China)….a few exceptions like in India

- A key driver for mass market migration in APAC: NBN programs… the NZ success, now followed by the Australian one

- Incumbents leading rollouts in APAC but also some free room for new entrants
  - Some incumbents are deeply involved in national FTTH/B deployments (Philippines: PLDT accelerating now, Indonesia, Malaysia)
  - New entrants in large countries (India), mature markets (HK) or emerging markets (Vietnam)

- APAC Fiber dynamic is also being pushed by Mobile demands…
  - Fiber for mobile Backhaul : LTE and metro / small cells … and 5G coming soon in APAC !!

Technology & Regulation Committee

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Last year's activities for white papers / guidelines / best practices

- **Customer Premises Optical Connectivity Solutions** (White paper issued during Bangkok conference, May 2016)

- **FCGA - Global Technology Committee** established last year. FCGA is the platform for cooperation of the five global FTTH Councils to share a common goal: to ensure that regional efforts are combined with the power of global cooperation.

- **Definition of Terms**… Published on FTTH APAC website by August 2016 (by FTTH Council Global Alliance – FCGA)

White Paper for 2017

- **Fiber for 5G – FTTA/antenna**… Has been published during 2017 Annual Conference

Smart Cities Committee

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- Smart City definition based upon an optical fiber infrastructure as a utility corridor to build services such as e-Gov, IoT, IoE, FTTx …
- FTTH/home, FTTB/building, FTTC/curb for fixed wireless, FTTA/antenna
- **White Paper for 2017**

Education & Training Committee

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Council Endorsed Training Partners

- KABEX (Malaysia)
- ETEC (New Zealand)
- NTT (Japan)

Courses:

Fundamentals of Fiber Optics
Fiber Optics Hands On
FTTH Testing and Commissioning
Safety Requirements
Optical Splicing

Council Liaisons

ITU

Regulatory policy

TMForum

Fiber as a Service

TR259 – “Smart City Maturity and Benchmar

Council White Papers

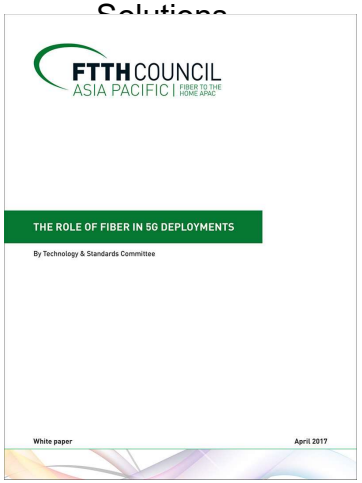
FTTH Council Asia-Pacific's Committees regularly produce technical papers which can be downloaded from the Council website.

Fiber as a Service

Customer Premises Optical Connectivity Solutions

Smart Cities Committee Paper 1

Smart Cities Committee Paper 2



Role of Fiber in 5G Deployment

Smart Cities Committee Paper 3

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FTTHAP Conference 2019
Wuhan China
Date to be confirmed April /May 2019

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END SLIDE